

## Sudden Increase in Sex Ratio in Caucasian Countries. Why and How?

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Since the mid 1990s, the three Caucasian Countries have been experiencing a dramatic increase in sex ratio at birth (Fig. 1). Is that change specific to Caucasus? Is it a real fact or only an artefact? What can explain it?

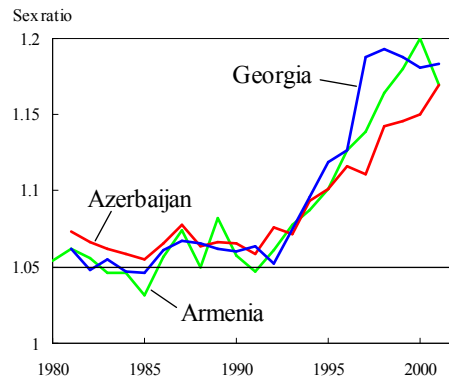


Figure 1: Trends in sex ratio at birth since 1980 in Armenia, Azerbaijan and Georgia

### I. A change very specific to Caucasus

Contrary to the Caucasus case, no change in sex ratio has occurred in any other ex-USSR country or in Iran (Fig. 2). Even in Central Asian countries sex ratio has to date remained very stable.

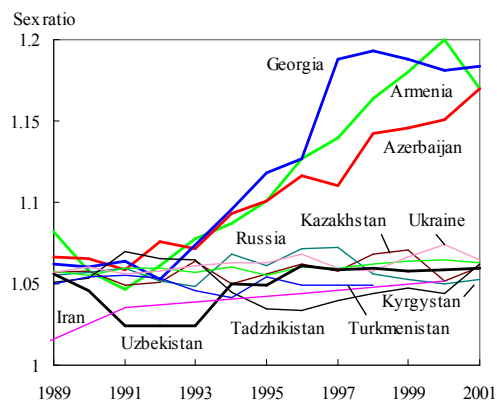


Figure 2: Trends in sex ratio at birth since 1989, in Caucasian countries compared to other ex-USSR countries and Iran

Around 2000, at the state level, the three Caucasian countries sharply contrast with all the other countries of the region (Fig. 3).

Geographical variations detailed at the provincial level highlight more clearly the separation (Fig. 4). Boundaries between Georgia, Armenia and Azerbaijan disappear while differences between Georgia and Russia or between Armenia and Turkey are very great. Furthermore, the slightly lower Azerbaijanis' sex ratio appears to be specific to provinces close to Russia or Iran. The « red » zone on the map is perfectly continuous and homogeneous.



Figure 3: Sex ratio at birth around 2000, in Caucasian countries and all surrounding countries

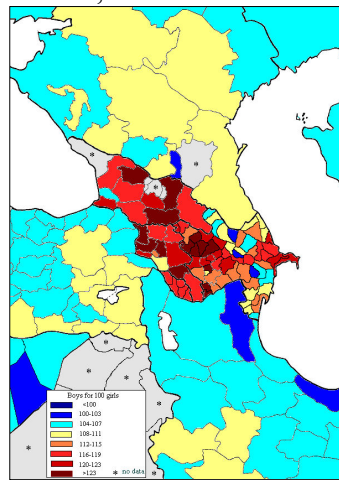


Figure 4: Geographical distribution of sex ratio at birth around 2000, within Caucasian countries and neighbouring provinces of Russia, Iran and Turkey

## II. Fact or artefact

A first possible explanation of this surprising change could be a deterioration in the registration system resulting in a more pronounced under-registration of female births than for males. This explanation is usually considered to be the most probable. It would be related to the fact that after the Soviet system collapsed, constraints to report births diminished and some families considered the cost of declaration too expensive (in both time and fees).

However, two fertility surveys (ANSS and ORC Macro, 2001; Serbanescu *et al.*, 2001) permit this assumption to be tested. Indeed, surveys may also be affected by under-registration, but differently. The results show no noticeable sudden change in the mid-nineties.

Not only are trends in sex ratio roughly the same in both sources but, for Armenia, the increase is even sharper in survey data than in vital statistics (Fig. 5). Trends observed from vital statistics cannot be explained by a deterioration of the civil registration system.

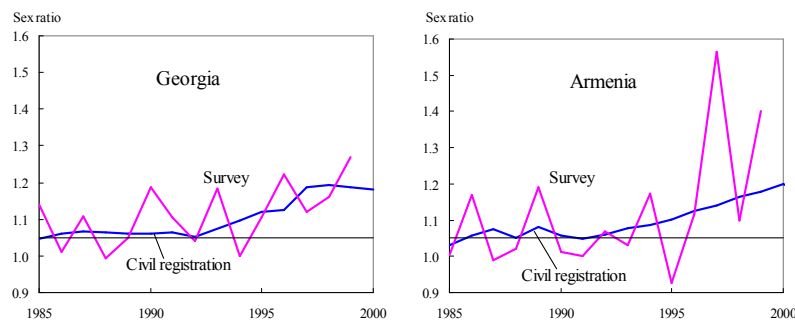


Figure 5. Trends in sex ratio according to civil registration as compared with fertility surveys

### III. The crucial role of the third birth

In fact, this surprising trend in sex ratio at birth appears mainly with the 3<sup>rd</sup> birth and in Georgia is in-existent before the 3<sup>rd</sup> birth (Fig. 6).

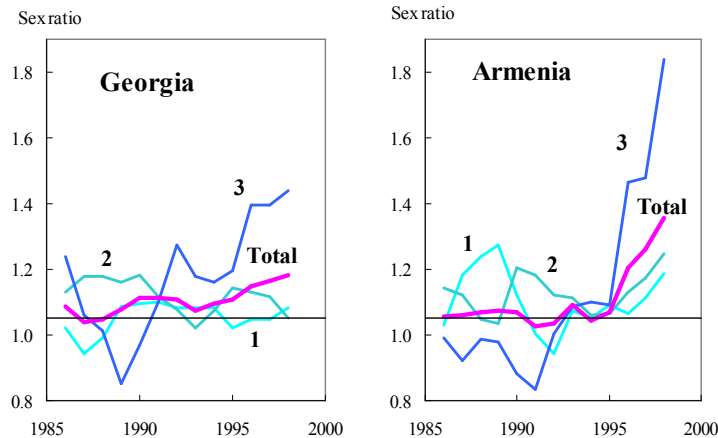


Figure 6. Trends in sex ratio by birth order according to fertility surveys

### IV. A clear preference for boys

From the 1<sup>st</sup> to the 2<sup>nd</sup> birth, parity progression ratio is only slightly higher if the first birth is a girl. Conversely, from the 2<sup>nd</sup> to the 3<sup>rd</sup> birth, PPR is much higher after two girls than in any other sex composition of the offspring already born (Fig. 7).

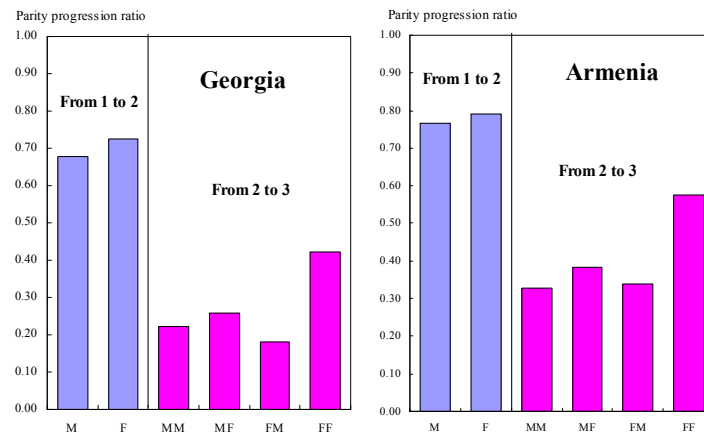


Figure 7. Parity progression ratio according to the sex of the previous birth(s)

### V. The role of abortion

It is very likely that the preference for boys is not new but has recently produced an increase in sex ratio through the development of a practice of selective induced abortion. To assess that hypothesis, it is not possible to rely on official abortion statistics since they strongly underestimate the real level and give a misleading idea of recent trends, as can be seen when comparing with recent fertility surveys (Table 1).

Table 1. Abortion rates according to current data and surveys

Year	Current stat.	Surveys
Georgia (age 15-34)		
1991	57,5	140,5
1998	27,9	153,7
Armenia (age 15-49)		
1991	29,2	92,1
1998	21,2	80,9

Sex identification by echography is very unreliable before the 10<sup>th</sup> week of pregnancy and sex selection cannot be made by mini-abortions. While mini-abortions have developed very rapidly during

the past decade, the proportion of non-mini-abortions remains high when abortion takes place between the 2<sup>nd</sup> and the 3<sup>rd</sup> birth (Fig. 8).

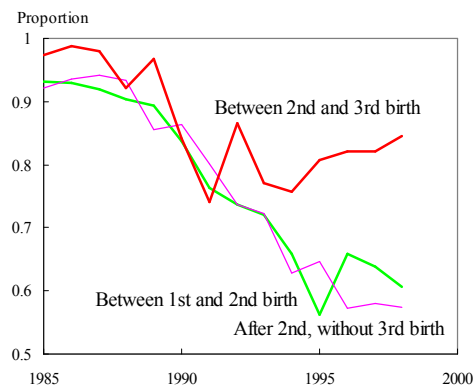


Figure 8. Trends in the share of non-mini-abortions among total abortions, in course of family formation. Georgian selective abortion is used, a greater number of abortions is to be expected before the birth of a boy than before that of a girl. This is exactly what is observed for the 3<sup>rd</sup> birth when the two previous ones are girls (Fig. 9).

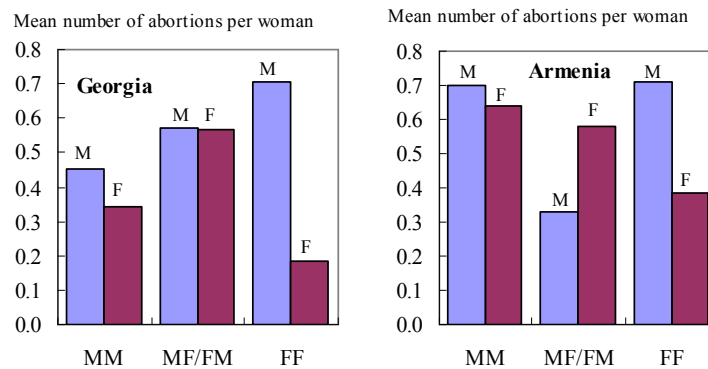


Figure 9. Mean number of abortions per woman between the 2<sup>nd</sup> and the 3<sup>rd</sup> birth by sex of the 3<sup>rd</sup> child according to the sex of the first two children

## References

- ANSS and ORC Macro, 2001. – *Armenia demographic and health survey 2000*. – Yerevan (Armenia):National Statistical Service, Ministry of Health and Calverton (Maryland): ORC, 370 p.
- Serbanescu Florina *et al.* 2001. – *Women's reproductive health survey Georgia, 1999-2000*. – Tbilisi (Géorgie) et Atlanta (Georgia), NCDC, CMSI, CDC and UNFPA, 306 p. + annexes.