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Disruption and decline: the gendered consequences of civil war and political transition for education in Tajikistan

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Abstract

The sweeping political transition from the Soviet Union to independence in Tajikistan was accompanied by a devastating civil war. Social, economic, and demographic change followed. This research examines a critical indicator of human welfare and stability at the micro- and macro-levels: educational attainment and mobility. Using the 2007 Tajik Living Standards Survey, I compare cohorts educated before, during, and after the civil war. I examine the impact of the war and the political transition on educational attainment and mobility. The findings suggest that the consequences of civil war and political transition in Tajikistan were gendered: boys' attainment was disrupted when they lived in a conflict-affected area and were 16-to-17 years old when the war began; girls' attainment decline was more widespread. This research contributes to our understanding of the long-term consequences of political events on human capital accumulation over the life course.

Keywords

civil war; political transition; education; gender; Central Asia

Introduction

In December 1991, the Soviet Union collapsed. Within months, a violent conflict erupted in Tajikistan. The 1992–1997 civil war disrupted individual lives and institutional development. This was especially true in education, where the transition initiated the decay of the comparatively effective Soviet system and the conflict destroyed schools and displaced students and teachers. The effects of these political forces were not equally distributed. The experience of civil war *and* political transition in Tajikistan was gendered. Boys were more likely to enter combat than girls, while girls were more likely to be displaced. In the long run, women in Tajikistan who would have benefited from Soviet policies of equal educational opportunities faced growing uncertainty after the collapse. Individual disruptions and institutional declines differently affected boys and girls who were coming of age during the civil war.

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Declaration of interest statement

The author has no known or potential conflict of interest to declare.

Civil wars wreak havoc on educational attainment. When civil war is accompanied by a transition in leadership, the social, political, and economic consequences of that war are likely to be substantially different from failed coups and revolutions. Our understanding of the consequences of civil war, then, is incomplete without also examining the simultaneously changing political landscape. Yet, few studies empirically examine this dual burden in cases where political transition and civil wars co-occur. How these two forces differently impact education may be important for scholars of conflict, as well as policymakers aiming to mitigate the effects of civil wars on human welfare.¹

This study examines the long-run consequences of the 1992–1997 Tajikistani civil war and the collapse of the Soviet Union on educational outcomes. Leveraging a cohort specification that accounts for entry into administrative stages of the educational career before, during, and after the collapse of the Soviet Union, combined with the spatial variation in exposure to conflict events, I investigate the long-term effects of these linked political processes on educational outcomes in the 10 years following the end of the war. I ask: (1) if those who were school-aged at the onset of the transition to independence have lower educational attainment than their peers in the Soviet or post-transition eras; (2) if those who were school-aged at the onset of the civil war *and* exposed to conflict events have lower educational attainment over the life course than their non-affected peers; and (3) if civil war and political transition also affect the ability of children to attain as much or more education as their parents.

To answer these questions, I first present a brief background of the social and political processes that have affected education in Tajikistan from the Soviet era to present day. I then provide a theoretical framework that considers the institutional consequences of both political transition and civil war. To flesh out this framework, I also include observations from my own field work in Tajikistan in 2017, in which I conducted semi-structured interviews in English and in Russian with 10 development officers who participated in reconstruction efforts in the aftermath of the civil war.² I then describe the analytical approach, which considers important dimensions of variation across the life course, as well as spatial variation of violent events constituting the civil war. Using large-scale survey data collected in 2007, along with geocoded conflict event data, I estimate logistic regression models predicting respondents' likelihood of finishing at least secondary education as well as the likelihood of completing more schooling than one's parents.

¹International organizations have consistently prioritized increasing access to quality education as a central tenet of development (World Bank Group 2011; United Nations 2013; UNICEF 2017;). Educational outcomes are associated with economic growth and stability, especially after war when the risk of re-emergence of violence is high (Collier, Hoeffler, and Soderbom 2008; Barro and Lee 2013). Low levels of education have consistently been linked to crime, employment instability, and poor health through adulthood (Masters, Hummer, and Powers 2012; Osborne and Higgins 2015; Kirkpatrick Johnson et al. 2016; Leopold 2018).

²The author traveled to Tajikistan in July and August of 2017, conducting interviews with key informants, and using snowball sampling strategies to identify additional respondents, for a total of 10 key informant interviews. Respondents were required to have worked in the field of development in Tajikistan during the period immediately after the civil war ended in 1997. The author speaks Russian but is a non-native speaker, and most of the interviews were conducted using a mix of Russian and English. The interview data are included in this manuscript to supplement the background material collected from secondary sources. In all interviews, without exception, discussing reconstruction efforts after the war involved discussing the repair and refurbishing of schools. Many respondents provided broad insight into the informal and formal ways the education system changed after the collapse of the Soviet Union, as well as their personal opinions about those changes.

The findings of this study suggest that both armed conflict and political transition negatively affect educational attainment, even years after the onset of regime change or the end of the war. These effects are gendered. Boys who were 16-17 years-old at the start of the war were much less likely to finish secondary education with each additional conflict event where they lived. This perhaps indicates that recruitment into the armed forces disrupted those educational trajectories *and* that these cohorts of boys did not return to school after the war ended. I likewise find cohort effects for girls, but the long-term effects of exposure to conflict events are not as strong. This suggests that political transition to a new educational system was a widespread detriment to girls' educational attainment.

These findings have implications for our understanding of the complex political and institutional dynamics linking civil war and human capital accumulation over the life course. They suggest that the experiences of civil war – not only during, but also after the war has ended – are gendered. In addition, the findings around intergenerational educational mobility suggest that not only do civil war and political transition contribute to overall declines in educational attainment, but also to the reproduction of inequality.

Background

Tajikistan is a small, landlocked country that was once part of the Soviet Union. It shares borders with Afghanistan to the south, with China to the east, and with Kyrgyzstan and Uzbekistan in the north. Despite mass emigration after the collapse of the Soviet Union and excess mortality during the civil war of 1992–1997, the country has seen substantial population growth since independence in 1991, primarily due to high fertility rates (Rowland 2005). Half the population is living under the poverty line, official remittances constitute half the national GDP, only 6% of the land is considered arable, and any further agricultural development has been stifled by mass migration, leading to widespread food insecurity (Laruelle and Peyrouse 2013).

The Tajikistani civil war began a few short months after independence from the USSR, as Soviet subsidies fell away, diminishing the already scarce resources that were insufficient for the growing population (Lynch 2001). Widespread discontent over institutionalized corruption provoked unexpected alliances, such as between the moderate Ismaili Muslim sect in Gorno-Badakhshan in the eastern part of the country and the then-banned Islamist political party called the Islamic Renaissance Party of Tajikistan (IRPT) (Dudoignon 1997; Driscoll 2015). The economic shock of the collapse of the Soviet Union brought with it hunger and job scarcity; without important subsidies from Moscow, living conditions deteriorated.

By April 1992, an estimated 100,000 protestors filled the main square in Dushanbe, demanding change (Nourzhanov and Bleuer 2013, 300). Violence began as the pro-opposition protestors, who were backed and likely armed by the IRPT (and later by the United Tajik Opposition) clashed with the pro-government protestors, who were backed and likely armed by then-president Nabiev and other government agents (Nourzhanov and Bleuer 2013, 316; see also Mullojanov 2016 on the different accounts of organizational support for protests in the 1990s). Violent events were widespread through 1992 and 1993,

but continued on intermittently for the next four years. “Both sides committed atrocities, including murder, disappearances, hostage-taking, and burning and looting of homes” (Struthers 1998, 4). A peace agreement was finally signed in 1997, between the new president, Emomali Rahmon, and the leaders of the United Tajik Opposition.

The five-year civil war resulted in substantial human and material losses. Of the then-population of a little more than 5 million, experts estimate that between 20,000 and 60,000 were killed, and up to one million people were displaced within Tajikistan and to neighboring countries (Olcott 2012). The war caused widespread damage to infrastructure, institutions, and private dwellings. Nearly 200 primary schools (approximately 20% nationwide) were destroyed and between 2 and 12% of household structures were damaged in the conflict across the various regions (Shemyakina 2011).

The Soviet education system in Central Asia

As part of the nation-building project embarked upon in the 1920s, the Bolsheviks “brought economic modernization, development, and mass education to Central Asia by replacing the customary khanate system of the region with the modern state” (Dagiev 2014, 38). Women, in particular, were targeted by the ambitions of Soviet education policies, which encouraged them to “liquidate their illiteracy” (Edgar 2006, 257). This focus on women’s education was in part due to the Soviet mission to “emancipate” women and in part due to the Soviet goal of creating an ideal “socialist person” through standardized education. Doing so likewise required dismantling traditional Islamic madrasas (Deyoung 2006). Of course, not every madrasa shuttered was eventually replaced by a modern Soviet school (Khalid 2007). The Soviet educational system was far from perfect, and firmly rooted in cementing Soviet power (Niyozov and Bahry 2006). Yet, this focus on education brought the literacy rate across Central Asia to 90% by 1965, whereas fewer than 30% of Iranians, Pakistanis, or Turks were literate then (Froese 2008, 96). In fact, many Central Asians recall the Soviet era favorably, largely because of the state’s involvement in meeting essential needs, especially education (McMann 2007). One anonymous respondent interviewed in 2017 stated that there was a “big gap” between the Soviet tradition of education and the contemporary Tajik education system. She reminisced about the equalizing ideology of the Soviet system—“education for all” was at least a guiding principle, if not fulfilled in practice.

Education after independence

By the time the Tajikistani civil war began, “the mechanisms of social control were well on the way to breaking down” (Rubin 1998, 140). By the end of the conflict in 1997, one-fifth of primary schools in Tajikistan had been destroyed (UNICEF). Table 1, below, shows the changes in the number of preschools (*doshkol’noe uchrezhdenie*) in rural and urban areas of each administrative district (*oblast’*). Rural areas in the Districts of Republican Subordination, Khatlon Oblast, and Gorno-Badakhshan Autonomous Oblast (GBAO) were particularly hard hit, although GBAO recovered rapidly after the end of the war (Khasanzoda et al. 2016).

During the civil war, parents assessed the increased risks of sending girls to school and often chose to keep them home, resulting in declines in the enrollment of girls in schools where

conflict intensity was high (Shemyakina 2011). At the same time, a million people were displaced from their homes, reducing access to schools for many children. Bombs and landmines created insecurity that persisted after the war. For some, these factors combined to limit both access to schools and the ability to send children to schools. These temporary but dramatic disruptions in education created short-term declines in enrollment, but also have the potential to shape the educational trajectory of children in some cohorts.

After the war ended, compulsory education, although technically both free and mandatory, remained inaccessible to the poorest families, with widespread corruption creating informal costs and new financial barriers (Whitsel 2011). Private religious education emerged as an alternative to the declining state-run education system (Stephan 2010). Where schools were damaged or destroyed in the war, recovery was a slow process. According to one former development officer interviewed in 2017 by the author, the educational system struggled to recover from the war, and regional disparities grew because of this. Reconstruction efforts focused on schools, especially because so many had been destroyed during the war, yet these efforts were not enough to sustain a full recovery.

Official statistics support these claims. Although the population grew rapidly from 1991 to 1998, the number of teachers declined from 8,000 to 3,500 in urban centers and from 2,500 to 1,600 in rural areas (Khasanzoda et al. 2016). Widespread declines in enrollment and attendance followed (Bascieri and Falkingham 2009), albeit this varied by household wealth and access to schools within a community (Asian Development Bank 2006; Whitsel and Mehran 2010). These long-term changes are part of the decay of the institution of education that is associated with this political transition. These long-term changes should affect post-war cohorts, regardless of exposure to violence.

Theoretical framework

Political transition, armed conflict, and education

Sweeping transitions in political regimes have the power to transform, disrupt, or dismantle existing institutions. These institutions take a long time to recover. The disarray that accompanies political transition creates uncertainty around the value of secondary and higher education diplomas, which can lead students to abandon those pursuits. In some cases, including Tajikistan, teachers and white-collar workers in other education-related professions may leave the country altogether.

The dynamics of political transition affects its impacts on institutions. For instance, Soviet successor states that suffered more protracted power struggles fell into deeper recessions for longer than other states that experienced rapid transitions, or the other surviving communist states (Walder, Isaacson, and Lu 2015). These deep recessions led to stagnation in or reductions in educational spending. Of course, this relationship varies by context. For example, in Kyrgyzstan, the path to independence led to a sharp decline in intergenerational educational mobility for cohorts who were school-aged at the time of the Soviet collapse (Brück and Esenaliev 2018). On the other hand, after unification in Germany, changes to educational stratification unfolded on a surprisingly small scale, perhaps due to pre-unification institutional similarities (Arps 2005). Likewise, while human rights violations

decreased after political transition in Myanmar, educational attainment in certain regions remained stagnant (Parmar et al. 2015). In contexts in which educational opportunities are rapidly expanding, stagnation of attainment signals the impact of political transition on halting the otherwise positive trajectories for those affected. On the other hand, after 1948 in Czechoslovakia, transition *into* a socialist education curriculum seemed to narrow the gender gap in educational attainment but had little effect on inequalities stemming from social origin (Mat j 1993).

The nature of the political transition itself may also have gendered consequences. For example, states claiming their independence and actively building their statehood from the collapse of the USSR may choose to back away from the Soviet focus on gender equity in educational opportunities. From the bottom up, younger cohorts of women may favor traditional values and a renewed focus on family values. At the same time, political elites seeking to counter radicalization push secularization (Commercio 2015). In Tajikistan, a commitment to “traditional values” and growing demand for religious leadership has emerged since the collapse of the Soviet Union. Indeed, “...traditional practices, such as receiving religious instruction under the guidance of an authorized person, perceptibly weakened in the Soviet past, are experiencing a boom” (Stephan 2010, 471). It remains unclear whether this has emerged as an anti-Soviet ideology, or as a cultural shift associated with deeper and more public religiosity. Yet the gender gap is widening in many arenas—for example, fewer women are university professors (Kataeva and DeYoung 2017) while many more women are working in agriculture (Mukhamedova and Wegerich 2018). We should expect this emerging tension between Soviet ideals of gender equity and post-Soviet ideals of traditional gender roles to disproportionately impact girls’ education.

Thus, I expect the context of transition to be relatively similar *for the same cohorts* across Tajikistan, at least compared to the transition from the Soviet Union in other cases. Political transition can fundamentally transform the institution of education for whole cohorts of school-aged children, and the kind of political transition that unfolded in Tajikistan—one which was exacerbated by poverty and a booming population—is expected to have widespread consequences. These effects can be long lasting for those cohorts, leading to declines in attainment for individual children, and to declines in levels of education across the state. These effects are likely unequally distributed, causing deeper or more long-lasting declines for girls than boys, for example.

Civil war, on the other hand, is a shock to the institution of education. Conflict-affected countries have demonstrated lower rates of completion of primary schooling, lower enrollment rates, and greater reductions in state spending on education than countries at similar levels of development (Gates et al. 2012). Civil wars are particularly damaging to education not because of declines in educational spending, but because of the physical damage to infrastructure (Lai and Thyne 2007). Because conflict disrupts education at both the institutional and individual levels, these effects can be long lasting for those who were exposed.³ During the Tajikistani civil war, subnational exposure to violence seemed to lead to disruptions in school enrollment for girls, but not boys (Shemyakina 2011). How long term were these declines in Tajikistan? Research has not yet shown, but the current study aims to examine these long-term dynamics in tandem with the effects of political transition.

Disentangling the combined effects of civil war and political transition

Civil wars often emerge from or result in fundamental transformations of the society in which they are contested. Successful wars of independence, for instance, force new states to address the socio-economic reality of the aftermath of war while also building (or rebuilding) institutions within the new social order. The combined effects of civil war and political transition are more than the sum of their parts.

Deteriorating access to educational resources can be a product of both political transition and civil war. The transition of power can lead to the decay of the institution of education through reduced capacity to fund schools, train teachers, and coordinate curriculum. Teachers may find themselves unpaid for many months or years during and after the war. Subsidies from former colonial or imperial powers may abruptly stop, leaving a gap to be filled by an underdeveloped and overburdened newly independent state, and/or by international development organizations.

The co-occurrence of civil war—which can damage infrastructure and deplete capital-building resources—and political transition—which can create a time of uncertainty, displacement, and rapidly changing institutions—can exacerbate declines in educational attainment and mobility. Changes that are embedded in political transition but exacerbated by armed conflict can therefore lead to deeper declines in educational attainment over the long run.

The co-occurrence of war and political transition in Tajikistan presents an opportunity to examine these linked processes. Empirically, it is a challenge to establish causal effects for either process. However, this research leverages the unique spatial and temporal characteristics of the civil war and political transition in Tajikistan.

I consider war to be a *combined spatial and temporal factor*, which varies over time and is geographically clustered. This conceptualization requires the disaggregation of war into discrete, geocoded events, an important consideration in assessing both the causes and the consequences of conflict (Williams et al. 2012; Nyseth Brehm 2017). Like many conflicts, the events of this war were regionally clustered, with severe impacts in some districts and little to no damage in others. This uneven spatial distribution allows for a systematic investigation of the effects of the civil war outside of the political transition. In that way, although I consider only within-country variation, I am still able to leverage variation in conflict exposure, based on where individuals lived at the time of the war.

In contrast, I consider the political transition from the Soviet Union to be *fundamentally temporal* in nature. That is not to say that there were not class and gender-based differences in the experiences of the political transition, but rather that these experiences are not systematically geographically clustered, unlike the experience of the civil war. This basic

³Several years after the 1994 genocide in Rwanda, for example, children who were school-aged and lived in areas with higher war intensity had attained one-half a year less schooling than children of the same age in lower-intensity areas (Akresh and de Walque 2008). Starting from a baseline gender gap, the authors find that the genocide primarily dampened boys' education, narrowing the gender gap in education through a "leveling-off effect" (Akresh and de Walque 2008, 20). How long-term were these declines in Rwanda? Research suggests they persisted until 2010, after which the negative effects of conflict, including the gender gap, had disappeared (La Mattina 2018).

assumption allows for a conceptual and empirical separation of political transition from war through cohort analysis. For this purpose, I follow a life course approach to specifying cohorts, detailed below.

A life course approach

By the very nature of educational enrollment in most contexts, the effects of major events depend on the cohort into which an individual is born. This cohort (or life course) approach can be applied to a wide range of outcomes (for an extensive review, see Shanahan, Mortimer, and Kirkpatrick Johnson 2016). Events occurring during one phase of life are fundamentally different than if they had occurred at an earlier or later phase. Exposure to violence at certain stages of the life course can have long-term ramifications, particularly in key transitional stages of the life course (Korinek and Teerawichitchainan 2014; London and Wilmoth 2016).

Educational trajectories are shaped by life course stages (Crosnoe and Benner 2016). It is not simply textbook learning that occurs in schools, but important cognitive and social skill development, such as critical thinking, problem-solving, and working with others. Because of this, it is often difficult to “catch up” later in life after an early disruption. Disruptions in early educational stages interrupt not only the learning component of education but also the development of critical skills that lay a foundation for later educational success. On the other hand, younger children are better able to recoup losses than older children, who face growing pressure to form families and enter the labor market.

Disruptions to education in later life course stages can delay or even completely derail degree attainment. The direct competition with entry into the labor force only increases with age, so that 16- and 17-year-olds can likely work longer hours and make more money than their younger counterparts. Entering the labor force increases cash flow for the family, but more hours worked during the school year can lower the probability that the student goes on to pursue higher education (Bernhardt et al. 2001; Rothstein 2001). Decisions to return to schooling or enter the labor force may be particularly difficult during this stage of life. For many, returning to schooling after a disruption would delay short-term earnings, even as it ensured long-term earnings potential. The opportunity costs of educational attainment at this later stage, then, are especially high.

For this study, I consider hypotheses that align with the mechanisms of disruption and long-term consequences of both armed conflict and political transition on educational attainment. I expect:

- **H1:** Cohorts with the highest opportunity cost of education (ages 16 to 17) at the onset of political transition will be less likely to complete secondary education, even years after the regime change.

Further, opportunity costs of education are most pronounced when there is a disruption and the student must choose to return to school after a period of absence. Thus, I expect:

- **H2:** Cohorts with the highest opportunity cost of education (ages 16 to 17) at the onset of armed conflict who are *also* exposed to conflict events will be *even less likely* to complete secondary education, years after the conflict ends.

Gendered experience of civil war and political transition

Men and women are differently disadvantaged during war, and face different obstacles to education. Boys and young men can be forcibly recruited to mobilize on behalf of the state or the opposing group (Maclure and Denov 2006). Combat as a rite of passage for young men may mobilize adolescents to join armed forces during an active conflict (Goldstein 2003). In this way, education may be disrupted when parents may elect to keep boys at home for fear of forced recruitment, when recruitment is successful, or when boys volunteer for combat.

Women are less likely to see combat, but are instead more likely to suffer the indirect effects of war, such as damage to infrastructure, public health, and social order (Plumper and Neumayer 2006; Grimard and Laszlo 2014). In addition, rape, forced impregnation, and violence against women and girls may emerge as a wartime tactic (Farwell 2004; Cohen 2013). Fear of violence or kidnapping can convince parents to keep girls at home instead of sending them to school, causing disruptions to enrollment. Indeed, Shemyakina (2011) finds that in Tajikistan, the contemporaneous effects of conflict (measured in 1999) disproportionately disrupted girls' enrollment in school. The same pattern did not persist for boys.⁴

Political transition is likewise a gendered process, due largely to the reshaping of gender relations during these macro-level changes (Waljee 2008). During transitions from strong states to weaker ones where state capacity and obligation are greatly reduced, the burden of survival falls to the family unit, led by women (Waljee 2008, 94). These new pressures of survival during transition increase the opportunity costs of continuing education.

In short, boys and girls plausibly have different experiences of war and political transition. Disruptions can subsequently generate long-term declines in educational attainment *when individuals do not have the ability to recover from these otherwise short-term disruptions*. Thus, those with a weaker ability to recover based on social position and resources will be more likely to see long-term consequences of the disruptions created by civil war. Because girls suffered more severe disruptions to enrollment than boys during the war (Shemyakina 2011), I expect:

- **H3:** Violent events will have a greater long-term impact on women than men, due to greater disruptions in enrollment from which they do not recover.

Parental education and intergenerational mobility

Perhaps one of the most important indicators for an individual's educational attainment overall, as well as for the reproduction of inequality, is the educational attainment level of

⁴. Comparable evidence comes from Guatemala, where schooling years for girls declined more sharply during the civil war than they did for boys (Chamarbagwala and Morán 2011).

their parents. A great deal of evidence has indicated that parental education influences outcomes for children through a number of mechanisms, including material and nonmaterial resources (Blau and Duncan 1967; Bourdieu and Passeron 1977; Teachman 1987; Blossfeld and Shavit 1993; Monaghan 2017; Liu 2018). Many of these mechanisms may well be protective during and after exposure to violent conflict and political transition. Material resources make security during war more likely—e.g., migration to safer parts of the country or abroad. Nonmaterial resources may help create a sense of normalcy and structure during civil war.

When children's schooling is directly tied to the socio-economic and educational status of their parents, inequality is reproduced. It is not enough to consider changes in educational attainment alone in order to understand the dynamic changes brought about by civil war and political transition, particularly in the former Soviet Union, where education was an important institution for efforts to reduce inequality. The educational mobility of children relative to their parents provides important insight into the effects of the transition to independence on educational attainment.

I expect that intergenerational educational mobility will be affected by political transition and by exposure to civil war events. I posit that while political transition will cause a general decline in the ability for children to outperform their parents on educational attainment, exposure to civil war will exacerbate these negative effects through disruption at key stages during the life course.

- **H4:** Cohorts negatively affected by political transition will be *less likely* to achieve the same or greater educational attainment levels as their parents, even years after the regime change.
- **H5:** Cohorts negatively affected by armed conflict will be *even less likely* to achieve the same or greater educational attainment levels as their parents, even years after the war has ended.

Materials and methods

This research aims to examine the linked shocks to the educational system in Tajikistan: the collapse of the USSR and the civil war of 1992–1997. I argue that while the long-term decay of the educational system during the political transition to independence has a cohort (*temporal*) effect on attainment, the short-term disruptions caused by armed conflict should exacerbate declines in attainment for school-aged children who were exposed to the conflict (*spatial-temporal effect*).

To investigate these dynamics, I use individual and household data from the 2007 Tajikistan Living Standards Survey (LSS).⁵ Approximately 4,800 households encompassing over 21,000 individuals were interviewed in November 2007 for the LSS. Table 2 describes the sample, which includes all four regions and Dushanbe, covering approximately 270 *jamoats* (the next lower regional units in the country's territorial- administrative hierarchy). Both

⁵This dataset is publicly available from the Tajikistan State Statistical Agency and archived by the World Bank (Ref. TJK_2007_TLSS_v01_M). Dataset downloaded from www.microdata.worldbank.org on 5 March 2018.

Dushanbe and the remote region of Gorno-Badakhshan (GBAO) were oversampled, with Dushanbe representing 10% of the population of Tajikistan and 14% of the sample, and GBAO representing 3% of the population and 13% of the sample. This sample allows for an investigation of the educational trajectories of those who completed their diplomas before, during, and after both the civil war and the political transition to independence.

To reflect the educational realities of the Soviet Union, and the temporal variance in educational attainment for Soviet-educated residents of Tajikistan (Whitsel 2012), I restrict the analysis to respondents born after 1945. This provides a sufficiently large reference group for a cohort analysis but restrains some of the relevant variation within this group.

Modeling strategy

I estimate two sets of models to investigate educational attainment and educational mobility during this period of war and transition in Tajikistan—one for absolute *educational attainment*, and one for relative educational attainment relative to the individual's parents (or, *educational mobility*). For the dependent variable educational attainment, I estimate a logistic regression using a dichotomous indicator that represents achieving *at least* the secondary diploma. This is the most common degree in Tajikistan, and that commonality is reflected in the sample as well, with around 75% of the sample completing secondary education. Although many types of secondary education exist in Tajikistan today (i.e., technical schools, religious schools), I make this measure widely inclusive to any type of secondary school that results in an equivalent diploma. Respondents who reported a lower educational achievement than secondary score a "0," and respondents who reported any type of secondary or higher education scored a "1" on this dependent variable. I restrict the sample to respondents who were at least 18 years-old at the time of the survey, and so were eligible to have completed secondary schooling.

For educational mobility, I estimate a multinomial logistic regression on the likelihood of upward, same, or downward mobility relative to the respondent's parent. I restrict the sample to those respondents who were over 22 years old in 2007. These cohorts have had the opportunity to finish higher education by the time of the survey. I use the difference between the same sex parent's attainment and the respondent's as the dependent variable. Respondents can be categorized as "less than parental attainment," "same as parental attainment," or "greater than parental attainment." Empirical evidence in developing countries suggests that mother's educational outcomes are more important for their daughters' attainment than for their sons' (Choudhary and Singh 2017). In a strong patriarchal society, I argue that daughters are more likely to follow the example presented by their mothers, and the same with sons and fathers. Table 3 highlights the sample distribution of children's attainment relative to their mother or father. I estimate a multinomial regression model using this subsample.

Measures and operationalization

Independent variables of interest—Following the life course perspective on education, I specify cohorts based on the stage of the educational career associated with the age of the respondent in 1992, at the start of the conflict, as well as the stage of educational attainment

that could have been completed by the point of data collection in 2007. Table 4 shows the respondents' ages in 1992, their ages at the point of data collection in 2007, the maximum attainment that could be achieved by the youngest member of the cohort, without any disruptions to his/her educational pathway, and the size of the sample in each category. Cohort dynamics represent the transition-related *temporal effects* in this research design.

Conflict events are considered *spatial-temporal effects*. Data on conflict events come from the Uppsala Conflict Data Program (UCDP) geocoded event dataset (Sundberg and Melander 2013; Croicu and Sundberg 2017), where data on events through publicly available local and international sources are extracted from Factiva.⁶ The UCDP errs on the side of moderation and tends to underestimate, particularly when dealing with unreliable reports. Leveraging the subnational variation of conflict events, I aggregate the UCDP event data into a single count measure for each district, representing all events from 1992 to 1997, as shown in Figure 1. The distribution of conflict events is highly irregular, with many districts experiencing no events, and many districts experiencing the maximum number of events (~40), with large gaps between. To smooth these data and treat them as a continuous variable without the analytical burden of creating arbitrary categories, I topcode the variable in these models at 20+ events, so that the scarce data at the top end of exposure are smoothed. The vast majority of events occurred between 1992 and 1993, with decreasing intensity through 1997, when the peace accord was signed. Many districts had no recorded events, including the entirety of the Sughd Oblast, shown in white in Figure 1.

Controls—In each model, I control for a host of household and individual characteristics to reduce estimation bias. Perhaps most importantly, I control for same-sex parental educational attainment. This is an important predictor of a child's potential for educational achievement. Another important indicator is residence in Gorno-Badakhshan (GBAO) and the associated assistance from the Aga Khan Foundation⁷ (Steinberg 2011; Mastibekov 2014). Because residence in GBAO is an important control variable in this study, I use it to stratify predicted probabilities and to capture this important regional difference. It is also perhaps important to educational outcomes whether the respondent lives in urban or rural residences. Many small towns were considered "urban" for the purpose of this survey (e.g., Khorog). More than twice as many respondents live in the countryside as in the towns. Beyond simple urbanicity, Tajikistan is an extraordinarily mountainous state. Districts that appear close to one another may be isolated in reality, due to the logistical challenges of traveling over mountainous terrain. High altitudes may exacerbate poverty and hinder the ability of organizations and the state to distribute aid. Altitude in the Tajikistan LSS is measured at the time of the survey and ranges from 234 to 3861 meters.⁸ Finally, respondent

⁶The geocoded event dataset (GED) is publicly available at <https://ucdp.uu.se/> and is regularly updated.

⁷The unparalleled recovery of school infrastructure in GBAO (shown in Table 1) likely reflects the investment of the Aga Khan Foundation (AKF) in the Ismaili communities in GBAO. The AKF provides indirect and direct investment in Shia Ismaili Muslim communities primarily concentrated in sub-Saharan Africa and Central and South Asia (Karim 2014). The political and social context in which this recovery occurred has been shaped largely by the Ismaili Muslim community in this region, with a specific emphasis on gender equality, relative to more conservative Muslim practice found in much of the rest of Tajikistan (Breu and Hurni 2003; Bliss 2006; Waljee 2008). During my 2017 fieldwork in Tajikistan, interviews with Pamiri people in Gorno-Badakhshan, as well as prominent social scientists in the region, retrospectively corroborated these accounts.

⁸Note that although in cross-national studies, "rough terrain" has been modeled as a determinant of the onset of civil wars (Fearon and Laitin 2003), altitude was not strongly correlated with conflict events in bivariate correlations comparing districts in Tajikistan.

ethnicity is a self-reported categorical variable that includes Tajik, Uzbek, Kyrgyz, Russian, and Other. If minority groups are disadvantaged in educational attainment or are particularly affected by the civil war and/or the political transition, we would see disparities here.

Results

Attainment

In this analysis, I consider the likelihood of completing at least secondary education. Results from simple models using only the cohort and conflict event interaction as well as the full model with individual and household controls are presented in Table 5. Cohort effects are strong in these models, particularly for those younger than 16 at the start of the war (for instance, $\beta = -1.51$, $\alpha < .001$ for boys and $\beta = -.588$, $\alpha < .001$ for girls at ages 3 to 6 at the start of the conflict, and $\beta = -1.11$, $\alpha < .001$ for boys and $\beta = -.705$, $\alpha < .001$ for girls ages 7 to 10 at the start of the conflict). These findings point to the strong effects of the transition to independence.

For a more intuitive interpretation of the interactive models, Figure 2 shows the predicted probabilities of attaining secondary education for girls (top) and boys (bottom) in GBAO (left) and the rest of Tajikistan (right), by cohort. For girls, we can see a clear, consistent decline in secondary achievement across cohorts, with the top dashed line in each quadrant representing the Soviet-educated reference group. Girls who were ages 7 to 10 at the start of the conflict see a decrease in likelihood of completing secondary education for each conflict event in their district (see the trajectory of the dotted line at the bottom of both girls' quadrants of Figure 2).

Conflict events negatively impact boys who were 16 to 17 ($\beta = -.076$, $\alpha < .01$) and girls who were 7 to 10 ($\beta = .029$, $\alpha < .05$) at the start of the war. Two separate mechanisms are likely at work here. For boys, this age group was likely targeted for recruitment and mobilization during the war, and by the end of the war, five years later, they had aged out of schooling. We might think that this cohort would be in the most intense direct competition with entry into the labor force, but this explanation does not hold for the non-conflict-affected peers for whom the probability of completing secondary education is moderately statistically significant and slightly *higher* than the Soviet-educated men. This finding partially supports H1, which posited that respondents at ages 16 to 17 would be more affected than their peers due to the proximity to degree completion. This hypothesis is supported only for boys, not for girls.

From these findings, it is clear that residence in GBAO has a consistently positive relationship with attaining at least a secondary education for boys ($\beta = 1.36$, $\alpha < .001$) and girls ($\beta = 1.97$, $\alpha < .001$). However, further testing with a three-way interaction demonstrates that the potential protective effect of investment from the AKF is limited. Full model results with fit statistics are included in the appendix, Table A1, and associated predicted probabilities in the appendix, Figure A1.

Mobility

In these models, I investigate educational mobility—that is, a child's educational attainment relative to his/her parent's. To this point, all of the multivariate models have included a measure of parental educational attainment, which has proved to be an important predictor for educational attainment, supporting H4. In this step, I further estimate a set of multinomial models in which the dependent variable indicates whether the respondent's level of educational attainment is greater than, the same, or less than the father's (for men) or mother's (for women). For this analysis, I remove the strongly correlated variables for parental educational attainment.

Table 6 displays the relative risk for the respondent attaining more than (left) or less than (right) his/her same sex parent, with a reference category of the same attainment. These relative risks can be interpreted as increasing the risk of a respondent being in one category versus the other two if the coefficient is greater than 1, and the inverse is true for coefficients less than 1. The sample restriction allows for respondents to plausibly have completed higher education by the time of data collection.

Relative to their Soviet counterparts, boys in all cohorts are relatively *less likely to be upwardly mobile* ($\beta = .149, \alpha < .001$; $\beta = .272, \alpha < .001$; $\beta = .560, \alpha < .001$, respectively) and *more likely to be downwardly mobile* ($\beta = 1.71, \alpha < .001$; $\beta = 1.45, \alpha < .01$; $\beta = 1.59, \alpha < .05$, respectively) than to achieve the same educational level as their fathers. Figure 3 shows the average men's predicted probabilities for upward, downward, or same educational mobility relative to their fathers.

Girls who were just beginning primary school (ages 7–10) at the onset of conflict are *more likely to be downwardly mobile* ($\beta = 1.89, \alpha < .001$). This cohort of girls is also significantly affected by conflict exposure, with an additional 5% risk of being downwardly mobile for each additional conflict event ($\beta = 1.05, \alpha < .05$). Cohort differences are especially pronounced for women, as shown in Figure 4. For women in non-conflict zones who reside in GBAO, the chance of achieving the same or greater education as their mothers is nearly 90% for the Soviet cohort, around 85% for the 16–17 year-olds at the onset of conflict, around 77% for the 11–15 year-olds, and a stark 62% for those who were just starting school, at ages 7 to 10. As conflict exposure increases, the predicted probabilities rise, but the differences between the cohorts expand. For the rest of Tajikistan, the differences are even more pronounced, with over 30 percentage points difference between the youngest and oldest cohorts, which expands to nearly 40 points at the highest intensity conflict zones.

Discussion

The nearly overnight disappearance of the Soviet education system was a shock to Central Asia. In Tajikistan, a brutal and devastating civil war accompanied this political transition. Using the geospatial variation and a cohort analysis, this research has examined the linked effects of the collapse of the Soviet Union and exposure to conflict events. The results suggest that the linked shocks of political transition and civil war were gendered.

Girls who attended school in the 1990s are at a disadvantage compared to those who were educated in the Soviet system. However, exposure to the conflict events and disruption to enrollments seems to affect only one cohort through disruption. The long-term impacts on educational attainment that emerged out of political transition are more widespread for girls. This story is consistent for both educational attainment and educational mobility. Girls in *all* cohorts are very unlikely to be upwardly mobile. Further, girls in the 7-to-10 year-old cohort are more likely to be downwardly mobile and less likely to achieve the same education as their mothers. There is a clear trend of declining education for girls in Tajikistan since the 1991 collapse of the Soviet Union, regardless of conflict exposure. This is not to say that girls did not suffer losses in conflict-affected areas, but rather that these losses leveled out as the decline in girls' education spread throughout the country.

For boys, on the other hand, the story of secondary educational attainment is one of individual disruption due to civil war. Secondary educational attainment for boys who were at combat ages (16-to-17 year-olds) at the start of the war was particularly negatively affected by exposure to conflict events. The real decline in the likelihood of finishing secondary education for this cohort of boys is dramatic. Consider the predicted probabilities of secondary attainment for an urban Tajik man who was 16 or 17 when the conflict started, whose father had secondary education, and who lived in western Tajikistan. In a non-conflict affected district, he has over a 90% chance of completing at least secondary education, while in a district with 20 or more events, that likelihood drops to below 70% (see Figure 2, bottom-right).

Though we may be tempted to interpret this finding in light of the excess mortality experienced by this cohort during the war, this survey data collected 10 years later necessarily does not include those who perished during the war. Those boys who perished did not complete their degrees, but also did not contribute to the model estimation. Thus, these models are *underestimating* the negative effect of armed conflict on the probability of completing secondary or higher education for boys at age 16 or 17 in 1992.

This study contributes to our understanding of the political and social forces supporting long-term changes in educational attainment in post-conflict societies. The findings shed light on the gendered consequences of the civil war in Tajikistan, but can also inform the many other cases that endured the linked processes of transition from the Soviet Union and violent conflict.⁹

Tajikistan is an important case of the co-occurrence of civil war and political transition, but it is not the only one. The type of intrastate civil war that unfolded in Tajikistan is the most common type of armed conflict since WWII (Pettersson and Wallenstein 2015), which should allow for future cross-case comparative research on the broad consequences of civil wars for educational attainment and mobility.

Perhaps future comparative work could also make use of other “negative” cases in which similar dynamics of political transition were not accompanied by violent conflict. For

⁹Potential cases include Moldova, Georgia, Chechnya, and Dagestan, for example.

instance, other Central Asian states also transitioned from the Soviet Union to independence, and in some cases, also to authoritarian governments. Yet, poverty rates, fertility booms, and patriarchal values varied across these states. Declines in quality education seem to be consistent across Central Asia, perhaps with the exception of Uzbekistan (Shagdar 2006). Future research can build on this work by considering these differences, and how these processes reinforce one another.

Because of its importance in social cohesion and control, changes to education have widespread ramifications for society. The gendered consequences of political transition and civil war subsequently affect the resilience and recovery of a conflict-affected region and the ways in which inequality is reproduced in the aftermath of war. In the midst of transition, changes to institutions such as education create new path-dependent processes that are difficult to change even when “transition” itself has come to an end. The roots of these educational changes lie in the double burden of Tajikistan’s turbulent transition to independence and its devastating civil war, but the many consequences of these changes persist today.

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Appendix

Table A1.

Logistic regression results with a three-way interaction between GBAO $\times$ conflict events $\times$ cohort (dependent variable: secondary education attainment)

	Men		Women	
	Coeff.	SE	Coeff.	SE
Intercept	1.97***	.187	.612***	.132
Conflict (topcoded)	-.023*	.010	-.010	.007
Residence in GBAO	1.57***	.396	1.85***	.267
Cohort (age in 1992) (ref = 18+)				
3 to 6	-1.44***	.146	-.593***	.150
7 to 10	-1.14***	.157	-.711**	.126
11 to 15	-.795***	.161	-.366**	.128
16 to 17	.299	.346	-.150	.198
Conflict $\times$ Cohort (ref = 18+)				
3 to 6	.013	.016	-.020	.017
7 to 10	.014	.020	-.027	.015
11 to 15	.007	.020	-.008	.015
16 to 17	-.073*	.030	.0002	.031
GBAO $\times$ conflict	.034	.061	.042	.041

		Men		Women	
		Coeff.	SE	Coeff.	SE
GBAO × Cohort (ref = 18+)					
	3 to 6	−.949*	.475	.011	.810
	7 to 10	13.60	287.41	.138	.804
	11 to 15	−.594	.599	.234	.582
	16 to 17	12.36	451.63	.604	1.07
GBAO × conflict × Cohort (ref = 18+)					
	3 to 6	−.054	.081	.043	.348
	7 to 10	−.015	59.72	−.086	.115
	11 to 15	−.008	.105	−.025	.097
	16 to 17	.057	132.73	−.127	.126
Parents' educational attainment (ref = None)					
	Primary	.338^	.182	.424***	.115
	Basic	.195	.175	.542***	.117
	Secondary	.982***	.166	1.19***	.132
	Higher	1.61***	.212	2.86***	.433
	Unknown	.182	.292	.549**	.179
Ethnicity (ref. Tajik)					
	Kyrgyz	−.375	.524	.201	.454
	Russian	.774	1.03	.845	.536
	Uzbek	.143	.118	.466***	.097
	Other	−.687	.658	.018	.669
	Urban	.295**	.101	.321***	.077
	Altitude (in 000s of meters)	−.188	.117	−.212*	.097
	N = AIC	3774		5128	
	AIC of original model with two-way interactive term only	3776		5112

Figure A1.
Predicted probabilities of attaining secondary education, respondents 18+.

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Figure 1.
Spatial distribution of conflict events, 1992–1997.

Figure 2.
Probability of completing at least secondary education, respondents of age 18+ in 2007.

Figure 3.
Predicted probabilities of educational mobility for men, 22+ in 2007.

Figure 4.
Predicted probabilities of educational mobility for women, 22+ in 2007.

Table 1.

Percentage change in the number of preschools (Russian: *doshkol'noe uchrezhdenie*) during and after the civil war

	GBAO		Khatlon		Sughd		Dushanbe	Districts of Republican Subordination	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Urban	Rural
During the war (1991–1997)	–17	–71	–11	–89	–39	–27	–14	–41	–57
Post-War period (1998–2006)	–62	367	–2	0	–17	–5	–18	–38	–14

Note: All percentages are author's calculations.

Source: Khasanzoda et al. 2016.

Table 2.

Geographic distribution of the Tajikistan LSS 2007 sample

	Men	Women	Total number of respondents	Pct. of respondents	Pct. of overall population
Dushanbe	1,401	1,634	3,035	13.95	9.86
Sughd	2,320	2,644	4,964	22.83	30.39
Khatlon	2,959	3,194	6,153	28.30	36.43
Districts of Republican Subordination	2,272	2,442	5,714	21.68	23.44
Gorno-Badakhshan (GBO)	1,353	1,525	2,878	13.24	2.80

Note: Author's calculations; population statistics sourced from the 2000 Census, reported in Khasanzoda and Shokirzoda (2019).

Table 3.

Child's educational attainment relative to their parent's, restricted to respondents over the age of 21 (column percentages are in parentheses)

Mother's attainment						
Daughter's	None	Basic	Primary	Secondary	Higher	Unknown
None	7 (1.3%)	7 (0.5%)	6 (0.4%)	1 (0.09%)	0 (0%)	1 (0.4%)
Basic	36 (6.7%)	37 (2.6%)	61 (4.4%)	31 (2.8%)	0 (0%)	13 (5.5%)
Primary	141 (26.4%)	314 (22%)	298 (21.7%)	138 (12.4%)	5 (3.1%)	45 (19%)
Secondary	330 (61.7%)	972 (68.2%)	936 (68%)	867 (77.7%)	64 (40.3%)	172 (72.6%)
Higher	21 (3.9%)	95 (6.7%)	75 (5.4%)	79 (7.1%)	90 (56.6%)	6 (2.5%)
Father's attainment						
Son's	None	Basic	Primary	Secondary	Higher	Unknown
None	4 (1%)	2 (0.2%)	3 (0.4%)	2 (0.1%)	0 (0%)	0 (0%)
Basic	12 (3%)	12 (1.4%)	18 (2.2%)	24 (1.1%)	3 (0.4%)	2 (1.2%)
Primary	46 (11.5%)	92 (10.8%)	71 (8.8%)	145 (6.9%)	26 (3.9%)	16 (9.9%)
Secondary	285 (71.1%)	618 (72.5%)	574 (71.5%)	1501 (71.6%)	389 (57.7%)	112 (69.1%)
Higher	54 (13.5%)	128 (15%)	137 (17.1%)	423 (20.2%)	256 (38%)	32 (19.8%)

Note: Highlighting indicates upward mobility (light) and downward mobility (dark).

Table 4.

Cohort specification based on education life course stages

Included in analysis?	Age in 1992 at start of war	Age in 2007 (time of survey)	Prob. stage of educ. in 1992	Max. attainment poss. by 2007	No education		Primary (Grade 4)		Basic (Grade 8/9)		Secondary		Post-secondary	
					N	%	N	%	N	%	N	%	N	%
Attainment only	3–6	18–22	Not yet enrolled	Sec.	21	0.9	96	4.0	512	21.5	1,720	72.3	30	1.26
Attainment and mobility	7–10	23–25	Primary	Post-sec.	7	0.4	75	3.9	364	18.7	1,318	67.8	179	9.21
Attainment and mobility	11–15	26–30	Basic	Post-sec.	3	0.2	41	2.2	309	16.3	1,275	67.1	271	14.3
Attainment and mobility	16–17	31–32	Sec.	Post-sec.	2	0.3	8	1.3	70	11.7	472	71.4	91	15.2
Attainment and mobility	18 +	33+	Post-sec.	Post-sec.	26	0.4	163	2.4	798	11.8	4,722	69.8	1,052	15.6

Table 5.

Educational attainment models: logistic regression results for men and women.

	Men				Women			
	Simple model		Full model		Simple model		Full model	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Intercept	2.54***	.076	1.99***	.186	1.42***	.048	.609***	.131
Conflict (topcoded)	-.023*	.010	-.022*	.010	-.020**	.006	-.009	.007
Cohort (age in 1992) (ref = 18+)								
3 to 6	-1.08***	.116	-1.51***	.141	-.583***	.083	-.588***	.147
7 to 10	-.753***	.133	-1.11***	.155	-.440***	.090	-.705***	.124
11 to 15	-.542***	.138	-.836***	.156	-.151	.098	-.353**	.125
16 to 17	.568 [^]	.326	.340	.344	.075	.171	-.125	.194
Conflict * Cohort (ref = 18+)								
3 to 6	.011	.015	.012	.016	-.008	.011	-.021	.017
7 to 10	.009	.018	.012	.020	.009	.012	-.029*	.015
11 to 15	-.001	.018	.007	.020	-.011	.013	-.009	.015
16 to 17	-.081**	.028	-.076**	.029	.011	.025	-.006	.029
Parents' educational attainment (ref = None)								
Primary	---	---	.328 [^]	.182	---	---	.419***	.114
Basic	---	---	.192	.175	---	---	.538***	.117
Secondary	---	---	.976***	.166	---	---	1.18***	.132
Higher	---	---	1.60***	.212	---	---	2.87***	.432
Unknown	---	---	.162	.292	---	---	.549**	.179
Ethnicity (ref. Tajik)								
Kyrgyz	---	---	-.329	.512	---	---	.176	.453
Russian	---	---	.789	1.03	---	---	.851	.535
Uzbek	---	---	.140	.118	---	---	.455***	.097
Other	---	---	-.691	.657	---	---	.017	.669
Urban	---	---	.291**	.101	---	---	.319***	.077
Residence in GBAO	---	---	1.36***	.271	---	---	1.97***	.233
Altitude (in 000s of meters)	---	---	-.188	.117	---	---	-.212*	.097
N = AIC	4367.7		3776.2		7910.7		5112.2	

Note: The dependent variable is a dichotomous indicator of educational attainment, divided into less than secondary (0), and at least secondary attainment (1). A score of (1) includes any higher education experience. Signif. codes: 0 = ***, 0.001 = ** 0.01, * 0.05 ^ 0.1.

Table 6.

Relative risks of educational mobility among men and women.

Educational attainment mobility (ref = same as parent)	Men		Women	
	Upward (Greater than father's)	Downward (Less than father's)	Upward (Greater than mother's)	Downward (Less than mother's)
Intercept	2.12***	.207***	4.48***	.204***
Conflict (topcoded)	1.01	1.02^	1.00	.978
Cohort (age in 1992) (ref = 18+)				
7 to 10	.149***	1.71***	.204***	1.89***
11 to 15	.272***	1.45**	.287***	1.32
16 to 17	.560***	1.59*	.465***	1.06
Conflict × cohort (ref = 18+)				
7 to 10	1.02	1.01	1.00	1.05*
11 to 15	1.03^	1.02	1.00	1.01
16 to 17	1.00	1.02	.970	.942
Ethnicity (ref. Tajik)				
Kyrgyz	.455*	.390	1.17	2.20
Russian	.503	1.49	.416**	.711
Uzbek	1.02	1.04	.820*	.561***
Other	2.72	3.64***	.988	.000
Urban	.825***	.987	.824*	1.04
Residence in GBAO	.708^	.532**	.497***	.245***
Altitude (in 000s of meters)	1.04	1.18	.942	1.07