

The Effect of Armed Conflict in Tajikistan on the Marriage Market and Female Reproductive Behavior¹

Olga Shemyakina[±]

Draft: December 24, 2006²

Abstract:

This study examines the impact of the 1992-1998 armed conflict in Tajikistan on marriage, fertility and household bargaining. During the first years of war, the mortality rate due to injuries among young adults, ages 15-19, increased by 225 percent compared to the 1989 levels. More than 50,000 men lost their lives in the conflict. The combined effects of war-related mortality among adults and natural population growth may have led to a shortage in men of marriageable age as Tajik women traditionally marry men of the same age or older. Therefore, women who were too young to be married before the war may have later experienced what Caldwell, Reddy and Caldwell (1983) call a “marriage squeeze”. The Census data support this hypothesis. From 1989 to 2000, in some of the war affected areas, the ratio of men to women in the traditionally marriageable age groups decreased as much as 30 percent. These shifts in the demographic composition of the country may have induced changes in marriage and fertility behavior.

The data suggest that young women in the conflict affected regions were 2.5 to 5.0 percentage points more likely to be married by age 16 and 5.2 to 12.6 percentage points more likely to have children by age 18 than the older cohorts.

¹ I would like to thank Seema Jaychandran and John Strauss for valuable ideas and suggestions that led to this proposal. The usual caveat applies. Financial support was provided by the University of Southern California. [±] Olga Shemyakina, Department of Economics, 3620 S. Vermont Ave. KAP 300, University of Southern California, Los Angeles, CA 90089-0253, USA, shemyaki@usc.edu, (323) 229 3180.

² This draft is preliminary and incomplete. Please do not site or distribute without author’s permission.

1. Introduction

Crises and civil wars inflict large burdens on country's population. War-related mortality and morbidity patterns (Hoeffler and Reynal-Querol 2003; Ghobarah, Huth, Russett 2003) and the relationship between violent conflict, child mortality and female reproductive behavior (Hoeffler and Reynal-Querol 2003; Verwimp and van Bavel 2005; Lindstrom and Berhanu 1999; McGinn 2000) have been addressed by researchers. This study adds another dimension to the literature by exploring the link between violent conflict, marriage markets and female reproductive behavior.

This paper combines a unique dataset on the events during the 1992-1998 armed conflict in Tajikistan with individual and household data from the 1999 and 2003 Tajik Living Standards Measurement Surveys³ and regional and community data collected by the State Statistical Agency of Tajikistan. The conflict data was collected from the main Tajik daily and weekly newspapers and reports of conflict activity and related events of the international and foreign organizations such as Human Rights Watch, the U.S. Department of State and others. These data are used to examine impact of the 1992-1998 armed conflict on the marriage market and fertility outcomes, and their link to other social and demographic processes.

More than 50,000 men lost their lives in the conflict. During the first years of war, the mortality rate due to injuries among young adults, ages 15-19, increased by 225 percent compared to the 1989 levels (Figure 1). The combined effects of war-related mortality among adults and natural population growth may have led to a shortage in men of marriageable age as Tajik women traditionally marry men of the same age or older. Therefore, women who were too young to be married before the war may have later experienced what Caldwell, Reddy and Caldwell (1983) call a "marriage squeeze". The Census data support this hypothesis (Table 1). From 1989 to 2000, in some of the war affected areas, the ratio of men to women in the traditionally marriageable age groups decreased as much as 30 percent and the number of young widows increased significantly as compared to lesser affected areas (Table 2).

³ www.worldbank.org/lsm. The surveys were collected by the World Bank and the State Statistical Agency of the Republic of Tajikistan.

Further, during the 1992-1998 period of the war, maternal mortality increased to from 41.6 to 74.0 deaths per 100,000 live births and under-five child mortality increased from 65.1 to 82.5 per 1,000 from 1989 to 1993 (Fig. 2). These shifts in the demographic composition of the country may have induced changes in marriage and fertility behavior.

To identify individual's exposure to armed conflict in Tajikistan, I use the year of birth and place of residence during the conflict. I compare marriage and reproductive behavior of women who were in or about to enter the marriageable age group in 1991, at the start of the armed conflict in Tajikistan, to those of women from older birth cohorts. The first, younger group of women is comprised of women whose marriage prospects were to have been significantly affected by conflict. The second group consists of women who reached marriageable age prior to the start of the war.

The TLSS 2003 data suggest that young women in the conflict affected regions were 2.5 to 5.0 percentage points more likely to be married by age 16 and 5.2 to 12.6 percentage points more likely to have children by age 18 than the older cohorts (Tables 3 and 4).

The rest of the paper is organized as follows. Section 2 discusses relevant literature and potential impacts of exposure to armed conflict on marriage market, the age at first marriage and the age at first birth for women. Section 3 outlines methods and data used in this paper. Section 4 presents the preliminary empirical results. Section 5 discusses future work and provides a summary.

2. Relevant literature

2.1 Potential effects of armed conflict on the marriage market for women

Three competing but not unrelated theories may illustrate the potential impact of civil wars on marriage market.

Marriage squeeze hypothesis

A decrease in the population of men in the marriageable age group may affect age at which women enter their first marriages. According to John Caldwell et al (1983), the marriage squeeze hypothesis asserts that due to increase in population and the gender age gap at marriage, marriageable men are

scarce relative to marriageable women. It is possible that during or following the war, young marriageable men disproportionately “disappear” from country’s population. In such case, women who were too young to be married at the start of the war may face a shortage of men in the relevant age group. This shortage of men or a “marriage squeeze” on women may lead to the following several adjustments in the marriage market.

First, many women may not be able to get married as early as before as fewer men are available. The average age at first marriage for the cohort exposed to the conflict may increase since women may have to wait longer to find a suitable partner. However, if competition for men in the marriage market increases and youth is valuable, when we may observe a decrease in the average age at first marriage for women who are lucky enough to find a partner. This societal rush to marry girls early may decrease chances of getting married or finding a suitable partner for women who crossed the peak marriageable age as younger and younger girls enter the marriage market each year. This trend may leave unmarried a higher proportion of cohort of older women.

Second, differences in age and education level between husbands and wives may change in the post-war period as compared to the pre-war years. Women may have to marry men from an older birth cohort or choose those with a lower education levels than preferred.

Third, a civil war or conflict may influence customary pre-marriage gift-giving practices and affect size of dowries or bride-prices. Since during wars, men are more likely to die in fighting than women, an equilibrium bride’s price (dowry) may fall (increase) because men in the relevant age group have become more scarce and therefore, more valuable (Rao 1993).

Fourth, a decrease in sex ratios may lead to a change in accepted marriage practices. A number of informal (Greene and Rao 1995) or polygamous unions where a man takes more than one wife may increase. If such unions also help to accommodate young childless widows in war-torn areas, polygamy will be tolerated by society as a necessary evil (Falkingham and ADB 2003).

Decrease in household resources

Armed conflicts inevitably lead to a decrease in the resources available to many households for consumption. In many societies marriage is an important consumption smoothing mechanism (Kotlikoff and Spivak 1981; Rosenzweig and Stark 1989). This ability to smooth consumption may become particularly important when households face highly variable consumption streams and their access to credit markets is limited. Additionally, as marriage is often considered to be an alliance of household or clan networks (Monaghan and Just 2000), entering a favorable alliance allows a household to smooth consumption by using economies of scale in labor and household production (Becker 1973). Also the prospects of favorable alliances may be higher for younger brides and therefore, poor families may marry their daughters' very young while the "youth" component of the bride price is high as well. Thus, an earlier daughter's marriage may help the rest of the family to get through the crisis. The same argument may be applicable to dowry cases where a family may expect to pay a lower dowry amount for younger brides. However, we would expect the average age at first marriage for women to increase if grooms are relatively scarce and demand relatively large dowries imposing hardship on brides' families.

Security concerns

Societal conflict and instability may increase real or perceived threats of assault or ill-treatment of young women. The threat could be associated with a potential rape, abduction, harassment or other form of dishonor. For example, a girl may be kidnapped as a potential bride and perceived dishonored if not promptly married to the kidnapper (a practice common in Central Asia). The U.S. Department of State (1997) notes the widespread reports of bride abduction in Tajikistan. Thus, families, if they want to exercise more discretion over their children's lives, may marry their daughters to a first marginally acceptable suitor, even if a suitor is not wealthy enough or is already married.

Policy implications of the marriage squeeze on women

Studies of the U.S. and China found that higher sex ratios of men to women led to improved bargaining position of women and better human capital outcomes for their children. The reverse holds as well. In Brazil, a decrease in the sex ratios led to a higher proportion of women entering un-official and unstable marriages or as Green and Rao (1995) put it “a faster “recycling” of men” who circulate in and out of informal unions.

In the U.S., a higher sex ratio due to the combination of migration patterns and U.S. immigration restrictions in the early 1920s led to a decrease in the labor force participation by women in the second generation of the immigrants (Angrist 2002). Similarly, in the 1990s, higher regional sex ratios in the USA led to a more favorable allocation of income towards women in married couples (Chiappori, Fortin and Lacroix 2002). Using the 1989 PSID data, they estimate that on average, a one-percentage-point increase in the proportion of men in the population, while controlling for age, race and place of residence led to \$2,163 higher transfer from husbands to their wives.

Results of two unrelated field experiments in developing countries, one in India, state of Andhra Pradesh (Mani 2006), another in East Uganda (Iversen et al 2006) imply that household production decisions and their fairness or efficiency are determined by relative bargaining power of spouses in marriage.

Thus, the bargaining power of women in and outside marriage may be determined by sex ratios in the area of residence. While the government cannot just “import” men from other countries (although some governments did “import” women from other countries, an example is the early settlement policies in the USA as quoted in Angrist), it should focus on implementing policies that favor and support human capital investments by women and their entrepreneurship activities.

2.2 Potential effect of armed conflicts on fertility outcomes

We can not make a clear-cut prediction of the impact of civil wars on fertility outcomes.

First, according to the development economics literature, there is the old-age security motive for having children (Nugent 1985). The motivation behind this argument is absence of the society-provided retirement and disability systems. In such societies, children serve as insurance against old age and disability when household income is unstable and cannot be insured. During civil wars, physical assets of a household may not be considered a good investment as such assets may be looted or destroyed. In such situations, the value of having many children may increase as well as the birth rate as parents view their children as assets with a more certain return.

Second, during wars and other calamities, household incomes are limited. To maintain their consumption, families may postpone having children until better times come. Thus, birth rates during wars and armed conflicts may decrease. However, in agricultural societies the demand for labor may increase as people may live off production at their plots.

Third, the decrease in the birth rates may be explained by the prolonged absence of men in families as they may be at war or died. When large numbers of men return from war, there may be a baby boom as it happened in many countries of the world after the end of World War II.⁴

Fourth, medical facilities are often looted and destroyed in the conflict. In such regions, the home child deliveries or deliveries without attendance of qualified medical personnel are likely to increase. If home sanitation conditions are poor and they often are, this is likely to increase infant and maternal mortality and there are data to support it. For example, in Tajikistan, the maternal and under-five child mortality increased significantly during the 1991-1998 (see Fig. 2). The maternal mortality almost doubled in the first three years of war in 1992-1994 and under-five child mortality increased by 11 to 26 percent in the 1992-1993 as compared to the 1989 data. However, it is unclear how such mortality changes would affect fertility. It is possible that some women would delay childbirth until

⁴ Wikipedia. "Post-World War II baby boom" (http://en.wikipedia.org/wiki/Post-World_War_II_baby_boom Accessed December 27, 2006)

better times come, while others may attempt to have more children since some of the children may die very young.

Fifth, societal practices may change after the wars or extended periods of hardships that led to a decrease in the birth rate. For example, Lindstrom and Berhanu (1999) find that in Ethiopia during the years of famine and political instability, marital fertility declined. Then the war ended the average number of children per family remained low as compared to the pre-war years.

3. Methods and Data

3.1 Data

Marriage data for this study are obtained from the TLSS 1999 and 2003 surveys. Both surveys contain a female questionnaire filled by all women aged 15 to 49⁵ at the time of the survey. The data on age at first marriage and age at first birth for women aged 15-49 are obtained from the female questionnaire. Education level, age and other data on socio-demographic characteristics of all married and unmarried women are obtained from the main TLSS questionnaire. This questionnaire contains data on all household members who are eating and living under the same roof and who were not absent for more than 12 months from the household. The data on the characteristics of spouses and partners of currently married women are obtained from the same main TLSS questionnaire. Cohabitation is not very common in Tajikistan so most of the couples are formally married.

I use the data on marriage history for women ages 15-49 in the sample. The retrospective marriage data on for all women aged 15 to 49 at the date of the interview was obtained from the women's questionnaire which was filled by a woman-respondent.

⁵ In cases when a woman could not read or write, the survey was filled by an interviewer. I uncovered many mistakes in coding of fertility data and mistakes in coding identification number for mother and her children. I corrected some of those mistakes. The complete list of observations and corrections made is available from the author on a request.

3.2 Identification

To measure the impact of the civil war related shocks, I explore two sources of variation in the exposure to the armed conflict of 1992-1998.

The first source of variation comes from the regional differences in the extent and intensity of war-related events, such as destruction of infrastructure and industries, and the degree of fighting and displacement during the conflict.

The second source of variation is determined by the timing of the shock. Thus, women who attained the marriageable age before the conflict would be affected differently from the cohort of women who reached marriageable age during the conflict.

Therefore, women born in 1975-1980 who also lived in the conflict exposed regions constitute a treatment group in this study and are compared to older cohorts who reached the marriageable age before the conflict started and women in the same birth cohort (born in 1975-1980) who lived in lesser affected regions.

3.3 Methods

This paper uses two empirical approaches. The first strategy employs a difference in differences estimation to account for a relative impact of war on the population of young women who lived in the regions affected by war and who were too young to be married before the war started.⁶

The second empirical approach employs hazard functions to compare, at same ages, the odds of becoming married for women who were exposed to the war and those who were not. The odds of having first child are computed in a similar way.

The Nelson-Aalen cumulative hazard function and Kaplan Meier survival function will be used to estimate discrete yearly hazard rates. In addition to non-parametric estimation, I will use the Cox proportional hazard model.

⁶ A similar empirical strategy was used in Shemyakina (2006) to estimate the impact of age and regional exposure to conflict in Tajikistan on the educational attainment by individuals.

4. Preliminary empirical results

In this section I discuss the empirical evidence from the analysis of statistics on the age at first marriage and birth, and the age and educational differences between spouses. I will focus on the regional differences in these indicators. The analysis is given for 5 regions and two groups of *raions*. The five regions of Tajikistan are Sugd, Khatlon, Raions of Republican Subordination (RRS), Gorno-Badakshon Autonomous Oblast (GBAO) and Dushanbe.⁷ Raions (communities) significantly exposed to war are primarily located in Dushanbe, Khatlon and RRS regions.⁸

The data in Table 1, based on the Census data for 1989 and 2000, support the "marriage squeeze" hypothesis in Tajikistan. Overall, the number of men to 1,000 women in most marriageable age groups in the war affected areas declined considerably in 2000 as compared to 1989. During the same period, the number of young widows ages 20-39 in the war-affected Khatlon, RRS and Dushanbe regions increased by 2.0-3.5 percentage points (Table 2).

Two observations can be made about the pattern of age at first marriage across the regions of Tajikistan (Table 3). First, in Dushanbe, RRS, Khatlon and Sugd a higher proportion of women from the younger cohorts (born in 1976-1980) were married by age 16. For example, in Khatlon, which suffered from the conflict significantly, 6.4 percent of the cohort born in 1978-1980 was married by age 16, as compared to less than one percent for the earlier birth cohorts. Second, in the GBAO region, the proportion of women who were married by age 18 decreased significantly as compared to the older cohorts. While 14.3 percent of the cohort born in 1975-1977 was married by age 18, only 5.2 percent of cohort born in 1978-1980 was married by the same age. Two factors may explain this phenomenon. First, the GBAO region suffered from the economic blockade during the first few years of the 1992-1998 Tajik armed conflict, as the only land road that connects GBAO to other parts of Tajikistan was controlled by the opposition groups. The region experienced severe food shortages at that time. Second,

⁷ The Republic of Tajikistan is administratively divided in 4 regions: Sogdian oblast (Sugd), Khatlon oblast, Gorno-Badagakshan (GBAO) Autonomous Oblast, Direct Rule District commonly known as the RRS (Raions of Republican Subordination, which are 13 autonomous districts) and Dushanbe.

⁸ See Shemyakina for the description of variables used for the identification of conflict affected regions in Tajikistan.

marriage squeeze on women may provide another explanation. Pamiri people who populate the GBAO and some parts of Khatlon were strongly associated with the opposition forces. During the conflict of 1992-1998, young Pamiri men were often targeted by the government forces and government affiliated military groups such as Narodnii Front as potentially dangerous militants and were treated accordingly. The U.S. Department of State (1996, 1997) and Human Rights Watch (1993) report multiple cases of mass execution and forced “disappearance” of men in and around Dushanbe during the war. Several mass graves containing bodies with gunshot wounds were found near Dushanbe soon after the war ended.

Two conclusions emerge from the analysis of the cumulative probability functions of age at first marriage across regions. First, women who do marry enter their marriages earlier than the older cohorts. Second, younger women who are still single by age 20 remain unmarried for a longer period of time than the older cohorts. This is consistent with the evidence from other countries, where female age at first marriage is increasing over time.

As for the spouses market (Fig. 3 and 4), the data suggests that younger women from war affected areas tend to marry older men, who also have higher education levels than their wives.

With regards to the age at first birth, women born in 1975-1977 were more likely to have children by age 18 in all regions of Tajikistan except GBAO (Table 4). This cohort reached age 18 before 1992 and therefore a sudden change in birth pattern can not be explained by the start of the war. It is possible that change in cultural attitudes was already in place before the war started. It is unclear from the data if the pattern of earlier marriages and earlier births was reversed by the exposure to war.

4.3 Regression results

Preliminary regression results (not shown here) suggest that women born in 1975-1980, residing in the conflict affected areas, were 9-17% more likely to have their first child by age 20 and 5% more likely to get married by 16 than women of the same age from the less affected areas.

Further, the regression results from the Cox Proportional hazard models (Table 5) suggest that females born in 1978-1980 from war affected regions faced a hazard rate of being married 26% (for Reports of Conflict Activity) to 43% (Community Damage Dwelling)⁹ higher than women born in 1966-1977 who did not live in the conflict affected areas. This result is statistically significant at the 10% level.

The results for the Kaplan Meier survival function estimates in Figure 5 indicate that 86 percent of women from the treatment group (born in 1975-1980 and residing in the conflict affected region) were not married by age 23 as compared to 93-97 percent of women born in 1966-1974, and 93 percent of women born in 1975-1980 residing in the areas less affected by the war.

5. Discussion

In the beginning of this paper, I contemplated whether a marriage squeeze on women due to the armed conflict of 1992-1998 in Tajikistan may have affected female age at first marriage and first birth. The results confirm this evidence. On average, more women from younger cohorts affected by the conflict were married either very early or very late by Tajik standards. The regional variation in the sex ratio and number of young widows suggests that the impact of the conflict was significant, particularly in the conflict affected Dushanbe, Khatlon and RRS regions.

Similarly, young women from the treatment group were more likely to be married to the older males than a comparison group of females of the same age from regions not affected by the conflict as much. This choice of older husbands may have also increased education differences between spouses as older men had a longer time to complete their education than young women. However, this educational difference may be also explained by a loss in the years of education women who were of school age during the armed conflict in Tajikistan (Shemyakina 2006).

⁹ See Shemyakina (2006) for a detailed definition of Community Damage Dwelling (CDD) and Reports of Conflict Activity (RCA) variables.

A further examination of the interaction of age and intensity of exposure to the conflict will be important to determine some of the potential relationships between the conflict, marriage and reproductive behavior. I will also discuss institutional characteristics of marriage in Tajikistan.

References

- Angrist, J. (2000) "How Do Sex Ratios Affect Marriage and Labor Markets? Evidence from America's Second Generation." *NBER Working Paper No. 8042*, December 2000.
- Becker, Gary. (1973) "A Theory of Marriage: Part I." *Journal of Political Economy*. Vol. 81 (4), pp. 813 – 846.
- Caldwell, John C.; Reddy, Palli Hanumantha and Caldwell, Pat. (1983). "The Causes of Marriage Change in South India." *Population Studies*, 37(3): 343-361.
- Chiappori, Pierre-Andre; Bernard Fortin and Guy Lacroix (2002) "Marriage Market, Divorce Legislation, and Household Labor Supply." *Journal of Political Economy*. Vol. 110(11)
- Hoeffler, Anke, and Martha Reynal-Querol. (2003). "Measuring the Cost of Conflict." Unpublished manuscript, Centre for the Study of African Economies, Oxford University, Oxford, U.K.
- Iversen, Vegard; Cecile Jackson; Bereket Kebede; Alistar Munro and Arjan Verschoor. (2006). "What's love got to do with it? An experimental test of household models in East Uganda." *NEUDC Conference Presentation*.
- Ghobarah, H. A., P. Huth, and B Russett. (2003). "Civil wars kill and maim people long after shooting stops." *American Political Science Review* 97.
- Greene, Margaret E.; Rao, Vijayendra. (1995). "The Marriage Squeeze and the Rise of Informal Marriage in Brazil." *Social Biology*, 1995, 42(1-2), pp. 65.
- Greenberg, I. (2006). "After a Century, Public Polygamy Is Re-Emerging in Tajikistan." *New York Times*. New York.
- Kotlikoff, L. and A. Spyvak. (1981). "The Family as an Incomplete Annuities Market." *Journal of Political Economy*, Vol. 89 (2), pp. 372 – 391.
- Lindstrom, D. P. and B. Berhanu. (1999). "The impact of war, famine, and economic decline on marital fertility in Ethiopia." *Demography* 36: 247-261.
- Mani, Anandi (2006) "Mine, Yours or Ours? An Experimental Study of Household (in)Efficiency." *NEUDC Conference Presentation*.
- Monaghan, John and Peter Just (2000) "Social and Cultural Anthropology: A Very Short Introduction", Oxford, UK. Oxford University Press.
- McGinn, Th.. (2000). "Reproductive health of war-affected populations: what do we know?" *International Family Planning Perspectives* 26(4): 174-180.
- Nugent, J.B., (1985). "The Old Age Security Motive for Fertility," *Population and Development Review* 11, 75-98.
- Rao, V. (1993). "The Rising Price of Husbands: A Hedonic Analysis of Dowry Increases in Rural India." *The Journal of Political Economy* 101(4).

Rosenzweig, Mark R. and Oded Stark. (1987). "Consumption smoothing, migration and marriage: evidence from rural India." *Harvard University. Migration and Development Program. Discussion Paper*, No. 32, pp. 1-27.

Shemyakina, Olga (2006). "The Effect of Armed Conflict on Accumulation of Education: Results from Tajikistan". Households in Conflict Network (HiCN). Working Paper N12.

U.S. Department of State. (1996). "Tajikistan Report on Human Rights Practices for 1996," The Bureau of Democracy, Human Rights, and Labor.

----- (1997). "Tajikistan Report on Human Rights Practices for 1997," The Bureau of Democracy, Human Rights, and Labor.

Verwimp, P. and Jan van Bavel. (2005). "Child Survival and Fertility of Refugees in Rwanda." *European Journal of Population* 21: 271-290

Table 1 - War cohort: Men of marriageable age to 1,000 women. 1989 vs. 2000

Region	1989	2000	% change to 1989
Republic of Tajikistan	888	862	-2.93
<u>Region:</u>			
GBAO	917	873	-4.82
Sugd	850	887	4.34
Dushanbe	1267	890	-29.73
Khatlon	807	844	4.49
<i>Kurgan-Tube (city)</i>	996	855	-14.16
<i>Kulob (city)</i>	785	731	-6.88
RRS	897	842	-6.19

Source: Goskomstat RT, 2002. Census data for 1989 and 2000.

Note: Women, ages 13-22 and men - ages 18-27 in 1992.

Table 2 - Widows as percentage of relevant age group. 1989 vs. 2000

Age groups	GBAO		Sugd		Dushanbe		Khatlon		RRS	
	1989	2000	1989	2000	1989	2000	1989	2000	1989	2000
15-19	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.2
20-29	0.8	1.4	0.8	1.5	0.6	2.0	0.9	3.4	0.8	3.0
30-39	3.1	3.8	2.5	3.6	2.1	5.5	2.1	6.4	2.2	5.7
40-49	7.8	8.7	7.9	8.3	7.3	10.7	6.3	9.7	6.3	9.0
50-59	19.1	19.9	18.7	20.1	18.9	22.1	15.6	19.4	14.7	19.3
60-69	38.0	37.5	47.0	38.4	43.3	40.7	39.2	35.8	39.1	35.4
70+	66.5	69.6	80.5	75.5	77.5	68.6	69.8	70.1	69.7	70.7

Source: Goskomstat RT. 2003. "Regions of Republic of Tajikistan." Based on Census data for the Republic of Tajikistan for the 1989 and 2000.

Table 3.1 - Cumulative frequency. Percentage of women married by certain age, by 3 year birth cohort and oblast (region) of residence in 2003. GBAO and Sugd areas (TLSS 2003 data).

Panel A: GBAO and Sugd regions

Year of birth	GBAO							total
	14	16	18	20	22	24	25 and above	
1954-1956	0.0	0.0	22.7	36.4	54.6	63.6	68.2	100.0
1957-1959	0.0	0.0	31.0	51.7	65.5	72.4	75.9	100.0
1960-1962	0.0	0.0	29.6	52.3	65.9	72.7	81.8	100.0
1963-1965	1.9	1.9	18.5	29.6	42.6	51.9	70.4	100.0
1966-1968	0.0	0.0	20.4	44.4	63.0	74.1	85.2	100.0
1969-1971	0.0	0.0	17.7	37.1	56.4	66.1	77.4	100.0
1972-1974	0.0	0.0	12.8	29.5	38.5	46.2	56.4	100.0
1975-1977	0.0	0.0	14.3	26.0	37.7	44.2	55.9	100.0
1978-1980	0.0	0.0	5.2	11.5	17.7	-	-	100.0
1981-1983	0.0	0.0	8.4	9.6	-	-	-	100.0

Year of birth	Sugd							total
	14	16	18	20	22	24	25 and above	
1954-1956	0.0	0.0	34.4	59.4	68.8	73.5	79.7	100.0
1957-1959	0.0	0.0	28.3	46.0	60.2	63.7	66.4	100.0
1960-1962	1.7	1.7	30.8	58.1	70.1	75.2	76.1	100.0
1963-1965	0.0	0.0	23.5	49.3	60.3	63.2	68.4	100.0
1966-1968	0.8	0.8	27.9	55.8	64.4	69.8	72.1	100.0
1969-1971	0.0	1.5	22.0	49.2	61.4	66.7	68.2	100.0
1972-1974	0.0	0.0	30.5	43.7	58.9	64.2	64.9	100.0
1975-1977	0.0	2.5	42.1	52.8	66.0	70.4	-	100.0
1978-1980	0.0	1.0	31.0	48.0	63.0	-	-	100.0
1981-1983	0.4	1.3	25.9	40.4	-	-	-	100.0

Panel B: Khatlon, Dushanbe and RRS regions

Year of birth	Khatlon							total
	14	16	18	20	22	24	25 and above	
1954-1956	0.0	1.9	41.5	67.9	79.3	81.1	84.9	100.0
1957-1959	0.0	0.0	35.7	50.0	71.4	75.0	77.4	100.0
1960-1962	0.8	0.8	30.3	61.5	78.7	80.3	86.9	100.0
1963-1965	0.8	1.7	31.7	51.7	66.7	72.5	78.3	100.0
1966-1968	0.0	0.0	32.8	48.3	60.4	66.4	68.1	100.0
1969-1971	0.7	0.7	28.5	54.0	67.2	73.0	75.2	100.0
1972-1974	0.0	0.7	31.7	52.5	63.3	65.5	66.9	100.0
1975-1977	0.0	0.0	31.6	47.1	60.3	61.8	-	100.0
1978-1980	0.0	6.4	31.2	45.1	54.9	-	-	100.0
1981-1983	0.0	1.4	19.3	29.3	-	-	-	100.0

Year of birth	Dushanbe							total
	14	16	18	20	22	24	25 and above	
1954-1956	0.0	4.8	28.6	38.1	61.9	66.7	66.7	100.0
1957-1959	0.0	1.8	23.2	42.9	62.5	69.6	85.7	100.0
1960-1962	0.0	1.8	21.4	39.3	53.6	57.2	67.9	100.0
1963-1965	0.0	1.6	29.5	44.3	65.6	70.5	78.7	100.0
1966-1968	0.0	0.0	16.9	41.5	55.4	67.7	75.4	100.0
1969-1971	0.0	1.3	36.4	53.2	64.9	71.4	77.9	100.0
1972-1974	0.0	1.8	26.3	35.1	45.6	61.4	66.7	100.0
1975-1977	0.0	4.7	43.8	53.1	67.2	73.4	-	100.0
1978-1980	0.0	3.3	31.2	50.8	60.7	-	-	100.0
1981-1983	1.3	4.0	22.7	33.3	-	-	-	100.0

Year of birth	RRS							total
	14	16	18	20	22	24	25 and above	
1954-1956	0.0	3.1	46.9	59.4	68.8	71.9	75.0	100.0
1957-1959	0.0	3.3	45.0	63.3	76.7	80.0	81.7	100.0
1960-1962	0.0	1.3	33.8	53.3	64.9	70.1	72.7	100.0
1963-1965	0.0	1.3	34.6	52.6	66.7	67.9	70.5	100.0
1966-1968	0.0	1.3	40.3	54.6	64.9	70.1	72.7	100.0
1969-1971	0.0	1.4	31.1	58.1	67.6	70.3	74.3	100.0
1972-1974	0.0	2.3	42.5	59.8	69.0	74.7	78.2	100.0
1975-1977	0.0	7.3	42.2	59.6	71.6	76.2	-	100.0
1978-1980	0.0	3.9	42.2	53.9	60.2	-	-	100.0
1981-1983	0.6	4.5	26.0	33.9	-	-	-	100.0

Table 4 - Cumulative frequency. Percentage of women having their first child by certain age, by 3 year birth cohort and oblast (region) of residence in 2003.

Panel A: GBAO and Sugd regions

Year of birth	GBAO								N
	14	16	18	20	22	24	25 and above	total	
1954-1956	0.0	0.0	0.0	4.6	31.8	40.9	72.7	100.0	22
1957-1959	0.0	0.0	3.5	24.1	48.3	62.1	72.4	100.0	29
1960-1962	0.0	0.0	2.3	20.5	40.9	61.4	90.9	100.0	44
1963-1965	0.0	0.0	3.7	14.8	37.0	50.0	79.6	100.0	54
1966-1968	0.0	1.9	3.7	14.8	40.7	59.3	83.3	100.0	54
1969-1971	1.6	3.2	6.5	16.1	24.2	53.2	72.6	100.0	62
1972-1974	1.3	2.6	7.7	14.1	29.5	42.3	59.0	100.0	78
1975-1977	0.0	0.0	5.2	9.1	27.3	37.7	-	100.0	77
1978-1980	1.0	1.0	1.0	6.3	13.5	-	-	100.0	96
1981-1983	0.0	1.2	3.6	6.0	-	-	-	100.0	83

Year of birth	Sugd								N
	14	16	18	20	22	24	25 and above	total	
1954-1956	0.0	0.0	3.1	23.4	43.8	53.1	81.3	100.0	64
1957-1959	0.9	1.8	5.3	21.2	45.1	61.1	89.4	100.0	113
1960-1962	0.9	1.7	3.4	20.5	59.8	79.5	94.9	100.0	117
1963-1965	0.0	0.0	5.9	25.7	58.1	71.3	87.5	100.0	136
1966-1968	0.8	1.6	3.1	24.0	58.9	69.0	81.4	100.0	129
1969-1971	1.5	1.5	5.3	27.3	55.3	70.5	79.6	100.0	132
1972-1974	2.0	2.7	9.3	26.5	57.6	70.2	78.2	100.0	151
1975-1977	1.3	2.5	14.5	38.4	58.5	69.8	-	100.0	159
1978-1980	0.0	0.5	9.0	23.0	46.5	-	-	100.0	200
1981-1983	1.8	1.8	12.3	21.5	-	-	-	100.0	228

Panel B: Khatlon, Dushanbe and RRS regions

Year of birth	Khatlon								N
	14	16	18	20	22	24	25 and above	total	
1954-1956	0.0	0.0	1.9	17.0	43.4	62.3	90.6	100.0	53
1957-1959	0.0	0.0	4.8	17.9	44.1	65.5	89.3	100.0	84
1960-1962	0.8	1.6	4.9	12.3	41.0	59.0	85.3	100.0	122
1963-1965	0.8	1.7	5.0	15.0	50.0	68.3	85.8	100.0	120
1966-1968	0.0	1.7	6.9	23.3	56.0	69.0	77.6	100.0	116
1969-1971	0.7	1.5	9.5	23.4	52.6	71.5	81.8	100.0	137
1972-1974	0.7	0.7	3.6	20.2	43.2	57.6	69.1	100.0	139
1975-1977	0.7	3.0	16.2	26.5	49.3	55.2	-	100.0	136
1978-1980	0.6	3.5	11.6	25.4	45.1	-	-	100.0	173
1981-1983	0.9	1.4	10.8	19.3	-	-	-	100.0	212

Year of birth	Dushanbe								N
	14	16	18	20	22	24	25 and above	total	
1954-1956	0.0	0.0	4.8	19.1	47.6	66.7	90.5	100.0	21
1957-1959	0.0	0.0	1.8	10.7	30.4	55.4	89.3	100.0	56
1960-1962	0.0	1.8	5.4	17.9	48.2	64.3	83.9	100.0	56
1963-1965	0.0	0.0	3.3	9.8	31.2	47.5	75.4	100.0	61
1966-1968	0.0	0.0	4.6	21.5	49.2	67.7	90.8	100.0	65
1969-1971	1.3	2.6	11.7	29.9	54.6	70.1	76.6	100.0	77
1972-1974	1.8	1.8	8.8	26.3	45.6	63.2	78.9	100.0	57
1975-1977	3.1	6.3	18.8	31.3	51.6	57.8	-	100.0	64
1978-1980	0.0	1.6	11.5	21.3	44.3	-	-	100.0	61
1981-1983	2.7	4.0	14.7	18.7	-	-	-	100.0	75

Year of birth	RRS								N
	14	16	18	20	22	24	25 and above	total	
1954-1956	0.0	0.0	6.3	18.8	37.5	56.3	84.4	100.0	32
1957-1959	0.0	1.7	6.7	23.3	46.7	61.7	80.0	100.0	60
1960-1962	0.0	1.3	5.2	19.5	52.0	63.7	84.4	100.0	77
1963-1965	0.0	1.3	5.1	20.5	56.4	70.5	87.2	100.0	78
1966-1968	1.3	3.9	6.5	23.4	57.2	68.8	84.4	100.0	77
1969-1971	1.4	4.1	9.5	29.7	64.9	75.7	85.1	100.0	74
1972-1974	1.2	4.6	10.4	36.8	63.2	72.4	79.3	100.0	87
1975-1977	2.8	4.6	21.1	30.3	47.7	58.7	-	100.0	109
1978-1980	3.1	5.5	17.2	32.0	43.0	-	-	100.0	128
1981-1983	0.0	0.6	13.0	17.5	-	-	-	100.0	177

Source: TLSS 2003. Author's calculations.

Table 5 - Cox proportional hazard regressions. Females, born in 1966-1980. TLSS 2003.

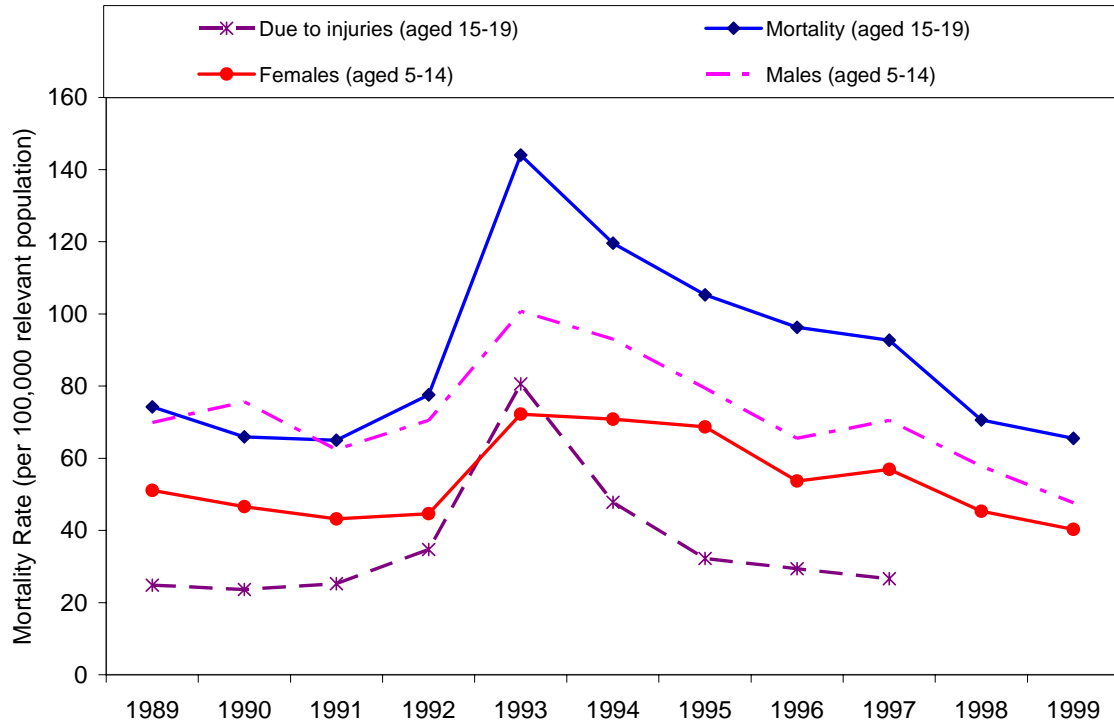
	Dependent variable: time to marriage (entry age =14 years)			
	(1)	(2)	(3)	(4)
War zone(rca)*Born in 1975-1977	1.009 [0.938]		1.009 [0.938]	
War zone(rca)*Born in 1978-1980	1.267* [0.066]		1.267* [0.066]	
War zone(cdd)*Born in 1975-1977		1.158 [0.209]		1.158 [0.209]
War zone(cdd)*Born in 1978-1980		1.436** [0.010]		1.436** [0.010]
Born in 1975-1977	0.904 [0.169]	0.848* [0.060]	0.843** [0.037]	0.792** [0.015]
Born in 1978-1980	0.626*** [0.000]	0.589*** [0.000]	0.583*** [0.000]	0.550*** [0.000]
Born in 1969-1971			0.944 [0.246]	0.937 [0.215]
Born in 1972-1974			0.866** [0.012]	0.877** [0.030]
Observations	2623	2393	2623	2393
Log pseudolikelihood	-16519.59	-15011.71	-16517.28	-15009.96
Wald chi2	41.98	33.86	46.76	36.89

Notes:

Robust p values in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

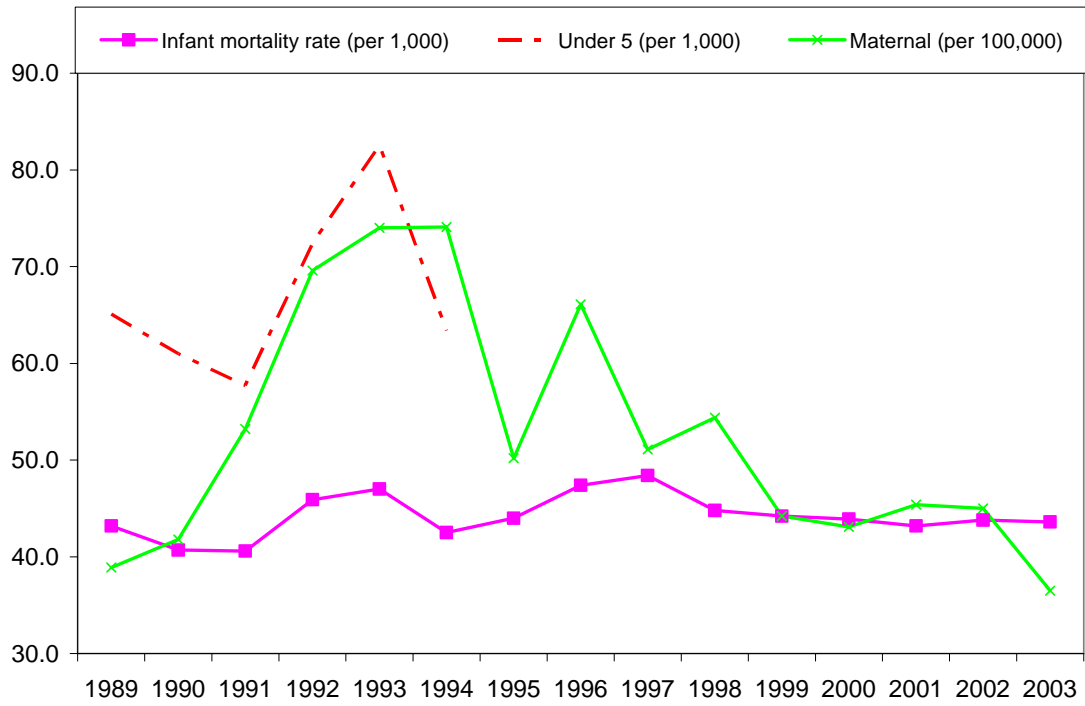
Regressions use clustering at the community (primary sampling unit) level to control for unobserved heterogeneity. Regressions censored for unmarried women. For models (1) and (2) the reference age group is the group “born in 1966-1974”.

Figure 1 - Tajikistan: Mortality Trends among Children and Young Adults, ages 5-19.
1989 – 1999



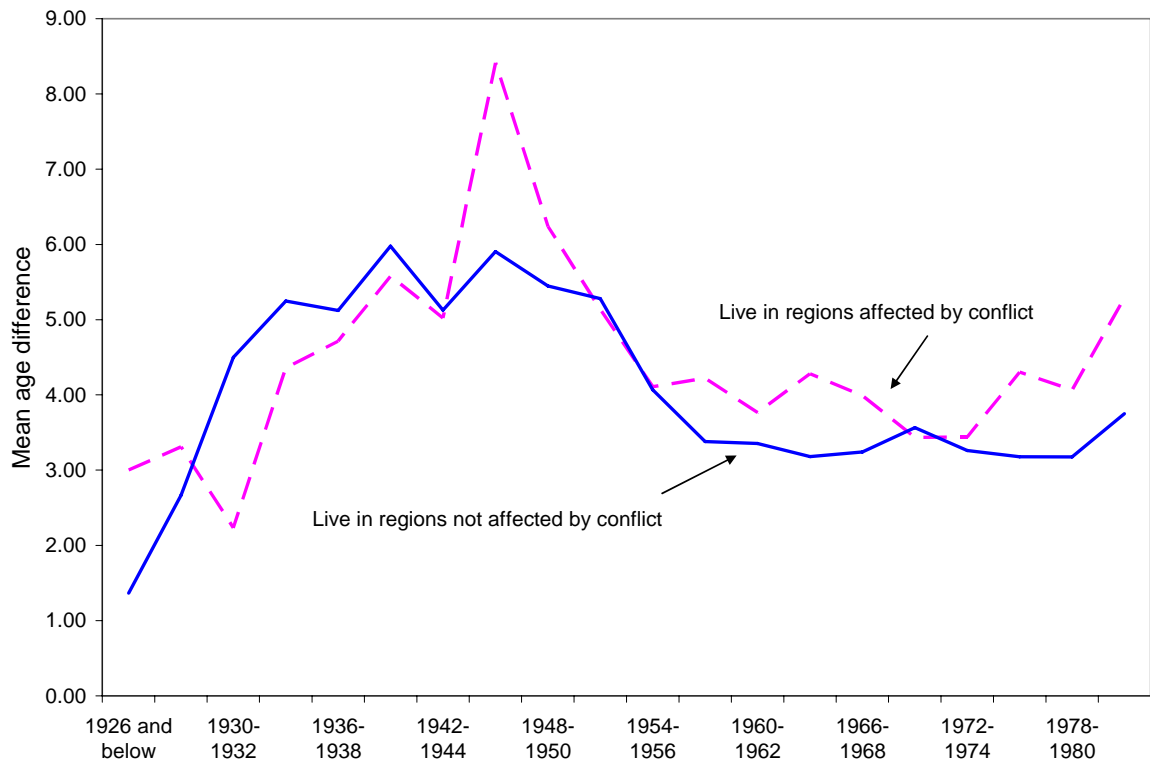
Source: UNDP

Figure 2 - Tajikistan: Maternal and Child Mortality Rate, 1989 – 2003



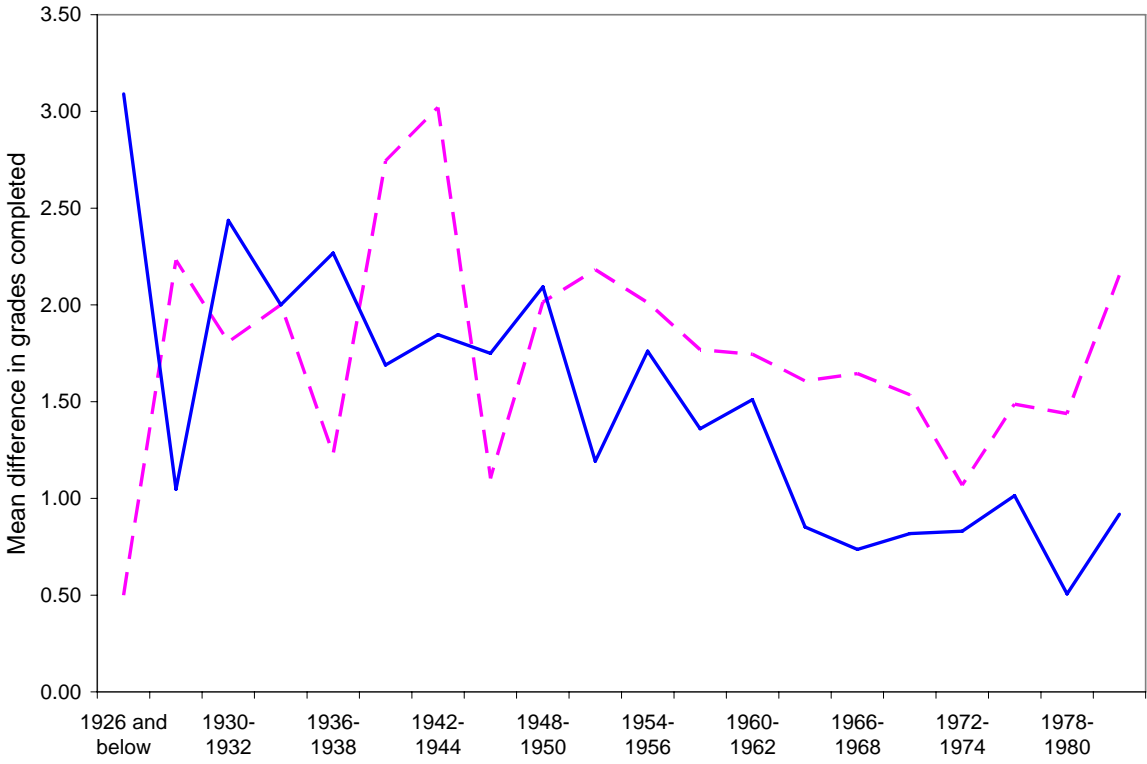
Source: UNICEF 2005.

Figure 3 - Mean age difference between husband and wife, by 3 year cohort of birth and reports of conflict activity



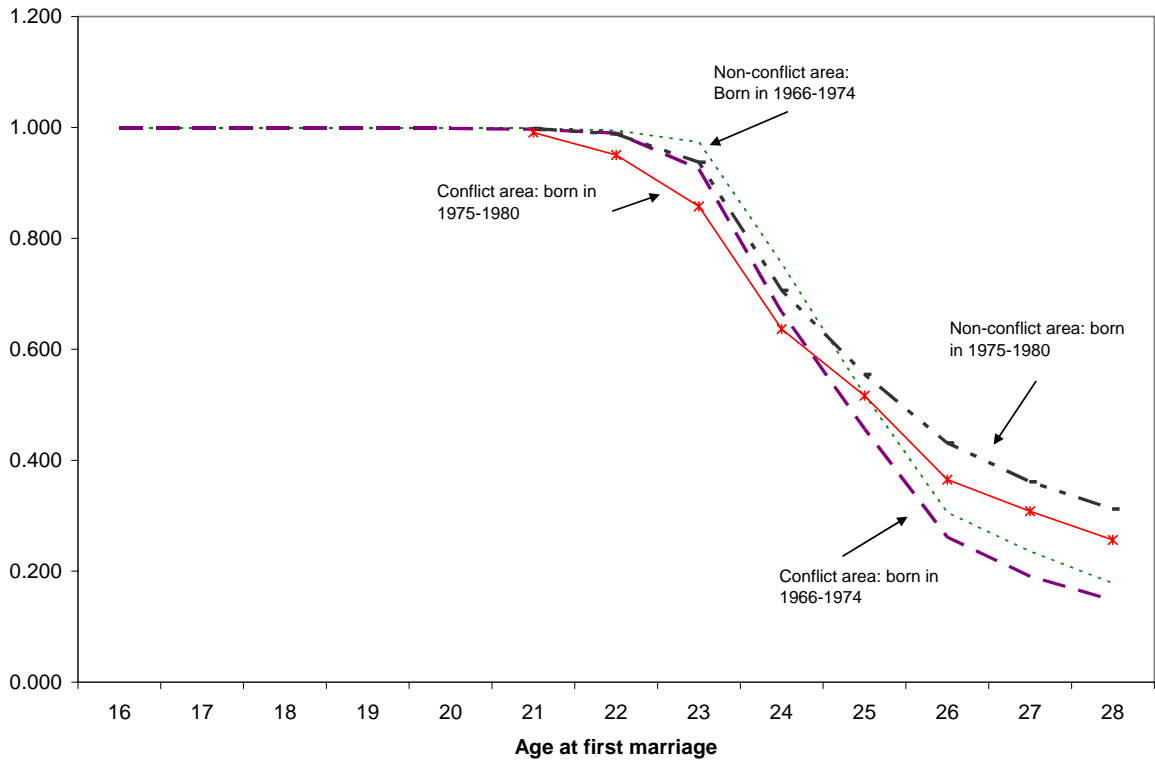
Source: TLSS 2003. Author's calculations.

Figure 4 - Mean difference in years of education completed between husband and wife, by 3 year cohort of birth and reports of conflict activity



Source: TLSS 2003. Author's calculations.

Figure 5 - Kaplan Meier Survival Function estimates for age at first marriage.
 Females born in 1966-1974 vs. born in 1975-1980



Source: TLSS 2003. Author's calculations.