

## Labor Market, Education and Armed Conflict in Tajikistan

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### Abstract:

Shortly following its independence in 1991, Tajikistan suffered a violent civil war. This study explores the effect of this conflict on education and labor market outcomes for men and women. The study uses the 2003 and 2007 Tajik Living Standards Measurement Surveys and employs the regional and cohort-level exposures to the conflict to identify these relationships.

The results suggest that the conflict had a large and lasting impact on education. In the conflict affected regions, women who were of school age during the war are significantly less likely to complete both nine and eleven years of schooling. Thus, the gender inequality in education created during the war, may become permanent. Further, these young women are also more likely to have held a job in the last 14 days. The increased workforce participation among young women signals that creation of new local jobs would be particularly welcomed by women if the government were to pursue industrialization policies.

Conditional on being employed, young men in the conflict affected regions receive higher wages, a premium which could be related to the relative scarcity of men in these regions due to the war and migration.

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## 1. Introduction

While a large number of countries have been affected by a civil war or other forms of armed conflict since 1945, the effect of such shocks on a country's well-being is not clear.

Several studies that investigate the impact of armed conflict on the long-term development of a country find no significant effects (Davis and Weinstein, 2002; Miguel and Roland, forthcoming). In the contrast, studies that focus on the effects of conflict on education and health of birth cohorts that were affected by a conflict find strong negative and lasting effects of armed conflicts (Bundervoet, Verwimp, and Akresh, 2009; Akresh, Verwimp and Bundervoet, forthcoming; Shemyakina, forthcoming; Blattman and Annan, forthcoming). Further, a small literature finds that veterans have significantly lower earnings than those who did not serve in the military (Angrist 1990; Angrist and Krueger 1994; Angrist 1998; Imbens and van der Klaauw 1995). Kondylis (2010), Menon and van der Meulen Rodgers (2010) and Galdo (2010) examine the impact of exposure to armed conflict on the labor market outcomes of the general population in the context of Bosnia-Herzegovina, Nepal and Peru respectively. Kondylis finds that displaced men and women are less likely to be employed as compared to those who did not move. Menon and van der Meulen Rodgers find that married women in conflict affected areas are more likely to participate in the labor market or become self-employed; which can be explained by “the added worker effect” where women increase their labor supply in response to the conflict related displacement, migration and deaths of men. Galdo finds that exposure to the armed conflict early on decreases one's earnings later in life in Peru.

This is one of the first studies to explore the effect of armed conflict on the labor market outcomes of men and women who were of school age or just completed school when the conflict started. In particular, this study examines the effect of the 1992-1998 armed conflict in Tajikistan on the educational attainment and labor market experiences of the birth cohort that was of school age during the conflict and who lived in the more affected areas. The study combines the 2003 and 2007 Tajik Living Standards Surveys data to address this question.

The results suggest that the conflict has a large and long lasting impact on the completion of the nine years of schooling by women who were of school age during the war (henceforth, “war-cohort”) and lived in the conflict affected areas. Further, in the conflict affected regions, women from the war-cohort are also significantly less likely to complete the eleventh grade of schooling and beyond. These results indicating the negative impact of the conflict on education of girls are consistent with findings by Shemyakina (forthcoming).

The regions that were more affected by the conflict are also reported to have become more conservative and thus are not expected to be conducive to a higher rate of employment among young women. However, women from the “war-cohort” in the conflict affected areas are more likely to have been employed in the last 14 days as compared to women of the same age who live in the less affected areas. Conditional on having a job, young men in the conflict affected regions received higher wages. The wage premium could be related to the relative scarcity of men in these regions due to the war and migration. The wages of young women who live in the war-affected regions do not appear to be significantly different from wages of comparable women in the lesser affected regions. If the conflict had a significant and negative impact on the education of women, wages are likely to be affected through the education channel and not at the joint regional and cohort level exposure to conflict.

The present study expands the literature on armed conflict and labor market outcomes by including men and non-married women in the analysis and is most closely related to the study by Menon and van der Meulen Rodgers (2010), supporting their findings of an increased labor supply by ever-married women from the more conflict-affected regions of Nepal. Overall, the current analysis confirms a strong negative effect of armed conflict on the educational attainment of women in Tajikistan.

The next section provides a brief overview of the related literature followed by background information on the Tajik armed conflict. Section 4 describes the data, the key variables, and the empirical identification strategy. The main results are then discussed and the final section concludes.

## **2. Literature Review and Theoretical Expectations**

### **2.1 Recent Literature**

The literature on the gender-level impacts of armed conflicts has been growing in recent years due to improved access to household level data for conflict-affected economies. This section briefly reviews studies that address the effect of armed conflict and large-scale economy-wide disruptions on the education and labor market outcomes of individuals that were either exposed to the conflict as civilians or through participation in the military.

The research on the relationship between armed conflict and education began with an examination of cross-country differences in aggregate enrollment rates in developing and developed countries (Stewart, Huang and Wang 2001). Once individual and household level datasets became available, researchers turned to the examination of the impact of conflict on differences in educational attainment across birth cohorts and regions (Merrouche 2006; Akresh and de Walque 2008; Shemyakina, forthcoming). These studies observe a decline in the education of affected cohorts but do not reach the same conclusions. Akresh and de Walque find that the education of boys from wealthy households suffers due to the genocide in Rwanda, while Shemyakina's analysis indicates that in Tajikistan the impact is stronger for older girls. These studies contemplate that the observed decline in education may be related to school closure, migration and displacement, quality and availability of school facilities and shocks to income and security. The studies also note that the observed decline in education is likely to have a negative impact on the future productivity and wages of affected cohorts.

Two recent studies connect large economic and political shocks to labor market experience and education. Meng and Gregory (2007) investigate the impact of the Chinese Cultural Revolution on the earnings of the cohort who lost a substantial number of years of education due to the Revolution. They find that the earnings of the individuals who did not receive university degrees (but would have if they had been raised during a different period) were about 46-76 percent lower. Blattman and Annan (forthcoming) find that child soldiers in Northern Uganda experience a significant loss of years of labor market experience, which may negatively affect their employment outcomes later on.

The main focus of the literature on armed conflict and labor market outcomes has been on the effects of military service on individual earnings. These studies use conscription rules to control for non-random selection into military service (Angrist 1990; Angrist and Krueger 1994; Angrist 1998; Imbens and van der Klaauw 1995). With respect to outcomes for civilians, Menon and van der Meulen Rodgers (2010) find that married women in conflict affected areas are more likely to participate in the labor market or become self-employed. The authors argue that these results could be explained by “the added worker effect” where women increase their labor supply in response to displacement, migration and deaths of men due to armed conflict. Galdo (2010) finds that exposure to the armed conflict as a child decreases one’s earnings later in life in Peru using difference-in-differences strategies. Menon and van der Meulen Rodgers employ probit and Galdo uses OLS regressions.

## **2.2 Theoretical expectations of the effect of armed conflict on labor market outcomes**

The conflict may affect the labor supply through the several channels. First, if the conflict affected areas were significantly damaged during the war, employment opportunities may also have vanished, increasing the unemployment rate. Killingsworth (1983) discusses two effects associated with high unemployment rates during the business cycle. The first is the “discouraged-worker effect” where the overall labor force participation rate falls partially due to an increase in the amount of working age unemployed people who are not looking for jobs. The second effect is called the “added worker effect” (AWE) where married women enter the labor market when husbands become unemployed.

There is an extensive literature analyzing the AWE in various countries (for example, Lundberg 1985; Finegan and Margo 1994; Fernandes and de Felicio 2005). The AWE is relatively small when studies look at the long-term supply of labor, such as the average hours worked in the previous 12 months. A sizable AWE is usually found in analyses of women’s transition in and out of the labor force in response to the husband’s unemployment in the presence of borrowing constraints. Such studies argue that the labor supply of women adjusts to temporary changes in their husband’s employment and thereby

reduces income, while household consumption responds to permanent changes in income, e.g. persistent unemployment (Lundberg, 1985; Fernandes and de Felicio, 2005).

We may additionally observe gender-differentiated labor market effects in a conflict-affected country. First, if the education of individuals suffers as a result of the conflict, then the cohort whose education is affected by the conflict is likely to have poorer labor market outcomes as well. This group may have fewer years of labor market experience due to war-related disruptions such as military service, a reduction in economic activity in the affected regions, and an increased focus on subsistence agriculture.

Second, the labor force participation rate may increase among women in conflict-affected areas as women have to enter the labor force to substitute for the labor of men who were killed, migrated or in military service. Such effects on the labor supply of women may persist even after the conflict ends (Acemoglu, Autor and Lyle 2004), as women may learn about job opportunities and employment experience changes their preferences regarding work. Conflict-affected areas often also have a disproportionate number of female-headed households. In such households, women may be the main breadwinners.

Third, labor force participation rates and/or wages may be higher among males in the more conflict affected communities. Men of working age who survived and live in the conflict affected areas now demand a higher wage premium due to scarcity of male labor. An increase in wages for men would increase their opportunity cost of leisure and thereby increase labor hours supplied in the market. However, the hypothesized increase in wages for males may have a two-fold impact on the labor hours supplied. A substitution effect may be observed where men exchange leisure for labor (an increase in the participation rate, or number of hours worked). Alternatively, there could be an income effect as well, when men do not have to work as long to earn the same income due to higher wages. If the two effects offset each other, there would be no significant difference in the male labor force participation or hours supplied across the greater and lesser conflict-affected regions. Furthermore, an increase in male wages may be a short-term effect only, as higher wages in the conflict affected areas attract migrants from low wage areas, and the influx would equalize wages across affected and lesser affected areas. Female wages

in the conflict-affected areas may decrease due to an increased supply of female labor. However, if women tend to take on jobs previously filled by men, we should expect to see higher female wages in the conflict affected areas, and lower wages for males in these occupations (Acemoglu et. al. 2004).

Therefore, we may observe a higher number of women and men in the workforce in the conflict affected areas. The entry into the workforce is likely to be higher for younger women with no children at the time the conflict started and who thus were available to take on the jobs vacated by men, however for reasons described above the theoretical effect of the conflict on wages is ambiguous.

### **3. The 1992-1998 armed conflict in Tajikistan<sup>1</sup>**

Soon after its independence in 1991 Tajikistan was afflicted by a violent civil war that started in early 1992 and was followed by a prolonged armed conflict ending in 1998.<sup>2</sup> The cause of the war was a combination of long-standing grievances and perceived opportunities to gain a larger share of the pie that became available once the country was independent. The war led to significant destruction of state and private property. The capital, Dushanbe, and southern regions such as Khatlon and the Regions of Republican Subordination (RRS) were severely affected by the war and the accompanying terror, including assassinations, hostage-taking, rapes, murders and robberies.<sup>3</sup> The government was unable to contain the conflict independently and negotiated for outside political and military assistance, provided by Russia and Uzbekistan from 1992 to 1999.

The 1992-1998 armed conflict took a significant toll on the country's physical infrastructure and destroyed much of its human and social capital. The first year of fighting brought the most damage. According to official government sources, 80 percent of the country's industry was destroyed by the end of 1992. The regional damage was felt more in the south, where 100 percent of industry was destroyed.<sup>4</sup> Agriculture was also severely affected.

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<sup>1</sup> This section heavily relies on Shemyakina (2007).

<sup>2</sup> University of Uppsala Conflict Database. (Accessed: April 2010.)

<sup>3</sup> Based on the "Vechernii Dushanbe" and "Narodnaya Gazeta" news material for 1991-1999.

<sup>4</sup> Nezavisimaja Gazeta, December 23, 1992 (as quoted in Fridman, 1994).

The human costs of the conflict were substantial for the population of Tajikistan. About 10 percent of the population (600,000 people) was displaced internally and another one percent temporarily crossed the border into neighboring states while 500,000 people emigrated permanently (Falkingham 2000). Many displaced persons returned to their places of residence by 1995. The largest loss of life attributed to fighting occurred in 1992-1993 with estimates varying between 50,000 and 100,000 people.

The conflict exacerbated the economic problems that Tajikistan had experienced immediately after the dissolution of the Former Soviet Union (FSU) in 1991. Over the course of the conflict, various military warlords and the government fought over the control of important agricultural and industrial centers, many of which are located in the south. The fighting led to the destruction of infrastructure and disruption of communication and transportation. The mass displacement of people during the first years of the war affected the agricultural and industrial production in the south of Tajikistan leading to shortages of labor in these areas. People who did not migrate were too scared to leave their houses to report for work.

The war and a surge in criminal activity disrupted children's schooling, however the impact differed across regions. Some regions in Tajikistan, such as Khatlon, the Regions of Republican Subordination (RRS) and the country capital Dushanbe, were greatly affected by the conflict, while other regions, such as Sugd and Gorno-Badakshon Autonomous Oblast (GBAO) enjoyed relative stability due to their geographic isolation from the conflict affected areas.<sup>5</sup> In the city of Kurgan-Tube and Kurgan-Tube raion in the Khatlon region the official start of the academic year 1992-1993 was delayed by two months. When the schools were opened in November, many concerned parents kept their children at home. In Dushanbe, the government sent students of professional technical institutions for an extended winter holiday from November 13, 1992 to February 1<sup>st</sup>, 1993, motivated by the low attendance of students and teachers due to the unstable situation in the capital.<sup>6</sup>

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<sup>5</sup> Leninobod region is connected to the rest of Tajikistan by a narrow road that is easy to block. The pass was blocked during the war. GBAO is located in a mountainous area which is difficult to access.

<sup>6</sup> Narodnaya Gazeta, Nov. 13, 1992 and Jan. 23, 1993.



Apart from closures, many schools suffered extensive physical damage. Approximately 20 percent of schools in Tajikistan were destroyed beyond repair during the conflict and many teachers fled war affected areas (IMF 1998).

The perceived and sometimes actual danger to children was high in conflict areas. For example, parents from Gharm raion located in the RRS region worried that older girls would be harassed or abused by soldiers at checkpoints on their way to school. In Western Khatlon children of Gharmi and Pamiri origins reported fears of physical violence and of being beaten by other children as the main reason for skipping school (Falkingham 2000).<sup>7</sup> In Dushanbe alone, two separate incidents of attempted hostage taking were registered in schools and colleges in October of 1992.<sup>8</sup> In some areas, older women were also more likely to travel to market as they had better chances to pass through security checkpoints without serious trouble as compared to men who were afraid to leave their villages (Gomart, 2003).

#### **4. Data, Main Variables and Identification Strategy**

##### **4.1 Data**

This study is based on the 2003 and 2007 Living Standards Measurement Study (LSMS) surveys for Tajikistan which are nationally representative surveys of households and communities. The sample frame uses a two-stage method based on the 2000 Census of Tajikistan. The questionnaire designs for 2003 and 2007 surveys are comparable, with the 2007 survey including more information on work, migration of household members and education of the parents or adults. The 2007 survey was prepared by the World Bank in collaboration with UNICEF and carried out by the National Committee for Statistics (Goskomstat).

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<sup>7</sup> Pamiri and Gharmi ethnic groups or clans were strongly associated with supporting opposition forces. During the war, adults whose passports indicated that they were born in Pamir or Garm regions were killed or taken away by Narodnii Front or government associated militias and disappeared. Human Rights Watch (1994) reports that in late December 1992 Narodnii Front militias killed 300 people and took away hundreds of people in Dushanbe (unfortunately the data used in this paper do not allow for identification of various ethnic groups and clans in Tajikistan).

<sup>8</sup> Narodnaya Gazeta, Oct. 15, 1992 and Oct. 16, 1992.

The surveys include data on the household consumption of a wide range of food and non-food items; the socio-demographic composition of the household; labor market activities, such as participation in the labor force during the last 14 days and number of hours worked; the health and education of household members; sources of household income such as individual wages, both cash and in-kind; and transfers to the household from various sources. The 2007 data contain extensive information on the migration of individual household members, including those who are currently present or away, as well as remittances and transfers, such as inter-household and government transfers. The surveys differentiate between main and secondary jobs.

The analysis of labor force participation is based on a sub-sample of 4,531 households with information on 9,987 prime-age men and women (ages 17-60 in 2007) in the 2007 TLSS. Labor force participation is hereby defined as having been employed in the last 14 days. The analysis of wages is based on monetary and in-kind wages received by an individual from the occupation in which an individual was employed the longest number of hours. Data from the 2003 TLSS are used in the analysis of education and to compare trends in education between 2003 and 2007.

#### **4.2 Main conflict variables**

As discussed above, geographical exposure to the conflict differed significantly. The southern and eastern regions, such as Khatlon and the Raions of Republican Subordination (RRS) and the country capital Dushanbe were severely affected by the conflict over a long period of time. These regions suffered from repeated clashes between the government and the opposition, or were subjected to the occupation by various factions participating in the conflict over several years. To better triangulate the impact of the conflict on the population, this study employs two conflict variables. The first variable is based on the question in the 1999 TLSS survey “was your household’s dwelling damaged during the conflict?”. 136 households reported damage to their dwellings in the TLSS 1999 data (6.8 percent of the sample of 2,000 households). I aggregate this variable at the raion level for the 1999 data and use raion level identifiers in

the 2003 TLSS to match the war damage reported in the 1999 TLSS to the 2003 TLSS data. In the rest of the paper, this variable is referred to as “damage to dwellings in a community” or its abbreviation CDD.

The second variable is based on a compilation of some of the events related to the conflict. To identify these events and their geographical locations, I used the main Tajik newspapers for 1991-1999, and books and reports about the conflict. I identified the names of villages, cities and raions and matched the conflict data at the raion level. The raion level data was then converted into a binary variable with “1” denoting high exposure to the conflict and “0” denoting lower exposure. I use this dummy variable and not the count data on the number of incidents reported in various studies as the accounts of the conflict are incomplete by nature and many events may have gone unreported because they occurred in smaller villages not covered in the main newspapers or not accessible to foreign correspondents or NGO personnel. Henceforth, this variable will be referred to as Reports of Conflict Activity (RCA).

The CDD and RCA variables are given at the raion level. The weakness of the CDD variable is that not all village, city and raion names from the 1999 survey could be matched to raions listed in the 2003 and 2007 survey data. The use of two different ways to measure the exposure to armed conflict makes the analysis more robust.

### 4.3 Identification strategy

The study examines the impact of the 1992-1998 conflict in Tajikistan on education, labor market participation, and wages of men and women who were of school age during the war. For this analysis I employ a difference in differences strategy. To identify an individual's exposure to the conflict during their schooling years their education and labor market outcomes are linked to the war damage variables at the district (*raion*) level. Equation (1) is specified as follows:

$$(1) \quad S_{ijk} = \alpha_{1j} + \beta_{1k} + (P_j K_i) \gamma_2 + \delta * C_i + \varepsilon_{ijk}$$

where the dependent variable  $S_{ijk}$  denotes educational attainment or a specific labor market outcome.

Subscripts on the dependent variable denote individual  $i$  residing in the raion  $j$  and born in year  $k$ .  $\alpha_{1j}$  is a

fixed effect for the individual's region of residence in 1992.  $\beta_{lk}$  is a cohort of birth fixed effect.  $P_j$  is the intensity of the conflict in the district of residence during schooling/ early adulthood.  $K_i$  is a dummy variable indicating whether the individual  $i$  belongs to the young "exposed" cohort. In the analysis of education,  $C_i$  is a vector of individual-specific characteristics, such as the education of parents, ethnicity and rural residence. In the analysis of labor market outcomes,  $C_i$  includes variables controlling for an individual's educational attainment, marital status, household composition and access to land, rural residence, non-labor income, migration and employment of household members.

I compare the educational attainment of two groups. The first consists of adults whose mandatory schooling was completed before the war started (born 1966-1973). The second group contains individuals who were of school age or relatively young during the war ("exposed" cohort - born 1976-1985). The latter group is then sub-divided into two subgroups where one of the subgroups lived in the areas highly affected by the conflict (the main group of interest) and the second subgroup lived in the lesser affected areas.

The sample for the analysis of labor market outcomes is limited to those who were 22-49 year old in 2007. This age group is the most economically active. The "exposed cohort" in the labor market analysis is restricted to those born between 1970-1985 and thus also includes individuals whose early labor market experiences may have been disrupted by the war. The comparison group is set to those born in 1958-1969.

The analysis is performed separately for men and women as factors driving their educational and employment experiences are very different in Tajikistan. In Equation (1) the main coefficient of interest is  $\gamma_2$ , or the interaction between the dummy variables for being of school age during the conflict and also living in the areas highly affected by conflict. By comparing the estimated coefficients for men and women it is possible to establish the gender specific impact of exposure to the conflict, while a comparison of the coefficients across cohorts shows the cohort-specific impact. For example, the estimated coefficient on the cohort term will demonstrate whether the younger cohort achieved less education than the older cohort or whether the cohort is more likely to be employed.

The correct estimation of Equation 1 is based on the following assumptions. First, in the absence of conflict activity in the exposed regions, all raions had a similar time trend and would have all been on the same time trend after 1992 if the civil war had not occurred (parallel trend assumption). Second, there are no omitted time-varying and region specific effects correlated with the regional conflict measures. The estimation strategy also controls for fixed effects at the raion level which makes it possible to control for a set of raion specific factors that are the same for all individuals. Note that each raion includes one or more primary sampling units (psu), and this allows me to include in the regression analysis variables that vary at the raion level such as rural residence and a proportion of households in the primary sampling unit that have migrants.

## **5. Results**

### **5.1 Education**

#### **Basic trends**

I start my analysis of the effect of conflict on education with an examination of basic trends in the completion of number of grades of schooling by cohorts who were of school-age during the war (aged 2-16 in 1992) and cohorts who should have completed their mandatory school education before the conflict started. The education of the “young” cohort may have been affected by various disruptions associated with the conflict, such as lack of school facilities and teachers, decrease in household income, uncertainty and insecurity associated with the conflict.

Figures 1a, 1b and 2 show the differences in educational attainment (years of education) for women and men in Tajikistan for 2003 (Fig. 1a and 1b) and 2007 (Fig. 2). The solid lines represent the average educational attainment by individuals who lived in the regions not significantly affected by the war (mostly in Sugd and GBAO) while the dashed line represents the average educational attainment by cohorts of individuals who lived in the more conflict affected regions (mostly in Dushanbe, Khatlon and RRS). Figures 1a and 1b indicate that the younger cohort of women in the conflict affected regions (based

on two different measures of conflict) has received fewer years of schooling than women in the same age group in the lesser affected regions.

Figure 2 presents longer-term evidence of the effect of the conflict on education. It can be seen that women from the war-cohort in the affected regions on average completed about 0.59 (capped at 11 years maximum)<sup>9</sup> fewer years of schooling than women of the same age group living in less affected regions. The gap in education between the more and less conflict affected areas is greater for the younger cohorts (aged 2-16 in 1992) than the gap for women who were aged 18-34 in 1992 and who should have completed their schooling before the conflict started. Also, individuals from the younger, post-war cohort (aged -6 to 2 year olds in 1992 to 17 year olds in 2007) in the war affected regions completed fewer years of schooling than their peers. However, this cohort was still of school age in 2007 and may not have completed their education.

### **Regression results**

The educational attainment in the 2003 TLSS data is given by the number of years completed and in the 2007 TLSS by the levels of schooling completed. In the regression analysis that follows, I use the number of grades (on the scale of 0-11) from the 2003 data to determine the years of education lost due to the conflict. Then, I continue with the analysis of the 2007 TLSS data, using two binary dependent variables: “completion of nine grades or more” and “completion of 11 grades or more”.

Table 1 presents regression results using the 2003 data where the dependent variable is the number of grades completed, capped at 11 years since not all individuals in the dataset were old enough to go on with schooling beyond secondary. Thus, using the actual number of years of education completed will lead to overestimation of the impact of conflict on the education of the younger cohort. The regression results indicate that men and women who were of school age during the war or those born

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<sup>9</sup> The educational attainment in the 2007 TLSS data is given in levels, not as an actual number of grades completed. Therefore, I use “completion of nine grades or more” and “completion of 11 grades or more” as the two binary dependent variables.

in 1976-1985, completed about 0.5 and 0.2 fewer years of schooling as compared to the older cohort. Further, women from this cohort who also lived in the more conflict affected regions completed about 0.37 (using CDD measure of conflict) and 0.46 (using RCA measure of conflict) fewer years of education than women from the same age group who lived in the lesser affected areas. Both results are significant at the 5% level. Men from the war-cohort in the conflict affected regions completed 0.138 years of schooling less than these in the lesser affected regions (the result though is not statistically significant).

Table 2 reports results of regressions using the 2007 TLSS data that control for an individual's ethnicity and rural residence. All regressions include fixed effects at the raion level and are estimated with robust standard errors. The results from these regressions provide a longer-term perspective of the effect of the conflict on schooling as the 2007 data were collected about nine years after the end of the war in 1998. Two dependent variables are being used. The first dependent variable is equal to one if an individual completed at least nine years of schooling and the second is equal to one if an individual completed at least 11 years of schooling (zero otherwise). Looking at these two levels of completion separately allows us to understand at what level of education the conflict has the most impact. Further, using the completion of nine grades of schooling allows the comparison of the results to Shemyakina (forthcoming) who analyzes the same variable using the 2003 data. I am also able to evaluate whether the cohort that was of school age during the war was able to catch up on the years of schooling they missed between 2003 and 2007. The analysis here includes an individual's ethnicity and the education levels of mother and father available for the 2007 data. The main coefficient of interest is the one estimated on the interaction between the war cohort dummy (born in 1976-1985) and living in an area more affected by the conflict.

The regression results (Table 2, Col. 5 and 6) suggest that women from the war cohort and who lived in the affected regions are about four percentage points less likely (significant at 5% level) to complete at least nine years of mandatory schooling as compared to women of the same age who live in the lesser affected areas. The coefficient on the stand-alone "war-cohort" dummy is not significant in any of the regressions (Table 2, Col. 1, 2, 5 and 6), which indicates that between 2003 and 2007, individuals

from the “war-cohort” are able to catch-up on the years of schooling lost during the conflict, by possibly staying in school longer or coming back to complete at least nine mandatory years of education.

Looking at the effects of the conflict on the chances of completion of 11 grades of schooling, (Table 2, col. 7 and 8) women from the war-cohort who lived in the more conflict-affected areas are about 8.6 (ethnicity controls) and 7.3 (also including controls for education of parents) percentage points less likely to complete 11 grades of schooling as compared to women of the similar age from the lesser affected areas. Further, women from the “war-cohort” (Table 2, col. 7 and 8) are about 5.8 (ethnicity controls) and 10.8 (education of parents controls) percentage points less likely to complete the 11 grades of schooling as compared to women who were 18 years and older when the conflict started. No negative consistent effect is found on the education of men. In Table 2, Col. 3, the effect of being of school age during the war translates to a 5.5 percentage points (significant at 5% level) lower chances of men completing 11 grades of schooling. However, this effect turns insignificant when controls for the education of a man’s parents are added to the regressions (Table 2, Col. 4).

Other variables of interest include residence in a rural region and the education level of their parents. An increase in the mother’s or father’s educational attainment is associated with higher school completion rates for women. For men, an increase in their father’s education has a positive impact on their school completion, however, none of the dummy variables controlling for the educational attainment of a man’s father are statistically significant by themselves. Taken as a group, the estimated coefficients on the dummies for the educational attainment by parents of women are statistically significant at 1% level for the completion of 9 or 11 grades of schooling (Table 2, Col. 6 and 8). For men, the education of their parents has a significant impact on the completion of 11 grades of schooling (Table 2, Col. 4). The ethnicity dummies taken as a group have a significant impact on the completion of 9 and 11 grades by men (Col. 1 and 3), and 11 grades by women (Col. 7). However, the effect of ethnic group is robust to the inclusion of parental education dummies only in the regressions for women (Col. 8).

I also estimated the same regression models for the larger sample, adding to the control group these born in the 1958-1965. The results (not reported) are very similar to those shown in Table 2. The



estimated coefficients on the interaction terms are slightly larger in absolute value (significant at the 5% level) in the regressions for women, suggesting that the results reported in Table 2 provide us with a conservative estimate of the effect of this conflict on education.

## **5.2 Labor market**

### **Basic statistics**

My further analysis focuses on the labor market participation of individuals aged 22-49 in 2007. This group has a labor market participation rate of 54.5 percent as compared to 45.5 percent for those aged 16-65. On average, 60.5 percent of men and 33.7 percent of women aged 16-60 in 2007 were working in the past 14 days in 2007. Respondents aged 22-49 made up the largest share of workers, with a 73.6 percent participation rate for men and 38.0 percent for women. Work participation declines with age for both men and women.

The 22-49 age group consists of active labor market participants who are significantly less likely to be in school than those aged 16-21 and are less likely to be retired than those aged 50 to 65.<sup>10</sup> Thus, I define as the primary working age group age 22-49 and focus on this group in further analysis of the labor market. The sample statistics are reported in Appendix Table 1.

Table 3a report individual's work status in the last 14 days and Table 3b reports reasons for not working in the past 30 days for those aged 22-49 in 2007.<sup>11</sup> The proportion of working individuals is greater among the older cohorts, both men and women. 46.7% of women and 81.8% men born in 1958-1969 were employed in the last 14 days as compared to 33.5% of women and 69% of men from the younger birth cohorts (born in 1970-1985). Among employed individuals, the distribution of type of employment across categories was similar across cohorts for men and women respectively. The distribution of women and men across work categories differed, where 36.6% of employed women report

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<sup>10</sup>Among those aged 16-21, 51.6% report studying as the primary reason for not working. For those aged 22-49 this category is only 5.6%. On the upper age range, 44.0% of individuals aged 50 and above report being "retired" as one of the primary reasons for non-working, while this category amounts only to 1% among the age group 22-49.

<sup>11</sup> There is a discrepancy in the survey where the question on having worked is asked for a period of 14 days and the question on reasons for not being employed is asked for the last 30 days.

working on a farm owned by self/or a household member and only 20.3% of men. Men were more likely to report working on an own account or for a business owned by a household member, 27.7% for men vs. 12.6% of women. A small number of men and women had occasional jobs or were on a leave from their permanent job.

Among reasons for not working (Table 3b), the proportion of discouraged<sup>12</sup> workers was greater for the younger cohort, both men and women, while older men and women were slightly more likely to report that they are not working because they were “Not in the labor force”.

The distribution of employed and non-employed individuals is similar for men in areas that reported conflict activity (RCA) or not. A higher proportion of older (born in 1958-1969) women in the lesser affected areas were working as compared to women in the more affected areas: 53.2 % vs. 43.7% on average. In contrast to the older cohort, young women in the conflict affected areas were slightly more likely to be employed than women in the lesser affected areas.

In conflict affected areas about 45.1% of younger males report that they do not work because they are not in the labor force as compared to 35.8% of younger males in less affected areas (Table 4a). Younger males in the conflict affected areas are more likely than older males in the same region to report that they are “discouraged workers”: 29.9% vs. 22.3% respectively.

## **Regression results**

Table 5 presents results from the linear probability regressions where the dependent variable is a binary variable equal to one if an individual reported to have worked in the last 14 days and 0 if not.<sup>13</sup> The analytical sample consists of individuals born in 1958-1985. The main independent variables of interest are the interactions of the residence in the war-affected region (RCA=1) with a birth cohort dummy that is

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<sup>12</sup> The “discouraged worker” category includes two sub-groups, with 6.05% who reported that they “believe I do not have a chance to find a job” and 93.95% who said that there are “no jobs”.

<sup>13</sup> Another possible model choice would be a logit or a probit regression. I estimated the models above using probit specifications and the results are very similar to the results reported in this study.

equal to one for those born in 1970-1985.<sup>14</sup> The regressions include controls for an individual's marital status, ethnicity, education, a full set of birth cohort dummies, a set of household composition variables, non-labor income and access to land. All regressions include fixed effects at the raion level.

The estimated coefficient on the interaction term between the dummy for "born in 1970-1985" and residence in the war affected region is positive and statistically significant for women. These women were about 11.0 percentage points (significant at 1% level) more likely to have had a job in the last 14 days than women of the same age who lived in the lesser affected region (Table 5, col. 4). The interaction term remains similar in size and significance level when a set of various controls are added to the regressions (Table 5, col. 5 and 6). This result supports the hypothesis of a potential substitution of female for male labor in the conflict affected regions. These young women might have entered the labor market during or soon after the conflict and remained in the workforce.

Other coefficients of interest have the expected signs. The probability of employment increases with age. On average, men and women from the younger birth cohorts (1970-1985) are less likely to be employed, which is consistent with a relatively large proportion of this group reporting that they are still in school. An increase in education significantly increases chances of employment for men and women, and the estimated coefficient is greater for women. Married men/women are more/less likely to work. Russian women are 22.7 percentage points more likely to have had a job in the last 14 days (significant at 5% level). Women from larger households are significantly less likely to hold a job.

The household's composition has a strong negative effect on the employment of women, while an increase in the number of dependents (children 0-15 and adults 65 and above) increases chances of employment for men. Non-wage income<sup>15</sup> that includes old-age pensions and scholarships has a negative impact on employment of males (significant at 5%), but no significant effect on the employment of women.

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<sup>14</sup> I also performed a set of regressions with a full set of interactions of the war dummy with all birth cohort dummies (born in 1965-1969, 1970-1975, 1976-1980 and 1981-1985). The interaction terms were significant and close in magnitude for the cohorts born in 1970-1985 (Results not reported).

<sup>15</sup> Non-wage income is calculated as in Lokshin and Glinskaya (2009: page 493, footnote 9).

Land ownership increases the employment of both males and females. An increase in the area of a land plot available to a household increases an individual's chances of employment in the last 14 days. The coefficients are almost twice as high for women as compared to men in the households that have access to own and rental land of "11-20" and "21 and above" sotkas.<sup>16</sup>

### **Robustness checks**

In Tables 6-8 I test whether the results on the interaction term that are reported above could be attributed to the added worker effect at the household-level, in particular, whether migration or unemployment of other household members had a significant impact on the labor force participation of men and women.

Table 6 is estimated for the full analytical sample. In addition to individual and household-level covariates that appear in the base regressions presented in Table 5, the regression models in Table 6 sequentially include variables that control for migration of other household members. These variables are a dummy for a household having a migrant who is currently abroad, a proportion of households in the primary sampling unit that have migrants, and a dummy variable for a household receiving remittances from household members and other relatives. The coefficients on the interaction terms between the birth cohort and residence in the conflict affected region remain robust to inclusion of migration and remittance dummy variables in the regressions for men and women, with women's labor supply remaining higher for the war-cohorts in the more affected areas. A migrant in a household (Table 6, Col. 1 and 4) reduces the labor force participation by 6.6 and 3.9 percentage points for men and women respectively. The receipt of remittances from household members (Table 6, Col 3 and 6) reduces labor force participation of men by 8.1 and women by 4.4 percentage points.

In Table 7, I evaluate the effect of having an unemployed household head on the labor market participation of other household members. The estimated coefficients on the dummy variable for non-

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<sup>16</sup> Sotka is "a Russian name for the *are*, a metric unit of area equal to 100 square meters. This unit is commonly used to state the areas of small tracts of land. One sotka is approximately 1076.4 square feet, 119.60 square yards, or 0.02471 [acre](http://www.unc.edu/~rowlett/units/dictS.html)." <http://www.unc.edu/~rowlett/units/dictS.html> (Accessed: October 11, 2010.)

employment of the household head are positive for women and negative for men. However, both coefficients are not statistically significant.

In Table 8, I test the effect of a spouse's labor market status (or his/her absence) on the employment of currently married individuals.<sup>17</sup> I use two dummy variables: "spouse not currently in the household" that includes a category for spouse migrated for work and "spouse did not work in the last 14 days". The estimated coefficient on the spouse's absence is negative and statistically significant in the regressions for men, and positive but not significant in the regression for women. The last result suggests a weak added worker effect (AWE).

I also tested the effect of having relatively fewer males as compared to women in the working age group on labor market participation. For this test, I used two raion-level sex ratios of men to women for 1989. The first ratio is for the age group 20-49 and the second one includes ages 15 to 64.<sup>18</sup> The linear probability regressions are estimated with robust standard errors that control for heterogeneity at the raion level.<sup>19</sup> The estimated coefficient on the sex ratio for the 20-49 year olds has a positive impact on the employment by men and women in 2007, but is significant only in the regressions for the sample of men (Appendix Table 2), suggesting that an increase in the number of men relative to women prior to war has a positive and significant effect on the labor force participation of men. To control for effects that are common for individuals living in the same community, I cluster standard errors at the raion level instead of using raion-level fixed effects.

Thus, the women from the war-cohort who also lived in the war affected regions in 1992 are more likely to be employed in 2007. These results are robust to the use of alternative subsamples and controls for migration of household members, unemployment of the household head, and absence of a spouse from a household. These results indicate that young women, who received fewer years of schooling as a result of the war, surprisingly are more likely to be employed in 2007. This higher workforce participation by

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<sup>17</sup> The sample excludes individuals who said that they are currently separated. Including these individuals in the analysis makes the results stronger.

<sup>18</sup> The age groups cut-off points are based on the cut-offs for the population numbers published by the State Statistical Committee of Tajikistan and based on the 1989 Census.

<sup>19</sup> Clustering standard errors at the raion-level allows me to keep raion-level sex-ratio variables in the regressions.

women in the regions that had a deficit of males is consistent with findings by Acemoglu et al. (2004) and Menon and van der Meulen Rodgers (2010).

### *Wages and Conflict*

Next, I turn to the evaluation of the effect of conflict on wages. Table 9 presents results from Tobit regressions with raion-level random effects.<sup>20</sup> The dependent variable is the natural logarithm of an individual's monetary and in-kind wages from his or her main occupation (the occupation where the individual reported the highest number of hours worked in the last 30 days). The independent variables include the interaction term, the full set of birth cohort dummies, rural residence and education. The estimated coefficient on the interaction term is positive and statistically significant at the 5% level in the regressions for males (column 1), suggesting that younger males in the conflict-affected areas earn more than men of the same age in the lesser affected areas.<sup>21</sup> The result supports the hypothesis that males and especially younger males in the conflict affected areas receive a wage-premium that may be attributed to a possible deficit of males in the conflict affected areas due to death or migration. The estimated coefficients on the birth cohort terms for men are negative and statistically significant, with younger males receiving lower wages possibly due to their lower work experience. The cohort-wage profile for women appears to be flat, with older or younger women receiving wages that are not different from each other. Also women who live in the regions more affected by conflict do not receive higher wages than those from the lesser affected areas.

As expected individuals in the rural areas earn significantly less than urban dwellers and the effect is particularly strong for women. The estimated coefficient on the proportion of households in a primary sampling unit that have a migrant has a large and negative impact on the wages of men and women (significant at the 10% level).

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<sup>20</sup> Tobit regressions estimated with robust standard errors clustered at the raion level provide similar results.

<sup>21</sup> I find similar effects using an individual's current place of residence in the region that was more affected by the conflict.

### **4.3 Potential pathways of the effect of conflict**

The results reported above confirm the findings from earlier studies that women from younger cohorts in the conflict affected areas of Tajikistan lost years of education during the conflict (Shemyakina, forthcoming). However, the results also indicate that there was a partial catch-up in the completion of nine grades of schooling by men and women from the war-affected cohorts. Further, the present study also finds that women from younger cohorts were also more likely to hold a job in the last 14 days as compared to women of the same age who lived in the lesser affected areas. These results are observed nine years after the end of the war.

Why are the young women in the conflict affected areas more likely to be employed than older women in the same region or younger women who live in less affected regions? First, young women may have been drawn into the labor force during the conflict to replace the labor of men who were either dead, fighting or absent. As the data suggest, these women remained in the labor force as of 2007, consistent with the findings of Finegan and Margo (1994) and Acemoglu et al. (2004). Finegan and Margo documented long-term attachment to the labor force among married women and infrequent transitions in and out of labor force in post-WWII United States.

Second, a recent study found that women from younger cohorts in the conflict affected areas of Tajikistan were more likely to get married at a later age than women from less affected areas (Shemyakina 2007). It is possible that the expectation of a delayed or potentially no marriage by younger women in the conflict affected areas induced these women to enter the labor market. These women expected to have to support themselves (and possibly their families) for a longer period of time than women in less affected areas that expected or actually got married earlier. However, marital status alone does not fully explain the increased entry in the labor market. The regression models above control for marital status and married women are less likely to work. The sex ratio does not have a significant impact on female employment or wages.

If women entered the labor market to replace men, did they actually take jobs that were previously filled by men? Unfortunately, it is difficult to evaluate this claim as we do not have access to

data on the pre-war distribution of employment of males and females across industries. It is likely that a comparison of pre-and post- war employment rates of males and females by industry would provide us with a distorted view anyway. Possible differences (if found) could not be entirely attributed to shifts in male and female employment, but rather to the destruction of various industries. Further, if women entered “male” occupations, we should expect female wages to be higher in the more affected regions. However, the results presented above do not indicate that female wages differ across regions or birth cohorts.

The top industries where men and women found employment in 2007 demonstrate that women tend to work in “female” and men in “male” occupations (Appendix Table 3). On average, the top three industries, with about 60% of total male employment, for men are “Agriculture, hunting, forestry” (29.4%); “Sale, maintenance and repair of motor vehicles and motorcycles, retail sales of automotive fuel” (16.5%) and “Construction” (14.4%). For women, the top three industries of employment are “Agriculture” (53.0%), “Education” (14.4%) and “Sale, maintenance and repair of motor vehicles and motorcycles, retail sales of automotive fuel” (8.1%), with about 76% of female employment.

If we look at employment by industry and cohort, then we can see that women and men from younger cohorts in the more affected areas are more likely to work in agriculture than older cohorts who live in the same areas. This could be a reflection of the lower labor market skills of such individuals or an absence of jobs in the industries in these regions. Males in the conflict affected areas work in a wider range of industries (37 reported as the main industries of employment) than men in the lesser affected areas (27 industries reported).

There is a consistent pattern in the choice of occupations by men and women in the areas more and less affected by the conflict (Appendix Tables 4.1 and 4.2). The top three occupations reported by women are “market gardeners” (46.5%), “stall and market sales people” (6.0%) and secondary education professionals (6.4%). The top three occupations for men are “market gardeners”, “building finishers” and “unskilled workers”. Women are more likely to be employed as educators or nurses and midwives than men. Men are more likely to be employed as legislators and senior officials, motor vehicle drivers, and



construction workers than women. Overall, women are more likely to work in “female” occupations and men in “male” occupations. However, women and men from younger age groups in the conflict affected areas are more likely to work in agricultural professions than older cohorts in the same region. Again, this effect could be related to potentially lower skills and employability of younger individuals.

## **6. Discussion and Conclusion**

The present study uses data from the 2003 and 2007 TLSS surveys to evaluate the gender level impacts of the 1992-1998 armed conflict in Tajikistan on education and labor market outcomes. The analysis of labor market outcomes focuses on those aged 22-49 in 2007. The results of OLS regressions suggest that residence in the region more affected by conflict during an individual’s youth had a significant negative impact on the educational attainment of women. These women are also more likely to participate in the labor market, but their wages are not different from the wages earned by the rest of the sample. Young men in the affected regions, however, earn higher wages, which supports the “male” scarcity hypothesis or that men will be paid higher wages if the males are less likely to be found for typically male jobs. Young males were less likely to be employed in the last 14 days, which may indicate that the income effect from higher wages dominated the substitution effect of leisure for labor.

The results are robust to alternative specifications and the inclusion of additional household and community controls that purport to have a significant impact on employment, such as migration and remittances and the employment status of household heads and spouses. Men’s labor supply is more responsive to changes in non-labor income than female labor supply. The last result could also be attributed to a “persistence” factor. It is possible that entry into the labor force is rather costly. The main share of the cost is not necessarily in terms of money or investment in acquiring education (as younger women received lower education in the conflict affected areas) but the intrinsic cost of adjusting to employment. Anecdotal evidence suggests that there is relatively little socialization among young women in Tajikistan once they stop attending schooling. Thus, employment may provide an avenue for such

socialization, an extra income and a break from the drudgery of housework. An employment during the time of war may also have provided women with a valuable labor market experience that helps them to keep their job (although not with a higher income). While the maintaining employment is good for a female autonomy, lower wages traditionally received by women and lower education indicate that women are not necessarily getting the best outcomes.

What are the implications of the higher female employment? On the positive side, we should observe greater female empowerment, financial independence and an acquisition of labor market experience. On the negative side, when women are at work, who is watching their children? It is likely that older girls in the household are required to stay home away from school and take care of their younger siblings. Such girls may drop out of school or have a poor performance in school. Thus, the gender inequality in education created during the war, may become permanent in the regions more affected by the conflict.

The results have important policy implications. The increased workforce participation among younger women signals that they would positively respond to new employment opportunities if the government were to invest in industrial development policies. The creation of new local jobs would be particularly welcomed by women as they are significantly less geographically mobile than men due to societal constraints.

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Fig.1.a – Average grades completed, (0-11) by gender, born in 1946-1990, by RCA. Data source: TLSS 2003.

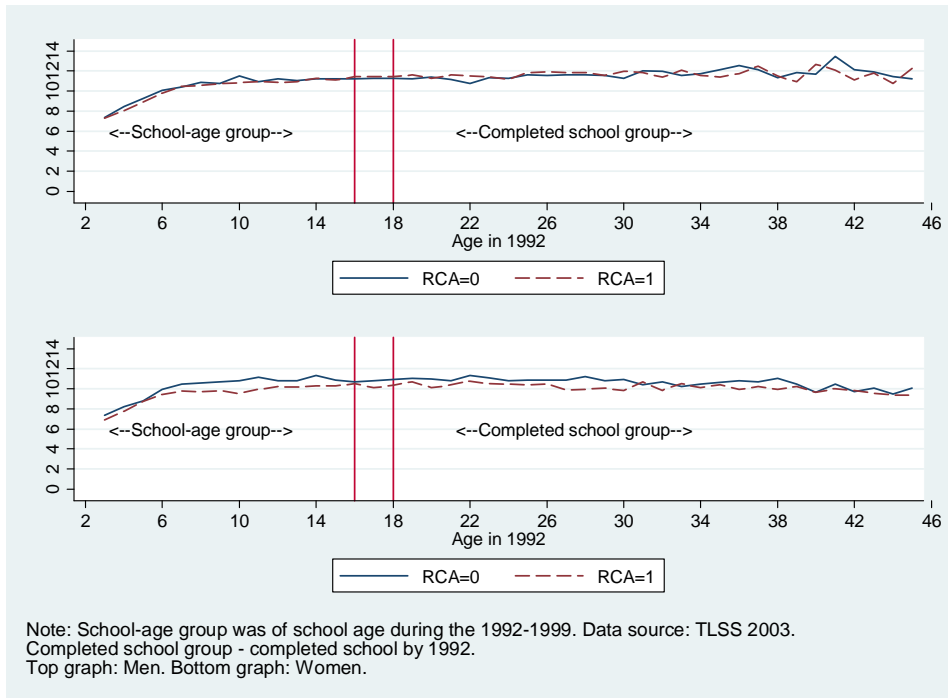


Fig.1.b – Average grades completed (0-11) by gender, born in 1946-1990, war region by CDD. Data source: TLSS 2003.

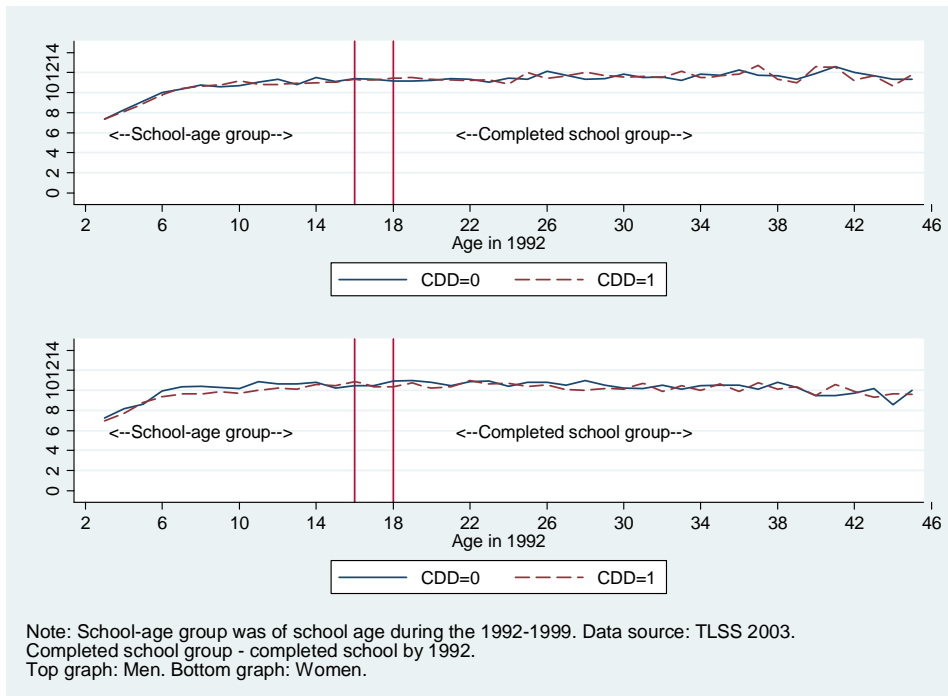


Fig. 2 - Average grades completed (0-11) by RCA for men and women, born in 1946-1998.  
 Data source: TLSS 2007.

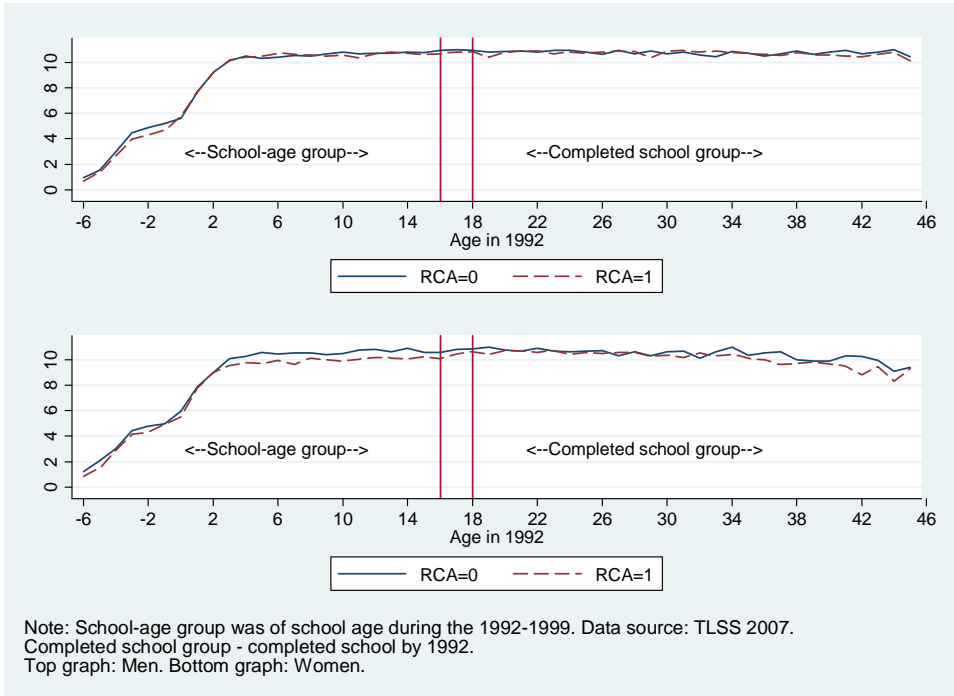


Table 1 - Determinants of number of grades of schooling completed (0-11). Cohorts 1966-1973, 1976-1985.

	Dependent variable: Years of schooling completed (0-11)			
	Panel A: Men		Panel B: Women	
	(1)	(2)	(3)	(4)
Damage to dwellings in a community *(Born in 1976-1986)	-0.136 (0.177)		-0.374** (0.178)	
Reports of conflict activity *(Born in 1976-1986)		-0.138 (0.155)		-0.461** (0.176)
Born in 1976-1986	-0.484*** (0.153)	-0.529*** (0.116)	-0.209* (0.111)	-0.198* (0.106)
Constant	11.323*** (0.058)	11.387*** (0.055)	10.612*** (0.064)	10.641*** (0.059)
N	3329	3659	3725	4095
R squared	0.02	0.02	0.01	0.01
N raions	55	68	55	69

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Notes: Columns represent OLS coefficients. Robust standard errors are in parentheses. All regressions contain community fixed effects at the raion (district) level. Robust standard errors are in brackets. Reference group is "born in 1966-1973". Born in 1974-1975 is excluded from the regression sample. Data source: Author's calculations using TLSS 2003.

Table 2 – Determinants of completing 9 or 11 grades of education. Cohorts 1966-1973, 1976-1985. Data source: TLSS 2007.

	Panel A: Men				Panel B: Women			
	Completed 9 grades		Completed 11 grades		Completed 9 grades		Completed 11 grades	
	1	2	3	4	5	6	7	8
RCA * Born in 1976-1985	-0.006 (0.007)	-0.038* (0.020)	-0.028 (0.028)	0.049 (0.075)	-0.037*** (0.011)	-0.037** (0.014)	-0.086*** (0.026)	-0.073*** (0.028)
Born in 1976-1985	0.001 (0.006)	0.016 (0.012)	-0.053** (0.023)	-0.085 (0.068)	0.003 (0.009)	0.000 (0.011)	-0.058*** (0.018)	-0.108*** (0.020)
Rural	0.008 (0.006)	-0.005 (0.008)	-0.034** (0.014)	-0.025 (0.017)	0.007 (0.007)	0.009 (0.006)	-0.071*** (0.019)	-0.050** (0.019)
<i>Ethnicity (ref. group: Tajik)</i>								
Uzbek	0.015*** (0.005)	0.004 (0.004)	0.006 (0.022)	0.006 (0.018)	0.009 (0.008)	0.001 (0.009)	0.076*** (0.023)	0.079*** (0.025)
Russian	-0.074 (0.086)	-0.145 (0.141)	-0.023 (0.088)	-0.09 (0.119)	-0.003 (0.035)	-0.033 (0.041)	0.118*** (0.037)	0.055 (0.045)
Other ethnic group	-0.127 (0.086)	0.001 (0.006)	-0.340** (0.133)	-0.284 (0.199)	-0.033 (0.052)	-0.06 (0.072)	0.018 (0.091)	-0.151 (0.099)
Mother's education dummies		yes		yes		yes		yes
Father's education dummies		yes		yes		yes		yes
Constant	0.980*** (0.003)	0.999*** (0.012)	0.956*** (0.013)	0.936*** (0.031)	0.971*** (0.005)	0.963*** (0.011)	0.875*** (0.018)	0.787*** (0.034)
N	4852	1934	4852	1934	5560	4373	5560	4373
R squared	0.01	0.01	0.02	0.02	0.01	0.01	0.03	0.06
F-test (coefficients=0), p-value								
Ethnic group dummies	0.008	0.538	0.097	0.248	0.690	0.726	0.001	0.003
Father's education dummies		0.467		0.000		0.010		0.000
Mother's education dummies		0.446		0.062		0.007		0.000

Notes: Fixed effects included at the raion level. Cohort 1966-1973 is the reference group. Reference categories: Ethnicity: "Tajik"; mother's (father's) education: "No education".

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01.



Table 3a - Work status in the last 14 days by gender and birth cohort. Age: 22-49 in 2007.

<b>Panel A: Men</b>			
Employment status	1958-1969	1970-1985	Total
did not work in the last 14d	18.23	31.03	26.40
Worked:	81.77	68.97	73.60
for non hh member	52.24	48.77	50.17
farm owned by self/ or a hh member	18.86	21.27	20.30
on own account/ business owned by hh member	26.84	28.34	27.74
occasional job	0.21	0.37	0.30
on leave from permanent job	1.86	1.25	1.49
Total	100	100	100
N	1,777	3,136	4,913
<b>Panel B: Women</b>			
Employment status	1958-1969	1970-1985	Total
did not work in the last 14d	53.23	66.53	61.96
Worked:	46.77	33.47	38.04
worked for non hh member	47.15	49.48	48.49
farm owned by self/ or a hh member	34.76	37.91	36.58
on own account/ business owned by hh member	15.90	10.12	12.56
occasional job	0.22	0.16	0.19
on leave from permanent job	1.97	2.33	2.18
Total	100	100	100
N	1,950	3,720	5,670

Source: Author's calculations using TLSS (2007).

Table 3b - Main reason did not look for a job in the past 30 days? Ages 22-49.

	Panel A: Men			Panel B: Women		
	1958-1969	1970-1985	Total	1958-1969	1970-1985	Total
Not in the labor force	46.84	42.38	43.50	94.75	91.46	92.44
wait for job to start	9.97	10.79	10.58	0.49	0.49	0.49
Do not want to work	10.96	10.79	10.83	1.17	3.10	2.53
discouraged worker	29.57	33.59	32.58	2.92	4.62	4.11
other	2.66	2.45	2.50	0.68	0.33	0.43
Total	100	100	100	100	100	100
N	301	899	1200	1029	2448	3477

Source: Author's calculations using TLSS (2007).

Note: "Not in the labor force" includes students, housewives, retired, handicapped and in military service.

Table 4a - Work status in the last 14 days by gender, birth cohort and residence in the conflict area.

<b>Panel A: Men, RCA=1</b>			
Employment status	1958-1969	1970-1985	Total
did not work in the last 14d	17.92	30.73	26.26
Worked:	82.08	69.27	73.74
for non hh member	51.57	49.52	50.32
on farm owned by self/household member	14.92	19.25	17.57
worked on own account/ business owned by hh member	31.17	30.01	30.46
occasional job	0.30	0.39	0.35
on leave from permanent job	2.03	0.84	1.3
Total	100	100	100
N	1,200	2,242	3,442
<b>Panel B: Men, RCA=0</b>			
Employment status	1958-1969	1970-1985	Total
did not work in the last 14d	18.89	31.77	26.72
Worked:	81.11	68.23	73.28
worked for non hh member	53.63	46.89	49.81
on farm owned by self/household member	27.14	26.39	26.72
worked on own account/ business owned by hh member	17.74	24.10	21.34
occasional job	0.00	0.33	0.19
on leave from permanent job	1.50	2.30	1.95
Total	100	100	100
N	577	894	1,471
<b>Panel C: Women, RCA=1</b>			
Employment status	1958-1969	1970-1985	Total
did not work in the last 14d	56.35	66.30	62.90
Worked:	43.65	33.70	37.10
for non hh member	47.56	50.41	49.27
on farm owned by self/household member	31.53	36.84	34.71
worked on own account/ business owned by hh member	18.99	10.29	13.79
occasional job	0.35	0.12	0.21
on leave from permanent job	1.57	2.34	2.03
Total	100	100	100
N	1,315	2,537	3,852
<b>Panel D: Women, RCA=0</b>			
Employment status	1958-1969	1970-1985	Total
did not work in the last 14d	46.77	67.03	61.96
Worked:	53.23	32.97	38.04
for non hh member	46.45	47.44	46.98
on farm owned by self/household member	40.24	40.26	40.25
worked on own account/ business owned by hh member	10.65	9.74	10.16
occasional job	0.00	0.26	0.14
on leave from permanent job	2.66	2.31	2.47
Total	100	100	100
N	635	1,183	1,818

Source: Author's calculations using TLSS (2007). Note: "RCA=1" – resident lived in the region severely affected by the Tajik armed conflict; "RCA=0" - resident lived in the region lesser affected by the armed conflict.

Table 4b - Main reason did not look for a job in the past 30 days? By gender, birth cohort and conflict affected area residence. Age 22-49.

	Panel A: Men, RCA=1			Panel B: Men, RCA=0		
	1958-1969	1970-1985	Total	1958-1969	1970-1985	Total
Not in the labor force	51.49	45.07	46.61	37.37	35.77	36.21
wait for job to start	10.89	12.52	12.13	8.08	6.54	6.96
Do not want to work	12.87	10.64	11.18	7.07	11.15	10.03
discouraged worker	22.28	29.89	28.06	44.44	42.69	43.18
other	2.48	1.88	2.02	3.03	3.85	3.62
Total	100	100	100	100	100	100
N	202	639	841	99	260	359

	Panel C: Women, RCA=1			Panel D: Women, RCA=0		
	1958-1969	1970-1985	Total	1958-1969	1970-1985	Total
Not in the labor force	95.78	93.88	94.46	92.20	86.32	87.93
wait for job to start	0.54	0.48	0.50	0.34	0.51	0.46
Do not want to work	1.23	3.36	2.71	1.02	2.56	2.14
discouraged worker	1.63	2.04	1.92	6.10	10.10	9.01
other	0.82	0.24	0.42	0.34	0.51	0.46
Total	100	100	100	100	100	100
N	734	1666	2400	295	782	1077

Source: Author's calculations using TLSS (2007).

Note: "Not in the labor force" includes students, housewives, retired, handicapped and in military service. "RCA=1" – resident lived in the region severely affected by the Tajik armed conflict; "RCA=0" - resident lived in the region lesser affected by the armed conflict.

Table 5 – Dependent variable: “Worked in the last 14 days”, OLS regressions, sample aged 22-49 in 2007.  
 Updated on Nov 9, 2010

	Panel A: Men			Panel B: Women		
	1	2	3	4	5	6
RCA region * Born 1970-1985	0.031 (0.040)	0.034 (0.040)	0.035 (0.036)	0.110*** (0.035)	0.119*** (0.033)	0.126*** (0.035)
<i>Birth cohort (ref. group: born in 1958-1964)</i>						
Born in 1965-1969	-0.033 (0.021)	-0.002 (0.025)	-0.023 (0.021)	-0.021 (0.021)	-0.025 (0.021)	0.005 (0.024)
Born in 1970-1975	-0.054 (0.032)	-0.155*** (0.033)	-0.049 (0.036)	-0.048 (0.035)	-0.04 (0.032)	-0.138*** (0.031)
Born in 1976-1980	-0.101*** (0.036)	-0.207*** (0.032)	-0.127*** (0.038)	-0.122*** (0.038)	-0.089** (0.035)	-0.203*** (0.034)
Born in 1981-1985	-0.207*** (0.038)	-0.302*** (0.031)	-0.293*** (0.042)	-0.277*** (0.042)	-0.181*** (0.039)	-0.273*** (0.032)
Years of education completed		0.021*** (0.003)	0.018*** (0.003)		0.030*** (0.003)	0.031*** (0.003)
<i>Ethnicity (ref. group: Tajik)</i>						
Uzbek			-0.002 (0.021)			0.024 (0.022)
Russian			0.163 (0.106)			0.227** (0.105)
Other ethnic group			-0.111 (0.118)			0.254*** (0.091)
Married			0.162*** (0.026)			-0.124*** (0.022)
Rural			-0.025 (0.022)			0.034 (0.024)
household size			-0.004 (0.003)			-0.007*** (0.002)
Household head is female			-0.008 (0.020)			0.012 (0.018)
<i>Household composition (ref. group: share of adult females in a household)</i>						
Share of children, age 0-6			0.178** (0.068)			-0.296*** (0.061)
Share of children age 7-15			0.132** (0.063)			-0.043 (0.059)
Share of elderly, age 65 plus			0.196* (0.115)			-0.340*** (0.111)
Share of adult males in a hh			0.115 (0.078)			-0.337*** (0.062)

Table 5 – Cont-ed

	Panel A: Men			Panel B: Women		
	1	2	3	4	5	6
<i>Access to land (ref. group: no access)</i>						
access to 1-10 sotkas of land			0.058*			0.077***
			(0.033)			(0.028)
access to 11-20 sotkas of land			0.084**			0.160***
			(0.032)			(0.032)
access to 21 plus sotkas of land			0.091**			0.189***
			(0.035)			(0.035)
ln_nonwage			-0.015**			0.006
			(0.006)			(0.004)
Constant	0.832***	0.577***	0.384***	0.469***	0.146***	0.308***
	(0.014)	(0.044)	(0.072)	(0.018)	(0.033)	(0.054)
N	4902	4901	4901	5644	5644	5644
R squared	0.06	0.07	0.10	0.03	0.05	0.10

Source: Author's calculations using TLSS (2007).

Notes: "RCA=1" – resident lived in the region severely affected by the Tajik armed conflict; "RCA=0" - resident lived in the region lesser affected by the armed conflict. All regressions are estimated with raion level fixed effects.

Robust standard errors are in parenthesis. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 6 – OLS Regressions. Dep. Var.: Worked in the last 14 days. Testing for effects of migration variables on labor supply. Sample: aged 22-49 in 2007.

	Panel A: Men			Panel B: Women		
	1	2	3	4	5	6
RCA region * Born 1970-1985	0.037 (0.035)	0.034 (0.035)	0.038 (0.035)	0.126*** (0.034)	0.126*** (0.034)	0.126*** (0.034)
<i>Birth cohort (ref. group: born in 1958-1964)</i>						
Born in 1965-1969	-0.028 (0.021)	-0.025 (0.021)	-0.03 (0.021)	-0.006 (0.023)	-0.004 (0.023)	-0.006 (0.023)
Born in 1970-1975	-0.043 (0.032)	-0.04 (0.032)	-0.043 (0.032)	-0.157*** (0.031)	-0.154*** (0.031)	-0.157*** (0.031)
Born in 1976-1980	-0.090** (0.034)	-0.089** (0.035)	-0.090*** (0.034)	-0.201*** (0.032)	-0.201*** (0.033)	-0.201*** (0.032)
Born in 1981-1985	-0.183*** (0.038)	-0.180*** (0.039)	-0.183*** (0.038)	-0.288*** (0.030)	-0.288*** (0.030)	-0.288*** (0.030)
years of education completed	0.017*** (0.003)	0.018*** (0.003)	0.017*** (0.003)	0.030*** (0.003)	0.031*** (0.003)	0.031*** (0.003)
ln_nonwage	-0.015** (0.006)	-0.015** (0.006)	-0.015** (0.006)	0.006 (0.004)	0.006 (0.004)	0.006 (0.004)
Household has a migrant currently abroad	-0.066** (0.030)			-0.039** (0.015)		
Proportion of households with migrants in psu		-0.121 (0.078)			-0.045 (0.088)	
HH receives remittances from hh members and other relatives			-0.081*** (0.023)			-0.044** (0.017)
Constant	0.410*** (0.071)	0.401*** (0.070)	0.416*** (0.071)	0.325*** (0.055)	0.314*** (0.053)	0.329*** (0.056)
N	4901	4901	4901	5644	5644	5644
R squared	0.10	0.10	0.10	0.11	0.10	0.11

Notes: “RCA=1” – resident lived in the region severely affected by the Tajik armed conflict; “RCA=0” - resident lived in the region lesser affected by the armed conflict. All regressions are estimated with raion level fixed effects. All regression include ethnicity dummies, controls for the composition of the household, household size, access to land, rural residence, a dummy variable for being married, female headship. Robust standard errors are in parenthesis. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 7 - OLS regression with fixed effects at the raion level.  
 Dep. Var.: Employment in the last 14 days. Sample of non-household heads.

	Men	Women
	1	2
RCA region * Born 1970-1985	0.078 (0.054)	0.136*** (0.038)
<i>Birth cohort (ref. group: born in 1958-1964)</i>		
Born in 1965-1969	0.039 (0.052)	-0.013 (0.025)
Born in 1970-1975	0.004 (0.057)	-0.158*** (0.034)
Born in 1976-1980	-0.045 (0.063)	-0.210*** (0.035)
Born in 1981-1985	-0.137** (0.066)	-0.293*** (0.032)
years of education completed	0.018*** (0.005)	0.030*** (0.003)
ln_nonwage income	-0.008 (0.008)	0.008* (0.005)
HH head is not employed	-0.038 (0.025)	0.007 (0.019)
Constant	0.279** (0.119)	0.304*** (0.063)
N	2820	5270
R squared	0.08	0.09

Notes: “RCA=1” – resident lived in the region severely affected by the Tajik armed conflict; “RCA=0” - resident lived in the region lesser affected by the armed conflict. All regressions are estimated with raion level fixed effects. All regression include a full set of birth cohort dummies, ethnicity dummies, controls for the composition of the household, household size, access to land, non-wages income, rural residence, a dummy variable for being married, female headship. Robust standard errors are in parenthesis. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Table 8 –OLS regression with fixed effects at the raion level. Dep. Var.: Employment in the last 14 days. Sample of married individuals, age 22-49 in 2007.

	Panel A: Men			Panel B: Women		
	1	2	3	4	5	6
RCA region * Born 1970-1985	0.035 (0.032)	0.036 (0.032)	0.035 (0.033)	0.109*** (0.035)	0.109*** (0.035)	0.116*** (0.034)
Years of education completed	0.016*** (0.004)	0.016*** (0.004)	0.016*** (0.004)	0.025*** (0.004)	0.025*** (0.004)	0.025*** (0.004)
Spouse does not live in a household now		-0.179*** (0.059)			0.006 (0.025)	
Spouse did not work in the last 14 days			0.002 (0.020)			0.01 (0.021)
Constant	0.562*** (0.071)	0.555*** (0.070)	0.554*** (0.071)	0.272*** (0.060)	0.269*** (0.061)	0.271*** (0.069)
N	3986	3986	3906	4381	4381	3972
R squared	0.04	0.05	0.04	0.09	0.09	0.09

Source: Author's calculations using TLSS (2007).

Notes: "RCA=1" – resident lived in the region severely affected by the Tajik armed conflict; "RCA=0" - resident lived in the region lesser affected by the armed conflict. All regressions are estimated with raion level fixed effects. All regression include a full set of birth cohort dummies, ethnicity dummies, controls for the composition of the household, household size, access to land, non-wages income, rural residence, female headship. Robust standard errors are in parenthesis. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.



Table 9 – Tobit model with random effects at the raion level. Dep. Var.: ln (total wages received in the last 30 days). Sample: age 22-49 in 2007.

	Panel A: Men			Panel B: Women		
	1	2	3	4	5	6
RCA region * Born 1970-1985	0.356** (0.147)	0.353** (0.146)	0.352** (0.146)	-0.132 (0.164)	-0.116 (0.161)	-0.113 (0.161)
Born in 1965-1969	0.042 (0.110)	0.043 (0.109)	0.044 (0.109)	-0.011 (0.124)	-0.048 (0.122)	-0.046 (0.122)
Born in 1970-1975	-0.353** (0.145)	-0.343** (0.145)	-0.341** (0.144)	0.137 (0.163)	0.081 (0.161)	0.085 (0.161)
Born in 1976-1980	-0.540*** (0.149)	-0.520*** (0.149)	-0.512*** (0.149)	0.014 (0.169)	-0.022 (0.167)	-0.018 (0.167)
Born in 1981-1985	-0.414*** (0.151)	-0.363** (0.151)	-0.356** (0.151)	0.094 (0.164)	0.097 (0.162)	0.099 (0.162)
Rural	-0.516*** (0.103)	-0.487*** (0.103)	-0.465*** (0.104)	-1.233*** (0.134)	-1.107*** (0.133)	-1.060*** (0.135)
Years of education completed		0.062*** (0.016)	0.062*** (0.016)		0.141*** (0.019)	0.140*** (0.019)
Proportion of households with migrants in psu			-0.617* (0.342)			-0.783** (0.369)
Constant	4.898*** (0.161)	4.137*** (0.256)	4.209*** (0.258)	4.141*** (0.180)	2.512*** (0.279)	2.605*** (0.281)
sigma_u Constant	0.971*** (0.098)	0.958*** (0.097)	0.936*** (0.096)	1.002*** (0.105)	0.949*** (0.100)	0.931*** (0.100)
sigma_e Constant	2.036*** (0.024)	2.032*** (0.024)	2.032*** (0.024)	1.827*** (0.028)	1.805*** (0.028)	1.804*** (0.028)
N	3612	3611	3611	2146	2146	2146
chi2	42.40	57.00	60.43	86.82	145.49	150.59
p	0.00	0.00	0.00	0.00	0.00	0.00

Note: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Total wages include monetary and in-kind wages received in the last 30 days. Source: Author's calculations using TLSS (2007).

## Appendix A

Appendix Table 1 – Sample statistics

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Worked in the last 14 days	10583	0.545			
ln (total pay in the last 30 days)	5774	4.116	2.295	0.00	9.29
Age	10584	33.765	8.199	22.00	49.00
Year of birth	10584	1973.235	8.199	1958.00	1985.00
Female	10584	0.536			
Conflict affected area (RCA=1)	10584	0.689			
Educational level	10583	11.107	2.413	0.00	19.00
<b>Ethnic group</b>					
Tajik	10584	0.797			
Uzbek	10584	0.186			
Russian	10584	0.005			
Other ethnicity	10584	0.012			
Married	10584	0.793			
Rural	10584	0.690			
HH size	10584	7.427	3.136	1.00	21.00
Female head household	10584	0.157			
<b>HH composition</b>					
Share of children age 0-6	10584	0.149	0.145	0.00	0.75
Share of children age 7-15	10584	0.202	0.174	0.00	0.83
Share of elderly, age 65 plus	10584	0.042	0.083	0.00	0.67
Share of adult males in a hh	10584	0.288	0.148	0.00	1.00
Share of adult females in a hh	10584	0.320	0.140	0.00	1.00
<b>Access to land</b>					
HH has no access to land	10584	0.315	0.464		
access to 1-10 sotkas of land	10584	0.292	0.455		
access to 11-20 sotkas of land	10584	0.164	0.370		
access to 21 plus sotkas of land	10584	0.229	0.420		
ln (household nonwage income)	10584	1.588	1.935	0.00	6.80

Source: Author's calculations using TLSS (2007). Sample is 22-49 year olds in 2007.

Appendix Table 2 - OLS with residuals clustered at raion level. Dep. Var.: Employment in the last 14 days. Sample: Age 22-49 in 2007.

	Panel A: Men			Panel B: Women		
	1	2	3	1	2	3
RCA region * Born 1970-1985	0.02 (0.036)	0.008 (0.036)	0.02 (0.036)	0.067 (0.041)	0.052 (0.042)	0.071* (0.041)
<i>Birth cohort (ref. group: born in 1958-1964)</i>						
Born in 1965-1969	-0.034* (0.020)	-0.034* (0.020)	-0.034* (0.020)	-0.002 (0.025)	-0.001 (0.025)	-0.001 (0.025)
Born in 1970-1975	-0.038 (0.034)	-0.029 (0.033)	-0.038 (0.034)	-0.111*** (0.039)	-0.098** (0.039)	-0.114*** (0.039)
Born in 1976-1980	-0.076** (0.036)	-0.069* (0.035)	-0.076** (0.036)	-0.164*** (0.042)	-0.153*** (0.042)	-0.166*** (0.042)
Born in 1981-1985	-0.157*** (0.038)	-0.148*** (0.037)	-0.157*** (0.038)	-0.247*** (0.041)	-0.237*** (0.042)	-0.248*** (0.041)
Years of education completed	0.015*** (0.003)	0.015*** (0.003)	0.015*** (0.003)	0.030*** (0.003)	0.030*** (0.003)	0.030*** (0.003)
<i>Ethnicity (ref. group: Tajik)</i>						
Uzbek	0.028 (0.023)	0.024 (0.023)	0.028 (0.023)	0.075** (0.033)	0.069** (0.032)	0.072** (0.033)
Russian	0.207** (0.101)	0.208** (0.101)	0.207** (0.101)	0.230** (0.108)	0.231** (0.108)	0.225** (0.109)
Other ethnic group	-0.245** (0.123)	-0.237* (0.121)	-0.245** (0.122)	0.129 (0.082)	0.134* (0.080)	0.139* (0.080)
Married	0.179*** (0.027)	0.180*** (0.027)	0.178*** (0.027)	-0.120*** (0.021)	-0.120*** (0.021)	-0.120*** (0.021)
Rural	-0.044 (0.030)	-0.043 (0.030)	-0.044 (0.029)	-0.01 (0.031)	-0.01 (0.031)	-0.007 (0.031)
Household size	-0.002 (0.003)	-0.002 (0.003)	-0.002 (0.003)	-0.005* (0.003)	-0.006** (0.003)	-0.005* (0.003)
Household head is female	-0.013 (0.021)	-0.016 (0.021)	-0.013 (0.021)	0.009 (0.018)	0.008 (0.018)	0.01 (0.018)
<i>Household composition (ref. group: share of adult females in a household)</i>						
Share of children age 0-6	0.255*** (0.065)	0.255*** (0.065)	0.255*** (0.066)	-0.283*** (0.063)	-0.288*** (0.063)	-0.290*** (0.062)
Share of children age 7-15	0.190*** (0.062)	0.190*** (0.061)	0.190*** (0.061)	-0.039 (0.060)	-0.043 (0.060)	-0.042 (0.059)
Share of elderly, age 65 plus	0.186 (0.123)	0.18 (0.123)	0.187 (0.124)	-0.389*** (0.115)	-0.395*** (0.114)	-0.384*** (0.115)
Share of adult males	0.143* (0.081)	0.143* (0.080)	0.143* (0.080)	-0.343*** (0.055)	-0.347*** (0.056)	-0.347*** (0.055)

Appendix Table 2 – cont-ed

<i>Access to land (ref. group: no access)</i>						
access to 1-10 sotkas of land	0.062*	0.065**	0.062*	0.072**	0.075**	0.071**
	(0.031)	(0.032)	(0.032)	(0.031)	(0.030)	(0.031)
access to 11-20 sotkas of land	0.106***	0.110***	0.106***	0.228***	0.233***	0.226***
	(0.034)	(0.035)	(0.034)	(0.038)	(0.038)	(0.037)
access to 21 plus sotkas of land	0.119***	0.126***	0.119***	0.219***	0.228***	0.216***
	(0.034)	(0.035)	(0.034)	(0.042)	(0.039)	(0.041)
ln_nonwage	-0.016**	-0.015**	-0.016**	0.007	0.007	0.007
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)
Ratio 1989: men/women, agegroup 20-49		0.342*			0.414	
		(0.175)			(0.291)	
Ratio 1989: men/women, agegroup 15-64			-0.014			-0.296
			(0.169)			(0.297)
Constant	0.345***	0.004	0.359*	0.306***	-0.105	0.603**
	(0.073)	(0.199)	(0.184)	(0.053)	(0.285)	(0.296)
N	4901	4901	4901	5644	5644	5644
R squared	0.10	0.11	0.10	0.11	0.11	0.11

Appendix Table 3 - Industry of main employment.

Industry of main employment	Panel A: Men		
	RCA=0	RCA=1	Total
Agriculture, Hunting	37.81	25.89	29.44
Sale, maintenance and repair of motor vehicles and motorcycles, retail sales of automotive fuel	11.68	18.49	16.46
Construction	10.57	15.97	14.36
Land transport; transport via pipeline	7.32	8.77	8.34
Public administration and defense	5.00	7.00	6.41
Activities of private households as employers	8.53	4.25	5.52
Education	7.60	4.45	5.39
Electricity, gas, steam and hot water	1.48	2.24	2.02
Health and social work	1.67	1.81	1.77
Sub-total	91.66	88.87	89.71
N obs	1,079	2,542	3,621
Industry of main employment	Panel B: Women		
	RCA=0	RCA=1	Total
Agriculture, Hunting	53.78	52.66	53.04
Education	16.92	13.04	14.35
Sale, maintenance and repair of motor vehicles and motorcycles, retail sales of automotive fuel	7.02	9.54	8.69
Health and social work	7.80	8.20	8.08
Public administration and defense	1.79	3.79	3.11
Manufacture of textiles	3.57	2.66	2.97
Hotels and restaurants	1.38	2.03	1.81
Sub-total	92.26	91.92	84.20
N obs	727	1,426	2,153

Source: Author's calculations using TLSS (2007). The industry is included in the table if it had more than 1% total employment.

Appendix Table 4.1- Main occupational group by residence in the conflict affected area: Men, age 22-49.

Occupational group for men	RCA=0	RCA=1	Total
Administrative associates	0.93	1.30	1.19
Agricultural, earthm	1.02	1.02	1.02
Agricultural, fishery	4.63	1.57	2.49
Architects, engineers	0.74	1.30	1.13
Building finishers	9.92	12.86	11.99
building frame workers	2.41	4.56	3.92
Health professionals	1.30	1.30	1.30
Legislators, managers	3.62	3.82	3.76
Machinery mechanics	1.39	1.42	1.41
Market gardeners	29.38	20.10	22.87
Motor vehicle driver	8.25	8.77	8.62
Physical science	1.02	2.05	1.74
Secondary education	4.91	2.56	3.26
Shop salespersons	1.11	2.60	2.15
Stall and market sales people	5.47	9.60	8.37
Unskilled workers	10.10	8.03	8.64
Sub-total	86.2	82.86	83.86
N observations	1,079	2,542	3,621

Note: Less than one percent of men (per group) report less to be in other occupational groups.

Sample of people who reported their main occupation in employment. 12 people reported not be employed in the last 14 days. Source: Author's calculations using TLSS (2007).

Appendix Table 4.2- Main occupational group by residence in the conflict affected area: Women, age 22-49.

Occupational group for women	RCA=0	RCA=1	Total
Administrative associates	0.83	1.12	1.02
Agricultural, fishery	6.60	0.91	2.83
College, university	0.28	1.12	0.84
Health professionals	0.96	1.47	1.30
Housekeeping	1.38	1.82	1.67
Legislators, managers	0.97	1.61	1.40
Market gardeners	44.15	47.76	46.54
Market-oriented animal work	2.34	3.23	2.93
Nursing and midwife	5.23	5.47	5.39
Pelt, leather and shoe makers	2.89	2.95	2.93
Pre-primary education	1.24	0.77	0.93
Primary education teachers	3.99	1.96	2.65
Secondary education	8.39	5.40	6.41
Shop salespersons	1.24	1.82	1.63
Stall and market sales people	4.68	6.66	5.99
Unskilled workers	5.23	6.24	5.90
Sub-total	90.40	90.31	90.36
N observations	727	1,426	2,153

Note: Less than one percent of women (per group) report less to be in other occupational groups.

Source: Author's calculations using TLSS (2007).