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Abortion and Contraception in a Low Fertility Setting: The Role of Seasonal Labor Migration

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Abstract

Despite increased availability of contraception, abortion remains a primary form of fertility regulation in much of the former Soviet Union. At the same time, many of post-Soviet countries continue to have high levels of seasonal international labor migration. This study examines the role of male seasonal labor migration in shaping pregnancy outcomes among non-migrant women in rural Armenia, a high out-migration, high abortion, low contraception, and low fertility setting. Fitting discrete-time logit models to recent survey data the study compares probability of having a pregnancy and of a pregnancy being terminated in abortion between left-behind partners of migrants and non-migrants. The results show no difference in the probability of getting pregnant but a higher likelihood of pregnancy termination among migrants' partners. These results are combined with the results of the analyses of current contraceptive use, reproductive intentions, and lifetime parity to explain the relationship between migration, fertility, abortion, and contraception.

Background and conceptual framework

The literature on fertility, contraception, and abortion in low-fertility settings, such as those in much of the former Soviet Union, typically overlooks the role of massive population movement that the dissolution of the U.S.S.R has triggered or amplified. Yet, studies in other settings have shown that migration may have strong disruptive effects on fertility in sending areas. More specifically, seasonal and short-term migration has been shown to affect timing and spacing of births in communities from which migrants originate (Agadjanian, Yabiku and Cau, 2007; Lindstrom and Saucedo, 2007; Lindstrom and Saucedo, 2002; Massey and Mullman, 1984; Millman and Potter, 1984; Chen et al., 1974). Spousal separation and related decrease in intercourse and therefore to exposure to conception was said to lead to lower fertility of migrants' partners (Massey and Mullman, 1984).

The disruption of normal frequency of intercourse between spouses may in turn affect the patterns of contraceptive use among women left behind. Women with migrant husband often report lower use of long-term contraceptive methods than women with non-migrant partners (Kaufman, 1998). Migrants' partners may feel that contraceptives are not necessary because of the limited exposure to the risk of conception; however, they may also have less power in negotiating contraceptive use compared to non-migrants' partners. For example, research on the effects of migration on sexual health of those left behind has shown that women married to migrants in South Africa had higher risks of STDs as a result of reduced power for sexual negotiation, especially in cases of longer separation. Hughes, Hoyo and Puoane (2006) found that women who saw their husbands less frequently were less likely to communicate with them about STDs, HIV and contraception. As a result of irregularity of sexual contact between the

spouses, women with migrant husbands mostly rely on condoms and withdrawal as means of protection from pregnancy. However, in many developing countries condom availability and acceptability is still very low, leaving withdrawal as the main method of protection from pregnancy.

Lower use of modern contraceptives leads to higher rates of unwanted pregnancies, thus increasing the rates of induced abortions. In the countries where there are no legal and moral costs attached to terminating pregnancies, abortion remains as one of the cheapest and most popular methods of birth control. Moreover, in the settings with low fertility rates, abortions can guarantee achieving preferred sex composition of children (Attané, 2006; Meslé, Vallin, and Badurashvili, 2007).

Although the literature has addressed the associations between seasonal migration and contraceptive use, the effects of migration on abortion remain understudied. Moreover, research on migration and reproductive outcomes is mostly focused on high-fertility context. The choice of the setting for this study—rural Armenia—extends the research on migration and reproductive outcomes to low-fertility and high-migration contexts.

Based on the literature, migration could be expected to negatively affect the probability of pregnancy in the absence of contraception or when contraceptive prevalence and effectiveness does not vary between migrants' and non-migrants' partners. However, as was mentioned earlier, women with migrant husbands are less likely to use modern contraceptives, which other things equal, should increase their risks of pregnancy relative to women whose husbands are not migrants. Therefore, if we detect that migrants' wives have a lower yearly probability of pregnancy than non-migrants' wives, then we would conclude that decreased exposure to

intercourse is more consequential for the pregnancy rate differentials among the two groups of women than contraceptive use and effectiveness. If the reverse is true, then the conclusion that the positive effect of lower/ineffective contraception on pregnancy likelihood outweighs the negative effect of spousal separation. With respect to abortion, we expect that migrants' wives would be more likely to abort pregnancies, both because their pregnancies are more likely to be mistimed or unwanted and because husband's migration may increase wife's uncertainty about the future.

The setting

Armenia, a nation of three million people and a Gross National Income per capita estimated at $2,640 (World Bank, 2008), gained independence after the dissolution of the USSR in 1991. The collapse of the Soviet rule and the war with neighboring Azerbaijan in the early 1990s led in a severe socioeconomic crisis that affected the migration patterns and scope. Seasonal labor migration to Russia and other parts of the Soviet Union, popularly known as khopan, was common in Armenia even before its independence, but the hardships of the early 1990s largely replaced it with massive permanent emigration (Yeganyan and Shahnazaryan, 2004; Poghosyan, 2003). It is estimated that since the dissolution of the USSR about 15% of the Armenian population left the country on the permanent basis (Heleniak, 2008). However, since the mid-1990s, as the economic situation in the country stabilized and then started to improve, permanent emigration began to subside while temporary labor migration began to rise again. The net migration rate rose from -10.4 in 2000 (of which -9.9 was to CIS1 countries) to -6.4 in 2006

[1] The Commonwealth of Independent States (CIS) is a regional organization that includes most of the former Soviet Republics.

(-4.7 to CIS countries) (Statistical Yearbook of Armenia, 2005; Statistical Yearbook of Armenia, 2008). Today, two main international migration patterns can be distinguished: permanent emigration from Yerevan, Armenia's capital city and by far the largest city, to Europe and the U.S., and seasonal labor migration from rural areas to Russia and, to a lesser extent, other countries of the Soviet Union (Gevorkyan, Mashuryan and Gevorkyan, 2006). According to Heleniak (2008), there is a well developed seasonal pattern of migration mostly to Russia, whereby people leave from January to August for seasonal work in construction and agriculture and return between the months of September and December.

Armenia is among the Eastern European countries that in last few decades have seen a dramatic fertility decline to below-replacement levels. In Armenia, according to national statistics, the total fertility rate declined from 2.6 in 1990 to 1.2 in 1999, one of the lowest levels in the world, and has seen a slight increase to 1.35 since then (Innocenti Research Centre, UNICEF). Billingsley (2008) argued that neither a contraceptive revolution nor the second demographic transition provided an adequate explanation of the fertility decline in Armenia (Billingsley, 2008). Instead, the author concluded that the dramatic decline in fertility in Armenia was due to the collapsing socio-economic conditions and uncertainties about the future in the early 1990s.

The rate of induced abortion was traditionally very high in the U.S.S.R. and, despite recent declines, continues to be high in most post-Soviet countries (Agadjanian, 2002; Remennik, 1991). Both easy access to abortion and lack of opposition to abortion on moral or religious grounds have contributed to its widespread use. Another reason for high abortion use has been limited availability and popularity of modern contraception, especially in rural areas:

many couples have often been discouraged from modern contraceptive use by the mass media and even the medical establishment. The prevalence of induced abortion in contemporary Armenia is similar to that in other post-Soviet countries. The 2005 Armenia DHS reports that about 37 percent of women aged 15-49 experienced induced abortion at least once in their lifetime, and among those who had at least one abortion, about 65 percent had multiple abortions. The percent of women who had an abortion is much higher in rural areas than in urban areas (ADHS 2005). Abortion by vacuum aspiration in the first ten weeks is widely available upon requests. In rural areas, the official fee for an abortion (including all the analyses) is an equivalent of US$20, and this fee is usually waived if a woman who requests abortion does not have money to pay (in urban areas, the fee is higher and rarely waived).

The high rates of induced abortions reflect the low use of contraceptives in the country. Despite the fact that knowledge of contraceptive use is very high (about 98 percent of men and women have heard of any modern method), the use remains extremely low (ADHS 2005). Among the modern methods, the IUD was reported as the most common means of current contraception (about 9 percent of married women), followed by male condom (about 8 percent of married women) (ADHS 2005). Yet the share of ADHS married respondents reporting no current use of any modern or traditional method of contraception was very high—47 percent.

Data and Methods

*Data.*This study uses combined data from two surveys of married women in rural Armenia. First survey on Migration, Social Capital, and Reproductive Behavior and Outcomes in Armenia was conducted in 2005. The survey was carried out in 52 villages of two provinces (marzes). One of the marzes, Ararat, is located close to the capital city of Yerevan and can be described as a more prosperous marz of the two. Tavush, the other marz, located at the border with Georgia and Azerbaijan, has been influenced by the military conflict between Armenia and Azerbaijan and is among the poorest regions in the country. In each village twenty households (1040 households in total) with women 18 to 45 years old, married to migrants and non-migrants, were selected randomly through a random walk algorithm.

The second survey on Labor Migration and STD/HIV Risks in Rural Armenia was conducted in the summer of 2007, at the height of migration season. The survey was conducted in rural areas of Gegharkunik marz (province), one of the poorest provinces of Armenia which is also believed to have among the highest rates of labor migration in the country, due to soil and climatic conditions unfavorable for agriculture, lack of alternative employment, and a well developed tradition of seasonal migration (Yeganyan and Shahnazaryan, 2004).

A three-stage sampling procedure was used to select a sample of 1,240 married women aged 18 to 40 years. First, 31 villages were selected with a probability proportional to village population size. Then, in each village all households with at least one married woman of eligible age were assigned to two lists—one with migrant husbands and another with non-migrant husbands. Finally, twenty households were selected randomly from each of the two lists and in each of those forty households one woman was interviewed.

Although samples for both studies were designed so as to achieve a more or less balanced representation of migrants' and non-migrants' wives, the number of non-migrant households exceeded the number of migrant households in both studies due to the fact that some villages didn't have enough migrant households to be included in the survey.

The data include women's full pregnancy history, detailed history of husband's work from 2001-2005 in the 2005 survey and from 2002 to 2007 in the 2007 survey, and demographic and socioeconomic characteristics at the individual and household levels.

Model. To test the hypotheses on the effects of husband's seasonal migration on women's reproductive outcomes two sets of discrete-time logit models are fitted. The models in the first set predict the likelihood of pregnancy to occur in any given year. For each year, we consider that a woman experienced the event of pregnancy if she had a pregnancy that ended in that year, regardless of the outcome of pregnancy. The second set of models predicts the likelihood of a pregnancy being terminated through induced abortion. In the first set of models, woman is the unit of analysis; in the abortion models, pregnancy is the unit of analysis. Because husband's migration status is known for the period after 2001 (2002, in the 2007 dataset), only this period is considered in the models. For respondents who married their current husbands after 2001 (2002) the window of observation is reduced accordingly.

Predictor and controls. Husband's migration status is the main predictor all the outcomes. Seasonal migration in these settings usually takes place for about 6-7 months between April and October. Thus, husband's migration status is conceptualized as a time varying variable, so that he is considered a migrant in a given year if he was involved in seasonal migration during that year. We also test the lagged effects of migration on the outcomes of

interests. In these models, a husband is considered a migrant if he was involved in seasonal migration a year earlier regardless of his migration status in a given year. The models control for respondent's age and the number of birth prior to a given year. As basic socio-demographic controls we use the age difference between husband and wife, and educational levels of both husband and wife, which are dummy variables coded as 1, if education level is vocational and higher, and coded as 0 if education level is secondary and less.

Preliminary Results

We start with a bivariate comparison of women with migrant and non-migrant husbands. This comparison shows that women with migrant and non-migrant husbands have slightly different socio-demographic profiles (Table 1). Thus both migrants and their wives have lower levels of education than non-migrants and their wives. Mean age of women is higher and the age difference between husband and wife is larger for women with migrant husbands compared to women married to non-migrants. Bivariate analyses of reproductive outcomes show that women married to migrants have slightly higher numbers of lifetime pregnancies, births and abortions on average.

However, the discrete-time logit models tell a more complex story. Table 2 presents the results for reproductive outcomes using husband's migration status in a given year as the main predictor. For the model with the probability of pregnancy as outcome, the effect of husband's migration status is positive, but it is very weak and statistically not significant (Table 2, models 1 and 2). Among the controls, woman's age, the age difference between husband and wife, woman's education and the number of prior births significantly decrease the probability of a

pregnancy in a given year. The analysis of lagged effects of husband's migration status on the probability of pregnancy in a given year showed identical results (results not presented).

Contrary to no significant difference between women with migrant and non-migrant husbands in pregnancy outcomes, the results for abortion outcomes do show a significant difference. Models 1 and 2 on table 2 present the results of discrete time logit analysis modeling the effect of husband's migration status on the probability of pregnancy being terminated in a given. We can see that husband's migration status increases the probability that woman's pregnancy will be terminated by about twice and the effect is significant at $p<0.01$ level (Table 2, model 5). Even after adding the controls to the model, the effect of husband's migration status remains very strong (Table 2, model 6). Lagged effects of husband's migration status on the probability of the pregnancy being terminated show stronger association at statistically significant levels (results not presented).

Preliminary conclusions and next steps

These preliminary results indicate that migrants' and non-migrants' wives do not differ in the likelihood of getting pregnant. It is possible that the effect of decreased exposure to intercourse among migrants' wives is canceled out by lower and/or less effective contraceptive use. However, the finding that migrants' wives are more likely than non-migrants' wives to abort their pregnancies suggests that pregnancies among non-migrants' wives are less likely to be planned, which might be an indication of higher rate of unprotected sexual intercourse compared to women with non-migrant husbands.

To prepare the paper for the PAA presentation we are planning to fine-tine and expand the analyses. Thus we plan to explore a possible influence of child gender preferences. We will also add an analysis of the differences in fertility intentions, cumulative fertility and current contraceptive use between women with migrant and non-migrant husbands. The findings of these analyses will contribute to a better understanding of the effects of husband's migration status on fertility outcomes that may be mediated by differences in modern contraceptive use between women married to migrants and non-migrants. Finally, we also hope that the data from in-depth interviews conducted recently with 40 women married to seasonal migrant, who were part of the 2007 survey sample, will help elucidate the complex processes of reproductive decision-making in that setting.

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Appendix

Table 1. Distribution of the main dependent and independent variables by husband's current migration status.

	Husband is migrant	Husband is non-migrant
Woman's education (%)		
Secondary and less	61.93	59.51
Vocational and higher	38.07	40.49
Husband's education (%)		
Secondary and less	65.47	63.57
Vocational and higher	34.53	36.43
Woman's age (mean)	33.71	31.95
Age difference between husb. and wife (mean)	5.08	4.94
Number of pregnancies (mean)	4.41	3.97
Number of births (mean)	2.59	2.42
Number of abortions (mean)	1.57	1.29

Table 2. Discrete time logit models for pregnancy outcome with husband's migration status in the year of the event as the main predictor (odds ratios).

	Model 1	**Model 2**
Age of woman (time-varying)	0.86 **	0.88 **
Husband's migration status		
Non-migrant (Ref.)	1	1
Migrant	1.02	1.01
Number of prior births		0.81 **
Age difference between husb. and wife		0.98 *
Woman's education		
Secondary and less (Ref.)		1
Vocational and higher		0.80 **
Husband's education		
Secondary and less (Ref.)		1
Vocational and higher		0.92
Intercept	15.92 **	18.31 **
Number of observations	11937	11769
Log Likelihood	-5258.47	-5173.44

Significance levels: ** - $p<0.01$, *- $p<0.05$.

Table 2. Discrete time logit models for abortion outcome with husband's migration status in the year of the event as the main predictor (odds ratios).

	Model 1		**Model 2**	
Age of woman (time-varying)	1.48	**	1.09	**
Husband's migration status				
Non-migrant (Ref.)	1		1	
Migrant	2.06	**	1.63	*
Number of prior births			11.44	**
Age difference between husb. and wife			1.04	
Woman's education				
Secondary and less (Ref.)			1	
Vocational and higher			1.07	
Husband's education				
Secondary and less (Ref.)			1	
Vocational and higher			1.19	
Intercept	0.00	**	0.00	**
Number of observations	2551		2550	
Log Likelihood	-1264.01		-992.18	

Significance levels: ** - $p<0.01$, *- $p<0.05$.