



LUND UNIVERSITY

School of Economics and Management

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# Women's Empowerment and Son Preference in Azerbaijan

## A Quantitative Analysis of The Impact of Women's Empowerment on Son Preference in Azerbaijan

by

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### Abstract

This study investigates the relationship between women's empowerment and son preference. Development and women's empowerment indicators were utilized to explore their effects on son preference, using an ordered logistic model. Data for this study were obtained from the Demographic and Health Survey (DHS) conducted in Azerbaijan in 2006. The results show that women in Azerbaijan have a lower son preference than men. Additionally, the results show that empowering women within the household tends to lower son preference for both men and women. The inclusion of women in the household's decision making has a weakening impact on son preference for both men and women. On the other hand, when women have freedom over managing their earnings, son preference is stronger. Media access and wife beating tolerance are correlated to higher son preference for individuals in the sample. However, when an interaction term between media and female is added to the model, media access is negatively correlated to son preference. Lastly, primary education for women is correlated to son preference compared to women with no education. These results suggest that the empowering of women can lower son preference, but single empowerment factors have to be taken into consideration carefully. Targeted policy-making is needed to ensure that the discrimination of unborn girls is eliminated.

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# Abbreviations

DHS	Demographic Health Survey
DSRB	Desired Sex Ratio at Birth
IMAGES	International Men and Gender Equality Survey
SDG	Sustainable Development Goal
SRB	Sex Ratio at Birth
SSA	Sex Selective Abortion
UN	United Nations
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
USSR	Union of Soviet Socialist Republics

# 1.Introduction

*“A great many more than a hundred million women are simply not there because women are neglected compared to men” (Sen, 1990).*

## 1.1 Research Problem

In 1990, in The New York Review of Books, Amartya Sen was the first scholar to raise the issue of *missing women* in parts of the world. The term missing women has been used ever since to refer to those girls missing because they were aborted or died prematurely as a result of gender discrimination. Thirty years later, in many countries around the world, the issue is still prominent. Ever since the 1980s, there has been, mostly in Asian countries, a rapid increase in the proportion of male to female births, as well as female infanticides and care discrimination for little girls. The sex ratio at birth (hereafter SRB) represents the number of boys born per 100 girls born (World Health Organization, 2020). The “natural” SRB is considered to be 105, meaning that on average 105 boys are born for every 100 girls (World Health Organization, 2020). This “natural” unbalance is due to differences in the probability of miscarriage during pregnancy, with female mortality being higher than male mortality (Orzack et al., 2015). China is the most famous country with an unbalanced SRB, mainly because of the vast media coverage that their skewed SRB has received due to their controversial One Child Policy. Nevertheless, while China’s SRB is currently the highest in the world at 113, other (mostly) Asian countries have experienced or are currently experiencing unusually high rates. Those countries are: China, Taiwan, Singapore, South Korea and Vietnam in East Asia, Pakistan and India in South Asia, and Armenia, Azerbaijan and Georgia, in West Asia, and Albania in Europe (Guilmoto, 2009).

Such rates are not due to a “natural phenomenon but [are] achieved through a deliberate elimination of girls” through sex selective abortions (hereafter SSA) (UNFPA, 2012, p. 2). This phenomenon has been referred to as *son preference*, which is a term used to describe the cultural, economic, and social institutions and practices that influence families to choose to have sons instead of daughters (Loh & Remick, 2015), as well as to ascribe higher value to sons over daughters (Duflo, 2011). While traditional sex selection methods have been practiced for a long



time, technological advancements have significantly decreased the cost of sex discriminating with the introduction of ultrasound and amniocentesis machines (Michael et al., 2013; UN Women & WHO, 2011). This can be observed by the spike in SBR in the Southern Caucasus that was registered after cheap ultrasound machines entered the ex USSR countries following the fall of the Soviet Union (Guilmoto, 2009; Michael et al., 2013). The results have been an “unexpected” masculinization (Guilmoto, 2007, p.1) with the posing demographic threat of a shortage of women. Such shortage would in fact create a sex unbalance in the population that would result in difficulties to find a spouse and reproduce, as currently observed in China. That in turn could lead to class tensions between the men that would be left behind with no prospects of marrying and the spouse-fortunate men (Guilmoto, 2007a; UN Women & WHO, 2011).

The issue of missing women is not only a violation of human rights but also an impediment to the realization of an inclusive growth process around the world. The UN Sustainable Development Goal (SDG) number 5 is to reach gender equality and empower all women and girls because “gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world” (United Nations, n.d.). While women make up half of the world’s population, they are often discriminated against, perform a significant higher share of domestic unpaid work, and continue to be underrepresented in political and business sectors. As half of the population, women also represent half of the world’s potential. In fact, when women join the workforce, economies grow, not just by increasing the workforce, but also by bringing diversity to it (Ostry et al., 2018). If women are currently being discriminated against while still in the womb, how can gender equality be reached? The issue is that women in some countries are still considered to be less worthy than men, not just in pay compensation, but also in actually joining this world and becoming someone’s daughter. As Guilmoto (2009) points out: “sex selection at birth is one of the clearest manifestations of gender discrimination, yet it remains inadequately studied in analyses of women’s disadvantages” (p. 537). Understanding the mechanism behind son preference, and the social characterization of men as more “valuable” than women, is fundamental to develop targeted policy measures to end the discrimination against women.

“Sex selection in favour of boys is a symptom of pervasive social, cultural, political and economic injustices against women, and a manifest violation of women’s human rights” (UN Women & WHO, 2011, p.4). This implies that predictors of son preference can be found in such injustices against women. Exploring development indicators for individuals within a

country, that reflect the social, cultural, political, and economic opportunities that women have access to, can shed light on what affects the decision to prefer having a son instead of a daughter. This could provide great tools to identify target groups for implementing future policy interventions and shape future change. The European Institute for Gender Equality defines the empowerment of women as the “process by which women gain power and control over their own lives and acquire the ability to make strategic choices” (EIGE, 2020). It follows that when women are empowered, they are given the same tools that men receive to support their family and are able to do it in an equivalent way. This would, therefore, hinder the common feeling that sons can provide for their parents once they grow old, while daughters are (currently, in some countries) not regarded to be able to do the same. An insight on the issue is given by the within country variation observed in many countries, where the SRB tends to differ between rural and urban areas (Guilmoto, 2007a, 2009). Nonetheless, there appear to be differences between country variations in SRB. In South Korea, for example, the SRB between regions is high and driven by religious and spatial components (Guilmoto, 2009). In China and India, however, data show that the rates in rural versus urban areas differ in opposite ways; while the urban areas in India discriminate against girls more than rural areas, in China sex selection is practiced more in the rural areas (Guilmoto, 2007a). Perhaps this difference in SRB could be affected by different development levels, levels of education attainment, women’s rights, and involvement in the labor force.

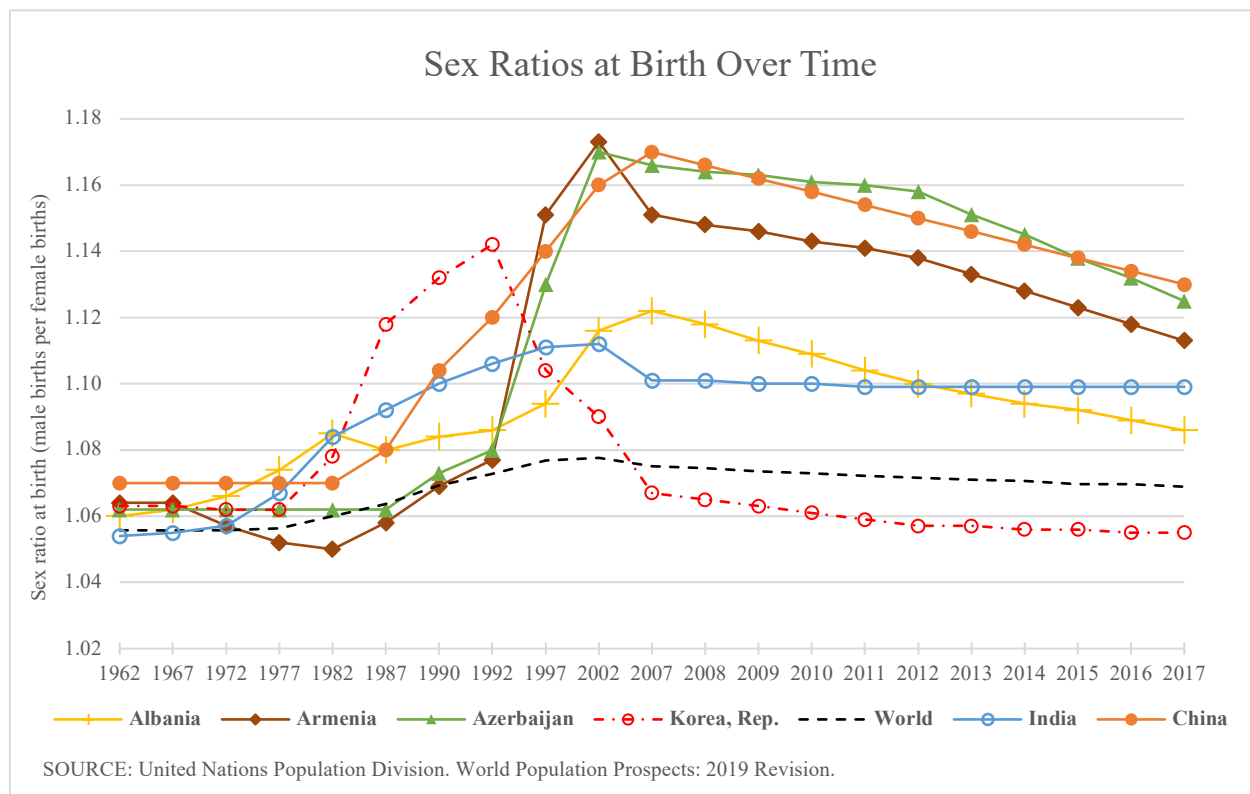
Women’s empowerment can come in different forms. Access to media in India, for example, has been associated with lower son preference, thanks to the characters portrayed in television (Das Gupta, 2015; Jensen & Oster, 2009). Other characteristics, like being subject to abuse at home and wages earned outside the house, are also plausible factors that can influence women’s empowerment. In countries that score low on gender equality measures, men can often be opposed to allowing for their wives to obtain financial independence. Having a wife that works outside the house and earns a stable income is often seen as a threat and avoided. While the emancipation of women could have a positive influence on the “value” of women in society, and therefore result in a lower SRB, it is difficult to find what characteristics can account for it. For example, it has been shown that an increase in women’s bargaining power, that could be associated with a stable income or self-esteem, is positively correlated with experiencing domestic abuse (Lopez-Avila, 2016). Therefore, while an increase in women’s bargaining power at home could be perceived as an act of women’s empowerment, there is the possibility that a woman that experiences violence at home would not want to have a daughter that could

suffer the same faith. Understanding the dynamics behind the decision-making process of sex selection before birth, and if this differs between the two sexes, is crucial to our understanding of the impact of women's empowerment on eliminating son preference.

## 1.2 Azerbaijan – Overview

Azerbaijan (officially the Republic of Azerbaijan) is a former USSR country located in the Southern Caucasus, with a population of 9.9 million people (World Bank, 2020). While the country's government is advocating for equal rights for men and women and the protection of such rights (Gender Indicators, 2020), the issue of gender inequality and violence against women is concerning. Indeed, in the country, there is an overall under-representation of women in politics, the civil sector (especially at senior levels), and judicial positions (Asian Development Bank, 2019). This enforces the need for more policies targeting gender inequality, aiming at a more gender equal society and the empowerment of women in the country (Asian Development Bank, 2019; Pursuing Women's Economic Empowerment, 2020; UN Women & WHO, 2011).

The gender development index (GDI) for the country in 2018 was 0.94 (UNDP, 2018), which puts Azerbaijan in the *medium equality* group of countries. The GDI is the ratio of the female to male Human Development Index (HDI), measuring the difference in the average female to male achievements in health, education, and standard of living (UNDP, 2018). The International Men and Gender Equality Survey (IMAGES) survey conducted in Azerbaijan in 2016 finds that men in Azerbaijan have more rigid notions of gender than women and are less likely to promote women's rights. Moreover, women are still the main caretakers in the household and are often excluded from the decision making process (UNFPA, 2018a). Azerbaijan is among the lowest ranking countries on the “failed ... gender parity on sex ratio at birth”, after Armenia and China (Asian Development Bank, 2019, p.7). In fact, as of 2017, the country had the second highest SRB in the world at 1.125 (see Figure 1).



*Figure 1: Highest Sex Ratios in the World, Over Time*

The high SRB in Azerbaijan is the manifestation of an active act of sex discrimination during pregnancy that results in an “abnormal” number of boys born each year compared to girls. The UNFPA (2018a) reports that son preference in Azerbaijan is an “endemic component” (p. 4) of the patriarchal family structure and practices within the country that has resulted in the skewed SRB. Such family structure and practices are dependent on an array of socially constructed factors that make male offspring more socially and economically valuable than females (UNFPA, 2018b). Moreover, fertility preferences also affect the skewed SRB (Asian Development Bank, 2019). It has been shown that the preference of having an additional children increases if there are only daughters in the household, highlighting the need of families to have at least one son in the family (UN Women & WHO, 2011; UNFPA, 2018a). Along the same lines of preference, SRB increases with the second or third child (Yüksel-Kaptanoglu et al., 2014).

The UNFPA (2018b) estimates that by 2050 in Azerbaijan there will be between 12,000 and 15,000 more boys than girls born each year. The surplus of men would be a shock to the demographic composition of the country that could have long lasting effects. This could pose a social threat like the one observed in China, where the surplus of men is resulting in “bare branches” i.e., men that cannot find a spouse, that have to rely on “mail-order brides” or that

will never marry (Abrahamson, 2016). As a consequence of the surplus of men that could potentially end up never marrying, this surplus could reduce the “benefits” of having a son, because parents would not want to have a son that has no potential to marry in his lifetime (Guilmoto, 2009). This could potentially lead to sons representing a “serious social or economic hazard” (Guilmoto, 2009). In turn, women could assume a more essential role to society. However, the dynamics behind a shortage of women are not clear, because such family oriented role could also affect women’s ability to choose to postpone child bearing or live a single life (Guilmoto, 2007a).

### 1.3 Aim and Scope

Discrimination against unborn girls is the result of social and economic circumstances that influence the value that parents attribute to children of a specific sex. Azerbaijani families prefer to have male offspring because they believe that a son can provide for the family, which is something that is currently believed not to be possible for a daughter (UNFPA, 2018a). In the country, sons are believed to be more fit to assure security to the family in both an economic and social context (UNFPA, 2018a). Women on the other hand, are not expected to have steady incomes and therefore, cannot provide financial stability for their parents once they become of an elderly age. As in many Asian countries, where women are often considered “a source of impoverishment for the family” (UN Women & WHO, 2011), daughters in Azerbaijan are viewed as “liabilities” (UNFPA, 2018b). Many are the reasons that can generate such popular convictions, which are usually deeply rooted in the culture as well as the structure of the country. Inheritance, land rights, the absence of social security nets, and participation in the labor force can also influence the preference to have a son (UNFPA, 2018b). Societal change is believed to have a greater importance over individual change in affecting son preference and therefore, the decline of the SRB (Chung & Das Gupta, 2007). How women are regarded and expected to behave also has a big influence upon the societal change that affects the SRB. Women’s empowerment, that often comes with technological change and opportunities for family planning, is strongly associated with low fertility rates (Roser, 2014), which in turn can affect son preference making “women and girls lives more similar to those of men and boys” (p. 3), resulting in a more equal society in respect to gender (Allendorf, 2020).

The complexity of the issue is given by the interconnections between women’s empowerment, economic development, and sex-selection. For this reason, it is important to identify the

relationship between such aspects in a woman's life and the decision for husband and wife to sex discriminate before birth. While many scholars have focused on the SRB in the whole Asian region (Guilmoto, 2007a, 2009), or on the famous skewed SRB in China (Abrahamson, 2016; Attané, 2002; Attané, 2006; Cai, 2010; Ebenstein, 2010; Jiang, Li & Sánchez-Barricarte, 2016) and India (Guilmoto, 2007b; Pande & Astone, 2007), the SRB in Azerbaijan has received little attention. While there are reports touching on the issue of gender discrimination before birth in the country (Asian Development Bank, 2019; Gender Indicators, 2020; UNFPA, 2018a; Yüksel-Kaptanoglu et al., 2014), many of these studies do not focus on the issue of son preference and its relationship with women's empowerment. Few attempts have been made to explore what influences son preference in Azerbaijan (Yüksel-Kaptanoglu et al., 2014). Lastly, while research to date has focused on household or women's preference for sons, few have explored the role that women play in perpetrating sex-selection before birth (Javed & Mughal, 2018; Zimmermann, 2018).

While the phenomenon of skewed SRB around the world has generated a debate with regards to causes and suitable policies to bring the SRB back to its normal rate, few attempts have been made to address the issue of son preference in Azerbaijan. Therefore, the aim of this thesis is to investigate which development and women's empowerment indicators play a role in altering son preference in the country. The analysis of Azerbaijan offers insights on such relationships specifically because of the high use and acceptance of abortion in the country. Using data from the Demographic Health Survey (DHS) conducted in Azerbaijan in 2006, this study aims to contribute to this growing area of research by exploring the effect of women's empowerment on son preference for men and women in the country. This research project seeks to address the following questions: *"What is the impact of women's empowerment on son preference in Azerbaijan?"* and *"How does son preference vary between men and women in the country?"*. In order to answer these questions, building off the work of Pande and Astone (2007) that explores women's son preference in India, an ordered logistic econometric analysis is conducted.

## 1.4 Outline of Thesis

This study is divided into five main sections. The following chapter reviews the existing literature in the field and provides a theoretical framework for this analysis. Chapter 3 looks at the DHS data used for this study, including descriptive statistics of the participants in the survey.

Chapter 4 describes the empirical model chosen for the study, the ordered logistic model, and the variables included in the model. Chapter 5 explores the results followed by a discussion. Lastly, chapter 6 discusses and concludes this thesis, with comments on the practical limitations of this study and recommended future research.

## 2.Theory

### 2.1 Literature Review

#### 2.1.1 Women's Empowerment and Economic Development

Ester Duflo, the co-winner of the 2019 Nobel Prize in Economics, and second woman in history to win the award after Elinor Ostrom in 2009, in her paper titled *Women's Empowerment and Economic Development*, wrote: "Throughout their lives, even before birth, women in developing countries are treated differently than their brothers" (2011, p. 1). Sadly, from excessive infant mortality and abortion rates for female fetuses, to access to education and other rights, women all over the world everyday face discrimination depending solely on a basis of gender. Furthermore, the obstacles that women face every day are magnified in developing countries, where women remain marginalized, abused, and considered of "an inferior social status by customary or formal law" (Cohen, 2006, p.261).

As Duflo (2011) points out, economic development can have ambiguous effects on the position of women in society, and therefore on the SRB. This can be observed in South Korea, where at the beginning of the economic boom in the 1980s, the SRB increased sharply despite the fact that the position of women in society was improving, with higher female education rates and participation in the labor force. Chung and Das Gupta (2007) argue that this is because highly educated women are usually the ones that can access new technologies and resort to SSA, making it easier for them to achieve the target of having at least one son without the need to have a large family to do so. Nonetheless, this leads studies to show that economic development and improvements in the position of women in society can actually increase SRB. However, such results can be misleading because they do not take into consideration the social aspects of son preference, that tend to change slower than individual fertility decisions, with women limiting the number of children they have once their position in society improves.

In the country of Azerbaijan, the "access women have to resources (economic, cultural, information and social) is significantly restricted compared with that of men" (UNFPA, 2018a, p.9). Gender encompasses the expectations and norms that regulate how women and men behave, what society expects from the respective genders, and how the two sexes interact with each other (Barker et al., 2011; UNFPA, 2018a). The interlink between gender, societal norms,



and institutions in Azerbaijan “continues to confine women to the household, where they are valued primary for their reproductive function” (UNFPA, 2018a, p.9). This perpetuates a long history of traditional patriarchal attitudes and stereotypes towards women that are still impeding the empowerment of women today (UNFPA, 2018b). Power relations between men and women are created and reinforced by such social and structural contests (UNFPA, 2018a). Nonetheless, when the relational and structural nature of gender, and the power relationship that comes with it, is assumed, its social construction process can be investigated and change in the power relationships between men and women becomes possible.

### 2.1.2 Abortion

While on one side abortion is considered to be the achievement of at least some empowerment for women, in Azerbaijan the widespread use and acceptance of abortion is resulting in SSA discriminating towards unborn women. Azerbaijan, along with Armenia and Georgia, has the “highest legal abortion rates in the world” (Sedgh et al., 2011). Abortion is widely used in Azerbaijan, and is the major method of fertility regulation in the country (Sedgh et al., 2011; Singh et al., 2009). The widespread use of abortion as a contraceptive method dates back to the USSR, which introduced abortion as a contraceptive method in the early 1920s (Hohmann, Lefèvre & Garenne, 2014). Warren (2000) argues that when contraceptives are safe, there is a lower need for abortions. Historically, contraceptives in the former USSR were not of high quality and were highly disapproved by doctors (Westoff, 2005), which might still contribute to the current low use of contraceptives in Azerbaijan and the high rates of abortion.

Chiappori and Oreffice (2008) argue that the legalization of abortion “never worsens women’s well-being”, adding that better technology for fertility control “leads to an empowerment of all women in the economy” (p. 116). If this was the case, however, Azerbaijan’s SRB would not have increased after the introduction of new birth control technology. The position of Chiappori and Oreffice (2008) is not at fault here, many others have argued that the legalization of abortion allows for the empowerment of women giving them the free will to decide to commit to an additional pregnancy or otherwise. Warren (2000) writes that supporters of abortion are “likely to believe that men and women are psychologically similar [...] and entitled to similar opportunities; and that women must have access to contraception and abortion if they are to fulfill their human potential” (p. 7). She adds that those that support abortion are also likely to believe in widespread access to contraception to prevent unwanted pregnancies.

However, the situation in Azerbaijan shows an opposite and controversial side for this argument. While the argument that Warren (2000) makes points to the issue of fertility revolving around women and their willpower to decide about contraception methods and abortion, Warren is quick to connect the fulfillment of a woman's human potential with the freedom of choosing to abort an unwanted child. The SRB in Azerbaijan shows that high abortion rates, or the freedom to choose whether to continue a pregnancy or not, associated with the technology to determine the gender of the fetus, has resulted in a high discrimination towards female fetuses. Chiappori and Orefice (2008) highlight that becoming a mother in many countries decreases the ability of a woman to choose to enter the labor force, which in turn could discourage women to bear another child if not receiving an adequate incentive or compensation, as highlighted by other scholars (Das Gupta et al., 2003; Javed & Mughal, 2018; Zimmermann, 2018).

### 2.1.3 Skewed Sex Ratio in Asia

While many blame the increase of SRB to SSA, the process of sex selection of newborns is not a recent phenomenon. Technological advancements of the new century have made ultrasound and amniocentesis machines available in many countries for a relatively cheap price (Michael et al., 2013; UN Women & WHO, 2011), which allows parents to know the sex of the fetus, therefore offering them the option to decide to carry on a pregnancy or not. Guilmoto (2009) however, highlights the long history of sex selection, practiced long before modern abortion practices, and the technology lowering the cost of SSA, became available. These "low technology" (Guilmoto, 2009, p.527) methods are female infanticide, female abandonment, and the "neglect of girls" (p.528), which manifests in lower levels of care for daughters. This issue has been observed by many scholars (Guilmoto, 2007b, 2009; Guilmoto et al., 2018; Leone, Matthews & Zuanna, 2003; Pradhan et al., n.d.), that mention how often families that practice son preference neglect caring for their daughters. This neglect can come in different forms: providing less food to their daughters compared to their sons, lack of proper clothing, immunization, or prenatal care (Duflo, 2011; Guilmoto, 2009). Duflo (2011), in a detailed examination of the interconnection between economic development and gender equality, argues that while it is true that girls and boys are often treated differently in poorer countries, this only happens when families face extreme circumstances (shock hits, illness, drought, etc.). Das Gupta and Shuzhuo (1999), similarly, find that war and famines in South Korea and China raised levels of gender discrimination. The birth of another child can per se be a somewhat

extreme circumstance because it does decrease the amount of resources that each household member receives (food, water, etc.); posing a shock that can result in lower care for young girls.

Therefore, if a family places more value on a male offspring, because they believe that the survival of the male child will bring them more economic and social stability, in cases of “disruptions” from the equilibrium they will favor the child that can assure the most stability in the future. It is a cost benefit analysis. As Guilmoto (2009) writes: “girls are not as “cost-efficient” as boys” (p. 531). This is because in Asian countries family honor is often dependent on a daughter’s behavior, dowry is a cost that is mostly associated with daughters, and many brides are expected to move in with the groom’s family after marriage, which leads them to be unable to provide for their own parents when they grow old (Chung & Das Gupta, 2007; Desai et al., 1994; Guilmoto, 2009; Javed & Mughal, 2018; UNFPA, 2018b). However, Das Gupta et al., (2003) argue that economic considerations are not the only influencing factors for son preference, finding that in South Korea the costs associated with marriage were higher for sons than for daughters, and yet parents would prefer to have a son because of cultural constructs.

#### 2.1.4 South Korea, the Country that Rebalanced its SRB

South Korea is the only country in recent history to have experienced a decline in its SRB (Den Boer & Hudson, 2017). The origins of son preference in South Korea date back to the 1300s when Confucianism reached the country from China (Chung & Das Gupta, 2007; Das Gupta et al., 2003). Starting in 1985, the country experienced a shift in sex discrimination, from post-natal to pre-natal, with the widespread use of new sex-selective technology (Das Gupta et al., 2003). This is reflected by the fact that the country has the highest level of SSA in the Asian region (Das Gupta et al., 2003). However, in the last twenty years, South Korea has managed to reduce its SRB thanks to industrialization that brought urbanization and economic development. Societal changes that come with economic development, in the long run, shape a different relationship between parents and their daughters. With urbanization, in fact, in South Korea the proximity in residence of the oldest son lost importance once, in urban areas, married daughters could live near their parents and care for them (Chung and Das Gupta, 2007). Moreover, the increase in female education and participation in the labor force increased the “potential value of daughters” (p. 764), therefore reducing the discrepancies in the value of sons and daughters for their parents (Chung & Das Gupta, 2007).

In spite of the advancements that the country has made, many argue that had it not been for the government stepping in to change the old Family Laws, economic development alone would not have been enough to reduce the SRB (Das Gupta et al., 2003; Singh et al., 2009). The South Korean government, in fact, worked towards including women in societies through the relaxation of Family Laws on inheritance, and other laws that precluded women from inheriting and controlling assets (Chung & Das Gupta, 2007; Den Boer & Hudson, 2017), hindering the patrilinear laws that created the added value of having a son in the first place. Den Boer and Hudson (2017) argue that what differentiated the effort and positive results of South Korea in lowering the SRB was that the government “attacked patrilineality at its roots ...eliminat[ing] the roots of male privilege by lowering the value of sons” (p.141). They argue that raising the status of women through education, labor participation, and political representation is not enough to eradicate son preference. Therefore, changing son preferences requires changing deep societal values and beliefs that sons are more valuable than daughters. Increasing the societal value of daughters is key to eliminate sex discrimination and lower the SRB (Singh et al., 2009). Den Boer and Hudson (2017) go as far as arguing that in South Korea fertility preferences have shifted in favor of girls, with families reporting a desired sex ratio at birth (hereafter DSRB) of 100 females per 86 males in 2012 (Kim et al., 2012 cited in Den Boer and Hudson, 2017).

### 2.1.5 Skewed Sex Ratios and the Power Relationship Between Men and Women

As Chung and Das Gupta (2007), and Mala and Weldon (2011) point out, one of the central institutions that has shaped gender inequality, not only in Asia but also in other countries around the world, is Family Laws. Family Laws are the laws that surround family relations, dealing with marriage, divorce, paternity, custody, adoption, and support (Merriam-Webster [Dictionary], 2020). Such laws assign responsibilities in the household, “forging relations of power between men and women” (Mala & Weldon, 2011, p. 2), influencing the power relationships inside and outside the household. Family laws influence inheritance, property rights, work outside the home, as well as the freedom to marry, divorce, and the relationship of a parent with his/her children. As Mala and Weldon (2011) brilliantly point out, Family Law tends to reinforce patriarchy and to “maximize men’s power over women” (p. 2), limiting the ability of women to make their own decisions and take action. As explained above, changing Family Laws has been argued to have played a great role in lowering the SRB in South Korea (Chung & Das Gupta, 2007; Den Boer & Hudson, 2017). However, when looking at

Azerbaijan's Family Laws, the country recognizes equal ownership, land, and inheritance rights for men and women (Women's Property and Use Rights in Personal Laws, 2020). This suggests that there might be an underlying disconnection between the recognition of women's positions at the judiciary level and at the household level. Other factors are most likely influencing the power relationship between men and women, and the value that society attributes to women.

The view of Mala and Weldon (2011) offers an insight on the long lasting effects that the formal and informal rules that surround the family have on the power relationship between men and women. Similarly, Kurtz and Kurtz, (2015) investigate society's regard of daughters as liabilities from an historical prospective, arguing that rooted social views are the result of historical events that have shaped female labor participation in the workforce. They identify the example of tribal communities that practiced shifting cultivation and hunting until the 19<sup>th</sup> century. In such tribes, women are highly valued because they are the fulcrum of farm labor, while men only "play a peripheral role in their rural economy" (Kurtz & Kurtz, 2015, p. 232). This reflects in their sex ratios; according to the 1871 census among the Hos in Binar there were 1,041 females in the population per every 1,000 males (Kurtz & Kurtz, 2015). In the same vein, Leone, Matthews and Zuanna (2003) argue that geographic and ethnic clustering of son preference is likely to correlate with women's autonomy. This view is supported by Kurtz and Kurtz (2015) that argue that Indian regions with predominantly low sex ratios (meaning the number of females to males) "tend to be more misogynistic" (p.227), with low inheritance and property rights for women, low female education and literacy rates, high female unemployment, and poor female health as a result of the greater domestic violence rates. On the opposite, they find that in regions where the sex ratio is high, women tend to be better off, employed, more educated, and even have better opportunities to participate in local politics.

This, besides supporting the notion that women's autonomy is inversely correlated to son preference, is in contrast to Guilmoto's (2009) hypothesis that a shortage of women could potentially, in the long run, be beneficial for women. Many scholars have rather argued the opposite. The shortage of women is often associated with pressure for women to marry, more violence experienced at home, and a higher demand of sex work (UN Women & WHO, 2011). However, the effects on society, as well as on men and women of the skewed SRB are still unknown, thus these are mostly speculations like Hesketh, Lu, and Xing (2011) point out. High SRB are still a fairly new phenomenon, therefore the consequences of it have not been fully studied yet.

### 2.1.6 Son Preference, Differences Between Men and Women

The issue of son preference is often observed at the household level, and limited attention has been given to exploring whether men and women perceive and perpetrate son preference differently. In many Indian regions, for example, women are no less inclined than men to preferring to have a son (Kurtz & Kurtz, 2015). A possible explanation for this is that women could acquire more power in the household decision making, and this in turn would have a huge impact in shaping son preference specifically for women. Studies have shown that female participation in the decision-making increases with the more boys they give birth to, even if only limited to matters of lower importance (Javed & Mughal 2018), or short term lasting (Zimmermann 2018). These findings are crucial when observing the power relation between men and women within the household, shedding light to the fact that women might use son preference to their own advantage, to empower their position within the household. The work of Das Gupta et al., (2003) supports this view, showing that power within the household shifts to women as they reach an elderly age. They add that this shift in power, however, is dependent on being supported by the adult sons in the house. This dependence of the woman to the approval and support of her sons comes at the expenses of younger women, daughters and daughters in law, and “helps perpetuate the cycle of female subordination” (Das Gupta et al., 2003, p. 166).

While the literature mentioned above looks at the effects of son preference on women’s empowerment, this thesis aims at investigating the inverse causal relationship between the two. More empirical research is needed to explore the shifts in the household power relations that the birth of a male offspring could potentially bring. However, the improvement that has been observed on the woman’s bargaining power after giving birth to a son is undeniably a “perpetuation of discriminatory social status for women” (Javed & Mughal, 2018).

## 2.2 Theoretical Framework

### 2.2.1 Ready, Willing and Able to Sex Discriminate

Ansley J. Coale (1973) provided a framework to explain the fertility declines in Europe in the 1900s as being a result of couples’ voluntary limitation of fertility. Such theory is famously

synthetized in “ready, willing, and able”; meaning that parents would have to be ready to make the conscious choice to alter fertility, that limiting the size of the family would have to be considered advantageous, and that they would have to be able to access contraception or abortion (Van de Kaa, 2004). The framework offered by Coale can be applied not solely to explaining fertility declines but also to observe son preference, being a form of fertility control. Bongaarts (2013) writes that parents that choose SSA are “strongly motivated and have overcome the potential medical, technical, ethical, social and economic obstacles they faced when considering the procedure” (p. 187), offering a bridge to make Coale’s (1973) framework adaptable to the study of son preference. Using DHS surveys from 61 countries he estimates the desired SRB (DSRB) for men and women, finding that the DSRB tends to be higher than the SRB. Indeed, an explanation for the reason why the DSRB is higher than the SRB is given by Coale’s (1973) framework. In fact, the higher DSRB shows that more families would like to sex-discriminate before birth, but for some reasons they cannot. They could lack the means to access the technology to identify sex before birth, or they might not be willing to resort to abortion because of moral or religious reasons.

The increase in SRB observed in Azerbaijan after the fall of the USSR, can be explained by Coale’s (1973) *ability* to sex discriminate. The availability of new technology in the country influenced the ability of couples to sex discriminate, giving the option to know the sex of the child before giving birth (Michael et al., 2013). Hohmann, Lefèvre and Garenne (2014) argue that the high incidence of SSA in the Southern Caucasus is due to the general availability and toleration of abortion and SSA in the country. The high rates of SSA are in turn what is responsible for the high SRB in Azerbaijan. However, this theory still falls short on explaining why families would sex discriminate in the first place. There would be no need for a family to have a SSA if the value that they attributed to sons and daughters was the same. Here is where, referring back to Coale’s framework, the *readiness* and *willingness* for couples in Azerbaijan to sex discriminate comes into play. What influences the *readiness* to make the conscious choice to limit fertility and sex discriminate among households can be influenced by many variables. Similarly, the *willingness* to sex select, recognizing the advantages offered by sex selecting, can be influenced by many variables that would make daughters less valuable or a “burden” (Kurtz & Kurtz, 2015). The exploration of the relationship between such variables and the undervaluing of female offspring is the aim of this thesis.

### 2.2.2 The Skewed SRB and Women's Empowerment

In an investigation into skewed sex ratios and son preference Bongaarts (2013) finds that the DSRB in Azerbaijan is over 130, which is a considerable difference from the SRB of 112.5. However, Bongaarts (2013) does not distinguish DSRB between women and men. This could have various consequences on the DSRB that he reports. Women could, for example, have a lower DSRB and have some bargaining power that allows them to have daughters, therefore lowering the actual SRB. This would reinforce the hypothesis that the empowering of women in Azerbaijan would drive down the SRB. The framework provided by Coale (1973), while providing a starting point for the observation of fertility trends and SSA, leaves many questions unanswered regarding what are the variables that could influence the readiness and willingness of parents to sex discriminate, and how abortion affects the decision.

In a seminal paper on economic development and the role of women, Duflo (2011) highlights that the difference in SRB shows that the availability of new technologies, that comes with economic development (and in Azerbaijan's case with the shift to a market economy after the fall of the USSR), can have profound negative effects on gender equality. This is because it decreases the cost of sex discrimination, giving the option to parents to abort them rather than having to raise them and incur all the associated costs (care until they marry, wedding, dowry, etc.) (Duflo, 2011). Similarly, Desai et al., (1994) in their longitudinal study of gender inequalities in India, report that in Bombay in the 1980s and 1990s there were posters advertising for sex-selective abortions reading: "It is better to pay 500 Rs. now than 50,000 Rs. [in dowry] later" (p. 49), exploiting the fear of costs associated with raising a daughter. Duflo (2011) offers the missing piece for a theoretical framework that combines family fertility decisions and the issue of women's undervaluation in society. In her extensive review of the empowerment-development link, she draws our attention to the fundamental point that when women have fewer opportunities to join the labor market, this has an effect on how they are treated within the household. She adds that this in turn creates a situation where parents have lower aspirations for their daughters, which also affects the way their daughters will grow up, having themselves lower aspirations for their future. Therefore, it can be argued that when women are empowered, having the same opportunities as men, parents do not have lower expectations for their daughters, and therefore would not prefer having a son.



### 2.2.3 Explaining Son Preference in Azerbaijan

Two important themes emerge from the theories and literature discussed so far: parents willingly decide to sex discriminate when they are ready and able to do so; while the lack of empowerment of women can affect the value given to daughters, therefore possibly contributing to son preference. While many scholars seem to agree that technology advancements have created new opportunities for parents to sex discriminate, lowering the cost of it (Das Gupta et al., 2003; Duflo, 2011; Guilmoto, 2009; Michael et al., 2013; UN Women & WHO, 2011), there is no collective agreement on how economic development and the empowerment of women that often comes with it can affect son preference. Duflo (2011) argues that development alone is incapable to ensure progress in women's empowerment; which in turn would not be enough to stop son preference, as seen in China. This is because legal rights in many countries tend to favor men even as economies develop (Duflo, 2011; Yunus, Tohirova & Alakbarova, 2004), reinforcing patriarchy (Mala & Weldon, 2011).

In view of all that has been mentioned so far, it can be concluded that there remain several aspects of the link between women's empowerment and son preference about which relatively little is known. The issue of son preference is not solely a matter of gender discrimination, but it is a violation of women's human rights that deserves the appropriate attention and efforts to stop it. This thesis investigates the role that development and women's empowerment play into the eradication of son preference, to provide input for informed policy making. Indicators for women's empowerment within the household are identified to test the hypothesis that when women are empowered son preference in the household weakens. Moreover, the model explores how such indicators affect son preference for men and women differently. To capture the complexities of this issue, Pande and Astone's (2007) study of son preference in rural India is taken as the basis for the quantitative model in this thesis, which employs a similar ordered logistic model.

## 3.Data

### 3.1 Data Source

The data used in this thesis comes from the 2006 Azerbaijan Demographic and Health Survey (AzDHS). The 2006 AzDHS is a representative sample of the Azerbaijani population made up of 7,619 households, including 8,444 women aged 15 to 49 and 2,558 men aged 15 to 59. The data offer an overview of the country regarding fertility preferences, abortion rates, contraceptive use, childhood mortality, women's status, adult and child health, tuberculosis and sexually transmitted diseases. The DHS survey data was chosen because, thanks to its aim to provide data for policy making in developing countries, it includes extensive information on development indicators, fertility issues, and women's status. The validity of the data for this research revolves around the use of the women's data as indicators for women's empowerment, which is explained in detail in section 4.2.

The 2006 AzDHS data were collected on a national and regional level, and the results are “intended to provide information needed to evaluate existing social programs and to design new strategies for improving the health and health services for the people of Azerbaijan” (State Statistical Committee (SSC) and Macro International INC., 2008, p. xvii). The data used in this analysis come from three questionnaires: the household questionnaire, the women's questionnaire, and the men's questionnaire. Women in every household were interviewed for the women's questionnaire, while the men's questionnaire constitutes a subsample of the households, where one in three men was selected for the questionnaire. The data offer a peak into the Azerbaijani society and households, offering a comprehensive view on the issues of abortion, son preference, and the role of women in the household.

The AzDHS data include questions to both men and women about their desired number of children, and their preferred sex. This provides a valuable opportunity to measure son preference in the country for men and women separately. For this paper, a *de facto* sample of 5,799 ever-married women and 1,703 ever-married men is used to draw insights on the relationships between women's empowerment and gender differences with son preference. The sample was limited to ever-married men and women because the outcome of interest is son preference, and over 99% of the never married individuals in the DHS original sample do not have children, which could generate differences in their son preference answers because

hypothetical, versus the from the answers of the ever-married sample. This is because the individuals in the ever-married sample have already been faced with the issue of fertility. The average age at first marriage in the sample is 21.12. Therefore, the ever-married sample eliminates the younger population in the sample that has not yet been confronted with the issue of marriage and fertility choices. Weights are used throughout the analysis, as recommended by the DHS website. Table A 1 (Appendix) shows differences in the weighted and non-weighted sampling, suggesting that weights are needed in the analysis to account for oversampling and ensure the fair representativeness of the population of Azerbaijan.

## 3.2 Descriptive Statistics

The study is the first, to my knowledge, to differentiate the results for son preference determinants between men and women for the whole country of Azerbaijan, controlling for regional differences. Because the study investigates the effects that women's access to resources, labor participation, financial resources, and the power relations between men and women have on the SRB, the data used come from the women's survey and the men's survey. This section offers an extensive overview of the data on abortion and the position of women in the country.

### 3.2.1 Abortion

Abortion has long been the predominant means of fertility control in Azerbaijan. Information on abortion comes from the women's questionnaire. Data show that abortion is widely used in Azerbaijan, with the average abortion rate at 2.3 abortions per woman. Less than half of the pregnancies (46%) in the country end in a live birth. Of the 8,444 women in the sample, 41.19% have ever terminated a pregnancy. The majority of the women reporting to have ended a pregnancy have done so in the first trimester (figure 2), which suggests that the motivation behind it was not son preference because the sex of a fetus can only be detected after 13 weeks (Odeh et al., 2009). However, the majority of the respondents left the answer to this question blank, which can indicate that the interviewee did not feel comfortable answering the question. Many women in Azerbaijan use abortion as a contraceptive method. In fact, the data show (figure 3) that the majority of the women interviewed do not use any contraceptive method (68%) and withdrawal is the second most used contraceptive method (20.3%).

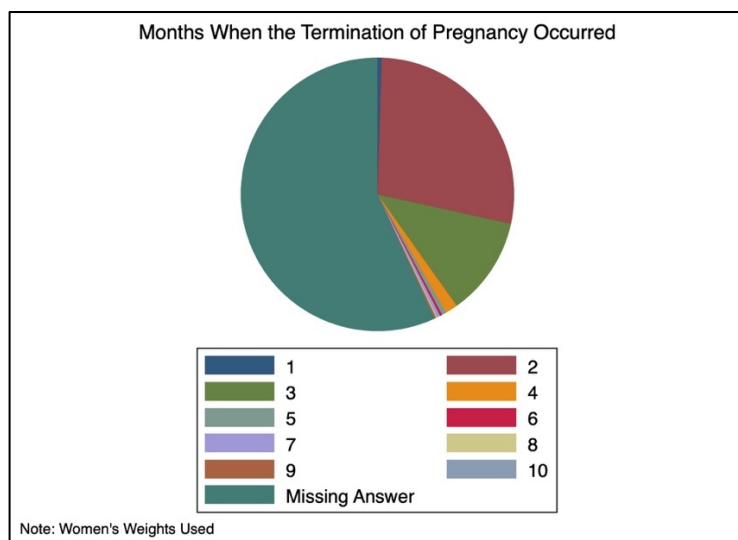


Figure 2: Termination of Pregnancies by Gestation Month

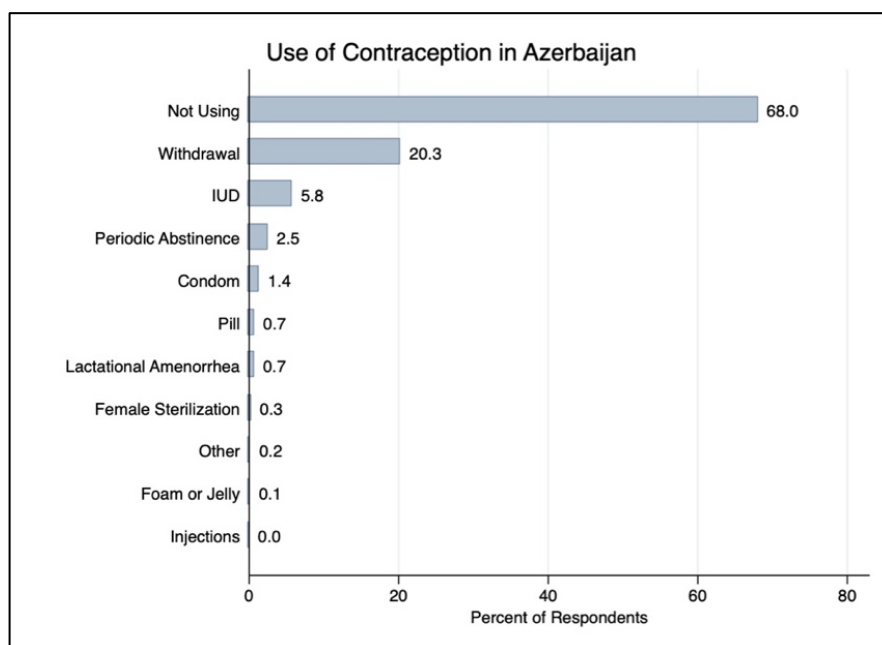


Figure 3: Percentage of Women in the Sample Using Contraception

### 3.2.2 Women in Azerbaijan

The AzDHS data offers a peak into the condition of women in Azerbaijan. Table 1 shows the differences in education attainment, labor force participation, and geographic's between men and women in the country. First, it can be observed that men overall report higher educational attainment than women. Secondly, labor force participation among the women in the sample is tremendously low, especially because the sample includes women in their primary working age, between 15 and 49 years old. It is also worth noting that when looking at employed women, the

percentage of self-employed women (7.4%) is almost half of the percentage of self-employed men (13.8%). Lastly, the majority of men and women in the sample reside in urban areas.

*Table 1: Levels of Education, Labor Force Participation, And Geographic's For Ever-Married Survey Respondents\**

	Women (%)	Men (%)
<b>Education</b>		
No education	0.99	0.26
Primary	1.05	0.38
Secondary	85.49	77.53
Higher Education	12.47	21.82
<b>Labor Force Participation</b>	23.39	88.85
Working outside the house	91.97	-
Works for family member	24.34	35.11
Works for someone else	68.24	51.08
Self-employed	7.42	13.76
No Answer	-	0.04
<b>Geographics</b>		
Living in urban areas	56.45	57.79
<b>Region</b>		
Baku	29.77	31.09
Absheron	6.57	7.32
Ganja Gazakh	14.66	13.79
Shaki Zaqatala	6.97	6.49
Lankaran	8.30	7.42
Guba Khachmaz	4.07	5.05
Aran	24.33	23.26
Yukhari Karabakh	2.36	2.57
Dakhlik Shirvan	2.97	3.00

\*Table made using a weighted sample, as recommended by the DHS website

Questions regarding the level of education of their partners were only asked to the women in the sample, therefore the women's data are used to draw insights on couples' differences in their educational attainments (table 2). The majority of the women interviewed reported having the same amount of schooling as their husbands. The table reports percentages for the women's responses both using the women's weight and without. Looking at the data for men and women (figure 4, figure A1 for the non-weighted sample in the Appendix), education seems to be correlated with son preference, with son preference increasing with secondary education, and then decreasing with higher education, like found by Pande and Astone (2007).

Table 2: Couples' Levels of Education, From Women's Questionnaire

	Weights	No weights
<b>Difference in levels of Education</b>		
Couples that have the same amount of schooling	80.22	80.07
Man has more schooling	14.29	14.55
Woman has more schooling	5.49	5.38

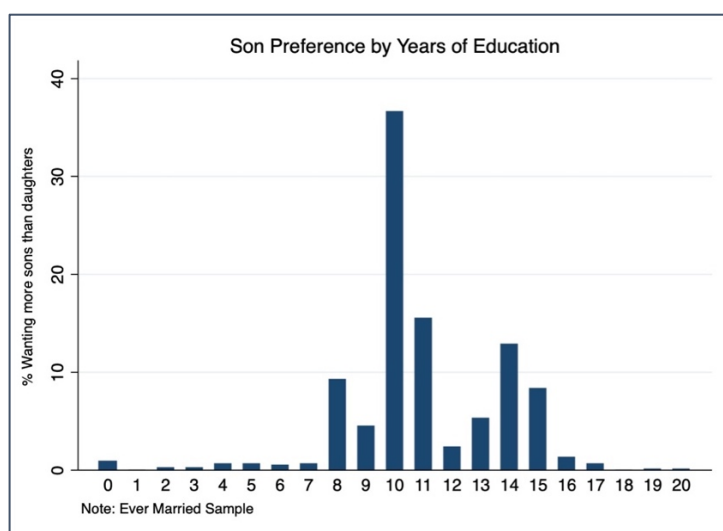


Figure 4: Son Preference by Years of Education, Ever-Married Weighted Sample

Women in the sample were asked different questions that can be used to assess their levels of freedom within marriage. Table 3 shows the variation in women's freedom to see their friends and family, go out without having to communicate their position to the husband, and the levels of jealousy that are generally accepted. A majority of the husbands require their wives to communicate them where they are (74.37%), and many women reveal that their husbands are jealous even if the woman is solely talking to another men (47.53). From this data it can be inferred that the situation of women in Azerbaijan is not at the levels of freedom experienced in most Western countries.

Table 3: Women's Freedom Within Marriage (Percentages)\*

	No	Yes	Don't Know	No Answer
Husband jealous if talking with other men	50.46	47.53	1.89	0.13
Husband accuses her of unfaithfulness	92.46	7.04	0.41	0.1
Does not permit her to meet her girl friends	86.1	13.04	0.79	0.07
Husband tries to limit her contact with family	89.96	9.64	0.35	0.06
Husband insists on knowing where she is	24.96	74.37	0.58	0.08
Ever experienced any emotional violence	93.1	6.83	0	0.07

\*Table made using a weighted sample (domestic violence weights), as recommended by the DHS website

Lastly, the data offer a general view of son preference in the country. The average desired number of boys is higher than the average desired number of girls, for men and women, both in rural and urban areas (figure 5). While the average desired number of boys is higher than the desired number of girls in both rural and urban areas, son preference appears to be higher in urban regions, with Baku leading, as shown in figure 6 (figure A2 in the Appendix for the non-weighted sample).

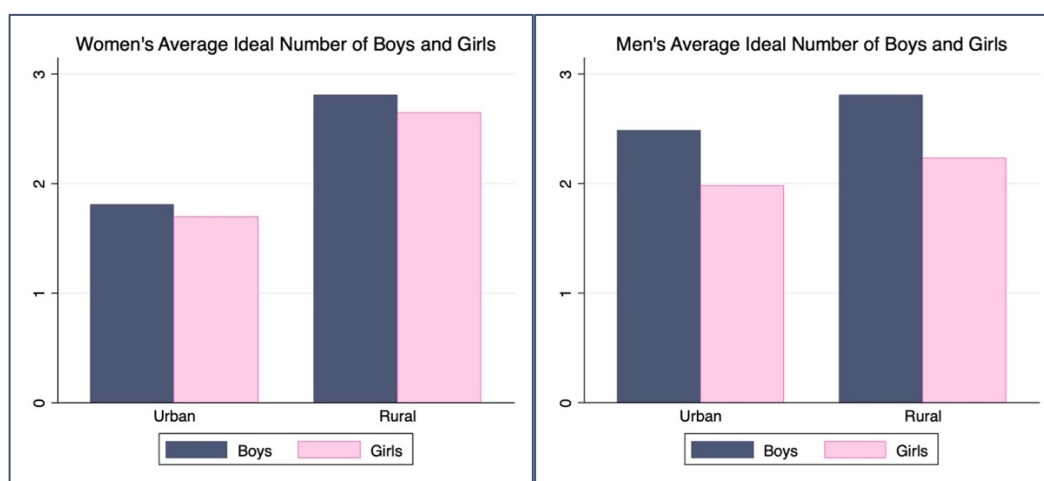


Figure 5: Average Ideal Number of Boys and Girls for Women and Men

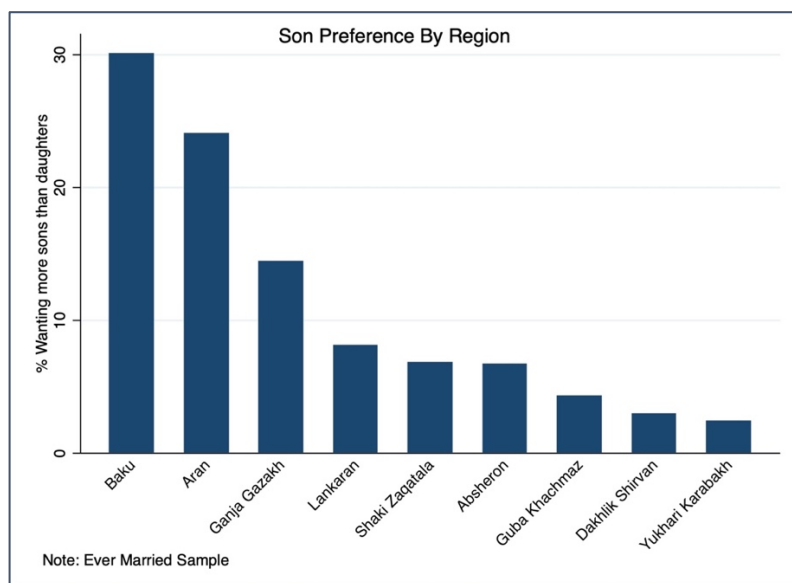


Figure 6: Son Preference by Region, Ever Married Weighted Sample

## 4.Method

### 4.1 Methodology

This study explores the relationship between the skewed SRB in Azerbaijan and women's empowerment, to draw insights on possible policy recommendations to eliminate the discrimination of girls. However, targeted policy recommendations require specific efforts and calls for action. This is because the complex solutions to gender inequality are as difficult to accomplish as the problems that legislators are aiming to solve, and "efforts to promote women's status are often vague" (Jensen & Oster, 2009, p. 1092), which make the achievement of such goals often slow. Therefore, this study uses different indicators of women's empowerment to provide targeted policy recommendations. The indicators utilized are financial independence and decision making, violence at home, access to media, and education. The hypothesis behind this empirical study is that women's empowerment would have a significant negative effect on son preference in Azerbaijan, implying that parents, when women are empowered, would value sons and daughters in the same way and therefore not care for the sex of their children. Moreover, the study wants to shed light on the possible differences in son preference between men and women in the country. To my knowledge, the only other study that looked at gender differences in son preference in Azerbaijan employed a sample that only included individuals from the capital, Baku (Hortaçsu, Baştuğ & Muhammetberdiev, 2001). The study found no difference in the number of children desired between men and women in Baku, and while men desired more sons than daughters, women preferred to have more sons than daughters when forced to make a choice. However, the limited sample in the study by Hortaçsu, Baştuğ and Muhammetberdiev (2001) fails to take into consideration within-country variations in son preference between rural and urban areas, and between regions. Such country variations are included in this study as controls for potential differences in son preference within the country.

The model used in the study is based off the ordered logistic model utilized by Pande and Astone (2007) in their work on son preference in rural India. While their study provides valuable information on the influence of social norms on son preference in rural India, the results suffer from the threat of external validity. Because of the differences in fertility preferences between rural and urban areas, the results of the study cannot be extended to the whole country, and other countries (Chung & Das Gupta, 2007; Guilmoto, 2009). Moreover, the paper by Pande



and Astone (2007) focused on individual and social norms that affect women's son preference, finding that education at the secondary and university level and media access, for women, are associated with a weaker son preference. The model used by Pande and Astone (2007) is taken as a starting point, but it is altered to fit the research questions of this study, which aims at exploring the effect of women's empowerment on son preference.

#### 4.1.1 Ordered Logistic Model

Following the model used by Pande and Astone (2007), an ordered logistic model is used. The ordered logistic model is a regression tool utilized when the dependent variable is an ordinal variable that predicts the probabilities of the different outcomes. The peculiarity of the model used by Pande and Astone (2007) is that son preference is the outcome of interest, therefore allowing for an empirical examination of what affects son preference without employing proxies to quantify it. The idea behind the ordered logistic model is that as one independent variable increases, the result will be a shift toward either end of the spectrum of the ordinal responses, in this case, the son preference scale. The ordinal logistic regression operates with the log-odds transformation of the probability. When using an ordered logistic regression, the data is required to meet the proportional odds assumption, which implies that the logarithm of odds (not the probabilities) form an arithmetic series. In this case the proportional odds assumption is defined as:

$$\text{Log}\left[\frac{P(\text{No Son Preference})}{P(\text{Some Son Preference}) + P(\text{High Son Preference})}\right]$$

$$\text{Log}\left[\frac{P(\text{No Son Preference}) + P(\text{Some Son Preference})}{P(\text{High Son Preference})}\right]$$

The logistic model, in order to address causality, does not need to meet the assumptions for linear regression models regarding linearity, normality, measurement, and homoscedasticity. However, there are assumptions that need to hold in order to use a logistic model. First, the dependent variable in an order logistic model needs to be ordinal. Second, the observations have to be independent of each other. Third, little or no multicollinearity is required, meaning that the independent variables should have no or low correlation between each other. Fourth, the linearity of independent variables and log odds is assumed. Lastly, it requires a large sample size (at least 10 cases of the least frequent outcome per independent variable).

The dependent variable in the model is a categorical variable for son preference, taking the value zero for no son preference, one for some son preference, and two for high son preference; therefore, meeting the first assumption of the ordered logistic model. The second assumption that observations have to be independent of each other is also satisfied because few individuals in the dataset are married to each other. The third assumption, no multicollinearity, is satisfied. This is achieved first checking for potential collinearity between variables in Stata, and then grouping similar variables, that would measure similar indicators. More about the grouping and scaling of the variables is explained in the data manipulation section. The fourth assumption, the linearity of independent variables is assumed. Lastly, the sample used contains thousands of individuals, which constitutes a large sample enough to run an ordered logistic regression. The threat of a small sample is why the sample is not limited to just the couples interviewed, which accounts to only 1,451 observations. While using just the couples in the survey would have allowed for matching the variables of interest for women, like the level of education for the women in the couple, with their husbands, the sample would not have been sufficient to obtain results extendable to the whole population.

$$y \text{ (Son Preference)} = \text{none (0), some (1), high(2)}$$

Where  $y$  predicts the probability of outcome  $\leq i$ ,  $p_i$

$$y_i = p_i + \varepsilon$$

$$\text{Log}[p_i/(1 - p_i)] = \alpha_i + \beta_x + \gamma$$

Which is:

$$Y = \alpha_i + \beta_x + \gamma$$

Where:

$p_i$  = probability of outcome  $\leq i$

$Y$  = Son Preference

$\alpha_i$  = intercept of outcome  $\leq i$

$\beta_x$  = independent variables

$\gamma$  = control variables

$p_1$  = probability of no son preference (0)

$p_2$  = probability of no or some son preference ( $\leq 1$ )

To further address the issue of causality: the data used, being survey data, are stratified assuring that the population is divided into subsets (strata) and sampled separately, and then combined to get population estimates. Stratification adjusts for possible differences between the population and the sample, facilitating the causal analysis of the data. Because survey data is clustered and stratified, the analysis is run with the “svy” Stata command. Such command is used for statistical models run on complex survey data, to adjust the results given the design of the survey data. Additionally, sampling weights are used throughout the analysis to adjust for disproportional sampling of the data and restore the representativeness of the data (State Statistical Committee (SSC) and Macro International INc., 2008). The weights used in the data are the women’s weight, the men’s weight, and the domestic violence weight.

## 4.2 Variables

### 4.2.1 Transforming the data

The data used for this study has been manipulated to allow this analysis. The study aims at uncovering differences in son preference for men and women exploiting the differences in how men and women in Azerbaijan perceive the condition of women in the country. To allow the analysis to contain observation for both men and women data from the men’s questionnaire and women’s questionnaire was merged into one dataset. More information on the manipulation of the data is provided below.

### 4.2.2 Dependent Variable

The dependent variable in this analysis is a categorical variable for son preference. Respondents for both the women’s and men’s questionnaire were asked for their ideal number of children. Women and men with living children were asked: “If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?”, while individuals with no surviving children were asked: “If you could choose exactly the number of children to have in your whole life, how many would that be?”. The individuals that answered such questions with a number different from zero were asked the follow-up question: “How many of these children would you like to be boys, how

many would you like to be girls and for how many would the sex not matter?'. The responses were recorded as numerical answers for boys, girls, either, or other.

Following the model of Pande and Astone (2007) an ordered categorical variable for son preference was created. The variable equals zero when the respondent reports no son preference, one when the respondent reports the ideal number of sons to be one more than the ideal number of daughters, and two when the respondent reports the ideal number of sons to be two or more than the ideal number of daughters (Pande & Astone, 2007). This allows for an empirical examination of son preference.

#### 4.2.3 Independent Variables

The independent, or explanatory variables in the model are measures of development and women's empowerment.

##### *Financial Independence and Decision Making*

Different variables on financial independence and decision making at home are added to the model as indicators for women's empowerment. Kishor and Gupta (2004) suggest that indicators of empowerment within the household are those that measure women's participation in the household decision making. The model used in this thesis, therefore, uses similar indicators. Men and women in the survey were asked if they had worked in the twelve months prior to the interview, the kind of occupation they held if they were employed at the time of the interview, and if they had done any work outside of their own housework in the seven days prior to the interview. Individuals were then asked who within the household makes decisions regarding major household purchases, daily household purchases, and who has the final say on the earnings of the wife. Financial independence gives women a greater ability to provide for their elderly parents, which would, therefore, impact the economic premium attributed to sons. The interviewees were also asked who makes the decision to visit their family or relatives, which is another indicator that has been included in previous analysis for women's empowerment within the household (Zimmermann, 2018).

The AzDHS 2006 Women's survey provides information on whether the husband, children, or other household members were present at the time when these questions were asked. This is key information that offers the opportunity to investigate if women's answers are affected by

their partner's presence. The data shows that only a very small fraction of the women's interviews was interrupted because of the presence of the husband, or others.

### *Violence at home*

Kishor and Gupta (2004) argue that another set of indicators of women's empowerment deals with women's "acceptance of unequal gender roles" (p. 695), like wife-beating and differences in education for men and women. Societies that widely tolerate the beating of women by husbands are those where the status of women is lower relative to men; which in turn is reflected in the prevalence of son preference in society (Kishor & Gupta, 2004). The relationship between domestic abuse and women's empowerment is however, not straightforward. Table A3 (Appendix) shows the incidence of domestic violence in the country.

Therefore, variables accounting for domestic violence are included in the model. The DHS survey includes questions on whether the women and men interviewed believe that husbands are justified in beating their wives in different occasions: if the wife goes out without communicating it to the husband, if the wife neglects to take care of the children, if they get into an argument, if the wife refuses to have sex with the husband, and if she burns the food. The possible answers to the domestic violence questions are yes, no, and don't know.

### *Access to Media*

Access to media has been shown to be a means to empower women, because of the power that media has to show how relationships between women and men are in other, usually more developed, countries, and educate. Access to media can "help empower women by equipping them with the information and the means to function effectively" (Kishor & Gupta, 2004, p. 659). To cite a few examples, female activists in Brazil learned about support groups for women to fight to obtain more rights, while Afghani women learned about the power relationship between men and women in other countries and about laws on gender equality in their own country (Kabeer, 2011). The empowerment of women through media has been observed to have an impact on son preference. Jensen and Oster (2009) found that access to cable TV in India is associated with a reduction in the acceptability of son preference and an increase in women's autonomy.

For this reason, various variables accounting for access to media are added to the model. Women and women were asked if they watch television, listen to radio, and read newspapers

“almost every day”, “at least once a week”, less than once a week” and “not at all”. They were also asked if in the last few months they had heard about family planning on the radio, television, newspapers or magazines, or in brochures.

### *Education*

Education is a potential source of empowerment for women. As with media, education gives women the tools necessary to participate in the labor force, know about their rights, and move up the social ladder (Das Gupta et al., 2003; Kishor & Gupta, 2004). This improves the “potential value of daughters” (Chung & Das Gupta, 2007, p. 764). However, higher levels of female education have been shown to correlate with lower fertility rates (Roser, 2014), which in turn make the relationship between SRB and female education not clear (Chen et al., 2020). Chen et al., (2020) in fact, find that women’s education increases the likelihood of the couple to go through with an SSA, provided that the needed technology is available. However, Pande and Astone, (2007) find that the increase in SSA and SRB is only correlated to an increase up to secondary education, and once a higher level of education is achieved the relationship becomes negative.

### *Gender Difference and Within-Country Variation*

A dummy variable is included in the model to control for gender differences and is used as an interaction term with different indicators to show different relationships for the predictor variables with the dependent variables between men and women in the sample. In order to explore the within-country variation in son preference, a control variable for the different regions, as well as a dummy variable for urban vs. rural, are added. All models include the control variables.

## **4.2.4 Data Manipulation**

Given the complex structure of the ordered logistic model developed to answer the research question, the DHS data was manipulated throughout the analysis. Numerous variables were created for different purposes explained below.

The numerous options for the different survey answers of interest for the analysis posed two potential threats: a small number of observations in some categorical variables and multicollinearity. To address these issues, and to make the model more easily interpretable,

some explanatory variables were re-coded in binary or scale variables. A dummy variable for employment was generated, taking the value of one if the individual had worked in the twelve months previous to the interview, or was currently employed at the time of the interview, or zero otherwise. Given the vast array of options for answers to the financial and independence questions, the answers were grouped in a scalar variable. The answers “someone else”, decision not made/not applicable”, and “don’t know/depends” were grouped together as “other” to ensure that the small proportions of such answers would not potentially reduce the statistical significance of the results. The missing values were left untouched. This is because the majority of the missing values for such answers are found in individuals that were not in a relationship at the time of the questionnaire, therefore such missing values do not threaten the validity of the results.

Multicollinearity refers to the situation in which two or more independent variables are highly correlated (Wooldridge, 2012). The questions about media usage for example, could be highly correlated to each other because people who watch tv daily could be more likely to also access radio every day. The collinearity test on the three media variables in fact shows some correlation between the variables. Therefore, the media access variables were grouped into one binary variable taking the value of zero if the individual answered that they had no daily access to any media (newspaper, radio, tv), or one if they answered “almost every day” for any of the three media channels. The majority of the interviewees in the sample access media almost every day (85.3%). Similarly, the variables for wife beating were grouped into one scale variable taking the value of zero if wife beating is never justified, one if wife beating is justified (answered yes in three out of the five options), and two if wife beating is highly justified (answered yes over four out of the five options).

### *Interaction Terms*

While these variables are development indicators for men and women, the use of interaction terms provides valuable indicators for women’s empowerment. When merging the men and women’s dataset, there is no other way to get information on some of the empowerment indicators like wife’s education or employment status, if not limiting the sample to interviewees married to each other. However, limiting the sample to only couples would reduce the number of observations to 1,451, which could potentially pose the threats of overestimation of the odds ratios and systematic bias (Reed & Wu, 2013), because of the small sample combined with the vast array of explanatory variables. In order to address the impossibility to extrapolate

information about the wives of the majority of the men in the sample, an interaction term is added to the models. The use of interaction terms allows for the observation for partial effects of an exploratory variable to depend on the premium of another variable (Wooldridge, 2012). Therefore, offering the possibility to observe the impact of women's empowerment and independence on son preference. The indicators of women's empowerment of interest are employment status, wife beating tolerance, media access, and women's education. First, to observe if working outside the house for a woman is associated with a lower son preference then women not working outside the house, or men, an interaction term between the employment and female variables is included in the analysis. Similarly, interaction terms between wife beating tolerance and female, as well as access to media and female, and education and female, are included.



# 5.Results

## 5.1 Interpreting the Results

As opposed to the straightforward interpretation of an OLS regression where a continuous outcome variable is regressed on an explanatory variable, in an ordered logistic model the dependent variable is collapsed into categories and a series of logistic regressions (which are binary) are run (Williams, 2016). As explained above, in the ordered logistic regression the dependent variable in the model is a categorical continuous variable, and the cumulative responses probabilities are considered. The magnitude of the coefficients is interpreted looking at the proportional odds ratios. For this reason, the interpretation of the ordered logistic model requires an explanation of the odds ratios. The cumulative responses probabilities can be written as:

$$y_1 = x_1, y_2 = x_2, y_k = 1$$

With the ordered logistic model expressed as:

$$\log\left(\frac{y_1(x)}{(1 - y_j(x))}\right) = \alpha - \beta^t(x), j = 1, 2, \dots, k - 1$$

For  $k$  categories, which in this case are 3.

Where  $y_j = \Pr(Y \leq \frac{j}{x})$  represents the cumulative probability including  $j$ , for the covariate vector  $x$

And  $\alpha_j$  is the cut-point for the upper  $j$  category.

When the exponentials of both sides of the equation are taken, the result is the odds of falling into a low category (no son preference) versus falling into a high category, with the given set of covariates. The odds ratio for a change in  $x$  is given by:

$$\frac{y_i(x_1)/(1 - y_i(x_1))}{y_i(x_2)/(1 - y_i(x_2))} = \exp(-\beta_x(x_1 - x_2))$$

Where  $\beta_x$  is the coefficient of interest.

The interpretation of the results will therefore be that a negative coefficient would translate into a higher value of  $x$  increasing the odds of having a lower value of son preference. Similarly, a positive coefficient would translate into a higher value of  $x$  increasing the odds of having a higher son preference, or decreasing the odds of having no son preference.

The results in the next section show the proportional odds ratios for the ordered logistic models. The ordered logistic model estimates one equation over the different levels of the dependent variable, therefore, in order to know the change in the levels in the cumulative sense and interpret the coefficients in odds, the odds ratios show the comparison between people that are in groups greater than  $j$ , versus those that are in groups less or equal to  $j$ . Where  $j$  is the level of the response variable. The interpretation for the odds ratios is that for one-unit change in the independent variable of interest, the odds for cases in a group greater than  $j$  compared to groups less than or equal to  $j$  are the proportional odds times larger.

## 5.2 Results

### 5.2.1 Descriptive Results

The data shows that while a preference for girls is rare among the interviewees, a preference for sons is more widespread (Table 4). The percentage of men that have a preference for more boys is 38.48%, while the percentage of women that have a desire for more boys than girls is only 18.63%. The percentage of men that have a preference for girls is only 3.22%, while for women is 8.80%. Therefore, men in the sample show a higher desire for sons than women.

Studies have shown that son preference is related to family size preferences (Guilmoto, 2009; Pande & Astone, 2007; Westoff, 2005). Table 4 shows the pattern of son preference by total number of desired children for the ever-married men and women in the sample. Son preference appears to be more widespread, between men and women, for the first, the third, and the fifth child born. The highest reported son preference is among men and women who want three children: 81.61% for men and 55.18% for women. In most cases, the majority of men and women desiring an even number of children report being indifferent to the sex composition of their offspring. Among women, 93% of women wanting two children and 94% of women wanting 4 children report not caring about the sex composition of their offspring. Among men, 78.75% of those who want two children report not caring about the sex. A table for the

individual son preference for the ever-married sample, not differentiating between men and women can be found in table A4 in the Appendix.

*Table 4: Son Preference by Family Size Preference, Ever Married Weighted Sample\*\**

Total number of desired children	Percent of men who want:			Total number of men	Percent of women who want:			Total number of women
	More boys	More Girls	Either		More boys	More Girls	Either	
1	69.22	4.94	25.84	57.43	44.26	25.01	30.73	246.25
2	20.51	0.74	78.75	685.53	5.64	1.31	93.05	3,084.41
3	81.61	9.51	8.88	415.72	55.18	28.21	16.61	1,262.92
4	12.39	1.17	86.44	361.21	4.29	1.57	94.14	1,017.94
5	78.25	2.13	19.62	69.72	48.56	28.51	22.93	71.32
6	23.69	1.13	75.18	65.95	12.42	17.96	69.62	32.88
7	85.32	0.00	14.68	2.25	0.00	61.25	38.75	5.30
8	79.79	0.00	20.21	2.47	23.84	0.00	76.16	3.55
9	100.00	0.00	0.00	1.01	-	-	-	0.00
10	47.65	0.00	52.35	10.09	48.50	7.15	44.35	11.11
> 10	-	-	100.00	5.17	-	-	-	0.00
Total	38.43	3.22	58.36	1,676.55	18.63	8.80	72.58	5,735.69

\*Women and men sample weights

\*\*Table includes only individuals that answered with a number to the desired children question, therefore the total number of men and women in the table is lower than then sample (missing data)

## 5.2.2 Multivariate Results

Below five models for the ever-married weighted sample are presented to address the research question (table 5). Model 1 represents the effects of financial independence and decision making in the household, with an interaction term between employment status and female. Model 2 adds the effects of tolerance of domestic violence on women, with an interaction term between wife beating tolerance and female. Model 3, adds the effects of media access for both men and women, with an interaction term between daily media access and female. Model 4, looks at the power that media and information can have on son preference, including variables that indicate if the individual had heard of family planning on different media outlets in the month before the interview, with an interaction term between the family planning variables and female. Lastly, Model 5 adds in the premium effects of education for women, thanks to the interaction term. All models include control variables for region of residence and rural vs. urban. The results of the ordered logistic regression can be found in table A5 (Appendix). To interpret the magnitude of the coefficients, the odds ratios results are reported below in table 5.

The following interpretation of the results implies *ceteris paribus*, meaning that when interpreting a result, it is assumed that all the variables in the model are held constant.

*Table 5: Odds Ratios - Determinants of Son Preference Among Men and Women, Ever-Married Weighted Sample*

	Model 1 Financial Independence & Decision Making	Model 2 Domestic Violence	Model 3 Media Access	Model 4 Media Access Family Planning	Model 5 Education
Female	0.547*** (0.107)	0.499*** (0.078)	0.650* (0.152)	0.498*** (0.065)	0.150** (0.133)
Worked in the past year	1.265 (0.242)	1.076 (0.109)	1.074 (0.109)	1.090 (0.111)	1.099 (0.117)
Female (interaction)	0.808 (0.170)				
<b>Final say on making large household purchases</b>					
Both Equally	0.697** (0.097)	0.728** (0.101)	0.723** (0.099)	0.728** (0.098)	0.718** (0.097)
Wife	0.903 (0.139)	0.925 (0.146)	0.919 (0.142)	0.914 (0.144)	0.924 (0.148)
Other	1.070 (0.395)	1.107 (0.416)	1.076 (0.399)	1.072 (0.409)	1.089 (0.408)
<b>Final say on making household purchases for daily needs</b>					
Both Equally	1.242 (0.209)	1.237 (0.210)	1.242 (0.209)	1.239 (0.210)	1.242 (0.205)
Wife	0.982 (0.121)	0.980 (0.120)	0.976 (0.119)	0.984 (0.122)	0.973 (0.120)
Other	0.815 (0.289)	0.813 (0.290)	0.827 (0.291)	0.835 (0.300)	0.817 (0.291)
<b>Final say to visit family or relatives</b>					
Both Equally	0.781* (0.107)	0.775* (0.106)	0.777* (0.107)	0.765* (0.107)	0.774* (0.106)
Wife	0.757 (0.128)	0.757 (0.129)	0.758 (0.129)	0.745* (0.129)	0.758 (0.128)
Other	0.556 (0.297)	0.566 (0.302)	0.569 (0.307)	0.564 (0.306)	0.567 (0.304)
<b>Final decision on what to do with money wife earns</b>					
Both Equally	1.203 (0.194)	1.215 (0.198)	1.205 (0.195)	1.224 (0.202)	1.210 (0.196)
Wife	1.367* (0.234)	1.386* (0.237)	1.385* (0.238)	1.406* (0.245)	1.374* (0.238)
Other	1.815 (0.800)	1.804 (0.791)	1.773 (0.782)	1.780 (0.769)	1.793 (0.778)
<b>Wife beating</b>					
Justified		1.320 (0.239)	1.187** (0.100)	1.171* (0.099)	1.177* (0.101)
Highly justified		1.024 (0.217)	1.027 (0.117)	1.015 (0.113)	1.024 (0.121)

**Table 5 Continued**

Wife beating (interaction)					
Female-Justified		0.844			
		(0.177)			
Female-Highly justified		0.997			
		(0.228)			
<b>Media access</b>		1.430*		1.097	
		(0.279)		(0.132)	
Media access (interaction)		0.685*			
		(0.146)			
<b>Heard of Family Planning on the radio last month</b>				0.885	
				(0.252)	
Female - heard of family planning on the radio (interaction)				0.720	
				(0.235)	
<b>Heard of Family Planning on tv last month</b>				1.198	
				(0.241)	
Female - heard of family planning on tv (interaction)				0.895	
				(0.190)	
<b>Read of Family Planning on newspaper last month</b>				1.039	
				(0.249)	
Female - read of family planning on newspaper (interaction)				0.969	
				(0.267)	
<b>Education</b>					
Primary					0.140
					(0.174)
Secondary					0.610
					(0.382)
Higher					0.712
					(0.482)
Education (interaction)					
Female-Primary					12.647**
					(16.109)
Female-Secondary					3.348
					(2.905)
Female-Higher					2.400
					(2.108)
Constant Cut1	2.251***	2.246***	2.930***	2.207***	1.473
	(0.500)	(0.437)	(0.805)	(0.411)	(0.978)
Constant Cut2	12.066***	12.060***	15.742***	11.872***	7.917***
	(2.753)	(2.467)	(4.420)	(2.283)	(5.290)
Observations	6,492	6,492	6,490	6,483	6,490

Note: Regression includes dummy variables for region and dummy variable for rural/urban

The first important finding is that son preference is likely to be lower for women than men. While the significance of the coefficient varies across the different models, lowering when controlling for the most indicators (Model 5, table A5 appendix), at the 90% level, the coefficient is significant throughout the different models. The odds ratios results in table 5 show that for women in the sample the odds of a high son preference versus the combined some and

no son preference are 0.15 to 0.65 times lower than for males (depending on the women's empowerment variables added to the model - Model 1,2,3,4,5, table 5). Likewise, the odds of the combined categories of high and some versus no son preference are 0.15 to 0.65 times lower for females compared to males (Model 1,2,3,4,5, table 5).

### *Financial Independence and Decision Making*

The results in table 5 suggest that individuals in marriages where both husband and wife have voice in the final say for large household purchases compared to couples where the husband has the final say, have a lower son preference. The significance of this coefficient through the different models is at the 95% significance level (Model 1,2,3,4, and 5, table A5 appendix). Similarly, in couples where both individuals have the final say on family visits compared to couples where the man has the final say, the individuals have a weaker son preference. However, the significance level is at 90% (Model 1,2,3,4, and 5, table A5 appendix). The odds ratios results for high son preference versus the combined low and no son preference for individuals that are in a marriage where both spouses have the final say on making large household purchases are 0.69 to 0.73 times lower than for those where the husband makes the final decision. Likewise, the odds of the combined high and some versus no son preference are 0.69 to 0.73 times lower for individuals in such marriages. Similarly, in marriages where the individuals both have the final say on family visits, son preference is 0.7 times lower than for individuals in marriages where the husband has the final say on it (Model 1,2,3,4, and 5, table 5). Likewise, the odds of the combined high and some versus no son preference are 0.7 times lower for individuals in such marriages.

Lastly, individuals in marriages where wives have the final say on how to manage their own earnings have, surprisingly, a higher son preference than individuals where the husband decides what to do with the money the wife earns. The significance level is again at 90% (Model 1,2,3,4, and 5, table A5 in Appendix). The odds ratios for high son preference versus the combined low and no son preference for individuals in such marriages are 1.3 to 1.4 times higher than for individuals in marriages where the husband has the final say on it (Model 1,2,3,4, and 5, table 5). Correspondingly, the odds of the combined high and some versus no son preference are 1.3 to 1.4 times higher for individuals in such marriages.

### *Domestic Violence*

The results suggest that when wife beating is justified, individuals tend to have a higher son preference compared to individuals that do not justify wife beating (Model 3,4,5, table A5 in Appendix). The significance level ranges from 95% (Model 3, table A5 in Appendix), to 90% (Model 4 and 5, table A5 in Appendix). The odds ratios of high versus some and no son preference for individuals that justify wife beating are 1.17 to 1.18 times greater than for individuals that do not justify wife beating (Model 3,4, and 5, table 5). Likewise, the odds of the combined high and some versus no son preference are 1.17 to 1.18 times greater for such individuals.

### *Media Access and Family Planning*

Daily access to media channels (radio, tv, and newspapers) is associated with a stronger son preference (Model 3, table A5 in Appendix) for individuals, with a statistical significance at the 90% level. The odds ratios of high versus some or no son preference for individuals that access media daily are 1.43 times greater (Model 3, table 5). Likewise, the odds ratios of the combined high and some versus no son preference are 1.43 times greater. However, when looking at the differences in media exposure and son preference by sex, the interaction term between daily media access and the female variable shows a weaker son preference for women who access media daily (Model 3, table A5 in Appendix), at the same significance level. The odds ratios of high versus some and no son preference are 0.68 times lower for women that access media daily (Model 3, table 5). Likewise, the odds ratios for the combined high and some versus no son preference are 0.68 times lower. The results also suggest no relationship between hearing of family planning through media and son preference (Model 4, table A5 in Appendix).

### *Education*

The coefficients for education are mostly non-statistically significant (Model 5, table A5 in Appendix). However, the interaction term between female and primary education is significant at the 95% level, suggesting that women that have a primary education have a higher son preference than those than do not have any education (Model 5, table A5 in Appendix). The odds ratios of high versus some and no son preference are 12.64 times higher for women that have completed primary education (Model 5, table 5). Likewise, the odds ratios for the combined high and some versus no son preference are 12.64 times higher.

### 5.2.3 Robustness Check

A common exercise in empirical studies is to perform a robustness check, to examine whether the results of the study would change if a different statistical method of analysis was chosen. Therefore, table A6 and A7 (Appendix) show the results for the same models using a logistic regression instead of an ordered logistic regression. The results of the logistic regression confirm the results obtained with the ordinary logistic regression, strengthening the reliability of the results of the analysis.

In order to perform the logistic regression, the dependent variable was recoded into a binary variable, taking the value of one if the individual had a high or some son preference, and zero for no son preference. The results of the logistic regression are similar to the ordered logistic regression results in significance, direction, and magnitude. Being a woman corresponds to a decrease in the log odds of having son preference (Model 1,2,3,4, and 5, table A7 in Appendix). Results show that son preference is lower for individuals where both spouses have the final say on large household purchases (Model 1,2,3,4, and 5, table A6 in Appendix) and in couples where both or the wife have the final say on family visits (Model 4, table A6 in Appendix). The logistic regression results also suggest a positive relationship between son preference and individuals where the wife is free to manage her earnings (Model 2,3, and 4 table A6 in Appendix), supporting the findings of the ordered logistic regression. The results for wife beating show a positive relationship between justifying wife beating and son preference (Model 3, 4, and 5, table A6 in Appendix). Surprisingly, media access is not statistically significant in the ordered logistic regression. Education is only significant when primary education is interacted with female (Model 5, table A6 in Appendix). The magnitude of the odds ratios for the logistic regression are consistent with the odds ratios for the ordered logistic regression.

## 5.3 Discussion

As mentioned in the literature review, formal and informal rules that surround households are connected to the power relationship between husband and wife. The decision making and dynamics within the household, as well as women's financial independence, media access, and education, offer valuable indicators of women's empowerment. Such indicators are used in this study to assess the impact of women's empowerment on son preference in Azerbaijan. While not exhaustive, the data used provide a unique opportunity to examine how son preference



varies between men and women. The results are significant in at least two major respects. First, they shed light on the issue of differences in son preference between the two sexes, suggesting that women in Azerbaijan have lower son preference than men. While these results contradict the finding of Kurtz and Kurtz (2015) that argued that women in India are not less inclined to prefer sons than men, they support the finding of Hortaçsu, Baştuğ & Muhammetberdiev (2001) that found that women in Baku do not show a preference for sons, if not forced to choose. This might suggest that a hypothetical answer to the son preference question might differ from the intention of women when they have to actually face the decision of having an additional child. Second, they confirm the hypothesis that empowering women within the household can have positive effects on the declining of son preference for both men and women. The empowering of women within the household, changing the power relationship between the genders, might be the first step needed to change the long history of patriarchy in the country.

The results regarding the impact of women's financial independence and decision in the household suggest that the empowering of women within the household, through women participating in the decision making, results in a negative impact on son preference for both men and women. However, the results also suggest that individuals that live in households where women achieve financial freedom and independence, having the freedom to choose how to manage their earnings, report a higher son preference. These findings can be explained by the notion that the relationship between women's earnings and son preference varies greatly depending on their socioeconomic status. Behrman & Duvisac (2017) find a positive association between women's paid employment and women's son preference for university-educated women, indicating that middle class women, which would most likely be the ones that have the final say on how to manage their earnings, often emulate the "preferences and cultural practices of higher status ... families" (p. 1624). While this study does not explore son preference in relationship to women's occupational sectors and household socioeconomic status, this is an important area for further quantitative research.

Furthermore, the results could report an underlying desire for women in the ever-married sample to be able to manage their own money, if they were earning any income. The data in fact show that 1,317 women were employed during the 12 months prior to the interviews, and 1,271 women answered that they are the ones who have the final say on managing their income (table 13 and 14, Appendix). However, when looking into how many ever-married women had answered yes to both the employment and the money managing question, the number drops to

only 151 women. Therefore, further investigation on the issue is recommended in future research on women's empowerment and son preference.

The results concerning the relationship between wife beating tolerance and son preference suggest that individuals that accept the beating have a stronger son preference than those who do not accept it. However, the interaction term between wife beating and the female variable is not significant, suggesting that there are no differences in son preference for men and women when looking at the tolerance for domestic violence. Therefore, this study offers additional support to the notion that societies where domestic violence is widespread and highly tolerated regard women to be of a lower status compared to men (Kishor & Gupta, 2004), which often translates in the presence of son preference. Bulte & Lensink (2019) argue that promoting gender empowerment does not automatically reduce domestic abuse. They argue that women's empowerment may be counterproductive in cultures where divorce is not socially accepted, because women do not have an option to opt out of marriage. This in turn would mean that even if they are financially independent and can make decisions within the household, this can pose a threat to the husband's authority within the household and result in an increase in domestic violence (Bulte & Lensink, 2019). However, divorce rates in Azerbaijan have been increasing in the last 15 years, indicating a wide spread acceptance of divorce (Population of Azerbaijan, 2019). Therefore, from the results it can be inferred that the empowerment of women, when husbands value their wives at their same level, lowers son preference.

The results for the media indicator, especially the difference in son preference between genders when exposed to media, further show the importance of observing son preference through the lenses of women's empowerment, and to differentiate between men and women's preferences. These results are in line with the findings of Jensen & Oster (2009), which find a decrease in son preference among Indian women with the introduction of cable television. Media access offers access to new international and national information (Kabeer, 2011) that often empowers women to speak up and close the gender gap within their marriage and society at large. Highlighting how such variables play different roles in men and women's fertility preferences is crucial to policy making aimed at lowering the gender disparities in births.

One unanticipated finding was the non-significance of the education coefficient. The results suggest no relationship between education and son preference at the individual level. When looking at differences in son preference between men and women however, son preference appears to be higher for women that have completed primary education compared to those that

have no education. While these results are in part similar to the ones of Pande and Astone (2007), the most likely explanation of the insignificant coefficients for most of the education variables is that the relationship between female education and son preference is ambiguous (Chen et al., 2020). In fact, while women's access to education has often been viewed as a cause for the decrease in the SRB in South Korea, the relationship is not straightforward. While education for women was spreading widely in the country during the 1980s and 1990s, the SRB was also increasing significantly at the time, and only decreased later (Chung & Das Gupta, 2007).

## 6. Conclusion

### 6.1 Research Aim and Objective

The purpose of this study was to identify the relationship between women's empowerment and son preference. The country of Azerbaijan was chosen because of the high SRB that it has registered in the last two decades, making it the country with the second highest SRB globally in 2017. The research aim was motivated first by the lack of research on son preference in the country, and secondly by the lack of research on the interrelationship between women's empowerment and son preference. As a result, the study attempted to fill this research gap offering new insights on the effects of women's empowerment on the eradication of discrimination of girls before birth. In order to do so, a logistic regression model was applied, using DHS data from the 2006 survey in Azerbaijan.

This study has provided many insights on how women's empowerment can affect son preference and revealed that men and women in Azerbaijan have different fertility preferences. The presented analysis offers evidence on the fact that empowering women can lead to lower son preference for individuals that are in a relationship where the woman is empowered. First, the analysis sheds light on gender difference in son preference, showing that women in Azerbaijan have a weaker son preference than men, while expressing girls' preference more than men. Overall, women are less interested in the sex composition of their children, showing a more gender equal view. Additionally, the results suggest that individuals in marriages where the woman is part of the decision making for large household purchases and family visits are more likely to have a lower son preference. So while many women in Azerbaijan are confined to the household and do not participate in the labor market (UNFPA, 2018a), this study shows that the empowering of women within the household can hinder the power relationship within the marriage, and lower son preference. Moreover, individuals that justify wife beating have a stronger son preference than those who do not justify it. These findings support the view of Kurtz and Kurtz (2015) that societies with higher SRB tend to have higher domestic violence, which results in lower opportunities for women. Because the tolerance of domestic abuse is related to an underlying assumption that women are of lower value, the results suggest that when the value of a woman in the marriage is regarded to be lower than the man's, individuals in such marriages have a stronger son preference. Media access appears to have an impact in increasing son preference for individuals in the sample when the media term is not interacted

with female. However, when the two terms are interacted, there is a premium for women that access media daily, which tends to lower son preference. This suggests that the power of information that media carries has a positive impact on women's empowerment and results in the reject of patriarchal norms like son preference. This is consistent with the findings of Pande and Astone (2007), Jensen and Oster, (2009) and Das Gupta (2015). Similarly, while education appears to have no influence on son preference, it does have a positive effect on son preference for women that have completed solely primary education, compared to women with no education. This reinforces Duflo's (2011) theory that economic development, which brings more education for women, has an ambiguous effect on son preference. This has been shown in South Korea, where while initially education was increasing, the SRB was increasing at a higher rate. While results of this analysis do not support the view of Chung and Das Gupta, (2007) that an increase in female education and participation in the labor force increases the value given to daughters, this could suggest that Azerbaijan is at the beginning of an inclusive development process that could in the future lead to lower SRB in the country, like observed in South Korea.

## 6.2 Practical Implications

This study looks at son preference starting from a framework that looks at the reasons why a parent would sex discriminate against unborn girls, and then moves into assessing the link between the lack of "value" given to daughters that can in turn affect son preference. The results of the analysis show which development and women's empowerment indicators are likely to affect the readiness and willingness of men and women to sex discriminate before birth. As Duflo (2011) argues, when women have fewer opportunities in the labor market, this reflects how they are treated within the household, lowering the expectations that parents have for their daughters. However, this study has found no relationship between working outside the house and a lower son preference, showing instead how the empowerment within the household, through including women in the decision making, can lead to lower son preference. Clearly, many aspects in society affect the way women are treated within the household, and further research should focus on the relationship between women's empowerment in society and at home.

The empowering of women can also be argued to come in the form of being able to decide whether or not to keep an unexpected child, being able to resort to abortion. The interconnection

between such freedom of choice in Azerbaijan, where abortion is widely accepted, and the use of abortion for sex selective purposes deserves more attention. While “reproductive freedom is essential to voluntary human population limitation” (Population of Azerbaijan, 2019), the issue of limiting the women’s population in favor of the men’s population deserves the attention of individuals and policymakers to end such violation of women’s human rights. The improvement of women’s rights and women’s status in society is of fundamental importance to raise the value of girls in society (Leone, Matthews & Zuanna, 2003) therefore, this thesis wishes to be a call to action for the Azerbaijani government and governments around the world to act. Although women’s labor force participation and inclusion in the household decision making, along with female education and urbanization (Chung & Das Gupta, 2007), slow the disincentives to raise daughters, government intervention is needed to make sure that such disincentives are eliminated completely (Das Gupta et al., 2003).

Azerbaijan’s SRB has been slowly decreasing in the last 18 years, which could be an implication of women acquiring more rights and power in the household and in society. While many countries have managed to lower their SRB, South Korea is the sole country that has shifted from a highly skewed SRB to a rate very close to the natural SRB of 105. The Azerbaijani government can learn a lot from South Korea and how government interventions have lowered son preference in the country. Gender empowerment and equality means that the access to rights, resources, and opportunities is independent of gender. It follows that in a gender equal society parents of both sexes would not want to interfere in the sex of their newborn. While the road to gender equality and the extinction of son preference is non well defined, the women’s empowerment indicators explored in this study offer an initial investigation on how son preference can be eradicated.

## 6.3 Limitations and Future Research

While the above analysis does not determine the socioeconomic variables that influence son preference at the societal level, the results of the study offer a starting point to further explore the numerous aspects of women’s empowerment that can reduce son preference. Nonetheless, the study has a number of possible limitations.

There are many aspects that play into both empowering women and son preference that this study has not investigated: culture, customs, women’s occupational sectors and levels,

differences in socioeconomic status, etc. Many factors that were not captured in the analysis could influence both the inclusion of women in decision making within the household and making individuals in such marriages more likely to have a weaker son preference. Thus, while the findings suggest that women empowerment in the household can negatively affect son preference, more research is needed to better assess the dynamics behind women's empowerment and son preference, both at the individual and societal level.

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# Appendix

*Table A1: Levels of Education, Labor Force Participation, Ang Geographic's For Ever-Married Sample*

	Women		Men	
	Weights	No Weights	Weights	No Weights
<b>Education</b>				
No education	0.99	1.22	0.26	0.35
Primary	1.05	1.33	0.38	0.59
Secondary	85.49	86.83	77.53	80.04
Higher Education	12.47	10.62	21.82	19.03
<b>Labor Force Participation</b>				
Working outside the house	22.76	22.03	89.13	87.09
Works for family member	91.97	92.8	-	-
Works for someone else	24.34	26.16	35.11	43.57
Self-employed	68.24	67.55	51.08	45.26
No Answer	7.42	6.29	13.76	11.1
	-	-	0.04	0.07
<b>Geographic's</b>				
Living in urban areas	56.45	52.73	57.79	52.91
<b>Region</b>				
Baku	29.77	15.23	31.09	16.21
Absheron	6.57	10.23	7.32	11.27
Ganja Gazakh	14.66	10.64	13.79	9.92
Shaki Zaqatala	6.97	9.92	6.49	9.4
Lankaran	8.30	11.61	7.42	10.04
Guba Khachmaz	4.07	7.88	5.05	9.51
Aran	24.33	16.35	23.26	16.09
Yukhari Karabakh	2.36	8.17	2.57	8.46
Dakhlik Shirvan	2.97	9.98	3.00	9.1

*Table A2: Percentage of Individuals Wanting More Sons Than Daughters, By Region*

Regions	Total Population		Ever-Married Sample	
	Weights	No Weights	Weights	No Weights
Baku	31.77	17.25	29.82	15.66
Absheron	6.46	9.48	6.04	8.98
Ganja Gazakh	12.22	8.65	13.97	9.48
Shaki Zaqatala	4.59	6.45	5.23	7.24
Lankaran	8.07	11.59	8.15	11.67
Guba Khachmaz	5.62	11.24	5.7	10.92
Aran	25.9	17.69	25.16	17.16
Yukhari Karabakh	2.8	9.04	3.12	9.79
Dakhlik Shirvan	2.58	8.6	2.81	9.11

*Table A3: Answers to Domestic Violence Section, Women's Questionnaire\**

	No	Often	Sometimes	Not at all	Missing	No Answer
Spouse Ever Humiliated Her	93.77	2.49	2.44	1.11	0.13	0.07
Spouse Ever Insult or Make Feel Bad	96.19	1.86	1.21	0.53	0.13	0.07
Spouse Ever Pushed, Shook or Threw Something	90.99	1.98	4.66	2.1	0.25	0.02
Spouse Ever Slapped	89.46	1.92	5.28	2.93	0.39	0.02
Spouse Ever Punched with Fist or Something Harmful	96.19	1.01	1.63	0.92	0.24	0.02
Spouse Ever Kicked or Dragged	96.59	1.02	1.29	0.9	0.18	0.02
Spouse Ever Tried to Strangle or Burn	99.21	0.18	0.31	0.22	0.06	0.02
Spouse Ever Threatened with Knife/Gun or other Weapon	99.4	0.17	0.11	0.25	0.06	0.02
Spouse Ever Physically Forced Sex When Not Wanted	97.48	0.6	1.24	0.58	0.09	0.02
Spouse Ever Forced Other Sexual Acts When Not Wanted	99.02	0.27	0.41	0.21	0.08	0.02
Spouse Ever Twisted Her Arm or Pull Her Hair	94.27	1.29	2.69	1.47	0.25	0.03

\*Table made using domestic violence weights, as recommended by the DHS website

*Table A4: Son Preferences by Family Size Preference, Ever-Married Weighted Sample\**

Total number of desired children	Percent of Individuals Son Preference			Total Number of Individuals (Weighted)	Percent of total Sample
	None	Some	High		
0	100	0	0	53.32	0.71
1	51.02	48.98	0.00	303.69	4.03
2	91.66	0.40	7.94	3769.94	49.99
3	41.61	58.39	0.00	1678.65	22.26
4	95.08	1.10	3.81	1379.14	18.29
5	46.25	53.11	0.64	141.04	1.87
6	81.75	0.45	17.80	98.84	1.31
7	100.00	0.00	0.00	7.55	0.10
8	100.00	0.00	0.00	6.02	0.08
9	100.00	0.00	0.00	1.01	0.01
10	89.84	0.00	10.16	21.20	0.28
>10	100.00	0.00	0.00	5.17	0.06
Non-numeric response	-	-	-	67.99	0.90
No Answer	-	-	-	7.34	0.10
Total	5,933.77	1,234.511	372.6108	7,540.89	100

\*Women and men sample weights



Table A5: Determinants of Son Preference Among Men and Women, Ever-Married Weighted Sample

	Model 1 Financial Independence & Decision Making	Model 2 Domestic Violence	Model 3 Media Access	Model 4 Media Access Family Planning	Model 5 Education
Female	-0.604*** (0.196)	-0.696*** (0.157)	-0.431* (0.234)	-0.697*** (0.130)	-1.895** (0.888)
Worked in the past year	0.235 (0.191)	0.073 (0.102)	0.071 (0.101)	0.086 (0.102)	0.095 (0.106)
Female (interaction)	-0.213 (0.211)				
<b>Final say on making large household purchases (compared to husband)</b>					
Both Equally	-0.360** (0.139)	-0.318** (0.138)	-0.324** (0.137)	-0.318** (0.135)	-0.331** (0.135)
Wife	-0.101 (0.154)	-0.078 (0.157)	-0.085 (0.155)	-0.090 (0.158)	-0.079 (0.160)
Other	0.068 (0.369)	0.102 (0.375)	0.074 (0.370)	0.069 (0.381)	0.086 (0.374)
<b>Final say on making household purchases for daily needs</b>					
Both Equally	0.217 (0.168)	0.212 (0.169)	0.217 (0.169)	0.214 (0.169)	0.217 (0.165)
Wife	-0.018 (0.123)	-0.020 (0.122)	-0.024 (0.121)	-0.016 (0.124)	-0.028 (0.123)
Other	-0.204 (0.355)	-0.207 (0.356)	-0.190 (0.352)	-0.180 (0.360)	-0.202 (0.356)
<b>Final say to visit family or relatives</b>					
Both Equally	-0.247* (0.137)	-0.255* (0.137)	-0.252* (0.138)	-0.267* (0.139)	-0.256* (0.137)
Wife	-0.278 (0.169)	-0.278 (0.171)	-0.278 (0.170)	-0.294* (0.173)	-0.277 (0.169)
Other	-0.587 (0.534)	-0.570 (0.533)	-0.564 (0.540)	-0.573 (0.543)	-0.568 (0.537)
<b>Final decision on what to do with money wife earns</b>					
Both Equally	0.185 (0.161)	0.194 (0.163)	0.186 (0.162)	0.202 (0.165)	0.190 (0.162)
Wife	0.313* (0.171)	0.326* (0.171)	0.326* (0.172)	0.341* (0.174)	0.318* (0.173)
Other	0.596 (0.441)	0.590 (0.439)	0.573 (0.441)	0.577 (0.432)	0.584 (0.434)
<b>Wife beating</b>					
Justified		0.278 (0.181)	0.171** (0.084)	0.158* (0.084)	0.163* (0.086)
Highly justified		0.024 (0.212)	0.026 (0.114)	0.015 (0.111)	0.024 (0.118)
Wife beating (interaction)					
Female-Justified		-0.169 (0.210)			
Female-Highly justified		-0.003 (0.229)			

**Table A5 Continued**

<b>Media access</b>				0.357*	0.093
				(0.195)	(0.120)
Media access (interaction)				-0.379*	
				(0.214)	
<b>Heard of Family Planning on the radio last month</b>				-0.123	
				(0.285)	
Female - heard of family planning on the radio (interaction)				-0.329	
				(0.326)	
<b>Heard of Family Planning on tv last month</b>				0.180	
				(0.201)	
Female - heard of family planning on tv (interaction)				-0.111	
				(0.212)	
<b>Read of Family Planning on newspaper last month</b>				0.038	
				(0.240)	
Female - read of family planning on newspaper (interaction)				-0.032	
				(0.276)	
<b>Education</b>					
Primary					-1.966
					(1.240)
Secondary					-0.495
					(0.627)
Higher					-0.340
					(0.677)
Education (interaction)					
Female-Primary					2.537**
					(1.274)
Female-Secondary					1.208
					(0.868)
Female-Higher					0.875
					(0.878)
Constant Cut1	0.811***	0.809***	1.075***	0.792***	0.387
	(0.222)	(0.194)	(0.275)	(0.186)	(0.664)
Constant Cut2	2.490***	2.490***	2.756***	2.474***	2.069***
	(0.228)	(0.205)	(0.281)	(0.192)	(0.668)
Observations	6,492	6,492	6,490	6,483	6,490

Note: Regression includes dummy variables for region and dummy variable for rural/urban

*Table A6: (Robustness Check) Determinants of Son Preference Among Men and Women, Ever-Married Weighted Sample*

	Model 1 Financial Independence & Decision Making	Model 2 Domestic Violence	Model 3 Media Access	Model 4 Media Access Family Planning	Model 5 Education
Female	-0.554*** (0.190)	-0.677*** (0.156)	-0.427* (0.246)	-0.662*** (0.133)	-2.142* (1.108)
Worked in the past year	0.250 (0.184)	0.078 (0.104)	0.077 (0.103)	0.088 (0.105)	0.098 (0.107)
Female (interaction)	-0.227 (0.203)				
<b>Final say on making large household purchases (compared to husband)</b>					
Both Equally	-0.412*** (0.147)	-0.379** (0.147)	-0.379*** (0.145)	-0.370** (0.143)	-0.389*** (0.142)
Wife	-0.142 (0.156)	-0.126 (0.158)	-0.128 (0.156)	-0.131 (0.159)	-0.126 (0.158)
Other	0.035 (0.375)	0.059 (0.381)	0.039 (0.376)	0.038 (0.388)	0.048 (0.379)
<b>Final say on making household purchases for daily needs</b>					
Both Equally	0.254 (0.176)	0.250 (0.177)	0.252 (0.175)	0.249 (0.177)	0.255 (0.173)
Wife	0.021 (0.123)	0.018 (0.122)	0.015 (0.121)	0.023 (0.124)	0.015 (0.122)
Other	-0.163 (0.363)	-0.164 (0.365)	-0.150 (0.360)	-0.141 (0.368)	-0.159 (0.364)
<b>Final say to visit family or relatives</b>					
Both Equally	-0.209 (0.133)	-0.216 (0.134)	-0.214 (0.134)	-0.227* (0.135)	-0.218 (0.133)
Wife	-0.249 (0.165)	-0.249 (0.167)	-0.249 (0.167)	-0.263 (0.171)	-0.248 (0.166)
Other	-0.386 (0.489)	-0.376 (0.486)	-0.365 (0.494)	-0.365 (0.495)	-0.368 (0.493)
<b>Final decision on what to do with money wife earns</b>					
Both Equally	0.173 (0.160)	0.182 (0.161)	0.175 (0.160)	0.187 (0.164)	0.179 (0.161)
Wife	0.280 (0.175)	0.292* (0.174)	0.293* (0.175)	0.307* (0.178)	0.285 (0.177)
Other	0.399 (0.373)	0.395 (0.372)	0.377 (0.374)	0.369 (0.366)	0.384 (0.368)
<b>Wife beating</b>					
Justified		0.221 (0.167)	0.161** (0.080)	0.148* (0.081)	0.153* (0.081)
Highly justified		0.041 (0.199)	0.030 (0.109)	0.020 (0.107)	0.027 (0.113)
<b>Wife beating (interaction)</b>					
Female-Justified		-0.096 (0.200)			
Female-Highly justified		-0.022 (0.220)			

**Table A6 Continued**

<b>Media access</b>				0.316	0.082
				(0.206)	(0.123)
Media access (interaction)				-0.333	
				(0.225)	
<b>Heard of Family Planning on the radio last month</b>				-0.136	
				(0.260)	
Female - heard of family planning on the radio (interaction)				-0.328	
				(0.300)	
<b>Heard of Family Planning on tv last month</b>				0.201	
				(0.201)	
Female - heard of family planning on tv (interaction)				-0.102	
				(0.211)	
<b>Read of Family Planning on newspaper last month</b>				0.043	
				(0.248)	
Female - read of family planning on newspaper (interaction)				-0.033	
				(0.278)	
<b>Education</b>					
Primary					-2.206
					(1.411)
Secondary					-0.781
					(0.881)
Higher					-0.653
					(0.925)
Education (interaction)					
Female-Primary					2.809*
					(1.452)
Female-Secondary					1.490
					(1.084)
Female-Higher					1.201
					(1.097)
Constant Cut1	-0.902***	-0.865***	-1.117***	-0.873***	-0.162
	(0.221)	(0.185)	(0.291)	(0.187)	(0.910)
Observations	6,492	6,492	6,490	6,483	6,490

Note: Regression includes dummy variables for region and dummy variable for rural/urban

*Table A7: (Robustness Check) Log Odds Determinants of Son Preference Among Men and Women, Ever-Married Weighted Sample*

	Model 1 Financial Independence & Decision Making	Model 2 Domestic Violence	Model 3 Media Access	Model 4 Media Access Family Planning	Model 5 Education
Female	0.574*** (0.109)	0.508*** (0.079)	0.652* (0.160)	0.516*** (0.069)	0.117* (0.130)
Worked in the past year	1.285 (0.237)	1.081 (0.112)	1.080 (0.111)	1.092 (0.114)	1.103 (0.118)
Female (interaction)	0.797 (0.162)				
<b>Final say on making large household purchases (compared to husband)</b>					
Both Equally	0.662*** (0.097)	0.685** (0.100)	0.685*** (0.099)	0.691** (0.099)	0.678*** (0.097)
Wife	0.867 (0.135)	0.882 (0.139)	0.880 (0.137)	0.877 (0.140)	0.882 (0.139)
Other	1.036 (0.389)	1.061 (0.404)	1.040 (0.390)	1.039 (0.403)	1.049 (0.398)
<b>Final say on making household purchases for daily needs</b>					
Both Equally	1.290 (0.227)	1.284 (0.227)	1.287 (0.225)	1.282 (0.227)	1.291 (0.223)
Wife	1.021 (0.125)	1.019 (0.124)	1.015 (0.123)	1.023 (0.127)	1.015 (0.123)
Other	0.849 (0.308)	0.849 (0.310)	0.861 (0.310)	0.869 (0.320)	0.853 (0.310)
<b>Final say to visit family or relatives</b>					
Both Equally	0.812 (0.108)	0.806 (0.108)	0.808 (0.108)	0.797* (0.107)	0.804 (0.107)
Wife	0.780 (0.129)	0.780 (0.131)	0.780 (0.130)	0.769 (0.131)	0.780 (0.130)
Other	0.680 (0.332)	0.687 (0.334)	0.694 (0.343)	0.695 (0.344)	0.692 (0.341)
<b>Final decision on what to do with money wife earns</b>					
Both Equally	1.188 (0.190)	1.199 (0.193)	1.191 (0.191)	1.206 (0.198)	1.196 (0.192)
Wife	1.323 (0.231)	1.339* (0.234)	1.340* (0.235)	1.359* (0.242)	1.330 (0.236)
Other	1.490 (0.556)	1.485 (0.552)	1.458 (0.546)	1.446 (0.529)	1.468 (0.541)
<b>Wife beating</b>					
Justified		1.247 (0.208)	1.175** (0.094)	1.159* (0.094)	1.166* (0.095)
Highly justified		1.042 (0.208)	1.030 (0.112)	1.020 (0.110)	1.027 (0.116)
Wife beating (interaction)		0.909			
Female-Justified		(0.182)			
		0.979			
Female-Highly justified		(0.215)			

**Table A7 Continued**

<b>Media access</b>				1.372	1.086
				(0.283)	(0.134)
Media access (interaction)				0.716	
				(0.161)	
<b>Heard of Family Planning on the radio last month</b>				0.873	
				(0.227)	
Female - heard of family planning on the radio (interaction)				0.720	
				(0.216)	
<b>Heard of Family Planning on tv last month</b>				1.222	
				(0.246)	
Female - heard of family planning on tv (interaction)				0.903	
				(0.191)	
<b>Read of Family Planning on newspaper last month</b>				1.044	
				(0.259)	
Female - read of family planning on newspaper (interaction)				0.968	
				(0.269)	
<b>Education</b>					
Primary					0.110
					(0.155)
Secondary					0.458
					(0.403)
Higher					0.520
					(0.481)
Education (interaction)					
Female-Primary					16.586*
					(24.085)
Female-Secondary					4.438
					(4.808)
Female-Higher					3.324
					(3.647)
Constant Cut1	0.406***	0.421***	0.327***	0.418***	0.850
	(0.090)	(0.078)	(0.095)	(0.078)	(0.774)
Observations	6,492	6,492	6,490	6,483	6,490

Note: Regression includes dummy variables for region and dummy variable for rural/urban

*Table A8: Final Say on What to Do with Money Wife Earns, Ever Married Weighted Sample\**

	Men	Women	Total
Husband	259.11	324.85	583.97
Both equally	869.91	3,162.10	4,032.01
Wife	501.88	1,271.79	1,773.67
Other	74.41	166.91	241.31
Total	1,705.31	4,925.65	6,630.96

\*Women and men sample weights

Table A9: Worked in the Past 12 Months, Ever Married Weighted Sample\*

	Men	Women	Total
No	184.8301	4,470.449	4,655.279
Yes	1,515.178	1,317.437	2,832.615
Total	1,700.008	5,787.886	7,487.894

\*Women and men sample weights

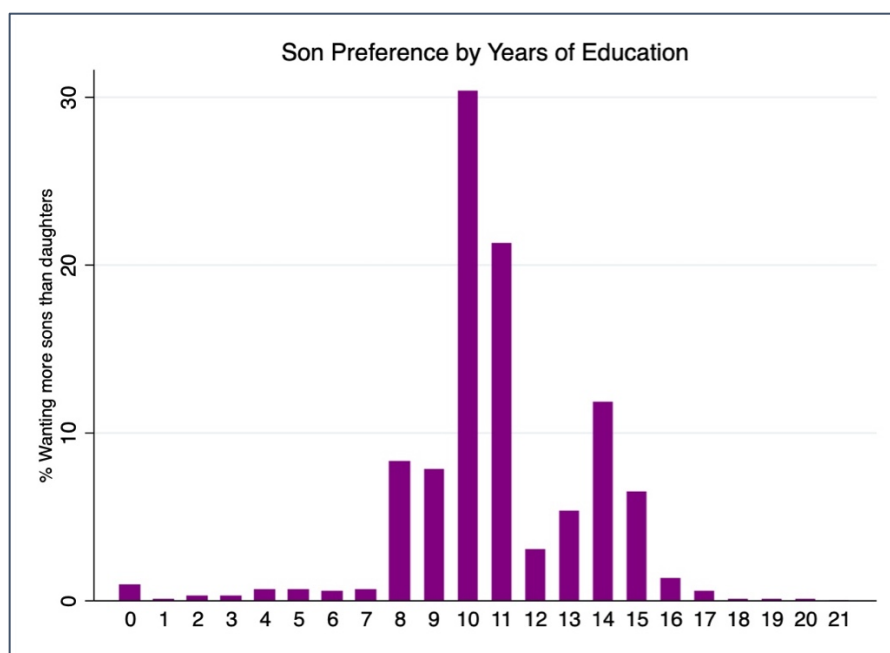


Figure A1: Son Preference by Years of Education, Non-Weighted Sample

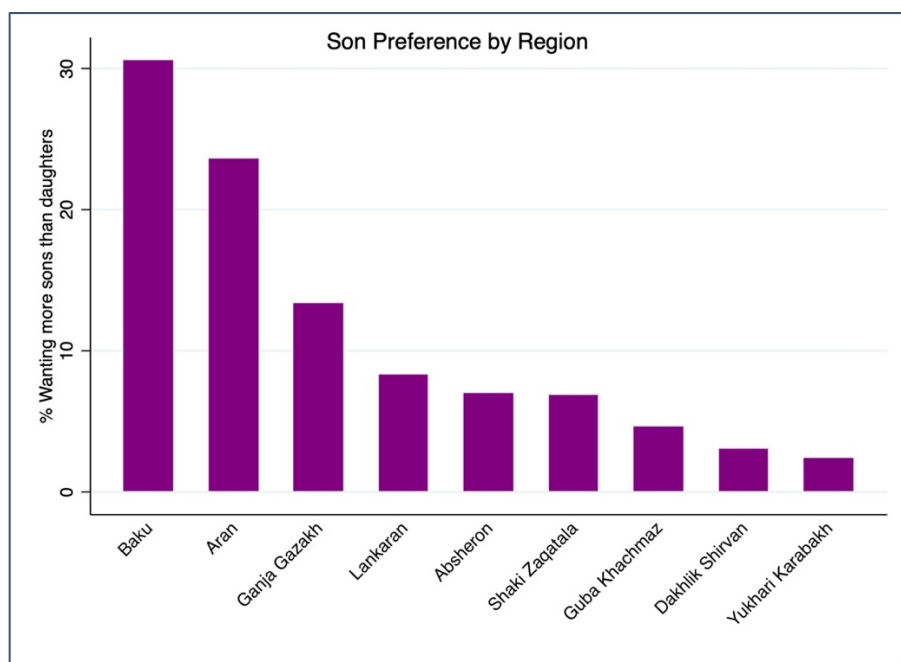


Figure A2: Son Preference by Region, Non-Weighted Sample