Factors associated with fertility rebound in the former Soviet Union: case study of Armenia and Tajikistan

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ABSTRACT

While countries around the world have experienced a continuous decrease in fertility, in the early part of the new millennium (2005-15), almost all countries of the former Soviet Union recorded a fertility increase. Those countries had experienced a decrease in fertility after the dissolution of the Soviet Union in the 1990s, and the assumption was that economic recovery after the transition period led to a fertility rebound. In particular, a higher socio-economic condition of the household and women's status were possible contributing factors. The investigation of factors behind the fertility rebound in this region will help policymakers in the countries with similar contexts to address demographic dynamics. Armenia recorded an increase of its total fertility rate (TFR) from 1.65 to 1.76, while Tajikistan recorded a stable TFR at 3.61 during 2000-15. Data from the 2015-16 Armenia Demographic and Health Survey (DHS) and the 2017 Tajikistan DHS were used to examine factors associated with fertility in these two countries. Contrary to the hypothesis of this study, we found that age, marriage, and the desire for more children were positively related to Children Ever Born (CEB), while being employed, having higher education, and living in a household with a better-off wealth index were negatively related to CEB in both countries. Moreover, we found that the desired number of children among women was higher than the actual fertility in both countries, implying that unmet fertility goals may be considered as a potential driver for pro-natalist policies in the low-fertility countries.

Key words: fertility, children ever born, socio-economic status, Soviet Union, desired number of children

INTRODUCTION

Unlike the global trend of declining fertility, 39 countries had increasing total fertility rate (TFR), so called 'fertility rebound', during 2005-2015. Many of those were developed countries with a high human development index (HDI) and gross domestic product (GDP), while one-third were located in the former Soviet Union with medium or low HDI and GDP [1]. The former Soviet Union is comprised of 15 countries and currently-independent republics including Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan[2]. Among these countries, 13 have experienced increased fertility, while the other two have stable fertility[1]. Toward the end of the last century, all of these 15 countries had experienced dramatic declines in fertility, which is attributed to socio-economic deterioration shortly after the dissolution of the Soviet Union in 1991[3]. Following a transitional period, starting in the early 2000s, these former Soviet Union countries faced a gradual socio-economic recovery concurrent with the reversal of the previous period of fertility decline[4]. This finding provided a clue as to what factors actually contributed to the fertility rebound in the countries of the former Soviet Union, with a particular focus on socio-economic aspects.

Geographically, the former Soviet Union countries can be divided into European and Central Asian parts. Given the geographic difference between the two areas, countries in these locations have different economic and demographic profiles. The countries in the European part are more economically developed and have lower fertility than those in Central Asia[1, 5]. Due to the availability of the most recent data of Demographic and Health Survey (DHS), we chose one country each from the two areas: Armenia and Tajikistan, respectively.

Armenia is located in Western Asia, bordering on the east by Azerbaijan, the west and south by Turkey, and the north by Georgia. By means of geographical advantage, Armenia can take advantage of free economic trade with countries in Europe, the Commonwealth of Independent States and the Arab League[6]. The country's annual per capita GDP increased from $623 to $3,607 while the TFR increased from 1.65 to 1.76 during 2000-15[7,8]. The country has been maintaining a pro-natalist policy after the transition period in the 2000s[9].

Tajikistan is situated at the centre of Central Asia, bordered on the east by China, the west by Uzbekistan, the south by Afghanistan, and the north by Kyrgyzstan. Tajikistan is mountainous, and the country's major economic resources depend on immigrant remittances (mostly from Russia) and exports of aluminium and cotton[10]. Tajikistan's annual per capita GDP improved from $138 to $929 while the TFR was stable at 3.61 during 2000-15[7, 8]. Due to its relatively high TFR, the country has a family planning policy and program[11].

Numerous studies have identified the factors influencing fertility change [12-18]. Davis et al [12] stated the relationship between social structure and fertility with intermediate variables of intercourse, conception, gestation, and parturition. Bongaarts[13] defined four proximate determinants of fertility, which are marriage, contraception, induced abortion, and lactation. As biological and behavioural factors were studied, others examined socio-economic factors which influence fertility. Becker[14] and Easterlin[15] explained the negative impact of economic factors on fertility, whereby the relatively high cost of raising a child compared to depressed income. However, the economic factors alone are insufficient to explain the various fertility fluctuations. Friedeman[16] and Easterlin[17] supplemented the economic factors by introducing the value of children,

altruism, and demand for children, which were able to explain fertility increase. Friedman[16] explained that demand for children derived from the perceived value of children (marriage solidarity) and altruism, which in turn made couples and families sacrifice opportunity and ambitions in their careers for childbearing. A recent study found a positive influence of women's decision-making on childbirth, irrespective of gender equity within the couple[18].

Some studies analysed the fertility increase in former Soviet Union countries, but those focused mainly on macro-level factors, e.g., GDP, social infrastructure, favourable business conditions, etc., rather than individual-level factors[3,4,19]. Therefore, studying micro-level factors can contribute to a better understanding of fertility resilience in those countries, and help reform pro-natalist population policy in countries with a similar context.

METHODS

This study used secondary data from the 2015-16 Armenia Demographic and Health Survey (DHS) and the 2017 Tajikistan DHS. The Armenia and Tajikistan DHS were nationally-representative surveys of women aged 15-49 years. Only women who ever had sexual intercourse were included in the sample, comprising 4,377 in Armenia and 8,251 in Tajikistan (Figure 1).
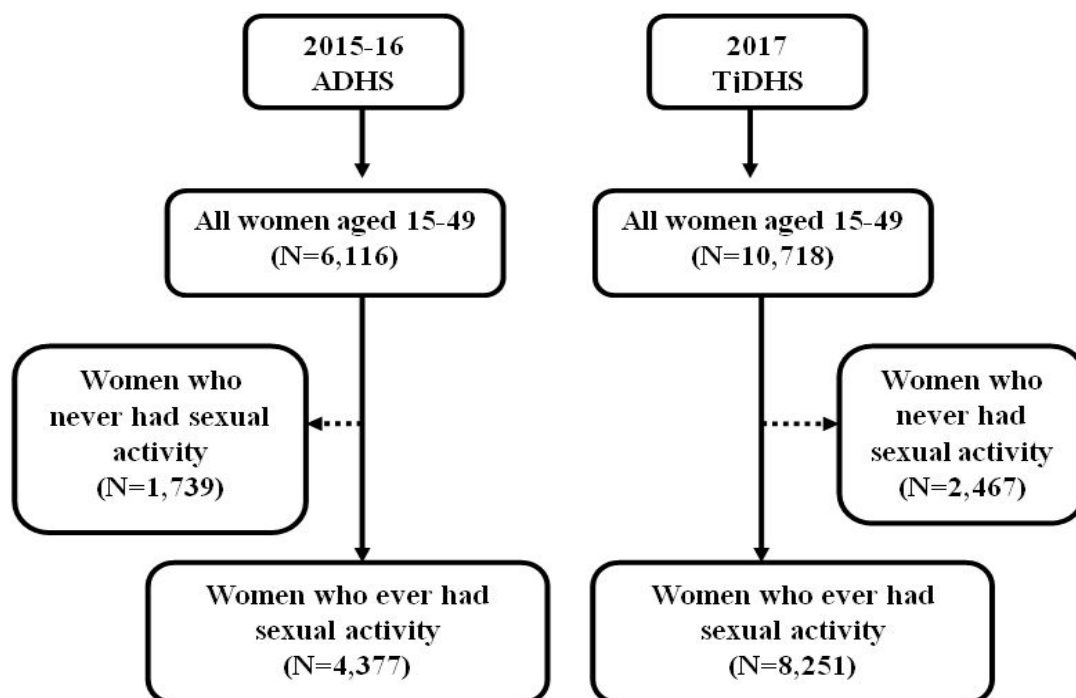
Figure 1 Samples of the 2015-16 Aremenia DHS and the 2017 Tajikistan DHS

This study utilized descriptive, bivariate, and multivariate analysis. The descriptive statistics show the similarities and differences between the Armenia and Tajikistan samples. The dependent variable was the number of children ever born (CEB), and independent variables were categorized into four groups: 1) demographic variables (age, marital status, and area of residence); 2) socio-economic

variables (educational level, household wealth index and employment status); 3) fertility demand (desired number of children); and 4) fertility barriers (contraceptive use and husband's working-abroad status).

For the bivariate analysis, ANOVA was used to investigate the differences in mean CEB by the independent variables. Those variables that were found to be significantly associated with CEB were incorporated into the multivariate regression model. In the multivariate analysis, the Poisson regression model was applied.

The Incidence Rate Ratio (IRR) at 95% confidence interval (CI) was used to assess the relationship between CEB and the independent variables. In the multivariate analysis, sampling error was minimized by using the 'svy' command of the Stata software (version 14).

RESULTS

The sample characteristics are described in Table 1 for both Armenia and Tajikistan samples. The mean number of CEB was 2.0 for Armenia and 2.7 for Tajikistan. CEB was concentrated in the group of 1-3 children (87.9%) in Armenia, while less concentrated (61.0%) in Tajikistan. In both countries, the samples were evenly distributed for age group, while heavily concentrated in the group of currently-married/cohabitating women in both countries (91.3% in Armenia and 91.4% in Tajikistan). There were sizeable differences in the proportion living in urban areas between the two countries (57.4% in Armenia and 38. 3% in Tajikistan). In terms of educational attainment, 94.5% of the sample had completed secondary or higher education in Armenia (in roughly equal proportions). Similarly, 93.9% had completed secondary or higher education in the Tajikistan sample. Being unemployed was more common than being employed in both countries but to a different extent (64.2% in Armenia and 73.9% in Tajikistan). Most of the Armenian sample expressed a fertility goal of 1-3

Table 1 Characteristics of women aged 15-49 who ever had sexual intercourse in the 2015-16 Armenia DHS and the 2017 Tajikistan DHS

Variables	Armenia(N=4,377)		Tajikistan(N=8,251)	
	Number	Percent	Number	Percent
Children ever born (Mean ± SD)	2.0 ± 1.0		2.7 ± 1.7	
Nulliparous	295	6.7	812	9.8
1-3 children	3,849	87.9	5,032	61.0
4+ children	233	5.3	2,407	29.2
Age group (years)				
15-19	406	0.9	225	2.7
20-24	807	9.3	1,465	17.8
25-29	883	18.4	1,755	21.3
30-34	815	20.2	1,473	17.9
35-39	745	18.6	1,200	14.5
40-44	684	17.0	1,101	13.3
45-49	406	15.6	1,032	12.5
Marital status				
Never married or cohabiting	8	0.2	53	0.6
Currently married/cohabiting	3,988	91.3	7,539	91.4
Formerly married or cohabiting	371	8.5	659	8.0

Variables	Armenia(N=4,377)		Tajikistan(N=8,251)	
	Number	Percent	Number	Percent
Area of residence				
Urban	2,510	57.4	3,156	38.3
Rural	1,867	42.6	5,095	61.7
Education				
No education	3	0.1	148	1.8
Elementary	236	5.4	354	4.3
Secondary	1,952	44.6	6,030	73.1
Post-secondary	2,186	49.9	1,719	20.8
Household wealth index				
Poorest	825	18.8	1,483	18.0
Poorer	961	22.0	1,325	16.0
Middle	962	22.0	1,402	17.0
Richer	916	20.9	1,559	18.9
Richest	713	16.3	2,482	30.1
Employment				
Unemployed	2,809	64.2	6,097	73.9
Employed	1,567	35.8	2,154	26.1
Husband's experience working abroad				
No	3,089	77.5	4,889	64.9
Yes	896	22.5	2,650	35.1
Demand for children				
(Mean ± SD)	2.8±0.9		3.6±1.1	
Desired number of children				
0 children	12	0.3	31	0.4
1-3 children	3,632	83.0	3,131	37.9
4 or more children	733	16.7	5,089	61.7
Currently using contraception				
No	2,086	47.7	6,020	73.0
Yes	2,291	52.3	2,231	27.0

children (83.0%), while most women in Tajikistan had a fertility goal of 4 or more children (61.7%). About half the women were not using contraception at the time of the Armenia DHS (47.7%), while nearly three-fourths were not using contraception in Tajikistan (73.0%), reflecting the different fertility norms.

Table 2 presents the results of the bivariate analysis using ANOVA. The mean CEB by group was significantly different ($p < 0.001$) for the independent variables of age group, marital status, education, household wealth index (HWI), desired number of children, and contraceptive use in both Armenia and Tajikistan. By contrast, there was no significant difference between unemployed and employed status in neither Armenia nor Tajikistan, implying that women's employment was not related to fertility. Also, the mean number of CEB was not significantly related to the husband's experience of working abroad in the Armenian sample.

The results of the multivariate analysis are presented in Table 3. Age was strongly associated with the number of CEB in both countries. Being currently married or cohabiting was significantly associated with the number of CEB in Armenia (IRR=9.99, 95% CI= 1.80-55.56),

while less so in Tajikistan (IRR=1.58, 95% CI=1.25-2.01). The association of place of residence with CEB is significant in Armenia but not in Tajikistan. Women in rural areas were more likely to have more children than those in urban areas (IRRs=1.07, 95%CI=1.03-1.12) in Armenia. Education was negatively associated with fertility in both countries. Women with secondary or post-secondary education were likely to have less children (IRRs=0.77and 0.70, respectively) in Armenia, while only women with post-secondary education had significantly less children in Tajikistan (IRR=0.88). Also, living in a better-off household (measured by HWI) was associated with lower CEB in both countries, with IRRs of 0.94, 0.94, 0.92, and 0.93 for women in poorer, middle, richer, and the richest groups, respectively in Armenia, and IRR of 0.94 in the richest group in Tajikistan compared to women in the poorest group. Employment was associated with lower CEB in both countries, with an IRR of 0.95 for Armenia and 0.96 for Tajikistan. The desired number of children was positively associated with CEB in both countries (IRR=1.13, for Armenia and IRR=1.16, for Tajikistan). Unexpectedly, the women who were using contraception at the time of the DHS were likely to have more CEB in both countries, with an IRR of 1.22 in Armenia and an IRR of 1.19 in Tajikistan, compared to those who were not using contraception.

Table 2 ANOVA test results of mean CEB and independent variables in the 2015-16 Armenia DHS and the 2017 Tajikistan DHS

Independent variables	Armenia (4,377)			Tajikistan (8,251)		
	Mean CEB	SD	N	Mean CEB	SD	N
Age group (years)***						
15-19	0.49	0.5	37	0.27	0.5	225
20-24	1.04	0.8	406	1.25	0.9	1,465
25-29	1.59	0.9	807	2.21	1.1	1,755
30-34	2.02	0.8	883	2.86	1.3	1,473
35-39	2.25	0.9	815	3.41	1.5	1,200
40-44	2.35	1.1	745	3.6	1.6	1,101
45-49	2.45	1	684	3.82	1.8	1,032
Marital status***						
Never married or cohabited	0.38	0.7	8	1.34	1.4	53
Currently married or cohabiting	2.04	1.0	3,998	2.75	1.6	7,539
Formerly married or cohabited	1.65	1.0	371	1.84	1.5	659
Area of residence ***						
Urban	1.87	0.9	2,510	2.57	1.5	3,156
Rural	2.19	1.1	1,867	2.72	1.7	5,095
Education***						
No education	3.33	0.6	3	2.48	1.7	148
Elementary	2.38	1.2	236	2.59	1.5	354
Secondary	2.14	1	1,952	2.78	1.7	6,030
Post-secondary	1.84	0.9	2,186	2.29	1.4	1,719
Household wealth index***						
Poorest	2.24	1.1	825	3	1.9	1,483
Poorer	2.1	1.0	961	2.74	1.8	1,325
Middle	1.93	1.0	962	2.61	1.6	1,402
Richer	1.87	0.9	916	2.59	1.6	1,559
Richest	1.88	0.9	713	2.51	1.5	2,482

Independent variables	Armenia (4,377)			Tajikistan (8,251)		
	Mean CEB	SD	N	Mean CEB	SD	N
Employment						
Unemployed	1.98	1.0	2,809	2.64	1.7	6,097
Employed	2.04	1.0	1,567	2.73	1.6	2,154
Husband's experience working abroad#						
No	2.03	1.0	3,089	2.81	1.7	4,889
Yes	2.07	1.0	896	2.63	1.6	2,650
Desired number of children***						
No children	1.58	1.0	12	2.74	1.9	31
1-3 Children	1.88	0.9	3,632	1.91	1.2	3,131
4+ Children	2.62	1.2	733	3.13	1.7	5,089
Currently using contraception***						
No	1.77	1.1	2,086	2.43	1.7	6,020
Yes	2.22	0.8	2,291	3.30	1.3	2,231

*Note: ***P<0.001 for both Armenia and Tajikistan; #P<0.001 for Tajikistan only*

Table 3 Explanatory factors for the number of CEB among women aged 15-19 who ever had sexual intercourse: 2015-16 Armenia DHS and the 2017 Tajikistan DHS (Sample weighted)

Variable	Armenia (N=4,376)		Tajikistan (N=8,251)	
	IRR	95% CI	IRR	95% CI
Age group (years)				
15-19 (ref.)	1.00		1.00	
20-24	2.01***	[1.42- 2.85]	4.99***	[3.87- 6.43]
25-29	2.97***	[2.11- 4.18]	8.59***	[6.67- 11.08]
30-34	3.72***	[2.65- 5.24]	11.01***	[8.57- 14.16]
35-39	4.19***	[2.99- 5.86]	12.52***	[9.70- 16.19]
40-44	4.34***	[3.09- 6.11]	13.07***	[10.14- 16.85]
45-49	4.73***	[3.37- 6.64]	14.31***	[11.08- 18.47]
Marital status				
Never married or cohabited (ref.)	1.00		1.00	
Currently married or cohabiting	9.99**	[1.80- 55.56]	1.58***	[1.25- 2.01]
Formerly married or cohabited	8.82*	[1.57- 49.46]	1.09	[0.85- 1.39]
Areaof residence				
Urban	1.00		1.00	
Rural	1.07***	[1.03- 1.12]	1.03	[0.99-1.06]
Education				
No education (ref.)	1.00		1.00	
Elementary	0.81	[0.62- 1.06]	1.02	[0.93- 1.12]
Secondary	0.77*	[0.59- 0.99]	0.99	[0.92- 1.06]
Post-secondary	0.70 **	[0.54- 0.90]	0.88**	[0.82- 0.96]
Household wealth index				
Poorest (ref.)	1.00		1.00	
Poorer	0.94*	[0.91- 0.98]	0.97	[0.93- 1.01]
Middle	0.94*	[0.89- 0.99]	0.98	[0.94- 1.02]
Richer	0.92**	[0.87- 0.96]	0.96	[0.92- 1.00]
Richest	0.93**	[0.89- 0.98]	0.94*	[0.89- 0.99]

Variable	Armenia (N=4,376)		Tajikistan (N=8,251)	
	IRR	95% CI	IRR	95% CI
Employment status				
Unemployed (ref.)	1.00		1.00	
Employed	0.95*	[0.93- 0.98]	0.96*	[0.94- 0.99]
Desired number of children				
Ideal number of children wanted	1.13***	[1.11- 1.15]	1.16***	[1.14- 1.18]
Currently using contraception				
No (ref.)	1.00		1.00	
Yes	1.22***	[1.18- 1.26]	1.19***	[1.17- 1.22]

Note * p-value <0.05, ** p-value < 0.01, *** p-value < 0.001

DISCUSSION

The number of CEB was higher among women in the older age groups in both countries, especially in Tajikistan. Because the CEB is a cumulative measure of fertility, it almost always increases with age[20]. Timaeus et al[21] stated that the current fertility decline can be attributed to delayed childbirth and birth spacing for lengthy periods (over five years), resulting in low CEB at the end of a woman's reproductive lifetime. In this study, the mean number of CEB was 2.0 in Armenia and 2.7 in Tajikistan. The high percentage of women who were currently married or cohabiting at the time of the DHS (over 91%) is predictive of higher CEB. Bonggarts[13] identified marriage as one of the proximate causes of fluctuation of fertility and a positive determinant of child-bearing. Friedman et al[16] argued that marriage played a positive role in fertility increase or maintenance because married couples were more likely to sacrifice their economic wealth for children in order to solidify the marriage bond. Nedoluzhko[22] pointed out that out-of-wedlock births are very rare in Tajikistan. Goldstein et al[23] and Sobotka[24] made the case that out-of-wedlock birth is more common in developed countries, and is one of the key drivers of fertility reversal. By contrast, almost all births in Armenia and Tajikistan are to married women[5,6]. Taking into consideration the high marriage rate but lower fertility in Armenia than in Tajikistan, postponement of marriage among reproductive-age women would be the plausible explanation.

Women's education level was negatively associated with CEB in both countries. Many studies have documented the negative relationship between fertility and women's education[3, 15, 22]. In this study, women with post-secondary education had the lowest CEB in both countries, but the gradient is sharper for the sample of Armenian women (Table 2). In other words, the greater fertility pressure in Tajikistan blurred the inverse association of education and CEB, even though the distribution was statistically significant.

Household socio-economic status (SES) is another factor that has been well-documented as a determinant of fertility[5,15]. Historically, as the SES of a society improves, fertility declines. In this study, the HWI was used as a proxy for SES of the women in the sample, and the analysis found a negative association between HWI and CEB in both Armenia and Tajikistan.

Women's employment was associated with lower CEB in both countries in our study. Easterlin[25] argued that female participation in the workforce meant less time for childcare, resulting in later childbearing and, consequently, limited fertility. On the other hand, Siegel[26] argued that once a society's level of female employment reached a certain threshold, fertility no longer decreased because the male spouse adjusted his role to provide more childcare while his wife became the

breadwinner. Sobotka[24] found a positive relationship between female employment and TFR during the analysis of fertility reversal in developed countries. Therefore, the negative relationship between female employment and fertility in our study implies that the current level of female employment in both Armenia and Tajikistan is not yet high enough to cause a gender-role reversal regarding childcare.

Desired number of children was positively associated with CEB in both countries. Indeed, many studies have documented the positive relationship between the desired number of children and completed fertility [3, 15-17]. Studies have also found that actual fertility rarely matches the desired number of children due to other variables, such as the cost of fertility regulation and the cost of having children. In both countries of this study, the desired number of children was higher than CEB. Easterlin[17] suggested that actual fertility is a function of demand for children and potential natural fertility, i.e., historically, the demand for children matched potential natural fertility. In our study, the desired number of children was 2.8 for Armenia and 3.6 for Tajikistan, while the mean number of CEB was 2.0 for Armenia and 2.7 for Tajikistan (Table 1). In traditional societies, health conditions and cultural norms encouraged women to pursue their natural fertility level[17]. However, the fact that the desired number of children in Armenia and Tajikistan is higher than actual fertility makes it clear that couples are voluntarily spacing or limiting childbirth, or both. In the 1980s, there were gaps between the desired number of children and actual fertility due to fertility decline in most European countries. Since then, however, some societies are returning to a pro-natalist posture[24]. The same may be the case with Armenia[9], but not in Tajikistan[11]. In Armenia, the woman's desired number of children is consistent with the country's pro-natalist policy[6]. By contrast, Tajikistan, which has higher fertility than Armenia, is more aggressively promoting family planning, and that dynamic might reflect an interaction between state policy and a background norm of pressure to have children[10].

Contraception is an indispensable factor when it comes to not only fertility but also women's health in terms of physical risk, mental distress, and social well-being[27]. In our study, current contraceptive use was not significantly associated with CEB in either Armenia or Tajikistan (Table 3). This is puzzling since higher contraceptive use has almost a mathematical relationship to lower fertility. There is an enormous body of literature that has documented the negative effect of contraception on fertility[13, 26, 28]. The 2015-16 Armenia DHS report[5] and the 2017 Tajikistan DHS report[9] showed that the contraceptive prevalence rate (CPR) in Armenia (i.e., 57% in 2016) was more than twice that of Tajikistan (i.e., 21% in 2017). In our study, the CPR in Armenia was 52.3% and the CPR in Tajikistan was 27.0%, which are very similar to the values found by the DHS. Thus, on the surface, it seems reasonable to suspect that the lower fertility in Armenia is due to its higher CPR, and vice versa in Tajikistan. One possible explanation for the counter-intuitive finding that CPR was not statistically-significantly associated with CEB is that women with high fertility were more motivated to use contraception than those with low fertility. Some studies reported that the CPR among women with more children is higher than those with fewer children[29,30,31]. Hussain et al [29] and Srivastava et al[30] found that women with a higher number of CEB were more likely to use contraception. Adamchak et al[31] argued that women in high-fertility societies were more likely to use contraception for spacing, rather than for limiting births.

Taking into consideration the higher desired number of children and CEB in Armenia and Tajikistan, the lack of a negative relationship between CPR and CEB could, thus, be explained by the fact that many of the younger women with high fertility aspirations are using contraception to postpone childbearing until economic conditions become more favorable for raising a family.

The study was limited to only two countries (Armenia and Tajikistan) which are not necessarily representative of their respective geographical regions. Yet, these two countries had recent DHS reports and accessible data compared to other countries in the former Soviet Union. Secondly, the data for this study were collected as part of cross-sectional surveys. Thus, it is not possible to test for causality between contraceptive use and fertility, as well as public health-related variables (medical support and maternity leave) due to the use of DHS data. Although socio-cultural factors were not included in this study, different fertility levels could also be attributable to different socio-cultural norms. Central Asian countries, such as Tajikistan, might still be harboring natural fertility norms[22], while the more developed European countries have already transitioned to low-fertility, low-mortality populations[21, 23]. As the study mainly focused on socio-economic factors, a future study of mortality is recommended. Further study of contraceptive use in the countries of the former Soviet Union is needed for going forward. Since significant migration of population was reported in both countries[6, 10], its impact on fertility was tested by the husband's working abroad experience. However, husband's status as 'working abroad' was not significantly associated with CEB in either country. Thus, migration impact on fertility should be explored in greater depth in future studies of countries in the former Soviet Union.

RECOMMENDATIONS

This study was inspired by the documented fertility rebounds in the decade of the 2000s in highly developed countries as well as most countries of the former Soviet Union. This study found that women's SES (employment, education, and HWI) were negatively associated with fertility in both Armenia and Tajikistan. The findings from the study suggest that when designing and implementing a family planning policy, there need to be interventions to enhance the women's socioeconomic status, e.g., in Tajikistan and similar settings. When designing and implementing a pro-natalist policy, target groups should be considered for different interventions to promote cost-effective results. For instance, indirect financial support for family (maternal or paternal leave) should focus on women with higher education and in better-off settings, while the reverse would be appropriate for direct financial support in Armenia and similar settings[24]. The desired number of children among women was higher than actual fertility in both countries, and that should be considered to be a potential driver of fertility increases in the coming years. This dynamic also suggests that fertility has the potential to increase when a family reaches a certain level of financial security that outweighs the perceived cost of childrearing. Somewhat counter-intuitively, contraceptive use was positively associated with higher CEB, implying that women in these countries were merely postponing childbirth rather than limiting their fertility goal. Any country that wants to increase or maintain a given level of fertility must find ways to increase the desired number of children and instill a more positive attitude toward childbearing in society at large. Modern contraception and family planning should be promoted to meet fertility goals in terms of timing and the desired number of children.

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