

The Impact of COVID on Imbalanced Sex Ratios at Birth: Preliminary Evidence from the Southern Caucasus

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Abstract

Early assessments of COVID-19's impact on fertility vary widely. Concern over access to family planning led to concerns over fertility increases, particularly in less developed countries. Isolation, economic hardship and pandemic concerns prompted others to predict fertility declines, particularly in more developed settings. More recent assessments have cautioned against alarmist approaches, highlighting the diversity of likely COVID impacts on fertility across national, regional and individual parental characteristics (UNFPA 2021). Analyses to date tend to focus on the size of birth cohorts and the pandemic's influence on the timing of births. Few studies have explored how the pandemic may affect the composition of birth cohorts, particularly in regions with strong son preference and skewed sex ratios at birth. I explore preliminary data from three moderately developed countries of the Southern Caucasus (Armenia, Azerbaijan, and Georgia) to explore national and regional patterns of sex compositions of children born during 2020, and early 2021.

- *Have state led pronatalist programs in the region primed these countries for the emergence of a “baby bump” emerging during the pandemic period?*
- *Have pandemic related limitations on healthcare access led to lower sex ratio imbalances?*
- *Has the pandemic period led to a possible amplification of pre-existing patterns of son-preference?*

While preliminary, examination of how pandemic fertility trends interact with pre-existing imbalances in sex ratios at birth, particularly within countries at medium levels of development, can provide a unique contribution to our understanding of how the pandemic affects fertility in terms of cohort size and the resilience of son preference.

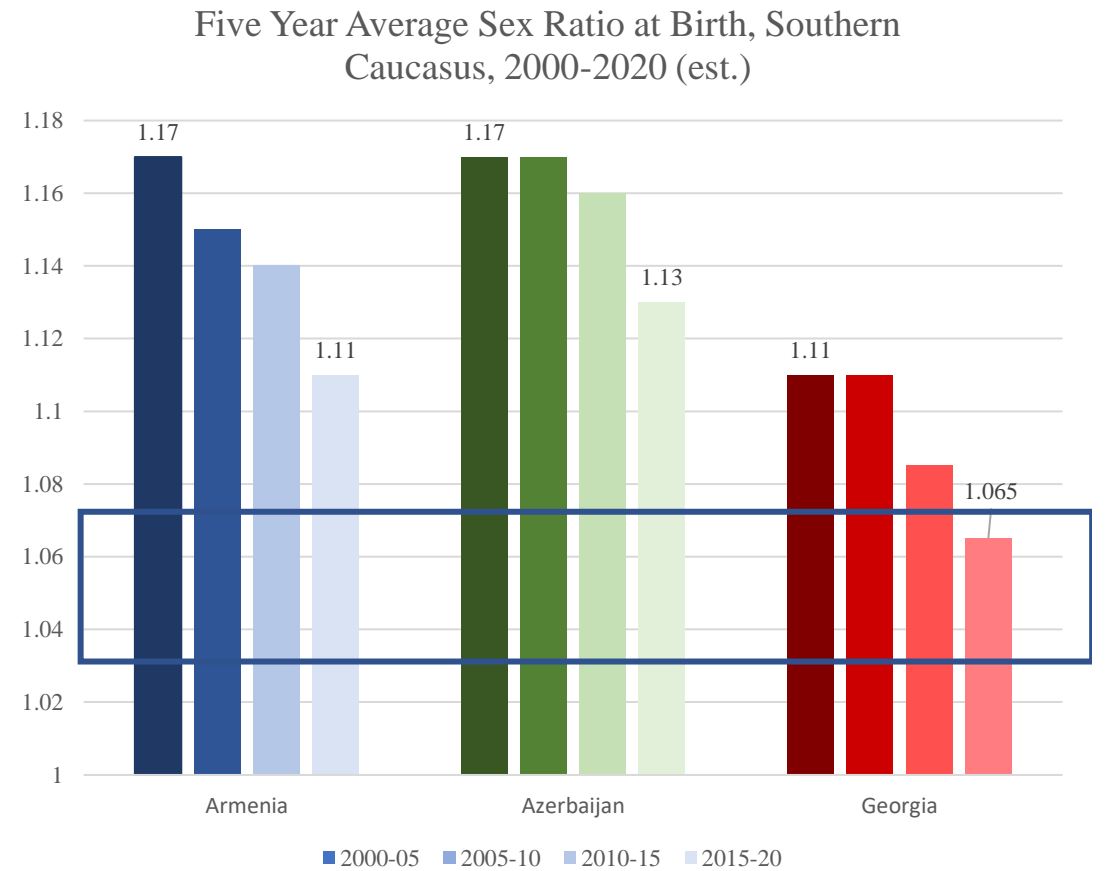
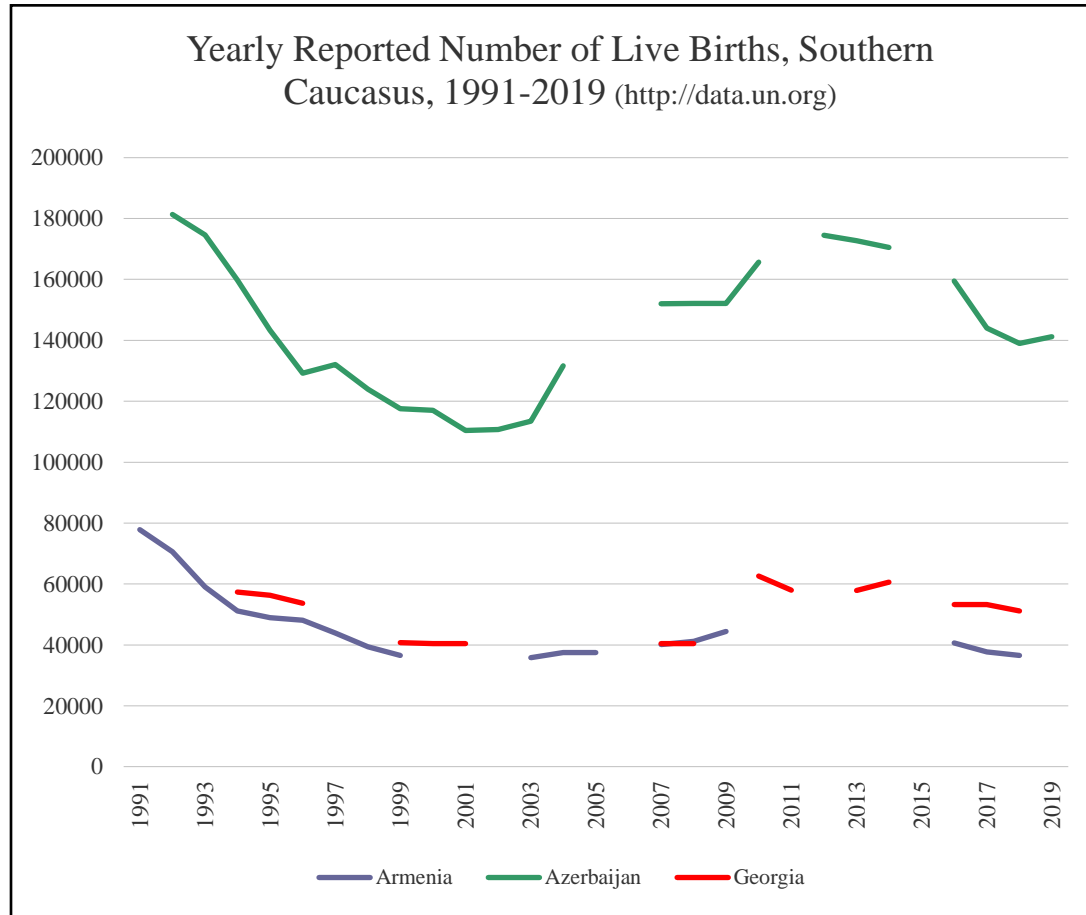
Period Effects: Initial Speculations in the Literature

- **Structural**- less reproductive focus in healthcare and constrained access may tend to lead to higher birth rates/ Unintended pregnancies (Lindberg et.al. 2020)
- **Economic**- the negative economic affects of the pandemic may encourage the postponing of births (Luppi et.al. 2020)
- **Opportunity**- more time at home lessens role conflict and may increase births (Chafin, 2021)
- **Attitudinal** – heighten risk perceptions may encourage the postponement of fertility (Subbaraman, 2021, Ullah et.al. 2020)
- **Socio-Biological** – health risks may affect male fetuses at a higher rate (Abdoli 2020)

Pandemic Compositional Effects: Son Preference and Sex Ratios at Births

- Pre- pandemic, son preferences generate skewed SRBs in many countries, attributed to access to sex selective abortion (scanning clinics and abortion).
- Across countries with strong son preference, SRBs outside of 1.03 to 1.07, SRBs rise quickly with parity
- Parity progression is associate with female births
 - *Will hampered access to healthcare (such as scanning and abortion) decrease high SRBs?*
 - *Will families with all female offspring be less likely to postpone a birth?*
 - *Might rising costs and risk encourage sex selective abortion, increasing SRBs?*

Pre-Pandemic Sex Ratios at Birth in the Southern Caucasus



UN data.

A broad ban of 1.03 to 1.07 males per 100 female births is used as a proxy for average SRB.

South Caucasus Fertility in Context

- Each government has expressed concerns over the SRB imbalance
- Pronatalist propaganda and incentive payments for births
- Pre pandemic fertility has fallen markedly, but son-preference persists
- Widespread private clinics offering fetal scans, regulation is questionable
- Abortion is legal upon request up to 22 weeks, plus 6-8 weeks
- Declining with rising use of contraceptives, abortion is common

Country	TFR 1991	TFR 2020
Armenia	2.47	1.65
Azerbaijan	2.87	1.88
Georgia	2.13	1.65

World Bank, Index Mundi

Country	Abortion Ratio 2018/2019
Armenia	284.5
Azerbaijan	264.3
Georgia	447.1

Johnsons Archive

Covid in the Southern Caucasus

Country	Population Jan 1, 2020 (Million)	First Case Reported	Total cases Dec 1, 2021	Total Deaths Dec 1, 2021	% of Pop Fully Vaccinated Dec 1, 2021
Armenia	2.963	Mr. 1, 2020	339,020	7,610	27.2%
Azerbaijan	10.11	Feb. 28, 2020	590,113	7,884	45.1%
Georgia	3.714	Feb. 26. 2020	850,102	12,119	26.2%

Hannah Ritchie, Edouard Mathieu, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Esteban Ortiz-Ospina, Joe Hasell, Bobbie Macdonald, Diana Beltekian and Max Roser. (2020) - "Coronavirus Pandemic (COVID-19)". *Published online at OurWorldInData.org*. Retrieved from: '<https://ourworldindata.org/coronavirus>' [Online]

Data and Methods

- On-line survey of clinics advertising fetal scans concerning access
- Monitoring and Review of national published statistics
- Online interviews with scholars in national health ministries
- Planned “proof of concept” interviews with mothers of sons and daughters born in September-December 2020, 2021, and early 2022 (summer 2022) in capital city and high SRB regions within the three countries (Caucasus Research Resource Centers)

To what extent did the skew in sex ratios at birth persist during the pandemic?

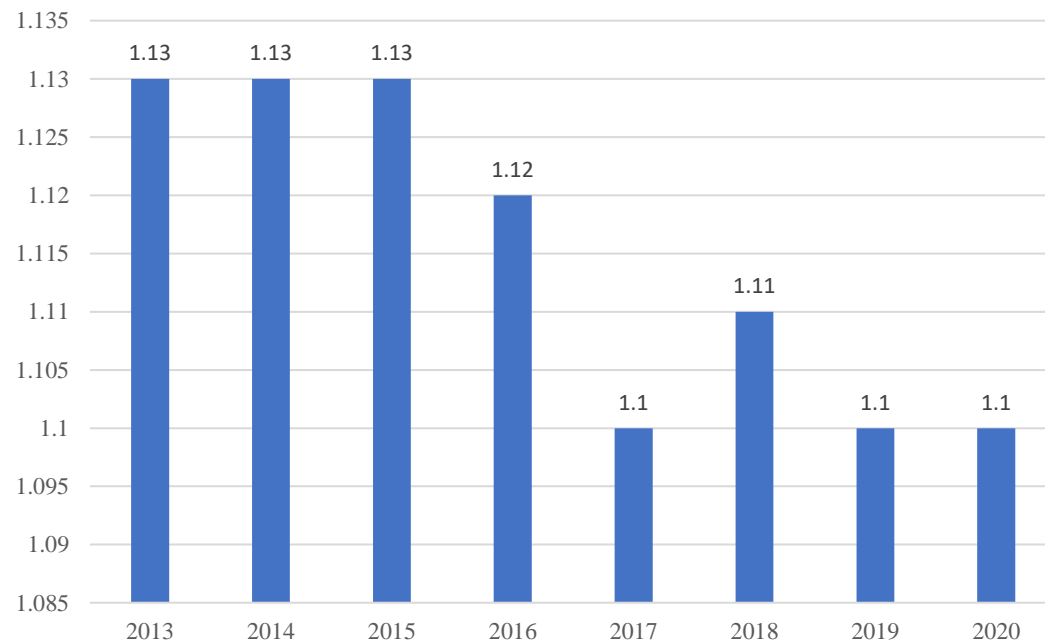
Document access to healthcare, scans, abortions during pandemic

Explore affects of maternal age and parity on pandemic fertility

Explore for possible “pandemic pressure” enhancing son preference

Armenia

National Sex Ratio at Birth, Armenia,
2013 to 2020
(unofficial est. for 2021, 1.14)



Regional Variations 2020

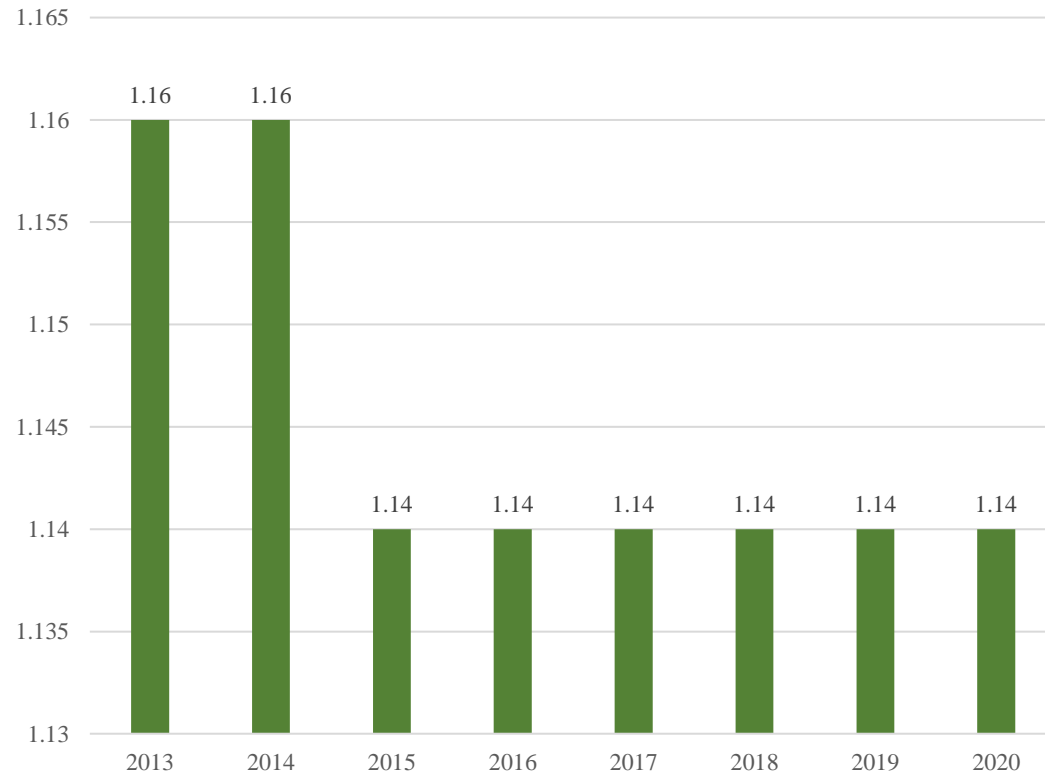
*Ararat, 1.18 (5% increase from 2019)

*Shirak, 1.11 (5% increase from 2019)

*Gegharkunik, 1.15 (11% decrease from 2019)

Azerbaijan

National Sex Ratio at Birth, Azerbaijan,
2013-2014 (Unofficial est. for 2021, 1.16)



Regional Variation

*Rural SRB exceed urban (~4%)

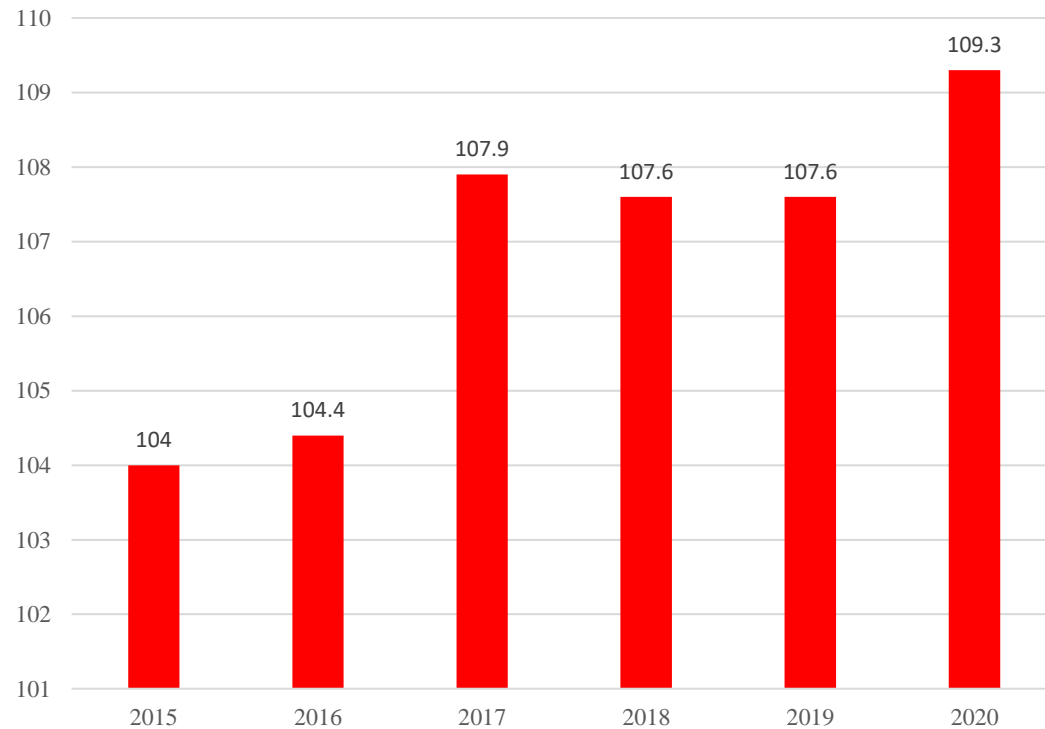
*Ganja-Gazakh, 1.23 (4% increase from 2019)

*Kalbajar-Lachin, 1.26

* Baku (capital) remains steady at 1.05

Georgia

National Sex Ratio at Birth, Georgia,
2015 to 2020 (unofficial estimate for 2021, 109.8)



Regional Variations

- * Increasing SRBs nationally and in regions of ethnic minority concentration
- * Tbilisi remains within normal range (1.06)
- * Country hardest hit by COVID, largest increase in SRB

Preliminary Findings

- Scheduled and repeatedly promised official publication of official vital statistics are aspirational.
- Non-representative survey of fertility clinics (N=53) report overall downturn in business but continue a brisk business in fetal scans in all three countries and continuing client interest sex determination.
- Even with gestational time lag hindering the traceable impact of COVID, children born in 2020 decline across the region.
- Sex Ratios at birth remain outside of the extended average range in all three countries for 2020, holding steady or slightly increasing.
- Azerbaijan reports for 2021 indicate higher SRB levels and increase from pre-Covid period in rural areas.