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SOCIAL-ECONOMIC POLICY ANALYSIS
WITH REGARDS TO SON PREFERENCE AND

GENDER-BIASED SEX SELECTION IN GEORGIA

ISET
International School of Economics at TSU
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Social-Economic Policy Analysis with Regards to Son Preference and Gender-biased Sex Selection in Georgia

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CONTENTS

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This Social-Economic Policy Analysis with Regards to Son Preference and Gender-biased Sex Selection in Georgia has been conducted by the ISET Policy Institute (ISET-PI) as a part of the UNFPA Global Programme to Prevent Son Preference and the Undervaluing of Girls: Improving the sex ratio at birth in select countries in Asia and the Caucasus (2017-2019). The Programme is supported by the European Union (EU) and implemented by UNFPA in partnership with governments, civil society, and academia in six countries: Armenia, Azerbaijan, Bangladesh, Georgia, Nepal, and Vietnam. This is the first global programme of its kind, and working with its partners it generates knowledge about the root causes of harmful practices and raises the value of girls and women in society.

The Global Programme aims to contribute to and strengthen evidence-based national policies and programmes addressing son preference, poor valuation of girls, and gender inequalities that result in GBSS in the identified Caucasus and Asian countries. Additionally, the Programme enhances learning using the expertise of the six participant countries, as well as builds on the experiences and lessons learned from China, India, South Korea, and other countries that have launched laws, policies, and programmes that address son preference and sex selection.

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We would like to thank the EU for supporting the Global Programme for 2017-2019, in which Georgia is a partner country. The Programme is highly valuable in tackling the persistent causes of gender-biased sex selection, as a joint effort of the Georgian government, civil society, and academia in addressing the issues of gender-biased sex selection and son preference by applying evidence-based and holistic approaches to prevent such harmful practices. The Programme in Georgia is implemented with a vision to support the delivery of a more equal, harmonious society, one free from discrimination, where every pregnancy is wanted, and every childbirth is equally valued and celebrated.

We would like to thank the colleagues from the International Children's Center (ICC)/ Inter-regional mechanism for the Global Programme, for their support and expertise.

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EXECUTIVE SUMMARY

Georgia experienced a significant rise in Sex Ratio at Birth (SRB[1]) after its independence from the Soviet Union. Currently, it is among twelve countries worldwide where sex imbalances at birth has been observed. The other countries are Albania, Armenia, Azerbaijan, China, Hong Kong (SAR of China), India, the Republic of Korea, Montenegro, Taiwan (Province of China), Tunisia, and Vietnam.

Several studies (UNFPA 2015, 2017; Duthé at al. 2012) have provided a detailed analysis of reproductive behavior and birth masculinity in Georgia. These studies reveal that since 1992, deteriorating economic conditions coupled with a strong son preference, low fertility rates, and access to affordable reproductive technologies have contributed to the increasing trend, one that lasted for almost 15 years, of an SRB imbalance in Georgia (via sex-selective abortions). SRB fluctuated around 114 from 1999-2004[2]. Since 2004, SRB has been experiencing a reverse trend, reaching a normal level in 2016.

The study aims to investigate the various factors behind the changes in SRB and further explore to what extent social and economic policies and interventions have had an impact on decreasing GBSS through influencing family decisions regarding son preference and softening pressure on fertility choices. This study utilizes quantitative and qualitative analyses to explore the linkages between macroeconomic conditions and social protection schemes and variations in SRB:

- The qualitative analysis is based on focus group discussions (FGDs) with parents of school/preschool children and in-depth interviews (IDIs) with medical personnel and NGO representatives, conducted in four regions: Kakheti, Kvemo Kartli, Samtskhe-Javakheti and Samegrelo-Zemo Svaneti. First three were chosen because they have the highest SRB levels, while Samegrelo-Zemo Svaneti has shown the greatest improvement across Georgia since 2005.
- The quantitative awnalysis is based on quarterly panel data covering the period of 2005-2018 across nine Georgian regions.[3] In the 1st stage, fixed and random-effect models were employed, using different specifications and combinations of explanatory variables, while the 2nd stage of the empirical analysis, included a spatial autoregressive model (SAR) and a spatial Durbin model (SDM) with a random effect and a clustered sandwich estimator (with the region used as a clustered variable).

Qualitative analysis reveal that, regardless of the downward trend in SRB, son preference is still prevalent in Georgian society. Awareness on GBSS in all surveyed regions is high. All participants, acknowledge that while selective abor-

[1]Sex ratio at birth refers to the number of boys born alive per 100 girls born alive. Source: Handbook of Vital Statistics Systems and Methods, Volume 1. Legal, Organizational and Technical Aspects, United Nations Studies in Methods, Glossary, Series F, No. 35, United Nations, New York 1991.
[2]While it is generally accepted that the biological norm for sex ratio is around 105 male births per 100 female births. UNFPA. (2015). *Gender-biased Sex Selection in Georgia - Context, Evidence and Implications.* Tbilisi: UNFPA.
[3]The regions are: (1) Adjara, (2) Guria, (3) Imereti & Racha-Lechkhumi-Kvemo Svaneti, (4) Kakheti, (5) Samegrelo-Zemo Svaneti, (6) Samtskhe-Javakheti, (7) Kvemo Kartli, (8) Shida Kartli & Mtskheta-Mtianeti, and (9) Tbilisi.

tions were common in the past, they have since declined. Perceptions to recognize the phenomenon as a problem differ among the regions. While in Kvemo Kartli and Samtskhe-Javakheti, respondents did not problematize GBSS, in Kakheti and Samegrelo-Zemo Svaneti, the prevailing attitudes towards GBSS were quite negative.

Economic conditions seem to have played an important role in normalizing SRB in Georgia via increased disposable income and improved possibility of having more children. As GBSS is more common among poor families, regional poverty rates act as significant determinants of high SRB levels in Georgia. The econometric analysis shows that the recent reduction in poverty also reflects a decrease in prenatal gender discrimination. Moreover, FGD participants highlighted the importance of international migration and remittances as a strategy for coping with limited labor market opportunities in Georgia.

Labor market dynamics, particularly the structural transformation of the economy towards the service sector, have created new job opportunities for women in banking, retail trade, and other office-related jobs. Such female economic empowerment contributes to a reduction in SRB imbalances by supporting women's financial independence. It also reduces familial pressure on women regarding their family-planning decisions, potentially leading to fewer incidences of sex selection. This finding is supported by all of the FGDs and IDIs and is also confirmed by the quantitative analysis: a 1% increase in the female employment rate (outside agriculture) is associated with a reduction in SRB by 0.25 percentage points.

Quantitative analysis also show that male education (unlike female education) at the regional level—as measured by the proportion of males over 20 with at least a BA—has a significant negative correlation with SRB. This outcome is potentially explicable in families with educated men, as there may be less pressure on women to be more involved in the family decision-making process (including reproductive decisions).

From an educational context, the FGD findings also suggest the future potential of the state's 1+4 program[4] by making SRB reduction more inclusive across Georgia; giving ethnic minorities an opportunity to obtain higher education in Georgian universities and, hence, facilitating the integration of ethnic minority populations into Georgian society.

Overall, there is no sufficient evidence to suggest the government's social policy programs, like the Targeted Social Assistance Program (TSA), the Universal Healthcare System, the State Pension System, or the State Demographic Support Program, have had an impact on balancing SRB. The reimbursement of leave for maternity and childcare, as well as for the adoption of a newborn child (i.e. parental leave), also fails to have a robust effect on the SRB, however it is perceived as contributing to gender equality by keeping women in the workforce and increasing fathers' participation in childcare (thus far, paternal involvement in childcare has been quite limited). The FGDs held in Samtskhe-Javakheti and Kvemo Kartli reveal poor levels of awareness about state social programs, indicating barriers to accessing information among ethnic minorities.

[4] The educational program 1+4 was introduced in 2010, offering ethnic minorities further opportunities to learn the Georgian language and thus better access quality education.

The FGDs also highlight the possible contribution of transforming values towards gender equality (this process is much slower in the regions populated by ethnic minorities) and the increased religiosity of the population affecting the GBSS trend reversal. The FGDs and IDIs also show that sex selection is less likely to be observed in families with reproductive health problems, since they usually pay more attention to the health of the fetus rather than its sex.

In conclusion, we can state that improved economic conditions, reduced poverty, the service sector's increasing economic share (creating new job opportunities for women in banking, retail trade, and other office-related jobs), higher female employment (outside the agricultural sector), increased male educational attainment, and changes in socio-cultural and gender value systems have contributed to a decline in the SRB in Georgia. It is very important to ensure sustainable and inclusive economic growth in the country, which, in turn, along with other positive results, will maintain the current trend in SRB.

The international community and other countries worldwide experiencing similar forms of discrimination can benefit from Georgia's example. While the causes of birth masculinization are well documented, the reasons for reversal of SRB trends are not well studied. Georgia's recent experience goes beyond the national levels, helping international community to pinpoint potential remedies for the elimination of the harmful practice of GBSS.

ABBREVIATIONS

ADB	Asian Development Bank
CBR	Crude birth rate
EU	European Union
FE	Fixed effect
FGDs	Focus group discussions
GBSS	Gender-biased sex selection
GDP	Gross domestic product
Geostat	National Statistics Office of Georgia
IDIs	In-depth interviews
IHS	Integrated Household Survey
ISET-PI	ISET Policy Institute
LFP	Labor force participation
MoH	Ministry of Internally Displaced Persons from the Occupied Territories, Labor, Health, and Social Affairs of Georgia
NGO	Non-governmental organization
OECD	The Organization for Economic Co-operation and Development
PISA	Programme for International Student Assessment
PPFK	Planned Parenthood Federation of Korea
PPP	Purchasing power parity
RE	Random effect
SAR	Spatial autoregressive model
SDM	Spatial Durbin model
SMA	Simple moving average
SRB	Sex ratio at birth
TFR	Total fertility rate
TLG	Teach and Learn with Georgia
TSA	Targeted Social Assistance
UHC	Universal Healthcare
UN	United Nations
UNDP	United Nations Development Program
UNE	Unified National Exams
UNFPA	United Nations Population Fund
WB	World Bank
WGI	Worldwide Government Indicators
WHO	World Health Organization

The USD to GEL exchange rate of 2.96 is based on the official exchange rate of the National Bank of Georgia on 31.10.2019.

CHAPTER

1

Photo project: "A Girl is Born"
Photo credit: UNFPA Georgia | Dina Oganova

INTRODUCTION

1.1. THE GLOBAL RELEVANCE OF THE STUDY AND LITERATURE REVIEW

After independence from the Soviet Union, Georgia started experiencing a significant rise in the sex ratio at birth (SRB). It is generally accepted that the biological norm of the ratio is around 105 male births per 100 female births (UNFPA, 2015). Before independence, Georgia's sex ratio at birth fluctuated around normal levels. However, in 1992, it started to increase, and in 2004 the country reached one of the highest SRB rates in the world. However, Georgia has managed to revert back to close to a normal SRB level over the past few years. In 2018, 107.9[5] males were born per 100 female births.

There are many studies on the reasons for increased masculinization of birth. While each country is characterized by a specific contextual setting, the presence of prenatal sex selection can be linked to the existence of three preconditions (Lesthaeghe, 2001), (Guilmoto C.Z., 2009): **strong son preference, low total fertility rate, and existence of affordable reproductive technologies** allowing parents to detect the sex of children during pregnancy and abort fetuses of the unwanted sex. In other words, the desire to have a son, the need to act, and the means of action (Duthé, G. et al., 2012).

Birth masculinization is a relatively new phenomenon and it is witnessed primarily since the 1980s. Georgia is among 12 countries worldwide where strong statistical evidence of sex imbalances at birth has been observed, along with Albania, Armenia, Azerbaijan, China, Hong Kong (SAR of China), India, Republic of Korea, Montenegro, Taiwan (Province of China), Tunisia, and Vietnam (Chao, Gerland, Cook, & Alkema, 2019).

Table 1. SRB average for the selected years

Country/year	2013-2017
Albania	107.8
Armenia	113.26
Azerbaijan	113.82
China	115.4
Georgia	108.2
Hong Kong SAR, China	106.7
India	110.72
Korea, Rep.	107
Montenegro	106.4*
Tunisia	105.0*
Vietnam	110.62

Source: World Bank. World Development Indicators. Last updated - 10/2/2019.
**Note: According to Chao, Gerland, Cook, & Alkema (2019) SRB decline in Montenegro and Tunisia is not statistically significant.*

So far, only a handful of countries have managed to normalize sex ratios at birth: **Hong Kong** (SAR of China), the **Republic of Korea**, and **Georgia**. Thus, the Georgian case is very interesting for researchers and policy makers for two reasons. First, it is among 12 countries worldwide that have experienced increased birth masculinization. Second, Georgia reverted back to normal SRB, which makes it an exception together with the Republic of Korea and Hong Kong. The SRB has stabilized at a higher plateau in the rest of the countries. While the causes of sex masculinization are well documented, the reasons for the reversal of the SRB trend are not well studied. This makes the Georgian case relevant not only on a national level, but also on an international level.

The **Republic of Korea** experienced SRB inflation[6] during 1982-2007 for 25 years (Chao, Gerland, Cook, & Alkema, 2019). Inflated SRB could be attributed

[5] Source: National Statistics Office of Georgia.
[6] By SRB inflation the authors mean SRB increased above the natural level.

to low fertility rates[7] and access to sex-selective technology in the Republic of Korea (Das Gupta, et al., Why is Son preference so persistent in East and South Asia? a cross-country study, 2003). Though these factors are not regarded as the main causes of son preference, they tend to intensify the manifestation of gender bias in those countries where gender bias is already strong. The core reasons behind the practice of GBSS are linked to Confucian values, patriarchal family systems, and low female autonomy (Das Gupta, et al., Why is Son preference so persistent in East and South Asia? a cross-country study, 2003).

South Korea's recent positive experience suggests factors stimulating reduction in son preference, such as: (a) a shift in family norms, (b) socio-economic development, (c) increased women's status, (d) policy changes (impact is not clear), and (e) interconnectedness of influencing factors and "defamiliation".

(a) Decline in son preference (1991-2003) was mainly attributed to changes in **social norms spreading across populations** (Chung & Das Gupta, The decline of son preference in South Korea: the roles of development and public policy, 2007). According to Rahm (2019), factors which used to increase the need for sons have relaxed over time and consequently son preference has declined. Rahm (2019) points out that change in traditional family values is observable in the emergence of nuclear households, reduced influence and pressure from older generations, increased value of daughters, and shifts in customs (death rites and ancestor worship) (Rahm, Gender-Biased Sex Selection in South Korea, India and Vietnam, 2019).

(b) Socio-economic development is regarded as another common factor explaining reduced SRB in South Korea. Chung and Das Gupta (2007) suggest that increased levels of education supported the decline in son preference. According to Edlund and Lee (2013), economic development has a direct effect on parents' choices by lowering parental valuation of sons over daughters in terms of earning potential. Rahm (2019) highlights two factors, child rearing and marriage costs, affecting family planning decisions. Since child rearing and marriage costs are quite high in South Korea, many families cannot afford to have more than one child. Rahm (2019) concludes that due to the lack of stable and well-paid jobs and increased expenses, many Koreans are postponing marriage and have fewer children regardless of their sex (Rahm, Gender-biased sex selection in South Korea, India and Vietnam, 2019).

(c) Urbanization can be regarded as another contributing factor in the decline in patrilocal marriage. There are significant changes regarding the **position of women in the family**, especially in urban settings. Women's role has expanded from managing the household and children's education, to managing the family income and investments (Janelli and Yim, 2004; Lee, 2003; Kim, 2004). Women are increasingly entering the labor force (Das Gupta 2010; Ganatra, 2008). Moreover, the reduced gender gap in earnings can also contribute to the increased value of daughters (Lee, 2013).

(d) Boer and Hudson (2017) point out **policy changes**, which might have affected the sex ratio at birth in Korea. The Korean government introduced a ban on prenatal sex identification throughout the entire pregnancy in 1987, and strengthened it later in 1994 by introducing penalties for medical professionals: either three years of imprisonment or a fine equal to 10 million South Korean won ($8,450) (Kim & Bae, 2018) (Medical Service Act). After 1994, the sex ratio at birth started to decline. However, the ratio remained above the normal level until 2006-2007, indicating that the ban on fetal sex identification alone was not

[7] According to Rahm (2019), during 1962-1995 the aim of population policies was to incentivize people to plan smaller families, resulting in lower fertility rates and a lower number of births. Since policies were oriented to lower fertility, the government had a lack of incentives to enforce sex determination and abortion bans effectively (Rahm, 2019).

enough to normalize the sex ratio at birth. In 2008, the legal ban was ruled unconstitutional, however it is still illegal to reveal the sex of the fetus before 32 weeks of gestation. Rahm (2019) provides reasons why the above-mentioned policies were an ineffective deterrent to sex selection. First of all, very few doctors were punished for sex determination. In addition, policy makers had difficulty enforcing the sex determination ban. Furthermore, doctors had no duty to report sex determination and selective abortion. Overall, due to the poor enforcement of the sex determination ban, government policies seem to be unable to explain the decreased SRB in South Korea (Rahm, 2019). Guilmoto (2015) suggests that this period of declining SRB coincided with the strengthening of government policies targeting prenatal sex discrimination and with spectacular economic growth for South Korea; however, the exact impact of these policies on sex ratio at birth is unknown (Guilmoto C. , 2015).

(e) According to Rahm (2019), SRB was influenced by **interconnected and intertwined factors.** Hence, it is impossible to separate their effects. According to an interviewee, shifts in cultural thinking, marriage customs, and economic status have resulted in a relaxing of family traditions and the Confucian system (Rahm, Gender-biased sex selection in South Korea, India and Vietnam, 2019). Another interviewee suggested that the costs and benefits of having a son have changed over time. Expectations regarding old age support have changed. Nowadays, having daughters is preferable, since sons become strangers after marriage. There is a change in society as well, changing from father-based to mother-based. There is also evidence of reverted gender preferences within one generation. However, sex selection in favor of girls has not been detected so far.

Furthermore, increased female autonomy has reflected in **"defamiliation"**, which is defined as a social tendency and behavior to decrease (not abolish) the familial burden of reproduction by controlling the duration and scope of family life (Chang, 2014). Rapid decrease in fertility, increased divorce and separation, late marriage and single life, might indicate that Korean women are increasingly reducing familial burdens (Rahm, Gender-biased sex selection in South Korea, India and Vietnam, 2019).

In addition to the above-mentioned factors, some researchers consider **media campaigns** a contributing factor to SRB reduction (Hesketh & Xing 2006; Westley and Choe 2007). Media campaigns, such as "Love your Daughters" (Ganatra, 2008), received wide international attention for potentially accelerating the decline in son preference by making parents aware that daughters can now be as valuable as sons (Das Gupta 2010). However, the impact of this campaign should have been weak, since it took place only once in 1997 with a few participants according to PPFK (Planned Parenthood Federation of Korea) records. A recent study by Rahm (2019) finds that awareness-raising campaigns have not influenced the SRB decline in South Korea.

Increased SRB in **Hong Kong (SAR of China)** was mainly due to the influx of mainland Chinese, characterized by a strong son preference. In order to reduce SRB, the government implemented a zero quota policy in 2012, restricting mainland Chinese from giving birth in Hong Kong (Gietel-Basten & Verropoulou, 2019). After the introduction of this policy, the number of births given by mainland women sharply declined, along with the total number of births, reflected in the reduced SRB in Hong Kong. Despite the fact that SRB was reduced after the introduction of the zero quota policy, the impact of the impact of this policy on SRB is still ambiguous, and whether the SRB reduction was a direct consequence of this policy is still unclear. The rises and falls of SRB were mainly due to the reproductive behavior of 'transient' mainland mothers (Gietel-Basten & Verropoulou, 2019).

The case of Hong Kong is of limited relevance since the changes there were mostly artificial and due to policies in mainland China, while the South Korean experience is more applicable for the Georgian case as the country has experienced similar socio-economic development and transformation of values.

1.2. SOCIO-ECONOMIC AND DEMOGRAPHIC FEATURES CONTRIBUTING TO SON PREFERENCE IN GEORGIA

Georgia did not have any specific policy to address gender-biased sex selection. The period of demographic masculinization started in 1992 (UNFPA 2017) with economic transformations and hardship. SRB in Georgia normalized with economic recovery and successful social and economic reforms (UNFPA 2017). The year 2005, when SRB started to decrease, coincides with the period when Georgian society started to undergo notable improvements in various socioeconomic and demographic factors. So, it is very interesting to identify whether those socioeconomic factors have contributed to decreased birth masculinization or whether birth masculinization is a demographic transition, which is independent from policy interventions. This study aims to reveal to what extent social and economic policies have influenced family decisions regarding GBSS.

Several studies (UNFPA 2015, 2017; Duthé, G. et al., 2012) have provided a detailed analysis of reproductive behavior and birth masculinity in Georgia. They found that Georgian society has always had a pronounced **son preference**. Family in Georgia is patrilineal in nature[8] and it is a place where traditions, national values, and identities are kept and respected. Sons in Georgia carry on the family name and continue the lineage, while daughters marry into other families. Males traditionally are considered the main contributors to family subsistence and the major source of support for their aging parents, while women are stereotypically perceived as natural caretakers, whose core responsibilities involve childcare and household duties.

According to the Caucasus Barometer 2010 survey, in cases when a family has one child, 46% of respondents preferred a son. The same figure for 2019 is 31%, showing that the son preference has declined in Georgian society. In 2019, survey identified that 57% of respondents stated that it did not matter, compared to 45% in 2010. 13 percentage point increase in nine years indicates a very notable change in value system. It has to be mentioned that this positive change is observed in all settlement types. Urban settlements seem to catch up with Tbilisi, showing similar son preference levels in 2019, while rural areas still lack behind regardless of big positive change.

Table 2. The preferred gender of the child by settlement type

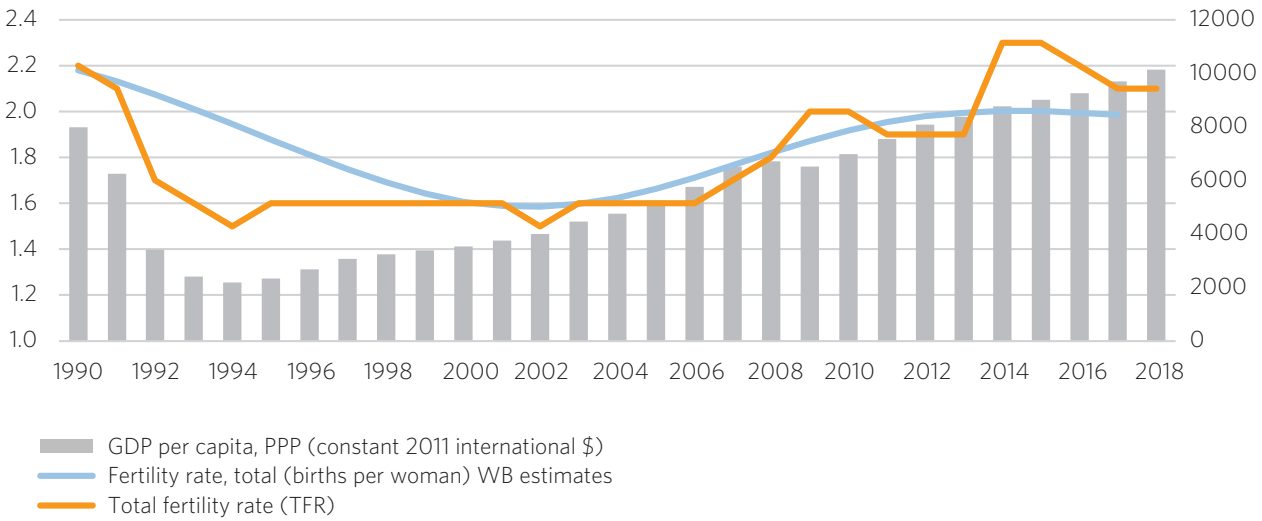
	Capital		Urban		Rural	
	2010	**2019**	**2010**	**2019**	**2010**	**2019**
A girl	11%	15%	11%	13%	6%	7%
A boy	35%	24%	40%	23%	57%	41%
Does not matter	53%	61%	48%	63%	36%	51%
DK/RA	1%	1%	1%	1%	1%	1%

Source: The Caucasus Research Resource Centers. Caucasus Barometer, 2010, 2019 years.

[8] Patrilineality is a common kinship system in which an individual's family membership derives from and is recorded through his or her father's lineage.

The collapse of the Soviet Union was followed by significantly deteriorated economic conditions. The early transition period was characterized by civil unrest and armed conflict, corruption, and high levels of crime that led to a significantly deteriorated socio-economic situation (stagnation, hyperinflation, extremely increased poverty levels, and growth-reducing structural changes[9]). This may be considered one of the most important reasons for the **fertility decline**, which further strengthened pre-existing son preferences. Decreased fertility was a strategy chosen by Georgian families to cope with the new reality and soften pressure on household budgets. According to World Bank estimates, in merely 5 years (from 1990-1995), the total fertility rate (TFR) fell by 0.3 points and continued to decrease over the next ten years (see figure 1). The relatively fast economic recovery of the country[10] was accompanied by a recovered fertility rate, starting in 2003. According to the 2014 census, estimated total fertility for the year preceding the census was 1.98 children per woman.[11]

Figure 1. Fertility rates and GDP per capita in Georgia, 1990-2018



Source: (a) GDP per capita, PPP (constant 2011 international $) World Bank, World Development Indicators, Last updated: 7/10/2019; (b) Total fertility rate (TFR). National Statistics Office of Georgia. Note: 1995-2013 based on the retro-projection; starting from 2014 based on the registered data; (c) Total fertility rate WB estimates. World Bank, International Comparison Program database. Last updated: 7/10/2019.

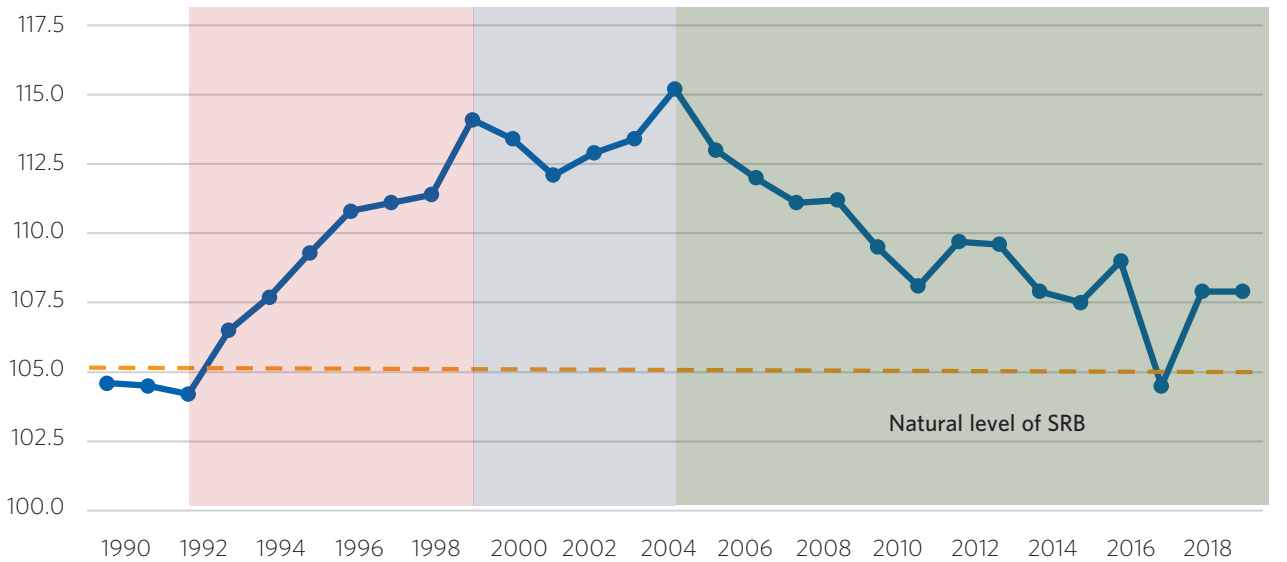
Low fertility rates in the first 15 years of independence coupled with improved **access to reproductive technologies** created a fertile ground for GBSS. In countries where high SRBs are well documented, sex-selective abortion has been the most common way[12] of choosing the sex of the future child (Zeng et al 1993; Miller 2001; Guilmoto 2009). The first imported ultrasound machine detecting the sex of a fetus appeared in Tbilisi in 1987, and the first private clinic providing services to women opened in 1991. By 1995, ultrasound technologies were already spread throughout Georgia (Guilmoto, Dudwick, Gjonca, & Rahm, 2017). Thus, it can be said that Georgia's SRB transition was an integral part of the overall transformation process of the country.

[9] People started to move from higher productive sectors (for instance manufacturing) to less productive sectors, such as agriculture.
[10] The country's average real GDP growth rate for 2003-2007 was 9.6%. Source: WB. World Development Indicators.
[11] UNFPA, 2017. Gender Analysis of 2014 Georgian General Population Census Data. UNFPA, Tbilisi.
[12] Other methods to increase the probability of having a child of the desired sex are preimplantation genetic diagnosis (Barush, Kaufman, and Hudson 2008) and albumin separation of sperm (Beernink, Dmowski, and Ericsson 1993).

1.3. SRB AND ITS DYNAMICS

Georgia had normal levels of SRB under the Soviet Union despite the fact that abortion was an acceptable method of family planning. The lack of access to reproductive sex-detection technologies combined with relatively high fertility rates prevented son preference from finding a reflection in skewed sex ratio at birth before the 1990s. However, after the collapse of the Soviet Union, SRB showed an increasing trend for almost 15 years. Guilmoto et al (2017) documented that January of 1992 was the critical breakpoint, when a significant change (increase) from the normal level was observed in Georgia. Since then, SRB increased at a rate of 1.4 male births on average per 100 female births until 1999. It fluctuated around 114 from 1999-2004. Since 2004, SRB has decreased, reaching normal levels in 2016 (see figure 2). Our analysis (joint point regression) identified another breakpoint: the year 2004 (see annex 1), when SRB started to decrease and this reduction was statistically significant. Both breakpoints of 1992 and 2004 are easily visible in figure 2.

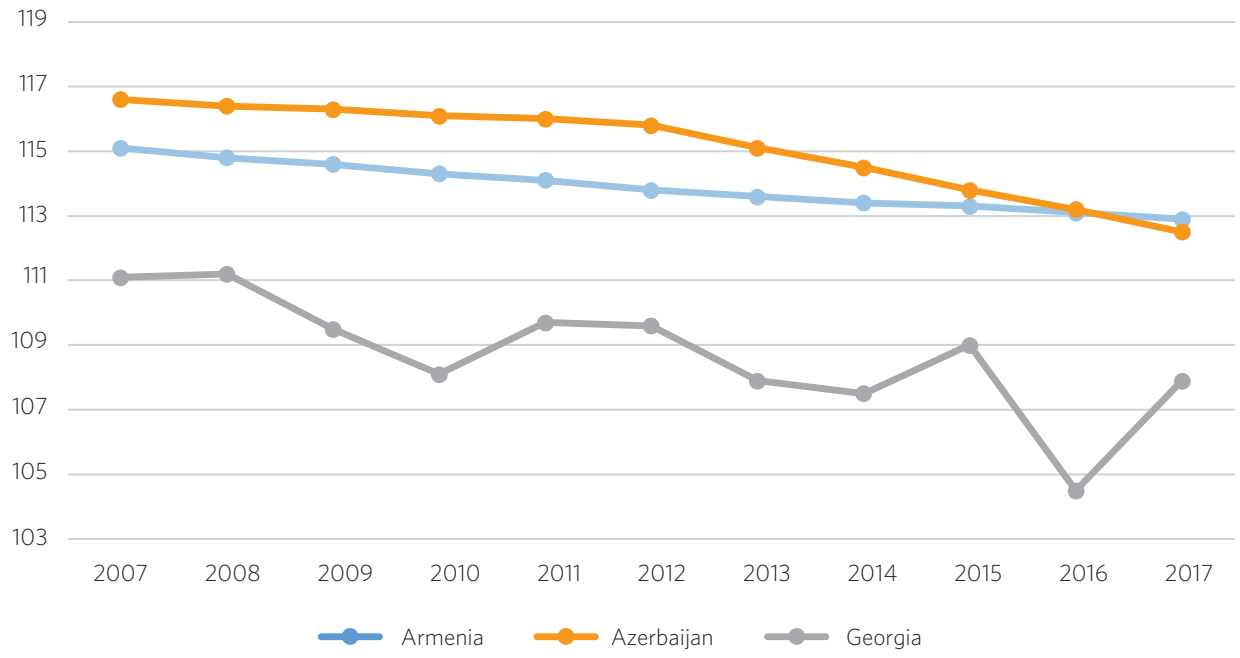
Figure 2. Average sex ratio at birth, 1990-2018



Source: UNFPA (2017).
Notes: Sex Ratio at Birth was estimated by the authors based on various sources; Shaded areas represent periods between breakpoints of Sex Ratio at Birth.

The other South Caucasus countries (Armenia and Azerbaijan), like Georgia, have witnessed a similar trend of increasing SRB since the 1990s. SRB levels rose above 110 in all three countries over the last three decades, and they are included in the list of countries that have experienced a "sex ratio inflation". However, the SRB stabilized at a plateau level in Armenia and Azerbaijan, while in Georgia it seems to show features of normalization.

Figure 3. SRB in the South Caucasus for 2007-2017



Source: Georgia - UNFPA (2017). Armenia, Azerbaijan –World Bank. World Development Indicators. Last updated - 10/2/2019.

Georgia is characterized by a high degree of regional diversification in terms of cultural values, traditions, and ethnicity. Not surprisingly, these differences are manifested in different levels of son preference. First of all, there is a big difference between rural and urban areas. The SRB in 2010-14 reached a high of 111.8 boys per 100 girls in rural areas, while the same measure was only moderately skewed, with 107.1 boys per 100 girls (close to the natural level) in urban districts.[13] These figures support the widely recognized idea that urbanization and industrialization lead to a less skewed sex ratio at birth. Das Gupta (2015) claims that urbanization undermines the peasant family system by exposing people more to new (less patriarchal) norms, where people have less pressure from their relatives to have sons to continue their family line.

[13] National Statistics Office, 2014 Census.

The average SRB across Georgia is 107.3 in 2015-2018. The capital and the largest city in the country, Tbilisi, has been characterized by one of the lowest SRBs, reaching a normal level in 2010-2018. The other regions that have lower than average SRB (very close to the normal level), are Samegrelo-Zemo Svaneti, Imereti, Adjara, and Shida Kartli. Samegrelo-Zemo Svaneti is the best improver in this regard compared to 2005-2009. As figure 4 and table 3 show, SRB has declined throughout the country, however its decline was not evenly distributed. Three southeastern regions—namely Kakheti, Kvemo Kartli and Samtskhe-Javakheti—still have significantly higher SRBs than the Georgian average. It is worth mentioning that these regions share borders with either Azerbaijan or Armenia, or both, and have large ethnic minority populations[14]. This has implications in terms of social norms and inclusion of these populations in socio-economic processes that we discuss more in detail later.

Table 3. Sex ratio at birth by region, 2005–2009, 2010-2014, and 2015–2018

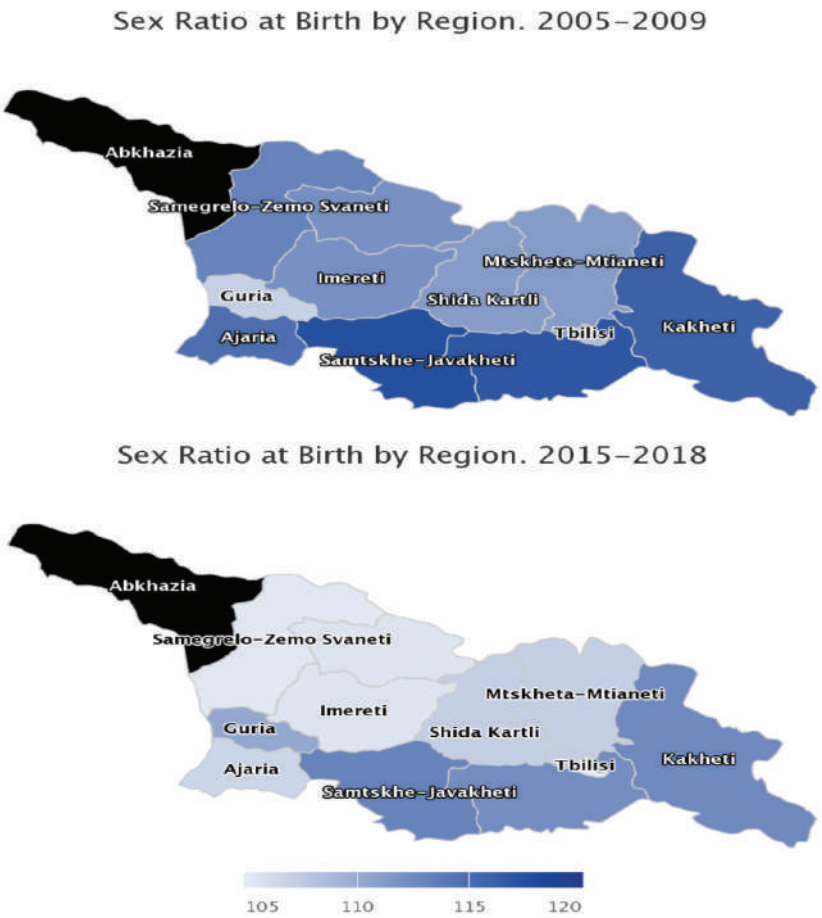
Regions	2005-2009	2010-2014	2015-2018
Tbilisi	108.6	105.1	105.0
Adjara	114.7	108.5	106.6
Guria	106.5	106.6	110.1
Imereti and Racha-Lechkhumi-Kvemo Svaneti	111.9	108.5	105.6
Kakheti	115.9	113.8	112.5
Samegrelo - Zemo Svaneti	113.0	105.3	105.3
Samtskhe-Javakheti	117.3	113.8	113.0
Kvemo Kartli	116.8	114.2	112.2
Shida Kartli and Mtskheta-Mtianeti	111.0	110.2	107.1
Georgia	112.0	108.5	107.3

Source: National Statistics Offce of Georgia; Birth Registration Data.
** Data for Abkhazia is not available.*

2014 census variables allow us to examine important socioeconomic factors like ethnicity and religion. We can claim that the most pronounced factor among them is ethnicity. According to the most recent census (2014), a majority (86.83%) of the country's population is Georgian, and the SRB for this dominant group is 107.3, slightly lower than the national average. According to UNFPA (2017) SRB for the mixed group combining various nationalities, except Georgians reaches 115 boys per 100 girls, while this measure takes even higher values for ethnic Armenian and Azeri populations (117 and 125 respectively).

[14] According to the 2014 census, the percentage of ethnic minorities in these regions were: Samtskhe-Javakheti: 52%; Kvemo Kartli: 49%; Kakheti: 15%.

Figure 4. Sex ratio at birth by regions 2005-2009 – 2015-2019



Source: National Statistics Office of Georgia; Birth Registration Data.
** Data for Abkhazia is not available.*

Among religious groups, the Armenian-Apostolic and Muslim populations (which are mainly made up of Armenian and Azeri ethnic minorities) have high sex ratios at birth: 116.5 and 120, correspondingly. Though, it is still worth noting that the SRB for the Muslim population is relatively lower than the same measure for the ethnic Azeri group, which implies that Azeri Muslims practice sex selection more than Georgian Muslims (UNFPA 2017).

To summarize, settlement type and ethnic composition of the regions concerned[15] plays an important role in the regional variation of sex masculinity in Georgia. Thus, regional (and ethnic) diversity is an important factor to consider while understanding the drivers of SRB reduction, regardless of the fact that Georgia is a small country and one can expect that policy changes reach and effect the entire population evenly.

[15] According to the 2014 Census, 42% of Kvemo Kartli region is populated by Azeris and 51% of Samtskhe-Javakheti region by Armenians. Source: National Statistics Office of Georgia.

1.4. RECENT TRANSFORMATIONS IN GEORGIA AND THEIR POTENTIAL IMPACT ON SRB

This section reviews all the policy changes happening in Georgia since 2004 that could have reduced the reliance of families on their (male) offspring and relaxed constraints to fertility choices. In this sub-chapter, we present all possible links between policy changes and GBSS.

We have classified important social and economic policies into five broader categories: (1) regulatory changes related to GBSS (direct effect), (2) improved economic conditions (removing fertility pressure and affecting GBSS indirectly), (3) stronger social protection schemes (removing pressure on families to have a son and also removing fertility pressure), (4) excess and quality of education (affecting GBSS through changing social norms and values) and (5) labor market dynamics (increasing the value of women by their economic empowerment[16]).

At the end of this sub-chapter, we also discuss some external factors (6) that could have affected GBSS in Georgia since 2004.

(1) Regulatory changes related to GBSS *(direct effect)*

No separate law regulates sex selective abortions in Georgia, only orders and protocols. The main legislative act that addresses this issue is the Law of Georgia on Health Care.[17] According to the 139th Article of this law, women are allowed to have a legal abortion only if the duration of the pregnancy does not exceed 12 weeks. The permissible period for an abortion can be extended to 22 weeks only by a special medical or social indication,[18] as determined by the Minister of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia (MoH) by special order concerning the approval of the rules regulating artificial termination of pregnancy; terminating pregnancy on the grounds of the fetus's sex is prohibited. Before the voluntary termination of pregnancy, consultation with a doctor is required. After this consultation, the patient is given a five-day waiting period (which increased from three to five days in 2014) before the medical intervention.[19]

After 2014, the MoH initiated a dialogue with the medical community to increase their involvement in the prevention of gender-biased sex selection. Currently, it is recommended that the sex of the fetus not be revealed during the early stages of pregnancy, since there is a chance of inaccuracy.

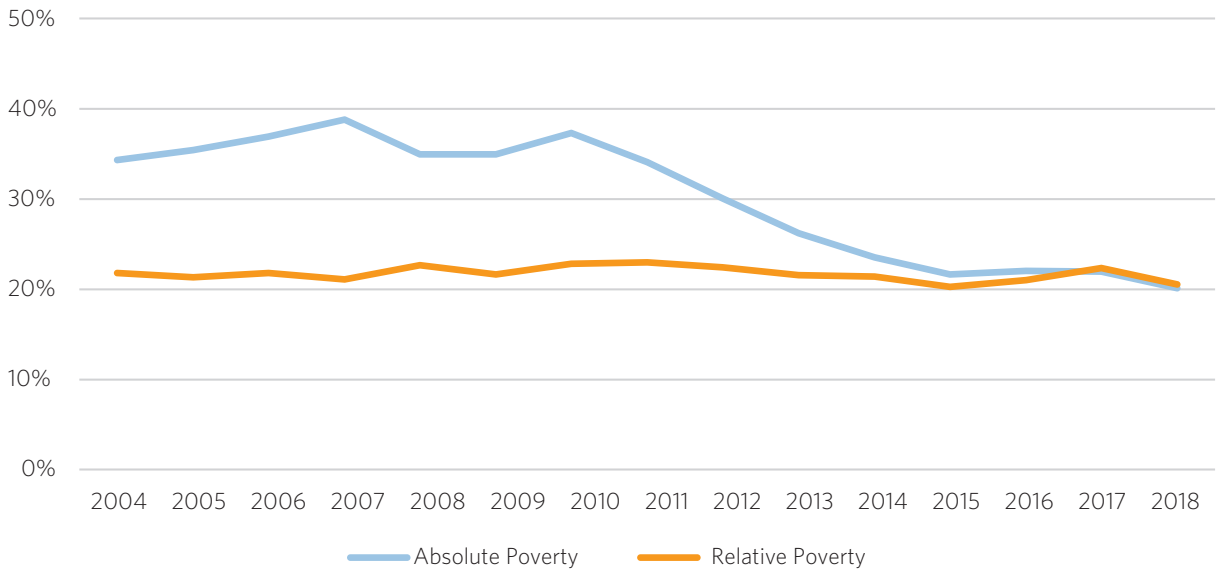
(2) Improved economic conditions *(removing fertility pressure and affecting GBSS indirectly)*

Georgia experienced tremendous hardship in the early 1990s. After the breakup of the Soviet Union in 1991 and the following civil war, the economy contracted by 65-70% over three years until 1993. However, the country managed to combat corruption, restore public order and democracy, implement free-market reforms, and achieve economic stability in the early 2000s. Georgia improved its positions in different international ratings on governance, investment climate, economic freedom, and fighting corruption. Currently, Georgia ranks 6th out of 190 economies in ease of doing business (Doing Business 2019, World Bank). Georgia became the 41st least corrupt nation out of 175 countries in 2018, which is an incredible improvement compared to the all-time high of 133rd in 2004.[20]

[16] However, increases in female employment may affect GBSS in a negative way by reducing fertility. This aspect will be discussed later in this chapter.
[17] #1139. Law of Georgia on Health Care. Parliament of Georgia. 31/12/1997.
[18] Which are determined by Georgian legislation.
[19] Exceptions could be made when at the moment of consultation, the patient is in the 12th week of pregnancy and they may be given a three-day waiting period in order to conduct the abortion in a legal way before the 12th week expires. # 01-74/N. Order of Minister of Georgia. Minister of Labour, Health, and Social Affairs of Georgia. 07/10/2014.
[20] Corruption Perceptions Index 2018, Transparency International.

As a result of economic and institutional reforms, throughout 2004-2018 the economy grew robustly. The average real GDP growth constituted 5.3%, while GDP per capita average growth was even higher (5.7%[21]). Improved economic conditions resulted in the reduction of poverty in the country. According to the official data from the National Statistics Office of Georgia, the percentage of the population below the absolute poverty line has been reduced from 39% in 2007 to 20% in 2018. As for the population below 60% of median consumption, a relative poverty indicator, it is relatively stable and varies between 20-23% from 2006-2018. Regardless of recent improvements, poverty is still one of the most severe problems in the county.

Figure 5. Poverty indicators for Georgia 2004-2018



Source: National Statistics Office of Georgia.

(3) Stronger social protection schemes and trust towards government *(removing pressure on families to have a son and removing fertility pressure)*

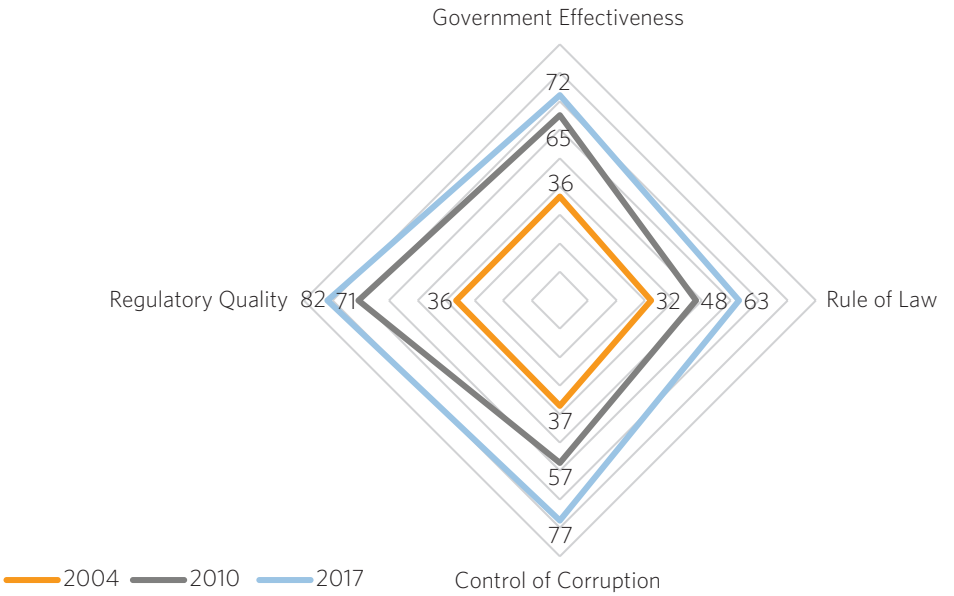
Georgia has introduced several reforms to strengthen social protection schemes and increase trust towards the government since 2005. It has to be mentioned that all these measures and policies cannot explain the reversal of the SRB trend, as they happened later in time. However, all these changes might have contributed to the further normalization of SRB since 2004—after the vicious circle was broken.

Since 2005, government institutions have significantly strengthened their role and increased the trust of the Georgian people by reducing the corruption rate and providing better quality services. Figure 6 indicates Georgia's relative ranking compared to other countries based on four Worldwide Government Indicators (WGI[22]). Based on the WGI, Georgia has doubled its

[21] Due to negative demographics mainly caused by emigration.
[22] World Bank's Worldwide Government Indicators (WGI) determine quality of governance based on different indicators such as Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption. These indicators are measured in percentiles, ranging from 0 to 100 and indicating the percentage of countries whose rank is lower than the specific country. Hence, higher values indicate better governance.

ranking for government effectiveness and rule of law and more than doubled for control of corruption and regulatory quality from 2004-2017. Strengthening state institutions might have encouraged parents to reduce son preference as it effects one of the preconditions of demand for GBSS: perceiving sons as the main contributors to family subsistence and care for parents (UNFPA 2015, 2017). Thus, stronger state institutions could have contributed to weakening one of the determinant factors of GBSS.

Figure 6. Change in Worldwide Governance Indicators 2004-2017 relative to other countries for Georgia



Source: The World Bank, Worldwide Governance Indicators 2017.

As for social protection, here we must consider the following policy areas: (a) State Pension System, (b) Targeted Social Assistance, (c) Demographic Support Program, (d) parental leave, pregnancy, childbirth, childcare, and newborn adoption payments, (e) elder care, and (f) healthcare system.

(a) With a decent pension, parents may no longer depend on their sons' financial support which might have significantly changed parents' stereotype regarding the necessity of at least one son in the family. Overall, a decent pension system might encourage parents to become more indifferent towards the gender composition of their children.

Georgia completely modified the **State Pension** System in 2004. Before the reform, the state pension was very low and the state was not able to pay it on a continuous basis, so called "pension freezes" were quite common. The basic pension per person in 2006 was 38 GEL (12.8 USD), which represented 40% of the subsistence minimum. Since 2006, the pension has been increasing, however the amount of the pension payment remained below the subsistence minimum until 2013. Since then, pension benefits have remained above the subsistence minimum and in 2016 they amounted to 180 GEL (60.8 USD), 127% of the minimum. Another change was associated with the abolition in 2012 of the supplementary part of the pension according to work experience. According to

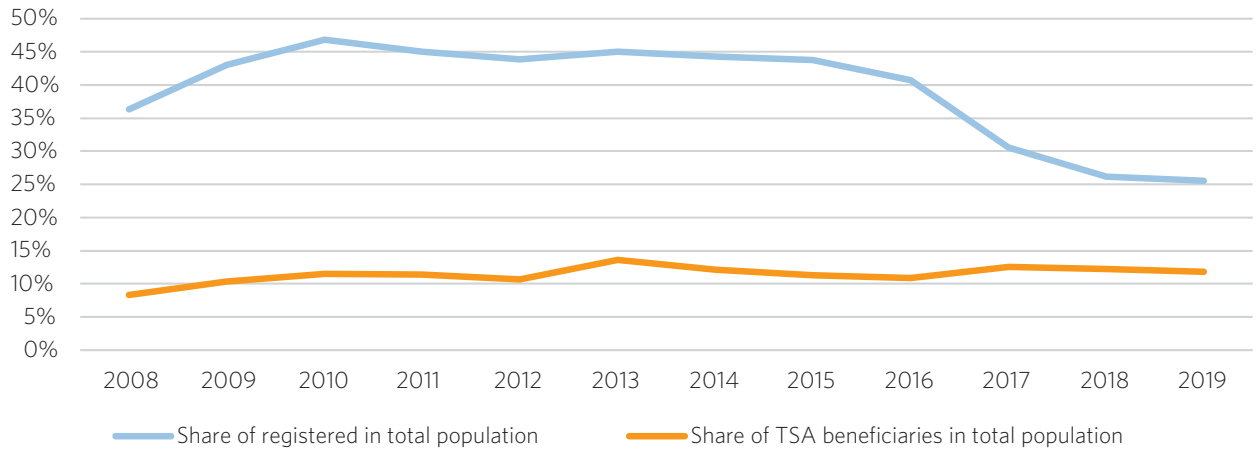
2019 data, 745,456 individuals (20% of the population) receive a basic pension.

Another significant change to the pension system was made recently. Since 2019, a private pension system based on defined contributions was introduced. Three parties: the employer, the employee, and the government, each make a monthly contribution equal to 2% of gross salary to the employees' personal retirement account.

(b) The Georgian government has been providing **Targeted Social Assistance**, a monetary social aid, which provides a subsistence allowance to the population below the poverty level since 2006. Within the framework of this program, the socio-economic situation—including economic, regional, and demographic characteristics—of families is assessed and a rating score for the family is evaluated, which later determines the right of the family to any benefits. Families who are registered in the Social Service Agency's database and whose rating score does not exceed a certain threshold of points receive assistance. The amount of TSA depends on the family's score.[23]

Looking at TSA data, it is interesting to see the share of beneficiaries from the total population (those who are actually below the declared poverty line) and the share of registered households in the total population (those who consider themselves poor and register in the state database). Official statistics show that the share of beneficiaries from the total population has an increasing trend from 2008-2019 from 8% to 12% (figure 7). Interestingly, the share of the registered population, i.e. those who consider themselves poor, has dropped from 41% to 26% in 2019 compared to 2016.

Figure 7. Registered population and beneficiaries of TSA for 2008-2019

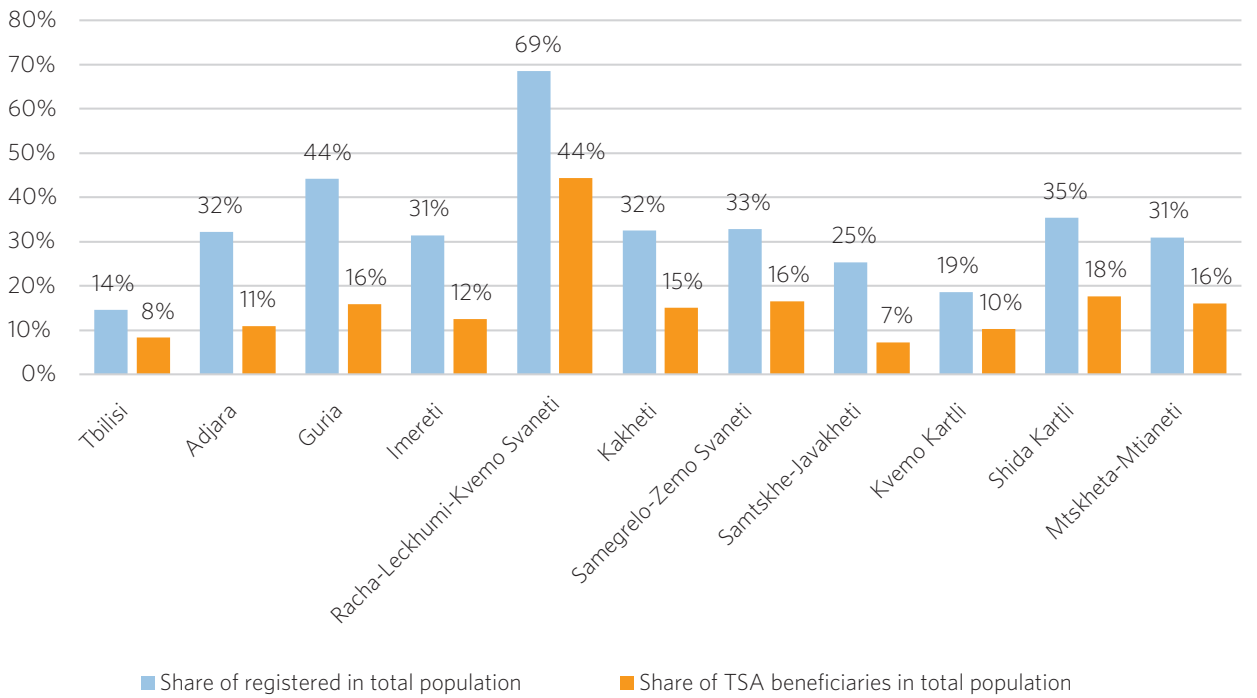


Source: Social Service Agency and National Statistics Office of Georgia.
Note: Authors' calculations, based on January for each year.

[23] For example, families whose rating score is below 30,001 units receive 60 GEL (20.3 USD) per family member; families whose rating score is between 30,001-57,001 receive 50 GEL (16.7 USD) per member; families whose rating score is between 57,001-60,001 receive 40 GEL (13.5 USD) per member; while families whose rating score is above 60,001 receive 30 GEL (10.1 USD) per member. Source: Social Service Agency.

The regional distribution of TSA beneficiaries and registered households is important for our purposes. Figure 8 contains an interesting point in this regard. Somehow in 2019 (and the trend is the same for the previous years), the two regions[24] with the lowest registered individual shares are Samtskhe-Javakheti (25%) and Kvemo Kartli (19%), which coincides with the regions with the highest SRB levels.[25] By looking at regional GDP per capita,[26] these regions are as poor as other regions, but fewer individuals register to receive assistance. The focus group discussions conducted in the scope of this study revealed quite low awareness of TSA (and other state support programs) in Samtskhe-Javakheti and Kvemo Kartli—indicating the existence of some barriers to state support programs among ethnic minorities. The existence of language and other barriers for minorities to access social services was also mentioned in a 2017 UNFPA study discussing potential factors behind the SRB decline (chapter 6, section 4).

Figure 8. Regional distribution of registered population and TSA beneficiaries in 2019



Source: Social Service Agency and National Statistics Office of Georgia.
Note: Authors' calculations, based on January 2019 data.

[24] We exclude Tbilisi, as it is an outlier and the richest region in Georgia with the highest GDP per capita; 2-3 times higher than other regions. Source: National Statistics Office of Georgia.
[25] The picture does not change when the share of registered households in the total number of households in the region is considered. The figure for Kvemo Kartli is 22%, and in Samtskhe-Javakheti 26% (2019 data), and they are the lowest among the regions (except Tbilisi -22%).
[26] Source: National Statistics Office of Georgia.

According to the World Bank (2017), TSA and pension payments, accounting for 40% of poor peoples' income, have played a significant role in poverty reduction (especially in rural areas). Approximately 60% of the bottom decile receive TSA (World Bank, 2017). However, there still remain people who have not registered for the assistance; specifically, 7% of households from the bottom decile and 19% from the second to bottom decile (World Bank, 2017).

(c) The main goal of the **Demographic Support Program** is to improve the demographic situation by providing financial incentives. This program was introduced in 2014 and covers several regions.[27] Guria, Imereti, Kakheti, Mtskheta-Mtianeti, Samegrelo-Zemo Svaneti, Racha-Lechkhumi-Kvemo Svaneti, and Samtskhe-Javakheti.[28] The program supports families with more than three children until they turn two years old. The financial support is equal to 200 GEL (67.6 USD) (monthly) in mountainous areas and 150 GEL (50.7 USD) elsewhere (monthly) (if the second and third child are twins, only one of them receives financial support). In 2018, the number of Demographic Support Program beneficiaries amounted to 22.48 per 1,000 citizens. Regions with higher shares of beneficiaries were Kakheti, Imereti and Racha-Lechkhumi, and Guria (see table 4). Compared to 2014, the number of beneficiaries has increased in all regions, indicating that people have become more aware of how to apply and that at the same time the program has become more attractive over time.

Table 4. Share of beneficiaries of Demographic Support Program (over population in the region) for 2014-2018

	2014	2015	2016	2017	2018
Guria	0.41	1.67	3.27	3.54	4.54
Imereti and Racha-Lechkhumi	0.53	2.01	3.74	3.99	5.25
Kakheti	0.52	2.10	4.03	4.36	5.65
Samegrelo-Zemo Svaneti	0.37	1.54	2.99	3.39	4.50
Samtskhe-Javakheti	-	-	-	0.39	1.27
Mtskheta-Mtianeti	0.14	0.55	1.03	1.04	1.27

Source: Social Service Agency.

(d) The general aim of **parental leave, pregnancy, childbirth, childcare, and newborn adoption payments** is to protect the employment rights of parents and the incomes of families during the period of disruption around a birth. The 2013 amendments to the Labor Code of Georgia associated with vacation due to pregnancy, childbirth, and childcare increased the duration of parental leave from four to six months (from 126 to 183 days[29]), as well as payment allocated from the state budget from 600 GEL (202.7 USD) to 1,000 GEL (337.8 USD). The state obliges an employer to pay a salary to a person during parental leave in the state sector, while in the private sector, the payment is a matter of negotiation between the employer and employee. The duration of full parental leave grows up to two years (730 days). Most importantly, parents have the opportunity to choose

[27] Regions where the average annual natural growth rate is not positive or is less than 200.
[28] Samtskhe-Javakheti is not covered by the program as of January 1, 2019.
[29] In case of complications or giving birth to twins, the duration is 200 days.

which one of them will take parental leave. Nevertheless, the great majority of beneficiaries are female (annex 2, table 13 provides the number of beneficiaries of the program from 2010-2018). Fathers' extremely low take-up rates can be explained by low awareness, gender stereotypes, and legislative gaps: (1) there are no notions of maternity, parental, and paternity leaves in the labor code; (2) there is no clear division of maternity and paternity leave periods between parents. Increased take-up rates of fathers will reduce females' distraction period from the labor market and has the potential to contribute to women's empowerment.

(e) Georgia provides **care for elderly people** but with limited extent. Since 2010, there are two boarding houses for elderly people functioning in Tbilisi and Kutaisi, administrated and financed by the government. However, due to lack of finances, the boarding houses are limited in accepting beneficiaries (see figure 15 in annex 2). In addition, since 2012, the Social Service Agency has supervised community organizations for elderly people, managed by Non-Government Organizations and financed by the state. Currently there are up to 15 shelters in different regions of Georgia (annex 2, figure 16 provides the number of beneficiaries in community organizations for elderly people in Georgia for 2012-2019).

Besides the publicly financed boarding houses for elderly people, there are several private boarding houses or shelters for elderly people financed by international donor organizations. In private shelters for elderly people, the minimum service fee is 50% of the beneficiary's pension. The service fee increases depending on the conditions and services provided by the shelters.

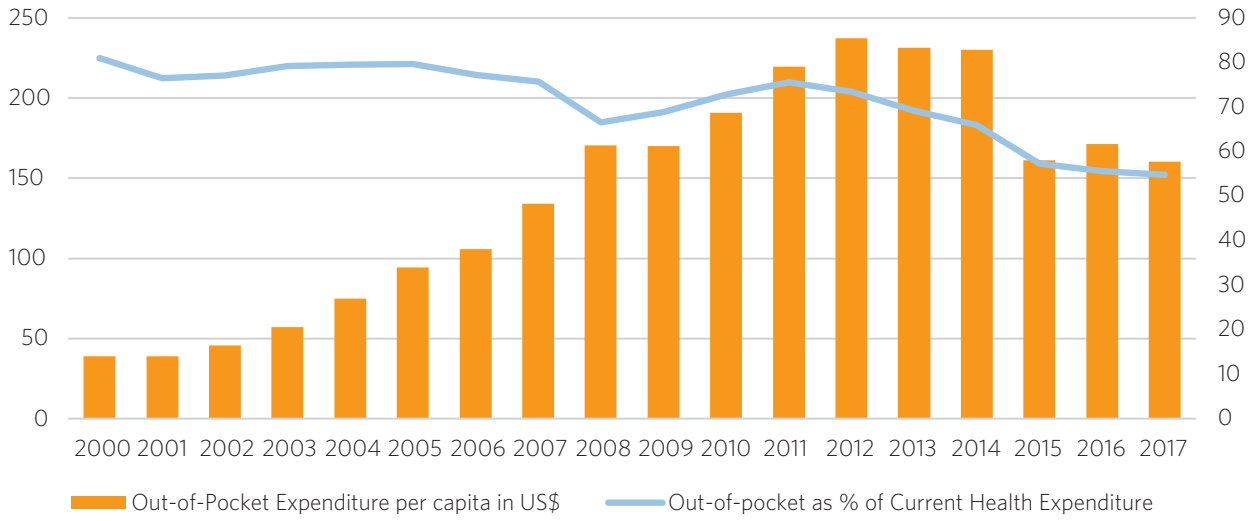
Access to elderly care services might decrease reliance of elderly people on their offspring (especially on their sons). However, the negative attitude towards shelters in Georgian society has to be taken into account.[30] Thus, raised access to caregiving centers is less likely to be perceived as a contributing factor to son preference.

(f) Georgia moved to an **insurance-based healthcare system** in 2006. Since then, the Georgian healthcare system has experienced several changes including extended coverage for different vulnerable groups. Increased accessibility of healthcare services might affect GBSS by reducing out-of-pocket expenditures for childbearing and the healthcare costs of child-rearing. Furthermore, a well-functioning healthcare system might decrease the dependence of the elderly on their offspring (especially sons) and consequently reduce son preference.

The major change in the healthcare system is associated with the introduction of the Universal Healthcare (UHC) Program in 2013, which covered the whole population. The state took responsibility for covering primary healthcare services, planned and urgent outpatient services, emergency inpatient services, planned surgical operations, delivery, and treatment of oncological diseases. However, the Universal Healthcare Program has moved to service stratification based on revenue groups and medication funding since 2017.[31] The universal health insurance program softened the burden of healthcare expenditures for households: out-of-pocket expenditures have been steadily declining since 2005 from 80% to 54.8% in 2017. Though the trend is pronouncedly downward, the share of out-of-pocket payments in total expenses for healthcare is still considerably high (see figure 9).

[30] Participants revealed negative attitudes towards elder shelters in focus group discussions conducted in the scope of this study.
[31] Citizens with an annual income more than 40,000 GEL (13,513.5 USD) are not eligible for the UHC program; Citizens with a monthly salary more than 1,000 GEL (337.8 USD), but an annual salary less than 40,000 GEL, and without private insurance are eligible for the limited package of the UHC program. Even if they have private insurance, they still have access to oncologic treatment and child delivery/ Caesarean section; citizens with a monthly income less than GEL 1,000, self-employed individuals, and other people with irregular income are eligible for the UHC program. However, if these people have private insurance, they have access to funds only for urgent and oncologic services, as well as child delivery/Caesarean section; socially vulnerable citizens (rating points between 70,000 and 100,000), children aged 6-18, teachers, and disabled people can access all of the UHC services and are not restricted from using a private insurance package along with UHC. Socially vulnerable citizens (rating points not exceeding 100,000) receive funding for medication for chronic diseases. Source: https://www.moh.gov.ge

Figure 9. Out-of-pocket as % of current health expenditure and out-of-pocket expenditure per capita in US$



Source: World Health Organization Global Health Expenditure database.

Although the implementation of the Universal Healthcare Program has contributed to universal access to medical services and notably increased the level of utilization (ambulatory visits per capita in 2012–2.3; in 2015–4.0; hospitalizations per 100 persons in 2012–8.0; in 2015–12.6[32]), the quality of services still poses a challenge: the current legal rules governing healthcare fail to effectively ensure the quality, continuity, consistency, and effectiveness of medical services (UNDP 2017).

(4) Access to and quality of education *(directly affecting GBSS through changing social norms and values, it may also remove pressure on fertility)*

According to the UNFPA (2017), the elevated SRB levels in Georgia are associated with lower **educational levels**. The literature identifies two opposite channels through which education policies affect sex imbalances at birth: (1) educated people with strong son preference and fertility constraints tend to sex select due to better access to ultrasound technologies; (2) increased level of overall education contributes to changes in gender norms and, hence, reduction of GBSS (Rahm, 2019; Echavarri and Ezcurra, 2010). Thus, policy changes in the education sector might have affected the reduction of SRB in Georgia.

The Government of Georgia has introduced reforms at every level of education since 2005. The **preschool education system** was decentralized in 2005—declared the responsibility of municipalities—and fully funded by the local self-government (except for private kindergartens) since 2013. Availability and accessibility of childcare services theoretically have a positive impact on fertility and women's empowerment, contributing reduction of the GBSS by softening the tradeoff between participation in the labor market and child-rearing (Ermisch 1989; Bernhardt 1993).[33] Nevertheless, the quality of care services in Georgia remains a challenge due to the lack of professional caregivers (44% of caregivers are not qualified[34]) and lack of resources to support child development and learning.[35]

[32] Vision for Developing the Healthcare System in Georgia by 2030. Healthcare and Social Issues Committee of the Parliament of Georgia with the support of the European Union and the United Nations Development Programme (UNDP), 2017.
[33] However, some studies have provided controversial findings. E.g. Kravdal 1996; Hank and Kreyenfeld 2003; Andersson, Duvander, and Hank, 2004; Del Boca 2002; Rindfuss et al. 2007.
[34] Study on Quality of Early Childhood Education and Care in Georgia, 2018, UNICEF.
[35] Study on Quality of Early Childhood Education and Care in Georgia, 2018, UNICEF.

Since 2004-05, attaining general and higher education has become more accessible and affordable in Georgia. According to a report provided by the Ministry of Education, Science, Culture, and Sport of Georgia, international organizations have listed Georgia among the 5 countries with the highest access to general education. The unified national exams (UNE) have eliminated corruption (which was quite prevalent before) and given an equal chance to all entrants to gain higher education. Moreover, the Georgian government introduced merit-based and social grant programs in 2005, covering either partial or full tuition fees (including at private higher education institutions). The UNE also accounted for the interests of ethnic minorities and provided tests in their languages. As a result, the share of ethnic Georgians having at least a bachelor's degree has increased by around 6 percentage points from 2004 to 2018. However, the same measure for the ethnic minority population has not changed notably during the same period. In addition, the share of the population attaining higher education is significantly lower in the case of ethnic minorities.

Table 5. Aggregate levels of education by sex for Georgian and non-Georgian 20+ population (%), 2004 and 2018

	2004		2018	
	Georgian	Ethnic minorities	Georgian	Ethnic minorities
Basic General Education	6%	11%	4%	13%
Secondary General Education	38%	51%	35%	51%
Higher Education	29%	13%	35%	12%

Source: Authors' calculations, National Statistics Office of Georgia.

The Georgian government acknowledges the problem of ethnic minorities' low access to higher education and provides two major programs to overcome this challenge: *Qualified Teachers in Ethnic Minority Schools and 1+4.*

Since 2009, *Qualified Teachers in Ethnic Minority Schools* has given the opportunity for ethnic minorities to learn Georgian language and literature by sending qualified teachers to regions populated by ethnic minorities. During the 2018-2019 academic year, the number of qualified teachers amounted to 1,191, out of which 50.63% were teaching in Kvemo Kartli, and 30.73% in Samtskhe-Javakheti.[36]

Since 2010, *Program 1+4* has given ethnic minorities the opportunity to learn the Georgian language and access higher education. The total number of participants has increased to 5,400, out of which 45% are female. Participants come mainly from Tbilisi, Kakheti, Samtskhe-Javakheti, and Kvemo Kartli. This program is especially important to integrate ethnic minorities into Georgian society.

[36] Ministry of Education, Science, Culture, and Sport of Georgia

Table 6. Number of Program 1+4 participants by gender

Region	Gender	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tbilisi	Male	4	6	9	16	28	26	16	15	15
	Female	4	8	16	21	18	17	12	18	10
Kakheti	Male	2	21	20	50	30	29	48	70	65
	Female		4	12	20	13	18	29	21	40
Samtskhe-Javakheti	Male	43	79	79	60	70	58	71	84	102
	Female	34	99	92	65	65	76	98	126	128
Kvemo Kartli	Male	51	128	192	290	207	211	255	257	281
	Female	13	54	106	210	134	166	193	197	265
Other	Male			1		2		1		
	Female		1		1			1	2	1
Total	Male	100	234	301	416	337	324	391	426	463
	Female	51	166	226	317	230	277	333	364	444

Source: Ministry of Education, Science, Culture, and Sport of Georgia.

In 2010, the *Teach and Learn with Georgia* (TLG) program was launched to bring native English speakers to live in Georgian communities and volunteer in Georgian schools as language teachers, communication partners, and cultural ambassadors.[37]

Despite solving the accessibility and affordability problems, the quality of education remains a major challenge of the Georgian education system. According to the World Bank Blog,[38] even though 15-year-old students have noticeably improved their performance in mathematics, reading, and particularly science between 2009 and 2015, Georgia remains about 2.5 years of schooling behind the OECD average (two PISA cycles). In addition, existing problems in the education system are reflected in a skills mismatch in the labor market.[39]

(5) Labor market dynamics (increasing value of women by their economic empowerment).
Female employment might have the following impact on GBSS: (1) employed women tend to postpone childbearing not to deteriorate their position in the labor market (Neyer et al. 2011), hence effecting fertility negatively; (2) female employment leads to financial independence, increased status of women in the family, and reduced pressure from other family members in the decision-making process (especially in the case of making reproductive decisions) that decreases the incidence of sex selection. The literature suggests that the first effect is not observed among post-communist countries (Kantorová, 2004 [for Czech Republic]; Róbert and Bukodi, 2005 [for Hungary]; Matysiak, 2009 [for Poland]).

The Georgian labor market has experienced the following changes in the past 15 years:

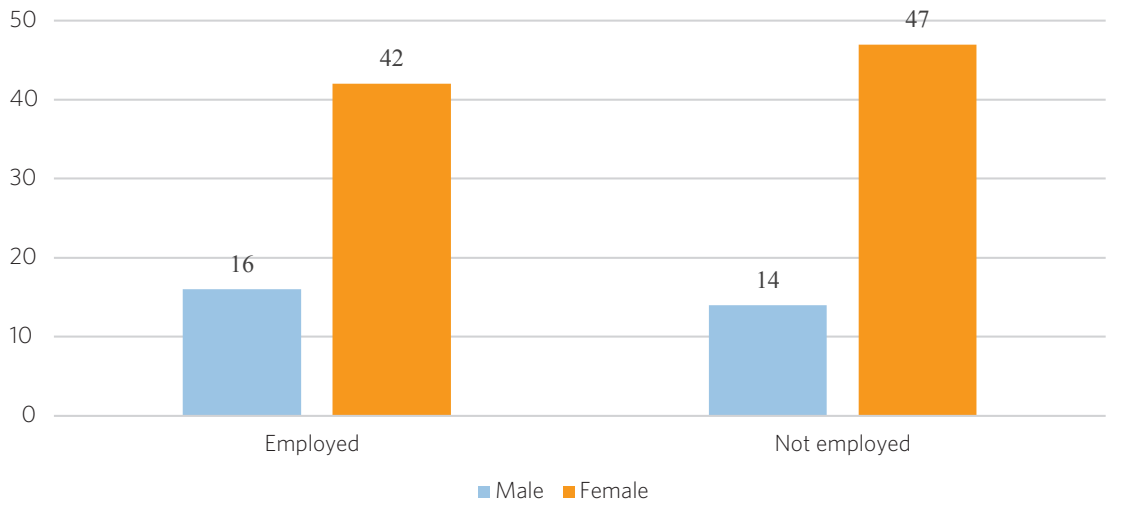
- Female labor force participation (LFP)[40] remains significantly lower than the same measure for males. Correspondingly, the labor participation gap[41] (18 percentage points) across Georgia has not changed in 2018 compared to 2004.
- The gap in LFP rates between males and females is substantially larger at younger ages (between 15-34). At that age, men's participation rate is

[37] By 2017, over 51 groups of volunteers from different countries were placed throughout the regions of Georgia. Source: Teach & Learn with Georgia.
[38] Getting further down the road – Improving the quality of education in Georgia, 2017, Nino Kutateladze, World Bank Blog.
[39] Employment and Productivity Survey (STEP, 2013) and World Economic Forum's Global Competitiveness Report, 2015-2016.
[40] Share of working age population currently working or seeking employment.
[41] The difference between female and male labor force participation rates.

twice as much as women's. According to the Asian Development Bank (ADB) study,[42] lower female labor force participation rate at younger ages is highly attributed to the burden of unpaid care work at home and childcare responsibilities.

- A recent study conducted by UN Women (2018) shows that time spent on unpaid care work differs significantly by gender. Specifically, within employed individuals, the difference between time spent on unpaid care work for females and males is 26 hours per week, while for the unemployed group this difference increases up to 33 hours per week.

Figure 10. Time spent on unpaid care work (hours per week) over 2018



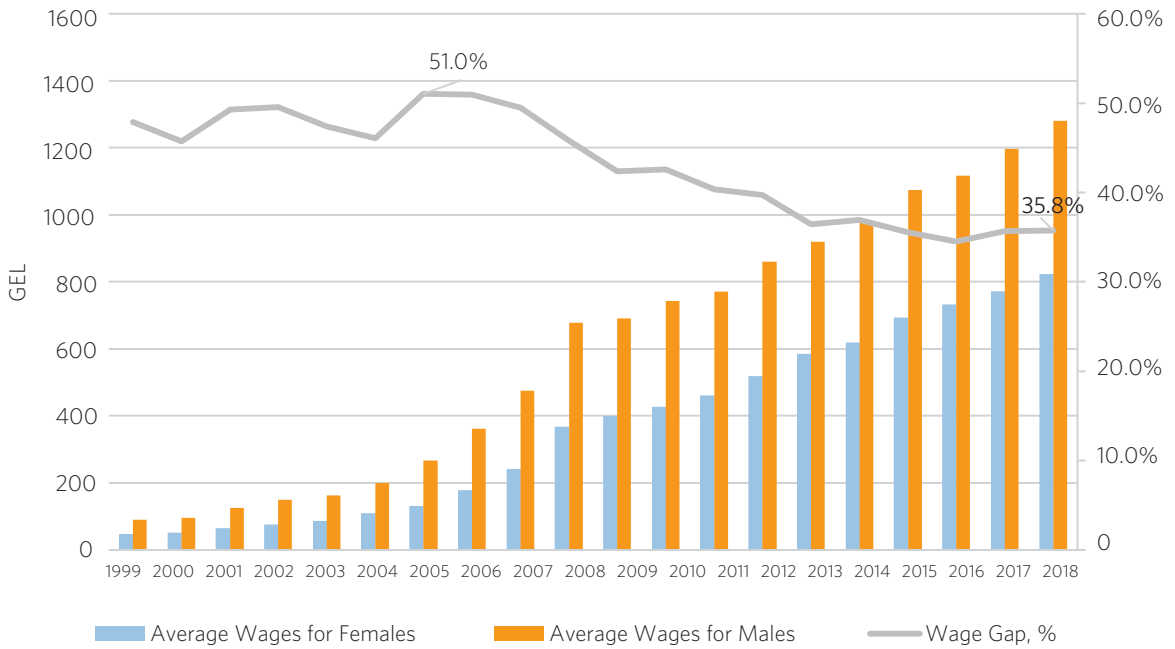
Source: UN-Women.

- Similar to the labor participation gap, there is a persistent employment gap between males and females in Georgia, ranging around 14% over the last 15 years. However, after excluding self-employed people from the employed population, the gender employment gap is reduced to around 5%.
- Employment rates (excluding self-employed) have an increasing trend from 2004-18, around 7 percentage points for females (from 19% to 26%) and 9 percentage points for males (from 22% to 31%).
- The female self-employment rate is characterized by a decreasing trend over the last 15 years. This trend implies the shift of women from agriculture to the service and industrial sectors, as the great majority of the self-employed population is involved in subsistence agriculture (this kind of transformation can be considered as a growth enhancive structural transformation, as women went from the lower-productive agriculture sector to higher-productive sectors). The share of women employed in the agricultural sector has declined by 11 percentage points in 2018 compared to 2004. However, the share of the female population self-employed in agriculture still remains high—47% in 2018 (i.e. the same measure even reached 51% in the case of males in the same period).
- There is strong evidence of horizontal segregation in the Georgian labor market. According to the ADB Country Gender Assessment (2018), females represent the following shares of employment: healthcare and social sectors (60%), hospitality sector (60%) and school teaching (84%); Industrial and occupational segregation have been shown to be important determinants of gender wage gaps.
- The Georgian labor market is characterized by a

[42] Georgia Country Gender Assessment, ADB, 2018.

significant wage gap between males and females. The average monthly salary for women amounted to 823 GEL (278.1 USD) in 2018, while the same measure for men reached 1,281 GEL (432.8 USD). However, it had a decreasing trend since 2005, where the highest value in the last 20 years was discerned (51.0%). It should also be mentioned that the average monthly wage gap does not show the full picture, as it does not take into account the number of hours worked in a month by men or women and are not hourly remuneration for male and female workers employed at the same position. In addition, according to the United Nations Development Program (UNDP, 2018),[43] despite their qualification and education level, women tend to work in non-commercial sectors, where the remuneration is lower than in commercial sectors (where men are the dominant workers). The significant gender wage gap makes women financially dependent on their husbands and thus more likely to conform with social/family pressures to GBSS.

Figure 11. Average wages for female and male workers in Georgia (nominal, GEL)



Source: National Statistics Office of Georgia.

(6) External factors

(a) Since the early 2000s, Georgia has been exposed to **Western norms and culture** through international collaboration, media, migration, increased tourism, and other means. The country has joined the Council of Europe (1999), the European Neighborhood Policy (2004), the Eastern Partnership (2009) and the Black Sea Synergy (2007). Georgia signed an Association Agreement with the European Union in 2014, which aims to deepen the political and economic relationship between Georgia and the European Union and provides an opportunity to boost trade and economic growth for Georgia. Moreover, Georgian citizens were granted

[43] Gender Equality in Georgia, UNDP, 2018.

visa-free travel to the Schengen[44] area since the 28th of March, 2017. According to the Ministry of Internal Affairs, 753,292 Georgian citizens entered the Schengen zone from March 2017 - June 2019.[45]

New international collaborations lead to increased opportunities for Georgia to implement strategies and plans aimed at advancing human rights and gender equality and supporting the sustainable development of the country, which may have contributed to the decrease of son preference and gender-biased sex-selection.

(b) In order to improve the demographic situation in Georgia, Catholicos-Patriarch of all Georgia and the spiritual leader of the Georgian Orthodox Church Ilia II **offered to personally baptize** every third and subsequent child in Orthodox families in 2008. Since then, the Patriarch has baptized more than 38,500 children.[46] At first glance, one might think that the Patriarch's initiative has contributed to increased birth rates in Georgia. However, the academic literature does not support this hypothesis. According to Lanchava (2014) the Patriarch's initiative has not significantly affected birth rates in Georgia.

(c) Shifts in **family norms** might explain the SRB transition in Georgia. Age at first marriage, age of mother at childbirth, and divorce rate are key variables which show the shifts in family norms. Looking at family life figures (see table 7) it is obvious that women in Georgia nowadays delay marriage and childbearing. Increased age at first marriage and childbirth indicate that women may have more bargaining power in the family, reflecting in decreased SRB rates (Rahm, 2019). Another sign of the erosion of cultural norms and stereotypes is increased divorce rates. Despite the fact that there is some trend towards female autonomy, we cannot say that defamiliation is occurring in Georgia, because the total fertility rate has an increasing trend. One has to note that increased marriage rates are misleading and may not reflect reality, as the National Statistics Office data includes only registered civil marriages and excludes church marriages. Thus, the increased marriage rate only indicates increased civil marriages and cannot be used to analyze defamiliation in the country.

Table 7. Family life in figures, Georgia, 2004 and 2018

	Unit	Year	Unit	Year
Total fertility rate	1.6	2004	2.1	2018
Marriage rate per 1,000 persons*	3.8	2004	6.2	2018
Age at first marriage of women (years)	25.9	2004	29.0	2018
Age of mother at first childbirth (years)	25.4	2005	27.8	2018
Divorce rate per 1,000 persons	0.5	2004	2.8	2018
# of male birth per 100 females	114.9	2004	107.9	2018

Source: National Statistics Office of Georgia.
**Note: Marriage rate per 1,000 persons only includes civil registered marriages. Since 2017 the data does not cover registered marriages of persons under 18, due to changes in the Civil Code of Georgia.*

[46] Source: Georgian Patriarchate. http://patriarchate.ge.
[44] Austria, Belgium, Germany, Denmark, Spain, Estonia, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Poland, Portugal, Greece, France, Slovenia, Slovakia, Hungary, Finland, Sweden, Czech Republic, Iceland, Liechtenstein, Iceland, Liechtenstein, Switzerland, Bulgaria, Cyprus, Romania, Croatia.
[45] According to the data, the top two most visited countries by Georgian citizens are Germany and Italy (more than 35% in 2018 and 2019). Source: Ministry of Internal Affairs of Georgia.

CHAPTER

2

"A Girl is Born" Photo Exhibition | Author: Dina Oganova
Photo credit: UNFPA Georgia | Vladimer Valishvili

METHODOLOGY

2.1 RESEARCH HYPOTHESIS AND THE THEORY OF CHANGE

The study tests the **hypothesis** that improved macroeconomic conditions and/or stronger social protection schemes may lead to a reduction in male dominated SRB through various channels:

- by reducing family reliance on male offspring;
- by relaxing constraints on fertility choices.

The idea behind this hypothesis is the following: improved macroeconomic conditions alone, or when balanced with improved social protection schemes, increased pensions, and other social protections merits provided by the government, heighten familial feelings of safety. Couples then have the perception that they are better protected against income shocks, and resultingly need to rely less on their offspring (traditionally their sons). Moreover, improved macroeconomic conditions and stronger protection schemes help relax constraints on fertility choices and allows couples to raise their desired number of children.

According to this hypothesis, drawing on a causal analysis based on the available evidence, the **theory of change** was developed to conceptualize how changes in socio-economic policies are expected to lead to a reduction in GBSS.

As considered in the previous chapter, the Georgian economy and social security schemes have experienced notable improvements over the past two decades. Improvements in economic conditions and social security are expected to reduce sex selection by increasing fertility rates and initiating positive changes in the social value system that will potentially reduce incidences of son preference and promote gender equality. For example, before 2003, public social security schemes could not satisfy the needs of the most vulnerable section of the population, and families had to rely on informal security networks, like assistance from friends and relatives, as well as international humanitarian aid and charity. In 2002, money transfers received from friends and relatives amounted to 10% of Georgian household income, almost three times higher than the sum of state social transfers (pensions, stipends, and social assistance).[47]

The broad and comprehensive reforms discussed in the previous chapter (the introduction of TSA, pension reforms, UHC, the Demographic Support Program, the Pregnancy, Childbirth, Childcare, and Newborn Adoption Program, etc.), alongside improved macroeconomic conditions, are considered to be **inputs** in the theory of change, contributing and leading to a reduction in GBSS. It ought to be noted that the above mentioned programs (excluding the Pregnancy, Childbirth, Childcare, and Newborn Adoption Program) and reforms only have an indirect effect on fertility and gender biased sex selection. Such reforms tend to moderate the vulnerability of poor families; encourage pregnancies;[48] improve the general health of the population; and give elderly people the opportunity to take advantage of the state's healthcare program and, therefore, help them to be less dependent on their children (each contributing to a reduction in son preference and gender biased sex selection). While the Pregnancy, Childbirth, Childcare, and Newborn Adoption Program also has the potential to further promote gender equality by giving mothers the opportunity to take care

[47] Chitanava, M. & Kuziakiv, O. (2015). *Economic Reforms: Market Liberalization VS Social Responsibility Lessons Learnt from Georgia for Ukraine*. Tbilisi.

[48] The focus group outcomes show that while the Demographic Support Program is helping families with many children financially, it is not enough to encourage parents to have more children.

of their children, keeping women in the workforce, and improving paternal contributions in childcare.

However, the theory of change relies on the assumption that awareness and availability to social protection schemes are significant and eligible individuals have easy access. If this is not the case, the inputs listed will fail to have their desired outcomes. In addition, the study controls **external factors** of influence, such as:

(1) **Increased fertility.** Increased fertility affected by other factors, rather than improved economic conditions or governmental social-economic policies. It is widely believed that declining fertility, together with strong son preference, and easy access to cheap sex-selection technology are key factors underlying the male-biased sex ratios (Anukriti, 2014; Bhalotra and Cochrane, 2010; Chung, 2007; Das Gupta, 1987; Ebenstein, 2010; Li et al., 2011; Lin et al., 2010; Li and Zheng, 2009; Park and Cho, 1995; Zeng et al., 1993). Therefore, increased fertility rates could potentially reduce the pressure on families to select the fetal sex, due to the strong desire for having at least one son.

(2) **Positive changes in the societal value system.** Constructive changes in the value system are expected to make daughters more valuable for their parents, to improve the position of women in families, and, hence, to reduce the female natality disadvantage.

(3) **Ethnicity.** Ethnic minority populations have notably different value systems, diverse structures in the labor market and the economy, and different attitudes toward GBSS. As discussed in sub-chapter 1.3, despite the fact that the regions mostly populated by ethnic minorities share the declining trend of the sex ratios, they have significantly higher SRB rates than other regions.

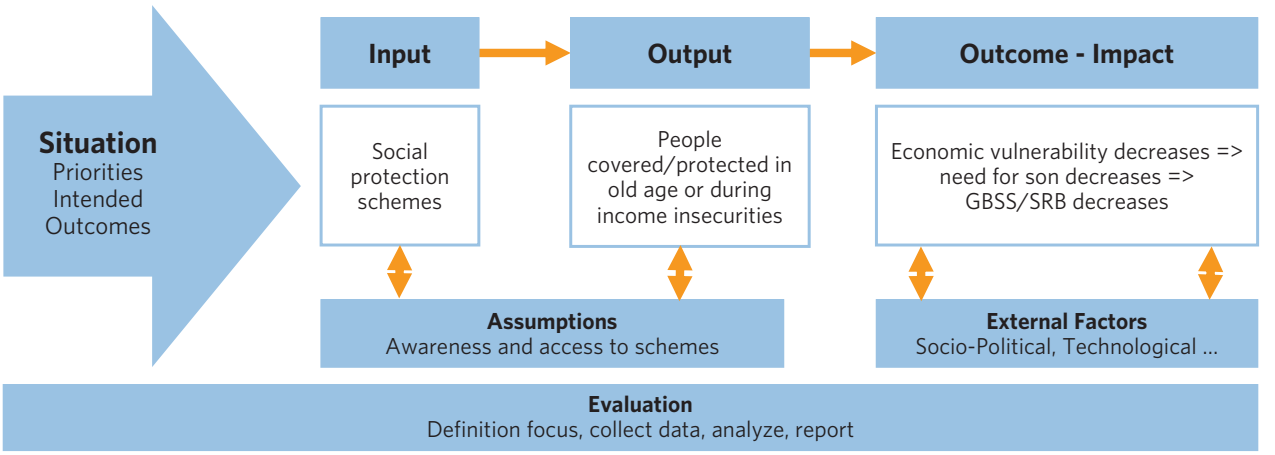
(4) **The Patriarch's initiative to baptize the third and subsequent children.** The initiative seems to be having a positive impact on the fertility rate and thus it negatively affects GBSS (empirical literature identifies the limited effect of the Patriarch's initiative on fertility, whereas respondents of the focus groups highlight the importance of this factor in the reduction of prenatal sex selection).

According to the theory of change, the **outputs** of improved economic conditions and social protection schemes are:
(a) inclusiveness of reforms, more people are covered by the TSA and protected into old age, with decreased economic vulnerability;
(b) people have a higher disposable income and they can afford more children.

It is expected that the ultimate **outcome (impact)** of the process will:
(a) decrease the need for sons in Georgian society, which would lead to a decline in GBSS;
(b) reduce the pressure on selective abortions, which would lead to a decline in GBSS.

The figure below illustrates the theory of change:

Figure 12. Theory of change



Source: This figure is based on the theory of change developed by Rahm (2018). Policy Impact Analysis on Son Preference in Azerbaijan: Research Guidelines. UNFPA Azerbaijan.

2.2. QUALITATIVE AND QUANTITATIVE ANALYSES

This study is based on **quantitative and qualitative analyses,** and **aims** to (1) investigate the impact of socio-economic policies on the decline of the SRB in Georgia and to (2) analyze the socio-economic factors behind variations in SRB and whether changes in macroeconomic conditions are correlated with such variations.

Qualitative analysis

This qualitative analysis is used to capture the heterogeneity of socioeconomic conditions and cultural attitudes, and to explore the links between macroeconomic conditions and social protection schemes with variations in the SRB. Accordingly, in February-April 2019, focus group discussions (FGDs) and in-depth interviews (IDI) were conducted in four Georgian regions: Kakheti, Kvemo Kartli, Samtskhe-Javakheti, and Samegrelo-Zemo Svaneti.[49] Kakheti, Samtskhe-Javakheti, and Kvemo Kartli were chosen for having the highest SRB levels and Samegrelo-Zemo Svaneti because it has shown the largest improvement in Georgia within the period (see table 3). The in-depth interviews were conducted with medical personal, local authorities, experts, and NGOs specializing in gender issues.[50]

Four FGDs were conducted with both women and men, separately, in each region. The focus group participants were sorted by family composition (women and men with only daughters vs. a composition of mixed children). Thus, the study aimed to have more homogenous focus groups in terms of son preference. Almost all FGDs were conducted with parents in schools (only two FGD

[49] The study sites were the Signagi Municipality (Kakheti), the Zugdidi Municipality (Samegrelo-Zemo Svaneti), the Ninotsminda Municipality (Samtskhe-Javakheti), and the Marneuli Municipality (Kvemo Kartli). The focus group discussions and in-depth interviews were conducted by ISET Policy Institute.

[50] Within the scope of the study, in total, twelve interviews were conducted in four different regions: Kakheti, Kvemo Kartli, Samtskhe-Javakheti, and Samegrelo-Zemo Svaneti. Six with medical personnel, five with local NGO representatives, and one with a municipality representative.

in Kakheti were conducted with fathers in a preschool). Consequently, the study limited its participants to individuals with children of school and preschool age. The research team aimed to capture parents who had made their child-rearing decisions within the last 18 years. The FGDs in Samtskhe-Javakheti and in Kvemo Kartli were conducted in Armenian and Azerbaijani, for the Armenian and Azeri ethnic minorities, respectively. The research team wanted to ensure the highest levels of openness from the respondents, and it was therefore decided to conduct the focus groups in the participants' native languages, without simultaneous translation. The remaining FGDs were conducted in Georgian.

At the beginning of each FGD, the level of son preference was identified for all groups. To obtain a precise picture, a short questionnaire was distributed among participants. Son preference was measured by asking the participants to rate the extent of their agreement or disagreement with the statement, **"I think that it is necessary to have at least one son",** on a scale of one to five (Murphy et al., 2011). The results are not representative on a regional level, nevertheless they provide an impression of the extent of son preference in each particular focus group. In addition to son preference, the questionnaire gathered information about participants' basic demographics, like their number of children and ideal number of children, along with identifying the sex of their existing children. A descriptive summary for each FGD based on this questionnaire is provided below (Annex 3).

The FGDs aimed, in general, to investigate parents' expectations towards children, trust in the government, the role of the women in their society, inheritance practices, family planning, the stigma of not having a boy, dowry practices, and attitudes towards selective abortions. The questions were designed to reveal current societal views and as to how such views have changed over the last 15 years. The focus group questions were structured so to capture all supply and demand-side factors affecting GBSS and designed to identify factors contributing to recent reductions in SRB levels.

For the analysis performed within this report, the data has been made wholly anonymous, although standard locational and demographic descriptors are available to identify locations. All the interviews and focus group[51] were recorded, translated, and transcribed into English. Additionally, the focus groups and in-depth interviews were organized and analyzed using NVivo software. Initially, the transcripts were coded, which involved gathering all references to a specific topic, e.g., GBSS awareness and the effect of socio economic policies on GBSS. This process generated further ideas and helped to identify patterns in the research material. Moreover, using Nvivo, a word frequency search highlighted the most common terms in the transcripts, from which relevant word clouds were generated.

One of the main challenges the study encountered was the proper selection of focus group participants. As the FGDs were conducted in schools, the research team became heavily dependent on principals and teachers to ensure the participation of parents in the relevant group type (women with mixed children, women with only daughters, men with mixed children, and men with only daughters). For instance, in the Zugdidi and Marneuli municipalities, the requirements for children's gender composition were not met, and the team ultimately conducted the focus groups with female participants with mixed sex children and those with only girls together.

The second instrument was in-depth interviews with medical personnel, local authorities, experts, and NGOs specializing in gender issues.[52] The aim of the interviews with medical personnel was to discern the perspective of local professional regarding the existence and dynamics of GBSS practices in their regions; to

[51] There were, on average, nine participants per focus group, with a mean age of 38. Annex 3 presents a detailed description of the FGD participants, by region, and provides descriptive statistics of their answers to the short questionnaire.
[52] The interviews were conducted in person and by telephone in the above-mentioned regions.

probe their awareness of the regulatory framework and recommendations (not revealing fetal sex during the early stages of pregnancy), targeted to circumvent such practices; to check the effectiveness of these regulations; and to obtain their views on how they envisage solutions to unresolved issues. The interviews with local medical workers appeared to be very informative, as they offered supply-side information from a different perspective.

The aim of the in-depth interviews with local NGOs and municipality representatives was to probe into awareness of regional practices; to study perceptions on the dynamics of GBSS and the channels where socio-economic changes have an affect; and to realize how the participants envisage solutions to yet unresolved problems.

Each of these instruments has its advantages and limitations. Combined, however, they provide an effective way to explore (a) the impact of socio-economic policies on the evolution of sex ratio at birth; and (b) the analysis of socio-economic factors behind variations in the SRB, and whether changes in macroeconomic conditions correlate with changes in the SRB. Thus, this research represents a unique database from which to study determinants of SRB reduction in Georgia.

Quantitative analysis

The quantitative analysis covers quarterly data from the fourth quarter of 2005 to the fourth quarter of 2018.[53] This interval is restricted due to data limitations; the first quarterly birth registrations being available only from the first quarter of 2005. Concerning the cross-sectional dimensions of the panel data, the study includes nine regions: Adjara, Guria, Imereti & Racha-Lechkhumi, Kakheti, Samegrelo and Zemo Svaneti, Samtskhe-Javakheti, Kvemo Kartli, Shida Kartli and Mtskheta Mtianeti, and Tbilisi.[54] The quantitative analysis is based on the assumption that ultrasound technologies have been unconditionally accessible and affordable for patients for the last 15 years. This was substantiated by the IDIs and FGDs during the qualitative part of the research (respondents agreed that there are enough reproductive healthcare centers and hospital throughout Georgia, and that the price for such ultrasound services has been affordable for the majority of the population within this period).

The key variable within this study is the **sex ratio at birth**, thereby discerning GBSS by calculating the number of newborn boys per newborn girls. The main data source is the birth registration database, provided by the National Statistics Office of Georgia (Geostat). To further diminish the high volatility of the quarterly SRB data, we employed a simple moving average formula (SMA), a widely accepted method.[55] It is notable that the dynamics of SRB are fairly diverse across the regions (e.g., the declining trend in SRB was relatively fast in Tbilisi and western Georgia, compared to Samtskhe-Javakheti or Kvemo Kartli), which makes regional analysis more valuable in identifying factors affecting sex selection.

However, the two main limitations of the study are: (1) a limited time period, not covering the trend reversals of SRB (the SRB reversed its upward trend in 2004 [see Annex 1]. Thus, the quantitative analysis does not include the period when the SRB increased); and (2) due to the quarterly frequency of the regional data, the number of births in the smaller regions is sometimes quite low, which leads to highly volatile ratios, however, aggregation of the regions and smoothing out the data by applying a SMA formula alleviates this problem. The sex ratio at

[53] The observations corresponding to the first three quarters of 2005 have been lost after smoothing out (making it less fluctuating) the sex ratio at birth and crude birth rate using a simple moving average (SMA) formula.
[54] We aggregated certain regions (in particular, Imereti and Racha Lechkhumi, and Shida Kartli and Mtskheta Mtianeti) due to notably lower number of births or data availability issues related to the economic and social variables. However, all the aggregated regions remain homogenous in terms of socio-economic characteristics (e.g., the shares of ethnic minorities in the total population [capturing values and socio-economic characteristics] are quite similar in the aggregated geographic locations).
[55] Each observation represents the average of the last four quarters (including itself).

birth is considered the only dependent variable in the quantitative analysis of this study.

We further identified groups of regressors describing the socio-economic and policy factors responsible for changes in the sex ratio at birth:

(1) Fertility rate, identified by the crude birth rate (CBR- the number of live births per 1,000 people). The crude birth rate, like the sex ratio at birth, has been tempered using a simple moving average formula (described above).

(2) Improved economic conditions, defined by poverty rate (Edlund, 1999) and average monthly income. The poverty rate is measured by the share of families with total income lower than the subsistence minimum across the total number of families, while the average monthly income covers all cash (wages, income from self-employment, from selling agriculture production, property income, pensions, scholarships, assistances, remittances from abroad, and money received as a gift) and non-cash income.

(3) Labor market statistics, calculated by female, male, and total participation rates, and female employment, excluding the agricultural sector. The exclusion of female, male, and total unemployment measures is due to notable data-related issues: (i) the non-working population, those not actively looking for a job (people who have abandoned finding a job or housekeepers in unpaid care), are out of labor force and, thus, ignored in the calculation process for unemployment rates; (ii) the self-employed population, typically owning (but not exploiting) agricultural land and those involved in the subsistence agriculture sector (not formally employed) are considered to be employed (although they simply grow products to feed themselves and their families). These problems lead to a prominent underestimation of unemployment rates and poorly described trends in the labor market. Thus, the quantitative part of the study is focused mainly on labor participation and employment (excluding agricultural) measures. The quantitative analysis also studies the impact of labor market participation gaps on GBSS.

(4) The government's social policy variables, shown as the average number of beneficiaries of: (i) the TSA (supporting people under the poverty line); (ii) the Demographic Support Program (supporting families living in demographically sensitive regions with over three children); and (iii) the Pregnancy, Childbirth, Childcare, and Newborn Adoption Program (helping parents, through governmental compensation, to take maternity leave and spend more time with their newborns) per 1,000 citizens. Governmental social policy variables also include healthcare measures: the number of beneficiaries of the Universal Healthcare System per 1,000 citizen and the coverage rate of healthcare programs (the proportion of the population included in the following healthcare systems: the State Program of Health Insurance (2011 - 2013) and the Universal Health Insurance Program (2013 - 2018)).

(5) Education variables at the macro level, from the proportion of the male/female/total population with at least a BA degree, above 20 years old. The study also investigates the impact of the education-gender gap (the differences between male and female education) on GBSS.

(6) Societal values, regarding the divorce rate (the number of the registered divorces per 100 people) and the average marital age (the weighted average marriage age, the number of people married in each particular age group). The rationale for these variables lies in the increasing trends in divorce rates and the average marriage age. These could thus be interpreted as a sign of female empowerment and positive changes in the Georgian value system, which may potentially reduce son preference and female disadvantages in natality. In addition, we included the interaction term the female employment rate (excluding agriculture) and divorce rate, to capture the effect of female employment on the sex ratio at birth via an improved societal value system.

(7) Ethnicity, the proportion of non-Georgians within the total population.

(8) The Patriarch's initiative, captured by a dummy variable taking the value of 1, after the Patriarch's announcement to personally baptize every third child (from the first quarter of 2008). Nevertheless, it should be noted that Georgia was at the epicenter of important geo-political and economic developments in 2008 (namely, the 2008 military conflict between Russia and Georgia and the global financial crisis of 2007-2008). Therefore, it is difficult to separate the impact of the Patriarch's initiative on the sex selection.

The descriptive statistics of the variables employed in the econometric model are presented in table 18 in Annex 5.

Since the study employs both standard and spatial panel data models, we first tested the variables using the standard panel data stationarity tests (Im-Pesaran-Shin, Levin-Lin-Chu, & Harris Tzavalis unit root tests).[56] All the variables, except the government healthcare system measures and the divorce rate, were stationary and, hence, we calculated the quarterly difference of the abovementioned non-stationary variables and included them in the regression analysis. To avoid a multicollinearity problem, we have not included the highly correlated variables simultaneously in the econometric model (e.g., family poverty rate and average monthly income, labor market statistics and education measures).

In the first stage of the empirical analysis, we employed standard fixed effect and random effect models with a different combination of the explanatory variables. All the independent variables, except fertility rate and the dummy variable of the Patriarch's initiative lag by four quarters in the regression framework (the rationale behind lagging the regressors in the econometric model is that reproductive decisions need at least three quarters to be reflected in the sex ratio at birth).

In the second stage of the empirical analysis, we employed a spatial autoregressive model (SAR) and a spatial Durbin model (SDM) with a random effect and a clustered sandwich estimator (the clustered variable is region), and different combinations of the explanatory variables. The geographic locations of the various regions can be seen to play an important role in explaining the variability of sex ratio at birth. We created a connectivity matrix, (i.e., spatial weights matrix) based on the Queen's Contiguity (contiguity edges and corners - see table 20 in Annex 5), where areas that share an edge or corner are considered neighboring regions. The connectivity matrix was constructed based on an administrative map of the country, presented in figure 18 in Annex 5.

[56] Source: panel-data unit-root tests. Link: https://www.stata.com/manuals13/xtxtunitroot.pdf

CHAPTER

3

Hackathon "Future is Equal"
Photo credit: UNFPA Georgia | Gela Bedianashvili

RESEARCH FINDINGS

3.1 REGIONAL VARIATIONS BASED ON THE RESULTS OF THE SHORT SURVEY

The outcome of the focus group short surveys reveal the existence of son preference in every region studied, with a special emphasis on Kvemo Kartli. It was highly predictable that Kvemo Kartli and Samtskhe-Javakheti would have a significantly higher son preference than the other regions, as they have the greatest extent of ethnic minority populations, and still have highly skewed sex ratios at birth. The results have been summarized as follows:

(a) Son preference is present in every group;
(b) On average, Samegrelo-Zemo Svaneti participants demonstrate reduced levels of son preference over the other regions, as forecast by the SRB regional data;
(c) Kvemo Kartli representatives reveal extremely high son preference;
(d) Parents of only girls usually state lower son preference compared to other participants (the status quo of family composition markedly effects participants' responses to the importance of having a son).

Table 8. Stated son preference by region and FG type

'I think it is necessary to have at least one son' (1- it is not at all necessary / 5- it is extremely necessary to have at least one son in the family)	Women with mixed children	Women with only daughters	Men with mixed children	Men with only daughters
Kakheti	4.6	2	4	3.8
Samegrelo-Zemo Svaneti	3.8	2.7*	3.9	3.7
Kvemo Kartli	5	5*	5	4
Samtskhe-Javakheti	4.3	3.7	3.3	2.7

**Note: the Samegrelo-Zemo Svaneti and Kvemo Kartli groups represent both women with only daughters and women with a mixed composition of children.*

Regardless of the similar levels of son preference in Samtskhe-Javakheti, in Kakheti and Samegrelo-Zemo Svaneti, the son preference level seems to be as high as in Kvemo Kartli, as the further analysis of the discussions shows. Thus, table 8 may have a reporting bias, in which participants do not respond honestly, rather they offer the answer they think the researcher wants to hear.

The respondents also had to describe the reason for their choice to the question presented in table 8. The main explanations given for son preference are the following: **continuation of the family line** and **defense of the country** (the most common reason among ethnic minorities). However, certain participants who show no son preference, and believe it is not at all necessary to have a son, provided the following explanations within the questionnaire:

> *"You cannot choose your child by sex and it is not necessary to have a boy at all" – Male participant with only girls, Kakheti.*
>
> *"What God gifts is enough", "We should be thankful for what God gifts" – Male participants with mixed children, Samegrelo-Zemo Svaneti.*

> *"It doesn't matter if you have a boy or girl; it is important that the child is healthy" – Female participant with mixed children, Samegrelo-Zemo Svaneti.*

The ideal number of children among the participants varies; around three in Kakheti and Samegrelo-Zemo Svaneti, whereas in Kvemo Kartli and Samtskhe-Javakheti it almost always exceeds three children (with the exception of women with only daughters in Kvemo Kartli).

The gender composition for ideal children is biased towards boys (on average) in the three all male groups with mixed children in Samtskhe-Javakheti, and among men with only daughters in Kvemo Karli (these cases have been shaded in table 9). In the remaining groups, the participants are in favor of a number of girls or prefer an equal number of boys and girls.

Table 9. The ideal number of children by region and FG type

Ideal number of children	Women with mixed children	Women with only daughters	Men with mixed children	Men with only daughters
Kakheti - ideal number of children (average)	3.1	2.9	3.1	2.6
Ideal number of girls	1.9	2.1	1.2	1.6
Ideal number of boys	1.3	0.8	1.8	1
Samegrelo-Zemo Svaneti - ideal number of children (average)	3	2.6*	3.1	3
Ideal number of girls	1.8	1.4	1.4	2
Ideal number of boys	1.4	1.3	1.7	1
Kvemo Kartli - ideal number of children (average)	4	2.8*	3.4	3
Ideal number of girls	2	2	1	1
Ideal number of boys	2	0.8	2.4	2
Samtskhe-Javakheti - ideal number of children (average)	3.1	3.4	3.1	3.3
Ideal number of girls	1.4	1.9	1.4	1.3
Ideal number of boys	1.7	1.5	1.8	2

**Note: the Samegrelo-Zemo Svaneti and Kvemo Kartli groups represent both women with only daughters and women with a mixed composition of children.*

3.2 REGIONAL VARIATIONS BASED ON THE FGDS

Topic 1. Family norms and gender systems

(a) Parents in every region expect some **support from their children** when they get older: as respect, care, or financial assistance, and also for their children to love their families and country, and to be educated. All parents from Kvemo Kartli and Samtskhe-Javakheti have well defined expectations for their offspring, while in Kakheti and Samegrelo-Zemo Svaneti, parental expectations seem to be more of a hope and not something obliged of children. For example, fathers of only girls from Kakheti highlight that it is improper to make demands of children in general, thinking it their responsibility to raise children in such a way that they will receive respect and help whenever required. Children's assistance in the future should therefore not be seen as an obligation, rather based on free will.

"First of all, my goal is to raise my children as human beings, I do not do this because I expect something from them" – Male participant with mixed children, Kakheti.

"Hopefully they will return back what we have invested" – Female participant with mixed children, Samegrelo-Zemo Svaneti.

Expectations seem to differ according to child gender in every region. Girls are expected to show more love and attention towards aging parents compared to sons. Moreover, parents emphasize the special importance of sons, as (a) girls are expected to leave the family when they marry and then take care of their parents-in-law; and (b) sons continue the family line.

"I expect support from the son, of course, as a girl will marry and leave, but the son will stay with us. It is inconvenient to live with a son-in-law – a stranger" – Female participant, Kvemo Kartli.[57]

However, respondents in the Kakheti and Samegrelo-Zemo Svaneti discussions mention that despite the often great distances (daughters sometimes live far from the family home), daughters still manage to support their parents. The male participants from Samegrelo-Zemo Svaneti further note the importance of female financial independence, and state that when a daughter is financially dependent on her husband, it may constrain her ability to assist her parents.

Many female participants in Kakheti and Samegrelo-Zemo Svaneti would prefer to live alone in old age, as extended families are considered a source of conflict and inconvenience (they suggest this is a societal change, as multigenerational families were previously a must). They also respect their children's independence.

"A child is not property. You should not make him/her to do anything. Children should be happy and decide himself/herself to live with their parents or not" – Female participant with mixed children, Samegrelo-Zemo Svaneti.

When considering the male participants from the two regions, the preference for nuclear or extended families is never uniform. Some respondents would like to live apart from their married children, while others would prefer to live with their sons.

"I prefer to live with my son. I do not like the idea of living with my daughter's spouse. The daughter-in-law can at least make coffee" – Male participant with mixed children, Kakheti.

This quote expressively highlights that, despite the normalization of GBSS, patrilocal family arrangements and gender stereotypes (e.g., the ability of female, and not male, in-laws to make coffee) are still persistent in modern Georgia.

Extended families are deemed preferable in Samtskhe-Javakheti and Kvemo Kartli in every FGD. However, participants highlight the increasing willingness of younger males to live separately from their parents. They emphasize two reasons behind such a change: (1) **fear of conflict between** their wives and mothers, created by tense relationships between mothers and grandmothers; and (2) the changing youth views, heavily influenced by foreign friends.

"15 years ago, families with three or four sons used to live under one roof, while nowadays such families even rent an apartment, house if they cannot afford to buy a new apartment, house and prefer to live alone" – Male Participant with only girls, Samtskhe-Javakheti.

Annex 4 presents data from the recent 2019 Caucasus Barometer survey. It presents how expectations towards children differ by gender and what is distribution of answers based on respondents' sex and settlement type across Georgia. When asked "how do you think, who

[57] Kvemo Kartli groups represent both female with only daughters and female with a mixed composition of children.

should take care of the parents more, boys or girls, or both equally", majority of respondents think that both, boys and girls should take care of their parents equally, and the share of respondents who think so is higher in capital and urban settlements compared to rural ones.

(b) FG participants in all regions confidently claim that the **role and rights of women** in the family, and in society at large, have increased over the last 15 years. However, the reasons and magnitude of the change appear different according to the region.

In Samegrelo-Zemo Svaneti and Kakheti, **female economic empowerment** and changes in **gender stereotypes are** viewed as a driving force of this change. They offer the example of more women currently driving cars or more serving as local police officers. Women have also become more actively involved in the local labor market. According to the participants, structural transformation in the service sector has created new job opportunities for women in banking, retail trade, and other office related jobs. The participants also mention the importance of female emigration and the remittances that they send to support their families. The male participants in Samegrelo-Zemo Svaneti further noted the employment opportunities for women outside Georgia (Turkey, Greece, Italy, Germany). While certain participants from Samtskhe-Javakheti acknowledge increased female employment opportunities due to a structural transformation in the service sector, but only in urban areas. They suggest economic opportunities for women in rural areas, where typically individuals are self-employed in agriculture, have not yet changed.

While the Georgian, and a section of Armenian, participants think that economic empowerment, coupled with changing gender stereotypes, was the main driving force improving female roles, the Azeri minorities focus only on the **changed gender stereotypes and norms:** now women drive cars, are working, going abroad, and are becoming more educated than before. The respondents suggest that the main factor behind this change is the development of communications, such as the internet and television (via Turkish soap operas), and female migration. Via these mediums, women learn how they are supposed to behave, how they can dress, etc.

> *"In the 2000s women could not go to Turkey[58] to work and drive a car";*
>
> *"Women's roles have changed in society. They were forced to wear long skirts, nowadays everyone wears short ones";*
>
> *"Women are driving cars; this is how the role of the women has changed. However, when women are driving, people still have negative attitudes. When a woman drives, other women like it, while men do not";*
>
> *"In our society, when women work, it is acceptable, but there are no working places for them" – Female participants, Kvemo Kartli.*

Considering such examples and personal stories, it seems that regardless of positive change, female empowerment is still very limited in the Azeri community. This is partly due to their values and somewhat because there are too few available economic opportunities. Female participants, moreover, state that in their region women and men are simply not equal.

Despite these visible changes, family gender roles seem to be more rigid and predefined across the regions surveyed: (a) women complete household chores while men work outside; (b) men have recently become more involved in rearing children, but are still not level with women (for example, fathers often help their children prepare schoolwork (e.g., in math), walk them to school or kindergarten, play with them, dress and feed them, or change diapers. Fathers sometimes also attend parent meetings in schools). Armenian ethnic minorities often mention **the Caucasian mentality** when discussing household task divisions and explain that husbands are supposed to take care of finances and women household tasks.

[58] The reference here is again not to Europe, but Turkey.

"It is wives' responsibility to take care of preparing meals, cleaning, and our task is to work outside of the house and earn money for our families" – Male participant with only daughters, Samtskhe-Javakheti.

From the FGDs, it is evident that the decision making process has shifted towards the more equal participation of men and women throughout Georgia ("'I am a man and everything has to be done as I want' - this stereotype is broken" – Female participant, Samegrelo-Zemo Svaneti), nevertheless men remain at the head of the household.

"The male is the still the head of the household", "The male is the main decision maker in the family. You have to listen to your wife, but the final decision is made by you" – Male participants with mixed children, Samegrelo-Zemo Svaneti.

"Husbands are still the decision makers within the household, while now they take into consideration their wives' opinions, unlike before" – Female participant with only daughters, Samtskhe-Javakheti.

(c) The FGDs revealed that attitudes towards **inheritance** are similar in Kakheti and Samegrelo-Zemo Svaneti and differ very much from the other two regions. Parents usually bequeath property to their sons ("Sons always have priority" – Male participant, Kakheti). The transfer of inheritance largely depends on the quantity and quality of the property. The main cause of the unequal inheritance distribution among sons and daughters is due to the expectation of sons to remain with their parents, while daughters are expected to get married and live with their husbands' family. If parents only have a single home, they will not sell it and distribute the capital between their children. However, if a family has more than one property, or the son has an opportunity to live separately, the inheritance might be divided between daughters and sons. According to the participants, the situation has not changed significantly over the past 15 years.

Although all participants described the customary societal rules of inheritance, their tone and attitudes remain quite different. In most cases, women, as observers, described the existing practices of inheritance, providing the facts and underlying reasons for unequal inheritance practices. Whereas men discussed the issue as actors, which underscores that, regardless of the increased role of women, men remain the key decision makers. They also suggested how they will distribute their own property in the future, for instance, fathers of only girls (in Kakheti) pointed out the importance of inheritance for girls' independence.

In the Samegrelo-Zemo Svaneti region, the interesting practice of providing land to married daughters emerged during the discussions; where land is given when a house is inherited by a sibling. This practice seems not to be new and existed over 15 years ago. Although, the research team did not encounter such a practice, or it was not mentioned, in the other regions. The male participants from Samegrelo-Zemo Svaneti, remarkably, do not distinguish between daughters and sons in terms of supporting their families.

"It depends on who is in need. A son-in-law is the same as a son. Their problem [daughter's family] is my problem" – Male participant with mixed children, Samegrelo-Zemo Svaneti.

Customary inheritance rules (bequeathing property to sons and providing a dowry to daughters) are still practiced in Kvemo Kartli and Samtskhe-Javakheti, and there have been no changes in these traditions.

Annex 4 presents shows respondents' views how inheritance has to be distributed among sons and daughters through the county by sex, settlement type and education level. These finding are in line with FGD and provide additional evidence in this regard.

(d) Dowries, in general, are a cause of sex selection, as they increase the costs daughters' families must bear (WHO, 2011). They are also a significant demand factor in some countries (for example in India). Therefore, the subject of dowries was included in the FGDs to identify, crucially, whether families perceive daughters to be

costlier. The FGDs showed very clearly that regardless of dowries, **daughters are not considered to be costlier than sons in Georgia.** However, within ethnic minorities, boys are sometimes associated with higher expenditures, as parents have to provide their sons with houses, cars, etc. Dowries are considered to be an outdated tradition in Kakheti and are no longer "a must". Nevertheless, in Samegrelo-Zemo Svaneti and in Samtskhe-Javakheti, the dowry is, to an extent, still important. Currently, this tradition is preserved in lesser forms. The participants stress the importance of social opinions towards dowries. Although no longer a necessity, some families still push to be able to offer a dowry. According to the FGDs in Samegrelo-Zemo Svaneti, some rarely even take loans to cover their expenses. While in Samtskhe-Javakheti, the participants suggested that some mothers-in-law still might become dissatisfied if a bride does not confer a dowry.

Whereas, the Azeri community appears to hold a different approach. Each focus group discussion revealed that the dowry is still important in their society. While it is not necessary, it is a notable tradition, and every family tries to offer a dowry for their daughters. They, at times, even take loans to be provide a dowry of greater value than their neighbors. The dowry defines the status of a women in a family; girls who do not receive a dowry are often pressured by their mothers-in-law. The tradition of the dowry has not changed over the years. However, the amount has significantly increased increased (from approximately 5,000 GEL (1,689.2 USD) of net worth in 2000, up to 10,000 GEL (3,378.4 USD)). It must be noted that, regardless of the importance of a dowry, daughters are still not perceived as a cost in the Azeri community. While boys are deemed dearer, since parents build them houses, buy them gold and cars, organize weddings, etc.

(e) The FGDs all highlighted the existence of a **stigma for not having a son.** The participants show that son preference exists in their societies largely because of the continuation of the family line. These results coincide with the findings of the short surveys completed prior to the FG. Not having a son is not a subject of humiliation, but a source of a mild joke from a close friend or within society.

> *"Children's sex depends on God's will. It is better to have both a boy and a girl, since each is associated with different experiences and feelings" – Male participant with only girls, Kakheti.*

All participants, with the exception of Samtskhe-Javakheti residents, believe that son preference and the associated stigma is less powerful than in the early 2000s. The FG participants from Samtskhe-Javakheti, though, note that there has been no change and having a son is still as important as ever.

Female participants from Samegrelo-Zemo Svaneti and Kakheti state that the absence of a son is much more painful for fathers, and it is usually husbands and their parents who have a strong desire for male lineage.[59] Nonetheless, mothers of only girls suggest that they have not encountered problems within their families.

IIn Kvemo Kartli, people feel a sense of pity for families with only daughters. The main societal concern is that no one can support the family after daughters marry; sons increase the family status in society and continue the family line, while daughters simply marry and leave. There is also pressure from parents-in-law when a family is left without a son. Male respondents recall that rich men would be laughed at in the past for failing to have a son, since they could not pass on their accumulated wealth.

The issue **related to infertility** was mentioned among the group of fathers with mixed children in Kakheti and in all four of the FGs in Samegrelo-Zemo Svaneti. Participants (in these regions) believe that, as infertility has become common challenge for couples, the health of a fetus has become more important, rather than its sex. This potentially offers an interesting explanation as to why the stigma behind not having a son has weakened over time. In relation to that, our research team studied

[59] This finding coincides with our finding from the qualitative research, presented in the next section, which shows that male education is significant and decreases SRB in Georgia.

the aggregate data to explore trends with regards to reproductive problems in Georgia, confirming that infertility problems have increased since the 2000s[60]. Unfortunately, research team didn't possess the regional level data to compare it against SRB trends, nevertheless, this could still potentially explain why SRB reverted to its normal level.

> *"A child is a child, regardless of sex. The most important thing is health of the child" – Male participant with only daughters, Kvemo Kartli.*

Topic 2. Economic changes and governmental policies

(a) Participants from Kakheti, Samtskhe-Javakheti, and Samegrelo-Zemo Svaneti are dissatisfied with the current economic situation, and their **expectations and level of trust towards the government** is extremely low. Respondents from all the focus group agree that living conditions have improved over the last 10-15 years (i.e., improvements in electricity, water supply, gas, etc.), but social conditions are still unsatisfactory. They also still observe many extremely poor families and an over-indebted population, and they continued to complain about high unemployment rates, low wages, and a lack of job opportunities. Consequently, migration was discussed as a survival strategy to cope with the severe economic situation.

> *"Almost everyone in our village is waiting for a remittance. People from every second family have left their families. They work in Russia, Turkey, Italy, Poland";*
>
> *"Everyone leaves, the new generation, youngsters. Females are leaving and working as housekeepers. Some are leaving seasonally to work in tea plantations, females and boys too, in textile factories" – Male participants with only girls, Samegrelo-Zemo Svaneti.*

Participants from Kakheti and Samegrelo-Zemo Svaneti regard social assistance programs, TSA and Universal Healthcare, as more helpful than pensions. Most of them are satisfied with the Universal Healthcare System and acknowledge that both the access and the quality of healthcare services has improved. Yet, there are complaints about the related high out-of-pocket expenses; for the diagnostic process, analysis, medicine, etc. The respondents also highlight the drawbacks of TSA, noting that it only helps families in need and does not provide assistance in moving out of poverty, nor does it provide incentives to work or improve a family's economic condition.

> *"We cannot rely, hope on the state. I rely on myself. The state is us","One thing we know is that we will have a pension once we get old" – Male participants with mixed children, Samegrelo-Zemo Svaneti.*

Expectations, levels of trust in the state, and the assessment of the economic environment is very different among the Kvemo Kartli ethnic minorities, and there is also huge difference between the genders. This pattern is not characteristic of ethnic Georgians or Armenians in other regions.

The Azerbaijani minority appears quite different in many regards. Females in both groups have **extremely high hopes and trust** in the state. As Georgian citizens, they expect higher pensions and better social assistance programs in the future. Though this attitude was also prevalent in the 2000s, and nothing has changed. It should be noted that both groups stress the fact that they are citizens: *"We are citizens of this country and hope that the state will always help us", "We are living in this country and have hope, trust that it will provide everything needed".* However, they mention that the state, currently, is only providing their pensions, and some healthcare assistance for pensioners, but nothing more. Some are even unaware of the social assistance program.

Men from the FGDs **do not trust and have no expectations towards the government.** They are unsatisfied with available healthcare services and social assistance programs. One father with only girls complained that he was denied targeted social assistance even though he has four children.

> *"Georgians have only one child and still get this assistance. They do not explain the reason of denial. They only said that I do not have a sufficient score. What is this score? I have no idea, no one explained it. The government cares about us only before elections" – Male participant with only daughters, Kvemo Kartli.*

The FGDs showed that ethnic minorities in Kvemo Kartli find barriers accessing state support programs due to miscommunication, a lack of information, and language constraints. This remains a viable topic for further research, as similar cases were found within Armenian ethnic minorities in the Samtskhe-Javakheti focus groups. This is one possible explanation as to why ethnic minorities still sex select in Georgia. For instance, mothers are satisfied with the current economic conditions, though they do not acknowledge the role of state in this.

> *"New houses are built, people are buying new cars, everybody is living well, but the government has no role in achieving this. People did everything themselves" – Female participant, Kvemo Kartli.*

Male participants from Kvemo Kartli are also dissatisfied with the economic situation in the country, and criticize increasing prices, the costly and technical monitoring of cars, and the lack of employment opportunities. Some participants even think that economic conditions have deteriorated over the last fifteen years.

Migration and remittances are considered the main contributors to individuals' economic prosperity in the region. This view is shared among all participants. Unlike their Georgian counterparts, they mention Azerbaijan, Turkey, and Russia (though no other country) as potential destinations for Azeri migrants. Russia was also mentioned as the main destination for the Javakheti population, where typically men are forced to go abroad; and in very few cases Germany or Poland too. As a result, remittances are the main source of income for the majority of families. However, the participants state that depreciation of the Russian ruble has also reduced the purchasing power of remittances. Thus, the main destination countries for migration are different for Georgians than for ethnic minorities. Georgians mainly migrate to western and eastern Europe, while ethnic minorities opt for Azerbaijan, Turkey, and Russia, and consequently their exposure to Western values and norms are limited. Different migration destinations can further serve as an additional explanation for the GBSS practices in Kvemo Kartli and Samtskhe-Javakheti.

(b) The educational 1+4 program for ethnic minorities and its importance was discussed during the FGDs in Samtskhe-Javakheti and Kvemo Kartli. The levels of awareness for the 1+4 program are very different among male and female participants in both regions. Awareness among male ethnic minorities is extremely low, emphasizing fathers' limited involvement in their children's education (discussed above).

The participants did acknowledge the importance of the program for several reasons: firstly, it offers youngsters the opportunity to learn Georgian, which enables better integration into society; and secondly, it provides an opportunity to receive a higher education in the country. Armenian participants noted that prior to the program, school graduates tended to acquire higher education in Armenia, while the program provides the stimulus to stay and receive a higher education in Georgia.

> *"When I was studying in 1998-1999, Georgian was taught once a week, now it is taught five times and considered a native language" – Female participant, Kvemo Kartli.*[61]

The focus group discussions showed that the 1+4 program is beneficial not only for those two aspects

[61] This focus group was conducted in the Azeri language, as none of the participants knew Georgian fluently.

discussed (integration to Georgian society, receiving higher education), but also because it has a very distinct gender aspect. In particular, it reduces barriers for Azeri girls receiving an education (general and higher) and decreases the probability of early marriage.

> *"When this program did not exist, girls got married right after graduating from school, or even in the 9th, 10th grades. Only one or two girls, who were really smart, continued to study and enrolled in universities themselves [without any bribes]. Now this program exists and parents give more possibilities for children to study and work" – Female participant, Kvemo Kartli.*

However, the take up rate of the 1+4 program appears low in Kvemo Kartli and the reasons are gender specific. For girls, early marriages prevent them benefitting from the program, and there is still a stigma on girls who study in the city.

> *"Girls who are studying there [in the city], people gossip about what is she doing there. Parents are afraid of such gossips and force girls to marry at an early age" – Female participant, Kvemo Kartli.*

In the case of boys, from both regions, they do not see the benefits of higher education, as there are limited employment opportunities in their society, and instead largely consider migration, where higher education is deemed unnecessary. The main source of employment in the region is within agriculture and thus people think a higher education is not required.

> *"I wanted my son to get an education, but he responded: look around, nobody studies, everyone is going to Moscow and is building big villas there. I do not want the smell of cows and sheep, neither on myself nor in my house" – Female participant, Kvemo Kartli.*

Topic 3. Demographic behavior

(a) The FD participants' views on **fertility** were quite different throughout the regions. For instance, in Kakheti, every participant thinks fertility has increased within the last 15 years, from a combination of two factors – improved financial conditions and an increased desire for more children. While in the other regions there is no common viewpoint; some believe it is increasing as economic conditions have improved, while others simply disagree. Such proponents of decreased fertility note several reasons: (a) economic conditions act as constraints, some families want children but remain incapable; (b) societal preference for quality vs quantity has shifted towards the quality of children (mentioned in Samegrelo- Zemo Svaneti and Samtskhe-Javakheti); and (c) male migration and the separation of families (mentioned in Kvemo Kartli).

Georgian participants in Kakheti and Samegrelo-Zemo Svaneti who acknowledge an increase in the fertility rate emphasize the Patriarch's initiative, to personally baptize families' third and consecutive children, as a significant factor behind increasing fertility rates. The state Demographic Support Program (including state financed childbirth policy) is also viewed as stimulus for having an additional child, although they do not consider it a driving factor behind increased fertility. The FGD in Kakheti identified that having two children is quite common and culturally accepted in Georgian families, yet having three or more children depends on various factors, including financial and social assistance programs, which may act as an additional incentive in childrearing. However, the FG participants complain about the subsidy, considered insufficient to raise a child.

> *"Having 150 GEL [50.7 USD] on a third child, for only two years, cannot stimulate having three kids. This amount is very low, is not enough for pampers even" – Female participant, Samegrelo-Zemo Svaneti.*

As in the case of TSA, ethnic minorities are poorly informed regarding the Demographic Support Program (some are even unaware of its existence) and they see no role of the government in increased fertility. The rise is connected predominantly to better financial conditions within families. This then strengthens the previous point that there appear to be barriers between ethnic minorities and different state programs.

"The state has not even a minimal role in increased fertility";

"The state does not have any support programs. Parents are doing everything themselves. For example, when you take a child into a hospital there is not any discount";

"Those whose financial conditions are better have the possibility to have more children. When you go to a hospital, even an injection from a needle costs a lot" – Female participants, Kvemo Kartli.

An additional point raised by Azeri ethnic minorities was the absence of a kindergarten in their village and the increased burden of childcare for mothers.

"Fertility went down. Now it is harder to raise a kid as there are no kindergartens to send children and thus, we could work. There are no such opportunities and afterwards we say that women do not go out of the house" – Female participant, Kvemo Kartli.

It should be noted that this group from Kvemo Kartli also misunderstood and seriously overestimated how demographic support programs work in Russia, which again reflects the lack of relevant information within this society.[62]

"Fertility has increased in Russia, as the Russian government is giving an apartment on the birth of the third child. Education is free for the fourth one. If Georgia would have the same support programs, fertility would go up" – Female participant, Kvemo Kartli.

(b) We wanted to see how independent couples act regarding **family planning** and whether they ever apply such planning.[63] The topic was widely and openly discussed in the female groups. Though, the male participants felt less comfortable discussing it. After some time, however, male participants in Kakheti and Samegrelo-Zemo Svaneti grew, relatively, open and even shared their personal stories about how they accompanied their wives to clinics or attended a birth. Family planning is practiced in the regions of Samegrelo-Zemo Svaneti and Kakheti, but typically only after the first child. In general, couples prefer to have a child within the first year of marriage, although there are a number of cases when new couples delay their first childbirth, particularly young couples. The reasons for delaying a family are, for instance, the desire to finish studies, economic conditions, careers, etc. The participants think that the usage of contraceptives is currently much more common than before. Nevertheless, due to a lack of financial resources and relevant sex education, poor families often still do not use contraceptives. Participants felt very neutral about family planning and did not express any negative attitudes, except for one woman from Samegrelo-Zemo Svaneti who was against it on religious grounds and a few male participants from Kakheti – *"It is God's will to decide when to have children" – Male participant with mixed children, Kvemo Kartli.*

The male participants from Kakheti linked family planning to the situation in the labor market and various related policies, and suggest female employment plays a major role in family planning. They also emphasized the positive role of maternity leave, and the amendments to the labor code, which prohibits the firing of women during pregnancy and after childbirth.

Ethnic minorities have another distinct perception about family planning in their culture. Most FG participants from Samtskhe-Javakheti and Kvemo Kartli think that it is simply not practiced in their society. After a marriage, a woman is expected to give birth immediately; otherwise, she, and not her husband, will be thought to have reproductive health problems. The pressure comes

[62] Russian TFR is characterized below the replacement rate. According to UN data, TFR in Russia is estimated at 1.82 for 2015-2020. Source: United Nations, Department of Economic and Social Affairs, Population Division (2019). *World Population Prospects* 2019, Online Edition.
[63] Family planning allows people to attain their desired number of children and determine the spacing of pregnancies. It is achieved through use of contraceptive methods and treatment for infertility (WHO definition). The terminology was explained to FG members.

expressly from parents-in-law and neighbors. Moreover, due to widespread reproductive diseases, giving birth immediately is a remedy for parents to escape societal pressure.

> *"Till a child is born, they [new couple] are worried, they stop worrying only when a child is born";*
>
> *"If a girl is 16 years old, it still is possible not to have a child immediately, but she must deliver in 1-2 years" – Female participants, Kvemo Kartli.*
>
> *"I would say that we, Javakhetian people, are far behind the mindset that Tbilisians and Armenians in Yerevan have as well. It is now becoming popular in both places for a couple to live together, then decide whether they are soulmates and only afterwards get married and start a family. Yet, we are stuck with our Caucasian mentality. We expect a child, preferably a son, to be born right after the marriage. If there is no child in the nearest years, then our neighbors and acquaintances will gossip that the couple has health issues concerning reproduction, and by the couple, it is usually the wife considered as the one who may have health problems. This is how our mentality worked before and the same views are present nowadays" – Male participant with only daughters, Samtskhe-Javakheti.*
>
> *"In the families where there are the fathers- and mothers-in-law, they push the newlyweds to have a child immediately. In Javakheti we bring brides to gift us a son" – Male participant with mixed children, Samtskhe-Javakheti.*

Societal pressure was quite widely discussed in Samtskhe-Javakheti. For instance, mothers with only daughters provided examples of neighbors gossiping, and even blaming one daughter-in-law for infertility because she had not immediately had a child after her marriage; consequently, she was kicked out from their house for not having a child. According to the participants, these attitudes have always been present, and there have been no changes in opinion.

Nevertheless, compared to Armenians, Azeri ethnic minorities maintain less societal pressure to give birth immediately after a marriage. For instance, men with only daughters from Kvemo Karli state that family planning depends on the household. Couples can decide when to have a child, however, if they delay too long, relatives become worried that the woman has health issues. They also raised the issue of youth marriage and claimed that the new law, banning marriage before 18, is positive – *"before, girls of age 12 were forced to marry."*

The further topic of whether men accompany their pregnant wives to reproductive healthcare centers, and how this practice has changed, was also discussed during the discussions. They revealed that men currently accompany their wives more often to gynecologists, whereas, previously mothers- or sisters-in-law would aid them. The participants explained that such a change was brought on because, firstly, men simply did not want to attend, though they now have the desire, and secondly, couples previously had to travel by bus (where now, almost everyone has a car) and it was shameful to publicly reveal that they were visiting a gynecologist. Thus, improved economic conditions and changes in values have led to the increased involvement of men in the process. Some Azeri participants are still skeptical about this change, and claim that even if men do accompany their wives, they wait outside as they are too shy to enter the doctor's office. It seems therefore that this situation is changing, but unevenly.

(c) Awareness of **sex-selective abortions** within all four regions is high. Every participant agrees that selective abortions were once prevalent, though they have since decreased. This is a very significant finding, as in 2014, the level of public awareness towards son preference was limited, especially outside of Tbilisi (UNFPA, 2015). The level of awareness itself, and recognizing it as a problem, is an initial step towards the long-lasting process of balancing gender perceptions. Nonetheless, in two regions, **Kvemo Kartli and Samtskhe-Javakheti, the respondents did not problematize the practice of sex selection,** rather they stressed the importance of having a son for the continuation of the family line, whereas in

Kakheti and Samegrelo-Zemo Svaneti, the prevailing attitudes towards GBSS were quite negative.

In Kvemo Kartli, most participants were fairly conserved when discussing the topic, and did not reveal negative attitudes towards sex-selective abortions.

> *"When they have 2-3 daughters, in the case of fourth one, they do abortions. [They think] Why do I need more girls?" – Female participant, Kvemo Kartli.*

When asked about the recent decline in sex-selective abortions, the participants from Kakheti and Samegrelo-Zemo Svaneti provided similar explanations:

(a) changes in values – a decrease of son preference, with increased access to the internet and modern information, alongside Westernization;
(b) religion – people now regard abortion as a sin;
(c) change of doctors' attitudes: the law on sex disclosure;[64] doctors do not reveal fetal sex abortion is permissible.[65] Furthermore, doctors' attitudes encourage mothers to rethink the decision of a selective abortion (the idea was brought up in a group of mothers with only girls from Kakheti, but it was not shared by all participants).

Aside from these reasons, improved economic development and greater female employment opportunities were further mentioned in the Kakheti discussion. Where in Samegrelo-Zemo Svaneti they stress: the significance of infertility and the use of artificial insemination; that a family without children will not discriminate fetal sex; the need for better education and the more prevalent use of contraceptives.[66]

The Samtskhe-Javakheti respondents mainly attribute the reduction in sex-selective abortions to **the non-disclosure practice of fetal sex.**[67] However, they suggest that there are cases where ultrasound specialists go beyond ethical conduct and disregard the recommendation on non-disclosure of fetal sex at the early stages of pregnancy by still revealing the sex of the fetus at the demand of parents. This in fact, hints at the prevailing son preference that continues to be present.

> *"We had and have more of that genocide in Javakheti [sex- selective abortions]. It comes from our mentality, to have a son is a necessity. We even know of cases where a wife had serious health problems when pregnant, but because a son was expected to be born, she gave birth under the risks of dying in labor" – Male participant with mixed children, Samtskhe-Javakheti.*[68]

The unethical behavior of ultrasound specialists was also mentioned in Kakheti. According to the participants, revealing the sex of the fetus before the 12th week (during which time abortion is legal) is quite common practice in private hospitals. Interestingly, certain participants recalled their personal stories. For example, one pregnant woman, having her third girl, did not like how the doctor revealed the sex. She felt humiliated on feeling pity in the doctor's tone. While, a father of girls recalled a similar event:

> *"The doctor advised me to get prepared and sit on the chair before they would tell me that it was a girl" – Male participant with only girls, Kakheti*

Thus, it seems that the main contributors to the high SRB in Samtskhe-Javakheti, and also in Kakheti, is a notable son preference, coupled with supply-side factors of the **unethical and inappropriate behavior of ultrasound specialists.** Therefore, this ought to be a core priority for the policy.

It seems that in Samtskhe-Javakheti there is also the additional problem of illegal abortions. The female FGD reveal that women are able to have abortions at home,

[64] The participants see the recommendation for not disclosing fetal sex in early stages of pregnancy as law.
[65] Every FGD from Samegrelo-Zemo Svaneti highlighted that doctors in Zugdidi (conducted in this region) do not reveal fetal sex at all until abortion is no longer permissible.
[66] Participants link the decrease in sex-selective abortions to a decrease in abortions in general.
[67] These participants, as in the rest of Georgia, regard the recommendation not to reveal the sex of a fetus as law.
[68] Such negative attitudes were exceptional in Samtskhe-Javakheti.

either by taking certain pills or by asking doctors to come and perform the procedure. This practice is notable, as abortions in hospitals are fairly expensive (160 GEL/54.1 USD).

Women with only daughters from Samtskhe-Javakheti and Kakheti also highlight the use of the calendar method to prevent pregnancy.[69] While the Kakheti respondents do not believe in this method, respondents from Samtskhe-Javakheti think that it may have reduced the need for sex-selective abortions.

3.3. INTERVIEWS

In-depth interviews with local NGOs and municipality representatives

This section summarizes the results of the in-depth interviews with five local NGO representatives and one municipality representative from the four different regions: Kakheti, Kvemo Kartli, Samtskhe-Javakhheti, and Samegrelo-Zemo Svaneti. The local NGOs and experts interviewed all work on gender-related topics, including GBSS. They organize formal and informal meetings, workshops, and informative campaigns with local communities, including school students, their parents, and teachers.

Figure 13. Frequency of words from the interviews with the local NGO and municipality representatives

[69] The method is a simple chart that matches the day of conception of a future child with the age of the mother on the day of conception. It is sometimes used to determine fetal sex.

The word cloud in figure 13 provides an overview of the issues discussed during the interviews. Here, we will focus on a few issues: GBSS awareness, consequences of GBSS, observed changes, changes in values, violence, the influence of socio-economic policies, and recommendations.

Topic 1: GBSS

All the respondents **are aware** of the practice of sex-selective abortion, which seemingly was not the case in 2014, when a significant number of national and regional experts had never heard of these sex-selective practices (UNFPA, 2015).

The core reasons respondents identify for son preference are the continuation of the family line and familial pride connected to male offspring. The pressure for having sons primarily derives from husbands and their families. The municipality representative from Samtskhe-Javakheti also emphasizes that patrilocal arrangements within families can cause GBSS. She believes men are perceived as the breadwinners, who stay with their families, whereas daughters are regarded as a cost. These perceptions are partially based on the fact that men typically have more successful careers: it is difficult for women to have a family while advancing professionally and earning a good wage.

The experts note that within the ethnic minorities of Kakheti and Kvemo Kartli, the **consequences of GBSS** are already observable: a shortage of brides leads to negotiations between families for very young girls (sometimes just 12-13 years old). People are afraid girls may be kidnapped prior to marriage, and the majority of girls are forced by their future husbands' families, or their own families, to leave school if the negotiations are successful. Bride kidnapping, even though forbidden by law, is still quite prevalent; especially in the bordering villages of Kvemo Kartli where access to quality education and information, as well as the level of integration into Georgian society, is poor. Ultimately, while boys usually attend high school, the number of girls is often only three or four per class.

Early marriage often also subjects girls to violence, firstly because they are less capable of resisting and secondly, as they are left without education, their chances of employability and economic independence remains low. An alternative to early marriage is the "import" of brides from Azerbaijan, which is less feasible both financially and technically. Such instances of early marriage are most prominent in Kvemo Kartli.

According to observations by respondents, while still evident, **GBSS has become less prevalent** over the last couple of years.

> *"If before, during the meetings people would giggle and remark the following – 'he is a man and, of course, he needs a man in the family' – now attitudes have changed gradually, especially among youngsters who think that child is a child, no matter the gender" – Expert respondent, Kakheti.*
>
> *"In Samegrelo-Zemo Svaneti, the value of daughters has definitely increased. However, it should also be mentioned that in our region, unlike others, it has never been the case that a girl was not perceived as a child at all" – Expert respondent, Samegrelo-Zemo Svaneti.*

According to the respondents, the following **policies and initiatives** have contributed to a reduction in GBSS:

(a) Experts from Kakheti and Samegrelo-Zemo Svaneti believe the recommendation, issued by the MoH, not to reveal fetal sex in the early stages of pregnancy has contributed to a decrease in GBSS, to an extent. The expert from Samegrelo-Zemo Svaneti suggests laws, if properly enforced, can be even more effective in changing behavior than information campaigns: people are highly sensitive and react more decisively when their budget and freedom are at stake.

(b) Experts working with Kvemo Kartli and Kakheti ethnic minorities stress the importance of the 1+4 program, which has helped many young people learn the Georgian language, gain an education, and integrate into society. This integration in turn significantly alters their views and behaviors. After graduation, for instance,

students usually return and start working in their schools. It is also notable that there are many girls among the program beneficiaries. The experts see increased access to education for girls as a method of preventing early marriages. Furthermore, women presently value education more and more, as they are realizing that it may offer less dependency on their future husbands. Nevertheless, allowing girls to go alone to Tbilisi is still problematic among the ethnic minorities in Kvemo Kartli; where families are afraid that the community will gossip about the girls' potential misbehavior in the city. Thus, they would prefer to send their daughters to vocational schools within their localities, if any were available.

Topic 2: Female empowerment

As expected, labor market development and female empowerment seems to affect GBSS in a positive way. According to the expert from Samtskhe-Javakheti, the value of education among ethnic minorities has also increased. However, it does not bring much change, since there are very limited employment opportunities for women in the region. The only future young women envisage is still set in marriage.

While employment opportunities for women among ethnic minorities are still thought to be scarce, different dynamics are observable from the respondents in Kakheti and Samegrelo-Zemo Svaneti. In these regions the experts suggest female economic participation has increased, which, in turn, has led, significantly, to their empowerment.

> *"Employed and educated women mean less dependency on husbands, less violence from them and higher self-esteem. Higher confidence in turn results in others valuing you more" – Expert respondent, Samegrelo-Zemo Svaneti.*

The expert from Samegrelo-Zemo Svaneti reasons that women's economic empowerment is partially due to the emergence of the service economy (e.g., cleaners, consultants, petty traders). The argument being that men, in general and especially in Georgia, do not opt for service jobs. Thus, such men are forced to allow women to work when they cannot alone manage to be the breadwinner.

> *"Women are always ready to go for even the 'dirty' jobs, paying low. Of course, there are men who think that women need to work because they also need to self-develop and socialize, but such men are rare, coming from high social class" – Expert respondent, Samegrelo-Zemo Svaneti.*

Respondents acknowledge, unanimously, that when it comes to **changes in values**, the new generations are the main contributors: younger people have more progressive attitudes and values compared to their parents and grandparents. As the expert from Samegrelo-Zemo Svaneti notes, a more globalized world affects this shift. People are now exposed to new, different ideas and ways of thinking, whereas, previously, only families and local communities contributed to value formation. Adults already have an established value system, which is much more difficult to change, however, young people are still in the formation process, where they are exposed to progressive ideas.

Experts from Kakheti and Samegrelo-Zemo Svaneti say that in addition to the mass media, targeted information campaigns, formal and informal meetings, and promotional videos also play a great role in changing values.

In terms of **domestic violence**, certain improvements are also notable, however, the issue remains. The experts state that violence is still prevalent in the region; the primary reason being is that women do not know the relative extent of violence, in other words, what behavior is unacceptable from their husbands. There are various types of violence, including physical, psychological, and economic. An illustration of economic violence is, for example, when men do not provide women money to go out, and thus women have to tolerate ill-treatment because they are not economically independent. There is moreover a lack of peer support in society. Women often "put a blind eye" to violence and encourage others to do the same, advising each other that it is not worth ruining their lives over a minute problem. Subsequently, such advice transforms into the following thought process: *"'Despite these issues, women around me still have families, husbands love their wives, and maybe I also should take things easy'" – Expert respondent, Kakheti.*

According to another expert from Kakheti, male authority in families has declined, in that women are now allowed to work. Moreover, if once violence was ignored, even by neighbors, they now interfere, and the victims themselves disclose information. Despite these changes, women remain doubly burdened. Men are unwilling to share household chores, consequently, they may even give their wives an ultimatum that if they want to work, they still have to take proper care of their households. As these women realize that they are not economically independent, they have to stay silent and simply obey.

The expert from Kvemo Kartli reiterates that violence is still prevalent. Women are unaware of where to report violence and they also often have a language barrier. Due to cultural norms (and not religious – similar attitudes are found in Samtskhe-Javakheti), some women are not even allowed to go shopping as if to exhibit themselves to other men.

However, the expert from Samtskhe-Javakheti states that reporting on violence has increased over the last few years. She highlights that victims of violence are now publicly sharing their stories via different channels of media; broad discussions regarding the topic prompted this change. Reporting violence has thus become an acceptable practice. Moreover, Samtskhe-Javakheti is peculiar as many men ethnic minority men are abroad for work, and the economic and psychological violence often originates from mothers-in-law.

The respondents think that additional information campaigns and meetings are required to decrease son preference further. To have a greater impact still, various institutions and their representatives, such as priests, medical personnel, lawyers, etc., are recommended to join their efforts in communicating the topic with the public.

During such campaigns, the adverse consequences of GBSS, like bride shortages, should be highlighted as a highly sensitive issue. Furthermore, the respondents urge the need for stricter law enforcement on early marriage and suggest that medical personnel should be closely monitored to prevent revealing fetal sexes during the early stages of pregnancy.

In-depth interviews with medical personnel

The interviewed medical personnel are either gynecologists, radiologists, or both. In Kakheti and Samegrelo-Zemo Svaneti two specialists were interviewed, while there was one respondent for each of the other regions. The IDIs were conducted both face-to-face and over the phone. Based on the transcripts, the results are summarized as follows:

Topic 1: GBSS

The respondents are all unequivocal regarding the **accessibility** of ultrasound technologies. The service is physically available throughout the regions and the quality is good enough. The interviewees state that it costs up to 30 GEL (10.1 USD), and those with Universal Healthcare provision pay only 7 GEL (2.4 USD). This is thus considered affordable in these regions, as nobody refuses ultrasonography over a lack of financing.

Regarding **GBSS practices,** opinions are divided across the regions: some claim that they were unaware the practice was still occurring, while others have encountered it, although to a lesser extent than before. Respondents from Kakheti are uncertain whether sex selection still takes place, since they themselves do not provide sex-selective abortions, while in Samegrelo-Zemo Svaneti and Samtskhe-Javakheti, the respondents deny existence of the practice.

> *"As I have observed over the years, sex-selective abortion was more popular in the past. Now, in the recent period, almost no one has contacted me with a request to do a sex-selective abortion. The number of such patients is almost zero" – Respondent gynecologist, Samegrelo-Zemo Svaneti.*

In Kvemo Kartli, GBSS is still prevalent, but only among the Azerbaijani community:

> *"Termination of pregnancy, in general, happens less frequently now than before, but I cannot assess if such a trend also gets reflected in sex selection" – Respondent medical personnel, Kvemo Kartli.*

Figure 14. Frequency of words from the interviews with medical personnel

A similar perspective to the last respondent was found with one interviewee from Kakheti. Although most respondents suggest abortions have generally declined due to increasing religious beliefs and improved awareness. The respondent from Samegrelo Zemo Svaneti also notes the factor of migration, stating that many women of reproductive age are leaving the country for work. Considering the potential reasons behind the decline in sex-selective abortions, a radiologist and a gynecologist from Samegrelo-Zemo Svaneti believe that the focus has shifted from the sex to the health of the fetus due to the increased number of fetal diseases in recent years. Moreover, it has become more difficult for women to conceive. A gynecologist from Samtskhe-Javakheti also mentioned the Patriarch's baptism initiative, which might have contributed to a decline in abortions, but it could also have had an effect on selective abortions, as its aim is for couples to have a third child, regardless of sex.

Topic 2: The rule of law

The respondents claim that they do not reveal the sex of the fetus until a certain period of pregnancy, ranging from 11 to 20 weeks, the majority stated 12 weeks. In Zugdidi, the respondents claim that, besides their obligation to the law, they are simply unable to detect the sex during the first 12 weeks, thus patients in the past would go to Tbilisi, and this may still be the case.

For abortion practices, in some cases it is only performed before 12 weeks of pregnancy, although others claim not to offer abortion in their clinics. The respondents from Kakheti and Samegrelo-Zemo Svaneti mention the recent trend in **medical abortions,** where women themselves obtain abortion pills without prescription, a cheaper solution than visiting a doctor. However, this practice can lead to serious, even life-threatening, problems, and may require surgical intervention. One gynecologist from Samtskhe-Javakheti states that no medical personnel in

the region complete surgical abortions after 12 weeks (unless the fetus is damaged), as it can risk the health of the woman, and doctors fear losing their license. In terms of medical abortions, she claims that the community is very well informed, and that after five weeks the procedure becomes less safe. Thus, if women wish to terminate a pregnancy, they usually do not delay past the first five weeks. Moreover, the respondent claims that medical abortions do not take place illegally, and only under the prescription of a doctor.

The representatives of every region are aware that, by law, they should give patients five days to carefully consider their options before terminating a pregnancy (excluding the gynecologist from Kvemo Kartli, who gives her patients three days). However, the gynecologists from Kakheti and Samegrelo-Zemo Svaneti claim that increasing the waiting period has no impact on the patient's decisions – if a patient has decided on an abortion, it becomes very hard to change her mind. Therefore, the 2014 amendment to the law on healthcare, which states that doctors have to offer patients five days rather than three before an abortion, will not alter the practice.

The medical personnel from Kakheti, and one from Samegrelo-Zemo Svaneti, believe that the governmental recommendation on non-disclose of fetal sex at the early stages of pregnancy due to high probability of result inaccuracy has a positive effect on reducing sex-selection. Nevertheless, the interviewee from Kvemo Kartli thinks that this recommendation has not resulted in any notable change, as there are other ultrasound specialists in the community who do not comply with the recommendation. A doctor's refusal to reveal the sex of a fetus at early stages of pregnancy may lead to losing patients: information spreads easily throughout a community and people will discern who to visit in order to determine fetal sex. Thus, some doctors are pushed to bypass the recommendation. In contrast, however, the respondent from Samtskhe-Javakheti states she does not reveal the sex of fetus before 12 weeks, primarily because she is afraid to make an error in sex detection (before 12 weeks, precision is difficult), and such a mistake might threaten her reputation in the community.

In terms of solutions for the problem, the respondent from Samegrelo-Zemo Svaneti considers comprehensive sexuality education in schools to be helpful in promoting reproductive health and avoiding unwanted pregnancies. Based on interviews, especially form Kvemo Kartli, it became clear, that solely raising the awareness of medical personnel is insufficient, and the equal emphasis should be placed on strengthening professional ethics of health professionals when dealing with sensitive topics such as GBSS.

3.4. QUANTITATIVE RESEARCH FINDINGS

This section will present and discuss an estimation of the results from panel data models and provide various insights into the relationships between the socio-economic/policy variables and female disadvantage in natality. The key findings of the empirical study are presented in table 10 (detailed results of the regression are provided in table 19 in Annex 5). The initial two models (in the first two columns of the table) represent random effect models,[70] with robust standard errors to compensate for the potential problem of heteroskedasticity. The empirical analysis indicates that the majority of the economic, and social and policy variables are not significantly correlated to the sex ratio at birth, while the control variables play an important role in explaining variations in SRB over time and across the regions.

The analysis shows that none of the **economic variables** (including the nominal GDP per capita and the average monthly income per person) are significantly correlated with the sex ratio at birth, except for **family poverty rate**. According to our estimates, reducing the family poverty rate by 1 percentage point decreases the sex ratio at birth by around 0.07 units. Nevertheless, this result should be treated with caution given that the coefficient associated with the poverty rate is not statistically significant when

[70] The Hausman test reveals the advantage of the random effect model over the fixed effect model. However, we have estimated various specifications of fixed effect models and compared their outcomes to the results of the random effect models.

regional dummy variables are included in the model (the last three columns of table 10). The latter finding indicates that the poverty rate is a significant variable, explaining regional difference in SRB (*variation between regions*), but this variable cannot explain the variation of SRB over time (*variation within regions*). In addition, the interaction term of poverty rate and average marriage age (the latter describing changes in value systems) is statistically significant within the different specifications of the random effect models (excluding regional dummy variables). Hence, an increase in the average marriage age raises the magnitude of correlation between poverty rate and SRB. This discovery highlights that regional differences in value systems might be important when explaining the potential correlation between family poverty rate and SRB.

The regression analysis also shows that among the variables, within **governmental socio-economic policy**, including the Targeted Social Assistance Program, the Demographic Support Program, the Universal Healthcare Program, and the Pregnancy, Childbirth, Childcare, and Newborn Adoption Program (parental leave),[71] only the latter has a weak negative (but not robust)[72] correlation with SRB. The results of the econometric analysis match the findings of the qualitative analysis, although one should be careful analyzing the correlation between social policy variables and sex ratio at birth due to the limited time period covered in the econometric model.

Additionally, our estimates indicate that **the fertility rate** (after controlling the different economic, social policy, and demographic variables and the indicators describing societal value system), as well as the **variables describing social values** (the average marriage age and the quarterly difference in divorce rates) do not have a significant effect on gender bias in natality (the results are not robust in various specifications of the model). The first finding can be explained by the fact that the econometric models control various explanatory variables, which are themselves a precondition of the increased fertility rate, and these variables capture a large portion of the impact that fertility rate can potentially have on the sex ratio at birth (before including these variables in the regression model, the fertility rate had a significant negative impact on the sex ratio at birth). The second result can be explained in that the average marriage age and the quarterly difference in divorce rates have only limited power to capture the impact of social value transformation on sex ratio at birth (there was no available information on variables directly describing societal values).

The analysis indicates that **increasing the level of the female employment rate** (excluding the agricultural sector) by 1 percentage point decreases SRB by around 0.23 units. This finding was indeed obtained after the degree of poverty within regions and the ethnicity ratio were controlled. It remained robust after controlling regions, which indicates that the employment rate explains not only variations in sex ratio at birth across regions, but also the change in SRBs over time within the regions. Thus, the econometric model confirms the outcome of the qualitative research – female economic empowerment has contributed to a reduction in GBSS. The **other labor market measures** (unemployment rates and labor force participation rates by gender), as well as the interaction term of female employment rate and divorce rate (describing the impact of improved employment on the sex ratio at birth, via improved societal values), are not significantly correlated with the sex ratio at birth. None of the labor market variables, aside from female employment rate (excluding agriculture), can be explained by issues related to the labor participation and unemployment (the self-employed population involved in subsistence agriculture are considered part of the labor force, which creates an overestimate of participation rates).[73] Moreover, the **labor participation gap** has an unexpected, statistically significant, negative correlation with the dependent variable, although the results are not robust under different specifications. When interpreting the latter results, it is important to

[71] All measured by the number of beneficiaries per 1,000 citizens.
[72] The variable was statistically significant only in a few specifications of the models.
[73] In terms of unemployment, a lot of women are out of the labor force, as they have lost the hope of finding a job.

consider that the labor participation rate includes the self-employed population involved in subsistence agriculture, which distorts the parity between male and female labor force participation as there are different proportions of self-employed workers for the male and female population. In addition, the labor force participation gap has had a pronounced increasing trend over the past 15 years that might help drive the spurious relationship between the participation gap and sex ratio at birth.

Among the variables used to capture the population's level of education, only **male education** has a significant negative effect on SRB (surprisingly, female education does not have a substantial impact on the dependent variable) – a 1 percentage point increase in the share of the male population with at least a Bachelor degree reduces the sex ratio at birth by, on average, 0.19 units. Male education remains statistically significant even after controlling the regional dummy variables, and male education also explains the variation of sex ratio at birth both within and between regions. This outcome is explicable because in some regions male family members tend to be the decision-makers regarding reproductive choices (the focus group discussions largely support this notion). Increasing levels of education in men may potentially increase female involvement in decision-making processes, and even if men retain the dominant, decision-making position within a family, their value-transformation process can thus lead to a reduction in the sex ratio at birth.

A significant proportion of the **ethnic minority population** is associated with the increased value of our dependent variable, which again highlights the notable difference in cultures and values between the Georgian and the ethnic population. However when including the regional dummy variables in the regression, this variable is not statistically significant, hence ethnicity explains variations of SRB between the regions (the areas with the highest proportion of an ethnic minority population [Samtskhe-Javakheti and Kvemo Kartli] are characterized by the highest sex ratio at birth), but fails to explain the variation of sex ratio at birth over time within the region (the proportion of ethnic minorities does not change notably over time).

The **dummy variable of 2008** (introduced to capture the effect of the **Patriarch's initiative**) has a significant negative impact on SRB (and the outcome is robust under different specification of the econometric model – capturing variations in the sex ratio at birth not only between regions, but also within regions over time). The sex ratio at birth is on average 2.72 units lower than before 2008. Nevertheless, the abovementioned implications should be interpreted carefully because Georgia experienced major socio-economic and geo-political shocks in 2008, which are likely to have impacted GBSS. Thus, the abovementioned dummy can be described as a variable capturing the impact of socio-economic and demographic changes in 2008 on the sex ratio at birth.

Finally, the **regional dummy variables,** included in our empirical analysis (particularly the last three columns of table 10), are mainly statistically significant even after controlling the remaining variables, which highlights the presence of relevant regional differences. Despite some exceptions, the SRB is higher, relatively, in eastern Georgia compared to the western part of the country. Considering particular regions, the sex ratio at birth in Adjara has been significantly lower than the same measure in Kvemo Kartli and Samtskhe-Javakheti, and significantly higher than in Guria, Imereti and Racha Lechkhumi, Samegrelo-Zemo Svaneti, and Shida Kartli and Mtskheta Mtianeti. While, the sex ratio at birth was at the approximate same level in Adjara, Kakheti, and Tbilisi.

Due to the limited time period covered in the econometric models, the empirical analysis explains the variation of sex ratio at birth **between regions** to a greater extent than the variation of SRB **within regions over time** (shown in table 19 in Annex 5, that within R-squared notably exceeds that between R-squared in all of the econometric models).[74] Thus, the econometric model mostly capture regional differences, but still provide valuable information on the impact of regressors on the sex ratio at birth over time.

[74] After controlling regions, the between variation of the regression tends to be fully explained by the model.

Table 10. Estimation of the random and fixed effect models

Variables/Model	Dependent Variable: Sex Ratio at Birth				
	RE (1)	RE (2)	RE with Regional Dummies (3)	RE with Regional Dummies (4)	RE with Regional Dummies (5)
Crude Birth Rate	1.93* (0.078)	1.99** (0.045)	-0.63 (0.622)	-0.76 (0.506)	-0.99 (0.438)
Family Poverty Rate	6.68*** (0.002)		-0.18 (0.955)	-0.53 (0.901)	0.98 (0.744)
Female Employment Rate (Excluding Agriculture)	-23.02*** (0.006)	-23.35*** (0.004)	-29.68*** (0.004)		
Male Education					-18.16* (0.086)
Ethnicity Ratio	0.08*** (0.000)	0.08*** (0.000)			
Patriarch's Initiative	-3.87*** (0.002)	-3.90*** (0.002)	-3.42*** (0.000)	-2.85*** (0.000)	-2.33*** (0.007)
Family Poverty Rate * Average Marriage Age [Interaction Term]		0.27*** (0.009)			

(1) - Random Effect Model with Robust Standard Errors
(2) - Random Effect Model with Robust Standard Errors
(3) - Random Effect Model with Robust Standard Errors Including Regional Dummies
Note: The Fixed Effect Model with Robust Standard Errors shows similar outcomes to Model (2).
(4) - Random Effect Model with Robust Standard Errors Including Regional Dummies
Note: The Fixed Effect Model with Robust Standard Errors shows similar outcomes to Model (3).
(5) - Random Effect Model with Robust Standard Errors Including Regional Dummies
Note: The Fixed Effect Model with Robust Standard Errors shows similar outcomes to Model (4).
Note: all variables except Sex Ratio at Birth, Crude Birth Rate, and the Dummy Variable of the Patriarch's Initiative are presented in a 4 quarter lagged form in all the model specifications.
The Sex Ratio at Birth and Crude Birth Rate are smoothed using a 4 quarter Simple Moving Average (SMA).
*p<0.1; **p<0.05; ***p<0.01.
The P-values are presented in brackets.

The findings of the spatial regression analysis are presented in table 11 (the detailed results are provided in table 22 in Annex 5). The results are similar to the standard fixed effect and random effect models. There is a significant **spatial dependence** in all of the specifications,[75] which highlights importance of geographic location (the effect of neighboring regions on each other) on sex ratio at birth (within the first three columns of table 22 in Annex 5) and the group of explanatory variables (in the last two columns of table 22 in Annex 5). Furthermore, within R-squared is slightly higher than between R-squared, unlike in the classic panel regression models, which means that the explanatory variables describe more variation of the sex ratio at birth within regions over time than variation of SRB between regions. As for the explanatory variables, **female employment rate (excluding agriculture), labor participation gap, and male education** are the only variables that have a significant negative correlation to the sex ratio at birth and the results are robust under different specifications of the econometric models (the nature of the relationship and interpretation of the results

[75] The spatial autoregressive parameter (Rho) is statistically significant in all the econometric models.

are exactly the same as with the classic fixed effect and random effect models, with more emphasis on the within variation of sex ratio at birth than the between variation). Like the non-spatial regression models, the **"parental leave" program** is the only **government policy variable** that has a significant negative correlation on the sex ratio at birth in the SDM random effect model (but the results are not robust under different specifications). The other variables are not statistically significant in the spatial regression framework (see table 22 in Annex 5).

Table 11. Estimation of spatial autoregressive and spatial Durbin models with fixed and random effects

Model	Dependent Variable: Sex Ratio at Birth				
	SAR with Random Effect (1)	SAR with Random Effect (2)	SAR with Fixed Effect (3)	SDM with Random Effect (4)	SDM with Random Effect (5)
Labor Market Participation Gap	-21.93** (0.016)	-14.40* (0.089)	-20.32*** (0.003)	-22.95*** (0.004)	-18.02** (0.029)
Female Employment Rate (Excluding Agriculture)	-24.70*** (0.006)		-22.49*** (0.001)	-20.45** (0.037)	
Pregnancy, Childbirth, Childcare, and Newborn Adoption	--1.88 (0.129)	-2.29* (0.082)	-1.24 (0.155)	-1.97 (0.134)	-2.30** (0.037)
Average Marriage Age	0.12 (0.635)	0.01 (0.962)	0.75*** (0.000)	0.33 (0.196)	0.31 (0.219)
Male Education		-16.97* (0.057)			-17.78** (0.033)

Spatial Autoregressive Model (SAR) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
Spatial Autoregressive Model (SAR) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
Spatial Autoregressive Model (SAR) with Fixed Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
Spatial Durbin Model (SDM) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
Spatial Durbin Model (SDM) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
Note: all the variables except Sex Ratio at Birth, Crude Birth Rate, and the Dummy Variable of the Patriarch's Initiative are presented in a 4 quarter lagged form in all the model specifications.
The Sex Ratio at Birth and Crude Birth Rate are smoothed using a 4 quarter Simple Moving Average (SMA).
*p<0.1; **p<0.05; ***p<0.01.
The P-values are presented in brackets.

Additionally, it was estimated the direct, indirect, and total effect of the regressors on the sex ratio at birth. **The female employment rate (excluding agriculture), labor market participation gap, and the "maternity leave" program** only have a direct effect on the SRB measure, while **male education** has both **direct and indirect effects** on the dependent variable, with indirect effect dominating the relationship (the indirect effect captures the correlation between the explanatory variable in one region and the sex ratio at birth in other regions – a spillover effect between regions. See table 23 in Annex 5).

CHAPTER

4

Photo project: "A Girl is Born"
Photo credit: UNFPA Georgia | Dina Oganova

CONCLUSIONS AND RECOMMENDATIONS

This study was designed to reveal the extent social and economic policies have influenced family decisions affecting GBSS and how they have contributed to a reduction of SRB since 2004. The research team studied the following hypothesis: *improved macroeconomic conditions coupled with stronger social protection schemes lead to a reduction of the SRB via two channel – by reducing the reliance of a family on their (male) offspring and by relaxing the constraints of fertility choices.*

The qualitative and quantitative studies, alongside a review of the relevant international literature, revealed the following:

Regardless of the downward trend in SRB, **son preference** is still prevalent in Georgian society. **Awareness of sex-selective abortions** in all four regions surveyed is also high. Every participant agrees that selective abortions were previously widespread, though they have recently decreased. This level of awareness itself, and recognizing it as a problem, is an initial step towards the long-lasting process of balancing gender perceptions.

Economic conditions play an important role in normalizing the SRB in Georgia, because of increased disposable income, and thus improving the option for having children. As incidences of GBSS occur more often in poor families, regional **poverty rates** are a significant determinant of SRB imbalances. Thus, the recent reduction of poverty measures reflects the reduced female disadvantage in natality. Moreover, the FGDs highlighted the importance of **external migration and remittances** as a coping strategy against imbalances in the Georgian labor market.

Labor market dynamics, especially the **structural transformation of the economy** to the service sector, have created new job opportunities for women in banking, retail trade, and other office related jobs. **Female economic empowerment** also contributes to a reduction of sex ratio imbalances at birth, as gaining financial independence and reducing familial pressure on women, while they are making decisions related to family planning, have led to decreased incidences of sex selection. This finding was highlighted throughout all the FGDs and IDIs, and is, furthermore, confirmed by the quantitative analysis – a 1% increase in the female employment rate decreases SRB by 0.23 percentage points!

Despite providing subsistence allowance to families below the poverty line, the quantitative analysis and FGDs revealed that **TSA** is insignificant in combating GBSS, especially for ethnic minorities. While participants of the focus groups held in Samtskhe-Javakheti and Kvemo Kartli revealed little awareness about the program. This evidence is supported by the descriptive data analysis showing the regional numbers of individuals registered to receive social assistance.

The FGDs showed that another social protection scheme, **Universal Healthcare,** reduces pressures on household expenses, however out-of-pocket expenses still remain a heavy burden for families. Thus, it is hard to find evidence that the Universal Healthcare system contributed to a reduction in GBSS. Concerning old age **pensions**, the current system does not ensure a decent income in old age and cannot decrease elderly reliance on offspring.

There is no adequate evidence (either in the quantitative or qualitative analysis) that **the state Demographic Support Program** provides enough incentives to increase fertility, and consequently remove pressure on GBSS. It is considered a stimulus for having additional children among Georgian participants, but they do not believe

it acts as a driving factor for increased fertility. It seems that having two children is quite common and culturally accepted in Georgian families, but having three or more children depends on various factors, including finance and social assistance programs, which may then act as simulators. As in case of TSA, ethnic minorities are poorly informed about the Demographic Support Program (some are unaware of its existence) and they see no governmental role in increased fertility.

Whereas, the **Pregnancy, Childbirth, Childcare, and Newborn Adoption Program** has the potential to contribute to gender equality, offer mothers the opportunity to take care of their children, keep women in the workforce, and to increase fathers' paternal involvement in childcare. The quantitative analysis reveals a negative (but not robust) relationship between the program and the SRB. Currently, the extremely low take-up rate by fathers highlights that the program's potential to contribute to gender equality and tackle the GBSS problem is not adequately realized.

Among the variables used to capture the population's level of education, only **male education** has a significant negative effect on SRB (oddly, female education does not have a substantial impact on the dependent variable). This could be explained because in Georgia, regardless of recent trends towards more equal participation in familial decisions, male family members are still the main decision-makers (particularly regarding reproduction).

The study found that the state **1+4 program**, which aims to integrate ethnic minorities into Georgian society, is significant and has the potential to reduce SRB in the future, because it: facilitates the integration of ethnic minorities into society; provides opportunities in higher education; reduces external migration; and, in the case of Azeri minorities, it reduces barriers to female education (general and higher) and decreases the probability of early marriage.

Despite the fact that there is no a separate law regulating sex-selective abortions in Georgia, the FGDs revealed that the recommendation on the non-disclosure of fetal sex at the early stages of pregnancy, combined with the 139th article of Georgian law on healthcare tender an important role in reducing incidences of sex selection. However, the **unethical conduct of ultrasound specialist** also contributes to GBSS.

Thus, the study found that improved macroeconomic conditions and stronger social protection schemes lead to a reduction in the Georgian SRB. In addition, the research identified external contributing factors – **changes in norms and values.** The FGDs showed that Georgian society is undergoing a process of value transformation, especially towards gender equality. However, due to limited integration into Georgian society, this transformation seems to be happening slower within ethnic minority groups from Samtskhe-Javakheti and Kvemo Kartli. In addition, migration and exposure to different cultures can further hinder the process. Georgians, typically, migrate to western and eastern Europe, whereas ethnic minorities select Azerbaijan, Turkey, and Russia, and thus their exposure to Western values and norms is limited. Different migration destinations can further serve as an additional explanation for GBSS practices in Kvemo Kartli and Samtskhe-Javakheti.

Despite there being no clear statistical evidence that the fertility rate has been positively affected by the **Patriarch's Initiative** (in which every third and consecutive child is personally baptized), all Georgian FG participants perceive it as one of the most important factors.

Unlike South Korea and Hong Kong, where reduction the SRB may be partly attributed to increased incidences of **infertility problems and newborn diseases,** Georgia may be a unique case. The FGD and IDI in Samegrelo-Zemo Svaneti, where the fastest recovery to normalized SRB was experienced, underlines infertility problems, which can be linked to shifting parental attention away from son preference towards fetal health.

It is evident that the issue of gender bias requires addressing holistically, and involves social, economic, and cultural spheres, and based on our findings, there are several policy recommendations, provided below,

to help sustain and further advance the positive trend of SRB reduction in Georgia. The overall focus should be on promoting initiatives to further advance poverty reduction, strengthen gender equality and women's empowerment, as well as overcome gender stereotypes by encouraging the equal value of both daughters and sons.

Accordingly, the recommendations are **to promote gender equality and reduce preexisting son preference** by:

(a) strengthening awareness on gender equality and sustainable development for policy-makers and planners, as well as in civil society;
(b) securing the availability and affordability of quality early childcare, as well as long-term care for other dependents, including children with disabilities and elderly family members in need of extended care;
(c) introducing family support policies to overcome gender stereotypes by encouraging more equal sharing of unpaid household duties between men and women;
(d) creating proper incentives for working fathers to take care leave by introducing legislative changes and conducting awareness raising campaigns to tackle social norms related to male parenting;
(e) advancing women's economic empowerment, including encouraging female employment and entrepreneurship by expanding access to finance and other resources.

Alleviate poverty and reduce household vulnerabilities by:

(a) increasing the populations' awareness of state social programs and schemes, especially the Targeted Social Assistance program (TSA), particularly in groups with a higher likelihood of practicing GBSS; and identifying and removing possible barriers to ethnic minority access to information and state social assistance programs (e.g., increasing awareness and accessibility to the 1+4 state program for higher education);
(b) reducing incidences of poverty by promoting inclusive economic growth and diversifying the economy; moving away from the poorly productive agricultural sector and towards more productive industries and service sectors.

Support awareness raising towards GBSS and son preference and promote behavioral changes by:

(a) addressing challenging cultural stereotypes that identify daughters as less valuable or less beneficial than sons, often those at the root of gender-based discriminatory attitudes and practices;
(b) implementing communication campaigns to increase awareness of GBSS, accordingly communities (mainly those in which progress has been slower) can fully comprehend the harmful consequences of the practice;
(c) focusing efforts on changing traditional inheritance practices (in favor of sons), and perceptions of the value of girls and boys, including but not limited to showcasing successful female role models;
(d) advocating the more ethical use of sex detection technologies – through engaging relevant professional associations to ensure proper understanding of the developed guidelines and recommendations among medical personnel.

Strengthen the understanding of the factors behind the reduction of sex selection practices by:

(a) further exploring the effects of male education on gender roles and decision-making processes in families;
(b) monitoring changes in the value systems and son preference through periodic quantitative research (e.g., time use surveys, questions about son preference);
(c) studying the impact of different migration destinations and the exposure of migrants to various socio-economic environments on value transformation.

Disseminate the findings and create comparative studies:

(a) disseminating the findings of this study to raise public and policy-makers' awareness regarding the socio-economic factors contributing to Georgia's downturn, as well as developing discussions about the remaining challenges related to son preference still prevalent throughout the country;

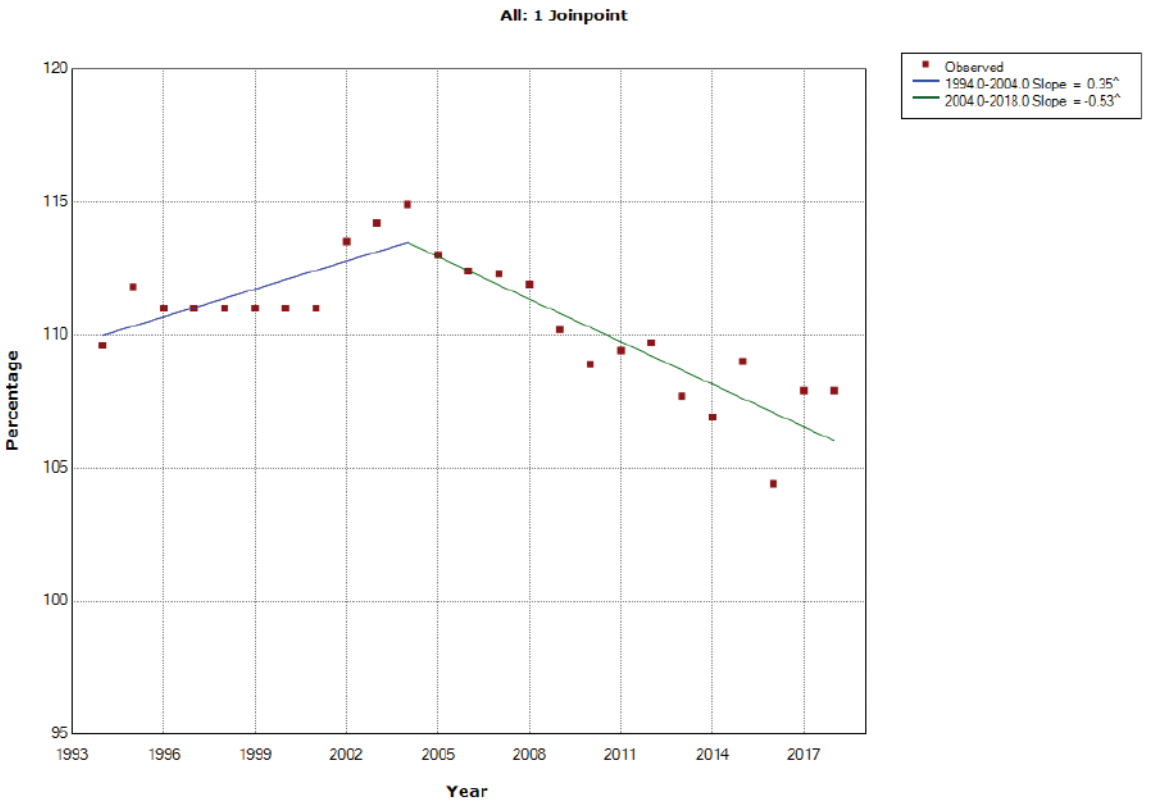
(b) encouraging the exchange of knowledge among countries and sharing Georgia's experience under the Global Programme to Prevent Son Preference and GBSS;

(c) supporting comparative research in the South Caucasus to understand how variations in social and economic developments in Azerbaijan and Armenia might explain their lower reduction in SRB in comparison to Georgia;

(d) promoting international cooperation to facilitate research, evidence-based policy-making, and dialogues on eliminating the harmful practices of GBSS and ensuring the sustainability of normal levels of SRB.

ANNEX 1.

Joinpoint regression results



^ Indicates that the Slope is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 1 Joinpoint.

Table 12. Outcomes of the Joinpoint Regression

Model Statistics and Estimated Joinpoint									
Number of Joinpoints	Number of Observations	Number of Parameters	Degree of Freedom	Sum of Squired Errors	Mean Squired Error	Autocorrelation Parameter	Estimated Joinpoint	Lower CI of Joinpoint	Upper CI of Joinpoint
1	25	4	21	30.11	1.434	Uncorrelated	2004	2002	2006
Estimated Regression Coefficients (Beta)									
General Parametrization									
Parameter		Parameter Estimate		Standard Error		Test Statistics (t)		Prob>|t|	
Intercept 1***		-586.69		258.73		-2.27		0.003	
Intercept 2***		1181.55		156.82		7.53		0.000	
Slope 1**		0.35		0.13		2.70		0.014	
Slope 2***		-0.53		0.08		-6.84		0.000	
**** and *** Indicates that the slopes and intercepts are significantly different from zero at the alpha= 0.05 and 0.01 levels, respectively.**									

Source: Authors' calculations.

ANNEX 2.

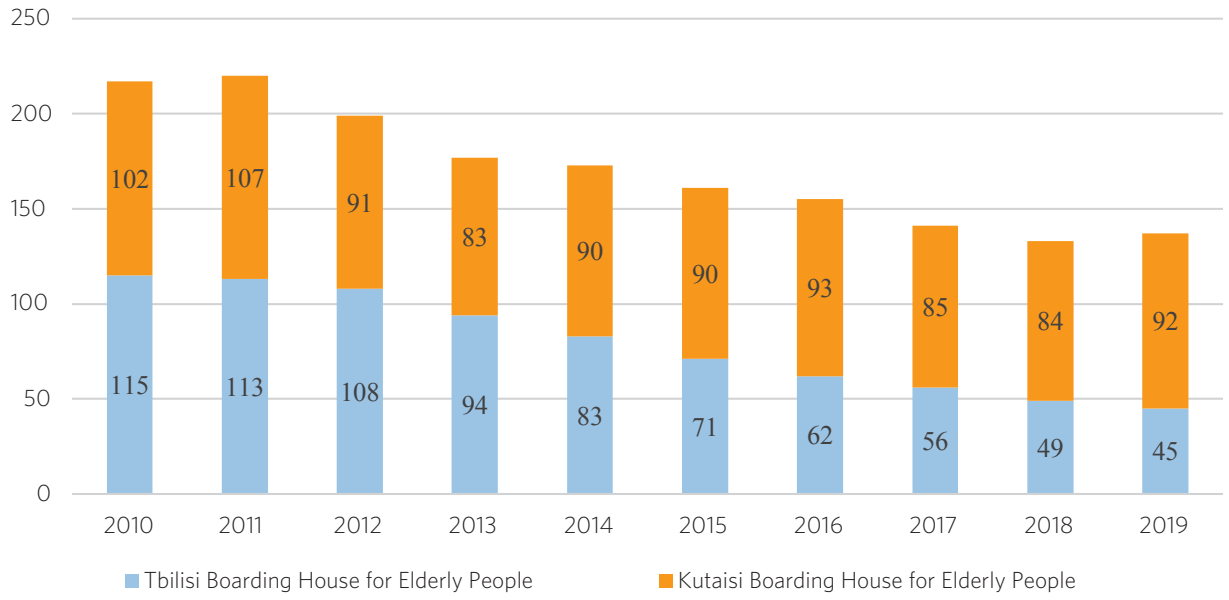
Stronger social protection schemes and trust towards the government

Table 13. Pregnancy, Childbirth, Childcare, and Newborn Adoption (beneficiaries), 2010-2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tbilisi	1207	1148	1251	1345	1657	1825	1916	1818	1803
Adjara	709	532	603	644	923	1030	1151	1273	1432
Guria	313	206	231	222	298	265	345	280	238
Imereti and Racha Leckhumi and Kvemo Svaneti	474	365	379	377	470	511	511	500	563
Kakheti	299	240	226	234	285	285	277	279	226
Samegrelo-Zemo Svaneti	395	313	284	274	333	365	384	325	303
Samtskhe-Javakheti	510	423	371	362	450	440	487	496	394
Kvemo Kartli	313	245	249	249	327	332	325	309	294
Shida Kartli and Mtskheta Mtianeti	341	285	373	375	299	301	335	279	335

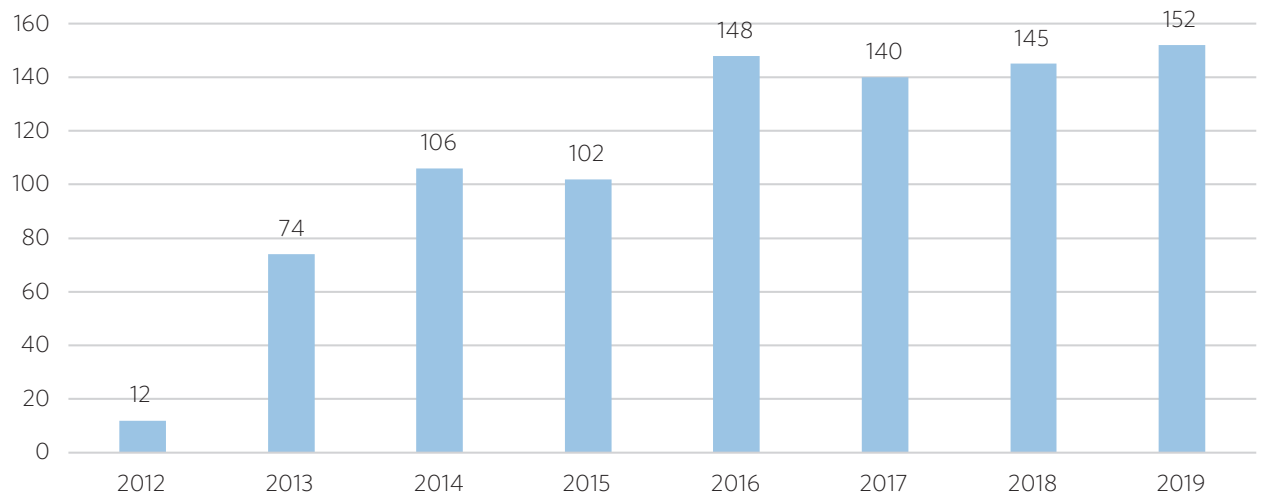
Source: Social Service Agency.
Note: The absolute majority of beneficiaries are female.

Figure 15. The number of beneficiaries in Tbilisi and Kutaisi boarding houses for elderly people



Source: State Fund for Protection and Assistance of (Statutory) Victims of Human Traffcking (Atipfund).

Figure 16. The number of beneficiaries in community organizations for elderly people in Georgia



Source: Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia.
Note: The 2019 data covers the period until 1 May 2019.

ANNEX 3.

FGD participant profiles by regions

Table 14. Kakheti participants

	Women with mixed children	Women with only daughters	Men with mixed children	Men with only daughters
Mean age	39	37	36	34
Min Age	30	29	27	25
Max Age	39	46	45	47
Av. # of children	3	3	2	2
Ideal number of children (average)	3.1	2.9	3.1	2.6
Ideal number of girls (average)	1.9	2.1	1.2	1.6
Ideal number of boys (average)	1.3	0.8	1.8	1
'I think it is necessary to have at least one son' (1- it is not at all necessary / 5- it is extremely necessary to have at least one son in the family)	4.6	2	4	3.8
% of participants that state it is necessary to have at least one son to continue family name	44%	13%	21%	40%
% of participants whose HH receive any government support/benefit	33%	25%	36%	0%
% receiving demographic support	11%	n/a[76]	14%	0%
% receiving IDP support	11%	n/a	n/a	0%
% receiving TSA	11%	n/a	7%	0%
# of participants	9	8	14	10

Table 15. Samegrelo-Zemo Svaneti participants

	1st Female group	2nd Female group	Men with mixed children	Men with only daughters
Mean age	38	32	44	45
Min Age	28	27	29	27
Max Age	53	39	54	52
Av. # of children	2	2	2	2
Ideal number of children (average)	3	2.6	3.1	3
Ideal number of girls (average)	1.8	1.4	1.4	2
Ideal number of boys (average)	1.4	1.3	1.7	1

[76] N/A – participants have not specified which government support/benefit they receive.

'I think it is necessary to have at least one son' (1- it is not at all necessary / 5- it is extremely necessary to have at least one son in the family)	3.8	2.7	3.9	3.7
% of participants that state it is necessary to have at least one son to continue family name	75%	0%	60%	33%
% of participants whose HH receive any government support/benefit	50%	91%	20%	17%
% receiving pension	25%	27%	n/a	n/a
% receiving IDP support	n/a	36%	10%	n/a
% receiving TSA	8%	45%	n/a	n/a
# of participants	12	11	10	6

Table 16. Kvemo Kartli participants

	1st Female group	2nd Female group	Men with mixed children	Men with only daughters
Mean age	41	35	43	40
Min Age	31	25	37	33
Max Age	69	45	48	54
Av. # of children	3	3	3.4	2
Ideal number of children (average)	4	2.8	3.4	3
Ideal number of girls (average)	2	2	1	1
Ideal number of boys (average)	2	0.8	2.4	2
'I think it is necessary to have at least one son' (1- it is not at all necessary / 5- it is extremely necessary to have at least one son in the family)	5	5	5	4
% of participants that state it is necessary to have at least one son to continue family name	100%	0%	80%	89%
% of participants stating that it is necessary to have at least one son in order to defend a country	0%	80%	20%	11%
% of participants whose HH receive any government support/benefit	64%	80%	40%	22%
% receiving pension	64%	80%	40%	11%
# of participants	11	5	5	9

Table 17. Samtskhe-Javakheti participants

	Women with mixed children	Women with only daughters	Men with mixed children	Men with only daughters
Mean age		37	36	38
Min Age	28	28	32	30
Max Age	46	53	40	47
Av. # of children	2	2	2	2
Ideal number of children (average)	3.1	3.4	3.1	3.3
Ideal number of girls (average)	1.4	1.9	1.4	1.3
Ideal number of boys (average)	1.7	1.5	1.8	2
'I think it is necessary to have at least one son' (1- it is not at all necessary / 5- it is extremely necessary to have at least one son in the family)	4.3	3.7	3.3	2.7
% of participants that state it is necessary to have at least one son to continue family name	56%	38%	25%	33%
% of participants whose HH receive any government support/benefit	11%	13%	38%	0%
% receiving demographic support	0%	6%	0%	0%
% receiving TSA	11%	n/a	38%	0%
# of participants	9	16	8	3

ANNEX 4.

The Caucasus Research Resource Centers. Caucasus Barometer

Taking care of parents – "How do you think should take care of parents more son, daughter or both equally"?

a) How do you think should take care of parents more (by gender)?

	Male	Female
Son	28 %	14%
Daughter	5 %	5%
Both equally	66 %	81%

b) How do you think should take care of parents more (by settlement type)?

	Capital	Urban	Rural
Son	15 %	20 %	24 %
Daughter	5 %	2 %	8 %
Both equally	80 %	78 %	68 %

c) How do you think should take care of parents more (by education level)?

	Secondary or lower	Secondary technical	Higher than secondary
Son	26 %	25 %	12 %
Daughter	8 %	4 %	3 %
Both equally	66 %	71 %	85 %

Inheritance division – "when a girl and a boy grow up in a family, and the family owns only one apartment, how do you think, who should inherit the apartment - girl or boy, or equally?

a) Inheritance division respondents' gender

	Male	Female
Son	2%	1%
Daughter	51%	40%
Both equally	43%	55%
DK/RA	4%	4%

b) Inheritance division by respondents' settlement type

	Capital	Urban	Rural
Son	2%	1%	1%
Daughter	32%	41%	56%
Both equally	60%	53%	41%
DK/RA	6%	4%	2%

c) Inheritance division by respondents' education level

	Secondary or lower	Secondary technical	Higher than secondary
Son	1%	2%	2%
Daughter	57%	46%	30%
Both equally	38%	48%	63%
DK/RA	4%	4%	5%

Source: The Caucasus Research Resource Centers. Caucasus Barometer, 2019 year.

ANNEX 5.

Outcomes of the quantitative analysis

Table 18. Variable definitions and sample descriptive statistics: 2005-18

Variable	Definition	Mean	SD		
			Overall	Between	Within
Sex Ratio at Birth	The Number of Newborn Boys per 100 Newborn Girls *(smoothed by a 4 quarters Simple Moving Average (SMA))*	110.45	4.94	3.13	3.95
Crude Birth Rate	The Number of Live Births Among the Population (1,000 People) of a Given Geographical Area During a Given Year. Live Births per 1,000 People (*smoothed by a 4 quarters Simple Moving Average (SMA)*)	3.43	0.49	0.33	0.38
Family Poverty Rate	The Share of Families with Total Income Lower than Subsistence Minimum in Total Number of Families (the subsistence minimum changes over time and for families of different sizes)	0.20	0.13	0.05	0.12
Female Labor Force Participation Rate	The Share of the Female Labor Force in the Working Age Female Population	0.59	0.09	0.08	0.05
Male Labor Force Participation Rate	The Share of the Male Labor Force of the Working Age Male Population	0.77	0.06	0.05	0.04
Total Labor Force Participation Rate	The Share of Labor Force in the Working Age Population	0.67	0.07	0.06	0.04
Labor Market Participation Gap	The Difference Between Male and Female Labor Force Participation Rates	0.18	0.05	0.04	0.04
Female Employment Rate (Excluding Agriculture)	The Share of the Employed Female Population, Excluding the Agricultural Sector, of the Total Economically Active Population	0.21	0.06	0.05	0.04
Targeted Social Assistance	The Number of the Targeted Social Assistance Beneficiaries per 1,000 Citizens (the Monthly Average Number of Beneficiaries was used to Construct Quarterly Data)	105.02	60.80	41.21	46.73
Demographic Support Program	The Average Number of Beneficiaries of the Demographic Support Program per 1,000 Citizens (the Monthly Average Number of Beneficiaries was used to Construct Quarterly Data)	0.50	1.26	0.51	1.16
Pregnancy, Childbirth, Childcare, and Newborn Adoption Compensation Program	The Number of Beneficiaries of the Pregnancy, Childbirth, Childcare, and Newborn Adoption Program (Maternity Leave) per 1,000 Citizens (the Monthly Average Number of Beneficiaries was used to Construct Quarterly Data)	0.35	0.44	0.28	0.35

Universal Healthcare System	The Number of Beneficiaries of the Universal Healthcare System per 1,000 Citizens (the Monthly Average Number of Beneficiaries was used to Construct Quarterly Data)	23.14	33.57	7.84	32.75
Coverage of Healthcare Programs	The Share of the Population Included in the Following Healthcare Systems: the State Program of Health Insurance (2011-2013) and the Universal Health Insurance Program (2013-2018)	0.49	0.41	0.04	0.41
Divorce Rate	The Number of Registered Divorces per 100 People	3.57	2.25	1.00	2.04
Average Marriage Age	The Weighted Average Marriage Age (the Weights are the Number of People Married in Each Particular Age Group)	26.60	1.59	0.99	1.28
Male Education	The Share of Males with at least a BA Degree from those above 20	0.25	0.11	0.11	0.03
Female Education	The Share of Females with at least a BA Degree from those above 20	0.25	0.11	0.11	0.03
Education Gap	The difference between Male and Female Education (Education Variable as Defined above)	0.01	0.04	0.02	0.03
Education	The Share of People with at least a BA Degree from those above 20	0.25	0.11	0.11	0.03
Average Monthly Income	Average Monthly Income (Including all Types of Income) per Household Members	195.27	78.68	23.77	75.42
Ethnicity Ratio	The Share of the Non-Georgian Population in the Total Population	16.31	20.83	21.69	3.83
Patriarch's Initiative	A Dummy Variable Taking a Value of 1 after Q1 2008 (including itself) otherwise 0. This Dummy Variable Corresponds to the Date of the Patriarch's Initiative	0 - 21.43%		1 – 78.57%	

Source: Birth Registration Data and Population Census of 2014 (Geostat), for Sex Ratio at Birth and Crude Birth Rate; Databases of Social Service Agency of Georgia for Government Social Programs. The remaining variables have been calculated using the Integrated Household Survey (IHS) and the Labor Force Survey (Geostat).

Table 19. Estimation of Random and Fixed Effect Models

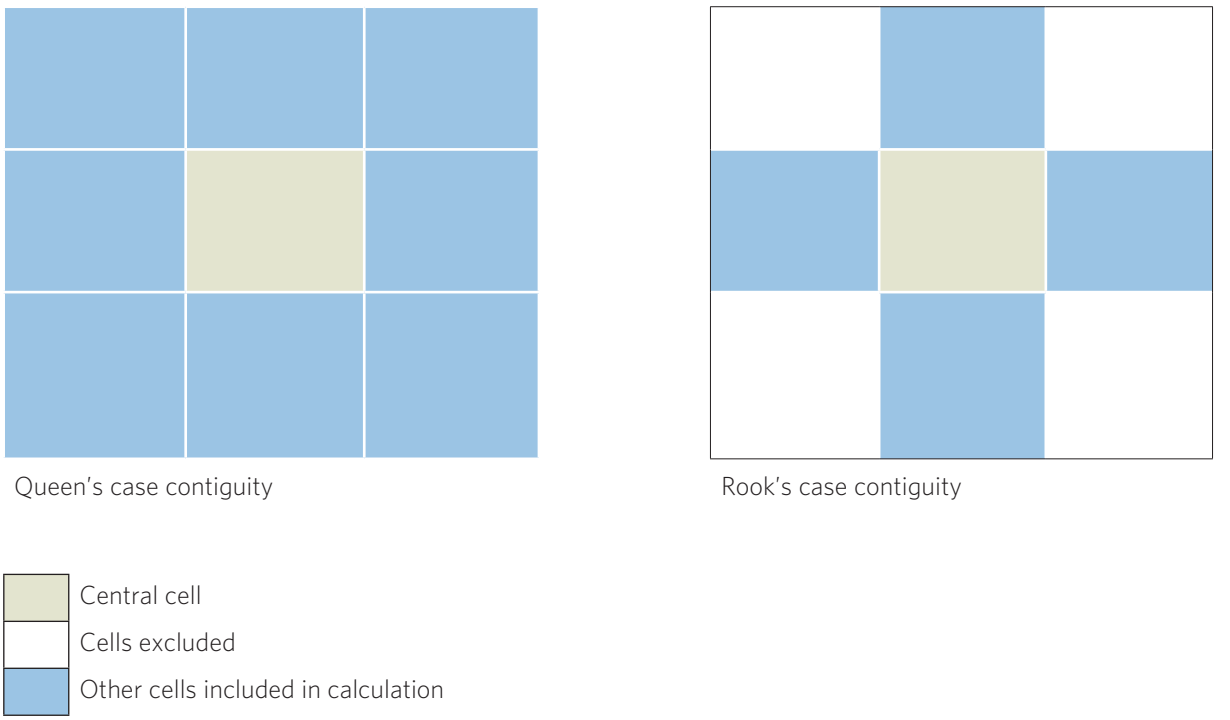
Model:		Dependent Variable: Sex Ratio at Birth				
		RE (1)	RE (2)	RE with Regional Dummies (3)	RE with Regional Dummies (4)	RE with Regional Dummies (5)
Intercept		110.35*** (0.000)	109.58*** (0.000)	128.5*** (0.000)	120.55*** (0.000)	128.08*** (0.000)
Crude Birth Rate		1.93* (0.078)	1.99** (0.045)	-0.63 (0.622)	-0.76 (0.506)	-0.99 (0.438)
Family Poverty Rate		6.68*** (0.002)		-0.18 (0.955)	-0.53 (0.901)	0.98 (0.744)
Labor Market Participation Gap		-6.31 (0.366)	-6.73 (0.358)	-21.26** (0.017)	-19.16* (0.076)	
Female Employment Rate (Excluding Agriculture)		-23.02*** (0.006)	-23.35*** (0.004)	-29.68*** (0.004)		
Targeted Social Assistance		0.01 (0.167)	0.01 (0.151)	0.01 (0.241)	0.01 (0.199)	0.01 (0.496)
Demographic Support Program		-0.07 (0.868)	-0.09 (0.850)	-0.03 (0.946)	0.12 (0.830)	-0.11 (0.791)
Pregnancy, Childbirth, Childcare, and Newborn Adoption		-0.99 (0.453)	-1.00 (0.449)	-1.75 (0.134)	-0.98 (0.537)	-2.49** (0.040)
Quarterly Difference of Universal Healthcare System		-0.03 (0.391)	-0.09 (0.850)	0.03 (0.114)	0.04 (0.158)	0.02 (0.134)
Quarterly Difference of Divorce Rate		-0.11 (0.600)	-0.12 (0.562)	-0.20 (0.341)	0.11 (0.641)	-0.14 (0.479)
Average Marriage Age		-0.02 (0.881)		-0.04 (0.844)		-0.13 (0.543)
Male Education						-18.16* (0.086)
Ethnicity Ratio		0.08*** (0.000)	0.08*** (0.000)			
Patriarch's Initiative		-3.87*** (0.002)	-3.90*** (0.002)	-3.42*** (0.000)	-2.85*** (0.000)	-2.33*** (0.007)
Female Employment Rate (Excluding Agriculture) * Divorce Rate [Interaction Term]					-2.37 (0.149)	
Family Poverty Rate * Average Marriage Age [Interaction Term]			0.27*** (0.009)			
Number of Observations		459	459	459	459	459
R-sq	Within	0.1896	0.1894	0.2623	0.2491	0.2522
	Between	0.8668	0.8678	1.0000	1.0000	1.0000
	Overall	0.4268	0.4269	0.5259	0.5175	0.5194

(1) Random Effect Model with Robust Standard Errors
(2) Random Effect Model with Robust Standard Errors
(3) Random Effect Model with Robust Standard Errors Including Regional Dummies
Note: The Fixed Effect Model with Robust Standard Errors shows similar outcomes to Model (2).
(4) Random Effect Model with Robust Standard Errors Including Regional Dummies
Note: The Fixed Effect Model with Robust Standard Errors shows the similar outcomes to Model (3).
(5) Random Effect Model with Robust Standard Errors Including Regional Dummies
Note: The Fixed Effect Model with Robust Standard Errors shows the similar outcomes to Model (4).

Note: All the variables except Sex Ratio at Birth, Crude Birth Rate, and the Dummy Variable of the Patriarch's Initiative are presented in a 4 quarter lagged form in all model specifications.
The Sex Ratio at Birth and Crude Birth Rate are smoothed using a 4 quarter Simple Moving Average (SMA).

The P-values are presented in brackets.

Figure 17. The Queen's and Rook's case contiguities



Source: Lloyd, C. (2010). Spatial data analysis: an introduction for GIS users. Oxford University Press

Table 20. Neighbors

Regions	Code	Queen's Case[77]	Rook's Case[78]
Adjara	1	2 6	2 6
Guria	2	1 3 5 6	1 3 5
Imereti and Racha Lechkhumi	3	2 5 6 8	2 5 6 8
Kakheti	4	7 8	7 8
Samegrelo- Zemo Svaneti	5	2 3	2 3
Samtskhe-Javakheti	6	1 2 3 7 8	1 3 7 8
Kvemo Kartli	7	4 6 8 9	4 6 8 9
Shida Kartli and Mtskheta Mtianeti	8	3 4 6 7 9	3 4 6 7 9
Tbilisi	9	7 8	7 8

Figure 18. Regions of Georgia

Source: Wikipedia contributors, "Georgia (country)", in Wikipedia: the Free Encyclopedia, https://en.wikipedia.org/wiki/Georgia_(country)

[77] When regions that share a border are considered neighbors (see the second image in figure 17).
[78] When regions that have direct borders are considered neighbors (see the first image in figure 17).

Table 21. Connectivity matrix

	Adjara	Guria	Imereti and Racha Lechkhu-mi	Kakheti	Samegre-lo-Zemo Svaneti	Samtskhe-Javakheti	Kvemo Kartli	Shida Kartli and Mtskhe-ta Mtianeti	Tbilisi
Adjara	0[79]	1	0	0	0	1	0	0	0
Guria	1	0	1	0	1	1	0	0	0
Imereti and Racha Lechkhumi	0	1	0	0	1	1	0	1	0
Kakheti	0	0	0	0	0	0	1	1	0
Samegrelo-Zemo Svaneti	0	1	1	0	0	0	0	0	0
Samtskhe-Javakheti	1	1	1	0	0	0	1	1	0
Kvemo Kartli	0	0	0	1	0	1	0	1	1
Shida Kartli and Mtskheta Mtianeti	0	0	1	1	0	1	1	0	1
Tbilisi	0	0	0	0	0	0	1	1	0

[79] In order to exclude self-neighbors, the diagonal elements of the connectivity matrix are conventionally set equal to zero.

Table 22. Estimation of the spatial autoregressive and spatial Durbin models with fixed and random effects

Model:	Dependent Variable: Sex Ratio at Birth				
	SAR with Random Effect	SAR with Random Effect	SAR with Fixed Effect	SDM with Random Effect	SAR with Random Effect
	(1)	(2)	(3)	(4)	(5)
Intercept	94.08*** (0.000)	97.09*** (0.000)		100.41*** (0.000)	111.03*** (0.000)
Crude Birth Rate	-0.68 (0.619)	-0.82 (0.585)	-1.58 (0.166)	-1.16 (0.389)	-1.37 (0.313)
Family Poverty Rate	0.77 (0.787)	1.81 (0.520)	-2.47 (0.629)	-0.15 (0.978)	-0.39 (0.939)
Labor Market Participation Gap	-21.93** (0.016)	-14.40* (0.089)	-20.32*** (0.003)	-22.95*** (0.004)	-18.02** (0.029)
Female Employment Rate (Excluding Agriculture)	-24.70*** (0.006)		-22.49*** (0.001)	-20.45** (0.037)	
Targeted Social Assistance	-0.003 (0.825)	-0.003 (0.895)		0.003 (0.837)	-0.0004 (0.980)
Demographic Support Program	0.02 (0.961)	-0.05 (0.895)	0.23 (0.637)	0.19 (0.748)	0.24 (0.675)
Pregnancy, Childbirth, Childcare, and Newborn Adoption	-1.88 (0.129)	-2.29* (0.082)	-1.24 (0.155)	-1.97 (0.134)	-2.30** (0.037)
Quarterly Difference of Healthcare Coverage Ratio	0.85 (0.327)	0.89 (0.311)	-0.38 (0.858)	0.03 (0.980)	0.23 (0.841)
Quarterly Difference of Divorce Rate	-0.23 (0.133)	-0.17 (0.287)	-0.14 (0.125)	-0.15 (0.189)	-0.11 (0.329)
Average Marriage Age	0.12 (0.635)	0.01 (0.962)	0.75*** (0.000)	0.33 (0.196)	0.31 (0.219)
Male Education		-16.97* (0.057)			-17.78** (0.033)
W * Crude Birth Rate				-0.06 (0.984)	-0.11 (0.968)
W * Family Poverty Rate				-4.47 (0.582)	-3.41 (0.661)
W * Labor Market Participation Gap				0.15 (0.987)	1.78 (0.792)
W * Female Employment Rate (Excluding Agriculture)				-3.80 (0.776)	
W * Targeted Social Assistance				-0.01 (0.446)	-0.004 (0.681)
W * Demographic Support Program				-0.58** (0.040)	-0.56*** (0.002)

W * Pregnancy, Childbirth, Childcare, and Newborn Adoption					0.04 (0.987)	0.26 (0.926)
W * Quarterly Difference of Healthcare Coverage Ratio					0.59 (0.742)	0.13 (0.922)
W * Quarterly Difference of Divorce Rate					-0.18 (0.430)	0.002 (0.991)
W * Average Marriage Age					-0.34 (0.422)	-0.46 (0.203)
W * Male Education						-20.07* (0.097)
Spatial rho		0.23** (0.014)	0.21** (0.024)	-0.30*** (0.007)	0.24*** (0.001)	0.21** (0.010)
Variance lgt_theta		-1.67*** (0.000)	-1.63*** (0.000)		-1.91*** (0.000)	-1.89*** (0.000)
Variance sigma2_e		11.64*** (0.000)	11.64*** (0.000)	8.03 (0.000)	11.27*** (0.000)	11.16*** (0.000)
Number of Observations		441	441	441	441	441
R-sq	Within	0.2133	0.2245	0.0504	0.2304	0.2530
	Between	0.1343	0.2258	0.0018	0.0127	0.0617
	Overall	0.1671	0.2013	0.0021	0.0926	0.1270

(1) Spatial Autoregressive Model (SAR) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
(2) Spatial Autoregressive Model (SAR) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
(3) Spatial Autoregressive Model (SAR) with Fixed Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
(4) Spatial Durbin Model (SDM) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
(5) Spatial Durbin Model (SDM) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)

Note: All the variables except Sex Ratio at Birth, Crude Birth Rate, and the Dummy Variable of the Patriarch's Initiative are presented in a 4 quarter lagged form in all the model specifications.
The Sex Ratio at Birth and Crude Birth Rate are smoothed using a 4 quarter Simple Moving Average (SMA).
The P-values are presented in brackets.

Table 23. . Spatial Regression Models: direct, indirect, and total effects

Model:	Dependent Variable: Sex Ratio at Birth					
	SDM with Random Effect^					
	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect	Total Effect
Crude Birth Rate	-1.11 (0.375)	0.22 (0.940)	-0.90 (0.727)	-1.31 (0.329)	-0.06 (0.983)	-1.37 (0.597)
Labor Market Participation Gap	-22.95*** (0.008)	-4.78 (0.707)	-27.74 (0.117)	-17.95** (0.040)	-1.68 (0.849)	-19.63 (0.199)
Female Employment Rate (Excluding Agriculture)	-20.87** (0.020)	-8.48 (0.663)	-29.35 (0.209)			
Targeted Social Assistance	-0.001 (0.980)	0.002 (0.924)	-0.007 (0.852)	-0.001 (0.966)	-0.007 (0.846)	-0.008 (0.860)
Demographic Support Program	0.20 (0.723)	-0.70 (0.119)	-0.50 (0.570)	0.26 (0.640)	-0.62* (0.068)	-0.36 (0.663)
Pregnancy, Childbirth, Childcare, and Newborn Adoption	-1.89 (0.165)	-0.17 (0.955)	-2.05 (0.439)	-2.20* (0.050)	0.01 (0.998)	-2.19 (0.486)
Quarterly Difference of Universal Healthcare System	-0.24 (0.842)	1.28 (0.387)	1.03 (0.291)	0.004 (0.997)	0.58 (0.609)	0.59 (0.471)
Quarterly Difference of Divorce Rate	-0.18* (0.081)	-0.29 (0.358)	-0.47 (0.180)	-0.13 (0.221)	-0.05 (0.854)	-0.18 (0.544)
Average Marriage Age	0.38* (0.092)	0.20 (0.713)	0.18 (0.724)	0.33 (0.137)	-0.36 (0.418)	-0.03 (0.945)
Male's Education				-19.46** (0.012)	-29.16* (0.054)	-48.62** (0.016)

^ Spatial Durbin Model (SDM) with Random Effect and Clustered Sandwich Estimator (the Clustered Variable is Region)
Note: All the variables except Sex Ratio at Birth, Crude Birth Rate, and the Dummy Variable of the Patriarch's Initiative are presented in a 4 quarter lagged form in all the model specifications.
The Sex Ratio at Birth and Crude birth Rate are smoothed using a 4 quarter Simple Moving Average (SMA).
The P-values are presented in brackets.

REFERENCES

ADB. (2018). *Georgia country gender assessment.* Tbilisi: ADB publications.

Andersson, G., Duvander, A.-Z., & Karsten , H. (2004). Do child-care characteristics influence continued child bearing in Sweden? An investigation of the quantity, quality, and price dimension. *Journal of European Social Policy 14.4* , 407-418.

Anukriti, S. (2014). The fertility-sex ratio trade-off: unintended consequences of financial incentives. *IZA discussion paper No. 8044*.

Baruch, S., Kaufman, D., & Hudson, K. L. (2008). Genetic testing of embryos: practices and perspectives of US in vitro fertilization clinics. *Fertility and Sterility 89.5*, 1053-1058.

Basten, S., & Verropoulou, G. (2013). 'Maternity migration' and the increased sex ratio at birth in Hong Kong SAR. *Population Studies, Vol. 67, No. 3*, 323-334.

Beernink, F. J., Dmowski, W. P., & Ericsson, R. J. (1993). Sex preselection through albumin separation of sperm. *Fertility and Sterility 59.2*, 382-386.

Belotti, F., Hughes, G., & Mortari, A. P. (2017). Spatial panel-data models using Stata. *The Stata Journal 17.1* , 139-180.

Bernhardt, E. M. (1993). Fertility and employment. *European Sociological Review 9.1*, 25-42.

Bhalotra, S. R., & Cochrane, T. (2010). Where have all the young girls gone? Identification of sex selection in India. *IZA discussion paper No. 5381*.

Chang, K. (2014). Individualization without Individualism: compressed Modernity and Obfuscated Family Crisis in East Asia. In E. Ochiai, & L. A. Hosoya, *Transformation of the Intimate and the Public in Asian Modernity* (pp. 37-62). Boston: Brill.

Chao, F., Gerland, P., Cook, A. R., & Alkema, L. (2019). Systematic assessment of the sex ratio at birth for all countries and estimation of national imbalances and regional reference levels. *Proceedings of the National Academy of Sciences*, 9303-9311 .

Chitanava, M., & Kuziakiv, O. (2015). *Economic reforms: market liberalization VS social responsibility lessons learnt from Georgia for Ukraine.* Tbilisi: The centre for cultural relations.

Chung, W. (2007). The relation of son preference and religion to induced abortion: the case of South Korea. *Journal of Biosocial Science 39*, 707–719.

Chung, W., & Das Gupta, M. (2007). The decline of son preference in South Korea: the roles of development and public policy. *Population and Development Review, vol. 33, no. 4*, 757-783.

Das Gupta, M. (1987). Selective discrimination against female children in rural Punjab, India. *Population and Development Review 13.1* , 77-100.

Das Gupta, M. (2010). Family systems, political systems and Asia's 'missing girls'. *Asian Population Studies*, 123-152.

Das Gupta, M., Zhenghua, J., Bohua, L., Zhenming, X., Chung, W., & Hwa-Ok, B. (2003). Why is son preference so persistent in East and South Asia? a cross-country study. *The Journal of Development Studies, 40:2*, 153-187.

Del Boca, D. (2002). The effect of child care and part time opportunities on participation and fertility decisions in Italy. *Journal of Population Economics 15.3*, 549-573.

Den Boer, A., & Hudson, V. (2017). Patrilineality, son preference, and sex selection in South Korea and Vietnam. *Population and Development Review 43(1)*, 119–147.

Duthé, G., Meslé, F., Vallin, J., Badurashvili, I., & Kuyumjyan, K. (2012). High sex ratios at birth in the Caucasus: modern technology to satisfy old desires. *Population and Development Review 38(3)*, 87–501.

Dyson, T. (2012). Causes and consequences of skewed sex ratios. *Annual Review of Sociology*.

Ebenstein, A. (2010). The "missing girls" of China and the unintended consequences of the one child policy. *Journal of Human Resources 45.1* , 87-115.

Echavarri, R., & Ezcurra, R. (2010). Education and gender bias in the sex ratio at birth: evidence from India. *Demography 47(1)*, 249-268.

Edlund , L. (1999). Son preference, sex ratios, and marriage patterns. *Journal of Political Economy 107(6)*, 1275-1304.

Edlund, L., & Lee, C. (2013). Son preference, sex selection and economic development: the case of South Korea. *NBER working paper No. 18679*.

Ermisch, J. F. (1989). Purchased child care, optimal family size and mother's employment: Theory and econometric analysis. *Journal of Population Economics 2.2*, 79-102.
Ganatra, B. (2008). Maintaining access to safe abortion and reducing sex ratio imbalances in Asia. *Reproductive Health Matters*, 90-98.
Gietel-Basten, S., & Verropoulou, G. (2019). Maternity migration and the recent normalization of the sex ratio at birth in Hong Kong. *Population Studies*, 1477-4747.
Guilmoto, C. (2015). La masculinisation des naissances. État des lieux et des connaissances. *Population*, 185-243.
Guilmoto, C. Z. (2009). The sex ratio transition in Asia. *Population and Development Review: 35(3)*, 519–549.
Guilmoto, C. Z., Dudwick, N., Gjonca, A., & Rahm, L. (2017). How do demographic trends change? The onset of birth masculinization in Albania, Georgia, and Vietnam 1990–2005. *Population and Development Review*, 1-25.
Hank, K., & Kreyenfeld, M. (2006). A multilevel analysis of child care and women's fertility decisions in Western Germany. *Journal of marriage and family 65.3*, 584-596.
Harris, R. D., & Tzavalis, E. (1999). Inference for unit roots in dynamic panels where the time dimension is fixed. *Journal of Econometrics 91.2*, 201-226.
Hesketh, T., & Xing, Z. (2006). Abnormal sex ratios in human populations: causes and consequences. *Acad. Sci. USA 103(36)*, 13271–75.
Hung, B. K., Tse, W., & Leung, K. (2013). Trend of sex ratio at birth in a public hospital in Hong Kong from 2001 to 2010. *Hong Kong Med J Vol 19 No 4*.
Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics 115.1*, 53-74.
Janelli, R., & Yim, D. (2004). The transformation of filial piety in contemporary South Korea. *Filial Piety: Practice and Discourse in Contemporary East Asia*, 128-152.
Kantorová, V. (2004). Education and entry into motherhood: The Czech Republic during state socialism and the transition period (1970-1997). *Demographic Research 3*, 245-274.
Khitarishvili, T., Rodriguez-Chamussy, L., & Sinha, N. (2018). Occupational segregation and declining gender wage gap: the case of Georgia. *The World Bank*.
Kim, D. (2004). Missing girls in South Korea: trends, levels and regional variations. *Population, 59(6)*, 865–878.
Kim, H., & Bae, H.-A. (2018). A critical assessment of abortion law and its implementation in South Korea. *Asian Journal of Women's Studies*, 71-87.
Kim, J. W., & Choi, Y. J. (2013). Farewell to old legacies? The introduction of long-term care insurance in South Korea. *Ageing and Society 33(05)*, 871–887.
Kim, S. G., Ae Cho, Y. K., Se Kyong, P., & Kon Wu, Y. (2004). The 2003 national survey on fertility and family health. *Seoul: Korea Institute for Health and Social Affairs*.
Kravdal, Ø. (1996). How the local supply of day-care centers influences fertility in Norway: a parity-specific approach. *Population Research and Policy Review 15.3*, 201-2018.
Kutateladze, N. (2017). Getting further down the road – improving the quality of education in Georgia. *World Bank Blog, Eurasian Perspectives*. Retrieved from: https://blogs.worldbank.org/europeandcentralasia/getting-further-down-road-improving-quality-education-georgia
Lanchava, L. (2014). Does religious activity affect childbearing decisions? The case of Georgia. *CERGE-EI Working Paper Series No. 521*.
Lee, C. (2013). Economic change and son preference: female labor-market performance and sex ratios at birth in Korea. *Review of Applied Economics, 15(1)*, 219–246.
Lee, S. (2003). The relationship between son preference and fertility. *Korea Journal of Population Studies, 26(1)*, 31–57.
Lesthaeghe, R. a. (2001). Ready, willing, and able: a conceptualization of transition to new behavioral forms. In J. B. Casterline, *Diffusion Processes and Fertility* (pp. 240–264). The National Academies Press.
Levin, A., Lin, C.-F., & Chu, C.-S. J. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of Econometrics 108.1* , 1-24.
Li, H. J., Yi, J., & Zhang, J. (2011). Estimating the effect of the one-child policy on the sex ratio imbalance in China: identification based on the difference-in-differences. *Demography 48*, 1535–1557.
Li, H., & Zheng, H. (2009). Ultrasonography and sex ratios in China. *Asian economic policy review 4*, 121–137.
Lin, M.-J., Liu, J.-T., & Qian, N. (2010). More missing women, fewer dying girls: the impact of abortion on sex ratios

at birth and excess female mortality in Taiwan. *NBER Working Paper 14541*.
Lloyd, C. (2010). *Spatial data analysis: an introduction for GIS users.* Oxford University Press.
Matysiak, A. (2009). Is Poland really 'immune' to the spread of cohabitation? *Demographic Research 21*, 215-234.
Miller, B. D. (2001). Female-selective abortion in Asia: patterns, policies, and debates. *American anthropologist 103.4*, 1083-1095.
Ministry of Education, Science, Culture, and Sport of Georgia. (2012). *Facts to know about Georgian education system.* Tbilisi.
Murphy, R., Tao , R., & Lu, X. (2011). Son preference in rural China: patrilineal families and socioeconomic change. *Population and Development Review, Vol. 37, No. 4*, 665-690.
Murphy, R., Tao, R., & Lu, X. (2011). Son preference in rural China: patrilineal families and socioeconomic change. *Population and Development Review, Vol. 37, No. 4*, 665-690.
Neyer, G., Lappegård, T., & Vignoli, D. (2013). Gender equality and fertility: which equality matters? *European Journal of Population/Revue Européenne de Démographie 29.3*, 245-272.
Park, B. C., & Cho, N.-H. (1995). Consequences of son preference in a low-fertility society: imbalance of the sex ratio at birth in Korea. *Population and Development Review*, 59-84.
Peng, I. (2011). The good, the bad and the confusing: the political economy of social care expansion in South Korea. *Development and Change 42(4)*, 905–923.
Rahm, L. (2018). *Policy impact analysis on son preference in Azerbaijan: research guidelines.* UNFPA Azerbaijan.
Rahm, L. (2019). *Gender-biased sex selection in South Korea, India and Vietnam.* Demographic Transformation and Socio-Economic Development.
Rindfuss, R. R., Guilkey, D., Morgan, P. S., Kravdal, Ø., & Guzzo, B. K. (2007). Child care availability and first-birth timing in Norway. *Demography 44(2)*, 345-372.
Róbert, P., & Bukodi, E. (2005). The effects of the globalization process on the transition to adulthood in Hungary. *Globalization, uncertainty and youth in society: the losers in a globalizing world*, 177-2014.
UNDP. (2017). *Vision for developing the healthcare system in Georgia by 2030.* Tbilisi.
UNDP. (2018). *Gender equality in Georgia: barriers and recommendations.* Tbilisi: Study under the UN joint programme for gender equality,.
UNFPA. (2015). *Gender-biased sex selection in Georgia - context, evidence and implications.* Tbilisi: UNFPA.
UNFPA. (2017). *Trends in the sex ratio at birth in Georgia: an analysis based on the 2014 General Population Census Data.* Tbilisi: UNFPA.
UNICEF. (2018). *Study on quality of early childhood education and care in Georgia.* Tbilisi.
United Nations. (1991). *Handbook of vital statistics systems and methods.* New York: United Nations Studies in Methods, Glossary, Series F, No. 35.
United Nations, Department of Economic and Social Affairs, Population Division. (2019). *World population prospects 2019.* New York: United Nations online edition.
UN-Women. (2018). *Women's economic inactivity and engagement in the informal sector in Georgia.* Tbilisi: United Nations Entity for Gender Equality and the Empowerment of Women.
Westley, S., & Choe, M. K. (2007). How does son preference affect populations in Asia? *East-West Cent. Asia Pac. Issues 84:1-12*.
WHO. (2011). *Preventing gender-biased sex selection. An interagency statement OHCHR, UNFPA, UNICEF, UN Women and WHO.* World Health Organization.
World Bank. (2013). *The skills towards employability and productivity (STEP).* Washington D.C.
World Bank. (2017). *Georgia and the World Bank group 25 years of partnership. Promoting prosperity for the people.* 1818 H Street NW, Washington DC 20433: The World Bank.
World Bank. (2018). *Worldwide government indicators (WGI).* Washington D.C.
World Bank. (2019). *Doing business 2019.* Washington D.C.
World Bank. (2019). *World development indicators.* Washington, D.C.
World Economic Forum. (2015). *Global Competitiveness Report 2015-2016.* Geneva.
Yoo, S. H., Hayford, S. R., & Agadjanian, V. (25–54). Old habits die hard? Lingering son preference in an era of normalizing sex ratios at birth in South Korea. *Population Research and Policy Review*, 2017.
Zeng , Y., Ping, T., Baochang, G., Yi, X., Bohua, L., & Yongpiing, L. (1993). Causes and implications of the recent increase in the reported sex ratio at birth in China. *Population and Development Review, Vol. 19, No. 2*, 283-302.

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