TRENDS IN THE SEX RATIO AT BIRTH IN GEORGIA

An Overview Based on the 2014 General Population Census Data

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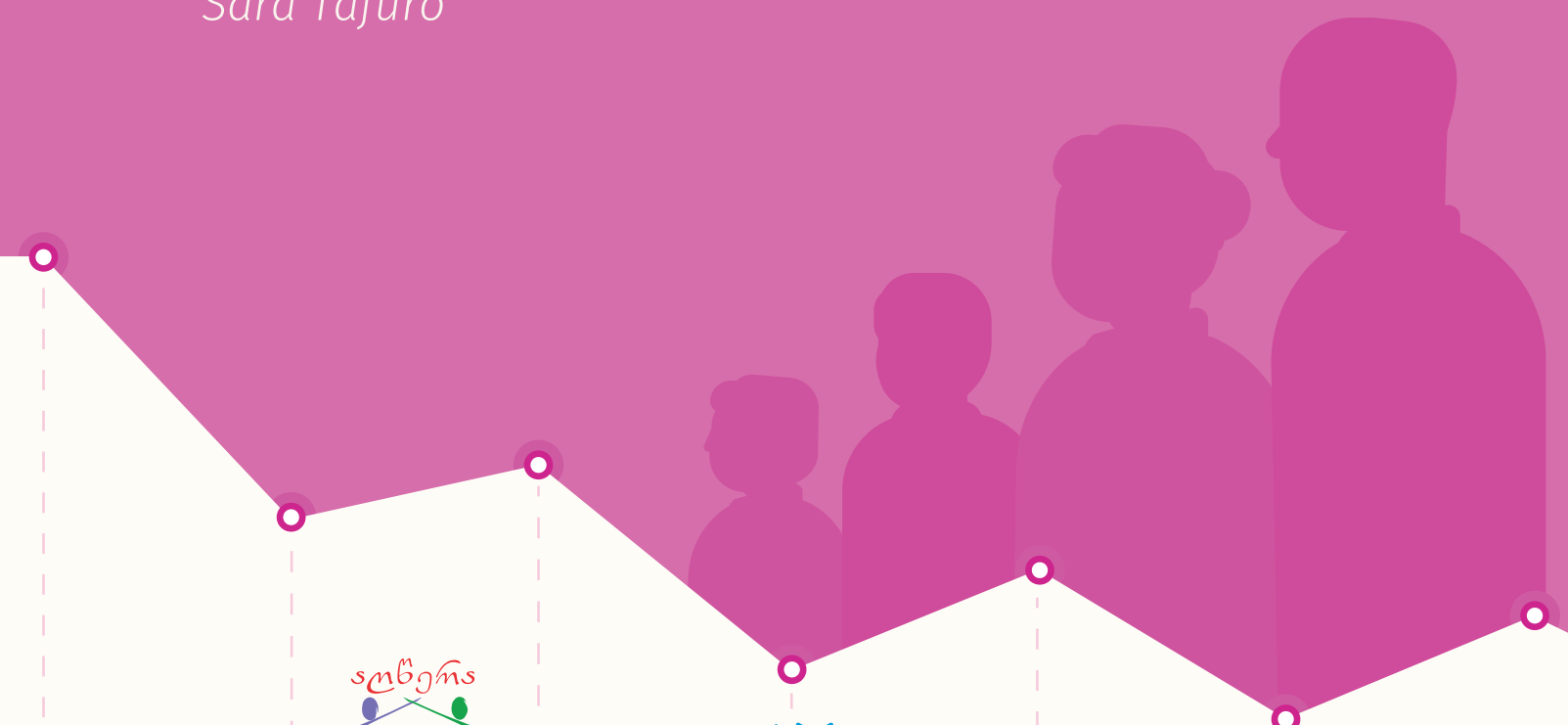

2014
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UNFPA
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2017

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National Statistics Office of Georgia
United Nations Population Fund (UNFPA) Office in Georgia

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An Overview Based on the 2014 General Population Census Data

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Preface

The National Statistics Office of Georgia and the United Nations Population Fund (UNFPA) Country Office in Georgia present: *Trends in the Sex Ratio at Birth in Georgia - An Overview Based on the 2014 General Population Census Data.*

By its scale and content, the Census represents a unique source of data on the social, economic and demographic situation of the population in the country. As a result of the 2014 Census, the most current and accurate information has been collected on population size, its sex and age structure, employment, education, health, sources of income, housing and agricultural activities in Georgia. Using the Census 2014 data, the present report investigates the trends in sex imbalances at birth in Georgia and its determinants, analysing household and family formation, with a particular emphasis on fertility behavior in relation to gender.

This monograph is based on work conducted in both Georgia and France. The first author is primarily responsible for the demographic analysis while the second author conducted and analyzed the survey in Kakheti. This monograph only considers territories where the 2014 census was conducted.

This report is another step by UNFPA to support the use of reliable population data and its analysis in the formulation of rights-based policies, including on sex ratio at birth, through cutting-edge analysis on population dynamics and its interlinkages with sustainable development.

Acknowledgement

In Georgia, we have benefited from the extensive support offered by the UNFPA Country Office in Tbilisi. We would first like to express our gratitude to Lela Bakradze, UNFPA Assistant Representative, and to her colleagues Mariam, Nino, Anna, Mari, and Nukri from UNFPA Country Office for their assistance before, during, and after our visit to Georgia in November 2016.

This project would not have been possible without the full collaboration of the National Statistics Office of Georgia (Geostat). In particular, we received extensive help from my colleagues Paata Shavishvili and Shorena Tsiklauri in order to deal with census and civil registration data. In a second step, Sandro Ambokadze offered all the necessary support for performing a complex remote analysis of the original census microdata released in 2017. We are also grateful to Eduard Jongstra for his critical comments on a first draft of this report.

In Tbilisi, we were privileged to meet a large number of colleagues from government departments, academic circles, and international organizations. In particular, we benefited from extended discussions on social and policy issues with Natia Kvitsiani (IOM), Giorgi Jashi (State Commission on Migration issues), Elza Jgerenaia, (Ministry of Labor, Health and Social Affairs), Nino Odisharia (Ministry of Labor, Health and Social Affairs), Keti Goginashvili (Ministry of Health and Social Affairs), and Tako Kuratishvili (Partnership for Human Rights). We would also like to thank our colleagues Tamar Sabedashvili (UN Women), Norberto Pignatti and Karine Torosyan (ISET, Tbilisi State University), Tiko Tsomaia (Georgian Institute of Public Affairs), Iago Kachkachishvili (Tbilisi State University), Regis Genté (Radio France), Nana Sumbadze (Institute for Policy Studies), and last but not least, Irina Badurashvili (Georgian Centre of Population Research, with whom we discussed the recent streams of social change in Georgia.

The research in Kakheti was conducted with the help of the Centers for Civic Engagement in Telavi. We would like to thank Maya Purtskhvanidze for her precious help in organizing the field operations. Lastly, Laura Rahm was of great help in Paris during the finalization of this monograph.

Abbreviations

DHS	Demographic and Health Survey
GBSS	Gender-Biased Sex Selection
Geostat	National Statistics Office of Georgia
IOM	International Organization for Migration
MICS	Multiple Indicator Cluster Survey
NGO	Non-Governmental Organization
OR	Odd Ratio
PPR	Parity Progression Ratios
PSDA	Public Service Development Agency
PACE	Parliamentary Assembly of the Council of Europe
RCH	Reproductive and Child Health (Survey)
SDGs	Sustainable Development Goals
SES	Socioeconomic Status
SRB	Sex Ratio at Birth
PGD	Pre-Implantation Genetic Diagnosis
TFR	Total Fertility Rate
TSA	Targeted Social Assistance
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Administrative Map of Georgia

Executive Summary

Prenatal sex selection has emerged in the late 1980s as a widespread harmful practice in several Asian countries. Since the 1990s, the male-to-female sex ratio at birth (SRB) has also risen in certain areas of Southeast Europe and Central Asia: Georgia started experiencing significant sex imbalances at birth along with its neighbors, Armenia and Azerbaijan.

This study investigates the trends in sex imbalances at birth in Georgia in the light of the new census results. It follows previous studies that documented the presence of gender-biased sex selection in the three countries of the South Caucasus. It updates, in particular, the findings of a detailed report published in 2015 on the demographic gender bias in Georgia, based on the 2002 census, available civil registration data, and the results of a large-scale qualitative survey conducted in 2014 (UNFPA, 2015). This monograph is based in priority on the microdata made available for processing by Geostat in 2017. The analysis is complemented by a series of interviews held with experts and private citizens in Tbilisi and in the Kakheti region in November 2017.

This monograph starts with a brief overview of the phenomenon of sex selection in the world. This introduction is followed by an outlook on the data available in 2017 to study sex imbalances at birth in Georgia and its determinants. Subsequently, findings from the census provide materials for an analysis of household and family formation, with particular attention paid to fertility behavior in relation to gender. Census data are also used for a detailed analysis of sex imbalances at birth during the ten years preceding the 2014 census. Finally, these results are combined with birth registration data to provide an overall picture of the rise and fall of the SRB in Georgia from 1990 to 2016. The last chapter brings together demographic estimates and socioeconomic findings to interpret the contextual factors behind the gradual decline in prenatal gender discrimination in Georgia.

The overall picture resulting from our analysis shows Georgia as still being characterized, at the eve of the 2014 census, by a traditional family system and several manifestations of gender bias. The analysis of census microdata shows, in particular, the prevalence of extended families and estimates show that more than 43 percent of Georgia's population live in three-generational households. Among young children, the proportion living in complex households rises above 60 percent, confirming that a significant majority of Georgians are socialized in multigenerational families. A vast majority of these complex households are formed by parents living with their married son's wife and children. Moreover, census data show that more than half of the women were married before the age of 22 and that post-marital coresidence with the husband's parents is the norm. The analysis further demonstrates that even if fertility has risen by more than 25 percent since the 2000s, Georgian couples had only two children on average during the years preceding the census.

Another dimension that underwent limited changes since the 2002 census concerns gender-biased fertility behavior. Georgian parents closely adjust their fertility behavior to the gender of their already-born children, and families with two or more daughters are twice as likely as couples who already have a son to have an additional child. It is therefore of no surprise that the measurement of the sex ratio at birth before the 2014 census points to the same type of gender preference. The sex ratio of third births among parents without a son reached its highest level above 170 male births per 100 female births, as against an average SRB value of 109 in 2010-14. In contrast, there are no measurable sex imbalances at birth among women who had already borne a male child. A disaggregated analysis shows, however, that a significant share of excess male births took place during the first or second births (39 percent).

A range of different regional, cultural, and socioeconomic indicators were tested to delineate the main correlates of high or low son preference and birth masculinity in Georgia. Elevated SRB levels are, in particular, associated with

agricultural households, ethnic minorities, lower educational levels, and socioeconomic status. High birth masculinity is pronounced in three regions of southeastern Georgia. There is a great deal of overlap between these predictors of high SRB, but ethnicity emerges as one of the most powerful correlates. The average SRB in 2010-14, for instance, was as high as 126 among Azeri households (117 among Armenians) against 107 among Georgians. Living in a multigenerational household also significantly increases the overall SRB. In contrast, normal SRB levels are observed among urban, better educated, and more affluent households. Residence in Tbilisi and reliance on social assistance proved to be the strongest predictors of normal sex ratio at birth. Tbilisi's more cosmopolitan lifestyle is also associated with the lowest level of gender bias in fertility behavior independently of higher income or educational level.

The confrontation of data from various sources leads, for the first time, to a reconstruction of annual SRB estimates from 1990 to 2016. This series confirms the rapid rise after 1991 and the subsequent leveling off that emerged before 2000 at levels oscillating at around 114 male births per 100 female births. Most importantly, it also delineates the sustained decline in birth masculinity during the mid-2000s. The SRB first fell below 110 in 2009 and finally reached the natural level of 105 male births per 100 female births in 2016. It may be too early to assert that the SRB transition is finally over in Georgia after 25 years of imbalances, but many signs point to a sustained trend back to normal levels. We lack detailed post-2014 data to decompose this SRB reduction, but the census data suggest that urban or metropolitan residence along with some favorable socioeconomic variables were associated with the initial decline. However, birth masculinity levels are still skewed in the southeastern regions of Kakheti, Kvemo Kartli, and Samtskhe-Javakheti, which suggests that minorities may be the last to abandon sex selection.

In early 2017, the main elements of evidence regarding the SRB decline are limited to: 1) its timing (after 2003), 2) its top-down character (privileged groups ahead of the pack), and 3) the pioneering trajectory of Tbilisi (where SRB was close to normal before 2010). This has led us to discuss different theories accounting for Georgia's unique decline in birth masculinity.

A central hypothesis relates to the macro-level changes observed since the Rose Revolution after years of troubled political and economic events and unstable public institutions. Notably, the introduction and consolidation of social security, pension, and other policies launched since 2005 had the effect of gradually relieving the traditional patrilineal family of its crucial role of socioeconomic buffer against health, unemployment, and age hazards. In addition, 2003 also coincided with the beginning of a fertility rebound in the country that brought birth rates to a new high in 2010. This coincidence suggests that a growing number of couples may have decided to reach their gendered reproductive objective through additional births rather than prenatal sex selection. Moreover, these transformations also took place in a period during which women have seen a gradual improvement in their condition and autonomy, and the influence of new values and social norms (coming, for instance, from Western countries) has spread widely—whether through media channels, lifestyles, or direct political influence. It is only with further data on Georgia's unique social dynamics and a more systematic comparison with the context specific to Armenia and Azerbaijan—where the ongoing SRB transition has proved comparatively slower—that we may be able to delineate more precisely the factors at the core of the weakening of prenatal sex selection.

This monograph has demonstrated the presence of two seemingly discordant processes: the persistence of a strong preference for sons in the country at the time of the 2014 census and the rapidly improving sex ratio at birth in Georgia until 2017. We present several policy recommendations that follow from these findings. These principally point to the persisting need to strengthen our knowledge base, and to the importance of sharing Georgia's unique experience with the international policy community.

1. Introduction

This monograph investigates the trends in sex imbalances at birth in Georgia in the light of the new census results. It follows previous studies that documented the presence of gender-biased sex selection in the three countries of the Caucasus. It updates, in particular, the findings of a detailed report published in 2015 exploring this demographic trend in Georgia and based on the 2002 census figures, on the available civil registration data, and on the results of a large-scale qualitative survey (UNFPA, 2015a). This monograph draws in particular from the final census results that became available at the end of 2016. It is also enriched by a series of interviews held with experts in Tbilisi and among different sections of the population in Kakheti in November 2016.

This section provides an overview of the study and of its main objectives.

1.1 Presentation of the Monograph

This monograph is divided into seven chapters, starting with the present introduction.

Chapter 2 is a brief presentation of the issue of sex imbalances at birth. It explores issues related to the measurements and interpretation of the sex ratio at birth and offers an overview of the current situation in the world, including in the South Caucasus region.

In Chapter 3, we present the main data sources and procedures used in this study. The 2014 census provides the majority of the disaggregated statistical information, but data from other sources, such as the birth registration system, are also used. The original methodology used here to examine sex imbalances is described in detail to encourage the development of similar census-based studies.

Chapter 4 provides an overview of the demographic picture in Georgia based on the 2014 census on family and gender. We offer an updated description of the extent and implementation strategies of son preference with the help of a detailed analysis of fertility behaviors as measured from census micro-data.

Chapter 5, the core of this study, examines prenatal sex selection in Georgia per se. We review the recent statistical evidence on Gender-Biased Sex Selection (GBSS) with the help of census microdata and of civil registration tabulations. The chapter provides estimates of the current level of sex imbalances at birth, its variations within the country as well as its detectable correlates, and confronts them with the civil registration figures. This chapter combines cross tabulations and modeling of the original census data.

Following this, Chapter 6, explores potential explanations for the SRB turnaround in Georgia. It is based on some of the demographic estimates gathered in the previous chapters and supplemented by a review of the literature as well as the lessons drawn from interviews in Tbilisi and the fieldwork in Kakheti conducted in 2017. It reviews, in particular, the potential contribution of demographic, policy and social changes in the ultimate decline in the sex ratio at birth.

The monograph concludes with a summary of our findings and offers a set of recommendations to address the ongoing issue of sex selection in Georgia.

1.2 Purpose of the Monograph

The diffusion of behaviors of gender-biased prenatal discrimination in Eastern Europe has been described by several studies. Countries in both the Western Balkans and in South Caucasus witnessed a rapid reduction in the proportion of female children, mirrored by a skewed SRB. Of late, the Parliamentary Assembly of the Council of Europe (PACE) report prepared in 2014 (Council of Europe, 2014) pointed to a potential increase in prenatal

sex selection in several of these countries (UNFPA, 2015b). UNFPA has sponsored research in Albania and Armenia in 2012 (UNFPA 2012b, 2013) and more recently in Azerbaijan, Georgia and Kosovo (UNFPA 2014, 2015a, 2016).

Like its eastern neighbors Armenia and Azerbaijan, Georgia has long been characterized by inordinate levels of birth masculinity. However, the statistical evidence rested on the somewhat old census conducted in 2002 and on civil registration data of questionable quality. The present study was designed to take full advantage of the release of the final figures of the 2014 census. It starts with a close-up investigation of the gender dimension of fertility behaviors of Georgian couples. The study primarily aims to revisit some of the main trends and characteristics of sex imbalances at birth: its intensity, its demographic mechanisms, its social, regional, and economic correlates, but also its recent trends. Of particular interest is the hypothesis of a recent SRB decline, already detected in the previous study (UNFPA, 2015a). This hypothesis is linked to the acknowledgment that the country has witnessed deep transformations in its social and political system in the last fifteen years. However, the potential influence of these changes on gender discriminatory behaviors is still to be examined.

Statistical difficulties often preclude any easy interpretation of trends and variations in birth masculinity. The quality of Georgia's statistical system has been severely undermined by its political instability after the fall of the Soviet Union and all demographic sources need to be handled with care. This monograph's intention is to gather statistical evidence of this potential decline in SRB levels in the country and across social groups. Moreover, it provides a description of the main differentials of gender preference in fertility and in sex selection, attempting to explain how they relate to the demographic trend.

A final objective of this monograph is to examine some of the potential drivers of the recent SRB turnaround. The investigation reviews the processes at work in the country over the last fifteen years and relates the decline of the sex ratio at birth to transformations in other domains—such as in political institutions, social protection, social attitudes towards gender and family, and demographic dynamics. The relevance of Georgia's trends in birth masculinity goes well beyond its borders, since recent changes appear unique and could serve as a reference for other countries affected by the same forms of discrimination. This study thus offers suggestions that can be of use elsewhere in Eastern Europe.

2. An Outlook on Sex Imbalances

This chapter introduces some of the main features of sex imbalances. The outcome of interest in this monograph is the presence of an excess of male births (or deficit of female births) observed in several parts of the world because of intentional discriminatory behavior to prevent female births. The situation of China and India in this respect has long been documented, since the emergence of this phenomenon dates back to the 1980s. Nonetheless, there is a need for a summary of the factors involved in the process of sex selection and for an overview of the current situation across the world.

2.1 Biological Mechanisms Affecting the Sex Ratio

When analyzing the sex ratio, it is necessary to start the discussion by highlighting two separate phenomena determining the biological norm. First, in the human species, the natural proportion of male births is always higher by a few percentage points than that of female births. In fact, the SRB tends to be close to 105 male births per 100 female births. This ratio normally fluctuates across populations within a range of 104-106. The child population is therefore slightly skewed towards boys. Second, the female population always enjoys better survival conditions. With few exceptions, mortality rates are higher among males from infancy to old age. As a result, the sex ratio tends to decline with age: women gradually become a majority and the imbalance is especially apparent among the elderly because of higher female longevity.[1]

In addition to these two biological processes, migration often causes additional imbalances in the distribution of the population by sex. Notably, in many East-European countries, men tend to predominate among long-distance migrants and this process contributes to decreasing the sex ratio among the adult resident population. In contrast, Georgia is characterized by an active participation of women in international labor migrations (Hakkert & Sumbadze, 2017). Measured sex ratios are therefore the product of different biological and social mechanisms. They tend to vary greatly by age because of mortality and migration differentials and local figures are even more subject to imbalances caused by migratory behavior.

Lastly, it is important to add that measurement errors may also hamper the understanding of SRB trends. One example is underregistration during surveys or censuses. Another limitation relates to the size of the birth or population samples used to compute sex ratios. Small numbers are vulnerable to sizable random fluctuations and sex ratio estimation can therefore be misleading. If we, for instance, compute birth masculinity in a sample of 1,000 births, the measurement of an actual sex ratio of 105 males per 100 females may oscillate between 92.8 and 118.9 (95 percent confidence interval). Even with a sample of 10,000 (ten times bigger), the range of the 95 percent extends from 101.0 to 109.2. As we will see, many estimates—such as births among minorities in a given year—in fact refer to a few thousand events or less and may therefore be fraught by measurement uncertainty.

2.2 Gender Discrimination through Demographic Behavior

Demographers have already observed that the world's population displays higher than normal levels of masculinity due to the millions of "missing women" estimated in Asia (Bongaarts & Guilmoto, 2015). A major share of this female demographic deficit is due to excess female mortality in several countries, primarily in East and South Asia. Excess mortality of girls or adult women caused by neglect

1 See Guilmoto (2015) and UNFPA (2012a) for a global overview of the issue of sex imbalances at birth.

and discrimination remains, however, almost non-existent in Eastern Europe.

Another major share of the overall female deficit observed in the world is caused by the selective abortions of female fetuses. During the 1990s, statisticians started noticing abnormally high proportions of male births in China, India, and South Korea and linked these imbalances to the practice of interrupting the pregnancy when the fetus is female. Prenatal discrimination spread rapidly, and gradually became a major cause of the overall gender imbalance observed in the world's population. While the direct measurement of the number of sex-selective abortions remains unfeasible, the rise of the SRB beyond its biological norm is a clear sign of the diffusion of this type of behavior. Prenatal sex selection appeared during the 1980s since amniocentesis and later ultrasound allowed parents to know the sex of the children in advance. In countries where abortion was easily accessible, a growing number of parents were able to terminate pregnancies according to the gender of the expected babies. Recent methods—such as fetal blood tests and the pre-implantation genetic diagnosis (PGD)—allow parents to intervene even earlier before or during pregnancy.

Prenatal selection has a direct bearing on sex ratios. For instance, if 5 percent of female fetuses are aborted, the sex ratio at birth will rise from 105 male births per 100 female births to 111 (=105/95). Therefore, the action of a minority of couples may affect the overall sex ratio at birth and generate a long-term imbalance in a given birth cohort.

We should also stress the extreme heterogeneity that characterizes the sex ratio across groups or reproductive stage across subpopulations. For instance, many parents remain unconcerned by the sex of their first child and only a minority would decide to terminate a first female pregnancy even in spite of a staunch preference for sons. Similarly, parents are largely optimistic that the second birth will bring a child of the desired sex. As a result, the sex ratio of first and second births is normally barely skewed and usually well beyond 110 male births per 100 female births in countries where the average fertility is close to replacement level (2.1 children per woman). However, the situation is different for the next birth, which is very often determined by the lack of boys among the first two children. Consequently, the sex ratio at birth among third births is especially skewed—reaching values above 125 male births per 100 female births—as many parents refuse to have three or more girls in a row and resort to prenatal sex selection.

Similarly, there are often differences in the propensity to sex select across social classes, ethnic groups, or regions. These differentials in sex ratio levels are, at times, due to cultural differences and the varying intensity of son preference and patriarchal norms within a country. They may also be due to socioeconomic status, which affects fertility levels, on access to sex selection technologies, and on the perceived economic need for sons in the family. These variations need to be recognized and assessed, as they offer a key to a better understanding of the phenomenon and its context, while also allowing for a better targeting of interventions to reduce gender bias in the country.

2.3 Sex Imbalances at Birth Today

While excess female mortality is unheard of in the Caucasus and notably in Georgia, unfortunately, the region has a history of prenatal discrimination. For this reason, this section will focus only on sex imbalances at birth. In *Table 2.1*, we can assess the variations observed across the world in levels of birth masculinity. In most countries, such as Turkey or Germany, the SRB oscillates around 105 male births per 100 female births, but in a few other countries, estimates SRB levels are far above the biological standard. As is well known, China is a major contributor to the number of excess male births. Its SRB increased in the late 1980s and reached 120 male births per 100 female births by the turn of the century. Nonetheless, China's SRB level has been declining over the last ten years. Elsewhere in East Asia and Southeast Asia, birth masculinity levels are also elevated, as attested by estimates for Vietnam, Taiwan, Singapore, and Hong Kong.

The second most affected country is India. The sex ratio at birth is today estimated at 110, a somewhat

Table 2.1: Sex ratio at birth in various countries, 2009-2016

Country/regions	SRB	Period	Data source
East Asia			
China	114.7	2014-15	Annual estimate
South Korea	105.1	2015-16	Birth registration
Vietnam	112.2	2013-14	2014 Population survey
South Asia			
India	110.0	2014-13	Sample registration
South Caucasus			
Azerbaijan	114.6	2014-15	Birth registration
Armenia	113.3	2014-15	Birth registration
Georgia	108.0	2010-16	Birth registration
Southeast Europe			
Albania	109.0	2012-13	Birth registration
Kosovo	110.9	2014-16	Birth registration
Montenegro	109.0	2012-14	Birth registration
Other countries			
Germany	105.4	2014	Birth registration
Russian Federation	105.7	2013	Birth registration
Turkey	105.7	2014	Birth registration

Source: Compiled from national statistical bureaus

moderate level. However, the country now has the largest number of annual births and its influence on world demographics is primordial. The SRB has also recently deteriorated in Vietnam and Nepal. An interesting counter-example of rising SRBs is that of South Korea: in this country only, the SRB did rise in the early 1990s, but subsequently declined, and is today back to the biological standard.

More importantly for our analysis, the rise in the sex ratio at birth has also recently been identified in several countries in Eastern Europe (Duthé et al., 2012; Guilmoto & Duthé, 2013). A closer analysis shows the presence of two distinct regional blocks with higher than expected birth masculinity levels. The first cluster corresponds to the Western Balkans and includes Albania, Kosovo, Montenegro, and the western part of Macedonia (or FYROM). SRBs in this region tend to be close to 110 male births per 100 female births, an unnatural yet comparatively modest level (UNFPA 2012a, 2015b).

The second regional cluster lies in the South Caucasus and includes Armenia, Azerbaijan, and Georgia (Dudwick, 2014). This region has been seriously affected, as the SRB has repeatedly reached 115 during the years following the collapse of the Soviet Union. In all three countries,[2] annual SRB figures rose sharply during the 1990s and stabilized at a high level during the following decade. Azerbaijan now has the highest SRB level in the world since the rapid decrease in official SRB statistics reported from China.

It is worth emphasizing that the sex ratio at birth has remained normal in the countries neighboring the South Caucasus—viz. Russia, Turkey, and Iran. No rise in SRB has, in particular, been documented in the North Caucasus Republics from Adygea to Chechnya and Dagestan, even though detailed statistics are not always available.

2 Even the tiny disputed territory of Nagorno Karabakh displays sex imbalances at birth. Due to lack of data, a similar estimation of local SRB was not possible in parts of Georgia lying outside government control.

2.4 The Context of Prenatal Sex Selection

Besides inadequate statistics, the interpretation of changes in birth masculinity is often impaired by the lack of a general theory. Elevated SRB levels are typically seen as the product of local and regional factors. In China's case, observers have often blamed the stringent family planning policy, while in India the ultimate cause for the undervaluation of daughters was identified in the local dowry custom. In Eastern Europe, no such master narrative has emerged for explaining the rise in birth masculinity except for an indirect reference to the dire economic transition during the 1990s and the local and international conflicts that erupted after the fall of the socialist regimes.

We will come back to the regional context of Georgia and its neighbors later in this report. At this point, it may be fair to say that all these localized explanations—such as family planning, dowry, Confucianism, economic or political crises—fail to capture the evident communalities observed in the phenomenon, from Albania to South Korea. Indeed, all the countries experiencing prenatal sex selection share common features such as the emergence of private healthcare systems, the diffusion of modern reproductive technologies, the persisting preference for male children, the demographic transition, the rapid modernization of the economy, etc.

This analysis will rely on a more integrative framework, trying to catch the main preconditions for the emergence of prenatal sex selection across regional settings. The most far-reaching existing theory points to three distinct contextual dimensions allowing for and encouraging sex selection. They are widely used as a lens through which the gender bias is analyzed in all affected countries and will also inform our analysis of the drivers of the SRB decline (see Chapter 6). They therefore need to be briefly outlined:

- The availability of new, affordable and efficient technologies to influence the sex of the child to be born
- The need and benefits perceived by parents and families to give birth to children of a particular gender, usually boys
- The constraint that low fertility imposes on parents' reproductive decisions

The first and second preconditions have an economic flavor, as they recall supply and demand mechanisms respectively: sex selection results from the supply of specific technology (prenatal diagnosis and abortion) and by a strong demand for sons. In contrast, the third precondition is a purely demographic factor: fertility decline limits the number of attempts that small families are willing to make in order to reach the desired gender composition. Consequently, it acts as a "squeeze factor." We may add that sex selective methods need to be socially acceptable since procedures such as abortion may raise ethical concerns to parts of the population.

The most important driver of the phenomenon remains the gender preference, skewed in favor of sons. The existence of a gender valuation system can be related to various social, cultural, religious, or economic motives. They include practical economic concerns—such as the expected support by sons to their parents—as well as more symbolic considerations—such as honor, reputation, and family perpetuation. To many, son preference is the legacy of deeply entrenched family systems that undervalue daughters and depict them as transient family members. In these cultural contexts, sons often co-reside with their parents after marriage and provide long-term assistance. In contrast, daughters join their husband's lineage after marriage and they are usually deprived of any share of their biological family's inheritance. However, other factors have also been advanced to account for this bias. They primarily point to the central economic and social contributions of male children to the family's well-being. For instance, male children usually work on the family farm in agricultural settings and provide labor and income to their parents. They may also support their parents during old age, which is a particularly important responsibility when no pension system is in place. Boys may therefore represent a crucial resource for the household in the context of economic and political uncertainty.

Of particular relevance to Eastern Europe is the contribution of the low fertility factor. Without sex

selection, couples need an average of two births to ensure themselves at least one son. The average number of births per woman recorded a sharp drop in the South Caucasus after independence in 1991, as in most former-Soviet countries. This rapid decline in birth rates forced parents to reconsider their strategies for reaching the desired gender composition of their offspring. The fertility trend appears indeed closely related to the simultaneous rise in the sex ratio at birth in Georgia. Nonetheless, the fall in birth rates had no impact on gender choices in most of the new countries that emerged following the collapse of the Soviet Union. Birth masculinity levels in Russia, Ukraine, or Kazakhstan have remained in line with the natural level. This difference relates chiefly to the persistence of a strong family preference for male offspring in the South Caucasus—as in the Western Balkans.

3. Data and Methods

As already stated, this study firstly aims at providing a quantitative assessment of recent SRB trends in Georgia. The analysis is enriched by an extensive exploration of current demographic and family patterns in the country as allowed by the 2014 census data. Finally, the research offers a qualitative exploration of contextual events accompanying or potentially easing the SRB decline. These different sections of the analysis make use of various data sources and procedures, which will be briefly outlined in this chapter.

At the outset, a few methodological considerations are necessary due on the main outcome variable, i.e. the SRB. The measurement of birth masculinity is, in itself, a somewhat elementary computational procedure since the ratio is simply calculated as the number of male births per 100 female births. In many countries, vital registration provides adequate instruments to monitor the annual trends in the sex ratio at birth and to assess the presence of regional differentials. This is the case in industrialized countries, where reliable and detailed data have allowed the highlighting of very small variations in the sex ratio at birth due to environmental factors or short-term events, even when these fluctuations are usually below one percentage point and visible only to well-equipped statisticians. With the exception of South Korea, the statistical system in countries affected by prenatal sex selection is, on the contrary, weaker, and access to reliable estimates is a major issue. In such instances, lack of proper data sources and incorrect estimation procedures seriously impede the research on sex selection and often prevent governments from properly evaluating its presence and significance. In Eastern Europe, local estimation issues largely explain why it took as long as 15 to 20 years for the masculinization of births to be acknowledged by both local authorities and the scientific communities. It is therefore of primary importance to examine and critically assess the data sources available for the analysis.

The focus of this monograph concerns the estimation of the SRB through 2014 census microdata. However, the analysis will also make use of birth registration data as well as non-statistical sources.

3.1 The 2014 Census

The latest census of Georgia was conducted in November 2014.[3] It followed the first census of independent Georgia, which was collected in 2002 and which showed marks of sex imbalances. There were no sex imbalances during the Soviet period according to birth registration returns. The unusually long gap between the last two censuses tends to complicate the analysis. It should also be mentioned that Georgian localities in Abkhazia and South Ossetia were not included in the census.

Census Variables

The 2014 census is based on an individual and a household questionnaire. The first questionnaire gathers the usual variables such as age, sex, migratory and refugee status, education, ethnicity, religion, occupation, and source of livelihood. The only variable pertaining to fertility refers to the number of live births per woman and the number currently surviving, with no detail on their sex composition. The second questionnaire refers to dwellings and individual households. It includes housing characteristics (date of construction, facilities, and ownership, but no information on household goods).

The main variable of interest here is the sex distribution of the population by age in relation to various other characteristics measured at individual and household level. It needs to be noted that our analysis is primarily based on modified census variables or on new variables. Several variables were simplified by regrouping the original values. These include ethnicity (Georgians, Azeris,

3 Several publications by Geostat describe in detail the 2014 census operations and its findings. In this section, we focus on the contents of the census items relevant to the analysis of sex imbalances.

Armenians, and others), language (Georgian, Azeri, Armenian, Russian, and others), education (primary, lower secondary, higher secondary, tertiary), and source of livelihood (wages, self-employment, farm, pension, social assistance, own assets, dependent). Age has been recalculated in months and in five-year age groups. Other variables were based on the household reference person (or household head) or on all individual household members.

The new variables include indicators related to the household head—such as livelihoods and gender—or indicators derived from all the household's members—such as their higher education level, the size of the household, or the presence of persons working in the agricultural sector. We also divided households into three categories according to their structure: one-member households, nuclear households, and complex households. The latter category comprises three-generational households. Complex households were defined as households with "grandchildren" or by the simultaneous presence of "children" and "parents" of the head in the same household.[4]

In order to describe the household's socioeconomic status (SES), we generated a synthetic household-level variable from the housing characteristics that will serve as a proxy. We combined eight household variables capturing the quality of housing facilities (electricity, toilet, sewage, etc.) by a principal-component analysis. These variables describing housing quality are strongly correlated among themselves. The factor analysis led to the identification of the primary dimension of household comfort accounting for 57 percent of the variance of all eight original variables. The resulting variable provides an indication of SES level of individual households in the absence in the census schedule of better variables such as income or financial assets. Five SES quintiles, from poorest to richest, are then computed.

The 2014 census has also captured the migratory status of household members. Almost 2 percent of the population is classified as temporarily absent (for less a year) and this proportion rises to 3 percent among adults in their twenties. Due to our interest in household structures, we have retained all these family members in our computations. Our sample is therefore larger than the de facto population, since it includes recent migrants. The detailed migration module of the 2014 census is not used in this analysis.

Family Reconstruction

We have no information on the sex and order of births related to women present in each household. However, the census provides a listing of all household members by family position detailed in twelve categories (head, spouse, children, etc.). In addition, the spouse and parent of household members are identified if present in the household. This allows us to reconstruct the family and to identify siblings. Several variables crucial for the sex ratio analysis can be generated by following the family reconstruction procedure described below.

The procedure derives from the so-called "own-children method" developed for estimating fertility levels and trends by using census and survey records. It focuses on individuals classified in the 2014 census as "children", "grandchildren", and "great-grandchildren" of the household head. Since it is possible to relate them to their mothers, the census listing allows for the reconstruction of siblings. With their sex and date of birth, we can rank by pseudo-parity (or child rank) and determine for each child whether she or he had any older brother or sister. Similarly, we can determine whether they have a younger sibling at the time of the census (the information is therefore "right-censored").[5]

4 As a result, some of these complex households may not necessarily include more than one married couple.

5 The procedure for deriving fertility and sex ratio at birth from census records is described in Guilmoto (2017).

In Georgia, the population under 15 included 51 percent "children", 43 percent "grandchildren", and 3 percent "great-grandchildren". The other kinship categories accounted for less than 2 percent and they were subsequently excluded from the analysis. Out of the remaining 98 percent, we retained only children whose mothers were identified in the household in order to avoid misclassification (e.g. of potential cousins) and more complex household structures (e.g. after divorce) where some siblings may be missing. The final child subpopulation classified by rank includes 567,000 children below the age of 15 years, accounting for 94 percent of the entire census population aged 0-14 years. We have no reason to believe that the exclusion of the 6 percent of the child population due to incomplete information may bias our results in any way. The following new variables were computed over this child subsample: child rank, presence of older brothers, gender composition of the siblings (only boys, mixed composition, or only girls), and presence of a younger sibling.

After reconstruction, the resulting child rank is very close to the original birth order (parity). Since infant and child mortality is low[6], the proportion of deceased children is limited. In addition, reproductive strategy is based on child survival rather than on births and using surviving children is therefore more appropriate for an analysis of fertility behavior. The information on parity and on previous and later birth can be used for the two following indicators:

1. Parity progression ratios (PPR): This is the probability of having an additional birth by parity. PPRs decline as parity increases and are closely correlated to the overall fertility level. Since data are censored in 2014, PPRs are computed with the Kaplan-Meier estimator. They refer to the probability of an additional birth (or younger sibling) during the years following the birth of an individual child.
2. Sex ratio at birth of children (SRB): The sex ratio can now be computed by parity as well as by the presence of an older brother in the family.

There is, however, a risk in using old "children" found in Georgian households.[7] Most children do leave the household at some point because of migration or other factors and the probability of incomplete sibship increases rapidly with age and sex (because of patrilocal marriage rules). While some boys do stay with their parents beyond adolescence, their own siblings tend to leave the household after studies or marriage and the family reconstruction method is no more feasible. For this reason, we will use sibship variables (parity, presence of an older brother, etc.) for children below 15 or 10. Data pertaining to older children are likely to be incomplete or biased because of siblings missing from the household.

Mortality Correction

Finally, it needs to be stressed that the majority of the computations from the census initially refer to the population observed in 2014 rather than to birth cohorts. To estimate the size of the original birth cohorts, the census figures need to be corrected for mortality in order to back-project the 2014 population into birth cohorts. To achieve this, we used the latest WHO life tables for Georgia (2012) and we graduated the probability of survival by age in years or months as required. This indirect estimation of cohort size is, however, not feasible above age 15 because of the confounding influence of outmigration on the number of persons covered by the 2014 census. For instance, the population of young adults in 2014 does not include all long-term migrants absent from their original household during the census period.

In addition, mortality has a minor impact on the sex ratio of the surviving population. Suppose we observe a sex ratio of exactly 100 in 2014 among the population born in 2004. This population is, on average, aged 10.5 years—or more precisely 10.33 years, since the census was taken in early November 2014. However, the sex ratio in 2014 does not represent the exact sex ratio at birth in 2004, since boys are likely to have died in slightly higher proportions than girls during the first ten years of their life. We therefore need to correct the effect of the excess male mortality by applying

6 The latest under-five mortality rate is close to 10 per 1000 in Georgia (2015 estimate).

7 According to the 2014 census, several individuals labeled as "children" of the household head were more than 70 years old.

a different survival factor to male and female cohorts. We can then convert the 2014 population sex ratio into the actual sex ratio at birth in 2004. The mortality correction remains modest, since the survival of boys from birth until age 10 is only 0.6 percent lower than that of girls: the corrected SRB for 2004 stands now at 100.6—against 100 for the population sex ratio in 2014.

The same correction method has been applied for all cohorts—by single year/month of birth or by broader periods—and unless specified, SRBs computed in this monograph have been systematically corrected for sex differentials in mortality. This method is, however, insufficient to correct potential distortions above age 15 due to the aforementioned migration factor. The sex ratio of local populations, such as the urban one, can be significantly influenced by the sex composition of migratory flows.

Remote Microdata Processing

Thanks to our collaboration with the National Statistics Office of Georgia (Geostat), the census results have been thoroughly analyzed for traces of gender bias and sex imbalances. Unlike typical analyses based on published tabulations or on the use of a census sample, this monograph reports results based on the reanalysis of the entire census dataset. For this monograph, we had the privilege of working on the raw data finalized by Geostat at the beginning of 2017. The procedures followed in this occasion are unusual and need to be described.

Original census data cannot be shared outside Geostat. Since the main writer of this monograph could not be present in Georgia to direct the statistical analyses, we developed an original procedure for remote data processing. A representative sample of the census data was first drawn based on 10 percent of the census dwellings in 2014. From that sample, we developed and tested two statistical programs, which were then implemented on the full census sample by Geostat in Tbilisi. The first program consisted of the extraction of new subsamples such as the child subpopulation of Georgia and the creation of new variables related to demographic and socioeconomic characteristics of individuals (SES quintiles and detailed family composition for children). The second program consisted of intensive data processing to investigate the main dimensions of sex imbalances and gender bias during the years preceding the 2014 census. The results of this set of statistical analyses (tabulations and statistical modeling) form the basis of our report. In some cases, results based on the 10 percent sample are sufficient, but a disaggregated analysis often requires access to the entire dataset due to the limited size of the corresponding population.

This procedure proved highly effective for both the purposes of our study and to preserve the privacy and confidentiality of information stored by Geostat. The procedures followed respected the current Georgian Law on Official Statistics, which covers various aspects of data protection, confidentiality, and professional ethics. Nonetheless, the original data could be used for in-depth analysis and provide original information on the extent of gender bias in Georgia. No other source can provide similar information thanks to the exhaustivity and quality of census items.

3.2 Civil Registration and Alternative Sources on Births

Birth registration remains the gold standard for the analysis of sex selection. At the outset, it should be recalled that no data on selective abortions or other types of prenatal selection exist. Not only are abortion data themselves often deficient since many abortions are not properly registered,[8] but there is also no information whatsoever on the sex of terminated pregnancies. In contrast, the distribution of births by sex and its departure from the natural sex ratio at birth provide a faithful indication of the extent of prenatal sex selection.

For instance, a sample of 100,000 male births should correspond to around 95,200 female births if the sex ratio at births is 105.[9] In contrast, the

8 In Georgia, the number of abortions has fluctuated around 34,000 per year in 2011-15 according to the Ministry of Labor, Health and Social Affairs (Gender stat Geostat). This official figure represents 57 percent of the average number of births during the same period, with no sign of decline over the recent period.

9 In this example, we deliberately illustrate our analysis with a large number of births to avoid fluctuations linked to sample size examined further down in this chapter.

measurement of, say, 91,000 female births would point to a deficit of more than 4,000 female births, with a clearly skewed sex ratio at birth of 110. These 4,000 missing female births, which would amount to 4 percent of the expected total, may have been aborted for reasons of gender. If we add that these births are most likely to be observed among third or higher-order births, the proportion of female births eliminated before pregnancy may in fact be significantly higher if we restrict our analysis to these higher order births.

The registration system is expected to give an exhaustive picture of births, and therefore to provide the most reliable estimates of actual birth masculinity levels at both the national and regional levels. In addition, similar SRB estimates can be computed at different parity levels since birth order is systematically registered by the civil registration authorities. However, the availability and the quality of civil registration data has long been questionable in Georgia (see the detailed analysis by Badurashvili in UNFPA, 2015a), and will not be repeated here. Briefly, however, the quality of birth registration started deteriorating for a variety of reasons during the mid-1990s. The direct estimation of the number and sex of births became almost impossible by the late 1990s in the absence of any reliable birth registration figures. It is only from 2005 onwards that vital rates could be estimated from original data. Recently, a penalty has been introduced for parents registering births after more than 5 days (Law of Georgia on Civil Status Acts). An unusual SRB spike above 125 was reported in 2008, once again calling into question the quality of birth registration figures. The censuses have therefore played a central role in complementing the civil registration data for estimating vital rates.

Since 2005, the Georgian administration has made great progress in the registration of civic status acts. The digitization of records that is part of the e-governance objectives added to the deliberate transparency of its activities have made it possible to obtain independent demographic estimates for Georgia from the Public Service Development Agency (PSDA).[10] The PSDA acts as a civil registry maintaining a register of Georgia's population, including encompassing civil registration and the issuance of legal identity documents. It provides data on the population that are akin to those of the vital registration system with sex, date, place of birth—or place of usual residence, which may be a source of discrepancy. These statistics thus represent an entirely novel source of data for examining recent demographic sources.

It should be emphasized that public records provide only scant information such as the year of birth, sex, and region (mkhare) of birth. Available information is therefore far less comprehensive than birth registration since standard variables such as birth order, multiple births, or personal characteristics of parents (age, marital status, etc.) are missing. In addition, it may also include births abroad to Georgian citizens and may thus slightly overestimate the number of annual births. However, they also cover citizens born before the computerization of birth registration started in 2005, a crucial asset for our understanding of trends over several decades. Most importantly, these birth figures can shed additional light on the 1991-2005 period—admittedly the less statistically documented period of recent Georgian history. Some records of the population who were born during this period but later disappeared due to early death or permanent outmigration may be missing. Nonetheless, these nearly exhaustive records—along with the disaggregated figures of the 2002 and 2014 censuses—offer the best statistical testimony of the transition period during which the sex ratio at birth in Georgia underwent its spectacular rise.

Table 3.1 lists the main sources for computing the sex ratio at birth along with their time coverage and additional information. A brief explanation is also offered to some of their main advantages and limitations for the study of birth masculinity.

To illustrate their consistency or potential discrepancy, we have first plotted on *Figure 3.1* the size of annual birth cohorts according to these different sources over the period 1990-2015. Birth registration figures are shown in grey. Note that, for the period encompassing 1992-2014, they include estimations by Geostat due to the lack of original

10 The PSDA (სახელმწიფო სერვისების განვითარების სააგენტო) is a legal entity of public law established in 2012 operating under the Ministry of Justice.

Table 3.1: Characteristics of available sources for computing the sex ratio at birth in Georgia

Type of source	Years covered	Additional available information	Format	Main limitations
2002 census	Years before 2002	• Parity and gender composition • Family characteristics	Microdata	• Unknown reporting level • Limited time frame • Requires indirect estimation
2014 census	Years before 2014	• Parity and gender composition • Family characteristics	Microdata	• Unknown reporting level • Requires indirect estimation
Birth registration	2005-16	• Parity • Parents' characteristics	Microdata	• Reconstructed before 2005 • Limited information
PSDA	All years		Tables	• Very limited information • No raw data available

• All these series include births by year, sex, and region (mkhare) of birth

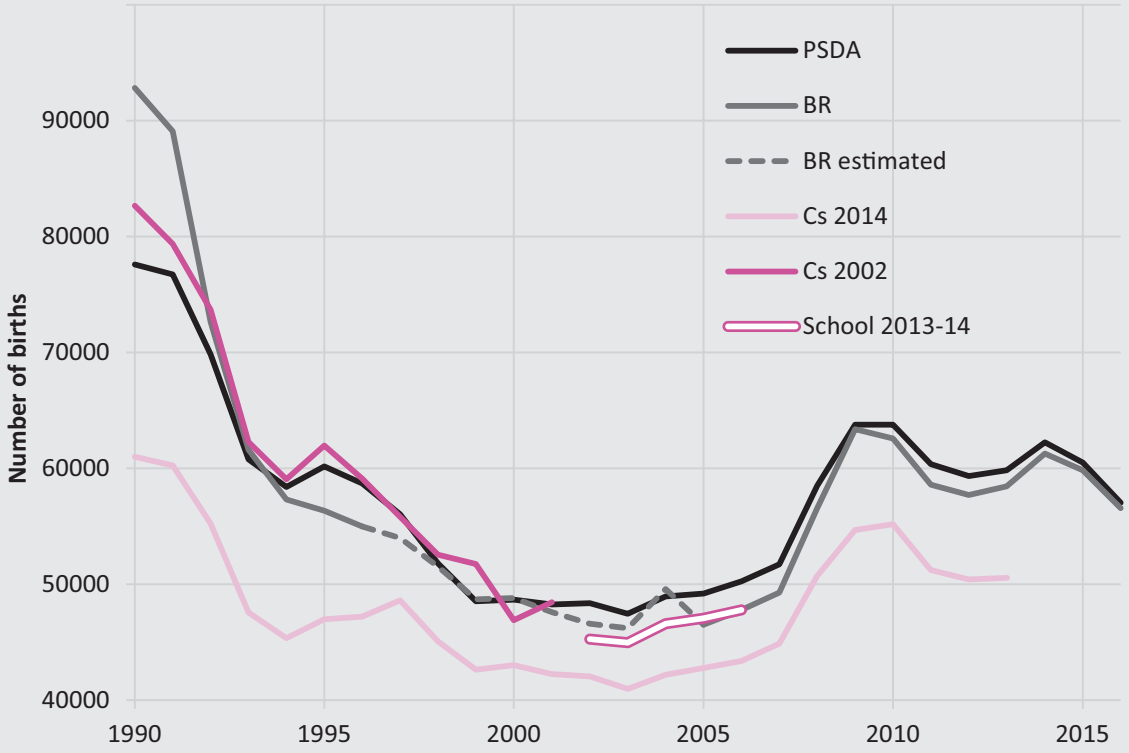
figures. In black, we have plotted the PSDA figures available from 1990-2010. We also retrieved birth cohort estimates based on the age and sex distribution derived from the earlier 2002 census (figures not corrected for mortality). These three series tend to correspond rather narrowly and estimates for some years are nearly identical. Overall, gaps between these series are never larger than a few thousand births, with the exception of the period before 1992. For the 2002-05 period, we have even included data based on children aged six to ten from 2013-14 school statistics provided by Geostat (shown in white with pink edge line). Incidentally, the birth estimates derived from the earlier 2002—which is, at times, blamed for having overstated the true population—appear in line with the size of birth cohorts according to a distinct source such as PSDA.

The situation of estimates based on the 2014 census is entirely different. The overall profile of the birth trends over the last 25 years appears parallel, with a sharp decline in the number of annual births after 1991, followed by a rapid recovery from 2007 plateauing after 2010. However, the gap between 2014 census estimates and other series is rather broad and systematic. In fact, if we exclude the 2014 population aged 18 or more—i.e. born before 1997—that may be missing due to outmigration, the share of 2014 census estimates of birth cohorts to the average estimate from other sources is of 88 percent. This denotes a deficit of 12 percent in the size of birth cohorts estimated from the 2014 census. This gap between the series is almost constant over these 18 years and oscillates each year between 10 and 14 percent.

A further comparison of the gap between 2014 estimates of birth cohorts and data from the birth registration system may be conducted for monthly figures, since disaggregated estimates are available by month of birth from both series. The two series provide estimates of the number of births for 118 months that are strongly correlated (r^2=.93). When plotted against each other in *Figure 3.2* using two different scales, the number of monthly births follows exactly the same fluctuations. Peaks are often simultaneously observed in the middle of each year, while the lowest values usually correspond to December. Nonetheless, while monthly fluctuations may run parallel in the two series, the chart demonstrates that there is an almost systematic deficit of about 500 births that can be detected each month in birth cohorts derived from the 2014 census age distribution. This represents a gap of 11 percent over the 2005-2014 period over which we have monthly SRB estimates from both census and birth registration.

The latter analysis tends to suggest that census-

Figure 3.1: Annual number of births in Georgia, 1990-2016



Source: PSDA, 2002 and 2014 censuses (Cs), birth registration (observed and estimated), School enrollment statistics

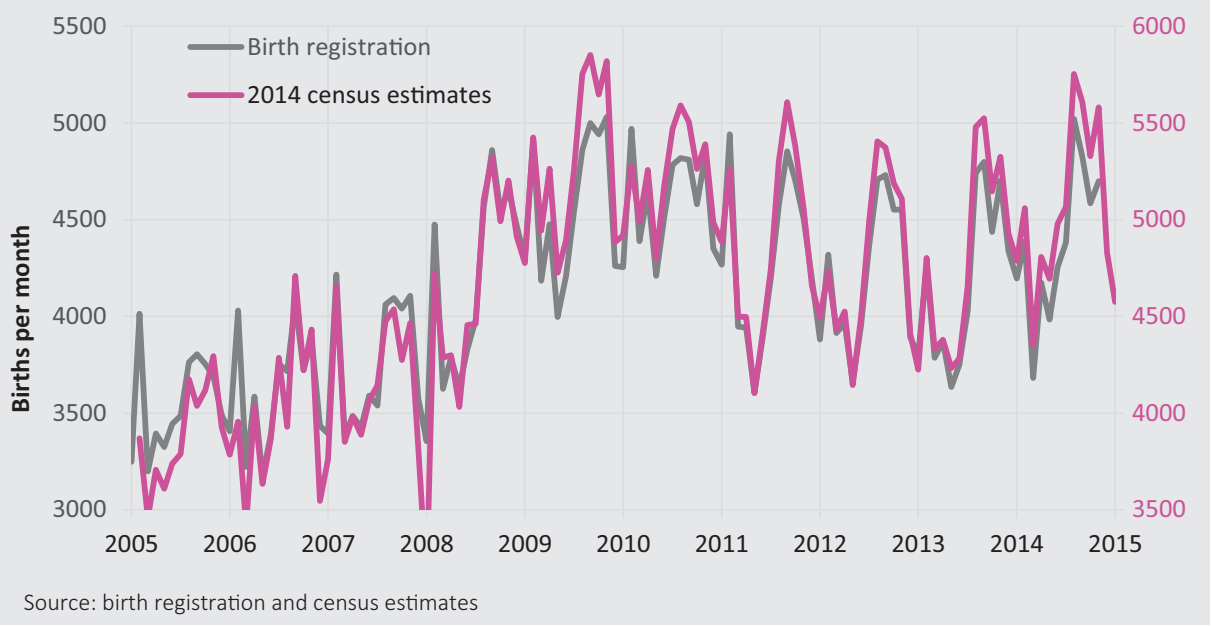
based estimates and birth registration figures closely correspond over the ten years preceding the census. The monthly variations in both series closely match each other. However, the analysis also shows a gap of about 500 births each month between the series in favor of birth registration figures. Census estimates appear to fall short of the number of births registered in the country by a factor of 15 to 20 percent. This gap cannot be explained by mortality since the census figures are already corrected. There is no reason either to believe that that the child population might have been underreported during the census. Fertility estimates (see in Chapter 4) tally with available estimates for the census period. Furthermore, the shortfall in birth cohorts according to the 2014 census is, as *Figure 3.1* illustrated, also visible for older cohorts.

This specific issue is addressed in more detail in the monograph on population dynamics (Hakkert, 2017). Whatever the actual cause of this discrepancy, our review of birth cohorts suggests the presence of a significant gap between the census count and registered births. We will therefore limit our efforts to the most consistent demographic indicators for the period under study.

3.3 Other Sources

In addition to quantitative data collection from Geostat and other statistical institutions, we tried to gain a sense of the major transformations that had affected the Georgian society and economy over the last fifteen years through a short qualitative fieldwork conducted in November 2016. To this purpose, we met with a large number of officials in Tbilisi in order to gain an overview of recent institutional and social policy changes. Our expert interviews also explored dimensions of social and demographic transformation in Tbilisi and elsewhere in the country. More generally, this was an occasion to gather from local authorities and the scientific community feedback and opinions on the processes that we deemed likely

Figure 3.2: Monthly number of births in Georgia, 2002-2014



Source: birth registration and census estimates

to have affected gender relations in Georgia, viz. migration, fertility rebound, changes in value systems, and government reforms since the mid-2000s.

We also conducted a weeklong qualitative investigation in different municipalities of Kakheti. This region was selected for its noticeably elevated SRB level and for the relative absence of minority populations compared to other high-SRB regions. The research focused on rural localities in order to obtain a perspective as different as possible from that of cosmopolitan Tbilisi. We investigated the views and experiences of household members as well as public and private actors with different social profiles through in-depth interviews. The objective was, in particular, to gather information (1) on the current state of sex selection and its drivers (notably son preference), and (2) on specific aspects of Georgian society likely to have influenced family norms and son-seeking fertility behaviors. More specifically, the sample included local experts and public authorities, health personnel, businesspeople, as well as men and women belonging to different age groups and social background.

We also re-examined the interviews and discussions collected previously in 2014 with the support of UNFPA/Georgia and the World Bank (UNFPA, 2015a) and processed through desktop analysis. They consist of in-depth interviews of national and local specialists, and focus group discussions involving men and women from different municipalities and age groups.

The majority of the other statistical data originated from Geostat surveys. Moreover, estimates from the World Bank, the Population Division of the United Nations (2017 revisions), and the World Health Organization were used. Unfortunately, no large-scale demographic survey (DHS, RCH, MICS etc.) was conducted in Georgia in the recent past.[11]

11 The last demographic survey was the RCH survey, conducted in 2010.

4. Demographic and Family Context

The latest census provides several insights into some of the major contextual dimensions of gender bias in Georgia. In this chapter, we will, in particular, examine what the 2014 data tell us about family and marriage systems as well as about trends in fertility behavior.

4.1 The Georgian Family Today

Family systems play a central role in the determination of reproductive strategies and on the gender bias. Besides being frequently marked by strict gender roles, as is the case in Georgia, familial and demographic behaviors also closely interact with contextual changes and other institutions in society. One example is that the Georgian family played a crucial buffer role once the socialist system disappeared. Prior to 1991, the communist regime had developed a strong public authority and a set of social security institutions that rivalled family groups in providing education, housing, employment, and, more generally, protection. After its disappearance, individuals found themselves with hazardous economic prospects and an unstable social and political framework, which strengthen the importance of the family as the key resilient institution. By pooling the resources of its members, families were, for instance, able to offer a large gamut of services through solidarity mechanisms previously provided by State institutions.

In the context of socioeconomic transformation, the family structure and system also tend to adapt and transform. An important testimony of the evolution of the family system in Georgia is the average size and composition of households. The average size of Georgian households has slightly reduced from 3.5 members in 2002, to 3.3 in 2014. The size of the household is determined by various factors including the average number of children, the number of co-residing generations, and the migration of household members. However, changes in fertility since the last census have been limited (see further below) and the same is true for migration. In fact, many external migrants are still included in the de jure households used in our dataset, as was indicated in the previous chapter. As a result, the type of household plays a key role in explaining variations in its size. The situation has become extremely heterogeneous, with very different types of households coexisting in Georgian society. Small households with one or two members are common, along with far more complex families spanning more than two generations. In general, we can distinguish three types of households: single-member (18 percent), nuclear (55 percent), and complex families (27 percent). The last category comprises all households that include three or more generations (see the definition of complex households in the data section).

We may, for instance, highlight the importance of one-member households, which account for 18 percent of all households in 2014, a figure comparable to the 2002 estimate. In richer countries, solo households are becoming more common among studying or working young adults. In contrast, this phenomenon is minor in Georgia: the population below 40 years represents only 14.5 percent of single-person households, with a slightly higher proportion in urban areas (19 percent). In contrast, these types of arrangement are primarily headed by older people, aged 50 + (75.2 percent), 60 + (56.5 percent) or even 70 + (24 percent). Because of female longevity and greater frequency of widowhood, the chance of living alone is higher for women: it reaches 13 percent at age 60 and 21 percent above 80.

In contrast, large households have remained common in Georgia. Those with five or more members account for one quarter of the total and absorb 43 percent of the total population.

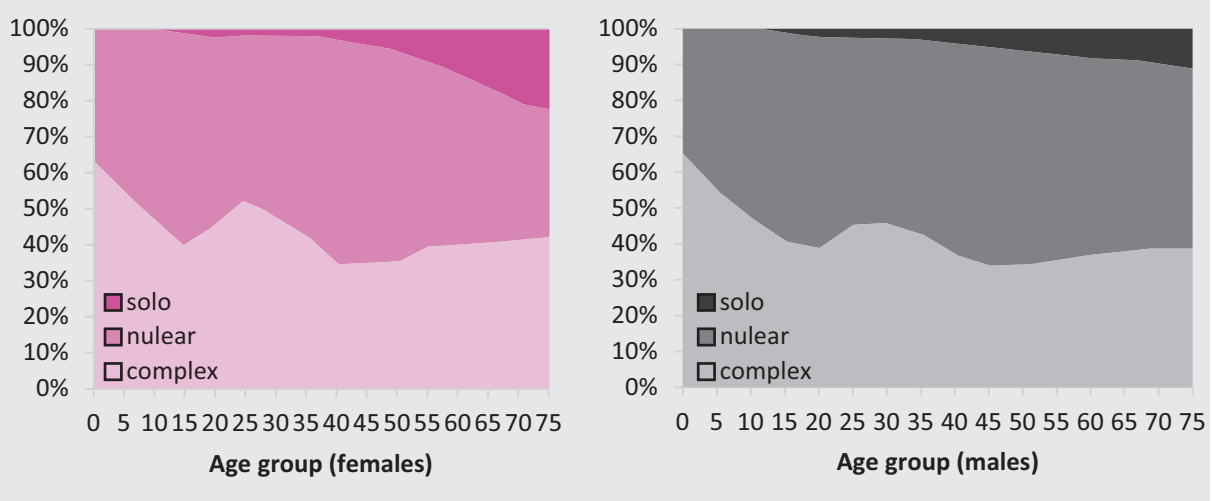
This latter proportion rises to 62 percent if we only consider children aged less than 15 years, suggesting that the vast majority of children live in large households. As expected, large households are usually complex rather than nuclear. Three-generational families dominate among households with five or more persons. Their average size is 5.3 members as opposed to 3.1 for nuclear families. Complex households, in which 43 percent of Georgians live, house 56 percent of the entire child population aged 0-14. More than half of Georgian children therefore live with one of their grandparents (usually their paternal grandfather as will be shown later): an experience likely to shape them enduringly.

The proportion of the population living in a complex household diminishes only slowly with age. At the time of marriage, i.e. among young adults aged between 25 and 34 years, more than 47 percent of them reside in a three-generational household. Unlike that observed in Western Europe, union is not a cause for leaving home and post-marital cohabitation is still very common during the early phases of marriage. It is only among married individuals above 35 that participation in a complex household diminishes, reaching 50 percent at age 34, and 40 percent at age 42.

To provide a detailed perspective of family trajectories in Georgia, from census data (10 percent sample) we have computed the household situation of individuals from childhood to old age. The two charts in *Figure 4.1* represent the distribution of the female and male populations by household type for all five-year age groups up to age 75.

By the time of birth, more than 60 percent of children are found in multigenerational living arrangements, usually composed of their parents and their paternal grandparents (see also Eelens, 2017). As children age and the number of siblings increases, the probability of them living in a nuclear family gradually rises and nuclear patterns predominate above 15 years, even if there is a slight rebound at ages 25-34 when young adults marry and have their first child. Among older adults, the main change is the gradual dissolution of the nuclear family following the departure of adult children and widowhood. As could be

Figure 4.1: Type of family according to age and sex of Georgia's population



Source: the 2014 General Population Census

expected, the impact of widowhood appears more pronounced among women. Some of them join complex families, as they grow older. Indeed, as *Figure 4.1* shows, the share of complex households in living arrangements increases above age 50. We may add that the proportion of young children residing with their grandparents has barely declined since the previous census, which suggests that there is no significant nuclearization of Georgian families since 2002 with the exception of urban areas.

In contrast, significant variations in living arrangements exist within the country. The analysis of the distribution of households[12] shows that complex households are especially frequent in Adjara (37 percent), among Azeris (40 percent), or in families whose head is a pensioner (35 percent). Gender bias and son preference might be more common in traditional family settings exemplified by multigenerational cohabitation, but we would require more qualitative evidence on the nature of this linkage. In contrast, nuclear families are twice as common as complex households in urban areas, notably in Tbilisi, but also in Mtskheta-Mtianeti and especially in Racha-Lechkhumi and Kvemo Svaneti. There are no clear socioeconomic variations in household type, except when we consider the main source of livelihood of the family head. Nuclear families are three times more common among wage earners and when family heads live off their own assets or social assistance. It would seem that both cultural factors such as religion and specific socioeconomic features play a role in shaping living arrangements.

Moreover, this analysis suggests that the functioning of complex households remains crucial to understanding family dynamics, as a large majority of Georgians have lived in a multigenerational setting at one point in their life. Of additional relevance to this study is the type of complex families found in Georgia. The most common type consists of two couples, i.e. the parents and the family (spouse and own children) of a married child. However, a major feature of this multigenerational cohabitation system is the role of the patrilineage. In a traditional "patriarchal kinship system"[13], women leave their natal home after marriage and the coresidence is generally with their husband's family (Dragadze, 2003). The census records allow us to examine in detail the residential arrangements after marriage.

To this purpose, we will concentrate on young adults after marriage. Among those aged less than 30, more than 60 percent co-reside with an older couple as "child", "grandchild", "son-in-law", or "daughter-in-law".[14] This proportion declines at later stages of life, reaching 26 percent at age 40-49.

Going further, the census data allows for the separation of patrilocal or matrilocal (uxorilocal) residence practices. Here, we will again focus on "married children" below 50 living in their parents' household. The proportion of men among these currently married children is a direct indication of the kinship system and the average proportion in Georgia was 82 percent in 2014. In other words, post-marital coresidence is with the husband's family in more than four out of five cases. Such living arrangements are typical of a patriarchal system and similar to that found in 2002.

Record proportions of patrilocal residence are found in villages, where the proportion of men exceeds 90 percent of all married children co-residing with their parents. Two regions in Georgia—Samtskhe-Javakheti and Kakheti—stand out with the highest proportions of patrilocal residence. In terms of cultural markers, it is among Muslims and Azeris that patrilocality is the most frequent (94 percent of married children). However, the socioeconomic profile of the family is also a good predictor of patrilocality, as households with workers in agriculture are also patrilocal in

12 This is to be distinguished from the distribution of the population living in corresponding households. The proportion of the population living in large households is always greater than the proportion of these households.

13 For simplicity, we here label "patriarchal system" as a kinship system combining patrilocality (new couples living with or close to the husband's parents) and patrilineality (in which individuals belong to the father's or husband's kin line). In a bilateral kinship, the mother's and father's lines have equal importance and couples may co-reside after marriage with any of the spouses' parents. In matrilateral systems, the mother's lineage predominates and often determines post-marital coresidence.

14 This proportion underestimates the true frequency of coresidence since some married adults may be listed as household heads and live with their parents—instead of being classified in the household as "children" of the head.

more than 90 percent of the cases, and a similar trend can be found in poorer households.

In contrast, a lesser prevalence of patrilocality can be observed in urban areas, where the percentage declines to 75 percent. The lowest figure is found in Tbilisi, where patrilocality falls to 69 percent: in Georgia's capital city, almost a third of co-residing couples stay in the wife's family. More generally, there is a clear increase in the frequency of uxorilocal marriages as we climb up the social ladder, although the prevalence of patrilocality rarely falls below 75 percent.

This description of household structures in Georgia has strong implications for our study of sex imbalances. The practice of post-marital coresidence is indeed found to endure throughout Georgian society. This pattern, undoubtedly biased towards the male kin line, is likely to be an essential determinant of the family experience of Georgians today and to downplay the role of women and their kin. Given that the practice is also common during the early phases of marriage and childbearing, it must be factored in while conducting our analysis of fertility behaviors.

4.2 Current Fertility Trends

In this section, we will focus on family formation and reproductive strategies of Georgian couples in a given demographic and cultural context, namely one characterized by low fertility and son preference. We will first review overall trends in nuptiality and fertility, and then examine the manifestation of son preference in greater depth. Compared to in-depth demographic surveys, the census may not be the best source to analyze reproductive behavior. This is especially the case for the 2014 census, which did not include a question on giving birth during the 12 months prior to the survey, an essential question for a direct computation of fertility rates. In addition, there is some level of uncertainty about the true level of birth rates in Georgia following the 2014 census. Fertility estimation has in fact long been an issue in the country due to discrepancies in demographic sources (see Hakkert, 2017).

To understand family-building processes, we need to start with a brief review of first marriage rates in Georgia. The number of marriages abruptly decreased after 1991 and a great deal of them went unregistered. By 2010, their number was again almost identical to what it had been in 1990 prior to the fall of the Soviet Union. Within those two decades, the mean age at first marriage has increased by no less than three years, reaching 30 years among men and 27 years among women (2015 Geostat figures). However, these figures may be seriously misleading. In this sense, census data provide information of greater accuracy since all kinds of union are considered, including unregistered marriages, which are common among the youth. Postponement in marriage registration is indeed common and leads to an artificially high age at marriage. The median age of marriage according to the 2014 census is lower: 22 years for girls and 26 for boys.[15] In fact, more than 35 percent of women were married before 20 in Georgia (for more detail, see Eelens, 2017).

Census data can also be used to examine some of the factors behind age at marriage. Marriage remains, of course, the gateway to childbearing in a country where extramarital births primarily correspond to situations of unregistered union. Moreover, early marriage is often associated with post-marital residence of the couple with the husband's parents and to a more traditional family setting. In contrast, late marriage corresponds to a longer autonomy of individuals, but also implies a shorter reproductive span for women who may not finally reach the desired family composition.

A systematic review of correlates of nuptiality again points to a mix of social, cultural, and economic factors lying behind observed variations in marriage schedule of Georgian women. Early marriage may be particularly interesting to our analysis: since it is usually associated with women's limited agency and with traditional and low-education family contexts, it may be a predictor of skewed sex ratio at birth. The phenomenon of early marriage is typical of some rural regions such as Kakheti, Guria, Samtskhe-Javakheti, and Shida Kartli. Early marriage is also quite typical of Azeri

15 The median age at marriage is computed here at the age at which more than 50 percent of the 2014 population has already married.

women, among whom the median age at marriage falls to 18 years, as well as among less-educated women and in the lowest socioeconomic quintile. Conversely, late marriage is rather common in Tbilisi and among women with higher education[16], or living in nuclear households. It is noteworthy that there is a global correspondence between features associated with early marriage and those typical of post-marital co-residence.

Following this review of recent nuptiality patterns, we may now look at reproductive behavior. Georgia was characterized by relatively low birth rates after the 1960s. This was most notably the case at the end of the Soviet period, when its birth rates fell well below that of other regions. Total fertility rates (TFR) were already close to replacement levels before 1991, but the decline after independence was sharp. The number of children abruptly fell from 2.1 to 1.5 within three years. It then plateaued at this ultralow fertility level for several years and only recovered after 2006 (see also Hakkert, 2017). This sudden decline in fertility after 1991 was a consequence of the political and economic turmoil following the dismantling of the Soviet Union. While many families chose to postpone childbirth, which explains the small rebound after a few years, the recovery was incomplete and the TFR stayed well below replacement levels for almost twenty years.

The period between 1995 and 2005 has been affected by severe issues in the birth registration system. In the absence of reliable annual figures for birth and death rates, most basic indicators produced by Geostat are only indirect estimates. Unfortunately, more recent fertility estimates at a national level were still unavailable at the time of the preparation of this monograph. The low figure of the 2014 population has affected all death and fertility rates computed on an annual basis by Geostat. With a lower population, both death and birth rates become overestimated since denominators—such as the number of women of childbearing age—are smaller than before 2014. As a result, the TFR appears to have jumped from 1.7 children per woman in 2013 to 2.2 in 2014.[17] This statistical leap is, however, purely artificial and we would need a consolidated series of vital rates.

Nonetheless, the 2014 census figures provide a preliminary view of the fertility trends. We can use census data to estimate recent fertility by examining the child population and converting it into birth cohorts. Here, we have used the population under five and corrected it for mortality as described in the data in Chapter 2. We then classified this population by the age of the mother and converted it into age-fertility rates for the twelve months before the census. *Figure 4.2* displays the fertility rates by five-year age group in 2014, with a peak among women aged 25-29.[18] The TFR for the year prior to the census stands at 2.0 children per woman. This value lies precisely midway between the 2013 and 2014 current estimate by Geostat indicated in the previous paragraph. It is identical to the recent fertility estimate for Georgia by the United Nations Population Division (2017 Revision). It also corresponds to an annual birth rate of 14.2 in 2014, which is close to the average 2013-14 birth rate computed by Geostat.

We cannot estimate backwards the TFR and birth rates for the entire intercensal period, as this estimation would require a set of procedures that are beyond the scope of this monograph. However, we can back-project the 2014 population for the last fifteen years and convert it into annual birth cohorts after mortality correction.

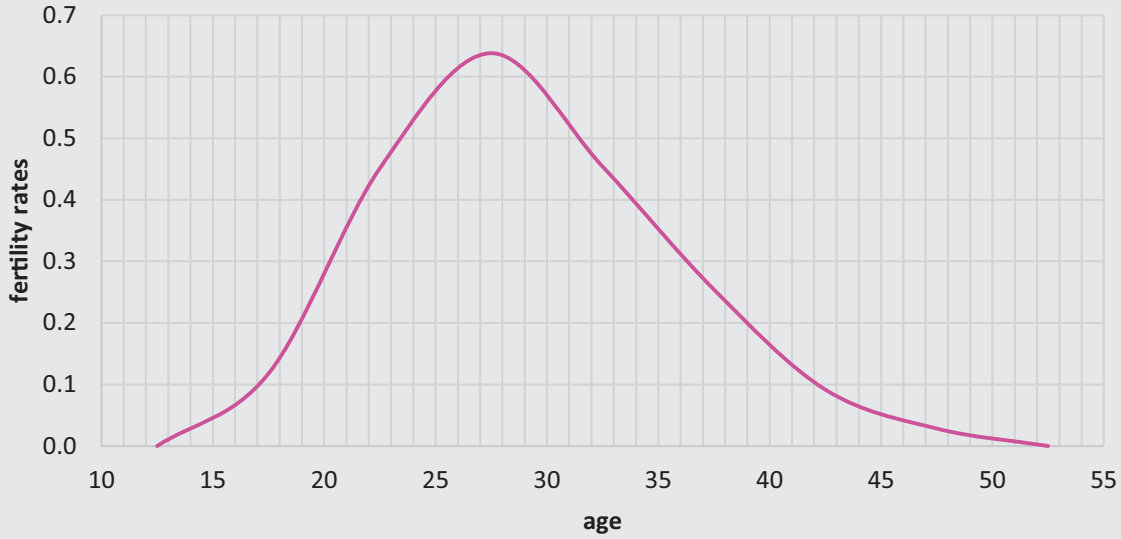
Figure 4.3 displays the estimated trends in cohort size since 2000 based on the 2014 population by age. The year 2014 is not represented as the census was completed before the end of the year. These figures show a relative stagnation from 2000 to 2003 followed by a slow increase of 2.5 percent per year until 2007. From 2008 to 2010, the birth cohorts record a spectacular increase by 22 percent, followed by a contraction during the three years before the census. This trend is closely matched by the annual number of births reported

16 These factors have been identified by a logit analysis of the marriage status of women aged 20-24.

17 Similarly, the life expectancy according to annual estimates by Geostat has suffered an apparent drop of more than two years between 2013 and 2014.

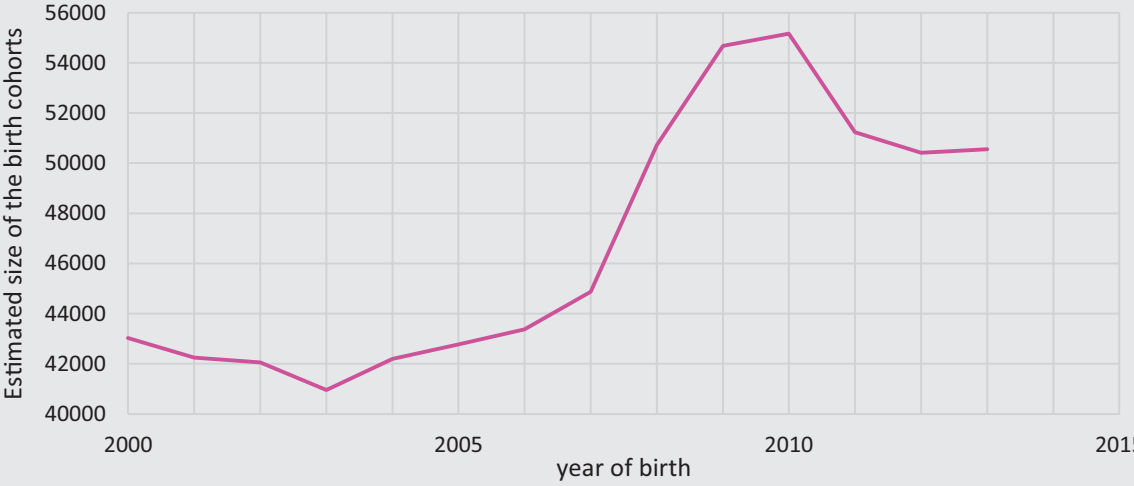
18 This estimation procedure assumes that whatever their true levels, underreporting rates were uniform across the census population and similarly affected different age groups as well as married and non-married women. See similar results in Hakkert and Sumbadze (2017).

Figure 4.2: Estimated fertility rates in 2014 by age group in Georgia



Source: the 2014 General Population Census

Figure 4.3: Size of birth cohorts in Georgia, 2000-2013



Source: the 2014 General Population Census estimates

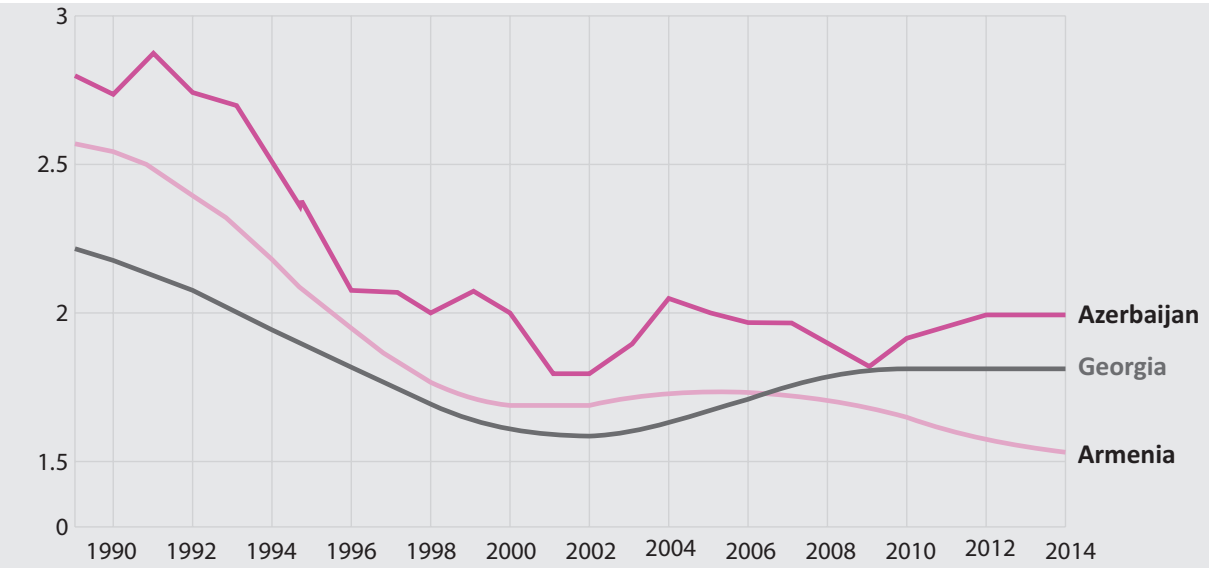
by Geostat based on birth records, which clearly depict a huge rise in 2008-2010. Geostat figures also point to a small subsequent decrease in the number of births in 2016.

While we cannot easily convert these figures into TFR levels, they suggest that very low fertility persisted in Georgia until 2007, at a level close to 1.7 children per woman, which is still higher than estimated by Geostat. The major turnaround occurred in 2008 and closely followed the call for more births in Georgia by Patriarch Ilia. The Patriarch promised in particular to baptize personally every third child born to an Orthodox family.

Georgia indeed recorded the highest number of births since independence in 2010, when fertility rates must have briefly exceeded 2.1 children per woman. World Bank estimates also posit a trough in fertility rates in 2002 at 1.6 children per woman and a later increase to 1.8 by 2014. According to their series, the post-2005 rise in Georgia was the highest in the South Caucasus (see *Figure 4.4*).

The relative rebound in birth rates had a further impact on Georgia's demography: it increased the

Figure 4.4: Fertility rates in Azerbaijan, Armenia and Georgia, 1990-2014



Source: World Bank figures

share of third or higher-order births. In 1990, the latter accounted for more than 21 percent of all births in the country, but their share decreased sharply during the following decade, reaching their nadir in 2007, at 11 percent of all births. The 2008 jump initiated a gradual rise in this proportion of third and higher-order births to 15 percent in 2010 and 19 percent in 2015. The proportion of first births reached its all-time low in 2015 at less than 42 percent, a level lower than that of the last pre-independence year of 1990. This redistribution of births by parity will have significant consequences on the sex ratio at birth, since birth masculinity is closely linked to birth order.

The census offers limited evidence on fertility differentials in the country due to the lack of questions on women's recent fertility. Nonetheless, we can use completed fertility to assess some of the major dimensions across Georgian society. We here selected the number of children per woman aged 35-39 years, standing at 1.84 according to the 2014 census. These women have not yet completed their fertility, but the distribution of age-specific fertility rates displayed on *Figure 4.2* demonstrates that rates above age 40 are indeed modest and contribute less than 6 percent of the overall TFR. Their fertility took place on average ten years earlier and therefore corresponds to 2004, a period characterized by the lowest fertility level in the country.

As earlier in our analysis, we will primarily focus on household variables—rather than individual or maternal characteristics—to analyze fertility differentials. The comparison across regions and social groups points to the highest fertility levels observed in Samtskhe-Javakheti (2.2 children per woman) and among Azeri women. In addition, high fertility is closely associated with lower socioeconomic status (2.2 in the poorest quintile), households where the maximum education is the primary level (2.1), and quite particularly in households relying on social assistance (2.3).[19] The smallest number of children among women aged 25-39 is 1.7, and it is unsurprisingly recorded in Tbilisi (see also TFR estimates in Hakkert, 2017). However, this same level is also observed in the Samegrelo-Zemo Svaneti region and among all urban women. In fact, several other socioeconomic characteristics are associated with this lowest fertility score, such as having no household members working in the agricultural sector, or having members with the highest (tertiary) education level, or households from the second-highest quintile. This figure of 1.7 children per woman is also the fertility value measured when the household head is dependent on pensions or support from other members.

19 There may be an endogeneity issue here since families with more children are also entitled to specific social benefits.

When combined into a single multinomial equation and adding women's characteristics, the relative influence of each characteristic emerges in greater clarity. The impact of socioeconomic status dissipates, although the agricultural activities in the household remain closely linked with higher numbers of children. On the whole, the amount of education received becomes the main single predictor of low fertility in Georgia while high fertility is found among the less educated. Regional differentials persist with the low fertility typical of Tbilisi and Samegrelo, and of urban areas in general. Among cultural characteristics, Islam emerges as the main determinant of the highest fertility levels, with ethnic background of lesser relevance.

As argued in Chapter 2, low fertility pressure is a major driver of sex selection since it prevents parents from having additional children in order to ensure the birth of a son. It is indeed clear that the fall in birth rates immediately after independence was already accompanied by a parallel rise in the proportion of male births a few months after April 1991 when Georgia left the Soviet Union. However, could we argue in reverse that the rise in birth rates observed after 2003 also influenced the propensity to resort to sex selection? Let us now scrutinize numbers. Assuming TFRs of two children per woman in 2014 before the census and of 1.6 in 2003 (i.e. when the number of births was at its lowest), we can simulate the impact on gendered fertility outcomes. In 2003, the probability of not having a son without resorting to sex selection would be as high as 32 percent.[20] With two children per woman, the chance of only having girls was reduced to 24 percent of the couples. This decline does not seem considerable, but it corresponds to a 25 percent decline in the risk of remaining sonless without sex selection. In other words, the proportion of couples finding themselves sonless after two births is reduced by 25 percent under the mere effect of increased fertility rates. This scenario does not assume any further change in the other preconditions of sex selection—viz. the demand for sons and the sex selection infrastructure—that may have occurred during the same time lapse.

The link between fertility level and gender bias is, however, more complicated, and involves other mechanisms besides the squeeze effect. In fact, even if low fertility applies additional pressure on couples who want a male offspring, patriarchal attitudes are, on the contrary, associated with high fertility. In families where reproductive duties of women are seen as paramount, giving birth to a male is often a crucial ingredient of their participation to the "patriarchal contract" and is to be pursued at the cost of repeated pregnancies. Low fertility also implies a progressive renouncement to the patriarchal contract—unless prenatal sex selection can correct the hazards of small families without sons. We will return to this discussion in Chapter 5.

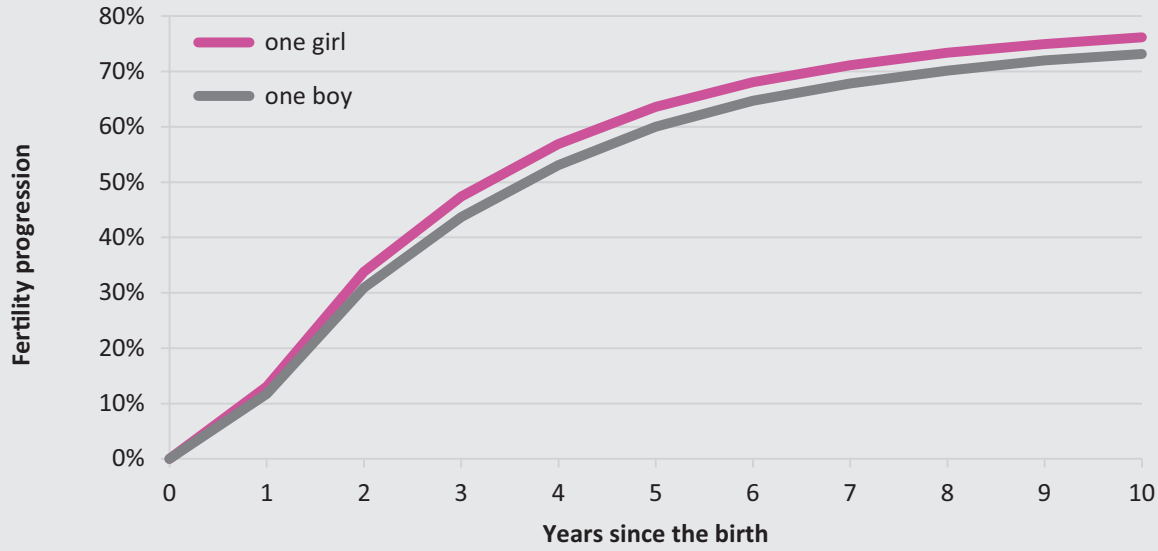
4.3 Gender Bias through Fertility

Son preference remains challenging to assess due to the lack of a proper indicator. The previous UNFPA study made widespread use of qualitative sources collected during the 2014 survey (UNFPA 2015a). In terms of quantitative indicators, we can normally obtain some evidence of the intensity of gender preference from related questions in small-scale opinion or demographic surveys, but the 2014 census proposes no similar tool. The only precise method to weigh the gender bias consists of examining fertility behavior. Concisely, son preference will cause parents with no son to display higher fertility rates compared to parents who already have a son. The absence of variations in the behavior of the two groups would instead mean that fertility decisions are independent of the gender composition of the already-born children. In this sense, we use the variations in reproductive behavior according to the sex of existing children as a measure of the "revealed gender preference" of parents in Georgia. The analysis is not based on the stated preferences and opinions, but rather on the actual fertility behavior of parents.

Census data allow the reconstruction of recent birth history thanks to the presence of information on children and their mothers. In the household

20 This proportion corresponds to the natural probability of having a girl (48.8 percent per birth) to the power of the number of births (TFR).

Figure 4.5: Fertility progression after the first birth in 2004-2014 by gender composition



Source: computed from the 2014 General Population Census

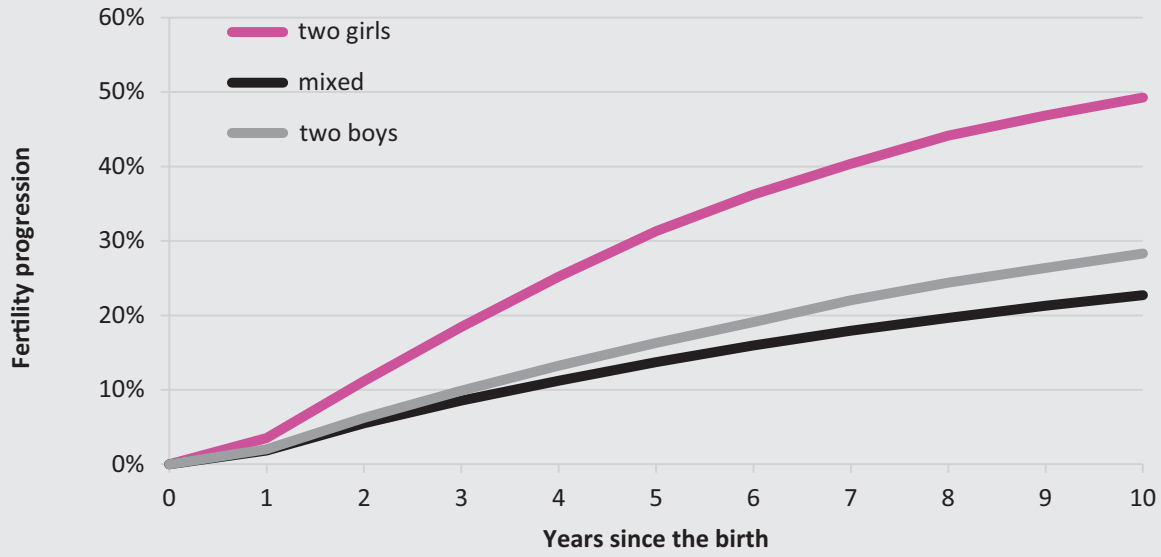
roster of the census, all members are listed by age and relationship to the "reference person" (previously household head). We can thus identify the mother of household children and reconstruct the entire family composition at the time of the census. The method for reconstruction is described more in detail in Chapter 3. Here, it suffices to say that it is possible to know the entire family composition for more than nine children out of ten and to compute subsequent fertility according to birth order and family composition. The statistic used here is the "parity progression ratio" (PPR), i.e. the probability of a couple having another child, ranging from 0 to 100 percent. The parity progression from parity 1 to parity 2 is usually the highest, close to 75 percent over the next ten years. This means that three parents out of four who had a child during the ten years preceding the census will have a second child during the next ten years.[21] The Kaplan-Meier technique permits this computation from incomplete "right-censored" records, i.e. open birth intervals that are shorter than ten years at the time of the census operations.

These PPRs are then computed at different parity levels. The progression ratios decline sharply from the first births to subsequent births. The probability of having an additional child within ten years is only 30 percent among parents with two children and this proportion diminishes to 19 percent among parents with three children. PPRs are in direct proportion with the overall fertility level since higher progression ratios result in higher completed fertility. Nonetheless, they also more comprehensively describe reproductive strategies of couples in Georgia: they show, for instance, the sharp fall in fertility occurring after the first and the second births, with a probability of having an additional child divided by three. This move from two to three children is the most critical juncture. Indeed, an in-depth analysis of fertility trends can show that the brutal decline in the proportion of parents trying for a third child was the mechanism that precipitated the fall in birth rates in the country after 1991. However, today, only a minority of parents decide to go for a third child. Many factors are taken into consideration before opting to have another child, and the presence of an already born son may be crucial in shaping the decision of couples.

Our analysis centers on the gender motive driving fertility, and we will therefore ignore absolute variations in fertility behavior in order to focus on those linked to gender bias. In *Figures 4.6* and *4.7,* the fertility behavior of parents with only boys appears in grey while that of parents with only girls is in pink. *Figure 4.5* shows the progression from

21 The cut-off duration used here for computing the PPR is taken as ten years as birth intervals are very rarely longer than this.

Figure 4.6: Fertility progression after the second birth in 2004-2014 by gender composition



Source: computed from the 2014 General Population Census

first to second birth over the ten years that follow the first birth. As indicated, a majority of couples will progress to parity 2, since the proportion of them having a second child after 10 years is 75 percent. However, our computations show that there is a small difference between the parents of a boy and those of a girl. The PPR is higher for parents of a girl (76 percent vs. 73 percent). Although moderate, this gap of 3 percentage points in favor of sonless parents is statistically significant and therefore shows that one-child families are deliberately more common when the first child is a boy.[22]

The gender variation, however, becomes far more pronounced when we move to higher-order births. In *Figure 4.6*, we have reproduced the same calculations after the birth of two children, distinguishing between parents with two sons, two daughters or one boy and one daughter (mixed gender composition). Fertility progression to parity 3 is distinctly higher among sonless families since their probability of having an extra child reaches 50 percent after ten years. In contrast, parity progression is below 30 percent for other gender compositions. Only 28 percent of parents will have one more child after two male births. The lowest progression corresponds to families who already have one boy and one girl (23 percent).

This chart clearly points to two different principles at work in reproductive decisions. The major objective is to have at least a son, resulting in a fertility progression that is twice larger among sonless families. Inversely, 75 percent of parents with at least a boy will be content with two children, but this percentage declines to 50 percent when parents do not have a son. This suggests that one third of parents in Georgia attach importance to the absence of a son in their offspring to the point of opting for a third birth, a relatively uncommon decision according to current fertility trends. In addition, these figures also show that parents without a girl have a higher subsequent fertility rate than parents with a mixed gender composition. The difference is only 5 percentage points, but it represents a statistically significant fertility increase by 25 percent.

The same patterns of gender preference are visible among higher-order births. *Figure 4.7* plots the fertility progression of parents who already had three or more children. While the number of these parents is indeed small, the use of the entire 2014 census leads to robust results, with significant variations across gender compositions.

22 Another way to put it is to say that 27 percent of parents of a son will not have an additional child, whereas that proportion decreases by more 10 percent for parents of first girls. Here, the Log-Rank test is used to establish the statistical significance of variations in PPR.

We again notice that it is among sonless families that the progression rates to higher parities are the highest. A total of 43 percent of sonless parents will have another child, whereas this proportion is about twice as small when they already have a son among their children. While having at least a son is obviously the main target of couples, the chart also indicates that parents who only have sons may, to some extent, wish for a daughter. The fertility progression ratio increases from 21 to 25 percent in case of the absence of a daughter in the family, a small but significant difference. While parents no doubt cherish daughters in Georgia, girls are obviously not as strongly desired and actively sought in the way their male siblings are.

Using this modeling of fertility behavior, we can contrast women with the most-preferred gender composition (son first, daughter next, and no preference for later children) with the least desired (only daughters). Applying PPRs, we can infer the total number of children they would have according to their sex. In the first configuration, women would have only 1.75 children, whereas in the second configuration, the absence of any daughter would lead them to have 2.15 children, i.e. 23 percent more children than in the most-preferred scenario.[23]

At this point, it needs to be underlined that gender bias in fertility behavior has no impact on the overall sex ratio at birth since the chance of having a boy or a girl remains the same, irrespective of parity.

Finally, we can apply the same method to contrast different subpopulations and to see how far the gender bias observed at the national level is uniform across the country. Unfortunately, there is no straightforward method to compare results across social groups because fertility levels are themselves extremely diverse in the country. As a result, PPRs vary in parallel and all the progression ratios—irrespective of the parity and gender composition—are directly influenced by the overall fertility level.

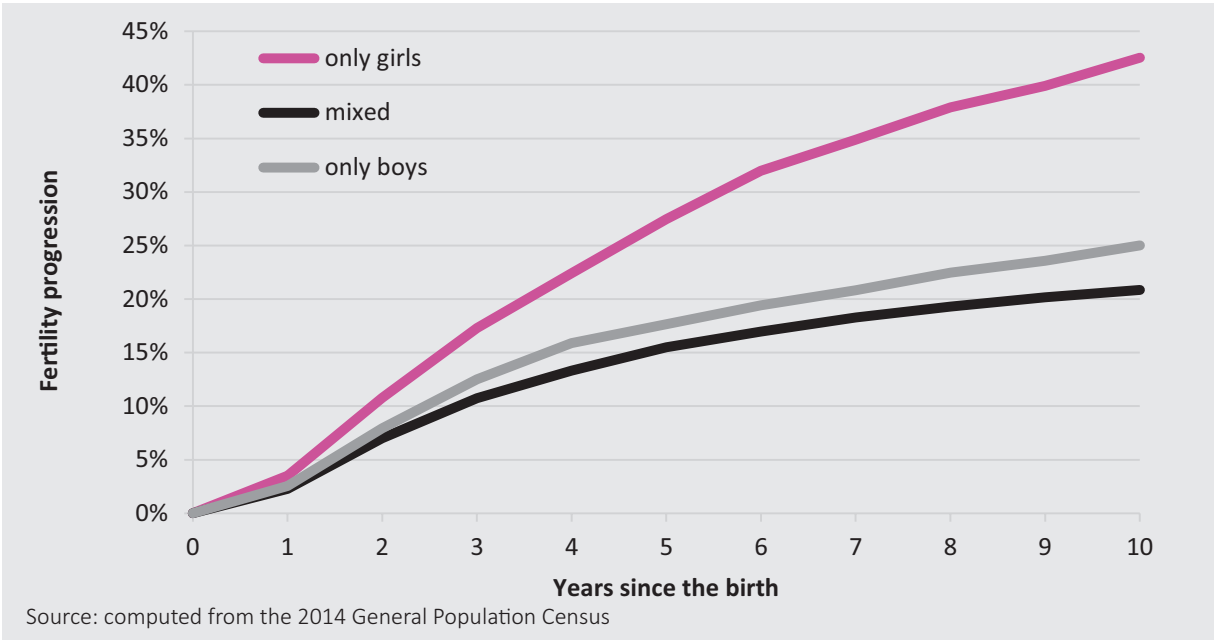
To compare the impact of the absence of a male child, we will simply compute the ratio of fertility progression of parents with and without a male child for all birth orders over the last 15 years prior to the census. On average, fertility in Georgia is 2.2 times higher with no prior male child in the family. However, the same rate proves to be more than three times larger among Azeris and Armenians, as well as for families relying on agriculture. Relative fertility progression without a son is also extremely high in rural areas, among religious minorities, and in the specific regions they inhabit. Agriculture and minority cultures are clearly the main features associated with son preference in fertility behavior being at its highest levels in the country. On the contrary, the absence of a son plays a less acute role in Tbilisi and other urban areas, in the richest quintile, and in families with wage earners or no worker in agriculture, yet also in families relying on social assistance.

These different features of the gender bias point to the overlap of several correlates, from geographical to cultural and socioeconomic. On the one hand, the need of sons is at its highest in farm-based households who rely on sons for labor, old age support, and land transmission. This contrasts with clearly attenuated levels of son preference found among more modern and affluent households. Tbilisi and the rest of urban Georgia epitomize these new middle classes where son preference is most probably on the wane as a result of economic stability as well as female education and employment. Eelens (2017) documents these recent trends in female and male education and employment rates. On the other hand, beyond mundane economic considerations, the concentration of the highest son preference in specific social-cultural groups—whether characterized by ethnicity or religion—signals the deeply rooted nature of gender institutions in local communities. While there is some correspondence between rural underdevelopment and minority populations in Georgia, our analysis suggests that cultural identity and enclosure in addition to economic marginalization play a distinct role in ensuring the persistence of traditional patriarchal values in some isolated peasant communities.

In conclusion, we may note that the decline in son preference expressed by PPR figures seems rather modest over the last twenty years. The results of

23 We assume in this TFR simulation that 90 percent of women will have a first child, a proportion drawn from the completed fertility.

Figure 4.7: Fertility progression after the third or higher-order birth in 2004-2014 by gender composition



Source: computed from the 2014 General Population Census

a similar exercise computed from 2002 census data are very close to the 2014 findings. We here restrict our analysis to the five years preceding the census, i.e. the 2009-2014 period, in order to capture the period when the sex ratio at birth had significantly declined. All PPRs estimated have increased in 2009-2014 compared to the 2002-2012 as a reflection of the overall increase in fertility. In both periods, the absence of a previous male birth leads to higher subsequent fertility and the decline in gender bias is rather small during the most recent period. The fertility increase among sonless mothers was 123 percent for the third births in 2002 and it has declined to 95 percent in 2014. For higher-order births, the fertility increase was 116 percent in 2002 and it has reduced to 96 percent according to the latest census. While significant, this intercensal decline in the intensity of gender bias appears modest. At this pace, it will take many years before fertility in Georgia becomes gender-indifferent.

5. Sex Ratio at Birth

While the presence and extent of sex imbalances at birth in Georgia have only recently been recognized, births in the country have experienced a masculinization for more than 25 years. There is a large gamut of statistical sources depicting the changes in birth masculinity since 1991, starting with the birth registration system and extending to the 2002 and 2014 censuses, as well as data such as demographic surveys or official statistics. The previous study devoted to Georgia (UNFPA, 2015a) has summarized the statistical situation and we will here primarily focus on the newly available, viz. indirect, estimates drawn from the 2014 census and other newly available sources.

5.1 Sex Imbalances at Birth and Parity Differentials

The most recent measurement of the SRB in the country originates from the preliminary figure for 2016 from the birth registration system. Among the 56,569 births registered that year, there were 28,887 male births and 27,682 female births, a distribution corresponding to a sex ratio at birth of 104.4. This is a somewhat startling result, since it denotes a perfectly normal sex ratio at birth after more than 25 years of skewed levels of birth masculinity in Georgia. The 95 percent confidence interval places this SRB measurement in a range within 102.7 and 106.1 male births per 100 female births. This shows the fragility of this measurement, even when performed on more than 50,000 births in 2016 births in the country. In fact, the SRB based on civil registration was as high as 109 in 2015, just a year before, and some values close to 110 were recorded a few years earlier. This illustrates the simultaneous presence of a downward trend (see further below) and of random variations (± 1.7 per 100) linked to the number of births.

The sex ratio at birth has been fluctuating between 105 and 110 since 2010 and it may therefore be safer to first concentrate on the entire period starting from 2010 in order to avoid random annual variations. We will use two main sources, viz. the birth registration data available for 2010-15 by parity and region, and the census-based SRB estimates for 2010-14, which includes a large number of other variables from the census schedules. According to birth registration, the SRB was 108.5 during 2010-15. The census-based estimation brings an almost identical figure of 109 for 2010-2014 (109.1 for the subsample with detailed parity information).[24]

Table 5.1 provides the figures by birth order, again with somewhat similar estimates from both sources. As expected, it is among high-order births that birth masculinity is most skewed, with values above 120 for parity 3+. The highest SRB level is indeed observed for third births (127 according to census figures) and birth masculinity tends to decline at fourth and higher-order parities. This mechanism is easily interpretable in light of the role played by third births among sonless couples. As demonstrated in the previous chapter, a significant proportion of couples opting for a third birth decide to do so due to gender-biased considerations, but this behavior has no impact whatsoever on birth masculinity. Results from *Table 5.1* shows that the sex ratio at birth at parity 3+ is severely skewed an imbalance that can be only explained by prenatal sex selection. The analysis below will demonstrate that this high level of birth masculinity is intimately related to the absence of a prior son.

These findings also suggest that the sex ratio is almost normal for the first two births. It may be noted that the ratios are slightly above the natural level of 105 and that the sex ratio of first births tends to be higher than that of second births. This suggests that a very small proportion of parents may already deliberately use sex selection to prevent the birth of a girl during the first two births. If we take the SRB at parity 1 to be 107 against a

24 All census-based SRB estimates are corrected for sex differentials in mortality for the corresponding birth cohorts.

Table 5.1: Sex ratio by birth order

Period	Birth order			Total	Source
	1	2	3+		
2010-14	106.6	105.5	121.7	108.5	Birth registration
2010-14	107.2	106.0	123.9	109.1	Census-based estimates

Table 5.2: Sex ratio at birth by parity and gender composition, 2010-2014

Period	Birth order			Total	Source
	1	2	3+		
At least one previous son	-	104.1	106.9	105.1	Census-based estimates
No previous son	107.2	108.1	173.8	110.9	

Source: the 2014 General Population Census estimates

natural ratio of 105, we can estimate that almost 2 percent of female births are missing among first births.

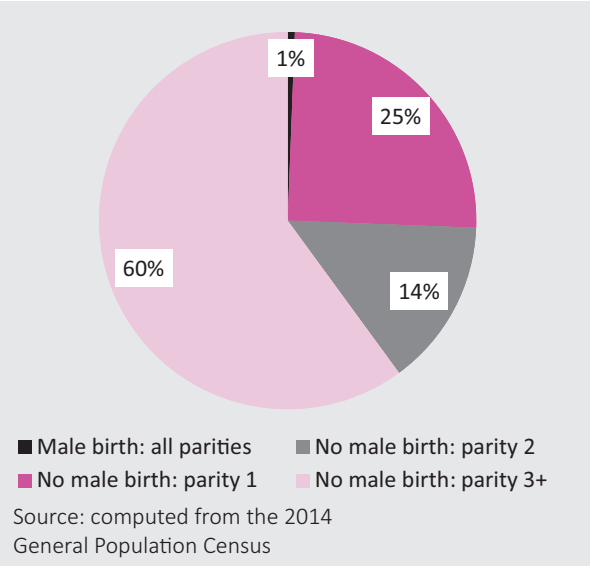
In order to shed further light on the gender-biased motivation behind sex selection, we can use the disaggregated census data to examine the influence of the gender composition on the sex of subsequent births. In *Table 5.2*, births over 2010-2014 have been further decomposed into families with or without prior sons. This computation is not feasible with birth registration, since the latter records the parity of each birth, but not the sex of previous births. The first row of the table corresponds to the sex ratio at birth in families already having one son, i.e. at parity two or higher. The estimate point to a normal SRB level of 105.1, with perhaps a higher than expected value for parities above two caused by families trying to have a second son.

The gender objective becomes manifest among families without previous male births. At parities 1 and 2, the imbalance is slight but sensible, and the sex ratio at birth can reach 108 for births following the birth of a daughter. However, the sex ratio literally shoots up for the third births, reaching 174 among parents who have previously had two or more girls in a row. Such a value means that 174 boys are born against 100 girls, when the number of expected girls should be 166 (=174/1.05). Sixty-six female births appear to be missing out of 166 expected girls, corresponding to a deficit of 40 percent in the number of expected females among third births. This record proportion of missing girls adds to the previous discussion on fertility as a strategy for filling the "gender gap" of sonless parents, and further shows how the need for a son can be ultimately implemented through active behavior.

Missing female births can be estimated by simply computing the number of female births registered in the different parity configurations with the expected number of females in the absence of skewed sex ratio at birth, which is, in turn, the number of observed male births minus 5 percent. *Figure 5.1* shows the distribution of missing female births into four categories based on the sex ratio computed in *Table 5.2* and the births of 2010-2014.

The first category encompasses all children born in families that have already had one boy. The

Figure 5.1: Distribution of missing female by parity and gender composition in 2004-2014



Source: computed from the 2014 General Population Census

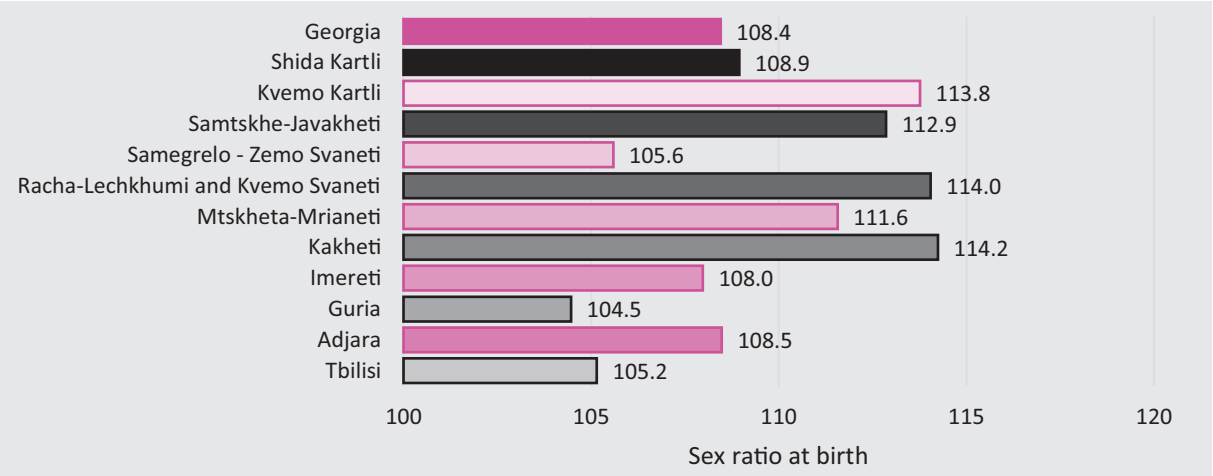
resulting female deficit is almost insignificant (1 percent). The next categories concern families without boys, starting from parity 1, for which missing females represent no less than a quarter of the entire deficit. This number is surprisingly important, in spite of a modest rise observed in the SRB (107.2): it is because first births are the most numerous in low-fertility Georgia. The size of the deficit is much smaller for second births (14 percent), not because the SRB is lower (it is 108.1), but because second births following a girl represent less than 50 percent of all second births. The number of third births without an older son is even smaller as the probability of having only daughters decreases fast with parity. However, the intensity of the sex selection practiced in these families—epitomized by an SRB of 174—explains why this situation corresponds to 60 percent of all missing female births.

5.2 Regional and Socioeconomic Variations

With the help of birth statistics, we can also examine variations in birth masculinity across the country, starting with those existing between cities and the countryside. The SRB in 2010-14 is rather high in rural areas at 111.8, distinctly above the national average. In contrast, the sex ratio at birth is only very moderately skewed elsewhere, with an SRB of 107.1 in the urban parts of Georgia.

We have no classification of the SRB by size of urban centers, but *Figure 5.2* suggests that an inverse correlation may exist between these two indicators. Tbilisi, the largest conurbation in the country, records a surprisingly low level of birth masculinity (105 in the 2010-2014 timespan). Interestingly, two adjacent western regions stand out for their low, close-to-natural, SRB level, namely Guria and Samegrelo-Zemo Svaneti. This part of Georgia had already been singled out for its low SRB level based on the 2002 census results (UNFPA 2015a) and this may be explained by cultural differences across regions within the country. In

Figure 5.2: Sex ratio at birth by region in 2010-2014



Source: computed from the 2014 General Population Census

contrast, the three southeastern regions, namely Kvemo Kartli, Samtskhe-Javakheti, and Kakheti have values that are significantly higher than the Georgian average. These three regions represent 57 percent of all missing girls. In particular, Kvemo Kartli is the first contributor to the deficit of female births in the country and accounts for 29 percent of the total, followed by Kakheti (19 percent).

Table 5.3: Sex ratio at birth by region in 2010-16

Regions	2010-16
Tbilisi	105.3
Adjara	107.9
Guria	106.3
Imereti	107.1
Kakheti	113.2
Mtskheta-Mtianeti	108.6
Racha-Lechkhumi and Kvemo Svaneti	107.1
Samegrelo- Zemo Svaneti	105.9
Samtskhe-Javakheti	111.5
Kvemo Kartli	113.2
Shida Kartli	107.6
Georgia	108.0

Source: computed from birth registration figures

These results coincide with other regional SRB estimates drawn from the birth registration and PSD databases (Birth registration figures are shown in *Table 5.3*). The main variation between these sources, however, corresponds to the high SRB estimated from 2014 census data in Racha-Lechkhumi and Kvemo Svaneti. According to birth registration and PSDA figures, the SRB in this region is moderate and closer to 105-07. This is a small region with only a few hundred births every year and SRB figures thus remain vulnerable to significant random fluctuations. The census estimate is probably overstated.

The same birth registration data are also available by birth order. Data for 2010-16 are shown in *Table 5.4*. They provide a more detailed description of the implementation of prenatal selection in each region. We can, for instance, see that in regions with high SRB (viz. Kakheti, Samtskhe-Javakheti, and Kvemo Kartli), the sex ratio of third and later births is extremely skewed. The SRB in these three regions range from 134 to 146 male births per 100 female births. Although less marked, birth masculinity of third births also remains high in all other regions, ranging from 109 to 125.

In contrast, sex imbalances at birth are moderate among first and second births, with masculinity levels ranging from 102 to 111. Some of the extreme values in this series may be due to the small number of births used for the computation of conditional SRBs. Once again, Tbilisi stands apart for its natural-level SRB for first and second births and one of the lowest levels for higher-order births.

Table 5.4: Sex ratio at birth by parity and region in 2010-16

	Parity			All births
	1	2	3+	
Tbilisi	104.6	104.1	109.9	105.3
Adjara	106.2	104.4	124.9	108.0
Guria	101.7	107.8	117.0	106.5
Imereti	106.6	103.9	116.6	107.1
Kakheti	109.8	108.7	133.6	113.2
Mtskheta-Mtianeti	107.9	110.0	110.4	108.6
Racha-Lechkhumi and Kvemo Svaneti	103.0	111.0	109.4	106.9
Samegrelo-Zemo Svaneti	104.0	105.7	113.5	105.9
Samtskhe-Javakheti	104.7	107.6	145.9	111.6
Kvemo Kartli	106.0	108.4	145.5	113.2
Shida Kartli	108.3	104.1	114.3	107.6

Source: computed from birth registration figures

Overall, the level of regional diversity arising within a country as small as Georgia is somewhat startling. In 2010-14, the country included regions with a normal SRB and, at the opposite end of the spectrum, regions with values above 113—a level greater than in India. As such, regional disparities are difficult to interpret. Do they correspond to unique geographical specificities or are they the consequences of other regional characteristics such as urbanization, economy, or education? The

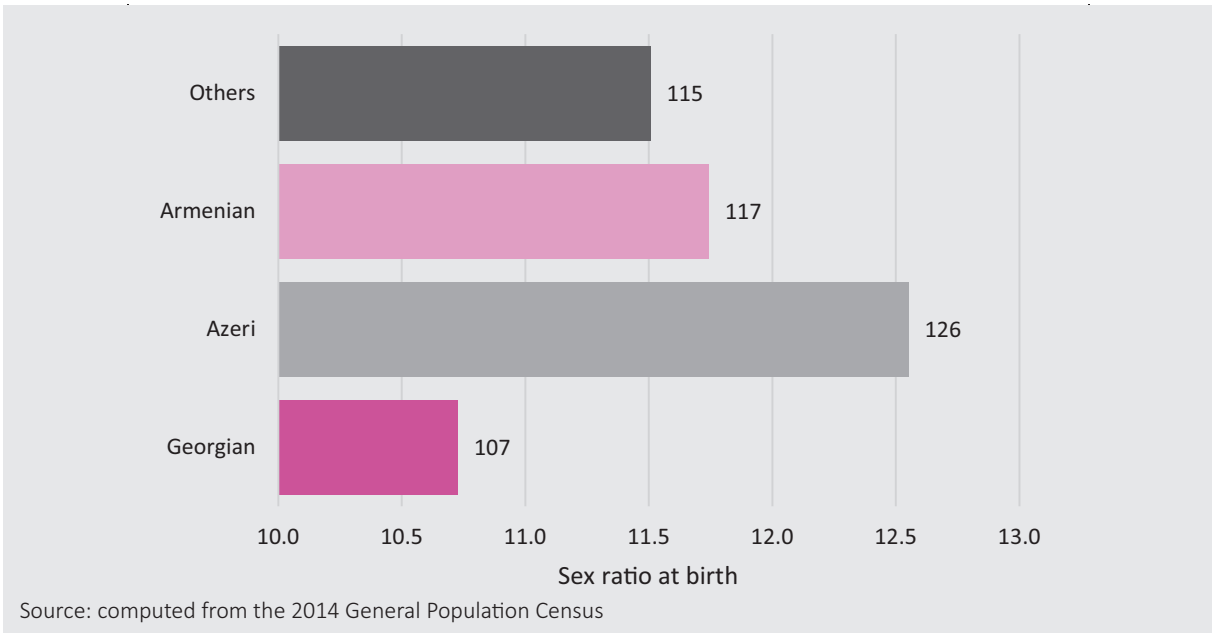
multinomial analysis below will help disentangle the contribution of these different factors.

Beyond geography, census variables allow us to examine several other differentials in birth masculinity across the country. The most obvious of these relate to cultural characteristics of families, with ethnicity as the most pronounced source of variation in estimated birth masculinity (*Figure 5.3*). In one regard, we have the majority population reporting a sex ratio at birth of 107.3, slightly below the national average (109). This SRB suddenly jumps among minorities. It is, for instance, true for the mixed group combining various nationalities (Russians, Ossetians, Yazidis, etc.) at 115 and rising to 117 among Armenians. Nonetheless, it is among Azeris that the figure is most spectacular, since it exceeds 125. Computing SRB on minority populations may be fraught with risk because of the limited numbers used. We have therefore repeated the exercises on a large sample, using in particular the older 2005-09 birth cohorts, but the results proved to be almost identical, with Armenians and Azeri populations scoring Georgia's highest SRB at 119 and 128 respectively. However, the smaller number of births prevents any further disaggregation by birth order.

The same analysis can be repeated with other typically cultural variables such as religion or linguistic groups. Among religious groups, the SRB rises to 116.5 among the Armenian-Apostolic, a level almost identical to that of the ethnic Armenians mentioned earlier. Among Muslims, birth masculinity reaches 120. Compared to Azeri Muslims, this value shows that the SRB is lower among Muslim Georgians. Language identities mirror the same variations across cultural groups, since Azeri and Armenian speakers have the same level of elevated SRB than their corresponding ethnicities. Russian speakers also display a skewed SRB level, at 115, quite surprisingly, given that Russia is not affected by a demographic gender bias: a potential explanation is that the category of Russian speakers is arguably a rather heterogeneous group of former Soviet citizens, whose ethnicity is probably not Russian.

The nexus between ethnicity and the SRB sheds light on some of the compositional factors resting behind the geographical variations emphasized earlier in this chapter. Several southern regions are indeed hosting Georgia's largest Armenian and Azeri communities, and, when ethnicity is factored in, regional differentials in SRB tend to dissipate, with the exception of slightly higher birth masculinity persisting in primarily Georgian Kakheti and Mtskheta-Mtianeti regions.

Figure 5.3: Sex ratio at birth by ethnicity in 2010-2014



Source: computed from the 2014 General Population Census

Socioeconomic variables do not show an influence on the gender bias comparable to that of previous cultural characteristics, such as ethnicity or religion. Socioeconomic status plays, for instance, a role limited to the lowest quintiles, in which SRB levels hover around 112 for 2010-14 cohorts. Using the main source of livelihood of the household head also highlights some variations, ranging from the lowest 107 level among wage earners to 113 when the head works on a farm. The most acute source of variation in the intensity of birth masculinity relates to lower education: households where no one has more than a primary level of education are also those among which birth masculinity remains extremely skewed, notably at 121 male births per 100 female births. Paradoxically, these less educated households and minority populations with high SRB display also significantly higher fertility levels, which is associated with lower SRB. This suggests that fertility in itself does not directly influence the propensity to sex select, but only in conjunction with specific social or cultural variables determining son preference.

What can also be observed is that most traits typical of an advantaged socioeconomic status—highest quintile, tertiary education, modern and salaried occupation—are associated with the lowest SRB levels. Yet, corresponding birth masculinity levels never fall below 107 among these groups. The only factor associated with a natural SRB level is residence in the Tbilisi metropolitan area or in the Western regions of Guria and Samegrelo.

5.3 A Statistical Analysis of the Determinants of High SRB

Table 5.5 reports the result of a multinomial analysis of birth masculinity in Georgia during the ten years preceding the 2014 census. The model is a logistic regression of the occurrence of a male birth. We use all the social, economic, cultural, and demographic variables already mentioned in our analysis in order to identify the strongest predictors of male births. It should be recalled that the sex of most of the births in the sample remains perfectly random, since fewer than 3 percent of all births during this period might have been subjected to sex selection.

The demographic variables are primarily strongly correlated to sex imbalances at birth. Each parity level corresponds to a given level of excess masculinity, with parity 4+ showing the highest odd ratio (OR) of 1.71. Similarly, the presence of an older brother brings the probability of having a son down significantly (OR=.76). We also included a trend variable (year of birth of the child). As expected, it is negatively correlated with birth masculinity.

Source: computed from the 2014 General Population Census sample

Among non-demographic variables, most characteristics cease, however, to be significant when combined with other variables in this multinomial model. For instance, the role of geography is no longer visible in the model. No significant difference emerges between rural and urban nor between regions. The only exception remains Tbilisi, where the sex ratio is less biased than elsewhere.

Education and other economic variables have also largely vanished from the model and, strangely enough, the association often earlier identified between male births and agriculture is no longer significant when projected in a multinomial model. However, reliance on social assistance remains a significant depressor of birth masculinity. In contrast, the richest socioeconomic quintile appears to be associated with higher SRBs. Among cultural variables, minorities still appear to have more boys than the rest of the population and this is especially true for Azeris (OR=1.13). This suggests that the high SRB observed in this population cannot be entirely explained away by available social or economic variables. Unobserved characteristics such as cultural traits, geographical isolation, or social exclusion may be at the root of this higher SRB (see also the qualitative analysis).

A strong correlation, however, emerges with living arrangements and family size. Complex families have a distinctly higher sex ratio at birth (OR=1.14). This is somewhat expected since multigenerational families may be more traditional and more likely to stick to patriarchal values. At

Table 5.5: Determinants of birth masculinity in 2004-2014

	Odd ratio	Standard error	Significance
Parity (ref=1)			
2	1.20***	7.37	0.00
3	1.64***	12.91	0.00
4 and higher	1.71***	7.83	0.00
Presence of older brother	0.76***	-10.36	0.00
Year of birth	0.99*	-1.86	0.06
Region (ref=Adjara)			
Tbilisi	0.94*	-1.70	0.09
Household livelihood (ref=wages)			
Social assistance	0.91**	-2.32	0.02
Quintile (ref=mid quintile)			
Richest quintile	1.06*	1.68	0.09
Ethnicity (ref= Georgian)			
Azeri	1.13**	2.74	0.01
Armenian	1.06	1.05	0.29
Other	1.15*	1.87	0.06
Household complexity	1.14***	4.38	0.0
Household size (ref=less than 4 members)			
4 members	0.99	-0.38	0.70
5 members	0.87***	-3.33	0.00
6 members	0.81***	-4.75	0.00
7+ members	0.76***	-6.02	0.00
constant	68,377*	1.87	0.06

- n= 49,384 Log likelihood=-34,048.156 (* p<.1, ** p<.05, *** p<.01)
- Data drawn from the 10 percent census sample
- The model used is a logistic regression of the probability of having a male child
- Variables that were not significant at 10 percent are not shown in this table. They include in particular all regions except Tbilisi, rural-urban, household education level, household member engaged in agriculture, all other sources of livelihood except social assistance, all other quintile except the highest.

Source: computed from the 2014 General Population Census sample

the same time, household size is also negatively associated with birth masculinity independent of the household type. In both nuclear and complex households, having more than five members leads to a decrease in birth masculinity. We assume that, regardless of the generations cohabiting in it, a large-sized household may have several children and may hence be prone to high fertility. This association would probably suggest that families in this group will have no interest in sex selection and would rather try to meet their gender preferences, if they have any, through repeated fertility.

5.4 Time Trends in the Sex Ratios at Birth

Major developments in our knowledge of the sex ratio at birth in Georgia have emerged since the previous 2015 study. Not only have disaggregated census data become available for in-depth analysis, but also a new series of birth data from the PSDA civil registry has brought new evidence on the trends existing before 2005, a period for which only unreliable data sources were previously available. While the sex ratio at birth is available for each year in Armenia and Azerbaijan, and shows

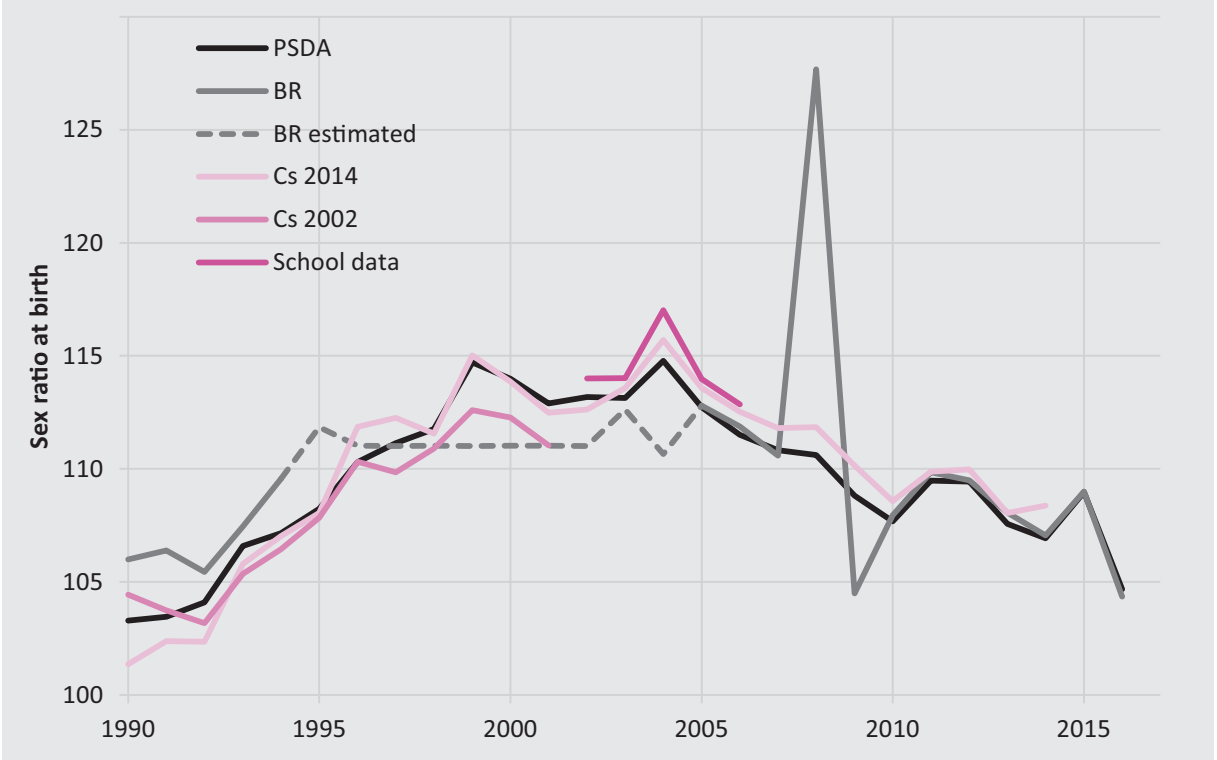
a peak above 115 after 2000, no comparable source exists for Georgia. The main unanswered question was the exact trajectory of the sex ratio at birth beyond its rise during the 1990s. Did the SRB continue rising after 2000, and at what level did it finally plateau? Based on survey and school data, the previous study had hypothesized that the SRB finally leveled off at 114 male births per 100 female births around 2003 (UNFPA, 2015a), but the new statistical sources will now allow us to re-examine this question.

Figure 5.4 brings together, for the first time, six different sources to describe the SRB since 1990. The birth registration data include official data collected by Geostat before 1995 and after 2005, as well as an alternative series for the 1995-2005 based on the assumption of invariant SRB level at 111 male births per 100 female births. Now we have two census-based series of SRB estimates, derived, respectively, from the 2002 and 2014 operations. In addition, we now have the sex and age distribution derived from the official statistics of Georgia's civil registry (PSDA). We have also added the sex distribution of children enrolled in primary schools in 2013-14.

A distinct profile of SRB change is clearly emerging from distinct series: the two sets of census-based estimates and the PSDA figures. More specifically, 2014 census and PSDA estimates are closely matching in both intensity and fluctuations. The gap is always smaller than 1.5 per 100 and yearly fluctuations, such as the jumps in 1999 and 2004, are identical. The 2002 census also provides accurate figures before 1996, but the SRB gap reaches two per 100 in 1999-2001. The additional estimate drawn from school enrollment also matches the fluctuations during the period centered on the peak year of 2004.

By comparison, birth registration, which should serve as the gold standard for SRB measurement, seems, at times, to be off the mark. It provides rather high SRB estimates around 1995 and unlikely figures for the 1996-2005 period. In addition, it recorded a most improbable spike in 2008. This sudden increase to 128 in 2008, followed by an equally bewildering decline to 104 in 2009, has long been a source of puzzlement for demographers.

Figure 5.4: Estimates of the sex ratio at birth in 1990-2016 according to different sources



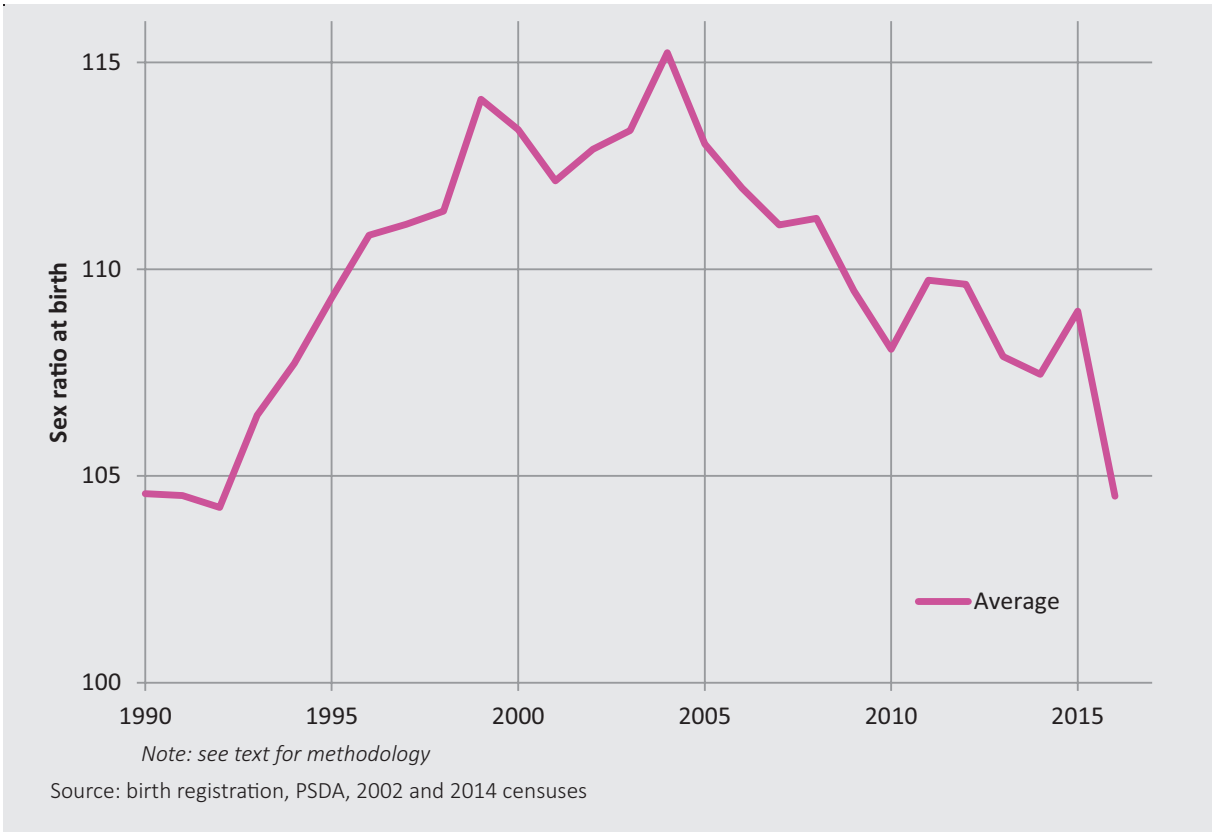
Source: PSDA, observed and estimated birth registration, 2002 and 2014 census, school enrollment statistics

The previous SRB study had attributed it to the rapid increase in births that followed the Patriarch's pronatalist pronouncement in 2007. However, both the PSDA and the 2014 census are now showing that this jump in SRB simply did not happen. It was a completely artificial rise and it will be briefly discussed later in this section. Nonetheless, it should be noticed that, after the 2008-2009 episode, birth registration figures closely match other sources such as the census or PSDA figures.

The SRB trend emerging from these different sources is shown in *Figure 5.5*. This plot is based on a new series of annual SRB estimates. Each annual SRB estimate has been computed as the means of the following series over different periods: birth registration before 1996 and after 2009, PSDA for the entire period, 2002 census for 1990-2001, and 2014 census for 1996-2014. Each period of reference has been selected in view of the quality and consistency of available estimates.

Figure 5.5 clearly depicts the profile of an almost complete 25-year cycle, embracing the rise and the fall of the sex ratio at birth in Georgia. The rise started immediately after independence in 1991, and took the SRB from normal values to high peaks. By 1999, it had reached a first peak value at 114, followed by another spike at 115 in 2004. A clear transition from normal to skewed SRB levels can be observed in 1992-1998, with the ratio subsequently plateauing at a skewed level. Obviously, the turbulent collapse of the Soviet Union and the abrupt independence of the country triggered this SRB transformation and, more generally, a change in the entire demographic regime (i.e. in fertility, migration, etc.) characterizing Georgia. From 1992 to 1998, there is a gradual, but extremely rapid, diffusion of sex selection across regions and social groups. By the turn of the century, female-selective abortions had become a logical solution to the reproductive conundrum facing Georgian couples: how to limit one's fertility while simultaneously ensuring the birth of a son? The plateau level reached between 1999 and 2008 was not completely stable, as the

Figure 5.5: Estimated sex ratio at birth in 1990-2016



Note: see text for methodology

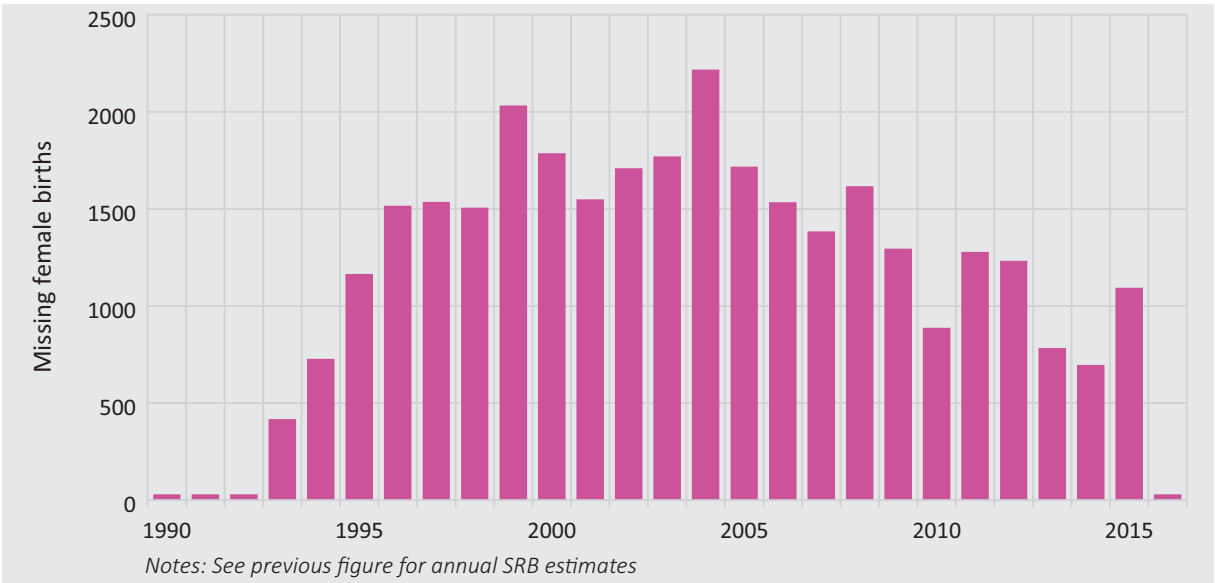
Source: birth registration, PSDA, 2002 and 2014 censuses

two extreme SRB levels recorded in 1999 and 2004 attest. However, there is no reason to believe that these two SRB peaks were artificial, as they are clearly corroborated by all different sources based on collected data.

This temporary plateau level with SRB oscillating in the 112-155 range lasted until 2005-2008, and it was followed by a gradual descent. Birth masculinity finally crossed the 110 bar in 2009 and this transition seems, in retrospect, to have been irreversible. The latest figure is 104.5 recorded in 2016. Incidentally, this turns out to be the first year since 1992 that birth masculinity in Georgia reaches normalcy again. Here again, the change in the demographic regime over the last ten years seems manifest and corresponds to a gradual abandonment of sex-selective practices. We still do not know whether the 2016 figure heralds a lasting disappearance of prenatal sex selection; only future measurements of birth masculinity will answer this question. The presence of yearly fluctuations such as the peak observed in 2015 indicates the persistence of a pronounced volatility of SRB. Nonetheless, in the light of the experience of other countries, notably South Korea, there is a feeling that declines in birth masculinity tend to be irreversible. Even if fluctuations in annual SRB levels are still to be observed in the near future, the return to normalcy will probably be long-lasting and signal the end of the "sex ratio transition" in Georgia (Guilmoto, 2009).

Based on our estimated series of annual SRB in Georgia (see *Figure 5.5),* we can also compute the number of missing female births per year. This figure corresponds to the difference between expected female births (if SRB was at 105) and the observed number. Our estimates are plotted in *Figure 5.6*. We observe a rapid increase after 2002. The figures rise from no missing female births at the time of independence to more than 1,000 per year in 1995 and a plateau close to 1,500 per year from 1996 to 2008. During these 13 years, two peaks above 2,000 missing female births rise (in 1999 and 2004). The annual estimate is now on the decline, often below 1,000 since 2010. However, it may be observed that the chart also shows that the decline in missing female births is not as rapid as the SRB turnaround. This is due to the fact the SRB decline also corresponded to a fertility rebound. This substantial increase in the number of births (see *Figure 4.3*) accounts for a parallel increase in missing female births even without any change in SRB levels. With a sex ratio at birth below 105 in 2016, according to birth registration and PSDA data, no excess male births are registered in Georgia for the first time since the early 1990s.

Figure 5.6: Annual number of missing female births in 1990-2016 based on our estimated SRB series



Notes: See previous figure for annual SRB estimates

Source: birth registration, PSDA, 2002 and 2014 censuses

A further question relates to the demographic components of this turnaround and the contribution of various social groups to the national decline over the last ten years. *Figure 5.7* tries to answer this question by bringing together census estimates for the period 2002-2014 and by plotting SRB trends by birth order.[25]

Interestingly, the decline visible after 2004 is not parallel for all parities (see *Figure 5.7*). There is a very clear decline in birth masculinity among first and second births from 2005 onwards. The SRB of first births had, in fact, reached an unusually high level of 112, pointing to the fact that a growing proportion of young parents had opted to avoid the birth of girls at the beginning of their fertility. Among second births, the gender bias was more pronounced. The SRB at parity 2 peaked at 117 in 2004 and even reached 135 the same year after the birth of a first daughter. Nonetheless, after the 2004 peak, the sex ratio of first and second births recorded a gradual decline to normal levels. The SRB reached normalcy in 2009 for parity 1 and in 2013 for parity 2. Some fluctuations are still visible, but more recent birth registration statistics show that, since 2013, the SRB of first and second births oscillates at around 106 male births per 100 female births and is therefore undistinguishable from the natural SRB.

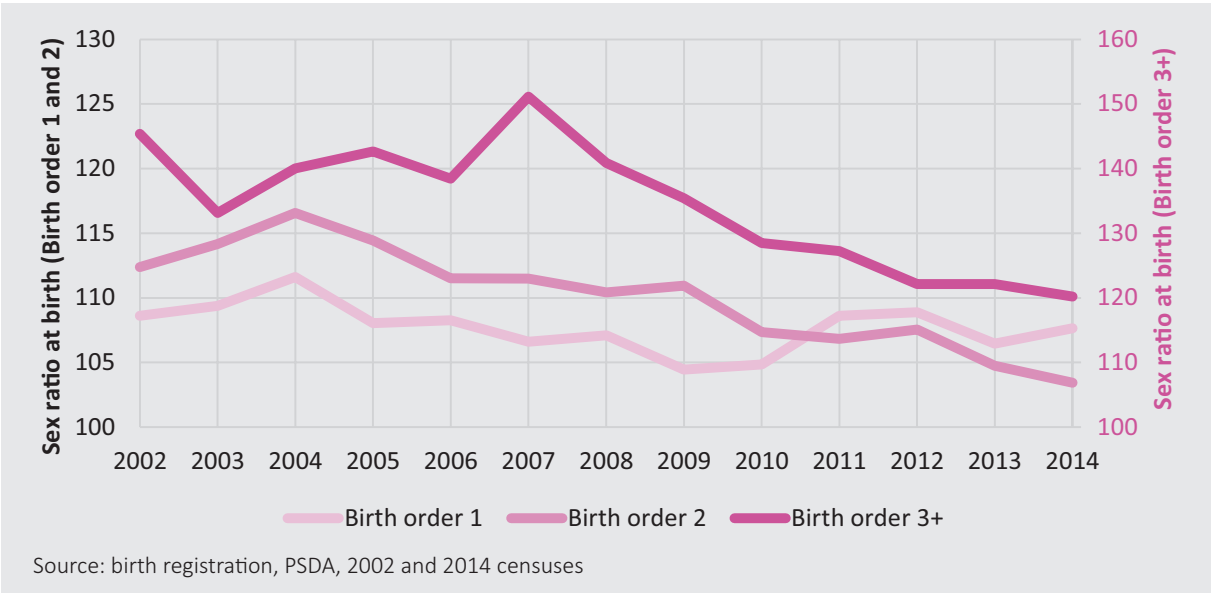
We notice that among births of parity 3+, birth masculinity continued to increase until 2007 when it reached the exceptionally high level of 150. Disaggregated data even show that in the absence of a previous male births, the sex ratio of third and higher-order births shot up to 280 for three consecutive years (2005 to 2007). This is one of the highest levels ever observed and it means that 62 percent of the "expected female births" were missing during these three consecutive years. Nonetheless, the decline after 2007 was steady as the SRB at parity 3+ diminished from 150 to 140 in 2008, 130 in 2010, and 120 in 2014. This SRB is still decreasing below 120 according to more recent birth registration figures: it reached 112 in 2016 according to the latest birth registration figures. The decrease since 2007 has therefore been continuous and it should be hailed with optimism. It may, however, be recalled that third and higher-order births remain often caused by the absence of a previous male birth and are therefore more vulnerable to sex selective decisions than any other births.

It may be puzzling that the overall SRB started declining in 2005 while the same phenomenon took place only three years later for third births. Here we need to remember that 2003 was most probably the lowest level of annual births ever recorded in Georgia's history (see *Figure 3.1*) and the birth rates picked up significantly only after 2007. In those years, first and second births accounted for the vast majority of all births in the country (e.g. 90 percent of the total in 2003). In terms of missing female births, the skewed sex ratio of first and second births represented precisely two thirds of the total deficit, while third and higher-order births accounted for the other third. This explains why the steady decline observed from 2005 onwards had an immediate impact on the overall SRB that canceled out the increase in SRB among third births that took place until 2007. During the most recent years, fertility rates increased in Georgia, as did the share of third and higher order births: they doubled from an all-time low of 9 percent in 2002 to 18 percent in 2014. The contribution of third births to the overall female deficit increased regularly over the last fifteen years, from 33 percent to more than 90 percent. Meanwhile, the SRB has plunged and the surplus of boys of first and second births has become almost negligible.

Also of interest are the SRB trends related to different social and economic characteristics. The analysis in the previous section based on 2010-14 data has already shown that the decline has affected the Georgian society to varying extents. Urban areas, for instance, were shown to display lower SRB levels than the countryside in the previous analysis. This is not, however, a new phenomenon, since 2002 census data show that the rise in SRB was far steeper in rural areas than in cities. In 2000-2004, during the years of the worst imbalance, the ratio reached 118 in rural areas, while the proportion of male births never

25 We do not use the birth registration series, as they are probably deficient for 2008-08 due to the artificial spike in SRB these statistics display. This sharp increase might have corresponded to the sudden registration of boys in order to make them eligible for an individual baptism by the Patriarch—reserved to third or higher-order births.

Figure 5.7: Sex ratio by birth order in 2002-2014



Source: birth registration, PSDA, 2002 and 2014 censuses

went higher than 110 in Georgian towns and cities. The decline was almost parallel in both rural and urban areas, but the gap between the two series remained constant for several years. Now that urban ratios have neared 105, the rural-urban gap is closing and the last 2016 estimate based on birth registration figures point to a decline, down to 108 male births per 100 female births in the Georgian countryside.

A similar analysis may apply to Georgia's regions. There were already significant variations across regions by the time of the 2002 census. In 2000-2004, the SRB ranged from 110 in Tbilisi and Guria to above 118 in Kvemo Kartli and Samtskhe-Javakheti. The decline since then has been almost parallel everywhere in the country. In the more "advanced" districts, the SRB finally reached a floor level close to 105 during the years preceding the 2014 census, while the decline is still ongoing in other regions. Some regions, such as Samegrelo or Adjara, have recorded a very steep decline and may already be catching up with regions displaying the lowest values. By comparison, the decrease has been less substantial in the southern and southeastern region from Samtskhe-Javakheti to Kakheti, where the SRB today remains well above the national average (almost 111 male births per 100 female births).

We can obtain a longer perspective when using the PSDA data. This is the only source providing an uninterrupted series of annual estimates of birth masculinity at regional level since the 1990s.[26] The quality has been shown to be very good at a national level (see *Figure 5.4*), but estimates at a regional level may be less reliable since the size of birth cohorts is small. We have grouped these estimates by five-year periods. The resulting maps are reproduced in *Figure 5.8* and provide a graphic description of the SRB cycle in the country.

The first map shows that the initial rise in 1990-94 appears to have been faster in the north of the country. In Tbilisi and in southern districts, the sex ratio at birth appears to have remained normal, although it had already reached 110 in one region.

Five years later, sex imbalances at birth have spread to the entire county. SRB levels in Kakheti and Kvemo Kartli have already reached a height of 115. In 2000-04, birth masculinity attained its all-time high and at least one district recorded a level above 120. The decline during the next five years is modest and affects only a few regions. It is only after 2010 that all regions experience a decline, with all districts except three displaying close-to-normal SRB levels. Sex imbalances at birth remain pronounced only in the Southeast of the country,

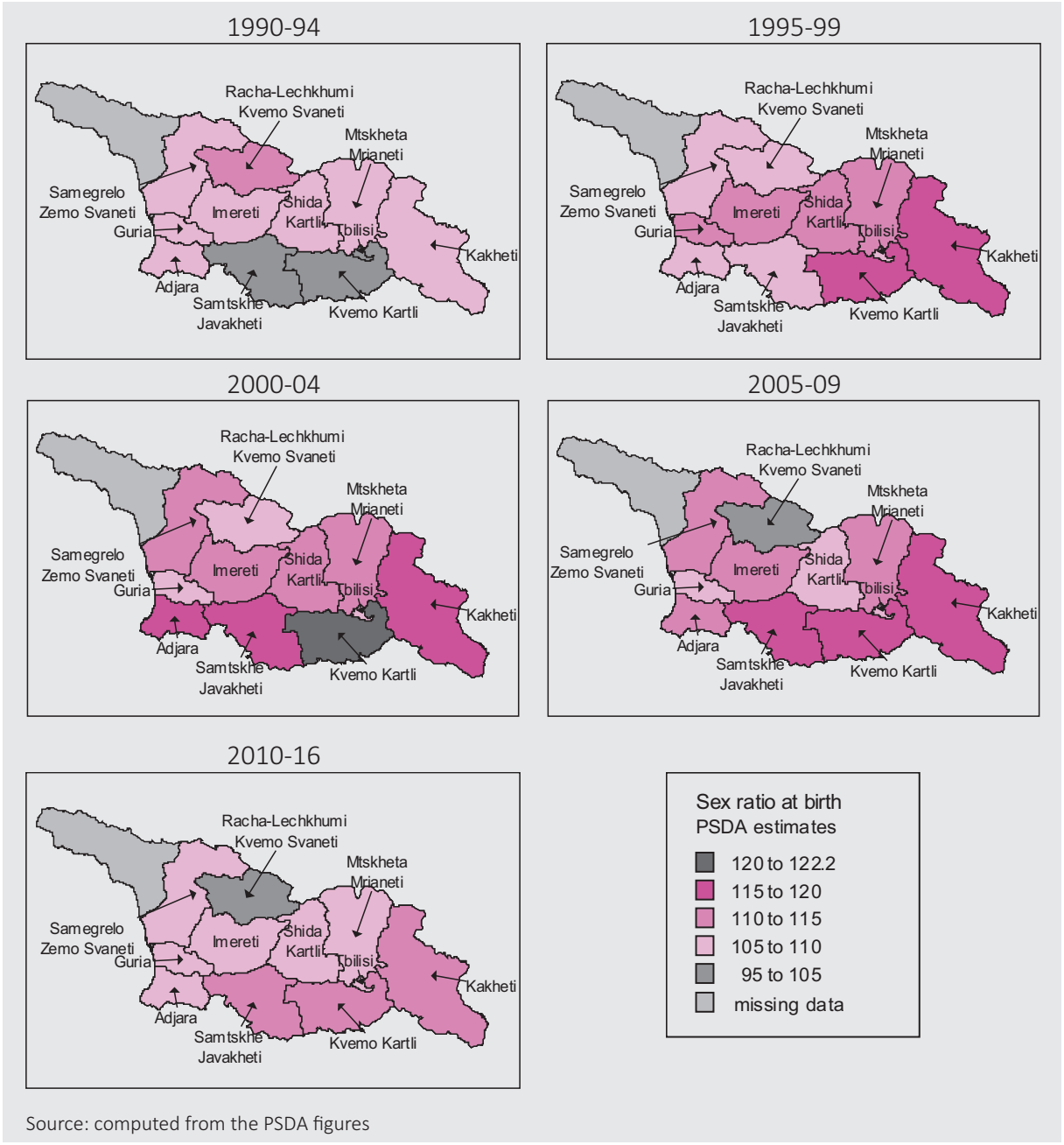
26 The PSDA figures used here to draw these maps may be different from other sources (census estimates, birth registration data) quoted earlier.

along the border with Azerbaijan and Armenia.

This transition can also be summarized with the data of the regions with the highest and lowest SRB. *Figure 5.9* displays data since the early 1990s for two clusters. On the one hand, we have clubbed together the SRB for the three southeastern regions with high sex imbalances at birth, i.e. Samtskhe-Javakheti, Kvemo Kartli, and Kakheti. On the other hand, we did the same with the three regions with the lowest SRB, i.e. Tbilisi and the two western regions of Guria and Samegrelo-Zemo Svaneti. The series have smoothed (using moving averages) to remove yearly fluctuations.

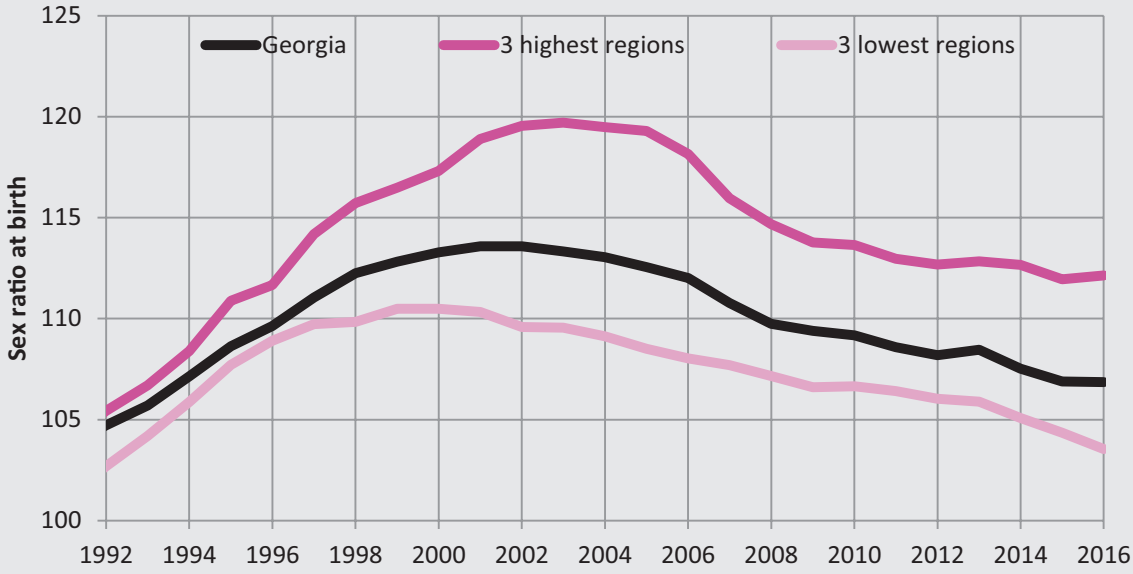
The comparison with the average SRB trend observed in Georgia is telling. Overall, the trend point to a similar pattern, with a rise during the 2000s of the sex ratio at birth, followed by a short-term stabilization at a high level and a final decline

Figure 5.8: Sex ratio by birth by region in 1990-2016



Source: computed from the PSDA figures

Figure 5.9: Sex ratio by birth in two different regional groupings



Note: (smoothed figures from the PSDA data)

Source: PSDA

until today. However, inter-regional differences are pronounced even within a small country like Georgia and *Figure 5.9* shows how they persist over the entire study period. In the low-SRB cluster in which Tbilisi predominates, the initial increase was more modest and ended in 2000 at the level of 110. It was followed by a gradual decline, which brought back the SRB to normal in 2014. By comparison with the national average, the rise in these three regions was both shorter and less pronounced and the downturn took place a few years earlier.

In the high-SRB cluster, the increase during the 1990s was faster and did not end before 2003, by which time birth masculinity had reached the record level of 120. The turnaround is detectable only in 2006, i.e. almost five years later than in Tbilisi or the other western regions. The decline over the last decade appears to proceed at a slower pace. The most recent data indicates that the SRB in these southeastern regions is still at 112, a skewed level that was never reached in the low-SRB cluster. If this decline proceeds at the same pace in the future, the SRB in this southeastern cluster will not be back to normal before the mid-2020s. The analysis below will show that wide variations across ethnic groups lie behind these significant regional differentials.

The variations across socioeconomic categories are more complex. The SRB ranking visible at the time of the 2002 census has remained more or less the same, even if the extent of the SRB distortion has now narrowed under the influence of its overall decline in the country. For instance, 2002 data showed that the poorer the quintile, the higher the sex ratio at birth: the values range from 109 among the richest to 113 among the poorest. The decline started after 2004 and has brought the three richest quintiles to normal levels in 2014. During the same lapse of time, birth masculinity has declined among the two lowest quintiles from 117 in 2000-2005 to 112 ten years later. There is also a clear downward trend among these poorest categories and it is likely to bring their SRB to normal levels within the next ten years. Estimates from the 2002 census data, however, had shown that the SRB in the case of families with at least two daughters and no son was actually very high among the wealthy and educated, exceeding, in particular, 190 male births per 100 female births. Apparently, it is no longer the case. Even among families with no boy, the higher the quintile or the household education level, the lower the SRB.

Rural communities may also be considered a subject of particular focus. The 2002 census had shown that households with a member working in

agriculture had more skewed sex ratios. This has remained largely true today. In spite of a rapid decline in SRB from 128 in 2003-2006 to 112 in 2011-2014, households whose head works in agriculture remain far ahead from other economic profiles in terms of skewed SRB. In contrast, the recent SRB is at its lowest when the household head works on wages or reports relying on social assistance.[27] Here again, the rise among agricultural households has been faster and led to extremely skewed SRB levels before 2005. While the overall downward trend has been steady, these households are yet to catch up with other socioeconomic groups that started their decline from more moderate SRB levels.

The last examination relates to cultural groupings. For reasons of simplicity, we will focus on ethnicity. We have earlier seen that birth masculinity levels among Armenians and Azeris are far above those observed among the majority community. What do we see in terms of trends? The results of our analysis based on the 2014 census are given in *Table 5.6* below:

Table 5.6: Sex ratio at birth by ethnicity and period in 1995-2014

	Georgian	Azeri	Armenian	Others	Georgia
1995-99	110.4	125.0	113.5	116.0	111.6
2000-04	112.1	126.6	122.7	108.8	113.6
2005-09	110.2	127.7	118.1	111.7	111.9
2010-14	107.3	125.5	117.4	115.1	109.0

Source: computed from the 2014 General Population Census

Among ethnic Georgians, the highest value in SRB was reached in 2000-04, as was the case for the entire country. It then gradually diminished, reaching 107 at the eve of the 2014 census. Meanwhile, other ethnic groups followed different trajectories.[28] Among Armenians, the peak period of 2000-04 corresponds to a much higher SRB at 123 and the subsequent decrease proved less pronounced, with an SRB still estimated at 117. The existence of a real turnaround in the Armenian community is debatable. As for the Azeri population, there is no decline whatsoever in the SRB trend during the entire period. The SRB reached early on the much-skewed level of 125 male births per 100 female births and plateaued around this level until 2010-14. There is no sign of a transitional mechanism at work during the 20 years before the census for this community. Using additional data, we see a distinct decline in the SRB of the Muslim population, but the trend is due to a decrease observed in Adjarans and other Georgian Muslims rather than among Azeris. These variations are stronger than regional variations observed earlier.

5.5 Final Remarks

As shown, the gender composition of the offspring is paramount to reproductive strategies among Georgian couples, whose major objective is to have at least one son. This goal drives active discriminatory behaviors and ultimately results in a bias in the sex ratio at birth in country-level demographic indicators. Even if prenatal sex selection is not as frequent as in countries such as Azerbaijan or China, our analysis has shown it to be more widespread than initially thought. It is found in all parts of Georgia, in rural as well as in urban areas, among the educated and the uneducated, and among first as well as later births even if measurement errors may have affected some of our estimates. The latter aspect of sex imbalances in Georgia is unusual since, according to the experience other affected countries, the sex ratio at birth tends to stay normal for the first two births and increases only later.

Nonetheless, prenatal sex selection is not the only way to ensure the birth of a son. In spite of the currently below-replacement fertility in Georgia, a

27 This last feature is somewhat puzzling since social assistance is, of course, more frequent among the lowest quintiles.

28 We are commenting trends among "other ethnic groups" as this category may be affected by random SRB fluctuations due to its small size. There is, however, a visible in SRB after 2005 among Russian speakers.

certain extent of flexibility allows some families to have a boy simply through additional pregnancies. This method does not require prenatal sex diagnosis or selective abortion and has no impact on the overall level of birth masculinity. It is only based on contraceptive use to stop childbearing once the desired gender composition is achieved. Resorting to additional pregnancies in the hope of having a son is, however, not a panacea. This method, in fact, presents several pitfalls. The first is near 50 percent chance that a child born will be a girl, making this an unreliable strategy. The second is the heavy burden it places on women through repeated pregnancies, which affect them in health and socioeconomic terms—and rarely leaves the already living children and rest of the family unaffected.

Despite the decrease in sex-selective abortions, testified by the firm improvement in the SRB, the analysis conducted above suggests that son preference has not disappeared in Georgia. Sex selective abortions may have instead been substituted by repeated childbearing, at least among a part of families, as the preferential strategy to meet their gender objectives. This and other potential explanations for the current state of gender bias are considered in the next chapter.

6. Potential Factors Behind the SRB Decline - a Qualitative Assessment

The previous chapter has established the existence of a distinct downturn in birth masculinity in Georgia over the last fifteen years. The SRB declined from a high level close to 115 to values that are today close to the natural ratio. As discussed, prenatal sex selection emerged in the South Caucasus countries during the early 1990s as the result of a combination of well-entrenched patriarchal traditions and contemporary and brutal processes. The rise in SRB developed in response to a deep crisis of institutions, values, and social expectations that resulted from the collapse of the Soviet system and its ensuing political and economic instability. After independence, the Georgian family gained additional prominence as a vital institution for protection in a society affected by regular bouts of turmoil, where sons became more desired than ever.

In addition to local specificities, a more integrative theoretical framework can explain the development of sex selection in Georgia as well as in other countries affected by the phenomenon, included those belonging to completely different cultural and geographical latitudes. The only general theory existing on sex selection, mentioned previously in this study, points to three necessary factors: a strong demand for male births, low fertility and the availability of sex-selective reproductive technologies. However, sex selection is a complex phenomenon resulting from the interaction of several processes, often going beyond reproductive practice and gendered family norms alone.

The elaboration of quantitative data suggests that the inversion in the SRB trend occurred in 2005. From the early 2000s onwards, Georgia has undergone a radical transformation, encompassing its political, economic, and socio-cultural life. These changes are likely to have influenced the system of values, perhaps weakening traditions firmly rooted in the local culture. The potential impact of these processes on the intensity of the gender bias deserves to be explored.

This chapter will investigate environmental processes that occurred in Georgia in the 2000s and raise some hypotheses on possible factors accounting for the weakening of prenatal sex selection. In particular, the analysis will be centered on the three driving forces of prenatal discrimination and their potential changes in the recent history.

6.1 The "Squeeze" Factor: Fertility

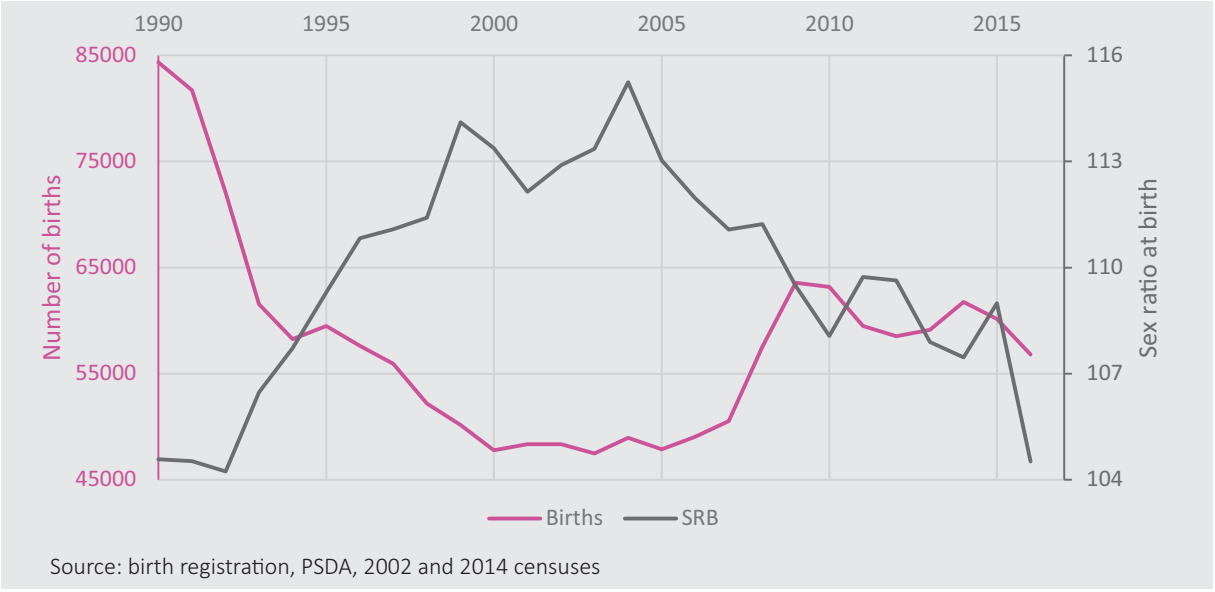
We have already hinted at the extent of fertility change in a previous section and observed that a rise in births occurred from 2005 onwards (see *Figure 3.1*). While doubts still exist on the exact fertility level during this period, the all-time low of the number of births can be dated to 2003. It was first followed by a slight gain of 6 percent until 2007. From 2008 onwards, in a period that followed the strong encouragement of the Patriarch for larger families in Georgia, the increase in the size of birth cohorts accelerated and reached a new peak by 2009-10, at a level 34 percent higher than in 2003.[29] Since then, fertility has diminished slightly, but remains 25 percent above the 2003 level during the following years.

To highlight the correspondence between birth rates and birth masculinity, we have plotted these two series on the chart (*Figure 6.1*). Estimates

29 According to the 2017 United Nations five-year estimates, fertility rose by 27 percent from 1.58 in 2000-05 to 2.0 in 2010-15.

6 POTENTIAL FACTORS BEHIND THE SRB DECLINE - A QUALITATIVE ASSESSMENT

Figure 6.1: Sex ratio by birth and number of births[30] in 1990-2016



Source: birth registration, PSDA, 2002 and 2014 censuses

used here for both series are the average values from the reliable sources, i.e. birth registration, PSDA, 2002 and 2014 Census estimates according to years and indicators.

There is undeniably a rather close similarity in the trends of both series. The rise in SRB took place after 1992, which is when the number of births plummeted. Later, the highest plateau level for the SRB in 1999-2005 also corresponded to the smallest birth cohorts ever recorded in Georgia. Obviously, the rapid fertility decline following the breakup of the Soviet Union and the political and economic turmoil that followed played a major role in forcing Georgian couples who wanted sons to resort to sex selection in order to avoid unwanted (female) births.

The subsequent rise in fertility deduced from the growing birth cohorts closely matched the simultaneous decline in SRB after 2005: birth masculinity reached a peak in 2004 at 115, and thereafter started a steady decline through 2010—when it went below 108 for the first time since the early 1990s. Moreover, it can be observed that the number of births slightly contracted after the 2009-2010 climax. Moreover, so did the pace of change in SRB: birth masculinity stopped decreasing after 2010 and recorded a slight rebound in 2011-12 at levels close to 110. The only discrepancy in this close SRB-births relationship relates to 2016, when both the SRB and the number of births recorded a decline compared to earlier values.

We may, at this juncture, need to restate the link between fertility and sex imbalances at birth. In the absence of sex selection, higher fertility automatically translates into a lower risk of remaining sonless. In the 2003-2010 period, the

30 SRB and births computed as average values of best available estimates (see text)

proportion of potentially sonless couples may have declined by almost a third, from 34 to 24 percent. The rise in birth rates after 2003 therefore lowered the probability of having only daughters. However, it did not cancel it out entirely: a significant proportion of couples are indeed likely to remain sonless even with an average number of children close to replacement fertility.[31] This suggests that fertility increase may have reduced the pressure to resort to sex selection, but it cannot explain completely the decline in birth masculinity levels observed in Georgia over the last 15 years. A similar reasoning also applies to the early 1990s: before independence, fertility was significantly higher, slightly above replacement level. However, this trend cannot, in isolation, explain the absence of sex selection since, at this fertility level and in the absence of any prenatal selection, many parents must have failed to have a son.

There is obviously a difference in the scale of changes of fertility and sex-selective behavior. In economic terms, we could interpret this relationship between both series in terms of elasticity. The fertility elasticity of the sex ratio at birth appears to be very high: a comparatively modest change in birth rates may have considerable implications on the propensity of couples to sex select. For instance, the contraction of birth rates in the 1990s seems to have sent the SRB skyrocketing within a decade. Conversely, the later rebound of TFR after 2003, previously estimated to represent a 30 percent increase in 2010, inaugurated an apparently irreversible fall in birth masculinity. Why is fertility elasticity so high, and why are small changes in birth rates associated to major disruptions in the sex ratio at birth? The situations observed in the past and today—with TFR estimated at levels slightly above and below replacement level respectively—illustrate this paradox. There were apparently no sex imbalances at birth in 1991, or at the time of writing in 2016, but fertility levels in both cases mean that 20-24 percent of couples would remain sonless without prenatal sex selection. We may only argue that the role of lower or higher fertility on sex selection is probably amplified by other processes.

6.2 The Supply Factor: Technology

The previous section has outlined the manifest connection existing between the prevalence of sex-selective abortions and changes in the fertility trend. However, it also showed that the latter is not sufficient to explain the SRB fluctuations without also considering other contextual processes. In the case of the early 1990s, evidence points to the role of the sudden availability of new ultrasound equipment when Georgia became independent. The emergence of modern sex selection technology and private healthcare units offering sex selection services across the country was probably the crux of the matter in the early 1990s. The revolution in reproductive technology was a game changer, in the sense that, for the first time, access to the prenatal diagnosis allowed couples to factor the gender of the child into their reproductive equation. Did anything comparable in relation to access to technology happen that could explain the SRB's downturn after 2005? From what we know, the answer is negative.

First, there was no sizable change in the access to ultrasound. The variety of reproductive services offered by healthcare centers in Georgia has, if anything, continued to increase over the last twenty years. The country has even become famous for its fertility clinics, offering a large choice of services to more diversified patients coming from abroad. The price of ultrasound is today very low and clinics or hospitals—more than 80 percent being private—that provide such services are to be found in most small towns. Second, there has been no specific regulation on prenatal diagnosis in Georgia. In contrast to Asian countries where governments have tried to monitor or to ban sex detection during pregnancy, Georgia has not introduced any legislation of this type. Pregnant women can therefore easily avail themselves of these services. Third, abortion as a whole[32] has not been affected by any significant policy change in Georgia. In spite of repeated campaigns from faith organizations to reduce access to abortion,[33] it remains easily

31 If couples do not resort to sex selection, 22 percent of them would have no son with a TFR of 2.1 children per woman.

32 We need to keep in mind that sex-selective abortions represent only a small proportion of the overall number of abortions, which are primarily used in Georgia to prevent unwanted births.

33 For instance, Patriarch Ilia denounced the "murder of innocents" in his 2013 Easter message. Abortion was banned by local

accessible to women and still plays a major role in birth control.

Modern contraception has shown some progress and there has been an apparent decline in the frequency of induced abortion according to survey data (Serbanescu, Stupp &Westoff, 2010). Official statistics from the Ministry of Health do not show any downward trend in the annual number of abortions performed in the country. On the contrary, the data suggest a substantial increase over the last ten years, from an annual average of 23,000 abortions to 35,000 after 2010—a trend that might also reflect an improvement in registration.

While sex-selective abortions must undoubtedly have diminished in view of the sustained normalization of the SRB, there is no reason to believe that this is due, even in part, to a decreased accessibility and usage of technology and medical services. This leaves us with the third factor of the equation, i.e. the demand for sons.

6.3 The Demand Factor: Son Preference

Apart from being the effect of changing fertility, the decrease in the prevalence of sex-selective abortions may ultimately be the result of a lower demand for sons, or at least of a decreased appeal of the cultural imperative to give birth to a son. Son preference is a complex and composite cultural institution, involving practices and expectations of various types. The contextual changes that may have influenced it go well beyond the sphere of pure gender discrimination. Indeed, the analysis of the SRB decline cannot be properly performed without taking into consideration the deep institutional changes experienced by the country at the broader political, economic, and social levels. As it happened, the timing of many of these transformations corresponded with that of the SRB downturn. These changes clearly shaped cultural imagery and social attitudes, and have had a lasting effect on the public and private life of Georgians. At the same time, the last fifteen years have also witnessed considerable changes in the field of gender relations, both within and outside the family, which are likely to have raised the perceived value of daughters in relation to sons. It is therefore necessary to review briefly both processes. Although they are clearly intertwined, we will do so in two separate sections for reasons of simplicity.

Institutional Changes

Great socio-political and cultural changes observed in the country in the early 2000s were triggered by the highly symbolic event of the Rose Revolution. The Rose Revolution is known for having led to a peaceful overthrow of the ruling elite whose reputation and popular support were steadily deteriorating. The Nomenklatura, to a large extent a legacy of the earlier Soviet regime, was deemed inefficient, corrupt, and unable to respond to the mounting economic challenges facing the country—rising poverty, widespread unemployment, collapse of state-run social services, to mention but a few.[34] The protests erupted after the electoral fraud in November 2003 and eventually led to the fall of the government. The incoming presidency was representative of the most westernized fragment of society (Sayin & Modebadze, 2014) and endorsed the causes of democratization and modernization of Georgia (Jones, 2006; Gilauri, 2017).

The years following the fall of the old regime were indeed characterized by policies and reforms that profoundly affected Georgian institutions as well as their perception by ordinary citizens. There is no way of missing the coincidence between the onset of the SRB decline after 2003-05 and the change in the regime. The impact of institutional transformations on the system of values is unquestionable, but what will be explored here is their potential effect on family dynamics and practices. Accordingly, this section will briefly outline the main components of the institutional transformation from the early 2000s that arguably influenced the gender bias. For clarity, the analysis will be centered on three main cultural, political, and socioeconomic trends launched during the early 2000s:1) the opening to new

authorities in Abkhazia, Georgia in 2016 in order to boost the birth rate.

34 For a description of this failed transition period in Georgia, see Wheatley (2017).

cultural influences, namely from the West; 2) the streamlining of public institutions, and the fight against corruption and crime; and 3) the decrease in socioeconomic vulnerability.

The Influx of New Cultural Influences during the Transition

From the early 2000s onwards, Georgia received new cultural influences—primarily coming from Europe and the US—that noticeably affected lifestyles. On a broader political and economic scale, the change in the leadership coincided with a fundamental turn in the orientation of diplomatic exchanges and foreign affairs. After years of relative alignment with Russia, the 2000s witnessed a consistent strengthening of Georgia's ties with the West—for instance, through the launch of the adhesion processes of Georgia to the EU and the NATO[35]. Today, Georgia has the closest diplomatic relations with the West of any Caucasian state (Sayin & Modebadze, 2014). According to our expert interviewees, this process was accompanied by media support and an enthusiastic, quasi-propagandistic hail. The general spirit was to promote an image of Georgia as a country open to the world, with West-European views and lifestyles.

From the early 2000s onwards, economic liberalization allowed the diffusion of consumer goods from the West, while migration, blossoming tourism, and the increased transnational flux of cultural products and communication allowed for the spread of new social norms and values. Expectations and attitudes shaping individual identities as well as interpersonal relationships were affected. Today, widespread use of social media and Internet platforms are also common in rural areas, especially among the youth. A 30-year-old woman in Telavi told us of meeting her husband online through a video she had posted on YouTube. Tastes in leisure and entertainment among the youth are in synch with those of their Western peers. Tbilisi typically acts as a cradle for new trends, with a lively scene of nightlife and cultural events, in which both young women and men participate. Likewise, all the main international brands—for fashion, fast food, etc.—are available in the capital.

In theory, these new cultural influences may have contributed to the decrease in sex selection by means of weakening the appeal of those traditions and values that define the patriarchal family. A sociologist we interviewed in Tbilisi argued that the new cultural influences accounted, at least partially, for the improvements in gender relations in general. More specifically, more flexible and gender-balanced ideas of intimate relationships started spreading, as well as new social roles and a sense of individuality that stood in contradiction with some of the tenets of the traditional family. However, some practices, but also taboos and social restrictions, prove resistant, despite the diffusion of new lifestyles and cultural influences, notably in the family domain. A sociologist interviewed in Tbilisi stressed this point by observing: "*Europe is a model to Georgia but not in two things: family and sexual behaviours.*" The ultimate impact of these cultural changes on son preference is therefore difficult to assess, but they clearly accompanied a more general process of female empowerment that we discuss further in this chapter.

The Strengthening and Modernization of Public Institutions

Another factor that may have potentially contributed to the relaxing of the patriarchal family norms and son preference is the transformation in the public sphere. The demonstrations that constituted the Rose Revolution showed widespread popular dissatisfaction with Georgian public institutions, which were perceived as unfair and poorly functioning. By the early 2000s, public services—notably in the domains of healthcare, justice, etc.—not only performed poorly in terms of quality, but also of fairness and accessibility. Under-the-table payments were the norm, while cronyism and the exchange of personal favors were also very common ways to cut through the red tape and obtain otherwise unavailable services. A study conducted in 2004 highlighted that, more than a decade after the collapse of the Soviet system, the crumbling medical sector was dominated by informality: healthcare services

35 To this end, he created the State Ministry for Euro-Atlantic Integration of Georgia in 2004 and tightened a partnership with the EU through the European Neighborhood Policy. Retrieved from: http://www.eu-nato.gov.ge/

were regularly provided after out-of-pocket, often unrecorded, payments. These practices had "*severe consequences on both equity and efficiency, making services unaffordable for most people*" (Belli, Gotsadze & Shahriari, 2004).

The literature has drawn a link between the weight of informality in Georgian public institutions and some specificities of the local culture, notably the importance attributed to social networks (community connections, friendships and kinship relations) for social status and interactions (Mars & Altman, 1983). During the Soviet Era, Georgia's "second economy" was deemed the largest in the Soviet Union, but this issue will be dealt with more in detail in the next section. However, the turmoil of the post-Soviet Era and the institutional vacuum that resulted reinforced these informal mechanisms. Practices such as this were easily turned into bribery and corruption. The extent of corruption among civil servants and in the political elite became both concerning and blatant: in 2003, just before the Rose Revolution, the country ranked 124th in the Corruption Perceptions Index compiled by Transparency International, i.e. in one of the lowest positions in the global scale (Aliyev, 2014).

In the very first years of the new government, one its main lines of action therefore aimed at eradicating the inefficiency of the public apparatus and improving its accountability. His reforms and policies had a considerable impact in a short period, and the country is still considered a success story. The incidence of corruption shrunk: by 2016, the country was ranked 44th in the same Transparency International ranking mentioned above—a far better performance than all the other Caucasian and former Soviet countries. The crusade against corruption also extended to a broader fight against crime, which led, among others, to the eradication of the notorious local mafia (Shelley 2007; Kukhianidze, 2009). Reforms were also effective in reducing the scope of informal payments and practices to access public services. Their incidence is indeed minor nowadays (Aliyev, 2014). A gynaecologist working in a public hospital in Telavi, when asked about gratuitous gifts from patients, answered with dread: "*We are not allowed to receive anything from them. It's against the law*". Importantly, the reforms also managed to increase citizens' trust in public institutions. According to the Caucasian Barometer, the share of respondents who feel treated fairly by the Government increased, for instance, from 39 to 54 percent in less than ten years (from 2008 to 2015).

While the link between these reforms and the preference for sons may not be obvious, it is unquestionable that the strengthening of public institutions significantly altered Georgia's social landscape, providing individuals and families with a new sense of trust towards public actors. During the dire years of the post-communist transition, the family had indeed come to play an essential role as an institution offering protection and stability, notably through sons. Some of these functions have, however, gradually been reclaimed by the state through a process of institutional consolidation and streamlining, which are likely to have decreased the perceived need to rely on sons.

Improved Economic Stability and Social Security

As highlighted above, social networks were traditionally vital for accessing resources in Georgia, and they became more so in the aftermath of the Soviet collapse. In economic matters, social and family ties were, for instance, essential when seeking a job, for raising money to face short-term needs in response to health issues or unemployment, for accessing steady support in old age, etc. These social ties thus provided mechanisms to cope with vulnerability and income fluctuations. Informal solidarity was implemented through "trust-based honour commitments" (Mars & Altman, 1983). A study showed that insufficient social connections, notably via kinship ties, were an important predictor for individuals' perceived food, economic and housing vulnerability in post-Soviet Georgia (Dershem & Gzirishvili, 1998).

The major pillar of these informal safety nets is the family, whose members provide each other with mutual financial assistance. Multigenerational cohabitation is a clear manifestation of this intergenerational support system. In the case of patrilocal arrangements, solidarity imposes on sons.

Concerning the role of sons in the economic support of their parents, the following opinions were collected in 2014 during the focus group discussions:

> "*I think that higher pensions would let many people be independent from their children in old age; relying neither on their daughter or their daughter-in-law. This would probably change the situation. The families would think less of having a son in the hope that he stays with the family [unlike daughters*]". Adult woman, Adjara.

> "*If the pension is high, parents will not care if they have a daughter or a son. The daughter will not be able to help her parents financially, because she will live at the expense of her husband, and the husband will definitely object at some point. He would say: 'Why should I care for your mother for so long?'. While the son is responsible for taking care of the parents—even if it is for 20 years*". Old woman, Adjara.

Informal support and social safety nets are vital in the absence of more formal alternatives for protection such as state- or market-based institutions providing social security, bank loans, contractual employment, housing market, etc. Mechanisms emerged—or re-emerged—in Georgia from the early 2000s onwards and reduced income fluctuations as well as perceived vulnerability among households. An overview of the main pillars of this developing protection system may be of interest:

- In 2004, the government reformed the previous, inefficient pension system and launched a new type of flat pension, available to anyone who fulfilled the retirement criteria (see also De Bruijn & Chitanava, 2017). It comprised a minimal and universally granted part and an additional, insurance-based component (Gugushvili, 2012). The sociologists we interviewed in Tbilisi claimed that, in spite of being insufficient to cover living expenses, pension benefits are effective in tackling extreme poverty among the elderly and gave them a sense of independence from their children. A woman in her 40s living in Telavi told us, "*We must help my mother-in-law when her pension is not enough. But it is something. Sometimes, she even manages to save some money from it. With that, she can buy little presents to our children and so she's happy*."
- Other public protection schemes to fight poverty and vulnerability to financial losses were implemented from the early 2000s onwards, two of which are worth being quoted here: 1) the Targeted Social Assistance (TSA), designed in close cooperation with the World Bank and launched in 2005. It consists of cash transfers to help the livelihood of the poor and has a relatively large coverage of the population (Baumann, 2012). The healthcare reforms comprised several schemes to promote access to medical services and to reduce out-of-pocket costs. These included the launching of a type of insurance targeting specific social groups in 2007, and a universal insurance plan launched later, in 2013 (Hohmann & Lefèvre 2014; Gzirishvili 2012). Today, they represent a large share of the national budget expenses. In particular, these healthcare policies were, according to our respondents, the most effective in reducing vulnerability.
- Other formal means of smoothing consumption and reallocating resources over the lifecycle became available to Georgians through the banking and insurance sectors. The Georgian banking system is currently the most solid in the Caucasus. It started developing in the late 1990s and early 2000s. Banks evolved from microcredit institutions (primarily NGOs) which, by the collapse of the Soviet Union, were the only formal providers of credit[36]. According to a bank employee in Telavi, basic loans are accessible to everyone today. For instance, the self-employed—who comprise a significant share of the Georgian workforce and are normally excluded from regular loans—can rely on microcredit schemes and accessibility is granted in remote areas: "*bank employees go to the mountains with their laptop and give customers a credit card in which to put money*." An economist we interviewed claimed that informal borrowing is

36 The bank employee we interviewed in Telavi explained that these micro loans were intended to fund business activities, but recipients often used them to cope with urgent expenses, such as healthcare costs. Such was the extent of vulnerability during those years, and the support offered by NGOs was thus fundamental.

still important in Georgia, but the situation is changing rapidly.

- NGOs have been vital players, as they not only provide effective support to tackle vulnerability, but also bridge state and community members to implement public protection policies (for instance, they help reaching social assistance recipients). The importance of NGOs in Georgian society was noteworthy by the early 2000s. With the help of a favorable legislation and access to foreign funds, they grew rapidly in number and played a major economic, social, and even political role (Wheatley, 2017).

The gradual development and consolidation of formal protection institutions have been quite effective in addressing income vulnerability as well as chronic poverty. At the beginning of the 2000s, the incidence of poverty was still high in Georgia and affected around one third of the population, but it has been significantly reduced since this time. Interestingly, the logit regressions performed in the quantitative analysis (see *Table 5.5*) show that households belonging to the lower income groups tend to actively seek a male birth. Despite this, those who receive some form of social assistance are less likely to sex select. Households that are less vulnerable because of state assistance are arguably less dependent on informal support and intergenerational solidarity, notably on their sons.

Moreover, beyond the actual improvement in livelihood conditions, the introduction of new schemes may also have had a consistent effect on people's collective imagination and long-term perception. As an economist in Tbilisi claimed, "*the new social protection policies, besides their actual effectiveness, consistently shaped people's perception of their future*." Moreover, protection mechanisms—especially those provided by the state—need to be backed by institutional credibility. As argued in the previous section, institutional streamlining during the 2000s was effective in this regard. An example drawn from our fieldwork may be eloquent at this point. Georgian citizens can complain to the Public Defender Office (Ombudsman) if the state is negligent in granting rights and providing services. One interviewee reported that, in the busy Telavi branch where she works, a large proportion of the cases received relate to social security services, and they are often successfully settled through the Ombudsman's mediation. This testifies to both the improved accountability of public institutions and an increased sense of entitlement among citizens.

To sum up, it may be argued that the consolidation and streamlining of income security schemes played a role in decreasing uncertainty and reliance on male children. The attitude towards certain family norms may have relaxed since intergenerational solidarity is no longer perceived as the only strategy for coping with social and financial uncertainty.

Changes in the Gender Sphere

It is now time to bring in the analysis of the demand for sons, the family and gender dimension, and notably its transformation over the last 15 years. The section starts by analyzing the evolution of daughters' and sons' role and value strictly within the family, which is where the gender bias is generated. It continues by exploring the changes in women's agency and access to resources in other arenas of society, and it finally addresses social norms and values concerning gender in Georgia.

Gender-Biased Family Practices

Reproductive decisions are primarily taken within the family. In the Georgian context, patriarchal structures exert a powerful influence, be it in rural or urban areas (Gagoshashvili, 2008). The quantitative analysis presented earlier demonstrated the presence of a sizable gender bias in fertility behavior during the ten years preceding the census. While the intensity of this bias has slightly declined since the 1990s, the preference for sons is still pronounced, as shown by the increased fertility solely observed among parents of daughters. Nonetheless, qualitative data points to a gradual transition towards equal desirability of sons and daughters. All individuals interviewed in 2016 declared that they were indifferent to the sex of their children. This statement was made by both men and women and across different age groups, marital situations, and socioeconomic backgrounds. The majority of the experts that we consulted—e.g., social scientists, or community

leaders—were less optimistic about the actual disappearance of the fertility preference for sons and argued that male births are still more desired than female ones, an assertion in accordance with what the analysis of fertility behavior suggests. The preference may often be hidden and somehow implicit, a form of taboo in the more gender-conscious society that Georgia has today become. However, there is widespread agreement that the pressure to sex select in order to deliver a male birth is decreasing. In this sense, the statement of a female doctor who has been working for 25 years as a gynecologist in Telavi is illustrative:

> "*Son preference is still there. People are still interested in knowing the sex of their children in advance, they want to know. And if they know it's a boy, they are happier, especially the father. But they don't do that [i.e. sex-selective abortions] anymore*."

In the current Georgian society, sons may be still disproportionally considered as a source of pride and fulfillment for the family, but this feeling seems to be fading somewhat—especially among the younger generations. Today, families may opt for repeated fertility rather than active sex selection, partly leaving the sex composition of their offspring to chance.[37] In order to better understand these mechanisms, it might be useful to take a closer look at some of the traits of the Georgian patriarchal family:

- As principally reported by existing evidence and literature (UNFPA, 2015a), one main reason for families to want a male birth lies in the desire to carry on the family name. The name can traditionally only be passed along the male line, in an arrangement known as patrilineality. Alternative practices (passing on the mother's name, or both) are absent or extremely rare in today's Georgia. No evidence of noticeable change in this direction was available to us.
- Conversely, other family dynamics are becoming less patriarchal. One example is the expectation for sons to provide old-age financial and emotional support to their families. The analysis highlighted that parents can today also expect to receive support from their daughters. Several female interviewees declared that they helped their retired parents to pay for surgery, or with everyday living expenses:
- "*Some people think that since the boy stays at home, he has more obligation to his parents. But, of course, girls should also take care of their parents and this does happen. I have not heard that girls did not take care of their parents; they will at least do what they can.*"—Woman in focus group discussion, Adjara.

Moreover, parents feel that daughters are proving to be more reliable and emotionally available than their brothers.

- Another typical feature of the patriarchal family that is currently being challenged is the patrilocal pattern for cohabitation, i.e. the expectation for sons to marry and bring their wives in to live with their parents. The practice is becoming less prevalent. Uxorilocal (matrilocal) arrangements still encounter derision and social judgment, but the attitude is changing.

  "*If a husband goes to live with his wife's family, it means that the family needed to do this. He will take care of them and let them enjoy their lives. Society calls such a man 'Son-in-law-ed in' [living with his wife's parents], but I am not against it*."—Man in focus group discussion, Adjara.

This form of living arrangement is still infrequent, especially in peasant households and among Muslims, yet it is also now quite common in Tbilisi, as we have seen from the 2014 census (see Chapter 4). In the capital city, more than 30 percent of cases of post-marital cohabitation correspond to uxorilocal residence. Census data show that uxorilocal arrangements are more common in more affluent and better-educated households, pointing to a gradual top-down diffusion of less gender-biased residential patterns.

An additional factor may be the rise in the proportion of neolocal residence. A large share of our interviewees belonging to younger generations expressed the desire to live on their own once married, because "*living separately*

37 The presence of a clear "stopping behavior"—i.e. fertility interruption after the birth of a son—among Georgian couples demonstrates that fertility remains closely controlled when it comes to the gender composition of the children (see Chapter 4.3)

from your parents is advantageous for love and the relationship" [young man in focus group discussion in Adjara]. Neolocal arrangements are more demanding in terms of financial resources and young couples still find it more practical to spend some years after marriage with their parents. Multigenerational families are still generally prevalent in rural areas characterized by lower living standards and traditional attitudes.

The weakening of patrilocality may be a mechanism through which responsibilities and privileges are more equally shared between spouses as well as among sons and daughters. This hypothesis is partly corroborated by our analysis of the determinants of birth masculinity, since we found a lower SRB in nuclear families (see *Table 5.5*).

- A similar observation can be raised for the practice of male-biased inheritance. The transmission of the family property along the male line is still extremely common—despite a law protecting equality between siblings. The bias against daughters' inheritance remains strong in rural areas but it appears to be progressively disappearing in Tbilisi. A retired woman we met in Telavi explained how she combined traditional property transmission to the son with generosity to her daughter: she set up a business for her daughter and a built a house for the son, notably next to her own. Similarly, a sociologist consulted in 2014 declared:

  "In the actual practice, especially in rural areas, the son is the one to inherit the house. Inheritance is a very loud word. In the families where we can talk about inheritance—that is in the families that own businesses, big real estate—parents don't differentiate between sons and daughters when dividing the inheritance… As for the parts of society that make up the majority, they have one house and we can't really talk about inheritance here. The son stays in that house and if the daughter gets married, she doesn't have a claim on it. If they're wealthy then yes, of course, daughters also claim their inheritance."

These stories may suggest that the inheritance bias is primarily tied to the house property, often linked to expectations of patrilocal coresidence. This discrimination is, however, slowly dissipating, and it may be further eroded by economic progress and more frequent neolocal residence.

The Socioeconomic Role of Women

Beyond the family setting, sex selection is a phenomenon that needs to be framed in a broader context of gender segregation. The decline of son preference cannot be distinct from current trends in women's empowerment in the country. The link between improvements in the overall condition of Georgian women and a more balanced sex ratio is probable but difficult to evidence from the available sources. Two main mechanisms could be at play in this process. On the one hand, the empowerment of Georgian women promotes the perceived value of daughters, since adult women gain autonomy and economic worth. Daughters may, for instance, provide financial support, care, and emotional strength to their parents during old age. They could thus represent a resource rather than a cost. However, on the other, sex selection is a form of gender discrimination that women contribute to perpetrating for a variety of reasons, such as their internalization of gender-biased social norms and their limited bargaining power in the family, including on reproductive decisions. In a 2014 interview, a community leader in Adjara stated, "*If a woman wants to keep a child but the family resists strongly, the woman is, of course, scared that her husband will divorce her; she's worried how she will raise the child*." The same respondent shared the example of a woman experiencing pressure from her mother-in-law to terminate her second pregnancy of a girl and took her dispute to the court. While laws can protect women, going to court to resolve reproductive matters remains rare. Empowering women would allow them to better respond to these types of abuse, and to have a stronger say in family decisions and on their own fertility.

In recent years, Georgian society has undergone remarkable progress in the sphere of gender equality, although the improvements are unevenly distributed throughout the country and do not concern all arenas of society alike. Improvements in female education have not been particularly noteworthy of late, but this is also because the

country has long been performing relatively well in this sense. In fact, Georgia scores well in basic indicators of education, including in terms of equity between boys and girls (UNICEF, 2010). For instance, women were reported to have already outnumbered men in admissions to universities in 2007-2008 (Sumbadze, 2008).

There are also domains in which recorded changes in women's status have admittedly been modest, such as in political participation. Georgian women remain today somewhat excluded from the political arena. Signs of improvement, however, are visible in that direction, with civil society organizations and feminist movements working to push the gender agenda forward in the public discourse. At the time of our visit, the Georgian Parliament was discussing the adoption of quotas for women representatives: beyond its actual epilogue, the initiative sends a powerful message of increased attention towards gender issues, which, according to a sociologist we interviewed, "*would have been impossible just ten years ago*".

More than education, increased access to economic resources was a driver of women's empowerment. The inclusion of Georgian women in the labor market was high during the Soviet period, including by international standards. In addition, the country was struck by a severe economic crisis after 1991, which resulted in a massive loss of jobs, but women's employment was less affected because of the economic resilience of the sectors in which they were employed—primarily healthcare and education. Women somehow had to take up the slack and raise the necessary income for the family budget, with an additional proportion of them joining the labor force and becoming active economic members of the household. In terms of labor participation of women, Georgia performed even better than other former Soviet countries (Pignatti, Torosyan & Chitanava, 2016).

After the Rose Revolution in 2003, a series of reforms helped keep the standards of female inclusion in the economic sphere high. They culminated in the abolishment of fees for preschool education in 2013, with observers also ascribing this measure to the additional increase in female labor force participation observed from that date onwards, after a period of relative stagnation. The rate reached 57 percent in 2015 (World Bank). The institution of free kindergarten, criticized for the drawbacks in its implementation, undoubtedly testifies to the intention of public institutions to support women and families. Expert interviewees alluded to the fact that the trend of women's inclusion in the economic sector is not unique to Georgia, but in fact rather common in the region. However, the country stands out for the quality of the work conducted by its women: Azerbaijan, which also performs well in indicators of female labor participation, primarily has women employed in the unskilled workforce, while educated young Georgian women are increasingly being welcomed into the labor market as specialized workers (Pignatti, Torosyan & Chitanava, 2016).

How far did these trends affect the gender power balance within the family? In theory, an increase in the wife's economic capacity should improve her bargaining power within the couple, and fertility decision-making may ultimately better represent preferences oriented towards women and the matriline. Several of the experts interviewed were inclined to believe that the increased economic relevance of Georgian women did strengthen their position in the household. Nonetheless, the contribution to these trends to the improvement in the sex ratio may be minor, especially considering that no considerable progress in women's economic activity was observed during the years of the downturn. We notably failed to identify any woman-specific correlates of birth masculinity in our regression analysis (see *Table 5.5).*

One specific trend in the economic sphere may, however, explain changes in gender roles in today's Georgia. Over the last few decades, the country has experienced strong flows of outmigration, primarily starting from rural areas and directed towards European countries, the US, and, in the past, towards the Russian Federation (Sumbadze, 2008). The economic and political turmoil that followed the collapse of the Soviet Union pushed an increasing number of Georgians to search for employment abroad, while the diplomatic initiatives carried ahead by the new government after 2003 paved the way to Georgian workers towards the West (Curro, 2012). While

international migrations are common in other countries in the region, Georgia stands out for the high share of women among its migrants. According to Geostat estimates, women now account for almost half of them (State Commission on Migration Issues, 2015). Most of these women leave the country alone, while their husbands stay at home and take care of the children and other domestic duties.

This pattern is atypical and somehow surprising in a society with strict patriarchal values. As reported in some studies, more traditional families indeed tend to discourage female migration (Hofmann, 2014). Certainly, female outmigration in Georgia was allowed by a general increase in the acceptance of the mobility of women. During the last decade, they became freer to travel, driven by economic needs or educational aspirations (Hakkert & Sumbadze 2017). After spending a term abroad, they usually come back with savings, a better status, stronger personal experience, and perceived self-worth. A 30-year-old woman based in Telavi that we interviewed traveled to Germany as an au pair when she was 19. She described her experience enthusiastically as a central element in her life. She commented: "*today it's easier for a girl to travel alone than it was back then. When I did it, it was much more difficult to do what you wanted. You needed some sense of protest*." The exchange programs and scholarships offered by the government—for instance in partnership with the European Union—played a significant role in this process. Overall, the experts with whom we discussed the issue agree that the extent of freedom of movement and international migration of Georgian women is today more in line with that of their male peers than it was ten years ago.

Nevertheless, Georgian female outmigration is related to hardship and economic needs as much as to women's aspirations for self-development. According to an IOM officer in Tbilisi, the reasons for women being in the forefront of outmigration are to be found in the crisis of the early 1990s, when male employment was particularly affected by the economic restructuring. On this occasion, Georgian women proved more resilient and substituted for men in the workforce, including through international migration. In some interviews, female migration is simply explained by the clichéd indolence typical of Georgian men. Nonetheless, whatever its actual trigger, migration affected the economic prominence of concerned women within the household. Many became the main income earner, taking up the social role of the breadwinner. Their remittances soon became an essential component of the family budget, with an average contribution of 400 USD per month reported by the IOM. These remittances are sometimes, though not systematically, invested in business: a former women migrant in Telavi told us how her five years working 18 hours a day babysitting in Ireland allowed her family to build a guesthouse back in Georgia. Women also tend to send money in greater amounts and more regularly than men.[38] Despite this, this increased economic role comes at a cost. Georgian migrant women are normally employed in the informal sector as housekeepers or caregivers. They adapt to jobs that do not adequately value their qualifications, and that offer hardly any protection, income security, or prospects for career development. Language barriers and insufficient institutional support also contribute to hampering integration and obtaining a decent livelihood in the host country.

Besides these considerations, more important to the issue at hand is the impact that the migration trend has had on gender relations and roles in the family. Some of the national experts we interviewed argued that female outmigration is indeed changing the power structure within the family, improving the perception of female members of the household as vital economic and social actors. This can be seen as an additional factor promoting the value of daughters with respect to sons. However, the evidence is mixed and, to some observers, the higher economic responsibility of women may not necessarily translate into greater decision-making power in the family, including on financial issues. Women often give up their say in family matters because of adhering to persisting social norms, while men would manage the money earned by their wives abroad according to their own choices. Another widespread conviction is that left-behind men

38 Male migrants go more often to Russia where they may earn less than women migrating to Western Europe.

would rarely invest remittances into business, but rather "waste" them in recreational activities.

Moreover, outmigration can be a tough experience for households as a whole: long-term distance often disrupts the intimacy of the couple and damages the harmony between family members. All local experts interviewed in 2014 agreed that, despite improved material conditions in the migrant's household, the absence of some members negatively affects human relationships in the family. A community leader in Dusheti stated that "*of course [migration] had a bad influence. The families started having problems. Sometimes husbands leave or wives do and this caused family problems*", while another interviewee in Zugdidi municipality argued that, "*when a family is being created, it should not be destroyed*" because of some of its members leaving apart, even if it is due to economic needs. The attitude of both the left-behind family and the community can be particularly harsh towards migrating women, who are accused of having carelessly "abandoned" their family and "betrayed" their responsibilities as mothers and wives. Commitment to motherhood and marriage remains a central requirement for social respectability of women in Georgia (Rekhviashvili, 2010). Once they return to their home country after several years as migrants, it is not uncommon that these women leave once more because of feeling rejected by their own family. A former migrant woman based in Telavi explained: "*When you leave, everything is lost. I was away for 13 years, but after coming back now I want to leave again. My children are grown up and my marriage is gone long ago*". Female migration has no instant interpretation and its potential impact on the gender structure of the family remains ambiguous.

Social Norms and Attitudes

Increased female mobility and inclusion in the labor market are encouraging signs of improvement in the status of women, but family norms, deeply rooted in tradition and national pride, can be staunchly resistant to change. The qualitative analysis suggested that certain expectations and norms in the family domain are still prevalent in Georgia. Parental roles continue to be clearly defined based on gender, with women expected to be in charge of the housekeeping and childcare. Premarital cohabitation and contraception are strongly frowned upon. A gynaecologist in Telavi claimed that it is very rare for young women in the area to undergo regular reproductive health checks before they marry, due to cultural norms and fear of judgment: "*If they're from Telavi, they would go, for instance, to Tbilisi for that, because they are ashamed*". In addition, young women may, "*use contraception, but they learn about it from Internet or from friends, they don't use prescriptions*". Likewise, the social acceptance of sexual minorities and recognition of their rights is very limited.

However, attitudes and behaviors are undergoing change. One example is divorce, the rates of which are increasing steadily. Its acceptance in society is also growing—the Caucasian Barometer reports that the proportion of Georgians who could never justify divorce decreased from 60 to 48 percent from 2011 to 2015. My Happy Family, a Georgian movie released in 2017,[39] explores some of these issues by telling the story of an educated 52-year-old woman in Tbilisi who leaves her frustrating marriage and her extended family to rent an apartment and live by herself. Besides this illustration, Tbilisi typically emerges from our discussions with sociologists as the place in Georgia where innovative gender and familial arrangements are tested and from which they may spread elsewhere in the country. The capital city acts as a sort of "social innovation hub".

To summarize, the exploration of recent trends seems to suggest that advancements in the gender sphere have promoted the status of women in the Georgian families. Thanks to increased mobility and access to economic resources, women today enjoy greater agency and their voice in household decisions is louder. The fact that certain taboos concerning the family are relaxing (for instance, divorce) is both a symptom and a contributing factor to this progress. The processes outlined above are likely to have impacted the strength of certain patriarchal imperatives, blurring the division of responsibilities and privileges between sons and daughters: it may be the case of practices

39 ჩემი ბედნიერი ოჯახი, movie directed by Nana Ekvtimishvili and Simon Gross.

and expectations concerning living arrangements, support to parents in old age and inheriting practices, today all somehow more bilateral. These processes must have ultimately played a role in the weakening of son preference, which is the final focus of this analysis. However, some of the advancements in the gender sphere that we investigated are incomplete and sometimes provide contradictory evidence. In any case, trends of women empowerment may not be sufficient to explain the downturn in sex selection, unless we consider their interaction with other contextual factors, like those explored above.

6.4 Additional remarks

The previous pages have explored hypotheses concerning the potential role of demographic, institutional, and family changes on the demographic gender bias in Georgia.

We acknowledged at the beginning of this chapter that changes in the sex ratio at birth proceeded in close conjunction with the fall and rebound of fertility rates. This sequential coincidence is not, in itself, proof of a causal association, but draws the attention to the potential linkages between low birth rates and increasing recourse to sex selection. However, we also argued that changes in fertility behavior might not be a sufficient explanation for the rise and fall of skewed birth masculinity in the country. To generate the sizable variations recorded over the last 25 years, the impact of changing fertility levels must have been amplified by other mechanisms. We mentioned the contribution of newly available reproductive technologies to the onset the masculinization of births when it first erupted in the 1990s. In contrast, the technology supply factor seems to have played no role in the recent downturn of the SRB.

The last hypothesis explored therefore concerned the impact of environmental factors, namely deep socioeconomic transformation weakening the intensity of the gender bias. We first emphasized the changing institutional landscape following the Rose Revolution. A clear revival of the state as a central player in the Georgian society and economy occurred after years of political and institutional failure. The provision of social services was relaunched, and accompanied by an increase in the accountability of the government. Recent years also witnessed a considerable diffusion of new, more gender-equal values and social norms, as well as the improvement of certain mechanisms of women's inclusion in society. We still ignore how far these rapid transformations were inclusive and uniform on the Georgian geography and society.

The quantitative analysis highlighted that ethnic minorities still resort to sex selective behaviors more intensely than the rest of the population (see *Table 5.6*). This trend reflects that, in some remote areas, families still strictly conform to patriarchal norms. This is most particularly the case in minority communities such as the Kists (or Chechens), the Armenians, and the Azeris. In these contexts, women face a "double burden" of discrimination, as both women and as members of minorities.[40] Early school dropouts, early marriages and bride abduction, domestic violence, higher fertility, lack of formal employment, and political invisibility are some of the main forms of social and economic discrimination faced by Azeri women living in rural districts. Kist women are similarly marginalized in an area that has recently experienced a sudden rise in orthodox Islam and Salafism. By comparison, Armenian communities found in Samtskhe-Javakheti are probably less conservative with regard to gender and family issues. Nonetheless, Armenian women often live in minority-dominated areas that are culturally isolated and suffer from serious barriers in terms of educational and professional opportunities.

The ethnic separation and geographical remoteness convert into social marginalization. Our fieldwork indeed suggested that members of these communities might not be fully integrated in public and private institutions, which would at least partially explain why they are also excluded from mainstream demographic trends (notably in terms of SRB).[41] A doctor working in a public

40 See in particular, Sumbadze and Tarkhan-Mouravi (2005); Peinhopf (2014); UN Women (2014)

41 Concerning private institutions, a Kist woman in her early 20s, who explicitly stated her intention to give birth to at least one son in the future, says that neither she nor anyone from her community would get a loan from a bank: "In Islam, it is prohibited to get credit."

hospital in Kakheti claimed, for instance, that Azeris sometimes have trouble accessing services because of language barriers (many of them do not speak Georgian).[42] Another potential obstacle to obtaining public assistance is having an ID. An employee of the social services agency in Telavi stated, "*Few people don't have an ID. For instance, Chechens [Kists]. However, if these people are excluded from services because of not having the documents, we do not know about it in this office. It's beyond our competences*." The convergence of cultural distinctiveness, geographical remoteness, and ethnic or political marginalization exacerbates the vulnerability of women who generally live in patriarchal families and reinforces the pre-eminence of kinship values centered on the birth of a son.

Seen from the rest of Georgia and from Tbilisi, its beacon of modernity, the new cultural influences—together with the consolidation of state, market, and civil society institutions—have obviously influenced family norms and softened some of their rigidity. Moreover, these processes were accompanied by a media fervor that is likely to have influenced individuals' attitudes and perceptions. While institutional fertility changes have probably triggered the turnaround of the SRB, the improvements in gender equity must also have contributed by promoting equal family roles and by raising the perceived value of daughters. It is important to note that these processes are not isolated from one another, but they are rather pieces of the same complex puzzle of deep transformations of the Georgian society that were unleashed during the 2000s.

42 Hakkert & Sumbadze (2017) provide census-based estimates of the number of minority women who do not know Georgian.

7. Conclusion and Recommendations

The previous study (UNFPA 2015a), based on qualitative surveys, available birth registration data and the earlier 2002 census microdata identified Georgia as one of the few countries in the world where the diffusion of the prenatal diagnosis—combined with easy access to quality abortion facilities—had encouraged a section of the population to resort to prenatal sex selection to avoid the birth of unwanted female children. This trend had spread after the collapse of the Soviet Union through South Caucasus during the painful transition to a market economy and democratic system. The sex ratio at birth recorded a rapid rise after 1991 and reached in Georgia a level estimated at 110-115 male births per 100 female births by the turn of the century. Georgia was characterized in the 2000s by both important variations across regions, social groups and demographic profiles, and by SRB fluctuations around a high plateau level. To many observers, Georgia's position was similar to that of Armenia and Azerbaijan, its two South Caucasian neighbors also experiencing excess birth masculinity.

However, by the time we started this research in 2016, several questions remained unanswered, in large part because of the limitations of the data available. Lack of knowledge existed concerning the recent trends in the country in comparison with those observed elsewhere in the region, but also regarding the persistence of social and regional differentials within the country. An additional question concerned the future SRB trend as it can be deduced from its trajectory since the 2000s. It was therefore essential to make use of the 2014 census for Georgia to re-examine recent SRB changes, and to test whether the lessons from census and birth registration data converged. This new monograph investigates in detail the situation prior to the 2014 census as well as the most recent trends in sex imbalances at birth. It updates the findings of the 2015 study by drawing from the 2014 census microdata and from new sources of birth registration estimates such as the series produced by the Georgian civil registry (PSDA).

7.1 Main Lessons

The situation in Georgia at the eve of the 2014 census was still characterized by a traditional family system and several manifestations of gender bias. The analysis of census microdata shows the diversity of family patterns, the prevalence of extended families remains striking. Despite migration, low fertility and rising individualism, no fewer than 43 percent of Georgia's population live in three-generational households. Among young children, the proportion living in complex households rises above 60 percent. This result confirms that a vast majority of Georgians are socialized in multigenerational settings, which are—in 82 percent of the cases—patrilineal families (i.e. couples living with the husband's parents). Similarly, census data show that more than half of the women were married before 22, a somewhat low age by European standards. Coresidence with parents is extremely common immediately after marriage. Early marriage also means that childbearing may start in Georgia among women in their teens and that it peaks before women reach age 30. However, fertility remains low in Georgia and it is probably close to two children per woman in spite of a significant rise since the lowest levels recorded during the mid-2000s.

More importantly to our analysis, another domain in which limited changes have been observed since the 2002 census relates to gender-biased fertility behavior. With census microdata, it is possible to examine whether Georgian parents adjust their fertility to the gender of their children. The findings from the 2014 census point to the persistence of

a quest for a son through repeated fertility. The subsequent fertility of women without any male children remains significantly higher than that of other women. After two or more female births, sonless couples are twice as likely as couples who already have a son to have an additional child.

It is therefore of no surprise that the measurement of the sex ratio at birth before the 2014 census points to the same type of gender bias. The sex ratio of third births among parents without a son reaches its highest level above 170 against an average SRB value of 109 in 2010-2014. In contrast, there are no measurable sex imbalances at birth among parents who already have a male child. A disaggregated analysis shows, however, that despite the record SRB levels, higher-order births explain only 60 percent of the deficit of female births. A significant share of excess male births take place during the first birth (25 percent) or the second birth (14 percent), which shows that many parents in 2010-2014 opted for sex selection during the first and second pregnancies.

The census and more recent birth registration data allowed us to deepen the analysis by identifying the main sources of variations in gender bias within the country. A series of regional, cultural, and socioeconomic indicators have been used to delineate the main factors behind high or low son preference and birth masculinity. On the one hand, elevated SRB levels are associated with several key variables, such as agricultural households, ethnic minorities and lower education and socioeconomic status. In particular, high birth masculinity is pronounced in three regions of southeastern Georgia bordering Armenia and Azerbaijan where the SRB is also higher. There is a great deal of overlap between these predictors of high SRB, yet some of them tend to predominate, as a multinomial analysis can demonstrate. The average SRB in 2010-2014 was, for instance, as high as 126 among Azeri households and 117 among Armenians against 107 among Georgians. Living in a multigenerational household further raises the overall SRB.

In contrast, normal SRB levels are observed among urban, better educated, and more affluent households. When tested against other variables, only two characteristics are clearly associated with lower birth masculinity: residence in Tbilisi and reliance on social assistance. The latter association suggests that public assistance tends to bring down the demand for sons, a somewhat unexpected finding. Otherwise, it is in the capital city that the absence of prenatal sex selection seems the most pronounced, as its SRB has long been close to the normal level. Interestingly, Tbilisi's lifestyle is also associated with the lowest level of gender bias in fertility behavior somewhat independently of other socioeconomic factors such as higher income or educational level. Tbilisi is strikingly more cosmopolitan than the rest of the country and this appears to affect significantly the intensity of the gender bias in both fertility and sex-selective behavior.

An important section of this monograph examines the current trends, starting from the latest birth registration estimates that put the SRB at 105 male births per 100 female births in 2016. With the help of the census and other estimates, we are now in a position to reconstruct the trajectory of birth masculinity in the country since the early 1990s. We first confirm the rapid rise after 1991 and the leveling off that emerged before 2000 at levels oscillating at around 114. However, we are also able to distinguish the decline starting from the mid-2000s, which took the SRB first to 110 in 2009, and then to 105 in 2016. The inverted-U shape of the SRB curve suggests the presence of a 25-year sex ratio cycle, characterized by a rise and fall in birth masculinity. It may be too early to assert that the SRB transition is over in Georgia, but many signs point to a sustained trend back to normal levels. We identify, for instance, the role of forerunner played by Tbilisi, where the return to 105 already took place a few years ago, but also the gradual convergence of the rest of the country towards normal SRB levels. In fact, the current decline is almost symmetrical to the initial rise observed after 1991 and occurred over the course of a decade. The analysis based on 2014 figures suggests that, aside from urban residence, several favorable socioeconomic variables were associated with the initial decline and that the renouncement of sex selection was most probably a top-down diffusion process. However, birth masculinity levels

remain today skewed in the southeastern regions of Kakheti, Kvemo Kartli, and Samtskhe-Javakheti, which suggests, in turn, that minorities may be the last to abandon prenatal selection.

The last part of our monograph is an attempt to piece together the different potential factors behind the SRB decline, based on interviews conducted in Tbilisi and Kakheti and on the analysis of recent transformations. In early 2017, the main elements of evidence about the SRB turnaround are limited to: 1) its timing in the mid-2000s, 2) its top-down character with privileged groups ahead of the pack, and 3) the pioneering trajectory of Tbilisi where SRB was close to normal before 2010. We have presented different hypotheses accounting for the decline.

A central hypothesis relates to the macro-level changes observed in the country since the Rose Revolution, notably affecting the previously almost defunct social protection system. The introduction and consolidation of social security, pensions, and other policies launched since 2005 represent a game changer for Georgia as all these measures have the effect of gradually relieving the traditional patrilineal family from its crucial role of socioeconomic buffer against health, employment, and age hazards. In addition, 2003 also coincides with the beginning of a fertility rebound in the country that brought birth rates to a new high in 2010 and a relative release of the "fertility squeeze"—the pressure to bear sons when you have less than two children. The coincidence between the two series (SRB and annual births) is salient. It suggests that a growing number of couples may have decided to reach their gendered reproductive objective through additional births rather prenatal sex selection. Moreover, these transformations also took place during a period in which women have seen a gradual improvement in their condition and autonomy and the influence of new values on Georgia has spread widely—be it through media channels, lifestyles, or direct political influence.

These different hypotheses are compatible with our previous observations (on the pioneering role of Tbilisi, on top-down diffusion and timing of the trend), but none so far has emerged as the unique factor in the decline of the sex ratio at birth to provide a final narrative of the chain of events leading to the decline in birth masculinity. It is only with further data on Georgia's unique social dynamics and a more systematic comparison with the context specific to Armenia and Azerbaijan—where the ongoing SRB transition has proved comparatively slower—that we may be able to delineate the factors accounting for this unique recovery of birth masculinity and to draw the lessons of Georgia's experience for other countries.

7.2 Recommendations

This monograph has demonstrated the presence of two seemingly discordant processes in Georgia: the persistence of a strong son preference at time of the 2014 census and the rapidly improving sex ratio at birth until 2017. In this section, we present several policy recommendations that follow from these findings. The main gaps identified in this study are our limited understanding of the social dynamics leading to a decline of sex-selective practices and the need to share Georgia's experience with the international policy community.

Monitoring Gender Bias

The 2014 census and the civil registration system offer new opportunities to bridge the knowledge gap that has long impaired our understanding of sex imbalances at birth. These two sources provide the necessary data for an effective monitoring of national trends and local variations in gender bias within the country. In this sense, our recommendations concern the necessity of:

- Strengthening efforts to consolidate the quality of the birth registration system with the help of the data drawn from the civil registry
- Conducting a systematic evaluation of the demographic quality of the civil registry data
- Launching a new countrywide demographic and health survey to update 2010 RHS findings
- Encouraging the regular publication of annual birth data disaggregated by sex, parity, and regions

- Supporting capacity-building activities to strengthen national experts on SRB analysis
- Encouraging the next census to reinstate the question on the sex of the last birth.

Understanding and eradicating the dynamics of son preference

Our analysis has stressed the simultaneous persistence gender-biased fertility behavior with the gradual slackening of sex-selective practices. Georgia remains a country where the issue of gender bias needs to be addressed beyond the narrow demographic sphere. We recommend the following actions:

- Supporting sociological and demographic research on family dynamics in relation to son preference and masculinity
- Reconciling traditional family values with gender equity and ensure that reproductive choices do not reinforce male-oriented bias within the family
- Focusing attention on regions and communities in the country where the decline in sex selection has been slower and ensure that they join the mainstream in the coming decade
- Addressing various forms of gender discrimination, most notably in relation to property registration, gender violence, marriage and reproductive choices, and inheritance
- Exploring ways forward regarding women's participation in social, economic, political spheres within the framework of the SDGs

Dissemination of findings and comparative studies

Georgia is potentially proving that social dynamics can trigger the decline of prenatal gender bias. At the core of public action, there is a need for a better understanding of the Georgian success story of gender transition. Research on the unique Georgian dynamics should serve as the basis for a renewed perspective on the benefits of broader processes of institutional transformations, demographic recovery, and greater gender equity. In particular, we would like to point at the need for:

- Publicizing results on the declining sex ratios at birth and the persisting gaps in Georgia
- Disseminating the findings of this monograph to raise public awareness of the SRB turnaround outside Georgia
- Encouraging transnational learning by sharing lessons drawn of Georgia's experience within the region under the Global Programme to Prevent Son Preference and GBSS
- Supporting additional research on the role of economic, policy, and social factors in Georgia's turnaround
- Supporting comparative research on the South Caucasus to understand the current dynamics in Azerbaijan and Armenia in light of Georgia's experience of SRB transition
- Strengthening partnerships between national organizations and related government departments to promote international cooperation within South Caucasus and Eastern Europe on research, policy-making and dialogue on gender transformations.

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