Effects of Sex Preferences for Children on Reproductive Behavior in Central Asia: Evidence from Kazakhstan, the Kyrgyz Republic, and Uzbekistan

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Extended Abstract

Researchers have found evidence of a preference for male births in a variety of countries, especially in North Africa and Southern and Eastern Asia. Where present, these preferences tend to become stronger as fertility declines (Bairagi 2001; Das Gupta et al. 2003). Findings on the effects of son preference are mixed, but in some contexts a preference for male births can have a substantial effect on fertility and the use of contraception and abortion (Leone 2003; Rahman and Da Vanzo 1993). Although scholars have discussed a persistent preference for sons throughout Central Asia (see, e.g., Barrett 2007; Hortscu 2001; Tabyshalieva 2000), there has been no systematic analysis of the impact of this phenomenon on population processes in the broader region. Using the most recent Demographic and Health Surveys available for Kazakhstan (1999), the Kyrgyz Republic (1997), and Uzbekistan (2002), I explore sex preferences for children as they affect contraception, abortion, and fertility in a group of countries well into the fertility transition.

Since declaring independence in 1991, each of these Central Asian countries has experienced a rapidly changing demographic situation, including a dramatic drop in growth rate and absolute population growth in the last few years. These changing trends are due, partially, to a sharp decline in birth rate. This fall in birth rate is largely attributed to changing fertility preferences and increasing reliance on modern contraceptive methods (Ubaidullaeva and Umarova 2001). During much of the Soviet period, government officials made conscious attempts to encourage population growth through incentives and other public policy initiatives designed to reward large families. Following independence, international and national support for family planning programs rapidly developed and expanded. By the three year period preceding the 2002 Uzbekistan Health Examination Survey, the total fertility rate (TFR) had declined to 2.92 (Kamilov, Sullivan, and Mutalova 2004). The TFR calculated from responses to the 1999 Kazakhstan Demographic and Health Survey was 2.05 (Toregeldy and Wesinstein 1999), and Kyrgyz Republic Demographic and Health Survey data revealed a TFR of 3.4 in 1997 (Kasiev, Kudayarov, and Builashev 1998).

Through the 1990s, the use of modern contraception increased dramatically. The percentage of married women using a modern method of contraception increased from 51.3% to 62.8% between 1996 and 2002 in Uzbekistan (Asadov et al. 1996; Sullivan and Kamilov 2004a), with Kazakhstan and the Kyrgyz Republic similarly experiencing substantial increases in contraceptive prevalence (Seyhan and Salkhanova 1999; Westoff 1998). Induced abortion was widely used throughout the USSR, and high reliance on abortion persisted following the breakup (Henshaw et al. 1999; Sullivan, Builashev and Duishenbieva 1998), although abortion rates have undergone a "steady and significant decline" since the early 1990s (Salkhanova and Seyan 1998; Sullivan and Kamilov 2004b:68). Use of abortion within Soviet Central Asia was much more common among Russians and other Europeans than the ethnic Central Asians, and Agadjanian (2002) found that this difference has persisted in independent Kazakhstan. In 1996, ethnic Uzbeks also had lower abortion and contraceptive rates than Russians and other Europeans living in Tashkent (Agadjanian and Makarova 2003).

This paper draws on women's data from the 1999 Kazakhstan Demographic and Health Survey (KzDHS), the 1997 Kyrgyz Republic Demographic and Health Survey (KgDHS), and the 2002 Uzbekistan Health Examination Survey (UHES) to examine the influence of sex preferences for children on trends in fertility and use of contraception and abortion. Each survey utilized in this work is a multistage stratified cluster sample drawn to be nationally representative of women aged 15 to 49 and includes data on fertility, abortion, and family planning. The 1999 KzDHS sample consists of 4,800 women, the 1997 KgDHS sampled 3,848 women, and the 2002 UHES collected data from 5,463 women.[1] In the analysis of current contraceptive use, I restrict the sample to non-pregnant, married women, reducing the working sample to 2,885 in Kazakhstan, 2,457 in the Kyrgyz Republic, and 3,493 in Uzbekistan. When examining sex ratios at birth and abortion, I use the constructed birth file for births since 1990 (n=2,537 births in Kazakhstan, 3,194 in the Kyrgyz Republic, and 6,701 in Uzbekistan). Sampling weights are applied to the data, and cluster effects are corrected using Stata 9's survey analysis commands. To examine the influence of son preference on contraception and abortion, I analyze rates of current contraceptive use and abortion history in the five years preceding the survey by number and sex composition of surviving children. I also discuss parity-specific measures of sex ratio at birth in each country.[2] In order to gauge the effects of son preference on fertility, I use hazard modeling to explore the relationship between the sex composition of surviving children and the risk of having a subsequent birth (after the third birth).

Preliminary findings indicate that the influence of sex preference for children on current contraceptive use, abortion, and fertility varies by region in Central Asia. Although sex preferences for children appear to have a relatively small influence on the overall rate of current contraceptive use (ranging from a 3% to a 6% decline from what would be expected in the absence of any sex preference) (see Table 1), patterns of current use by the sex composition of surviving children reveals substantial differences across the region. In Uzbekistan, the preference for sons is stronger, while the Kazakh and Kyrgyz Republic data indicate a somewhat stronger preference for balance between sons and daughters. Throughout the region, the number of boys born per 100 girls appears to be within the normal range when calculated for all births. For births since 1990, the overall sex ratio at birth is 103.1 in Kazakhstan, 100.1 in the Kyrgyz Republic, and 107.8 in Uzbekistan. However, examining sex ratio by birth order reveals that the total measures may mask substantial regional differences and parity-specific variation (see Table 2). In Uzbekistan, the sex ratios at birth for first births in rural areas and for higher ordered births in urban areas do not fall in the normal range and may indicate the presence of an artificial intervention such as the use of sex selective abortion. The paper will discuss the policy implications and the relevance of these findings for theoretical perspectives on sex preferences for children.

[1] Although the Uzbek and Kazakh surveys also collected data on men, I use only the women's data in these analyses.

[2] I use Arnold's (1985) method for estimating the size of the effect of son preference on contraceptive use but not on abortion use. The logic of the method is that, if sex of existing children did not influence contraceptive use, rates of use would be equal to those for the group most satisfied with the sex composition of their existing children. It is assumed that this is the highest rate of contraceptive use for a given parity. Arnold suggests that the method can also be applied to abortion rate. However, it is problematic in contexts where sex-selective abortion may be used (Bairagi 2001).

Table 1. Current Use of Modern Contraception for Non-pregnant, Married Women by Number and Sex Composition of Surviving Children (Kazakhstan 1999, Kyrgyz Republic 1997, Uzbekistan 2002)

	Percent Using a Modern Method			N		
	KZ	KG	UZ	KZ	KG	UZ
0 children	17.2	23.9	4.8	157	146	211
1 child	53.5	43.6	45.9	632	389	486
0 sons	52.6	45.5	43.4	321	171	225
1 son	54.5	42.1	48.0	312	218	262
2 children	57.9	61.4	72.0	1084	613	870
0 sons	62.4	57.7	67.1	232	131	157
1 son	56.7	60.4	74.1	581	324	453
2 sons	56.5	66.7	71.2	271	158	259
3+ children	59.3	58.6	71.3	1013	1309	1925
0 sons	62.9	49.0	60.1	71	62	126
1 son	63.2	62.5	72.3	331	354	532
2 sons	62.2	58.3	73.5	367	454	722
3 sons	48.7	57.1	70.0	244	439	546
Total	55.2	54.9	63.9	2885	2457	3493
Expected use in absence of sex preferences	58.5	58.6	65.9			

Source: 1999 Kazakhstan Demographic and Health Survey; 1997 Kyrgyz Republic Demographic and Health Survey; 2002 Uzbekistan Health Examination Survey.

Notes: Modern contraceptive methods here are female sterilization, oral contraceptives, IUD, injectables, foam/jelly, and male condom. Expected use in the absence of sex preferences is calculated using Arnold's (1985) method.

Table 2. Sex Ratios at Birth by Birth Order and Residence Status (Births Since 1990)

Total

	Kazakhstan 1999		*Kyrgyz Republic 1997*		*Uzbekistan 2002*	
Live Birth Order	SRB	N	SRB	N	SRB	N
1	103.5	797	108.6	988	115.2	2033
2	107.7	760	98.4	785	94.5	1789
3	91.8	471	98.0	549	119.3	1328
4+	106.7	509	94.1	872	105.3	1551
Total	103.1	2537	100.1	3194	107.8	6701

Rural

	Kazakhstan 1999		*Kyrgyz Republic 1997*		*Uzbekistan 2002*	
Live Birth Order	SRB	N	SRB	N	SRB	N
1	107.5	425	106.7	695	120.1	1225
2	114.1	427	100.4	554	93.8	1089
3	84.5	284	97.8	401	107.2	824
4+	110.0	364	95.8	737	100.5	1159
Total	105.1	1501	100.3	2386	105.2	4297

Urban

	Kazakhstan 1999		*Kyrgyz Republic 1997*		*Uzbekistan 2002*	
Live Birth Order	SRB	N	SRB	N	SRB	N
1	99.0	371	113.1	293	108.3	809
2	100.0	333	93.8	231	95.7	700
3	104.2	187	98.5	149	142.6	503
4+	98.9	145	85.1	134	120.7	392
Total	100.2	1037	99.7	808	112.5	2404

Source: 1999 Kazakhstan Demographic and Health Survey; 1997 Kyrgyz Republic Demographic and Health Survey; 2002 Uzbekistan Health Examination Survey.

Notes: Sex ratio at birth (SRB) is defined as the number of live male births per 100 live female births. SRB is reported for all live births reported between 1990 and the survey (1990-1999 Kazakhstan, 1990-1997 Kyrgyz Republic, 1990-2002 Uzbekistan).