

MODELING SON PREFERENCE IN PAKISTAN

by

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ABSTRACT

MODELING SON PREFERNCE IN PAKISTAN

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Gender has become one of the most politicized issues in South Asian countries over the past 100 years. They were expected to cook for the family, clean the house, feed their children, look after all family members, and give birth to a male child. When a woman gave birth to a male child she was considered very respectable in the family. Son preference is one of the oldest issues in most societies, with males given preferential treatment over females. In spite of the rapid advancement in education and communication, the desire for a son continues to remain (NIPS, 1992). Sons are usually preferred as they are considered a symbol of prestige for their families. Sons, not daughters, carry the family name and keep the family intact. This is one reason women are pressured to continue to give birth until they deliver a boy. In Pakistan discrimination against the girl child is a function of cultural and economic factors. In a culture where son preference exists, scarcity of resources may heighten the discrimination against females. The objective of this study of son preference is to investigate the effects of social structural factors, such as type of place (Urban, Rural), family type (extended or non-extended), women education, agricultural and non agricultural households, inter-cousin marriages, sex composition of surviving children, husband's level of education, and age at marriage. Finally, I investigated the effect of changes in social structural factors on changes in son preference behavior in Pakistan.

Data for this study are from Pakistan Demographic and Health Survey (PDHS) 1990-1991 and 2006-2007. Both surveys cover the entire country and provide sufficient information about family structure, fertility trends, socio-economic background, literacy level and respondent's attitude toward son preference. The analysis was conducted by using secondary data. This study used the Pakistan Demographic and Health Survey (PDHS) conducted in 1991-1992 and 2006-2007 as a source of data. The PDHS collects a wide range of data about population and health issues and includes questions regarding gender preference for children in 1992. The PDHS 1990-1991 and 2006-2007 provides information about population characteristics such as (1) urban and rural background of the respondents, (2) educational level of husband and wife, (3) age difference between husband and wife at the time of marriage, (4) age of female at the time of marriage, (5) family size preference, (6) Agricultural and non agricultural background, and (7) type of family. The universe is four provinces of Pakistan. . For the 1991-1992 survey a total of 6,611 households were selected for the women's sample. The target was ever-married women, ages 15-49. Sample size of 10,023 respondents is married women, ages 15-49. Four provinces of Pakistan are included in the sample. The dependent variable in this study is son preference. In this study type of place, type of family, women educational level, age difference between husband and wife, agricultural and non agricultural households and inter-cousin marriages have been selected as the predictive variables while region, (Punjab, Sindh, NWF), sexcomposition of surviving children and husband education constitute the control variables.

This research has found that son preference has increased in Pakistan during 1990 to 2007. Almost 10% increase in son preference can be seen in Pakistan between 1990 until 2007. In 1990-1991 son preference ratio was 38.3% and increased in 2006-2007 to 47.5%.

The phi-coefficient measures the degree of association between dichotomous variables in the study. The phi-coefficient indicates that there is a significant compositional change in almost all the variables since 1991-2007, but the magnitude of that association is very weak.

Decomposition of variables indicates that almost all changes with respect to son preference in the population are due to affect changes in variables rather than compositional changes during 1991-2007. Though there is an increase in son preference behavior in Pakistan in last 15 years, this increase is not uniform across all population sub-groups. The study found that among urban, educated and non-agricultural household women, the son –preference was significantly lower than the rest. But the magnitude of this change is very low and the proportion of that population is very small. That is the reason they have not had a larger impact in terms of reducing son preference.

This study will help to improve gender discrimination in Pakistan. This research can also provide guidelines for economic policymakers to introduce such policies that create more earning opportunities for females, because it is observed that household wealth decreases son preference (Seker & Hatti, 2010). This research will provide guidance to social workers to start programs that create mass awareness among people with special emphasis on cultural misconceptions. This study also severs as road sign for further research in this area and can therefore be replicated.

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CHAPTER 1

INTRODUCTION

Throughout the 20th century the debate on women's rights and women's roles in society has been closely interlinked with a nation's destiny. Women not only carry the burden of symbolizing the honor of the family, but often are seen as embodying the national honor as well. All pre-industrial societies emphasize childbearing and child rearing as women's central goal and their most important function in life. Along with tasks such as food production and preparation at home, very few women enjoy the freedom to seek education. A majority of them are viewed as second-class citizens and this view is justified by the biological differences between the two sexes. In most developing countries girls receive less food, health care and education than boys (Mazurana & Mackay, 2001). Families dissuade young girls from acquiring an education, seeing it as an unnecessary preparation for a life of caring for a husband and children after marriage. This causes parents to see the education of females as a waste of money, since investment in female children is viewed as unimportant. It would be equated with investing in someone else's family (Togo, 1996; Nigeria, 1997).

Son preference is one of the oldest issues in most societies, with males given preferential treatment over females. In spite of the rapid advancement in education and communication, the desire for a son continues to remain (NIPS, 1992). Sons are usually preferred as they are considered a symbol of prestige for their families. Sons, not daughters, carry the family name and keep the family intact. This is one reason women are pressured to continue to give birth until they deliver a boy. Women historically were not accepted and did not get proper regard in their husband's families until and unless they had a son (Saha & Saha, 1998). Son preference may vary from place to place and society to society depending upon the cultural setup, beliefs, literacy, and economic conditions.

1.1 Son Preferences in South Asia

Son preference exists in South Asia almost exclusively (Bairagi & Langsten, 1986). Vlasoff (1990), Ahmed (1971) and Arnold (1997) report a higher ratio of son preference over daughters in most Asian countries. Scholars have observed this fact in India through sex-selective abortions, which lead to abnormally high sex ratios at birth, thus strongly impacting women's health (Arnold, Kishor, & Roy, 2002). In Pakistan boys are expected to support their parents in old age (while girls, due to their transitory role in the family, are not obliged to perform) and to become economic assets for the family (Ali, 1989). In south Asian societies, especially in India, Pakistan, and Bangladesh, parents live with their sons in their old age. These are the main reasons why boys are considered to be more precious than girls. In Hindu culture only sons can perform the funeral ritual of parents. Recent data from Pakistan confirms the continued desire for sons (NIPS, 1992).

1.2 Son Preference in Pakistan

The Pakistan Demographic and Health survey of 1990-1991 shows that one-third of women with no children have a desire to have a son, while the preference to have a daughter is negligible. Among those who have two daughters and no son, almost all (93%) want their next child to be a boy (Safdar, Shrif, Hussain, & Rasheed, 2007).

Also adding to the mix of prejudice and discrimination of daughters is that female child mortality rate is higher than male child mortality after the neonatal period. There is pronounced sex discrimination in terms of allocation of food and healthcare in favor of male children (Chen et al, 1981). In South Asia a number of surveys indicate that parents want more sons than daughters (Gupta, 1987). Studies report excess mortality, linked to association and family type, among females in India, Pakistan, and Bangladesh. (Chen, 1982; Miller, 1984; Koenig & D'Souza, 1986; Das Gupta, 1987; Bairagi, 1988; Stanton & Clements, 1988; Bhuiya & Streatfield, 1991; Bourne & Walker, 1991; Muhuri & Preston, 1991). In Pakistan discrimination against the girl child is a function of cultural and economic factors. In a culture where son preference exists,

scarcity of resources may heighten the discrimination against females (Das Gupta, 1987). Parents often think that daughters will usually move to her in-laws after marriage, so having an investment in a girl child is unproductive. In their view, educating girls is like planting seeds in a neighbor's garden (Levine & Kevane, 2002). As this concept is explained in Pakistan, "Daughters are destined to be 'other people's property' " (Pakistan, 1996). Sons, on the other hand, are considered to be assets worthy of both short- and long-term investment (Sekher & Hatti, 2010).

Such explanations do not adequately focus on the structural context of son preference. Most previous studies focus on the description of the differences between sons and daughters and do not attempt to explore the factors behind this discrimination for son preference.

1.3 Research Objectives

Most prior research has studied the extent of son preference only through observable behavior measures (e.g., imbalance in sex ratios, sex differentials in infant/child mortality, and gender disparity in the health and well-being of children). Studies have also examined son preference in terms of parity progression, and the contraceptive use of women with certain sex compositions of surviving children. While gender preference has been rigorously examined through these behavioral measures, attitudinal measures of gender preferences for children are much less systematically analyzed. Furthermore, very few studies attempt to either replicate or attempt to test proposed models of son preference, using multiple data sets. This study will address this methodological gap by testing the proposed model of son preference with multiple data sets.

The objective of this study of son preference is to investigate the effects of social structural factors, such as family type and social power differences, when there is a difference in husband's and wife's ages. Finally, when changes take place, I will investigate the effect social structural factors have on son preference.

1.4 Significance of the Study

A number of son preference studies in Pakistan are either descriptive or tend to suggest that son preference is due predominantly to a single factor such as employment in the agricultural sector (Sathar, Crook, Callum & Qazi, 1988). In an agricultural country like Pakistan, the value of child labor enhances the demand for a large number of male children to work in the fields. Most Pakistani households view children as the most stable and durable form of social and economic security (Sathar & Kazi 1997). A son provides help on family farms whereas daughters have much less to offer. The reason behind this is the belief that men are stronger, can work harder in the fields, and will look after parents in old age (Gupta et al., 2003).

The majority of the Pakistani population lives in rural areas where the literacy level is very low, the educational sector is largely neglected, and the rural population is engaged in agriculture. They demand labor input from more sons. Pakistan remains a feudal and agricultural society with strong bonds of caste and family (Sathar, 2001). Neglect of female children is due to low participation of females in agriculture and income generating activities. Females are more disadvantaged in terms of employment in areas of dry land cultivation, as compared to wet land cultivation (Bardhan, 1974, 1982, 1984). Discrimination against women is linked to their exclusion from holding immovable property, particularly land (Miller, 1981). While such explanations are useful, there is a lack of adequate theoretical development with respect to the phenomenon of son preference in Pakistan

In addition, there are very few longitudinal studies on son preference in Pakistan. Most previous studies are descriptive and only explain how son preference is maintained. Though it is well known that the Pakistani population has become increasingly modernized during the last three or four decades, the effect of such vast social changes on son preference remains virtually uninvestigated.

This study will address the gaps in research on son preference in Pakistan discussed above. This study addresses the son preference from five theoretical perspectives: theory of

intergenerational wealth flow (Cladwell,1976), modernization (Macunovich, 2000), human capital (Becker, 1964), economic theory of fertility decline (Becker & Barro, 1996), and social change (Ryder, 1965). Unlike other studies that have examined son preference during a specific time period, this is a longitudinal study that describes changes in son preference between 1991 and 2007. Since very few studies on son preference in Pakistan are grounded in theory, use of multiple theories in this research not only gives it an added empirical advantage but also reduces the limitations that usually arises when a researcher use a single theory. The theoretical context of caldwell's theory of intergenerational wealth flow, modernization theory, human capital theory and social change theory are used to describe change in son preference behavior in Pakistan over the past decade.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Gender has become one of the most politicized issues in South Asian countries over the past 100 years. In the 1940s and 1950s, mother, wife and sister epitomized a woman's role in society. Women's roles were confined to domestic work and they were discouraged from working outside the home. They were expected to cook for the family, clean the house, feed their children, look after all family members, and give birth to a male child. When a woman gave birth to a male child she was considered very respectable in the family. There is discrimination against daughters often reflected by poor food allocation and restricted access to health services. As a result, they suffer a high mortality rate, especially in the first four years of their lives (Hussain, Fikree, & Berendes, 2000). Men's attitude, behavior, economic status, social and cultural values, religious beliefs, and inequality between the two sexes significantly affect women's ability and power to attain positive sexual and reproductive health outcomes. Male dominance, ignorance, misconceptions in religious beliefs, and gender preferential treatment adversely affect women's health and household activities, especially decision-making power. On the other hand, more open and egalitarian communication between men and women, financial autonomy of women, higher education, understanding religious beliefs, and mutual understanding on social and cultural values are beginning to emerge, resulting in more harmony and respect between spouses.

The United Nations convened the Fourth World Conference on Women (1995) in Beijing, China, aimed at achieving greater equality and opportunity for women. The principal themes were the advancement and empowerment of women in relation to women's human rights, women and poverty, women and decision-making, the girl-child, violence against women,

and other areas of concern. The Cairo Plan of Action that followed in 1995 in Beijing further advanced and elaborated these concepts of reproductive health, reproductive rights, gender equality, and empowerment (U.N., 1995, Section 36). Sustainable development was identified as interdependent and mutually reinforcing mechanisms between “economic development, social development and environmental protection” (U.N., 1995, section 36). In the examination of sex differential, child mortality and excess female child mortality was noted in 12 of the 28 countries in Africa (United Nations Secretariat, 1998).

The fifth Millennium Development Goal (MDG) aims to improve maternal health. Two targets set for this goal are to reduce by three-quarters the maternal mortality ratio between 1990 and 2015 and to achieve by 2015 universal access to reproductive health. Six indicators were selected to track progress toward these targets: (1) maternal mortality ratio, (2) proportion of births attended by skilled health personnel, (3) contraceptive prevalence rate, (4) adolescent birth rate, (5) antenatal care coverage, and (6) unmet need for family planning. The third goal of MDG directly focuses on gender empowerment, which is to “promote gender equality and empowering women” (U.N, 2007). The MGD provides a clear cut vision to eliminate gender discrimination, reduces gender disparities in primary and secondary education, and empowers women to take an active part in a decision making process (Kristen, 2002). The United Nations Development Program (UNDP) works with a wide range of partners to help create a coalition for changes. These coalitions support the goals at global, regional and national levels, benchmark progress toward the identified goals, and helps countries such as India, Pakistan, and Bangladesh to build the institutional capacity, policies, and programs needed to achieve the MDG’s goals, especially in the reproductive health sector and in gender inequality.

In 1994 the agenda of The International Conference on Population and Development (ICPD) of reproductive health was declared to be the most comprehensive. That agenda had actually broadened the spectrum of reproductive health and had driven the states to embark upon initiatives to improve the reproductive health status of their population. Pakistan also

shifted the focus of its policies and programs toward conforming to the MDGs agenda, and as a result, the concepts highlighted in the ICPD were dropped. In spite of the specific goals and policy shifts on maternal and child mortalities in the MDGs, Pakistan continued to have one of the highest maternal mortality ratios among developing countries. The lack of synchronized efforts, sector wide approaches, and inter-sector collaboration became prevalent, and the unmet need for family planning and safer abortions, a higher literacy rate, and lack of emphasis on women's empowerment become more apparent. As a signatory of both international agendas (ICPD and MDGs), Pakistan needs to articulate and update its reproductive health policies to maintain balance between the two agendas. There is, however, some common ground that has been implemented in other countries from which we can learn better practices.

Fourteen years after the Beijing conference and eight years after the MDGs, the world is still a long way from meeting these commitments, and goals set for 2015 are beginning to look unachievable. Many regions of the world, especially South Asia, continue to report high levels of maternal mortality, sons are still considered more precious than daughters, and women are still getting poor reproductive health services, all of which reflect inequality in the society. Although women are increasingly working outside the home, males continue to be the primary decision makers in the family.

In most developing countries girls receive less food, health care, and education than boys (Mazuran &, Mackay, 2001). Families discourage and even dissuade young girls from obtaining an education. Parents think that getting education is unnecessary for women. This causes parents to see females' education as a waste of money since they view it as investing in someone else's family (Togo, 1996; Nigeria, 1997). The most common factor behind this attitude is the mental and social perception that sons are more precious and more important than daughters. Parents often think that daughters will move to their in-laws after marriage, so there is no need to invest in them. In their point of view educating girls is like planting seeds in a neighbor's garden (Levine, Kevane, 2002). As this concept is explained in Pakistan, "Daughters

are determined to be 'other people's property' " (Pakistan, 1996). In many Indian communities, daughters are associated with a double loss. First, a daughter leaves the natal family after her marriage and the benefits from investments made on her upbringing benefit the new family, constituting a loss to her natal family. This is further compounded by the burden of expenses for her marriage, particularly her dowry. Sons on the other hand are considered assets worthy of short- and long-term investment (Sekher & Hatti, 2010). It is commonly believed that the distribution of household resources is biased against girls and women, especially in the rural areas. Sons are desired and valued for carrying forward the family name and providing security to their parents in old age. Women with no children or with one or more daughters feel pressured to continue having pregnancies in hopes of producing a son. The review of literature provides an overall synthesis of research conducted in South Asia, eventually narrowing to a continuing study of son preference in Pakistan.

2.2 Review of Theoretical Literature

In most developing countries, especially in South Asia, preference for sons in families is persistent (Williamson, 1976; Arnold & Kuo, 1984; Bairagi & Langsten, 1986; Kent & Larson, 1982; Ali, 1989; Vlassoff, 1990). According to Sheps (1963), every couple wishes for at least two sons. In India people want at least one living son (Das, 1989). In Pakistan the desire for a son cannot be overlooked. Different research on son preference shows that the number of living sons is an indicator of complete family size in Pakistan (Khan & Sirageledin, 1977). Research shows that the number of additional children is definitely influenced by the presence of sons (Ali, 1989; Clark, 2000; Croll, 2002; Bhat & Zavier, 2003).

2.2.1 Male Dominance

The ultimate consequence of son preference is female frustration at males' preferential treatment. Women usually feel ignored and undervalued compared to privileged males in a male dominated society (Hussain, Fikree & Berendes, 2000; Gupta, 1987). In Pakistan it appears that a widespread strong desire for two living sons contributes to a continuing high

pregnancy rate (Sathar, 1994; Ali, 1989; Chowdhury, 1994). The probable reasons for a son preference over daughters could be the males' dominance, their status as earning heads of the households, and intact/shared relations with the son's family as compared to the daughter's (Ali, 1989). Son preference can also result in sex differentials in infant and child mortality. Since female children are biologically less vulnerable than males (Waldron 1983), female children typically have lower mortality rates (Fuse, 2008). Das Gupta and Bhat (1997) estimate 1.3 million additional girls aged 0-6 went 'missing' as indicated by a rise in excess mortality of females between 1981 and 1991, a period when India experienced a rapid decline in fertility. Since sex ratios in child mortality have remained unchanged during this period, this could indicate that these additional missing girls have emerged from unreported infanticides and sex-selective abortions due to the spread of sex-selection technologies. Because men are the sole breadwinners, the role of women has been relegated to that of childrearing. All decision making is in the hands of the husband. Moreover, the freedom of women becomes more restricted as families are extended.

Men and women are the two integral parts of the society influencing developmental and adoption processes. If, however, activities are carefully planned and resources properly utilized, women could share many responsibilities and also income with men. Besides their active involvement in household chores and unpaid services, women play several roles in society. Despite this, they are still treated with a more- or less-discriminatory attitude in different societies of the world. Saha and Saha (1998) find that women are not accepted and do not get proper regard in their husbands' s families until and unless they have a son. Discrimination against females in the allocation of food and reproductive health within households is one of the major problems faced by women in south Asia (Cain, 1984). According to the United Nations Charter regarding women's status, women should have equal access to knowledge, economic resources, reproductive health programs, and political power as well as their personal autonomy in the process of decision making (Anonymous, 1991).

Despite the fact that women could play a major role in the development of society, men still believe that women should be kept away from most activities other than household. This appears to support a belief that women are less wise than men in most of the societies. This idea is supported by the findings of Ahmed (1990), who states that the majority of the respondents in Faisalabad, Pakistan want to keep women within certain limits, feeling that if they become modern and independent, men will lose respect. Male dominance is linked to the negative wellbeing of women (Nussabaum, 2000) because knowing that they need to have sons to get more power in the family, women continue to have pregnancies until this happens. This is called gendered power dynamics (Qadeer, 1998; Pillai & Sunil, 2002, Petchesky & Judd, 2001).

Pakistan is like other Third World countries that have male dominated societies where male members of the family make all the decisions and women's participation in any type of decision making is very low (Sathar, & Kazi, 1990). Government and private organizations encourage women to have increased participation and status in society by providing them education (Saira, Zhira, Sumera, 2005). Pillai and Sunil (2003) posit that fertility decision making within the family is molded by the relatives' influence and the heavily weighted power distribution between husband and wife.

2.2.2 Girls an Economic Burden

Cultural history such as dowries and restrictions of economic activities for women give parents an incentive for sons (Lundberg, 2005). Dowry and wealth flowing from the bride's family to the groom's family has become a common practice in all castes and communities. This has put a heavy burden on the girl's family in arranging for a dowry demanded by the boy's family, this in addition to meeting increasing marriage expenses (Sekher, Hatti, 2006; Hussain, Fikree, & Berends, 2000; Ali 1989, Sadfer, Shrif, Hussain , & Arasheed, 2007). If a family is unable to provide the required dowry to the groom's family then the bride's parents may face undesirable consequences. The costs of daughters' weddings are a major drain on household resources in India, and there is growing evidence of dowry inflation (Rao, 1993). The dowry

factor clearly shows why girls are not always welcome in the family and why parents prefer boys. Nag (1991) and Ali (1989) report that a daughter's birth in Bangladesh, India, and Pakistan is regarded as bringing neither benefit nor prestige to the family. Rather it is considered an economic liability because of the dowry system and the high cost of a female's wedding. In India and Pakistani, the birth of a boy brings about an occasion for celebration, whereas a birth of a daughter is often viewed as time of crisis. In India until recently, billboards messages promised " Invest Rs)rupees) 500 now, save 50,000 later" encouraging prospective parents to abort female fetuses in order to avoid dowry expenses (Westley & Choe, 2007). Another reason for considering girls as an economic burden is related to the low participation of females in agriculture and income- generating activities (Bardhan, 1974, 1982, 1984).

2.2.3 Low Use of Contraceptives

The desire for sons is associated with low contraceptive use in Pakistan (Safdar, Sharif, Hussain, & Rasheed, 2007). Although there is evidence of some change in attitude, the high value of sons is a key hindrance to family planning (Safdar, Sharif, Hussain, & Rasheed, 2007). More evidence of change is needed to redesign the family planning program to better meet the needs of the population (Zafar, 2002). First, a surviving son can fulfill the key parental grounds for son preference, such as meeting the economic, social and emotional needs of parents in their old age and carrying the family name. Second, the economic implication of providing dowries for three or more daughters is a daunting prospect, especially in low income families, and needs to be readdressed (Hussain, Fikree, & Berendes, 2000).

Beginning in the 1950s Pakistan, one of the most populated developing countries, was a pioneer in supporting and implementing family planning activities (Qureshi & Adamchak, 1996). Total fertility rates, however, remained high at or near 7.0 births per woman until rates began to decline; in 1994 the fertility rate was 5.4 births per woman (Curtis & Arnold, 1994). The results of the Pakistan Demographic and Health Survey (PDHS) 2006-2007 shows that there has been a decline in the total fertility rate from 5.4 to 4.1, a drop of over one child per family in

the past 16 years. This recent decline is unusual, particularly because the traditional social structure largely supports a natural fertility state in which the vast majority of women do not use any method of birth control (Qureshi & Adamchak, 1996). Fertility can be viewed as a social behavior, regulated in part by the cultural practices of a society, and it is important to understand this link. Fertility and culture are associated and the culture of a society is affected by its level of socioeconomic development. In order to understand fertility patterns of a society, it is important to analyze the relationship between development, culture, and fertility needs.

Fear of detrimental side effects is another major factor that affects the use of contraception; the majority of women are simply not aware of the various methods. Ignorance and fear of detrimental health side effects are the primary factors affecting contraceptive use, with side effects being the most critical (Manzoor, 1991). The Population Council of Pakistan (1977) reported fear of detrimental health side effects as the major factor affecting contraceptive adoption, and agreed that the majority of women were reluctant to use pills or other methods of contraception, believing they were hazardous to their health. Out of the total women interviewed, about one-fourth had discontinued the use of contraception because of the fear of its adverse health side effects (Mehbook, 1994). This is the most crucial issue and needs special attention. Without rectifying this fallacy, adoption of contraceptives will continue to move very slowly. It is imperative that wives, and especially husbands, are educated, on this particular issue, because pregnancies are often more hazardous to women's health than contraception.

Countries where family planning programs are tightly focused on reducing the number of children per woman, son preference becomes paramount (Gu, 1994). This is especially true in countries where couples are restricted to having one child. In societies with a strong preference for sons, couples who plan to have three children may ideally want two sons and one daughter. But as fertility choices narrow, couples may plan to have only two children and will likely want one of each gender. Similarly, couples who only have one child (e.g., China) will most certainly want that child to be a son (Westley & Choe, 2007).

2.2.4 Economic Dependency of Women

Male members of families have a definite preference for sons, and this is also the case with South Asian women. This is attributed to the economic dependence of women on men (Bairagi & Langsten, 1986; Kabir et al., 1994). Economic dependency and subordination continue to frustrate the majority of women. Conversely, a small number of women who are encouraged to be independent suffer less sex discrimination, and are allowed to participate in family, economic, and social decision making processes. They have more positive attitudes toward every aspect of life in general and in family planning.

Pakistani wives are subordinate in all levels of society, and they are subject to their husband's rule, particularly in contraceptive use (Zaman & Wahid, 1978; Shah, 1986; Manzoor, 1991; Zafar, 1993). If women were involved in household decisions and other related matters it could result in a positive impact on their personality development and ability to adopt innovations. Son preference is also one of the factors responsible for the higher fertility rate in Punjab, Pakistan. Conversely, the elimination of gender preference would be the key to reducing family size as contraception would be adopted at an early stage and in more efficient ways.

Financial autonomy and the working status of women significantly influence the way women think. Women who have a sound financial footing and an equal share in family income are more independent and more able to control their reproductive decisions than those women who are totally dependent on their husbands or in-laws. Women with careers and better education are more likely to require their husbands to wear condoms in order to avoid unwanted pregnancies and to de-emphasize the importance of having several pregnancies in order to produce a son (Morrison, 1995). Tavakoli (1993) also reports those women who have good jobs and do not depend on men, influence the decision-making regarding family planning and gender preference. A positive correlation exists between a woman's economic status and her use of contraceptives in Pakistan (Sathar, 1986)

2.2.5 Religious Beliefs and Cultural Obligations

Family size, religious beliefs, and cultural obligations are other indicators of son preference. Benjamin (1991) reports that in the Hindu tradition only sons can pray for and release the souls of their dead parents and only males can perform birth, death and marriage rituals. The Indian subcontinent is one of the few regions in the world where there are more males than females. Miller (1997), in her anthropological study of neglect of female children in north India, illustrates the strong relationship between culture and mortality. It is cultural bias against females in north India that brings into play neglect and mistreatment of unknown numbers of girl children (Sekher & Hatti, 2010). If a country's population program is almost solely concentrated on reducing the number of births, this distorts the sex ratio at birth, where son preference is great (Gu, 1994). According to Gu there are four factors that affect son preference: (1) cultural setting, (2) low level of socio-economic development, (3) rapid fertility decline, and (4) family planning programs tightly focused on reducing the number of children per women.

Son preference and discrimination against female children is influenced by cultural factors (e.g., in Indian culture son preference exists because they believe that sons can only have the right to perform death rituals of parents) (Gupta, 1987). Social conditions and cultural values of South Asian society play a major role in son preference. In south Asian societies, sons are considered a symbol of prestige (Sekher & Hatti, 2010). Patel (2003) points out the higher social and cultural cost of raising daughters. Higher fertility rates and poor adoption of contraception in Pakistani women are not an outcome of their personal choice, but are a matter of social, cultural, and religious beliefs, as well as economic and demographic aspects with son preference being the critical one (Durri-Nayyab, 1999). Poverty, socio-economic conditions, religious beliefs, family systems and family size all affect son preference (Boulous et al., 1991, Lloyd, 1991). Adoption of contraception is negatively influenced by cultural obligations and religious misconceptions (Manzoor, 1991). The Islamization of state and society after the 1979

revolution in Iran involved the policy of secluding women within the home. They were neither allowed to work outside the home nor allowed to participate in the growth of the country. Again, this becomes the reason for the increasing demand for sons (Poya, 1999). If a woman wants to work outside the house, she must obtain permission from her husband or any other male head of the family. Women are not allowed to make decisions regarding their own health and reproduction, or any domestic economic decisions.

Sabiha (2001) studied established gender roles and socially given norms, rather than faith in a particular religion. He described institutionalized and restricted behavior patterns for women, and the reproductive process. A majority of women, regardless of class and religion, have little choice or input in reproductive matters. To some extent women of both communities (Muslims, Hindus) have managed to acquire this in their families, but the way in which they have exercised their choices reestablishes the fact that reproduction is an issue of personal and social concern (Sabiha, 2001).

In developing countries socio-economic changes are positively associated with personal rights for equality of sexes during marriage and for divorce proceedings. Political-legal and social-economic equality for women is found to be positively related to personal rights in interracial, interreligious, or civil marriages, and personal rights for equality of sexes during marriage and for divorce proceedings (Pillai & Wang, 1999). Lower social and political changes are responsible for a split between public and private Islamic practice in India (Latif, 1990). The lower socio-economic status of the Muslim population in India is the major contributing factor to their high rates of fertility (Chaudhry, 1982). In communities that oppress women, women do not have any right of equal distribution of resources or to make decisions for themselves and for their children (Hellesten, 2000). Consequently, in these societies females also desire sons to make themselves more powerful (Sathar & Casterline, 1998; Feeney & Alam, 2003).

2.2.6 Delayed Marriages

Recent studies in Pakistan have found lower levels of fertility in women with higher levels of education and wealth. The total fertility rate is 2.5 children (PDHS, 2007-2007). Higher education may be attained through postponement of marriage. Marrying at a later age is associated with a lessening of gender inequality (Sathar, Crook, Callum, & Kazi, 1988). Summing up, fertility is declining among urban educated women for all of the usual reasons: (1) later age at marriage, (2) formal sector employment, (3) increased contraceptive prevalence and (4) unclassified effects such as value and attitudinal changes (Sathar & Mason, 1993).

Delayed marriage in many South Asian countries is sufficient to make a considerable difference in lowering fertility rates. Given the stress on quickly having a child after marriage, delay in marriage could in many cases be motivated by reluctance to start a family by those who are worried about the many problems of bearing and raising children in these societies (Gavin, 2010). Female education can affect fertility in several ways, and may not even be directly connected to a woman's status. Those females who postpone their marriages due to educational and economic reason have more pressure to have their first child right after the first year of marriage. The average age of marriage has been rising in South Asian countries. Ages have risen almost two-and-one-half times in India, and twice as much in Bangladesh between the years 1970-2000. The ages in Pakistan rose three-and-one-half times between 1970 and 2007 (Gavin, 2010). Females who marry late receive even more pressure to have a son (Sathar, Crook, Callum, & Kazi).. Apart from the biological impact of age at marriage, there is also a behavioral impact. A potentially important change in Pakistan's demographics in the last decade has been the rise in the age at marriage for women. The mean age of women at the time of first marriage was 20.0 and 26.2 for men in 1971, and 20.8 for women and 25.4 for men in 1981, which reflects a tendency toward narrowing in the male- female ages at the time of marriage (Sathar, Crook, Callum, & Kazi, 1988).

2.2.7 Consanguineous Marriages

Societies where interaction between young women and men outside close kin is restricted, the level of consanguineous marriage tends to be high, usually with first cousins. This type of marriage is very common in Islamic societies. According to Gavin (2010) Pakistan does have one of the highest rates of consanguineous marriages in the world. These marriages are more common among the rural and less educated population (Pakistan Demographic and Health Survey [PDHS], 2006-2007), but even among those with secondary education, 44% are married to first cousins, and among territory educated, 37% (National Institute of Population Studies et al, 2008). Among currently married women ages 15-49, only one-third are married to non-relative or out of family (PDHS, 2006-2007). When parents want their children to marry within the family, it is probably because of their increased desire for a son so they can keep their assets within the family (PDHS, 2006-2007).

2.2.8 Extended/joint Family

Women who marry within the extended family realize that in-laws, especially the mother-in-law, will play an important role in fertility decision making (Cater, 1984). In many cases the mother-in-law also influences the decisions made by couples or the daughter-in-law about adopting family planning or using modern contraceptives (Kadir, Fikree, Khan, & Sajan, 2003). Opposition from family members and lack of support from the mother-in-law can make the situation of a woman more fragile and dependent. In seeking health care or a consultation for family planning, a woman cannot make independent decisions, even in an emergency (Carter, 1984; Kadir, Fikree, Khan, & Sajan, 2003). She is allowed only to go accompanied to a health facility with the permission and advice of the head of the family or, in most cases, with the consent of the mother-in-law (Shaikah, 2010). The mother-in-law can also make decisions regarding the number of children a couple can have. The only source of power for the daughter-in-law is to produce offspring, preferably sons (Armitage, 1993). Husbands and mothers in-law

have all the power (Rutenberg & Watkins, 1996). Kadir et al. (2003) state that a mother-in-law may insist that the daughter-in-law not adopt family planning, even if it goes against the daughter-in-law's wishes not to have more children. Mothers-in-law also influence the number of children that couples want to have (Moore, 1994; Senanyake, 1986; Lolarga, 1983).

2.2.9 Urbanization

Pakistani women's participation in household decision-making relative to their husbands and other family members clearly depends on the context in which they live (Naushin, 1998). Urban women have a say almost equal to their husbands in household matters, whereas most rural women report that their husbands and other family members have the predominant role in household decisions and all matters concerning children (e.g., how many, son preference, medical treatment). Women with greater freedom to go outside the home alone are more likely to participate in domestic decisions, a freedom not available to most rural women. Reproductive behavior is strongly conditioned by these socio-economic and demographic factors (Naushin, 1998).

Urbanization plays a significant role in changing ideas and behavioral approaches of people regarding son preference. In urban areas people have better access to hospitals, health centers, nearby markets, educational institutions, and media. These advantages influence the higher rate of adopting contraception. Aside from established infrastructure and available facilities, the congested population in urban areas also forces couples to consider limiting family size. Ezeh, Sezoussi and Riggers (1996) associate lower fertility rates and higher contraceptive use with urban residence in West and East Africa, Egypt, Morocco, Bangladesh, and Pakistan.

Urbanization alone, however, is not that meaningful if women are unable to exercise power in their own birth control and contraceptive use. Even though women who live in urban areas and have higher family incomes and access to health services, the lack of decision making power is still the primary cause of lower contraception rates in Southern India (Ravindran, 1993).

In the rural population an overall negative association of contraception is found to be predominant (Robinson, 1966, Sabazwari, 1974, Hafeez, 1975, Barnet, 1982, Rogers, 1990, Sathar & Kazi, 1990). However, to make reproductive health decisions and contraception more adoptable, efforts should be made to universalize it and to develop social packages for rural populations. Extending health and family planning services to remote areas, creating awareness about its safe and easy use, providing doorstep services, and addressing the misconceptions in a better way would increase the contraception rate.

2.2.10 Women's Education

Scholars discovered that the rapid rise in educational opportunities for women and the increased ages of marriage and first birth are key features of demographic transitions in all countries (Gangadharan & Maitra, 2000). Educated women have a higher positive response to economic and reproductive decisions, and they are less likely to prefer sons than uneducated women do (Mehboob, 1994). This is true especially in Pakistan (Vries, 1974). Ezeh, Sezoussi, and Raggars (1996) associate lower fertility desires and higher contraceptive use with higher literacy rates and education in West and East Africa, Egypt, Morocco, Bangladesh, and Pakistan. Education and working outside the homes gives women status, which influences them to go against tradition and to more readily adopt contraception (Robinson, 1966, Sabazwari, 1975; Barnet, 1982; Rogers, 1990; Rukanuddin & Haree, 1992; Vries, 1974). All of these authors reported a higher adoption of contraception and lower demand for sons in educated and working women. Mehboob (1994), however, reported little effect on the non-working and little educated women. This could be due to poor motivational campaigns and inappropriate presentation of family planning programs. Lack of educational and motivational campaigns are reported to hinder the ways of adopting modern methods of contraception (UNFPA, 1995). Women who have no exposure to schooling are married at an early age, have a strong son preference, and fatalistic attitudes toward pregnancy. In this context, the most serious difference

appears to be gender inequities in the social systems: (1) low status and autonomy, (2) limited mobility, and (3) lack of participation in family decision-making.

These factors are deeply embedded in the socio-cultural and religious milieu of Pakistan. They are intertwined and mutually reinforcing in slowing the pace of fertility change. Gangadharan and Maitra (2000) report that education has a significant impact on marriage age irrespective of whether education is exogenous or endogenous. Older women are predominantly much less educated and that is the reason why they have more desire for sons.

2.2.11 Sons mean Old Age Security for Parents

Couples in Asia strongly desire more sons than daughters because sons provide old age security and continuation of the family name (Ali, 1989). In Pakistan boys are expected to support their parents in old age, while girls, due to their transitory role in the family, are not assigned this obligation. In Pakistan sons are regarded as economic assets for old age (Ali, 1989). In south Asian societies especially in India, Pakistan, and Bangladesh, parents live with their sons in old age. This is the reason sons are considered more precious than girls. In Hindu culture only sons can perform the funeral ritual of parents. Data from Pakistan confirms their continued desire for sons (NIPS, 1992). The Pakistan Demographic and Health survey of 1990-1991 shows that, of the women with no children, one-third desire to have a son, while the preference for having a daughter is negligible. Among those who have two daughters and no son, almost all (93%) wanted their next child to be a boy (Safdar, Shrif, Hussain, & Rasheed, 2007). Parents invest in their children in the hope of yielding returns for themselves during old age, and to do so they encourage a high fertility rate. This is the primary motivation for Pakistani males to have sons, and they do not require any input from their wives. In addition, there is a demand of a large number of boys, as this strategy increases the likelihood of support from most all the sons.

2.2.12 Agricultural Societies

In the agricultural sectors in Pakistan sons are deemed highly preferable to daughters because they are much more able to find employment (Sathar, Crook, Callum, & Qazi, 1988). In an agricultural country like Pakistan, child labor value enhances the demand for a large number of male children to work in the fields. Most Pakistani households view children as the most stable form of social and economic security (Sathar & Kazi 1997). Because men are physically stronger than women, they are able to do the hard work (Gupta, Monica, Jiang, Bohua, Xie, Chung, & Bae, 2003). The majority of the Pakistani population lives in rural areas where the literacy level is very low and education largely neglected. The demand is for a large male labor force. Pakistan remains a feudal and agricultural society with strong bonds of caste and family (Sathar, 2001). Female child neglect is due to the low participation of females in agriculture and other income generating activities. Females are more disadvantaged in terms of employment in areas of dry land cultivation, as compared to females in wet land cultivation (Bardhan, 1974, 1982, 1984). Discrimination against women is linked to their exclusion from holding immovable property such as land (Miller, 1981). While such explanations are useful, there is a lack of adequate theoretical development with respect to the phenomenon of son preference in Pakistan.

2.2.13 Male Dominance in Family Planning

Men and women are the two integral parts of society. Men's involvement is a direct target in reproductive and family planning programs and is the major factor that affects the success of these programs. In most of the societies in general, and in Muslim societies in particular, men are mostly the predominant figures influencing the roles of women. Research in Pakistan indicates that the husband's approval is the major determinant in reproductive health programs and contraceptive usage (Joesoef et al., 1988).

A husband's approval is the most limiting factor in using contraceptives (Population Council of Pakistan, 1997). Reproductive decisions, acceptance, choice, and use of

contraception, are a direct influence of husbands. Family planning in the Muslim world in general, and in Pakistan in particular, could be practiced if the Islamic concept of contraception were to be properly addressed (Desilva, 1993). The rate of fertility decline in Pakistan could be enhanced by helping the society, particularly the males, to better understand Islamic teachings on the subject. Family planning would be the result, with men still playing an important role.

A lack of useful information and services, rather than a lack of interest, has kept men from taking a more active role in family planning (Finger, 1992). In spite of this, men still play a major role in supporting a couple's reproductive health needs (Herndon, 1998). Women are of the view that it would be more helpful if males would be more responsible in birth control (Henry, 1997). Henry found that 65% of the women wanted to select contraceptives for themselves while 75% suggested that men should ensure effective use of contraceptives.

Green and Danforth (1996) reported on male's dominating involvement in family planning programs in twenty developing countries. As stated above, providing male friendly programs about parenthood and service delivery would help to increase men's understanding regarding women's reproductive health and family planning. In contrast, Romania (1996) reported that 80% of the men and 86% women agreed that both parents should be responsible for avoiding unwanted births and deciding the number of children.

Although it has been established that men play a major role in economic and reproductive health programs, historically very few efforts have been made to directly involve men in what is available (Decarlo & Campbell, 1996). This could be because of limited funds for information about male services, or perhaps of the predominantly female staff in family planning clinics, negative staff attitude, or lack of staff training to work with men in reproductive and family planning health programs (Forrest, 1987). In addition, males may not be fully aware of their role in birth control programs or recognizing traditional female responsibilities of women coping with raising the children (Desantis et al., 1999). The exclusive focus on women has led to overlooking males in family planning in Uganda, Kenya, and Ghana. This suggests that

educational programs in these countries could be accelerated through active involvement of men (Blanc et al., 1996; Carty, 1996; Dodou, 1997).

2.2.14 Early Marriages and Age Differences

Pregnancy at a very young age is the leading cause of death and depression among these women (WCW, 1995). Women in developing countries have an average of 6-7 children due to early marriages, lack of contraception, and other circumstances (PCC, 1988). Park (n.d.) wrote that early marriage and the lack of family planning services result in early pregnancy and repeated pregnancies. In most impoverished countries 1 out of 10, and sometimes 1 out of 5, women die in childbirth under the age of 50 (PCC, 1988). For some women, this motivates unsafe abortions (WCW, 1995). The high birthrate is partially due to a lack of birth control and desire for a boy child, and also because couples feel they need to make up for the high infant mortality rate to ensure they will be supported in their old age (Miller, W.E.B. Dubois Conference, 1976). Men usually claim the right to determine family size, and leave it up to women to prevent pregnancy (Behrman, Kohler, & Watkins, 2002). If a girl is married at an early age and the age difference between husband and wife is great, the pressure for a boy child increases. Women feel insecure in the family until they bear a son, and then she feels secure for life (Mahmood, 1977).

2.3 Analysis of Review of Literature

After examining the literature, it is concluded that the overall rate of women's reproductive and economic decision making power is very low. This causes son preference in South Asian countries, particularly in Pakistan, India and Bangladesh. Women's status is not respected in South Asian countries. They are denied input into the household, reproductive, contraception, and economic decision making processes. Moreover, a son is always preferred due to the complex traditional system based on economic return and old age security. Women are kept dependent and not allowed to get paid jobs outside to pay their anchor role in the development process; rather their activities are restricted to household chores. In areas where

women have no decision making power, they lack self confidence compared to those who have more financial autonomy and have a major role in the decision making. Males, seemingly by choice, are totally or partially excluded from family and reproductive health programs. A woman has to obey her husband and his family, especially the mother-in-law. Males have been excluded from family planning programs and clinics in the past due to the limited funds for male services and the predominantly female staff in reproductive health and family planning programs. Males are also neglected due to the negative attitudes of staff and lack of staff training to better train men. Men's participation in family planning is integral to addressing the unmet need of birth spacing. And last, but not least, in most societies, sons are considered a symbol of prestige.

In big cities a change can be seen regarding reproductive behavior, but in rural areas reproductive decision making is still entirely in the hands of the husband and in-laws. In urban areas where women also participate in economic decisions, women are allowed to work outside the house to financially support the family and son preference is lower than in urban areas. Women in South Asian countries are now confronted with the challenge of how to ensure that the state will fulfill its commitment toward gender equality. International conventions require developing countries to create a favorable social, legal, and political policy environment for women by introducing necessary changes. Civil rights movements need to develop support at the grassroots level. In order to expand the base of social movement for gender equality, civil society needs to be strengthened to be able to fulfill its role.

According to the literature review, women of developing countries, especially in South Asian countries, are trapped in a web of dependency and subordination due to their low social, economic, and political status. The majority of women suffer from all forms of poverty. In order to change women's position and society's view of their inferiority, structural changes need to be brought about in the social and economic order that shape our social world. Historically, women were totally absent from state structures and decision-making bodies and were not allowed to

participate in state programs. Women's inclusion in governance structures was critical to bring about substantive changes in the development policies and programs that led to a shift in gender relations in the society. With the passage of time, a change has been seen in the reproductive behavior of developing countries. However, a woman's fertility preference may not necessarily predict her reproductive behavior because childbearing decisions are not made solely by the woman, but are frequently affected by the attitudes of other family members, particularly the husband and mother-in-law, both of whom may exert a major influence on reproductive decisions.

CHAPTER 3

THEORIES

3.1 Introduction

This chapter provides the theoretical framework for a proposed model of son preference

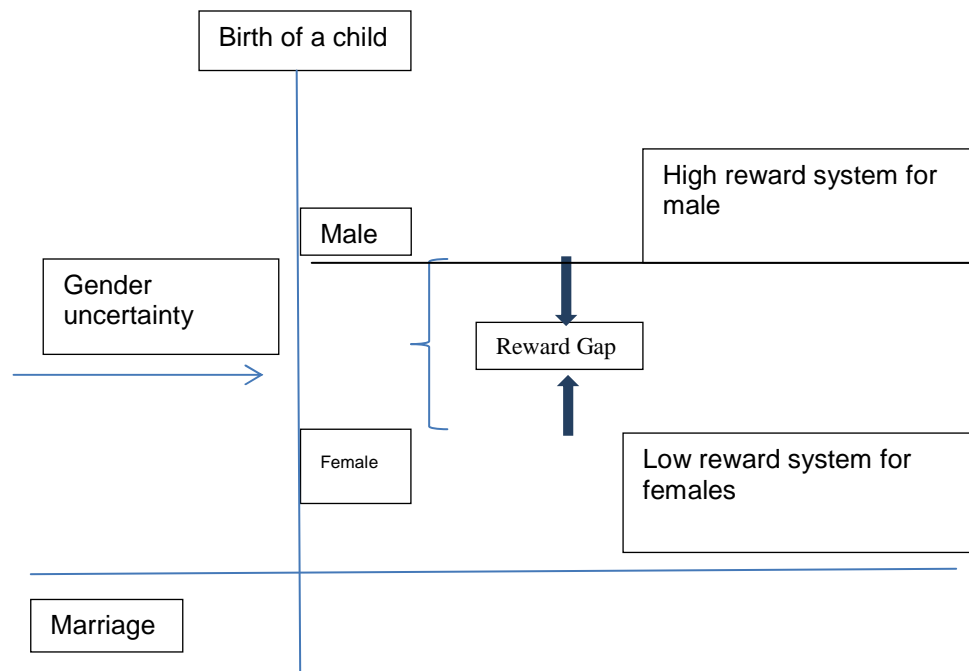


Figure 3.1 Diagram of theoretical Frame work

Figure 3.1 provides a diagrammatic representation of the concept of son preference. Within marriage in developing societies, two types of decisions precede the birth of a child: (1) whether to have the next child or not (parity) and (2) when to have the child (timing). However, the gender of the child often is not known until the birth of the child. This is presented as gender uncertainty in figure 3.1. Once the child is born and the gender is known, gender specific socialization processes are set in motion, which allocates resources and rewards males and females differentially. The allocation of rewards and resources in terms of inputs is almost

always associated with anticipatory or potential benefits (Caldwell, 1976b). The gender gap in the rewards system is subsequently related to a gap in potential benefits. Thus, son preference may be understood or analyzed in terms of the perceived gender gap in potential benefits. A number of theories, such as wealth flow theory, offer a broad framework for analyzing and understanding gaps or inequalities. More specifically, we make use of Caldwell's theory of wealth flow, economic theory of fertility, modernization theory and the feminist theory. The proposed model of son preference in this study attempts to arrive at a multifactor theory to explain the phenomenon of son preference in Pakistan.

3.1.1 Fertility Theory: Caldwell's Theory of Intergenerational Wealth Flows

John Caldwell's wealth flows theory proposes a direct link between family structure and fertility (Caldwell 1976b). There are only two major forms of family structure, differing principally in the direction of wealth flows among generations. In traditional societies net wealth flows are primarily upward from younger to older generations, and individual interests are subjugated to corporate interests. In developed nations, family structure is organized in terms of downward wealth flows where parents are expected to provide for children's economic well-being. Caldwell's theory proposes that fertility decisions are economically rational responses to familial wealth flows. In societies with net upward wealth flows, the economically rational decision is to have as many surviving children as possible (within the constraints imposed by biology), because each additional child adds positively to a parent's wealth, security in old age, and social and political well-being. In Pakistani or South Asian society we find an upward wealth flow.

In societies with net downward wealth flows, the economically rational decision is to have no children or the minimum number allowed by a psychological disposition that derives pleasure from children and parenting. The worldwide transition from high to low fertility is the result of a change in family structures from upward to downward wealth flows. This change in family structure was due to the spread of new values that placed a premium on individual

satisfaction and achievement (Caldwell 1980, 1982). Modern values exposed by the educated, middle-class in the west are exported to the developing world through mass formal education. Implicit in the educational materials and expectations of schools is the individualistic value system that produces downward wealth flows. Labor markets make the adoption of these individualistic values necessary, even if they are adversarial to the family or group production characteristic of pre-transition societies, and economically feasible (Cain, 1983). The transition from “traditional” to “modern” family structure occurs when a critical mass of individuals adopt the new values and respond with low fertility. The attainment of mass education in a country should therefore precipitate and hasten the fertility transition (Cleland & Scott, 1987). Caldwell’s intergenerational wealth-flows theory postulates that in pre-modern societies, wealth flows from children to parents because children make labor contributions to their families, thereby making large families advantageous. However, fertility decline occurs when the direction of the wealth is reversed so that investments flow from parents to children (Fuse, 2008).

In South Asian society children contribute in several ways to the welfare of the extended family. As children, they contribute their labor to the production and domestic maintenance needs of the household (Kamazura, 1984). Furthermore, when parents reach old age, children, especially male children are responsible for the provision of basic economic and social security of parents. As parents prepare themselves to invest in their children in the hope of yielding returns during old age, high fertility is likely to be maintained. Expectations of returns from investment in their sons particularly encourage son preference. This is the primary motivation for males in Pakistani society to have many male children. In addition, there is a demand for a large number of sons, as this strategy increases the likelihood of support from some if not all the sons during old age.

Caldwell’s theory focuses on the social structural aspects of fertility, especially in terms of family structures that facilitate different types of wealth flows. For example, the nuclear family encourages emotional nucleation, promotes individualism and expects parents and adult

children to live in relative economic independence. However family types such as joint families are more likely to encourage and facilitate elder care. Therefore in joint and extended families the likelihood of traditional patterns of wealth flow is in existence and this pattern is likely to be maintaining as well.

Hypothesis: Women in joint and extended families are more likely to have son preference than women in nuclear families.

3.1.2 Modernization Theory

Modernization theory originated in the United States after World War II (Jiafen, 2009). Modernization theory is a socio-economic theory, which is also known as development theory. It is also a part of the wider theme of theories in sociology, known as socio-cultural revolution. When we look at the history of modernization theory, we go back to the Age of Enlightenment, when many philosophers tried to investigate social change and the progress of society. They also tried to investigate how different facets of advancement based on reason were connected. Modernization theory is a grand theory, which provides a broad perspective for understanding changes in society. Berger (1996) says, "Modernization is the (1) internal achievement of a society, (2) particular processes of modernization to support each other in combination; (3) leading nations do not impede the followers, and (4) processes of modernization are converging in a common goal". Bo Villain (2001) says that modernization theory suggests that by introducing modern methods in "technology, agricultural production for trade, and industrialization" (p #) most underdeveloped countries will experience economic development.

"Modernization is basically the changing the process of psychological attitudes, social values and life styles" (Robinson, 1977) and this can happen through new inventions in every field. Industrialization is actually the essence of modernization, and with modernization developing countries may try to compete with advanced countries through advancement in technology or industrialization. Traditional societies are male-dominated and authoritarian, and modern societies are democratic and egalitarian, at least in the long run. The processes of

modernization itself, and the administration of development policies and programs, are perceived as sex-neutral or as particularly advantageous to women, who have been more hemmed in than men by traditional values circumscribing their roles (Jaquette, 1982).

Modernization, as indicated earlier, is a product of industrialization. The industrialization process in the 18th century was set in motion with the advent of a western science and technology. Application of new science brought about a change in the organization of production, consumption and distribution. The driving force behind modernization is technology. In general, the application of modern technology also brought about changes in the social organization of production and consumption. New forms of social organization became institutionalized with the emergence of several types of secondary institutions. These institutions developed their own bureaucratic organization to organize all processes of modern production, consumption and distribution. The development of bureaucracy as a new form of social organization gave rise to new norms and values such as efficiency. The modernization processes in general have brought about changes in all aspects of life whether it is economic, social, spatial or political. With the availability of modern transportation systems, and concentration of facilities, markets and service delivery systems in urban areas, and migration to urban areas have increased worldwide (Peng, 2009)

At the individual level, the modernization theory suggests that new values have been created and have become essential for engaging public life and for dealing with secondary institutions. One such norm is that of reciprocal relationships based on a cost benefit analysis. Alex Inkeles (1964) labels all the new values and norms associated with emergence of modernization as "modernity." Inkeles argues that there has not only been the emergence of a new economic and social order based on science and technology, but also these values have become deeply ingrained and essential for the survival of the common person in a modernizing society.

Populations especially living in urban areas are exposed to a constant stream of modern information and facilities, which enables them to make decisions based on cost benefit considerations (Jiafeng, 2009). Because children are expensive to bear and rear, urban families are less likely to have large families than rural families. As fertility falls, the likelihood of having a son within a limited number of expected births diminishes considerably (Peng, 2009). Thus, urban households are not only more likely to use modern contraceptives to limit the number of children than rural households; they are also less likely to show son preference (Blau & Robins, 1989).

Hypothesis “Urban house holders are less likely to have son preference than rural households”.

Since modernization brings about dramatic changes in sustenance organization the skill levels for participating in modern labor markets have also changed dramatically over time (Jiafeng, 2009; Peng, 2009). The duration of preparation for entry into the modern labor markets is considerably longer than in agricultural economics (Peng, 2009). With an increase in the number years spent in preparation for acquiring jobs in modern labor markets, there has been an increase in the age at marriage worldwide. As age at marriage increases, fertility is likely to decrease; children are less desired. This overall reduction in the preference for children is likely to decrease son preference.

Hypothesis: “As age at marriage increases, son preference is likely to decrease”.

Perhaps the most important influence of modernization on the family is the transition from non-nuclear family types to nuclear. Entry into marriage, the first step in the nuclear family formation, is preceded by courtship activities that encourage homogeneity in terms of socio economic status, egalitarian relationships and also age (Jaquette, 1982; Jiafeng 2009). When the couples belong to more or less the same age cohort, they are likely to have similar life experiences and are less likely to experience power differential owing to age and social status difference. As a result husbands are less likely to exert power on wives to have a son.

Hypothesis: "The smaller the age differences between spouses, the lower the level of son preference".

3.1.3 Economic Theory of Fertility Decline

The decline in fertility observed since mid 19th century in many western countries due to rapid economic growth has raised the cost of children. The economic theory of fertility decline emphasizes household income and the cost of rearing children (Becker & Barro, 1996). The cost of rearing children includes expenditures of housing, food, clothing, schooling, toys and sports and also the time parents spend with their children (Gustafesson & Kalwij, Bergstrom, 1997). According to economic theory of fertility, the cost of children for parents depends on the number and "quality" of children (Leibenstein, 1975; Becker & Barro, 1996). In the early stages of economic development, women in most countries average six to seven births during their reproductive years; but in country after country as development progresses, this number falls to two or fewer births per woman. Thus, there is a shift from quantity to quality of children (Becker, 1974; Mitchell & Carson, 1989). Leibenstein (1975) suggests that during economic development parents start to consider children as durable goods, and people who fall under higher income groups want fewer children, while people who fall under lower income groups desire more children. Economic development (per capita income) goes up and family size decreases (Leibenstein, 1975; Robinson, 1997; Pollak, 1985). With increases in socio-economic mobility parents start considering children to be a special type of capital goods and long lived assets, who may render quality services in return over a period of time (Robinson, 1997). This quality services can lead to financial security of parents in their old age. High prestige is brought by successful children and gathering labor inputs to meet the needs of the family (Easterline, 1975, Mauser & Brown, 1979; Michael, 1973). Boys are considered "superior goods" in traditional agricultural societies whereas girls are consider "inferior goods." This is normally due to the fact that boys cater to the demand for labor input of the family. Parents are not interested in children per say, but they are interested in the rewards in the form of child-services which they will get in

their old age (Robinson, 1997). According to economic theory, “Children as insurance against financial difficulties at old age is a financial incentive for having children and investing in their education” (Gustafsson, Kalwij, 2006). Quality children mean those children who understand the parents’ wellbeing and look after them in their old age.

Hypothesis: “People who belong to agricultural households are more likely to prefer sons as compared to people belong to nonagricultural households”.

3.1.4 Human Capital Theory of Son Preference

The human capital explanation of son preference specifically focuses on the cost and benefits of having children. Becker (1964) and Zelizer (1995) contend that children are desired in all societies, however, the cost of having children has increased over time (Blossfeld & Huinink, 1991). With modernization individuals strive for socio-economic mobility. An increase in socio-economic mobility increases the number of choices individuals have to invest their earnings in other than children (Easterline, Pollak, & Wachter, 1990; Blossfeld & Huinink, 1991). This socio-economic mobility brings about a reduction in fertility (Davis & Blake, 1956; Cochrane, 1975). However, in order to achieve socio-economic mobility, individuals need to invest in themselves, especially in education, in order to acquire the necessary skill sets and training to make gainful entry into the labor market (Easterline, 1969). Individuals must invest in themselves in terms of education and human capital increases. With the increase in human capital, the value of their time is likely to increase as well. When individuals decide to have children they will have to decide about the time they spend in rearing children. Children will have to bring about the same or higher level of wellbeing and satisfaction than engaging in other activities (Cain, 1983; Muth, 1986; Blossfeld & Huinink, 1991). The perceived cost of time given a certain level of education in comparison to the return one gets by investing his/her time in another activity is called opportunity cost. Human capital theory contends that if opportunity cost is high, fertility is likely to be low (Schultz, 2005). Thus with an increase in education, demand for children is likely to fall, resulting in a reduction in son preference.

Hypothesis: "The higher the level of education of women, the lower the son preference".

3.1.5 Theory of Social Change by Norman B. Ryder

According to the social change theory, the functionality of any society depends on the collective functioning of its organic components. A society gets its raw material from the fertile members of the society and mortality becomes the reason for discharge (Ryder, 1965). For the survival of a society it is necessary that agencies and institutions shape their new members as valuable community members. Ryder's cohort historical model suggests that people are born in a society; they live their lives in that society and then are replaced by a new cohort which is born. Social change is seen as stemming from new contacts made by the fresh cohort with a contemporary social structure and value system (Pillai & Teboh, 2010). When new cohort members interact with the existing social system they acquire new social characteristics. Similarly, when these new members of the society interact with the existing social system and social values, a change takes place in the rules and behavior of existing social structure. These normative and structural changes, along with changes in the size of the cohort, can bring about inter-cohort differences (Pillai & Teboh, 2010). The new cohort provides the opportunity for the occurrence of social change. New ideas compete with old ones and bring about value changes in the society. A social change cannot take place in the society until individuals change, and individuals change only when they change their basic characteristics (Ryder, 1965). It may also take place because of changes in values.

Ryder's perspective in general suggests that changes in characteristics of individuals over time as well as changes in effects of these variables influence change in the preference of son preference over time. For example, during the last two decades, son preference may have changed owing to not only a change in the proportion of educated house holders but also due to change in the effect of education on son preference. This study uses Ryder's theory of social change as a framework to describe the various components of social change and their effect on the changes in son preference overtime.

In sum, I use several social theories to explain son preference in Pakistan. More specifically I use Caldwell theory of wealth flow, Modernization theory, Economic theory of fertility decline, and Human capital theory to investigate son preference in Pakistan. Finally, Ryder's theory of social change is also used to describe changes in son preference in Pakistan.

CHAPTER 4

METHODOLOGY

The main purpose of this dissertation is to examine the impact of social change (e.g., family types, agricultural and non-agricultural households, industrialization, age at marriage, age difference between husband and wife, increase in education level of women, and son preference) over the last two decades in Pakistan. Data for this study are from Pakistan Demographic and Health Survey (PDHS) 1990-1991 and 2006-2007. Both surveys cover the entire country and provide sufficient information about family structure, fertility trends, socio-economic background, literacy level, and respondent's attitude toward son preference.

Chapter 4 presents the methodological format for this dissertation and is divided into four sections: (1) sources of data, (2) sample description, (3) operationalization of endogenous and exogenous variables, and (4) description of data analysis methods.

4.1 Source of Data

The analysis was conducted by using secondary data. This study used the Pakistan Demographic and Health Survey (PDHS) conducted in 1991-1992 and 2006-2007 as a source of data. The PDHS collects a wide range of data about population and health issues and includes questions regarding gender preference for children in 1992. The PDHS 1990-1991 and 2006-2007 provides information about population characteristics such as (1) urban and rural background of the respondents, (2) educational level of husband and wife, (3) age difference between husband and wife at the time of marriage, (4) age of female at the time of marriage, (5) family size preference, (6) Agricultural and non agricultural background, and (7) type of family. Sampling design is stratified, cluster, and systematic sample of household. The universe is four provinces of Pakistan. Three types of questions were used to collect the data. For the 1990-1991 survey a total of 6,611 households were selected for the women's sample. The target was

ever-married women, ages 15-49. The National Institute of Population Studies (NIPS) collected the data in 2006-2007. Sample size of 10,023 respondents is married women, ages 15-49. Four provinces of Pakistan are included in the sample.

4.2 Sampling Description

4.2.1 Sample Design for the 1990-1991 PDHS

The 1990-1991 the PDHS utilized a stratified, clustered, and systematic sampling frame of households. The sample included both rural and urban areas of Pakistan, but excluded the Federally Administered Tribal Areas (FATA), military restricted areas, the districts of Kohistan, Chitral, and Malakand, and the protected areas of the North West Frontier Province (NWFP), thus excluding approximately 4% of the population.

The Federal Bureau of Statistics provided the sample frame for the urban sample. Each city or town was divided into blocks of 200-250 households with clearly defined boundaries. Cities with a population equal to or over 500,000 (Faisalabad, Gujranwala, Hyderabad, Karachi, Lahore, Multan, Peshawar, and Rawalpindi) and Quetta, less than 500,000, but the capital of Balochistan, formed the domain of "major cities." Each city was designated a strata and was then further stratified into low, middle, and high income areas. The remainder of the urban cities divisions of NWFP--Sindh, Punjab, and Balochistan--were grouped to form separate strata.

The 1990-1991 PDHS sample was 6,611 women. The sample from the total urban sample was selected based on a probability proportional to the number of households. The rural sample was based on the probability proportional to the population established in the 1981 census. Within each strata, a random start and a set sampling interval was used to determine which households were included. This resulted in 18 secondary sampling units (SSU, households) in the urban domain in the four provinces, the Punjab province, a rural domain, and 25 secondary sampling units from the rural domains of Sindh, NWFP, and Balochistan.

4.2.2 Sample Design for the 2006-2007 PDHS

The 2006-2007 PDHS is the largest-ever household-based survey conducted in Pakistan. The sample is designed to provide a reliable estimate for a variety of health and demographic variables for various domains of interests (PDHS, 2006-2007). The 2006-2007 PDHS survey utilized a two-stage, stratified random sample design. The sample included both rural and urban areas of Pakistan, but excluded the Federally Administered Northern Areas (FANA), the Federally Administered Tribal Areas (FATA), restricted military areas, and protected areas. The urban area sample frame is drawn from an FBS sample frame and included 26,800 enumeration blocks of 200-250 households. The cities of Karachi, Lahore, Gujranwala, Faisalbad, Rawalpindi, Multan, Sialkot, Sargodha, Bahawalpur, Hyderabad, Sukkur, Peshawar, Quetta, and Islamabad are considered large cities.

The rural sample frame consisted of 50,588 villages/mouzas/dehs developed from the 1998 population census. The rural areas of the PKHD included each district in Punjab and Sindh; the NWFP provinces constituted an independent stratum. Additionally, in Balochistan province, each former administrative division constituted a stratum.

The first stage of the selection included 1,000 clusters with probability proportional to size for 390 urban areas and 610 rural areas selected. Due to areas of unrest or community resistance, a final total of 972 sample points was used. Finally, systematic random sampling was used to determine selected households. In the 9,255 households interviewed with a long household questionnaire, a total of 10,601 ever-married women ages 12-49 were indentified, of whom 10,023 were successfully interviewed.

4.3 Operationalization of Variables

The following section presents all the questions related to the 11 variables selected for this study. The questions are presented in the same format with the same responses as in the PDHS 1990-1991 and PDHS 2006-2007.

4.3.1 Son Preference

Coding for these questions in 1990-1991 and 2006-2007 data sets are as follows. In 1990-1991, these questions are s618 (ideal number of children [IT]), s619 (ideal number of boys [IB]), 619b (ideal number of girls [IG]), and 619c (ideal number of either sex [IE]).

In 2006-2007 dataset, the questions are, V613 (ideal number of total children [IT]), V627 (ideal number of boys [IB]), v628, (ideal number of girls [IG]) and v629 (ideal number of either sex [IE]). The relationship between the components is given as $IB+IG+IE=IT$ (Begum, Singh, p.185)

Table 4.1 Index for Extent of Son Preference Using Ideal Number of Children

$IG=IE=0$, then $IB=IT$	Absolute son preference
$IB \geq IG$	Strong son preference
$IG=IB \neq 0$	Equal Preference
$IB=IG=0, IE=IT$	No Preference

(Begum, M., & Singh, C, 2010, p.185)

Using responses to these questions, four new dummy variables are created for both datasets. Absolute son preference (abson), Strong son preference (strong) and equal preference for both gender (equal) No preference (NP). After making these variables, a new binary variable "Newsonpref" is created to measure son preference in this study for both 1991-1992 and 2006-2007 datasets. All respondents who fall in abson and strong category are coded as 1. Equal and NP are coded as 0. .Missing data in original variables (s619a, 619b, 619c 1991-1992 are considered as missing in new variable "newsonpref." Missing data in V613, V627, V628, V629 in 2006-2007 dataset are considered missing and coded as missing in new variable "Newsonpref."

4.3.2 Family Type

A standardized family type variable is selected that is included in both data sets. Coding for this question in 1990-1991 and 2006-2007 data sets are as follows. In 1990-1991, this question is “what is your relationship with the head of the family?” and variable related to this question is variable V-150, in which 1=head, 2=wife, 3=Daughter, 4=Daughter in-in law, 5=Granddaughter, 6=Mother, 7=Mother-in-law, 8=Sister, 9=Co-spouse, 10=Other relative, 11=adopted/foster child, 12=Not related, and 98=DK.

In 2006-2007, this question is “what is your relationship with the head of the family?” and variable related to this question is V-150, in which 1=Head, 2=Wife, 3=Daughter, 4=Daughter in-in law, 5=Granddaughter, 6=Mother, 7=Mother-in-law, 8=Sister, 9=Co-spouse, 10=Other relative, 11=Adopted/foster child, 12=Not related, and 98=DK

A new binary variable “familyt” is created to see family type for both 1990-1991 and 2006-2007 datasets. In the 1991-1992 dataset if the respondent is coded “1,” “2,” or “9,” that is coded 1 in “familyt.” Missing data in V150 is coded missing in new variable “familyt.”

In 2006-2007 dataset if the respondent is coded “1,” “2,” or “9,” that is coded 1 in “familyt.” Missing data in V150 is coded missing in new variable “familyt.”

4.3.3 Place of Residence

This is a binary variable that distinguishes those who live in urban areas from those who live in rural areas. Coding for this variable in 1990-1991 dataset and 2006-2007 dataset is as follows. In 1991-1992 this variable is V-102 coded as 1=Urban, 0=Rural; in 2006-2007 this variable is V-102, coded as 1=Urban, 0= Rural

4.3.4 Women’s Education

This research used the standardized education variable that is included in PDHS 1990-1991 and PDHS 2006-2007 and has four categories” (1) no education, (2) primary, (3) secondary, and (4) higher. Coding for this question in 1990-1991 dataset and 2006-2007

dataset is as follows. In the 1990-1991 dataset, the variable about women's education is V-106, which is coded 0=No education, 1=Primary, 2=Secondary, 3=Higher. In 2006-2007 dataset, the variable about women's education is V-106, which is coded 0=No education, 1=Primary, 2=Secondary, 3=Higher.

For analysis purposes this variable is further transformed into two categories named as "Second," in which secondary and higher education are combined, and "Primary," in which no education and primary education are combined. Primary serves as the reference category.

4.3.5 Age at Marriage

As mentioned, ever-married women's ages 15-49 were included in this study. Women's age at marriage is a continuous variable measured in years. Coding for this question in 1991-1992-2006-2007 is as follows: in 1990-1991, this question is V-511.

In 2006-2007 this question is V511. This variable is further recoded in two variables named as younger (until the age of 30), older (respondents above the age of 30) for both datasets. "Older" is included in the analysis and "Younger" is used as reference category.

4.3.6 Age Difference between Husband and Wife

Questions related to this variable in 1990-1991 PDHS and 2006-2007 PDHS are as follows: the response categories from the PDHS 1990-1991 and 2006-2007 are also presented, and in 1991-1992 respondent's age is presented in V-012; in 2006-2007 respondent's age is presented in V=12. In 1990-1991 dataset husband age is presented in s702; in 2006-2007 dataset husband age is presented in V-730.

A new variable "age diff" is created to measure the age difference between husband and wife for both 1991-1992 and 2006-2007 datasets. The wife's age is subtracted from husband's age for both data sets. A positive number indicates that husband is older than wife and a negative number indicates that wife is older than husband. The greater the positive age difference, the greater the son preference.

4.3.7 Agricultural and Non-Agricultural Background

Husband's occupation is a categorical variable. Question and coding for this question in 1991-1992-2006-2007 is as follows: in 1990-1991 the question regarding this variable is "What type of work does (did) your (last) husband mainly do?". In dataset this question is V-705, coded as 0=Never work, 1=Pro, Tech, Manag, 2=Clerical, 3=Sales, 4=Agric self employed, 5=Agric employee, 7=Household and domestic, 7=Service, 8=Skilled manual, 9=Unskilled manual, 98=Don't know.

In 2006-2007 this question regarding this variable is " What type of work does (did) your (last) husband mainly do?. In dataset this question is V-705, coded as 0=Never work, 1=Pro, Tech, Manag, 2=Clerical, 3=Sales, 4=Agric self employed, 5=Agric employee, 7=Household and domestic, 7=Service, 8=Skilled manual, 9=Unskilled manual, 98=Don't know.

A new binary variable "Agricult" is created to measure husband participation in agriculture in this study for both 1990-1991 and 2006-2007 datasets. In the 1990-1991 dataset if a person is coded "Not zero" and is coded "4" or "5" in V705, then he is coded 1 in "Agricult." Missing data in V705 will be coded as missing in the new variable "Agricult."

In the 2006-2007 dataset, if a person is coded "Not zero" and coded 4 or " in V705, then he is coded as 1 in Agricult. Missing data in V705 will be coded missing in the new variable "Agricult."

4.3.8 Husband's Education

Husband education is a categorical variable. Coding for this question in the 1990-1991 dataset and the 2006-2007 dataset is as follows: in the 1991-1992 questionnaire, the question related to husband's education is "What is the highest level of school he attended"?. In 1990-1991 data set this variable is V-701, coded as 0= No education, 1=Primary education, 2=Secondary, 3=Higher.

In 2006-2007 PDHS, the question related to husband's education is "What is the highest level of school he attended"? In 1991-1992 data set this variable is V-701, coded as 0= No education, 1=Primary education, 2=Secondary, 3=Higher.

For clear analysis this variable is further transformed into two variables named as "husbandSecond," in which secondary and higher education are combined, and "husbandPrimary," in which no education and primary education are combined. Primary serves as the reference category.

4.3.9 Sex Composition of Surviving Children

Questions related to this variable in 1990-1991 PDHS and 2006-2007 PDHS are as follows. In 1990-1991, questions related to this variable are "How many sons live with you and how many daughter live with you?" "How many sons alive but do not live with you and how many daughters alive but do not live with you?" These questions are coded as V-202, 203, 204, 205 in the dataset. In 2006-2007 questions related to this variable is " How many sons live with you and how many daughter live with you?" "How many sons alive but do not live with you and how many daughters alive but do not live with you?" These questions are coded as V-202, 203, 204, 205 in the dataset

Sex composition is measured as ratio of total sons to total number children. A ratio greater than 1 is son-dominated composition. Ratio less than 1 is non-son-dominated (girl-dominated) composition.

4.3.10 Inter-cousin Marriages

Questions related to this variable in 1990-1991 PDHS and 2006-2007 PDHS are as follows: the response categories from the PDHS 1990-1991 and 2006-2007 coding for this question in 1990-1991-2006-2007 is as follows: in the 1990-1991 the question related to this variable is " is there any blood relationship between you and your husband?" "if yes what type of relationship is/was?" in 1990-1991 dataset, this question is s510, coded as 0= No blood relation, 1=First cousin/father, 2=First cousin/mother, 3= Second cousin, 4=Other relationship.

In 2006-2007 the question related to this variable is “Is there any blood relationship between you and your husband?” “if yes what type of relationship is/was?” In 2006-2007 dataset this question is s108, coded as 0= No blood relation, 1=First cousin/father’s side, 2= First cousin/mother’s side, 3=Second cousin, 4=Other relationship

A new binary variable “interco” will be created to measure inter-cousin marriages in this study for both 1990-1991 dataset and 2006-2007 dataset. If a person is coded “Not zero” in s510 in 1991-1992 dataset, he will be coded as 1 in “interco” in 1991-1992 dataset. Missing data in s510 in the 1990-1991 dataset are considered as missing in new variable “interco.”

For 2006-2007 dataset if a person is coded “Not zero” in s108 he is coded as 1. Missing data s108 in 2006-2007 dataset are considered as missing in the new variable “interco.”

4.3.11 Region.

Region is a categorical variable in both datasets. In 1990-1991 dataset this variable is V-024, coded as 1= Punjab, 2= Sindh, 3= NWF, 4= Balochistan. In 2006-2007 this variables is v024, coded as 1= Punjab, 2= Sindh, 3= NWF, 4= Balochistan.

For clear analysis this variable is further transformed into four variables named as Punjab, Sindh, NWF, and Balochitan. Bolochistan serves as reference category.

Table 4.2 Independent Variables and Their Effects on Dependent Variable

Independent Variable	Dependent Variable	Effect
Joint families/extended families	Son Preference	-
Urban House holds	Son Preference	+
Age at marriage	Son Preference	+
Smaller the age difference between husband and wife	Son Preference	+
Agricultural households	Son Preference	-
Higher the level of women education	Son Preference	+

The table below presents variables and study hypotheses

Table 4.3 Study Hypotheses

Variable	Hypotheses
Joint/ Extended Families	Women in joint and extended families are most likely to have son preference than in nuclear families
Type of place/ Urban vs rural	Urban households are less likely to have son preference than rural house holds
Age at marriage	As age at marriage increases. Son preference is likely to decreases
Age difference between spouses	The smaller the age difference between spouses, the lower the level of son preference
Agricultural vs non agricultural households	People who belong to agricultural households are more likely to prefer sons as compared to people belong to non-agricultural households
Women's education	Higher the level of education of women, lower the son preference

4.4 Data Analysis

The present study uses several statistical procedures to analyze two datasets. Descriptive statistic (mean, median mod, proportion), Pearson chi-square, Phi- coefficient, t-test, binary logistic regression and decomposition of variables are used to analyze the data for both 1991-1992 and 2006-2007. The depended variable is son preference. It is coded as 1, if son is preferred, 0 otherwise for both datasets. Since the depended variable is binary, this study used binary logistic regression for analysis. Statistical software SPSS version18.0 was used to conduct relevant empirical analysis. Prior conducting analysis and data were first screened for missing values for both 1991-1992 and 2006-2007 datasets.

4.4.1 Screening and Transformation of Variables

Analysis of data took place in several stages. The first step was to screen the variables for their distributional characteristics and to implement appropriate transformation. The initial step was screening and preparing data for analysis. Relevant variables were separated from the original data and a data set was prepared for both 1990-1991 and 2006-2007. The next step was to screen the data for missing values for both 1990-1991 and 2006-2007 datasets. It is

argued that while missing or incomplete data is almost inevitable in social research, the data may be missing because of systematic errors or may be missing at random. It is likely that in two different datasets which are collected at a different time period, data may contain both systematic and randomly missing data. However, despite their causes for missingness, it is important to address them (Byrne, 2001). To identify the missing data in both datasets, frequency statistics were run to identify the incomplete variables. Out of 10 variables which were included in the analysis, 4 variables had missing data in them for both datasets. But the proportion of that missing data was very small. These included the following: Agricult, Partner's education, Interco, Agediff.

The third step was in the preparation of the dataset for analysis that involved deciding which incomplete variable to drop from the analysis and which to keep. A decision was made to drop all variables that had more than 20% of its values missing in them. But fortunately there were no variables in both datasets with many missing values in it. The highest missing data was found in interco (6.6%), which was less than 20%. Therefore a decision was made to keep all the variables for analysis.

4.4.2 Univariate Analysis

All the variables in the study are described by using frequencies and descriptive analysis for each 1990-1991 and 2006-2007 datasets separately. For all the continuous variables, this study uses the measure of central tendency as well as measure of variation for both datasets separately. Nominal level variables are described by using proportions in various categories of the variables for each dataset separately. In addition, for all the continuous variables this study uses measures to describe the distributional properties. More specifically kurtosis (along with their standard error), skewness (along with their standard error) are presented for both 1990-1991 and 2006-2007 datasets separately. Chi-square and Phi-coefficient are also used to test the association and magnitude of association between

dependent variable and independent variables for both datasets separately and for stack data. T-tests were also run for continuous variables.

4.4.3 Binary Logistic Regression

This study tests the proposed model of son preference using two similar datasets 1990-1991 and 2006-2007 PDHS. Binary logistic regression was conducted separately for 1990 and 2007 data to test the proposed model.

In order to examine coefficient variables varying across the two time points, this study examines if the coefficient remains stable over time. This study examines the change in average value of each variable during 1990-2006.

4.4.4 Decomposition Analysis

The study also examines the changes in son preference during 1990-2006. The technique used to examine changes in variables in relation to the changes in son preference is decomposition analysis. Decomposition analysis is the process by which time series data are split into components parts (Vogt,2005). In this study, Ryder's social change theory is used to describe the processual and compositional changes in son preference behavior in Pakistan between 1991 and 2007. The mathematical formulation of decomposition is given below.

$Ln[P_i/1-P_i] = \sum \beta_i x_i$ where $Ln[P_i/1-P_i]$ is the logit or log-odds of contraceptive use, x_i is a vector of determinants and β_i is a vector of regression coefficients

$$\text{logit (C07)- Logit (C91)} = [\beta_o (07) - \beta_o (91)] + \sum P_{ij} (07) (\beta_{ij} (07) - \beta_{ij} (91)) + \sum \beta_{ij} (91) (P_{ij} (07) - P_{ij} (91)) + \sum (P_{ij} (07) - P_{ij} (91))(\beta_{ij} (07) - \beta_{ij} (91)).$$

$P_{ij}(90)$ is the proportion of the j th category of the i th determinant in PDHS 1990-1991

$P_{ij}(07)$ is the proportion of the j th category of the i th determinant in PDHS 2006-2007

$\beta_{ij}(90)$ is the coefficient of the j th category of the i th determinant in PDHS 1990-1991

$\beta_{ij}(07)$ is the coefficient of the j th category of the i th determinant in PDHS 2006-2007

$\beta_0(90)$ is the intercept in the regression equation fitted to PDHS 1990-1991

$\beta_0(07)$ is the intercept in the regression equation fitted to PDHS 2006-2007

The difference in the intercepts was obtained from subtracting the 2007 intercept from the 1990 intercept. The interaction component of the difference in logits reflects the changes in son preference brought about by the interaction between changes in proportions of the categories as well as their effects on son preference during 1990 and 2007. The compositional component of the difference in logits reflects the changes in son preference brought about by overall variations in proportions of determinants in the duration during 1991-2007. The processual component of the difference in logits represents the changes in contraceptive use brought about by overall variations in the impact of determinants in the duration between 1990 to 2007.

4.5 Conclusion

In chapter four, the endeavor was to outline the methods by which the dependent variable, the independent variables and control variables are to be measured. After dummy coding, the following list of have been maintained and shall be used all through the study. Dependent variable: son preference. independent variables: type of place, age at marriage(older), wife's education (second), agricult, interco1, agediff1, familyt. Control variables: region, sexcomp4, partnersecond. All the seven independent variables had related hypotheses through which their effects on son preference would be measured. The control variables have no related hypotheses. This chapter also presents the statistical methods that are employed in the study. These methods are: descriptive analyses, binary logistic regression, compositional analuysis, processual analysis and lastly decomposition analysis

CHAPTER 5

ANALYSIS AND RESULTS

This chapter presents the empirical analysis and results of proposed model son preference in Pakistan. The population under study is made up of Pakistani women of childbearing age, from 15-49 years. This chapter is divided into four sections. Section 1 presents the descriptive analysis of all the variables included in this study for both datasets (PDHS 1990-1991 and PDHS 2006-2007). Most of the variables are categorical and are described in terms of proportions. The descriptions for all the variables are performed separately for both PDHS 1990-1991 and PDHS 2006-2007 datasets. Section 2 presents the association between independent variables and dependent variables for both 1990-1991 and 2006-2007 datasets. Section 3 presents the binary logistic regression of son preference on selected determinants from 1990-1991 and 2006-2007 datasets. It also presents the association between variables for 1990-1991 and 2006-2007 datasets. Phi-coefficients are used to measure the degree of association. Section 4 presents the decomposition of variables for both datasets and examines the contribution of the selected variable to changes in son preference in Pakistan between the time periods, 1991 and 2007.

5.1 Descriptive Analysis

This section provides a general description for all the variables used in this study. The study uses frequencies and percentages to report all categorical variables, whereas mean, median and modes presented to describe all continuous variables.

5.1.1 Region

Four provinces of Pakistan are included in the study. Provinces are Punjab, Sindh, NWFP and Balochistan.

Table 5.1 Number of Respondents Interviewed in 1990-1991 According to their Provincial/regional Background

Region	1990-1991 Frequency	1990-1991 Valid (%)	2006-2007 frequency	2006-2007 Cumulative (%)
Punjab	2,207	33.4	4,263	42.5
Sindh	1,798	27.2	2,716	27.1
NW Frontier	1,665	25.2	1,862	18.6
Balochistan	1,665	14.2	1,182	11.8
Total	6,611	100.0	10,023	100.0

Table 5.1 shows that 2,207 (33.4%) of the sample respondents live in the province of Punjab and 1,798 (27.2%) of respondents live in Sindh. Additionally, 1,665 (25.2%) respondents live in NW Frontier and 941 (14.2%) live in the province of Blochistan.

Table 5.1 shows that in 2006-2007 4,263 (42.5%) of the sample respondents live in the province of Punjab and 2,716 (27.1%) respondents live in Sindh. Furthermore, 1,862 (18.6) respondents live in NW Frontier and 1,182 (11.8%) respondents live in the province of Balochistan.

5.1.2 Place of Residence

Place of residence is a characteristic that determines access to services and exposure to information pertaining to reproductive health and other aspect of life.

Table 5.2 Number of Respondents Interviewed According to their Place of Residence in 1990-1991 and 2006-2007

	1990-1991 Frequency	1990-1991 Valid (%)	2006-2007 Frequency	2006-2007 Valid (%)
Urban	3,384	51.2	3,830	38.2
Rural	3,227	48.8	6,193	61.8
Total	6,611	100.0	10,023	100.0

Table 5.2 shows approximately half of the sample respondents (n=3,384, 51.2%) live in urban areas, whereas, 3,227 (48.8%) of respondents live in rural areas.

Table 5.2 shows that in 2006-2007, 3,830 (38.2 %) of the sample respondents live in urban areas; whereas 6,193 (61.8%) of the sample respondents live in rural areas.

5.1.3 Educational Level of Respondents

Education is an important factor influencing an individual's attitude and outlook on various aspects of life. The following table presents the educational attainments of the respondents.

Table 5.3 Respondent's Level of Education 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid (%)	2006- 2007 Frequency	2006- 2007 Valid (%)
Primary	5,655	85.5	8,009	79.9
Secondary	956	15.5	2,014	20.1
Total	6,611	100.0	10,023	100.0

(Primary= No education or Primary Education. Secondary= Secondary education or higher education).

Table 5.3 shows that 5,655 (85.5%) of respondents had no education or only received primary education; whereas 956 (14.5%) respondents received secondary or higher education.

Table 5.3 shows that in 2006-2007, 8,009 (79.9%) of respondents have no education or only received primary education; whereas 2,014 (20.1%) respondent received secondary or higher education.

5.1.4 Age of Respondent at the Time of Marriage

Age at marriage means the time of Rukhsati or when the bride and bridegroom start living together (PDHS, 2006-2007). The minimum legal age at marriage in Pakistan is 18 years for males and 16 years for females. Nikah and Rukhsati are two different terms for marriage. Nikah means that a girl is legally married, but that she may or may not have yet started living with her husband and Rukhsti mean when bride and groom start living together.

Table 5.4 Age of Respondents Below and Above the Age of 30 At the time of First Marriage in 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid (%)	2006- 2007 Frequency	2006- 2007 Valid (%)
Younger (till the age 30)	5,152	77.9	7,598	75.8
Older (Above 30)	1,459	22.1	2,425	24.2

Table 5.4- *continued*

Total	6,611	100.0	10,023	100.0
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(Younger= till the age of 30. Older= above the age of 30).

Table 5.4 shows that 5,152 (77.9%) of the sample respondent are below 30 years of age at the time of their marriage; whereas 1,459 (22.1%) respondents are above the age of 30 at the time of their marriage.

Table 5.4 shows that 7,598 (75.8%) of the sample respondents are below 30 years of age at the time of their marriage, whereas 2,425 (24.2%) respondents are above the age of 30.

The comparison of the two data sets shows that there is a slight increase in females' age at first marriage. In 1990-1991 the mean age of first marriage for females was 17.83 years, whereas in 2006-2007 it increased by half a year and is now 18.29 years of age at first marriage.

5.1.5 Agricultural and Non-Agricultural Households

Agricultural and non- agricultural households are important characteristics that shed light on the thinking of people toward their priorities, especially toward son preference in Pakistan.

Table 5.5 Number of Respondents by Their Agricultural and Non-Agricultural Households in Pakistan in 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid (%)	2006- 2007 Frequency	2006- 2007 Valid (%)
Non Agricultural households	4,873	77.1	7,990	79.7
Agricultural households	1,447	22.9	2,032	20.3
Missing	291		1	
Total	6,611	100.0	10,023	100.0

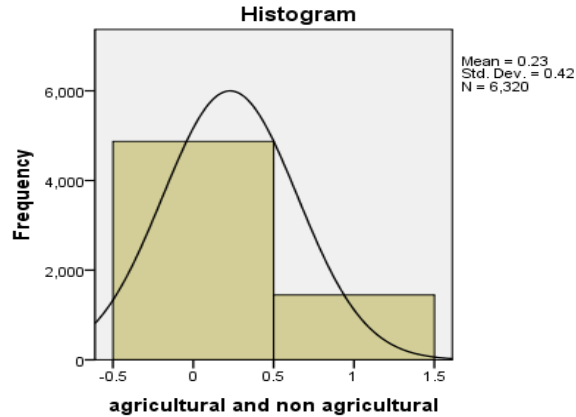


Figure 5.1 Histogram of Agricultural and Non- Agricultural Households 1990-1991

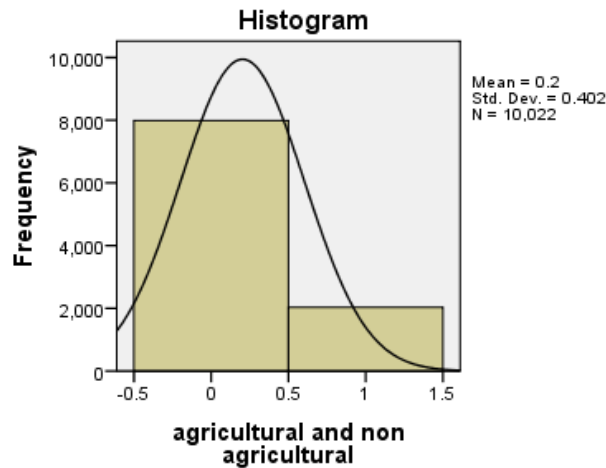


Figure 5.2 Histogram of Agricultural and Non-Agricultural Households 2006-2007

Table 5.5 shows that in 1990-1991, 4,873 (73.7%) of the sample respondents were involved in non agricultural professional activities, while 1,447 (21.9%) respondents performed agricultural activities.

Table 5.5 shows that 7,990 (79.7%) of respondent are involved in non agricultural professional activities and 2,032 (20.3%) respondents perform agricultural activities.

The comparison of two datasets indicates that there is an increase in non-agricultural activities from 1991-1992 to 2006-2007.

5.1.6 Family Type (Extended/Joint, Non-Extended/ Nuclear)

Extended/joint family system is very strong in Pakistan. People prefer to live in joint family. The following table presents the family type in Pakistan

Table 5.6 Number of Respondents Living in Extended and Non- Extended Families in Pakistan 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid (%)	2006- 2007 Frequency	2006- 2007 Valid (%)
Non extended family	2,232	33.8	3,904	39.0
Extended family	4,379	66.2	6,119	61.0
Total	6,611	100.0	10,023	100.0

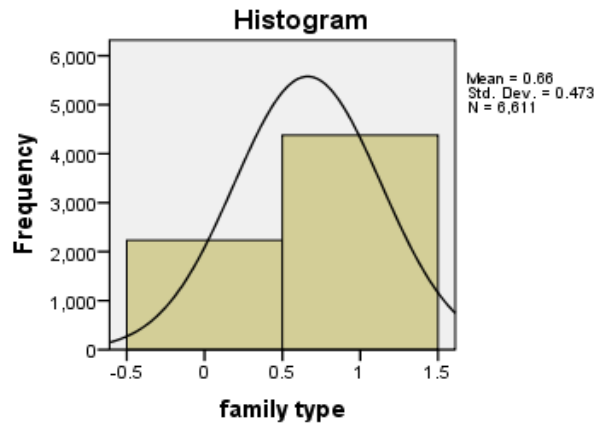


Figure 5.3 Histogram of Type of Family in 1990-1991

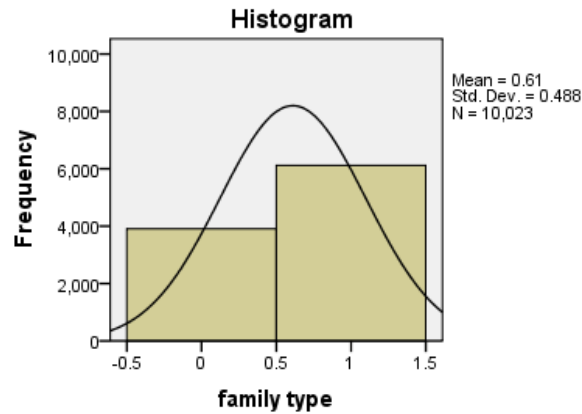


Figure 5.4 Histogram of Type of Family in 2006-2007

Table 5.6 presents the distribution of family structure in Pakistan in 1990-1991. The table indicates that 2,232 (33.8%) of total respondents belong to non-extended families, whereas 4,397 (66.2%) total respondents belong to extended families.

Table 5.6 shows that 3,904 (33.8%) of total respondents belong to non-extended families; whereas, 6,119 (61.0%) total respondents belong to extended families.

The two data sets show that there is a slight increase in non-extended family types from 1990-1991 when compared to later family types from 2006-2007

5.1.7 Inter- Cousins Marriages.

Pakistan has one of the highest reported rates of consanguineous (inter-cousin) marriages in the world. (PDHS 2006-2007). The following table presents that pattern of marriage in Pakistan

Table 5.7 Percentage of respondents Married out of Family and Within Family in Pakistan 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 valid (%)	2006- 2007 Frequency	2006- 2007 Valid (%)
Out of family	2,697	40.9	3,423	36.6
Within family/blood relation	3,900	59.1	5,938	63.4
Missing	14		662	
Total	6,611	100.0	10,023	100.0

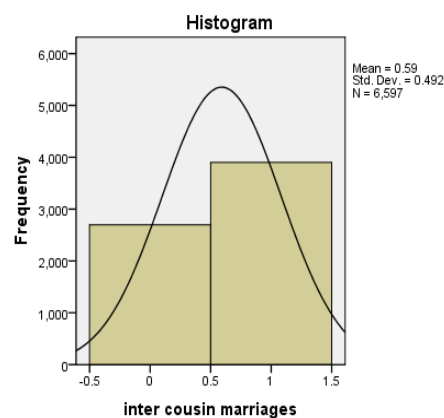


Figure 5.5 Histogram of Inter- Cousin Marriages 1990-1991

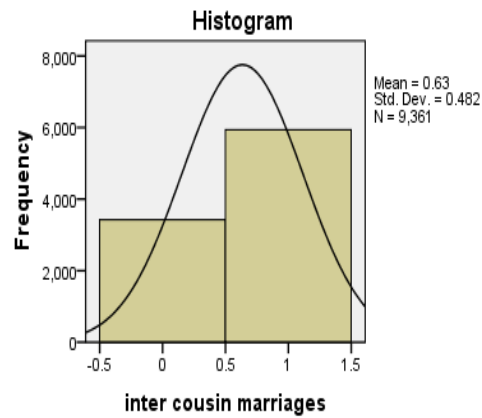


Figure 5.6 Histogram of Inter-cousin Marriages 2006-2007

Table 5.7 shows that 2,697 (40.8%) respondents married out of the family and do not have any type of blood relation. On the other hand, 3,900 (59.0%) respondents are married within the family in Pakistan in 1990-1991

Table 5.7 shows that 3,423 (34.2%) respondents are married outside of the family and they do not have any type of blood relation while 5,938 (59.2%) respondents are married within the family.

The comparison of two data sets shows that there is no change in people's behavior regarding marrying within family. People still prefer to marry their children within the family.

5.1.8 Age Difference between Husband and Wife at the Time of Marriage

A new variable "age diff" is created to measure the age difference between husband and wife for both 1990-1991 and 2006-2007 datasets. The wife's age is subtracted from husband's age for both data sets. A positive number indicates that husband is older than wife and a negative number indicates that wife is older than husband. The greater the positive age difference, the greater the son preference.

Table 5.8 Mean Age Difference between Husband and Wife at the Time of Marriage in Pakistan 1990-1991 and 2006-2007

	1991-1992	2006-2007
Valid	6,308	9,540
Missing	303	483
Mean	6.85	5.85
Median	5.00	5.00
Mode	5	2
Std. Deviation	6.1	5.821
Skweness	1.581	1.707
Std. Error of Skewness	.031	.025
Kurtosis	5.342	7.391
Std. Error of Kurtosis	.062	.050
Minimum age difference	-18	-20
Maximum age difference	59	65

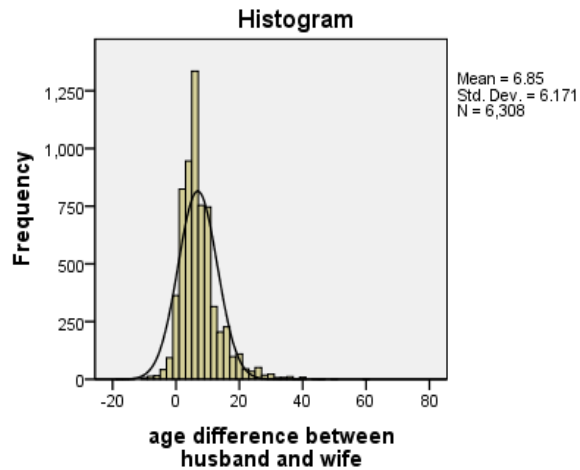


Figure 5.7 Histogram of Age Difference between Husband and Wife 1990-1991

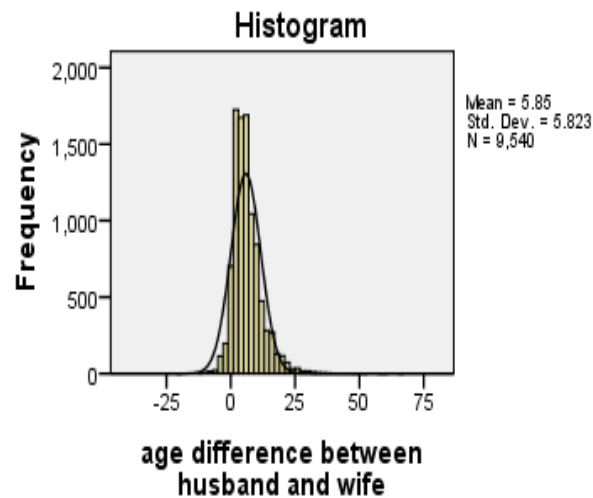


Figure 5.8 Histogram of Age Difference between Husband and Wife 2006-2007

Table 5.8 indicates the age difference between a husband and wife at the time of their marriage in Pakistan in 1990-1991. Table 5.8 indicates that the mean age difference between a husband and wife at the time of their marriage is 6.85 years; the median and mode are 5 years, standard deviation is 6.1, skewness, is 1.581, and kurtosis is 5.342. This suggests the distribution is leptokurtic. The table also indicates that the minimum age difference between husband and wife is -18 (indicating that the wife is 18 years older than the husband) and a maximum age difference is 59 years (indicating that the husband is 59 years older than the wife).

Table 5.8 shows the age difference between a husband and wife in 2006-2007. Table 5.8 shows that the mean age difference between a husband and wife at the time of their marriage is 5.85 years, with a median age difference between a husband and wife of 5 years and a mode of 2 years. Standard deviation is 5.82. The data reveals that on the average, the husband is about six years older than the wife. In Pakistan mostly husbands are older than wives; skewness, is 1.707, and kurtosis, is 7.391. This suggests that distribution is leptokurtic. The table indicates that the minimum age difference between husband and wife is -20 (which

indicate that the wife is 20 years older than her husband) and a maximum age difference of 65 years (which shows that the husband is 59 years older than his wife).

5.1.9 Husband's Educational Level in Pakistan

Table 5.9 Husband's Educational Level in Pakistan 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid (%)	2006- 2007 Frequency	2006- 2007 Valid (%)
Primary	4,035	61.0	5,264	52.5
Secondary	2,579	39.0	4,759	47.5
Total	6,611	100.0	10,023	100.0

(Primary= No education or Primary Education. Secondary= Secondary education or higher education).

Table 5.9 shows that 4,035 (61%) of respondent's partners are in the category of no education or primary education, whereas 2,576 (39%) of respondents' partners are in the category of secondary or higher education.

Table 5.9 shows 5,264 (52.2%) respondents' husbands received no education or a primary education, whereas 4,759 (47.5%) respondent's partners received a secondary or higher education.

The comparison of the two datasets indicates there is an increase in obtaining secondary and higher education.

5.1.10 Sex composition of Surviving Children

Table 5.10 Number of Sons in the Family in Pakistan in 1990-1991 and 2006-2007

	1990-1991	2006-2007
Valid	6,611	10,023
Mean	2.138	2.572
Median	2.00	2.00
Mode	2	2

Table 5.10 shows the mean number of sons in the family in Pakistan in 1990-1991. Table 5.10 indicates that the mean number of sons in the family is 2. Median and mode is also 2, which indicates a son dominant sex composition in Pakistan in 1990-1991

Table 5.10 shows the mean number of sons in the family in Pakistan in 2006-2007 indicating that the mean, median and mod are 2. This indicates son dominating sex composition in Pakistan in 2006-2007..

5.1.11 Absolute Son Preference

Table 5.11 Percentage of those respondents who only Desire a Son in Pakistan in 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid(%)	2006- 2007 Frequency	2006- 2007 valid (%)
No absolute son preference	6,517	98.6	9,525	95.2
Absolute son preference	94	1.4	481	4.8
Missing			17	100.0
Total	6,611	100.0	10,023	

Results shows that 1.4% of respondents has an absolute preference for sons, indicating they only want sons in the family.

Table 5.11 shows that in 2006-2007 4.8% respondents have an absolute son preference in 2006-2007. The comparison of two data set shows that there is an increase in absolute son preference from 1991-1992 to 2006-2007.

5.1.12 Strong Son Preference

Table 5.12 Percentage of Respondents who has Strong Sons Preference in Pakistan in 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid(%)	2006- 2007 Frequency	2006- 2007 valid (%)
No strong son preference	4,078	61.7	5,354	53.4
Strong son preference	2,533	38.3	4,652	46.5
Missing			17	.1
Total	6,611	100.0	10,023	100.0

The table shows that 2,533 (38.3%) respondents have a strong son preference in Pakistan in 1990-1991. They wish for more sons than daughters.

Table 5.12 shows that 46.5% respondents have a strong son preference in 2006-2007. Comparison of the two datasets also indicates that there is an increase in strong son preference from 1990-1991 to 2006-2007.

5.1.13. Equal Preference

Table 5.13. Percentage of Respondents who have an Equal Preference for Sons and Daughters in Pakistan in 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid(%)	2006- 2007 Frequency	2006- 2007 valid (%)
No equal preference	5,249	79.4	5,451	54.4
Equal Preference	1,362	20.6	4,572	45.6
Total	6,611	100.0	10,023	100.0

Table 5.13 shows that 20.6% of respondents have an equal preference for sons or daughters. Table 5.13 shows in 2006-2007 that 45.6% of respondents have an equal preference for sons or daughters, which indicates a preference for sons.

5.1.14 Son Preference

Table 5.14 Frequency and Percentage of Respondents Who Prefer Sons over daughters in Pakistan in 1990-1991 and 2006-2007

	1990-1991 Frequency	1990- 1991 Valid (%)	2006- 2007 Frequency	2006- 2007 valid (%)
Do not prefer sons	4,078	61.7	5,267	52.5
Son Preference	2,533	38.3	4,756	47.5
Total	6,611	100.0	10,023	100.0

Table 5.14 shows that of 6,611 respondents, 4,078 (61.7%), do not prefer sons over daughters; whereas, 2,533 (38.3%) of respondents prefer sons over daughters.

Table 5.14 shows that in 2006-2007, 5,267 (52.5%) respondents do not prefer sons over daughters; whereas, 4,756 (47.5%) of respondents do prefer sons over daughters.

5.2 Association between Son Preference and Independent Variables Using Chi-Square Analysis

The data analysis is done in several stages. The first step the analysis focuses on is the gross association between the dependent variable and each of hypothesized independent variables. Since most of the selected determinants of son preference are measured at the nominal level (dichotomous variables) phi- and chi-square tests are used to test the hypothesized relationship at gross level.

In the second stage the hypotheses are tested more rigorously by including all the hypothesized variables (independent variables) and the controls. Since the outcome variable is dichotomous, logistic regression will be used in second stage.

This section uses the chi-square test to determine the association between son preference and independent variables, namely *place of residence, women's education, age at marriage, type of family, agricultural and non agricultural households, region, inter-cousin marriages and partner's education*. The phi coefficient is a measure of the degree of association between two binary variables. This section will present separately the association between variables for both datasets. Following are general rules for Phi- coefficient:

-1.0 to -0.7 strong negative association.

-0.7 to -0.3 weak negative association.

-0.3 to +0.3 little or no association.

+0.3 to +0.7 weak positive association.

+0.7 to +1.0 strong positive association.

Table 5.15 Association between Son Preference and Place of Residence in Pakistan in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	266.282	1	0.000
Phi	0.201		0.000

The relationship between son preference and type of place is significant (Pearson chi-square=266.282, df (1), $P < 0.005$). Phi- coefficient for type of place is 0.201, which indicates that type of place has little effect on son preference.

Table 5.16 Association between Son Preference and Place of Residence in Pakistan in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	101.199	1	0.000
Phi	-0.100		0.000

The relationship between son preference and type of place is significant (Pearson chi-square =101.199, df (1), $P < 0.005$). Phi- coefficient for type of place is -0.100, which indicates that type of place has little or no association with son preference

Table 5.17 Association between Son Preference and Women's Education in Pakistan 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	586.595	1	0.000
Phi	0.298		0.000

The relationship between son preference and women's education is significant. Person chi- square is 586.595; degree of freedom is 1 and P value less than 0.005. Phi- coefficient is 0.298 which shows small degree of association between son preference and women's education.

Table 5.18 Association between Son Preference and Women's Education in Pakistan 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	149.169	1	0.000
Phi	-0.122		0.000

The relationship between son preference and women's education is significant. Person chi-square is 149.169, degree of freedom is 1 and P value 0.000, which is less than 0.05. Phi-coefficient is -0.122, which shows little or no association between son preference and women's education in 2006-2007.

Table 5.19 Association between Son Preference and Age of Women at the Time of Marriage in Pakistan in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	17.200	1	0.000
Phi	0.051		0.000

The relationship between son preference and women's age at marriage is significant at the 0.05 level. Pearson chi-square is 17.200; degree of freedom is 1, and P value is less than 0.000. Phi-coefficient is 0.051 which shows no association between son preference and women's age at the time of marriage.

Table 5.20 Association between Son Preference and Age of Women at the Time of Marriage in Pakistan in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	11.210	1	0.001
Phi	-0.33		0.001

The relationship between son preference and women's age at marriage is significant. Pearson chi-square is 11.210; degree of freedom is 1, and P value is less than 0.05. Phi-coefficient shows very little or no association between son preference and women's age at the time of marriage

Table 5.21 Association between Son Preference and Type of Family in Pakistan in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	14.350	1	0.000

Table 5.21- *continued*

Phi	-0.047		0.000
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The results indicate that the relationship between son preference and type of place is significant at the 0.05 level (Person chi-square is 14.350 and df =1). The Phi- coefficient is -0.047 and shows very little or no association between two variables.

Table 5.22 Association between Son Preference and Type of Family in Pakistan in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	8.359	1	0.004
Phi	0.029		0.004

The results indicate that the relationship between son preference and type of family is significant at the 0.05 level (Person chi-square is 8.359 and df =1, P value is 0.000). The Phi-coefficient is 0.029, which shows very little or no association between two variables.

Table 5.23 Association between Son Preference and Agricultural Households in Pakistan in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	139.001	1	0.000
Phi	-0.148		0.000

At the 0.05 level of significance, the result shows that the relationship between son preference and agricultural households is significant (Pearson chi-square is 139.001, df 1, P < 0.005). The Phi- coefficient is -0.148 that indicates a little or very weak association between son- preference and agricultural households.

Table 5.24 Association between Son Preference and Agricultural Households in Pakistan in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	9.487	1	0.002

Table 5.24- *continued*

Phi	0.031		0.002
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At the 0.05 level of significance the result shows that the relationship between son preference and agricultural households is significant (Pearson chi-square is 9.487, df 1, $P < 0.005$). The Phi- coefficient is 0.031, which indicates little association between son- preference and agricultural households.

Table 5.25 Association between Son Preference and Region Punjab in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	107.630	1	0.000
Phi	0.128		0.000

The relationship between son preference and Punjab region is significant. Pearson chi-square is 107.630, df 1 and $P < .005$. Phi coefficient 0.128 indicates weak association or no association between the proportion who express son preference and proportion of respondents in the Punjab and non Punjab regions.

Table 5.26 Association between Son Preference and Region Punjab in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	51.768	1	0.000
Phi	-0.075		0.000

The relationship between son preference and Punjab region is significant. Pearson chi-square is 51.768, df 1 and $P < .005$. Phi coefficient 0.075 indicates weak association or no association between the proportion who express son preference and the proportion of respondents in the Punjab and non Punjab regions.

Table 5.27 Association between Son Preference and Sindh Region in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	6.004	1	0.014
Phi	0.030		0.014

The relationship between son preference and Sindh region is not significant. Pearson chi-square is 6.004, df 1 and P value is 0.014, which is greater than 0.000. Phi coefficient is 0.030. This indicates weak or no association between the proportion who express son preference and the proportion of respondents in Sindh and non Sindh regions.

Table 5.28 Association between Son Preference and Sindh Region in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	14.899	1	0.000
Phi	0.039		0.000

The relationship between son preference and Sindh region is significant. Pearson chi-square is 14.899, df 1 and $P < .005$. Phi coefficient 0.039 indicates weak association or no association between the proportion who express son preference and the proportion of respondents in Sindh and non Sindh regions.

Table 5.29 Association between Son Preference and Region NWF in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	16.145	1	0.000
Phi	-0.049		0.000

The relationship between son preference and NWF region is significant. Pearson chi-square is 16.145 df 1 and P is 0.000 which is less than 0.05. Phi coefficient -0.049 indicates weak association or no association between the proportion who express son preference and the proportion of respondents in NWF and non NWF regions.

Table 5.30 Association between Son Preference and NWF Region in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	62.299	1	0.000
Phi	0.079		0.000

The relationship between son preference and NWF region is significant. Pearson chi-square is 62.299 df 1 and P value is 0.000 which is less than 0.05. Phi coefficient 0.079 indicates weak association or no association between the proportion who express son preference and the proportion of respondents in NWF and non NWF regions.

Table 5.31 Association between Son Preference and Inter-Cousin Marriages in Pakistan in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	9.901	1	0.002
Phi	-0.039		0.002

The relationship between son preference and inter-cousin marriage is significant. Person chi-square is 9.901, df 1, and $P < 0.05$, which is 0.002. The Phi- coefficient shows a weak or no association between son preference and inter-cousin marriages

Table 5.32 Association between Son Preference and Inter-Cousin Marriages in Pakistan in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	0.862	1	0.353
Phi	0.010		0.5353

The relationship between son preference and inter-cousin marriage is not significant. Person chi-square is 0.862, df 1, and $P > 0.05$, which is 0.353. The Phi- coefficient shows a weak or no association between son preference and inter-cousin marriages.

Table 5.33 Association between Son Preference and Partner's Education in Pakistan in 1990-1991

	Value	Df	sig (%)
Pearson Chi-square	339.160	1	0.000
Phi	0.227		0.000

The relationship between son preference and partner's level of education is significant. Pearson chi-square is 339.160, df 1 and $P < 0.05$. Phi coefficient 0.227 indicates little or no association between son preference and partner level of education

Table 5.34 Association between Son Preference and Partner's Education in Pakistan in 2006-2007

	Value	Df	sig (%)
Pearson Chi-square	29.759	1	0.000
Phi	-0.054		0.000

The relationship between son preference and partner's level of education is significant. Pearson chi-square is 26.759, df 1 and $P < 0.05$. Phi coefficient -0.054 indicates weak association or no association between son preference and partner level of education

In this section phi coefficient measured the degree of association between two binary variables. This section also presented the association between variables for both datasets separately. The table below presents the summary of results in table format for better understanding.

Table 5.35 Findings from Analysis of Associations (Phi-coefficient) In 1990-1991 and 2006-2007

Variables	1990-1991 Phi- coefficient	2006- 2007 Phi-co- efficient	Conclusion	
			1991	2007
Type of place	0.201*	-0.100*	Very little or no effect	Very little or no effect
Women education (Second)	0.298*	-0.112*	Very weak effect	Very weak effect

Table 5.35- *continued*

Age at marriage (older)	0.051*	-0.033*	Very little or no effect	Very little or no effect
Familyt	-0.047	0.029	Very little or no association	Very little or no association
Interagri	-0.148*	0.031*	Very little or no association	Very little or no association
Punjab	0.128*	-0.072*	Very little effect	Very little or no association
Sindh	0.030*	-0.039	Very little or no association	Very little or no association
NWF	-0.049	0.079	Very little or no association	Very little or no association
Interco	-0.039*	0.010	Very little or no association	Very little or no association
Partneredu (second)	0.227*	-0.054*	Very little or no association	Very little or no association

Note. Type of place= Rural, Urban, Second= Educational level of respondents=Age of marriage (Olderage) = Age of respondents at time of marriage. Familyt= Type of family, (Extended and non-extended. Agricult1= Agricultural and non-agricultural households. Punjab= Regional background of respondent. Sindh = Regional background of respondent. NWF= Regional background of respondent. Interco1= Inter- cousin marriages. Partneredu (Second) = Educational level of Husband

5.3 T-Test

In this section the analysis focus on the association between the dependent variable and independent variable. Since the two selected determinants are continuous variable, T-tests are used to test the association between dependent and independent variables. T-tests are done for 1991-1992 and 2006-2007 datasets separately.

T-test is the most commonly used method to evaluate the difference in means between two groups. T-Test can be used to test for a difference in test scores between two groups. The p-level reveals that a t-test represents the probability of error involved in accepting the research

hypothesis about the existence of difference. Degree of freedom is number of independent values that remain after mathematical retractions have been applied (Rosenthal, 2001).

5.36 Age Difference between Husband and Wife and Son Preference in 1990-1991

News on pref		Leve n's test for equality of variance	Mean	Std. Deviation	St d. Error mean	
Age difference between husband and wife	No son preference	3,854	7.06	6.457	.104	
	Son Preference	2,454	6.53	5.680	.115	
		Lev ene's test for equality of variance				
Age difference between husband and wife	Equal variance assumed	F	Sig	t	df	Sig. (2 tailed)
		18.341	0.000	3.358	6,306	0.001
	Equal variance not assumed			3.455	5695.361	0.001

At 0.05 level of significant there is a statistical significant difference between the two groups (No son preference and son preference), P value is 0.00 which is <0.05. The T-value under the non-equal variance assumption is 3.455, degree of freedom is 5695, and P value is 0.001 which is <0.05. Result shows that means of 'age difference' vary significantly across categories of son preference.

Table 5.37 Age difference between Husband and Wife and Son Preference in 2006-2007

News on pref		Leve n's test for equality of variance	Mean	Std. Deviation	Std. Error mean
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Table 5.37- Continued

Age difference between husband and wife	No son preference	5,037	5.76	5.584	.079	
	Son Preference	4,503	5.94	6.079	0.091	
		Levene's test for equality of variance				
Age difference between husband and wife	Equal variance assumed	F	Sig	t	df	Sig. (2 tailed)
		10.622	0.001	-1.538	9,538	0.124
	Equal variance not assumed			-1.531	9,184.522	0.126

At 0.05 level of significance there is a statistical significance between two groups (no son preference and son preference). P value is 0.001 which is less than 0.05. The T-value under the non-equal variance assumption is -1.531, degree of freedom is 9184, and P value is 0.126 which is > 0.05. Result shows that means of 'age difference' do not vary significant across categories of son preferences

Table 5.38 Sex Composition of Surviving Children and Son Preference 1990-1991

Newsonpref		Levene's test for equality of variance	Mean	Std. Deviation	Std. Error mean	
sexcomposition	No son preference	3,619	2.51	2.9951	0.0498	
	Son Preference	2,219	2.51	3.1552	0.0670	
		Levene's test for equality of variance				
Sexcomposition	Equal variance assumed	F	Sig	t	df	Sig. (2 tailed)
		6.585	0.060	1.010	5,836	0.313

Table 5.38- Continued

	Equal variance not assumed			0.997	4,503.186	0.319
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At 0.05 level of significance there is no statistical significance between no son preference and son preference in 1991-1992. P value is 0.060 which is > 0.05. The T-value under the non-equal variance assumption is 0.997, degree of freedom is 4503, and P value is 0.319 which is > 0.05. Result shows that means of 'sex composition' do not vary significantly across categories of son preference.

Table 5.39 Sex Composition of Surviving Children and Son Preference 2006-2007

Newsongpref		Levene's test for equality of variance	Mean	Std. Deviation	Std. Error mean	
sexcomposition	No son preference	4,497	2.57	3.077	0.00459	
	Son Preference	4,181	2.47	2.970	0.00461	
		Levene's test for equality of variance				
Sexcomposition	Equal variance assumed	F	Sig	t	df	Sig. (2 tailed)
		.002	.969	15.503	8,676	0.094
	Equal variance not assumed			15.522	8,661.902	0.096

At 0.05 level of significance there is no statistical significance between no son preference and son preference in 2006-2007. P value is 0.969 which is > 0.05. The T-value under the non-equal variance assumption is 15.522 , degree of freedom is 8661, and P value is 0.96 which is > 0.05. Result shows that means of 'sex composition' do not vary significantly across categories of son preference.

5.4 Regression

Logistic regression is a method for determining the relationship between predictor variables and a dichotomously coded dependent variable. Modeling with logistic regression allows one to contrast different theoretical sets of predictor variables. Logistic regression is a method for determining whether each of a set of independent variables has a unique predictive relationship to a dichotomous dependent variable. Independent variables may be dichotomous, or interval in their level of measurement. A common way of assessing the influence of an independent variable on the dependent variable is to look at the odds-ratio which is an index of how likely it is that the client scored either of the two alternatives given values of the independent variable.

Logistic regression is done in three stages. The first stage is the outcome variable son preference, and is regressed on each of the hypothesized determinants. The direction and level of significance of odds ratios provide information to assess the level of empirical support for the proposed hypotheses. In the second stage net effects of each variable on son preference will be assessed with the rest of the independent variables in the model. The direction and significance of the net effect variables provide information to assess the level of empirical support for each of the variables controlling for the rest of the independent variables in the model. In the last stage hypotheses are tested including all control variables in addition to all the independent variables.

In order to assess the level of empirical support for each hypothesis I have developed a scheme as follows:

Strong Support= Gross effect odds ratio, net effect odds ratio without controls and odds ratio with controls; all three are significant and in the direction of hypothesized.

Moderate Support= Odds ratio without and odds ratio with controls are significant and in the direction of hypothesized.

Weak Support. Either odds ratio without control or odds ratio with controls is significant and in the direction of hypothesized.

Very Weak Support. Only gross ratio is significant and in the direction of hypothesized.

If the gross effect of the variable is not significant and odds ratio is in the wrong direction, the hypothesis related to the variable is viewed as being not supported. If the gross effect is significant but odds ratio is in the wrong direction, the evidence is viewed as being contradictory to the proposed hypothesis related to the variable. And if the net effects of the independent variables, with or without the control variables, are significant but the odds are in the wrong direction, the evidence for the hypothesis is considered as contradictory

Table 5.40 Regression of Son Preference on Hypothesized Determinants. Net and gross effect 1990-1991

Variables	Gross Effect Odds Ratio	Odds Ratio (Without control)	Odds Ratio (With control)
Agricult1	0.459*	0.739*	0.751*
Type of place	2.321*	1.607*	1.750*
Familyt	0.818	0.866	0.879
Older age(ref. young age)	1.283	1.016	0.980
Second (ref.: No edn	5.808*	4.389*	3.364*
Agediff	0.989	0.993	0.994
Control Variables			
Punjab	1.733*		3.342*
Sindh	1.148		2.425*
NWF	0.788*		1.982*
Husband second	2.597*		1.379*
Interco1	0.851*		0.973
Sexcomp4	1.093		1.214

Note. * P < 0.05. Agricult1= Agricultural and non-agricultural households. Type of place=Rural, Urban. Familyt= Type of family, (Extended and non-extended). Olderage= Age of respondents at time of marriage. Second= Educational level of respondents. Agediff= Age difference

between husband and wife. Punjab= Regional background of respondent. Sindh = Regional background of respondent. NWF= Regional background of respondent. Husband second= Educational level of Husband. Interco1= Inter- cousin marriages. Sexcomp4= sex composition of surviving children.

5.4.1 Agricultural Households 1990-1991

A regression analysis was conducted by using the 1990-1991 dataset to determine the net effect of agricultural households without control variables, with control variables, and the gross effect of the both independent and control variables.

Hypothesis: People belonging to agricultural households are more likely to prefer sons as compared to people who belong to non agricultural households.

Agricultural households are compared to non- agricultural households. From the results above, it is observed that there is statistically significant difference between agricultural and non agricultural households, $P < 0.05$. The gross effect of agricultural household on son preference is estimated in terms of odds ratios. The odds of son preference in agricultural households is 0.459 times the odds of son preference in non-agricultural households. The relationship is significant, but not in the direction hypothesized. When all the hypothesized independent variables are introduced, the odds of son preference, agricultural households is 0.739 times the odds of son preference in non-agricultural households. Thus, even after including independent and control variables, the effect of agricultural households on son preference remains more or less the same in magnitude (0.751). All three effects are significant but not in the direction hypothesized.

5.4.2 Type of Place 1990-1991

Hypothesis: Urban households are less likely to have son preference than rural households.

Urban areas are compared to rural areas. From the results above, it is noted that there is statistically significant difference between urban and rural areas. $P > 0.05$. The gross effect of type of place (urban, rural) is significant. The gross effect of urban households on son preference is estimated in terms of odds ratios. The odds of son preference in urban households are 2.321 times the odds or son preference in rural households. The relationship is

significant but in the opposite direction of hypothesized. When all the hypothesized independent variables are introduced the odds of son preference in urban areas are 1.607 times the odds of son preference in rural area. Though the result is significant it is not in the direction hypothesized. Thus, even after including independent variables and control variables, the effect of rural areas on son preference remains more or less the same in magnitude, 1.750. Though the results are significant, they are not in the direction hypothesized.

5.4.3 Family Type (Extended Vs Non-extended) 1990-1991

Hypothesis: Women in joint and extended families are more likely to have son preference than women in nuclear families

Women in extended or joint families are compared to women in non-extended or nuclear families. Results indicate that there is no statistically significant difference between extended and non-extended families. The gross effect of extended family on son preference is estimated in terms of odds ratio. The odds of son preference in extended families are 0.818 times the odds of son preference in non-extended families. Result is not statistically significant. When all hypothesized independent variables are introduced with the odds of son preference of extended families are 0.866 times the odds of son preference in non-extended families. Thus even after including independent variables and control variables, the effect of extended families on son preference remains more or less the same in magnitude (0.879). Results are not statistically significant.

5.4.4 Age at Marriage 1990-1991

Hypothesis: As age at marriage increases, son preference is likely to decrease.

Age at first marriage is compared in terms of older and younger. The gross effect of older age on son preference is estimated in terms of odds ratios. The odds of son preference in older age at the time of marriage are 1.283 times the odds of son preference in younger age at the time of marriage. The relationship is not significant. When all the hypothesized independent variables are introduced, the odds of son preference of older age are 1.016 times to odds of son

preference of younger age. Thus even after including the independent variables and control variables the effects of older age on son preference remains more or less the same in magnitude (0.0980). Results are not statistically significant.

5.4.5 Women's Education 1990-1991

Hypothesis: The higher the level of education of women, the lower the son preference

Educated women are compared to uneducated women. From the results above it is observed that there is statistically significant difference between educated and uneducated women. The gross effect of high level of women's education on son preference is estimated in terms of odds ratios. The odds of son preference among highly educated women are 5.808 times the odds of son preference in lower level of education or uneducated women. When all hypothesized independent variables are introduced the odds of son preference of highly educated women are 4.389 times the odds of son preference in uneducated women. Thus, even after including independent and control variables, the effect of education on son preference remains more or less the same in magnitude (.3.364). The results are significant but they are not in the direction of hypothesized.

5.4.6 Age Difference between Husband and Wife 1990-1991

Hypothesis: The smaller the age differences between spouses, the lower the level of son preference.

From the results above it is observed that age difference between husband and wife is not statistically significant. The gross effect of age difference between husband and wife is estimated in terms of odd ratios. The odds of son preference among smaller age difference between husband and wife are 0.986 times the odds of son preference in greater age difference between husband and wife. Result is not statistically significant. When all the hypothesized independent variables are introduced, the odds of son preference of smaller age difference between husband and wife are 0.993 times the odds of son preference in greater age difference between husband and wife. Result is not statistically significant. Thus even after including

independent variables and control Variables, the result remains the same in magnitude (0.994).

Results are not statistically significant.

Table 5.41 Regression of Son Preference on Hypothesized Determinants. Net and Gross Effect, 2006-2007.

Variables	Gross Effect Odds Ratio	Odds Ratio (Without control)	Odds Ratio (With control)
Agricult1	1.165*	1.005*	1.002*
Type of place	0.659*	.747*	.765*
Familyt	1.126*	1.119*	1.100
Older age(ref. young age)	0.855*	.978*	.963
Second (ref.: No edn)	0.535*	.608*	.635*
Agediff	1.005	1.002	0.999
Control Variables			
Punjab	0.747*		.591*
Sindh	0.840*		.599*
NWF	1.501*		.946
Husband second	0.803*		.962
Interco1	1.041		.979*
Sexcomp4	2.982*		2.997*

Note *indicates Significance $P > 0.05$. Agricult1= Agricultural and non-agricultural households. Type of place=Rural, Urban. Familyt= Type of family, (Extended and non-extended). Olderage= Age of respondents at time of marriage. Second= Educational level of respondents. Agediff= Age difference between husband and wife. Punjab= Regional background of respondent. Sindh = Regional background of respondent. NWF= Regional background of respondent. Husband second= Educational level of Husband. Interco1= Inter- cousin marriages. Sexcomp4= sex composition of surviving children.

5.4.7 Agricultural Households 2006-2007

Hypothesis: People belonging to agricultural households are more likely to prefer sons as compared to people belonging to non agricultural households.

The gross effect of agricultural household on son preference is estimated in terms of odds ratios. The odds of son preference in agricultural households are 1.165 times the odds of son preference in non-agricultural households. The relationship is significant, and in the direction hypothesized. When all the hypothesized independent variables are introduced the odds of son preference in agricultural households are 1.005 times the odds of son preference in non-agricultural households. The result is significant and in the direction hypothesized. After including independent variables and control variables in the model, the odds of son preference in agricultural households are 1.002 times the odds of non-agricultural households. Result is statistically significant and in the direction of hypothesized.

5.4.8 Type of Place 2006-2007

Hypothesis: Urban households are less likely to have son preference than rural households

Urban areas are compared to rural areas. From the results above, it is observed that there is statistically significant difference between urban and rural areas. $P > 0.05$. The gross effect of type of place (urban, rural) is significant. The gross effect of urban households on son preference is estimated in terms of odds ratios. The odds of son preference in urban households are 0.659 times the odds of son preference in rural households. The relationship is significant and in the direction of hypothesized. When all the hypothesized independent variables are introduced the odds of son preference in urban areas are 0.747 times the odds of son preference in rural area. Result is statistically significant, and in the direction hypothesized. Thus, even after including independent variables and control variables, the effect of rural areas on son preference remains more or less the same in magnitude, 0.765. Results are significant, and in the direction of hypothesized.

5.4.9 Family Type/ Extended Vs Non- Extended

Hypothesis: Women in joint and extended families are more likely to have son preference than women in nuclear families.

Women in extended or joint families are compared to women in non-extended or nuclear families. The gross effect of extended family on son preference is estimated in terms of odds ratio. The odds of son preference in extended families are 1.126 times the odds of son preference in non-extended families. Result is statistically significant and in the direction of hypothesized. When all hypothesized independent variables are introduced with the odds of son preference of extended families are 1.119 times the odds of son preference in non-extended families. Result is statistically significant and in the direction of hypothesized. Thus even after including independent variables and control variables, the effect of extended families on son preference remains more or less the same in magnitude (1.100), but results are not statistically significant. Gross effect odd ratio and odd ratio without controls are significant and in the direction of hypothesized but odd ratio with controls is not significant.

5.4.10 Age at Marriage 2006-2007

Hypothesis: As age at marriage increases, son preference is likely to decrease.

Age at first marriage is compared in terms of older and younger. The gross effect of older age on son preference is estimated in terms of odds ratios. The odds of son preference in older age at the time of marriage are 0.855 times the odds of son preference in younger age at the time of marriage. The relationship is significant. When all the hypothesized independent variables are introduced, the odds of son preference of older age are 0.978 times than odds of son preference of younger age. Thus even after including the independent variables and control variables the effects of older age on son preference remains more or less the same in magnitude (0.963). Results are not statistically significant. Only gross effect is significant which prove very weak support.

5.4.11 Women's Education 2006-2007

Hypothesis: The higher the level of education of women, the lower the son preference

Educated women are compared to uneducated women. From the results above it is observed that there is a statistically significant difference between educated and uneducated

women. The gross effect of high level of women's education on son preference is estimated in terms of odds ratios. The odds of son preference among highly educated women are 0.535 times the odds of son preference in lower level of education or uneducated women. When all hypothesized independent variables are introduced, the odds of son preference of highly educated women are 0.608 times the odds of son preference in uneducated women. Thus, even after including independent and control variables, the effect of educated women on son preference remains more or less the same in magnitude (0.635). Results are significant and in the direction of hypothesized.

5.4.12 Age Difference between Husband and Wife 2006-2007

Hypothesis: The smaller the age difference between spouses, the lower the level of son preference

The gross effect of age difference between husband and wife is estimated in terms of odds ratios. The odds of son preference among smaller age difference between husband and wife are 1.005 times the odds of son preference in greater age difference between husband and wife. Result is not statistically significant. When all the hypothesized independent variable are introduced the odds of son preference of smaller age difference between husband and wife are 1.002 times the odds of son preference in greater age difference between husband and wife. Result is not statistically significant. Thus even after including independent variables, the result remains the same in magnitude (0.990). Results are not statistically significant.

The table below shows the strength of hypotheses in 1991-1992- and 2006-2007. The conclusion is based on a downsize premise. For example if the strength of a hypothesis is strong in 1991 and moderate in 2007, the overall conclusion for that hypothesis will be considered as moderate.

A summary table comparing the 1990-1991 and 2006-2007 hypotheses is provided below

Table 5.42 Summary of Hypotheses and their Support for Both 1990-1991 and 2006-2007.

	Hypothesis	1990-1991	2006-2007	Conclusion
Extended vs Non extended	Women in joint and extended families are more likely to have son preference than women in nuclear families	No support	Moderate Support	No support
Urban vs rural	Urban household are less likely to have son preference than rural households	Contradictory	Strong support	contradictory
Age at marriage	Age at marriage increases, son preference is likely to decrease	No support	Weak support	No support
Age difference between husband and wife	The smaller the age difference between husband and wife the lower the level of son preference	No support	No support	No support
Agricultural vs non agricultural	People who belong to agricultural households are more likely to prefer sons as compared to people belong to non-agricultural households	Contradictory	Strong support	Contradictory
Higher vs lower or no education of women	Higher the level of education of women, lower the son preference	Contradictory	Strong support	contradictory

From the regression analyses conducted, the results above, the significant p values, odds ratios, and hypothesized directions of three selected determinants show contradictory support for the hypotheses in this study. The variables agricultural households, the type of place, and women's education are significant at the level $p < 0.5$, in 1991 but not in the direction of hypothesized. In 2007 type of place, agricultural and non agricultural household and women education are significant and in the direction of hypothesized. Type of family shows moderate

support in 2007 which was not supported in 1991. Age at marriage shows weak support which was not supported in 1991.

5.5 Decomposition of the Effects of Variables on Son Preference During 1990-1991 and 2006-2007

The data analysis focusing on testing son preference in Pakistan did not take into consideration over time changes in either the independent variables or the dependent variable. This section addresses issues of changes in son preference over time.

The analysis is done in three stages. First, the compositional changes in all the variables are examined during 1990-2007. Next the changes in effect of all the variables are examined. Finally the changes in son preference during 1991-2007 are decomposed into compositional, processual and interaction effects using the following set of equations:

$$\text{logit (C07)} - \text{Logit (C91)} = [\beta_{0(07)} - \beta_{0(91)}] + \sum P_{ij(07)} (\beta_{ij(07)} - \beta_{ij(91)}) + \sum \beta_{ij(91)} (P_{ij(07)} - P_{ij(91)}) + \sum (P_{ij(07)} - P_{ij(91)})(\beta_{ij(07)} - \beta_{ij(91)}).$$

$P_{ij(91)}$ is the proportion of the j th category of the i th determinant in PDHS 1991-1992

$P_{ij(07)}$ is the proportion of the j th category of the i th determinant in PDHS 2006-2007

$\beta_{ij(91)}$ is the coefficient of the j th category of the i th determinant in PDHS 1991-1992

$\beta_{ij(07)}$ is the coefficient of the j th category of the i th determinant in PDHS 2006-2007

$\beta_0(91)$ is the intercept in the regression equation fitted to PDHS 199-1992

$\beta_0(07)$ is the intercept in the regression equation fitted to PDHS 2006-2007

5.5.1 Compositional Analysis Using Phi Co-efficient

The phi coefficient is a measure of the degree of association between two binary variables. The phi-coefficient is used to find out or measure the association between two variables when these variables are categorical or dichotomous (Vogt, 2005). This section will present the compositional change in independent variables from 1990 to 2007. The compositional description focuses on the difference in the composition of members of each cohort (Pillai & Teboh, 2010).

Following are general rules for Phi- coefficient.

-1.0 to -0.7 strong negative association.

-0.7 to -0.3 weak negative association.

-0.3 to +0.3 little or no association.

+0.3 to +0.7 weak positive association.

+0.7 to +1.0 strong positive association.

Table 5.43 Compositional Change in Urban and Rural Type of Place from 1990 to 2007

	Value	Df	sig (%)
Pearson Chi-square	273.067	1	0.000
Phi	-0.128		0.000

Table 5.43 shows the significant compositional changes in type of residence from 1990 to 2007. Pearson chi-square is 273.067, df is 1, and P value is 0.000 which is less than 0.05. The Phi coefficient is -0.128, which indicates little or no association. Table 5.43 shows that a compositional change in type of place is significant, though the magnitude is weak.

Table 5.44. Compositional change in Women's Education from 1990 to 2007

	Value	Df	sig (%)
Pearson Chi-square	86.181	1	0.000
Phi	0.072		0.000

Table 5.44 indicates the significant compositional changes in women's education from 1990 to 2007. Pearson chi-square is 86.181, df is 1, and P Value is 0.000 which is less than 0.05. Phi coefficient is 0.072, which indicates little or no association. Table 5.44 shows that a compositional change in women's education across the two datasets is significant, though the magnitude is weak.

Table 5.45 Compositional Change in Agricultural and Non- Agricultural Households from 1990 to 2007

	Value	Df	sig (%)
Pearson Chi-square	15.880	1	0.000
Phi	-0.031		0.000

Table 5.45 indicates that compositional change in agricultural and non- agricultural households from 1990 till 2007 is significant. Pearson chi-square is 15.880, the df=1 and P is less than 0.05. Phi- coefficient indicates little or no association.

Table 5.46 Compositional Change in Extended and Non- Extended Families from 1990 till-2007

	Value	Df	sig (%)
Pearson Chi-square	46.063	1	0.000
Phi	-0.053		0.000

Table 5.46 indicates the significant compositional changes in type of family from 1990 to 2007. Pearson chi-square is 46.063, df is 1 and P value is 0.000, which is less than 0.05. Phi coefficient is -0.053, which indicates little or no association. Table 5.46 indicates that a compositional change in type of family across two datasets is significant, though its magnitude is weak.

Table 5.47 Compositional Change in Inter-Cousin Marriages from 1990- 2007

	Value	Df	sig (%)
Pearson Chi-square	30.484	1	0.000
Phi	0.044		0.000

Table 5.47 shows the significant compositional changes in inter-cousin marriages from 1990 to 2007. Pearson chi-square is 30.484, df is 1 and P value is 0.000, which is less than 0.05. Phi coefficient is 0.044, which indicates little or no association. Table 5.47 shows that compositional changes in inter-cousin marriages are significant though the magnitude is weak.

Table 5.48 Compositional Change in Age at Marriage from 1990 till 2007

	Value	Df	sig (%)
Pearson Chi-square	10.051	1	0.002
Phi	0.025		0.002

Table 5.48 indicates the significant compositional changes in age at marriage from 1990 to 2007. Pearson chi- square is 10.051, df is 1 and P value is 0.002 which is less than 0.05. Phi coefficient is 0.025, which indicates little or no association. Table 5.48 shows that compositional change in age at marriage is significant though the magnitude is week.

Table 5.49 Compositional Change in Punjab (Region) from 1990-2007

	Value	Df	sig (%)
Pearson Chi-square	140.277	1	0.000
Phi	0.092		0.000

Table 5.49 indicates the significant compositional changes in Punjab from 1990 to 2007. Pearson chi- square is 140.277, df is 1 and P is 0.000, which is less than 0.05. Phi coefficient is 0.092, which indicates little or no association. Table 5.49 shows that compositional change in Punjab (as region) is significant though the magnitude is week.

Table 5.50 Compositional Change in Sindh (Region) from 1990 till 2007

	Value	Df	sig (%)
Pearson Chi-square	0.020	1	0.888
Phi	-0.001		0.000

Table 5.50 indicates that there is no any significant compositional change in Sindh (as region) from 1990 to 2007.

Table 5.51 Compositional Change in NWF (Region) from 1990 till 2007

	Value	Df	sig (%)
Pearson Chi-square	104.111	1	0.000
Phi	-0.079		0.000

Table 5.51 indicates the significant compositional changes in NWF (as region) from 1990 to 2007. Pearson chi-square is 104.111, df is 1 and P is 0.000, which is less than 0.05. Phi coefficient is -0.079, which indicates little or no negative association. Table 5.51 shows that a compositional change in NWF (as region) is significant though the magnitude is weak.

5.52 Compositional Change in Husband's Educational Level from 1990- 2007

	Value	Df	sig (%)
Pearson Chi-square	117.176	1	0.000
Phi	0.084		0.000

Table 5.52 indicates the significant compositional changes in husband educational level from 1990 to 2007. Pearson chi-square is 117.176, df is 1 and P value is 0.000 which is less than 0.05. Phi coefficient is 0.084, which indicates little or no association. Table 5.52 shows that compositional change in husband educational level is significant though the magnitude is weak.

The above section measured the phi coefficient. The phi coefficient is a measure of the degree of association between two binary variables. The phi-coefficient is used to find out or measure the association between two variables when these variables are categorical or dichotomous (Vogt, 2005). This section presented the compositional change in independent variables from 1990 to 2007. The compositional description focused on the difference in the composition of members of each cohort (Pillai & Teboh, 2010).

Table 5.53 Summary of Compositional Changes in Variables from 1990-2007

Variable	Phi- coefficient	Significance	Direction of change
Type of place	-0.128	0.000	-

Table 5.53- *Continued*

Women education (second)	0.072	0.000	+
Age at marriage	0.025	0.002	+
Familyt	-0.053	0.000	-
Interagri	-0.031	0.000	-
Punjab	0.092	0.000	+
Sindh	-0.020	0.888	-
NWF	0.079	0.000	-
Interco1	0.044	0.000	+
Partneredu (second)	0.084	0.000	+

Note. Type of place= Rural, Urban, Second= Educational level of respondents. Age of marriage (Olderage) = Age of respondents at time of marriage. Familyt= Type of family, (Extended and non-extended. Agricult1= Agricultural and non-agricultural households. Punjab= Regional background of respondent. Sindh = Regional background of respondent. NWF= Regional background of respondent. Interco1= Inter- cousin marriages. Partneredu (Second) = Educational level of Husband

The table shows that there is tremendous social change. Both compositional and processual changes in variables are significant over the period of time from 1991 to 2007.

5.6 Compositional Analysis by Using T-Test

In this section the compositional changes in two continuous variables are examined during 1990-2007. T-test is usually used to find out whether the average or means of two or more groups of people or things differ (Hair et al, 2006). The following tables are t-test results as determined for the continuous variables used in the study.

Table 5.54 Age Difference between Husband and Wife during 1990-2007

	N	Mean	Std. Deviation	Std. Error mean
Age at first marriage 1990	6,308	6.85	6.171	0.078
2007	9,540	5.85	5.823	0.060

Table 5.54-Continued

	Leven e's test for equality of variance				
Age at first marriage	F	Sig	t	df	Sig. (2 tailed)
Equal variance assumed	14.838	0.000	10.410	1,5846	0.000
Equal variance not assumed			10.288	1,2951.172	0.000

An independent t-test was conducted to compare the mean scores of age difference between husband and wife at the time of marriage between 1990-1991 and 2006-2007. At 0.05 level of significance there is a statistical significance in age difference between husband and wife in 1991-1992 and 2006-2007.). P value is 0.000 which is less than 0.05. The T value under equal variance assumption is 10.410, degree of freedom is 15846 and P value is 0.00 which is less than 0.05. Results shows that means of age difference slightly vary between 1990-1991 and 2006-2007.

Table 5.55 T- Test for Sex Composition of Surviving Children

	N	Mean	Std. Deviation	Std. Error mean	
Sex composition of surviving children 1990	5,838	2.138	2.617	0.048	
2007	8,678	2.572	2.897	0.028	
	Leven e's test for equality of variance				
Sex composition of surviving children	F	Sig	t	df	Sig. (2 tailed)
Equal variance assumed	5.17	0.472	2.572	1,4514	0.000
Equal variance not assumed			2.574	1,2561.662	0.000

An independent sample T-test was conducted to compare the mean scores of number of sons in the family between 1990-1991 and 2006-2007. At 0.05 level of significance there is a statistical significance difference in sex composition of surviving children between 1990-1991 to 2006-2007. P value is less than 0.05. The t- value under equal variance assumption is 2.572, degree of freedom is 14514 and P value is 0.00 which is less than 0.05. Results show that mean number of surviving sons increase in 2006-2007.

5.7 Interaction Effect

This section addresses processual or effect changes of the selected determinants across cohorts over the two time periods 1990-1991 and 2006-2007. The interaction variable was computed by multiplying an individual variable by data derived from the two time periods. For example the interaction variable for type of place is $interplace = typeofplace * data$.

The regression includes the main effects and the interaction effects for every variable. For example in estimating the interaction effect of $interplace$, three variable are included in the regression : the interaction variable $interplace$ includes the main effect variable, data, and type of place.

The table below indicates that the interaction effect of all independent variables on son preference.

Table 5.56 Interaction Effect of Independent Variables on Son Preference 1990 - 2007

Variables	Effect change (odds Ratio)	Significance	1990 till 2007 (changes)
Type of place	0.284	0.000	The effect change is significant
Women education (second)	0.092	0.000	The effect change is significant
Age at marriage (older)	0.666	0.000	The effect change is significant
Familyt	1.377	0.000	The effect change is significant

Table 5.56- *Continued*

Interagri	2.538	0.000	The effect change is significant
Agediff2	1.020	0.000	The effect change is significant
Punjab	0.431	0.000	The effect change is significant
Sindh	0.732	0.000	The effect change is significant
NWF	1.905	0.000	The effect change is significant
Interco1	1.223	0.000	The effect change is significant
Partnered (second)	0.309	0.000	The effect change is significant

Note. Type of place= Rural, Urban, Second= Educational level of respondents. Age of marriage (Olderage) = Age of respondents at time of marriage. Familyt= Type of family, (Extended and non-extended. Agricult1= Agricultural and non-agricultural households. Agediff2= Age difference between husband and wife. Punjab= Regional background of respondent. Sindh = Regional background of respondent. NWF= Regional background of respondent. Interco1= Inter- cousin marriages. Sexcomp4= sex composition of surviving children. Partneredu (Second) = Educational level of Husband.

The interaction effect of type of place on son preference is estimated in terms of odds ratios. The odds of type of place on son preference are 0.284. The relationship between son preference and type of place is significant from 1990 to 2007.

The interaction effect of women's education on son preference is estimated in terms of odds ratios. The odds of women's education on son preference is 0.092. The relationship between son preference and women's education is significant from 1990 to 2007.

The interaction effect of age at marriage on son preference is estimated in terms of odds ratios. The odds ratios of age at marriage one son preference is 0.666. The relationship between son preference and age at marriage is significant from 1990-2007.

The odds of family type on son preference is 1.377 and P is > 0.05. The odds of Agricultural and non-agricultural households on son preference is 2.538. The relationship between agricultural/ nonagricultural households and son preference is significant from 1990-2007.

The above table indicates that the interaction effect of all independent variables on son preference is significant from 1990 to 2007.

5.8 Decomposition Analysis

Decomposition of variables is the difference in logits from two surveys in to three components. In the equation that describe decomposition analysis below (PDHS 91) and (PDHS 2007) represent the Pakistan Demographic and Health survey in 1990-1991 and 2006-2007 respectively. The interaction component of the difference in logits reflects the changes in son preference brought about by the interaction between changes in proportions of the categories as well as their effects on son preference during 1990 to 2007. The compositional component of the difference in logits reflects the changes in son preference by overall variations in proportions of determinants during 1990 to 2007 in Pakistan. The processual component of the difference in logits represents the changes in son preference by overall variations in the impact of determinants during 1990 to 2007.

Table 5.57 Decomposition of Changes in Son Preference from 1990-2007

Variable	Interaction Effect Change	Compositional Change	Processual Change
Agricult1	0.061	0.007	0.007
Agediff	-0.003	0.000	0.000
Type of place	-0.423	-0.073	0.108
Familyt	0.148	-0.072	0.012
Punjab	-0.578	0.109	-0.157
Sindh	-0.381	-0.000	0.000

Table 5.57- *Continued*

NWF	-0.186	-0.045	0.008
Interco1	0.002	-0.001	0.000
Sexcomp4	0.464	0.002	0.009
Olderage	0.003	0.000	0.000
Second	0.241	0.067	-0.111
Husband education(second)	0.140	0.027	-0.009

The table presents interaction effect changes and compositional changes in variables during 1991 to 2007. Table 5.56 presents that the contribution of agricultural households on son preference changes during 1990 to 2007 and is mostly due to effect changes in the variable rather than the compositional changes. The table also indicates that almost all changes in son preference are due to effect changes in variables rather than compositional changes. The table also presents several variables with negative signs.

5.9 Conclusion

This study has tested hypotheses and described the compositional and effect changes in son preference that have been taken place in Pakistan between 1990 and 2007. This study finds that in 1990 the variable agricultural households' effect was in the opposite direction of the research hypothesis, while in 2006-2007 the agricultural household's variable's effect on son preference was significant in the direction of the research hypothesis. The study indicates that there is a change in the behavior of people who belong to agricultural households over time. As noted earlier, son preference increased until 2007, perhaps because people who belong to agricultural households need more hands to work in their fields to earn more money. The study presents that in 1990-1991 the variable place of residence (urban/rural) was not in the direction of research hypothesis while in 2006-2007 the variable place of residence is in the direction of

research hypothesis. This shows the change in the behavior of population living in urban areas. This study finds that in 2007 people who live in urban areas less preferred sons as compared to people who live in rural areas of Pakistan, since the rural environment is more shielded from modern influence. This finding is consistent with the modernization perspective, recognizing urbanization positive effect on people's thinking. On the other hand, through urban living, urban residents may be more exposed to modern ideas and new opportunities. It is plausible that since urban dwellers are likely to own land, they do not necessarily need sons for inheritance purpose.

Results also indicate that in 1990 the effect of women's education on son preference was not in the direction hypothesized but in 2007, the effect of women's education on son preference was in the direction of hypothesized Women's education monotonically decreases the preference for sons.

The study finds that there is tremendous social change. Both compositional and processual changes in variables are significant over the period of time from 1990 to 2007. This study also finds that the interaction effect of all independent variables on son preference is significant from 1990 to 2007. Decomposition of variables shows that that almost all changes in son preference are due to effect changes in variables.

Though there is an increase in son preference behavior in Pakistan in last 16 years, this increase is not uniform across all population sub-groups. The study found that among urban, educated and non-agricultural household women, the son –preference was significantly lower than the rest. But the magnitude of this change is very low and the proportion of that population is very small. That is the reason they have not had a larger impact in terms of reducing son preference. These changing preferences s are the result of modernization, urbanization and increase in education. The process of modernization is often accompanied by economic and social development and the development of modern social services is perhaps one of the most important consequences of modernization (Pillai, Omari, 1992). This change can be

accelerated with the help of modernization and transformation of social values and family structure. The process of economic development can alter the modes of production and this social development can form new institutions such as social security, legal changes and new social relations.

Another reason of this small change in the behavior of people can be the raising cost of raising children. The increased cost of clothing, feeding, schooling and health facilities ranked highest among the problems enumerated by women (Pillai, 1987).

CHAPTER 6

DISCUSSION AND IMPLICATIONS

This chapter is divided into three sections. Section 1 is a discussion of the general summary of the findings, section two is about the limitations of the study and section three is about implication for social work and son preference and research.

Son preference is one of the oldest issues in most of the societies with males given preferential treatment over daughters. In spite of the rapid advancement in education and communication, the desire for a son continues to remain (NIPS, 1992). Pakistan is at middle stage of demographic transition with high population growth rate comparable to the stage of population growth in many other developing societies. This high growth rate primarily is due to the large family size, which is defined within the socio-cultural dimensions of the society (Safder, Shrif, Hussain, Arshad, 2007). In Pakistan strong son preference has been noted. Son is considered as security for parent's old age and economic assets (Ali, 1989). The majority of the explanations of son preference appear to focus on prejudice and discrimination against the girl child. D'Souza and Chen (1980) found that female child mortality is higher as compared to male child mortality after the neonatal period. There is pronounced sex discrimination in terms of allocation of food and healthcare in favor of male children (Chen et al. 1981).

Scholars think that this male dominance is linked with negative well-being of women (Nussabaum, 2000). For a large population of women, having sons, improve marital status within the family. Some scholars point out to the presence and influence of gendered power dynamics of large structures (Qadeer, 1998; Pillai & Sunil, 2002, Petchesky & Judd, 2001). Social conditions and cultural values of South Asian society play a major role on son preference. In South Asian societies, sons are considered a symbol of prestige (Sekher & Hatti,

2010). Patel (2003) suggests that raising daughters incur higher social and cultural cost than raising sons. Durri-Nayyab (1999) reports that higher fertility rates and poor adoption of contraception in Pakistani women is not an outcome of their personal choice but is a matter of social, cultural, and religious beliefs. Among these beliefs economic and demographic aspects of son preference is critical. Poverty, socio-economic conditions (Boulous et al., 1991, Lloyd, 1991), religious beliefs, family systems and family size have been reported to affect son preference.

The human capital explanation of son preference specifically focuses on the cost and benefits of having children. Becker (1964) and Zelizer (1995) contend that children are desired in all societies, however, the cost of having children has increased over time (Blossfeld & Huinink, 1991). With modernization individuals strive for socio-economic mobility. An increase in socio-economic mobility increases the number of choices individuals have to invest their earnings in other than children (Easterline, Pollak, & Wachter, 1990; Blossfeld & Huinink, 1991). This socio-economic mobility brings about a reduction in fertility (Davis & Blake, 1956; Cochrane, 1975). However, in order to achieve socio-economic mobility, individuals need to invest in themselves, especially in education, in order to acquire the necessary skill sets and training to make gainful entry into the labor market (Easterline, 1969). Individuals must invest in themselves in terms of education and human capital increases. With the increase in human capital, the value of their time is likely to increase as well. When individuals decide to have children they will have to decide about the time they spend in rearing children. Children will have to bring about the same or higher level of wellbeing and satisfaction than engaging in other activities (Cain, 1983; Muth, 1986; Blossfeld & Huinink, 1991).

In a third world country like Pakistan illiteracy and ignorance can be major contributing factors to the most problems like son preference. There is a close relationship between illiteracy, ignorance, political apathy and underdevelopment (Avoseh, 2009). One way to solve the problem of son preference is through conscientization. Conscientization is a process of

creating awareness about certain social problem through reflection and action. In this process action is fundamental because action demonstrate change (Freire, 1985, 1987).

conscientization is a process of growing and developing in awareness whose target is to know and transform reality. Freire (1985) suggests that the role of educator become more demanding because he not only teach how to read and write but also create awareness among people about certain social problem and then he become a political educator. He encourages people to think critically about a certain issue and then act in reaction, which shows change in people's behavior. This takes literacy education beyond the level of reading and-writing the word to include reading and writing the world (Freire 1987). The problem of son preference can be minimizing with the help of conscientization approach. The educational policy maker in Pakistan need to take advantage of the relation between literacy and conscientization as enunciated in Paulo Freire's philosophy of education. Conscientization not only focuses on eliminating littracy but also empower people to solve social problems which littracy has wrought on society

6.1 Summary of Results

After the Cairo International Conference on population and development in 1994 and the Beijing conference on women and girl child in 1995, the topic of gender equality has been a major research area for demographic researchers. Almost all developing societies of the world prefer sons over daughter or valued son more than daughters. Son preference means that a girl child is disadvantaged from birth (Gilani, Shady, 2007). Son preference is prevalent more in South Asian countries including, India, Pakistan, Korea, and China. Asian countries exceeded the biological upper limit 106 boys born for every 100 girls (Hvistendahal , 2011). In this study the literature reviewed was aimed at identifying the social, cultural determinants of son preference in Pakistan. Sources from the review were replete with several factors that influence son preference in Pakistan during 1990 to 2007. The most recurrent factors were agricultural and non agricultural households, type of family, urban and rural households, women education

and inter-cousins marriages. These factors became the basic premises for the selection of theories and hypotheses and research methodologies used in this study.

The variables selected were divided in to three categories. The dependent variable for the study was Son Preference in Pakistan. The independent variables included *agricultural and non agricultural households, type of family (extended vs non extended), place of residence, age at marriage, age difference between husband and wife, women education and inter-cousin marriages*. The control variables considered for study were *partner's education, sex composition of surviving children and Region*. Several statistical tests were used to identify the effects or the association between son preference and selected determinants. Eight main hypotheses were tested in this study.

This research has found that son preference has increased in Pakistan during 1990 to 2007. Almost 10% increase in son preference can be seen in Pakistan between 1991 till 2007. In 1990-1991, son preference ratio was 38.3% which increased in 2006-2007 to 47.5%. Comparison of two datasets gives us the insight about the changes that took place in the behavior of population during 1990-2007. Study found that the proportion of uneducated women decreased from 76.5% (1990-1991) to 66.5% (2006-2007), which indicates that now people are allowing their daughter to get education. It is also noticed that there is an increase in the proportion of higher education among women, Though this increase is not very high, it is nevertheless a positive sign that now people are allowing their daughter to get higher education and participate in the progress of Pakistan.

The minimum legal age at marriage in Pakistan is 18 years for males and 16 years for females. Nikah and Rukhsati are two different terms for marriage. Nikah means that a girl is legally married, but that she may or may not have yet started living with her husband. Rukhsati is the ceremony when the bride goes to her husband's house and thereafter husband and wife start living together (PDHS 2007) This study also found that the female age at first marriage

slightly increased over the period of time. In 1990-1991 female age at first marriage was almost 17 years which increased by one year in 2007.

This study also found an increase in non-agricultural activities. Pakistan is an agricultural country and agriculture is a back bone of the country. However the proportion of population engaged in non-agricultural activities is increased during the period between 1990 and 2007 surveys. Industrialization drew many people in to working in some non-agricultural activities.

Households in Pakistan tend to be large because of the predominance of the extended and joint family system. Economic pressure can also force middle- and lower-income families to live with their in-laws and other relatives because they cannot afford to build or rent separate dwellings (PDHS, 2007). The present study also found an increase in non-extended families. In 1990-1991 33.8 % of sample population live in non- extended families where as in 2006-2007 39.0% of population live in non- extended families. Though this increase is small (5%) but still a change in people behavior can be seen, now they started living in small units or in nuclear families.

Pakistan has one of the highest reported rates of consanguineous marriages in the world (PDHS2007). Marriage within family is very strong culture in Pakistan. Culture and tradition play a strong role in promoting consanguineous marriages. It is against culture to marry outside the family. Even in some areas of Pakistan when marriage takes place outside the family if boy or girls get married out of the family, elderly people in the family break up with the married couple. This study found that there is no change in people's behavior regarding marring within family. People want to marry their child within the family. In 1990-1991 and 2006-2007, 59% of sample population wanted to marry their children within family.

This study also found a slight decrease in age difference between husband and wife at the time of marriage. In 1990-1991 the mean age difference between husband and wife was

6.58 years. In 2006-2007 the mean age difference between husband and wife is 5.85 years. Women education can be one of the reasons for this decrease.

Education is an important factor influencing an individual's attitude and outlook on various aspects of life. In 1990-1991 a large majority of ever-married women in Pakistan (85 percent) had no education. Only 14% of sample population received secondary or higher education. In 2006-2007 only 20% of sample population receives secondary or higher education. There is only 6% of increase in women education. Though this is a slight increase but a change in people behavior can be seen.

This study also found that there is an increase in the number of men who received higher education. In 1990-1991 only 7% males got higher education whereas in 2007 almost 16% of males received higher education. This indicates a positive change in Pakistan for receiving higher education during the period of 1990 to 2007. This study finds that more young women and men are attending school today than ever before. Despite this positive trend, a significant gap still remains between the proportion of boys and girls who are educated in Pakistan.

This study also finds that in 1990-1991 the mean number of sons in a family was two and this number remained the same in 2006-2007. But there is increase in demand of sons.

The study finds that in 1990-1991 there was a statistically significant difference between agricultural and non agricultural households, $P < 0.05$. Though results are significant but not in the direction of hypothesized. In 2006-2007 there is a statistically significant difference between agricultural and non agricultural households, $P < 0.05$. Results are significant and in the direction of hypothesized. In 2007 those people belonging to agricultural household demanded more sons than people belong to agricultural households in 1990-1991.

This study finds that in 2007 people who live in urban areas are less preferred sons as compare to people who live in rural areas of Pakistan since the rural environment is more shielded from modern influence. This finding is consistent with the modernization perspective,

recognizing urbanization positive effect on people thinking. On the other hand through urban living, urban residents may be more exposed to modern ideas and new opportunities. It is plausible that since urban dwellers are likely to own land, they do not necessarily need son for inheritance purpose.

Results showed that schooling or getting education among women is a powerful predictor, which change over the period of time. This study also indicates that women's education is now responding in the way to reduce son – preference behavior in Pakistan. Till 1990-1991, women education was not influencing son preference behavior but in 2007 women's education did affect son preference behavior. Women's education monotonically decreases the preference for sons. There are several possible explanations for this behavior. Education is likely to serve to disseminate “modern” values and undermine traditional ideas (Caldwell, 1980). Education is also likely to have an empowering effect for women. Since education allows women to explore opportunities other than traditional domestic roles, women may realize that they can attain status through opportunities other than through motherhood especially through bearing and rearing of sons. Simply being exposed to the notion that females have other opportunities may be sufficient to change their perception of the value of daughters.

The Phi-coefficient measure the degree if association between dichotomous variable in the study. The phi- coefficient indicates that there is a significant compositional change in almost all the variable since 1990-2007 but the magnitude of that association is very weak.

This study also aimed at describing the compositional and processual changes that have taken place in Pakistan during 1990 to 2007. Decomposition of variable indicates that almost all changes with respect to son preference in the population are due to effect changes in variables rather than compositional changes during 1991-2007.

6.2 Limitations of the Study

As with any research, this study suffers from several limitations. This study mostly presents the women perception regarding son preference. Only one variable, agricultural and

non-agricultural households, presents men's perception. Son preference of men was not fully investigated. In developing countries mostly in South Asian countries, men tend to have stronger preference for son than women (Mason, Taj, 1987). It has been reported that gender preferences are often different for men and women, men prefer sons for their companionship (Williamson 1976). Therefore examining son preference is one side of the story. But this is also a fact that sons are still overwhelmingly desired by women in Pakistan. Women want sons for economic security and maintain their status in the family. In future researches it will be worthwhile to investigate son preference from men's point of view.

Another limitation for the study was that there were several questions of son preference in 1990-1991, but they were excluded from 2006-2007 dataset, which made it difficult to select similar variable on son preference from both datasets.

Another limitation of the study is that in both PDHS the response "up to Allah" is very difficult to categorize. According to me this response did not reflect a complete gender neutral attitude. In Pakistan if a person responds "up to Allah" he/she still has some son preference attitude. So for future studies to the response "up to Allah" requires further investigations.

Another limitation of the study is to about those categories which make son preference. For this study it was decided to exclude "equal preference" category from son preference category and include it in no preference category. The reason was, when a researcher combined "equal preference" with "absolute son preference" and "strong son preference", the category of strong son preference became as large as 96% of total sample. This was the reason to exclude "equal preference" from son preference category.

In addition, because of this study's reliance on secondary data, it fell victim to many of the methodological shortcomings of the previous studies conducted on son preference. As discussed earlier that it was very difficult to select similar variables from two different datasets. To address this issue, this analysis limits the number of independent variables.

However, this study is the first attempt to analyze change in son preference behavior in Pakistan over a time period by using PDHS data.

6.3 Implication for Social Work

Son preference is a result of patriarchal institutional structures. It is the result of gender inequality and lack of social status of women. These inequalities violate social justice concerns. From a social work perspective it is necessary to advocate for and achieve social structural conditions that may resolve son preference. This dissertation explores determinants of son preference in Pakistan. The result of this study contributes to addressing social justice concerns in Pakistan.

In this dissertation I hope to contribute to an understanding of son preference by examining distributions and determinants of attitudinal son preferences for children in Pakistan. Several policy implications can be drawn from this research. This research can provide guidelines for educational policymakers to make educational policies which shape population thinking in such a way that reduces son preference. This is important because there is clear evidence found in this study that increase in women's education decreases son preference in Pakistan during last 15 years. Education for both males and females can play an important role in a country's development, and progress. Government and policy makers should make such policies in which secondary education should be compulsory for everyone. Social worker can play an important role while developing curriculum, in which they can promote gender equality and women respect. Social workers can re-examine school programs and advise government official and policymakers on how to institute gender equality in educational institutions. They can also sensitize these officials of the need to create schools in the rural areas so that more girls can get education. Note that results from this study confirmed that in 2007 educated women were less likely to have son preference as compared to women in 1990. On the whole, policymakers with the help of social workers should shape policies to fit the needs of the target population.

Another area of policy interest is age at marriage in Pakistan. The age at marriage is still low in Pakistan, though there is 1% increase in last 16 years. Policy and law maker should make such laws in which minimum age of marriage for girls should be 18 years and 21 years for men. Social workers can help government institutions to implement these policies. Social workers can arrange community awareness programs in which they can educate the people regarding the age at marriage.

It is a good investment for improving the quality of life of the women in rural and urban areas of Pakistan. National development programs can be successfully accomplished if the population of the country is educated and adequately provided with knowledge and skills. Islam places great emphasis on acquiring education. Generally, education provides people with new ideas and increases their potential to learn, to respond to new opportunities, to adjust to social and cultural changes occurring around the world, and to participate in the socio cultural and political activities in the country. Education also can redirect the attitudes and behaviors of the population towards improvement in the quality of life. Furthermore, education helps to overcome poverty, which is one of the reasons for son preference.

This research can also provide guidelines for economic policymakers to introduce such policies that create more earning opportunities for females, because it is observed that household wealth decreases son preference (Seker, Hatti , 2010). This research will provide guidance to social workers to start programs that create mass awareness among people with special emphasis on cultural misconceptions. Progress could be made by presenting preferential sex treatment as unfair, and by giving women their due status in society. Women should allowed to equally participate in income generation activities with men in agricultural and non agricultural households and no such restrictions on them to confine their role to the walls of a house. Social workers can start programs in which they educate men to treat women equally and give them power to make decisions regarding their reproductive health. Strategies to empower women need to start from empowering young girls and improving their status as they

mature. Income generating schemes which enhance women's status in the society should be introduced in the rural areas of Pakistan once again, to de-emphasize the son preference problem. Social workers with the help of mass media especially print media and electronic media can play an important role in improving women's status in Pakistan and reduce preference for boy child.

Cultural factors that limit the opportunities for girls need to be identified and policy makers should formulate such policies that can deal with these limitations. Policy maker should focus on programs related to improving women status and counseling for social stigma related to dowry. Community worker should involve religious leaders to motivate people not to give dowry and improve the status of females in the society. Religious leaders especially "Molanas" (Islamic scholars) are very influential in shaping public opinion for a certain issue. So they should be used effectively to reduce gender inequality. Community education programs related to gender equality should be organized by social workers.

Social workers can also start programs that increase recognition and awareness of health and family planning programs, as well as exploring the easiest and safest methods of appropriate reproductive health and family planning programs. Social workers may start programs which improve communication between husbands and wives and address the unmet needs of family planning.

Strategies to empower women need to start from empowering girls and improving their status in the family and society. Cultural opportunities for girls should be identified and appropriately dealt with through suitable policy formulation. Media advocacy to remove cultural taboos restricting girls should be supported and monitored by the Government agencies. Girls who grow up in an environment that gives them equal opportunities at home and in the society will eventually become truly empowered women. Women should be involved agricultural activities. Policymaker should introduce such policies in which they facilitate female agriculturalists. This can reverse the son preference behavior in Pakistan. In Africa women have

heavy responsibility to raise food for their family. Almost 70-80 % of food producers are females in Africa and Tanzania (Pillai, Omari, 1992). Policymakers, with the help of social workers, can formulate and implement such policies and program in which they target men to empower women. The incentives should be given to men for improving women status and power in the family and decision making process. This becomes an important aspect of bringing change in the behavior of the Pakistani population.

The impact of modernization is varying across Pakistan. The population, such as educated women, people living in urban areas, is less likely to prefer son. They are small proportion of Pakistani population. Our observation based on this research is that their impact is very little. This research can also provide guidelines for policymaker to introduce such policies which facilitate that small proportion of population who bringing change in the society. The social worker can accelerate the process of change by conducting such programs in which they appreciate those people who bring change in the society.

Social security programs should be introduced for elderly people in Pakistan. These types of programs can minimize the demand for sons because people want son for their economic security in their old age. Lawmakers should make such laws in which child labor should be strictly ban, because poor people want more and more hands to generate income. Laws on child labor can implemented through social workers.

Furthermore government should provide service such as the provision of birth control methods through mobile family planning clinics in the rural areas of Pakistan. The political will and commitment to provide these facilities may have lasting influences on the onset and peace transition (Pillai, 1987).

In general mass education for male and females, improved living standards, women empowerment, rural development, improve healthcare services should be identified as areas to be consider in population plan.

APPENDIX A
SUMMARY OF EMPIRICAL LITERATURE

Summary of Empirical Literature

Author/Year	Hypothesis/Research question	Sample	Comparison Group	Operationalization
Khan, M. A., & Sirageldin, I. (1977).	To examine the extent to which the desire to have additional children.	2910	No	Son preference is a reason for demand for additional child.
Gupta, M.D (1987).	Discrimination against girl child is not generalized, but rather is closely related to individual parents' family building strategies. Why son preference is strong in Punjab society	2400	No	Parents states clearly that wants son rather than daughters
Chowrhury, M.K. (1994)	In a society with strong son preference and its effect on fertility would be conditional on the level of contraceptive use	22819	No	Bangladesh fertility son preference and maternal education
Pillai, V.K (1999).	To explore the similarities and dissimilarities in reasons provided by husband and wives with regard to achieving the next parity. To explore the reasons wife and husband offer for practicing family planning when they decided not to have	20	No	Decision to have next child is in hand of husband

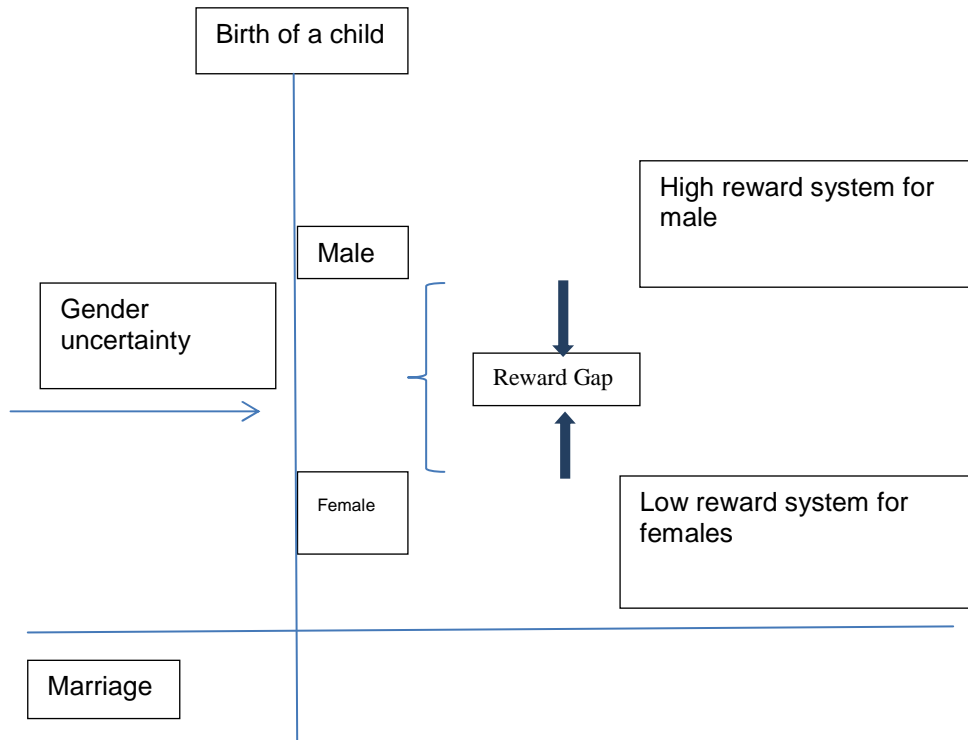
	the next child.			
Safdar, S. Shrif, M., Hussain, S., Arasheed, S.	To find out association of socio- economic factors with family size To know the perception and motives for preferring sons over daughters To explore the effects of religion affiliation in family size and son preference.	150	no	Desire for son. Use of contraceptive. Religion affiliation
Khan, A. , Fikree, F.F., Pasha, O., Hussain, T., Snow, C. (1995)	To explore the issues in family planning	18	No	Population explosion, religious and societal perspective
Hardee, K., Amal, S.H., Novriaty, S., Hull,H., Eggleston,E (1999)	To explore women's economic and social autonomy in the household, as well as to describe the effects of contraceptives and working outside the home on women's autonomy	770 Women	No	Reproductive decision making. To use family planning products some time in their life. And working women use more contraceptives as compare to non working women.
Hussain,S. (2001)	To analyzed the reproductive pattern and practices prevalent among migrants of two religious communities, Hindus and Muslims, Living in the slum of Delhi	200 migrant women (100 Muslim, 100 Hindus)	Yes. Hindus and Muslims	Reproductive decision. Definition of Oxford English Dictionary

Bairagi, R. (2001).	To analyze the relationship between contraceptive use, fertility intentions and actual fertility.	Data from the Matlab Demographic Surveillance system	No	Use of contraceptives and son preference
Pillai, V. Sunil, T.S (2003)	Social changes such as fertility decline result from modernization Yemen. To analyzed the effect of membership in demographic innovator class on fertility related variables.	Demographic and health Survery(DHS) 1991/92 and 1997	Yes	
Ali, M, Bhatti, A, Ushima, H	To explore reproductive health needs of adolescent males in Pakistan	78	No	Reproductive needs of males
Zafar, S. Batool, Z. Bano, S. (2005)	To assess a sociological study of female participation in decision making process in family matters in District Faisalabad.	120	No	Educated women are more likely to participate in economic decision making in the family.
Safdar, S., Sharif, M., Hussain, S., Arasheed, S. (2007).	To explore the socio-economic and cultural aspect of family size and son preference.	150	Yes	Social economic cultural aspect effect son preference and family size
Pillai, V.K., Sunil, T.S. (2007)	What is the role of modernization on the current use of contraception in Republic of Yemen	5687	No	Women level of education and its effects on contraceptive use. Modernization that brings economic

				development.
Agrawal, S., & Unisa, S. (2010).	To examine son preference and disfavor of daughters among women in rural Haryana during the prenatal and postnatal periods.	2,646	No	Sex selective discrimination by active elimination of female fetus and passive elimination of female child leading to their death.
Begum, M., Singh, C. (2010)	To Identify factors determining the status of the girl child and son preference at regional level- Madurai district in Tamil Nadu	300	yes	Women anatomy in decision making power , and socio – economic matters.
Bhatt, P.N., Zavier, A.J. (2010).	To Analyze the effect of large set of factors from a fairly sizable sample of births using multivariate technique.	India’ National Family Health Survey	No	Sex selective abortions in India
Shudha, A., Khanna, S., Rajan, I., & Srivastva, R. (2010).	To examine the cultural context of Nair community of Kerela state in southern india, that has experienced socio- economic development and how these changes link with son preference	215	Yes	Socio economic development and its effect on son preference in southern India
Samaiyar, P., & Joe, W.(2010).	To examine how the declining sex ratio can intensify male marriage squeeze India	Socio- cultural survey 1991 and 2001	Yes	Males are now required to prolong their marriages because of shortage in the availability of never married females.
Pillai V.K., Teboh, C. (2010).	Does modern contraceptive use increase overtime	CDHS 1991= 3871 CDHS 2004= 10,656	Yes	Husband attitude towards family planning. Effect of education on contraceptive use

APPENDIX B
DIAGRAM OF THEORETICAL FRAME WORK

Diagram of Theoretical Frame Work



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