

The Long Shadow: The Long-Term Consequences of Armed Conflict for Population Change in Tajikistan

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Abstract

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Armed conflict creates uncertainty, endangers individual physical safety, and threatens the destruction of institutions. This dissertation examines the long-term consequences of armed conflict for educational attainment, abortion, and migration, ten years after the end of the Tajikistani civil war. Short-term disruptions in schooling during the war have ramifications for degree completion later in life for boys, while broad changes stemming from the regime change have ramifications for girls' attainment. These differences diminish for the region where investment in education has been consistently higher, suggesting that development strategies can moderate the negative effects of armed conflict in the long run. For some cohorts of women, the likelihood of having an abortion decreased over the long run when exposed to conflict at childbearing ages, although for some women the number of abortions declined. These changes fade over the long run. Finally, exposure to conflict events fundamentally changes some features of the institutional landscape which in turn affect livelihood strategies. People in places with more exposure to conflict events were more likely to decide to migrate ten years after the end of the war, all else equal. Together, these findings suggest that when it comes to the *long-term* outcomes of armed conflict, it is not only *individual* exposure that matters, but also *institutional* exposure.

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Last but certainly not least, this dissertation is dedicated to the residents of Tajikistan. To those who lived through armed conflict in their homeland, to those who lost their lives, to those who fled, and to those young enough to have only the faintest of memories of the events. To those who opened their hearts and homes to me, who shared meals with me, who traveled around that beautiful country with me, thank you.

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Chapter 1. Introduction

Introduction

*“Everything was floating by, the posts, the gravel, the clay. It was all being left behind them, the dry grass, the thorn, the fringe of blue air above the hills. It stayed behind wordlessly, not calling out to them, not trying to stop them from leaving,” – Andrei Volos, *Harramabad**

Fotima¹ sat across from her husband, Bobujon as she spoke. Her eyes welled with tears as she told me about her father’s death in the civil war, and her escape to northern Tajikistan with her mother. Her mother had taken clever steps to ensure their apartment would remain legally theirs upon their return. With a drag of a cigarette, Bobujon pointed to his shaken wife and explained to me that although they’d had the money for an apartment in Dushanbe (the capitol city) for years, they would never buy one here. They would always keep other options open. They had seen, he explained, what happened when you ‘committed’ to Dushanbe.

The Tajik civil war raged from 1992-1997, killing an estimated 60,000 and displacing a million residents to northern Tajikistan or Afghanistan. Most of the violence was concentrated in 1992 and 1993, and Fotima and Bobujon were around 10 years old at that time. Still, the experience of violence and uncertainty emerges in discussions of daily life in Tajikistan today. Travelers to post-conflict societies readily share anecdotes about the long shadow of war. Systematically investigating the social and demographic outcomes of the Tajikistani civil war, ten years after the peace accord was signed, motivated this project. I wanted to know how short-term dramatic disruptions affected people over the life course. I wanted to know the role that the *aftermath* of armed conflict plays in the decisions that people make – about investments in human capital, about family formation, and about livelihood strategies. These decisions aggregate to educational attainment gains or losses, to rising or falling fertility rates, and to the

¹ All names changed to protect anonymity.

prevalence of migration. At the macro-level, these important indicators can reflect stability (or instability), resilience, and recovery from the experience of armed conflict.

Tajikistan is a land-locked, mountainous country that was once the poorest republic in the Soviet Union. The legacy of the Soviet Union is perennially in tension with a remembrance (accurately and otherwise) and reverence of the Samanid, Bactrian, and Persian roots of the region. After the collapse of the USSR, war broke loose, fundamentally changing the institutional landscape of the country. I traveled to Tajikistan in the summer of 2017 to conduct interviews with key informants at non-governmental organizations. I wanted to learn about the aftermath of the war from the people who had been there, trying to alleviate the devastation of it.

During my time there, I traveled as much as I could and seemed to make new friends in every corner of the country. I had casual conversations about life and love while eating *plov* and *kurutob* on a *topchan*, a traditional dining pavilion. When the pipes in my apartment burst, the construction workers who lived upstairs rushed to help me and joked that it wasn't they who were at fault, but rather Khrushchev, who was in charge the last time the pipes had been replaced, evidently.

After waiting several days for the debris of a landslide to clear, I finally made my way to Gorno-Badakhshan. After a harrowing twelve-hour ride which should have taken much longer, the moon began to rise over the Pamir mountain range in Afghanistan, which lay directly across the Panj river. Arriving at a friend-of-a-friend's house in Gorno-Badakhshan felt like migrating to a wholly separate country. Traditional Pamiri homes are constructed with a large square interior supported by five pillars, representing either the five members of the prophet's family, the five principles of Islam, or the five major gods of Zoroastrianism, depending on who you ask. A major feature of every home in the Pamirs is the prominent display of the portrait of the Aga Khan, the living imam of the Ismaili branch of Islam ascribed to by the residents in this region. On a tour of the Pamir house, I pointed to the portrait and asked, "Aga Khan, right?" The patriarch of the house nodded enthusiastically and replied "Yes, he's our leader (*новодыр*)."

To the word 'leader,' I probed: "He's the imam, right?"

The man responded, “Tajikistan has Rahmon; we have Aga Khan. *Leader.*” I nodded and understood, but later asked my friend why the man felt so free to speak about Aga Khan in such a way to a foreigner and stranger. My friend responded by reminding me how far from Dushanbe we were. Perhaps it is unsurprising to find such allegiance to the Aga Khan, the living imam of the moderate Ismaili sect of Islam, as his foundations are largely credited for keeping the population in the Pamirs alive after the peak of violence in the 1990s with weekly deliveries of food and aid packages. In Gorno-Badakhshan, I sat on a *topchan* and shared bread with a woman in her early 20s who was eager to tell me about the history of the Ismaili sect and the Aga Khan’s place among the famous imams. She made sure to point out that her life chances were a direct result of the moderate Islam she practiced. This sentiment was widely prevalent, from shop keeps telling me about the opportunities for women, to children as young as five years old proudly displaying to me their many books in English. In the Wakhan Valley, two women who ran a small restaurant and homestay stopped me in my tracks and showed me how to tie my head scarf in the Pamiri way: always behind the ears, never in front. A scarf tied in front resembles a traditional *hijab*, something Pamiri women do not wear (and which is likewise rare in the rest of Tajikistan).

Part of the legacy of the Soviet Union in independent Central Asia was the focus (at least in theory) on secular education and gender equality (Froese 2008). Of course, legacies can create a national backlash as the newly independent state carves out its own identity. On the path dependent march through history, the collapse of the Soviet Union certainly qualifies as a critical juncture at which radical social change is possible (Pierson 2004, 2000). The resulting anti-Soviet turn in political life was reflected across other institutions as well. Educational attainment began to decline, especially for women. ‘Retraditionalization’ emerged as a theme in explaining what appeared to be increasing social conservatism, particularly in reference to the influence of Islam on women (Commercio 2015; Constantine 2007; Fathi 2006). It is not the whole story, however. Decisions to leave school, to marry and have children, occur at the household and individual levels. They are the result of both long-term social processes and short-term disruptions.

The same can be said of decisions to migrate from Tajikistan for work, a decision typically made by men. Migration is a very common livelihood strategy (Tajikistan is the most remittance-dependent country in the world), but many see the widespread practice as a reflection of weakness, not opportunity. Some estimates claim that at any given time, a million Tajikistani are working abroad, mostly in Russia. In the hills above Khorog, on a walk with Farrukh, who had grown up there, he told me the story of his experience in Moscow as a migrant from Tajikistan. He and his friends had been on a metro car when a group of skinheads boarded, clearly looking for trouble. Farrukh and his friends disembarked at the next stop, but the skinheads followed. Farrukh was able to outrun them, but one of his friends was captured, beaten, and killed. Farrukh pledged never to return to Russia. Why would he? Anti-minority sentiment against Central Asians in Russia includes not only violence but also wage arrears and housing discrimination. By not migrating, however, Farrukh is part of a left-behind group of young people with few, if any, employment opportunities. Young men with less than promising prospects, a legacy of being forgotten by political leaders, and access to weapons from Afghanistan make for a dangerous combination for preserving peace in a former conflict zone.

Firuz, whose son could easily fall into this group, expressed to me her worry that young people in Tajikistan no longer remember the horrors of war. They turn to violence because they are restless and angry, but they do not remember the sacrifices of their parents. She thinks that another war will erupt. It's a point of debate for the few in Tajikistan who are willing to talk about it. Could another war erupt in their lifetimes? Could Gorno-Badakhshan once again declare independence? For some, it is a point of pride. For others, a deeply held fear.

The events of 2012 are never far from this debate. That July, a top security official was stabbed in Khorog, leading to an outbreak of violence. While the state reported 23 combatant deaths and no civilian casualties, a hospital worker told the BBC at that time that at least 200 were dead, with dozens more injured, both soldiers and civilians. The familiar security narrative of radical Islamic threats emerged, and road blocks were established between Gorno-Badakhshan and the rest of Tajikistan. Two years later, a foreign researcher was arrested investigating the event. That spring, the government temporarily halted

foreign travel to the region. Under the surface of Khorog, a bustling town with an annual music festival and an impressive new university, that tension persists.

Back in Dushanbe, Bobujon and I met at a café on my last evening there. We discussed, in sometimes coded language, the theme of my dissertation. The shadow of this war was long, he told me. It affected the collective psyche of Tajikistan.

“We learned how to survive,” he told me, “but we forgot how to live.”

Beyond Displacement: The Long-Term Consequences of Conflict

The lived experience of armed conflict does not end at the signing of the peace accord. The legacy of war affects a wide range of social, economic, and political institutions, it fundamentally changes a generation of men and women, and the way that those men and women assess risk and make decisions. The shadow of war lingers over social networks and formal institutions. The winning side controls power structures within the state and seeks to reward those on their side and penalize the opposition. Risk and uncertainty are recalculated over and over by those who survived. Those who fled may choose not to return. The life expectancy for men drops. Husbands die. Couples are separated. Women are raped. Stress and trauma interrupt healthy lives, and further, health institutions decay, sometimes in tandem with the destruction of infrastructure.

Untangling Long-Term Effects

There are many plausible reasons we should anticipate long-term demographic change in response to armed conflict. Uncertainty about security, retaliation from the state, uneven reconstruction efforts, and limited access to economic institutions all may play a role. The intertwined relationship between politics and economics makes it difficult to tease out long-term processes that are affected by armed conflict. For that reason, much of the literature examining the effects of armed conflict on schooling, migration, and family planning tend to favor proximate causes. Proximate causes are those closest to the effect – the most immediate forces driving some decision or outcome – whereas distal causes are much more long-

term underlying causal mechanisms. We tend to favor proximate causes because the examination of distal causes of demographic change is difficult. Tracing the processes that emerge within an armed conflict and after requires the identification of a multitude of actors with their own goals and motivations, and an analysis of the spending of time and resources to rebuild (or not) certain areas, and both a conceptualization and an operationalization of complex variables that overlap and interact. Dramatic changes in these linked behaviors lead individuals, households, regions, and countries on a new path, one from which reversal is costly (Levi 1997; Pierson 2004, 2000). Path dependent processes shape and reshape the aftermath of armed conflict.

The tendency to favor proximate causes is often the case for research on migration from developing countries. Simplistic push-pull theories ignore the “novel features [of migration, which] are invariably embedded in the social and cultural context of immigrant communities,” (Portes 1997:253). Exposure to conflict, then, is a critical component of the context of migrant communities in post-conflict societies. Conflict changes the institutional landscape of a place. In addition to the economic devastation, infrastructure such as roads and schools are often damaged or destroyed. Educational trajectories are disrupted through conscription, destruction of schools, and the displacement of teachers. The dynamics of marriage and fertility change, as the age-sex ratio changes with increased mortality for men and the separation of spouses. This can result in fertility delay, followed by a so-called ‘baby boom’, experienced by the United States after WWII, for example. Conflicts that reinforce dividing lines between regional or ethnic identities affect both in-group solidarity and the ability to develop trust in the ‘other.’ Displaced persons returning home may find that jobs are scarce, public goods are depleted, and their neighbors and extended family members have permanently fled.

It is not only the psycho-social that is affected by armed conflict. Development projects can vary significantly based on exposure to conflict, the state’s ability to provide security for international organizations traveling to former conflict zones, the state’s investment of resources into the distribution of public goods, and the state’s retaliation against areas that may have harbored rebels (as defined by the state). Uneven investment of development aid can have a tangible effect on unemployment, human capital

development, educational systems, and a host of other institutions which have direct links to migration and marriage patterning. While most of these factors interact with daily lived experiences, and with the economic realities that individuals and households face when making demographic decisions, the impact of conflict cannot be ignored.

Experiencing Conflict

In this research, I categorize the experience of conflict at the individual and community levels. The purpose of this typology is to introduce the levels at which conflict has short- and long-term impacts on social forces. It is agnostic to the intensity of any one conflict event and to the individual's lived experience of the event or the extent of harm inflicted. These dynamics of exposure to conflict are important, to be sure, but I have kept the typology necessarily simplified in order to map onto social science categories of micro and macro-level changes. At the micro-level, individuals may experience conflict through *exposure*. Exposure to events, like gun battles and bomb blasts, occurs at the time of the event and likely affects individual and household decisions about risk management. How much of a daily routine can a child embark upon when the terror of collective violence has permeated it? American readers of a certain age will likely recall their own fear in public spaces and high-rise towers after the terrorist attacks on September 11th, 2001. Behavioral change in response to fear and the recalculation of risk are the strongest in the short-term. Exposure is important for thinking about the psycho-social and biological effects of armed conflict – stress and trauma can immediately alter a decision and dramatic changes during transitional stages in the life course have long-term ramifications. For instance, a fear response of taking public transportation that affects a young woman's ability to go to school, disrupts her education in the short-run and seriously threatens her ability to attain a degree. If she fails to get a degree, her life chances diminish significantly. Her fear may dissipate as the years go by, but her reduced education will continue to affect her well-being over the entire life course.

At the macro-level, the collective experience of organized violence becomes embedded in the institutions of a community. Conflict events are a destructive force for the social and political institutions

embedded in that place. Formal institutions may be degraded or become ineffective. The rule of law, for example can suffer tremendously during armed conflict. Alternatively, special policing units might be deployed to combat opposition or rebel groups, reifying a securitization narrative and visibly increasing police presence in a community. Formal institutions that are tied to infrastructure, such as health and education, suffer when the associated buildings are bombed. Political will may not be strong enough to provide resources for social services during times of crisis. Asymmetric reconstruction in the aftermath can deeply debilitate the ability for these institutions to recover from damage and decay. Worse, as the institutions falter year after year, it is not only buildings that decay but social trust in the efficacy and safety of a service.

The importance of trust should not be underestimated in the aftermath of organized violence. As an informal institution, the ability to trust a neighbor can be protective against stress and trauma. Group dynamics are shaped here, neighbor-to-neighbor. Social networks are built and maintained on trust, and with its erosion, so too the ties of a network begin to fade. Networks are particularly hard hit during violence, through killings and through displacement. In the former scenario, obviously, those ties are never recovered. In the latter scenario, displaced people may never return, or they may return with their own scars of notoriously poor refugee camps.

Institutions take a long time to rebuild after they have been destroyed. A school building can be constructed, but it then needs to be filled with teachers and staff, who must have curriculum and materials with which to teach. They must be paid wages, preferably on time. Parents must be convinced that sending their children to school is safe. Table 1 summarizes the conceptualization of experiences of conflict at the individual and institutional levels.

Table 1. Conceptualization of conflict experience at the individual and community levels

Category	<i>Exposure</i>	<i>Institutional context</i>
Level	<i>Micro</i>	<i>Macro</i>
Characteristics	Individual experiences collective violence Occurs at the time of the event Experiences fear, uncertainty, recalculates risk	Community features are changed by exposure to armed conflict Initial exposure occurs at the time of the event, but duration of change can be longer Destruction of infrastructure; changes to/decays in institutions
Example	After he was at the market when a bomb deployed, a man is too afraid to travel to the market and sell his goods there. His livelihood is threatened.	After an attack on a public market, regional police intensify monitoring of public spaces. Their presence is visibly increased.

Conflict Matters: Changes in Education, Abortion, and Migration

Following this logic, this dissertation examines the long-term effects of both exposure and institutional contexts of organized violence in Tajikistan – using the outcomes of education, abortion, and migration to illustrate long-term consequences. Broadly, I argue that in each case, exposure to or institutional change stemming from conflict events fundamentally (although not necessarily permanently) changes a population and its demographic behavior. The outcomes in these chapters are intrinsically valuable to examine: education is an important development indicator, and the education of girls is of particular concern to international and domestic policy-makers; abortion is an important method of birth control that has health and fertility implications; migration in a remittance-dependent society is an important livelihood strategy that brings with it its own societal tradeoffs. Each of these outcomes, in turn, affects other social and demographic processes. Declines in educational attainment, for instance, are likely to precede declines in wealth accumulation, health and wellness, and the pursuit of gender equality.

This dissertation draws on detailed individual, household, and community data from the 2007 Tajikistan Living Standards Survey (TLSS), collected by the World Bank and Tajikistan’s state statistical agency. In addition to collecting socio-economic information from nearly 20,000 individuals across

nearly 5,000 households, the TLSS collected migration histories for the calendar year of 2006. They also collected information on the marriage and childbearing for women who were 15-49 at the time of data collection. There are, of course, limitations to any retrospective survey data, including recall bias that may affect how individuals report events from their past. Perhaps most importantly for any study of the long-term consequences of armed conflict is that the data include only those who remain in Tajikistan ten years later. This excludes those who perished, those who were displaced and elected never to return, and those who left after the war for some duration long enough to be excluded from the data collection.

Nevertheless, the survey was a massive undertaking that allows for a snapshot of the first ten years after the conflict ended. One of the most important features of the TLSS is the residence history module. In this module, respondents give their place of birth (down to the district level if within Tajikistan), where they lived in 1992 at the start of the war, and, for migrants, residences abroad. Because of this feature, we can attach conflict data at the point of exposure in 1992 or at the contextual district level in 2007, allowing for two different conceptualizations of the influence of armed conflict. This conflict event data comes from the Uppsala Conflict Data Program. Events are recorded from a triangulation of media accounts, and conservatively estimated. Fatalities are likewise estimated, but far less reliable, in general. I aggregate the event data to create a conflict measure for each district in Tajikistan. Events are clustered around centers of political power – of both the incumbent and opposition groups – in Dushanbe, Qurgonteppa, the Rasht Valley, and Gorno-Badakhshan. I supplement this data with interviews in Tajikistan in 2017 with key informants from development organizations that were active in the reconstruction period after the peak of conflict violence in 1993. Key informants provided information on the development strategies and the realities that did not always reflect carefully laid plans. They provided detailed maps, timelines, and organizational structure overviews of development resource centers, which I draw upon primarily for chapter three. Much of this research relies on regression analysis, and the supplemental qualitative data collection helped inform the research design and interpret the model results.

In the first chapter, I examine the effect of exposure to war on educational trajectories for boys and girls. 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 effects of these linked political processes on educational outcomes. I find that while exposure to conflict was an important factor keeping boys from completing their secondary education – likely due to recruitment and mobilization – the greater political collapse of the Soviet Union and transition into the new independent educational system was universally detrimental for girls. Those girls who were in Gorno-Badakhshan, where there has historically been a greater focus on gender equity, fared better overall. The findings emphasize the separate but linked effects of armed conflict during political transition and offer an analysis of the gendered nature of these effects.

In the second chapter, I utilize retrospective individual-level survey data for women ten years after the end of the civil war to examine the relationship between conflict and abortion. I apply the Ready, Willing, and Able framework to induced abortion in order to examine changes in individual preferences and institutional access that can affect whether a woman chooses to have an abortion, and how many abortions she has over the course of her life. I find that conflict events increase the likelihood that women who were 15-20 years old at the onset of conflict will have at least one abortion. I further find that conflict events increase the ratio of abortions to pregnancies women over the age of 30 at the start of the war but decrease this ratio for women who were 26-29 years old at the same time. Although most work on post-Soviet health systems emphasizes the political transition after independence, these findings suggest that when indicators of conflict exposure are included in the analysis, a more complex story emerges. Young women on the brink of family formation who are exposed to armed conflict are affected *differently* from their peers who were not exposed. This research contributes to our understanding of armed conflict and abortion, a topic that garners very sparse attention, despite the large proportions of women in developing countries who have ever had an abortion.

Examining the influence of recent historical conflict on contemporary migration decision-making is critical to better understanding the dynamics of population change in developing countries, to more effectively distribute aid, and for rebuilding institutions. The third chapter attempts to fill this gap in examining the long-term consequences of armed conflict on contemporary migration. Specifically, I focus

on the reconstruction process in the aftermath of conflict and how conflict-related changes to the local area affect current residents' migration behaviors. I find that armed conflict events and development processes in the aftermath of conflict affect migration dynamics a decade after the conflict had ended. With increasing conflict intensity, residents were more likely to use migration as a livelihood strategy, but those with high levels of conflict and a United Nations Development Programme resource center were less likely to migrate than those without a resource center. The UNDP centers created temporary labor markets that incentivized potential migrants to stay in their home communities.

Neither this conflict nor the long-term effects of it are unique to Tajikistan. Intrastate conflict has been on the rise since the end of World War II (Pettersson and Wallensteen 2015). High profile refugee crises have become increasingly common in the last decade. However, social scientists and demographers often take a limited approach to the relationship between armed conflict and demographic processes, in which the effect of conflict events is relegated to the most proximate decision-making, such as forced migration. Yet, the scars of these wars are still visible, decades after the peace accords have been signed.

References

- Commercio, Michele E. 2015. "The Politics and Economics of 'Retraditionalization' in Kyrgyzstan and Tajikistan." *Post-Soviet Affairs* 31(6):529–56.
- Constantine, Elizabeth. 2007. "Practical Consequences of Soviet Policy and Ideology for Gender in Central Asia and Contemporary Reversal." Pp. 115–26 in *Everyday Life in Central Asia*, edited by J. Sahadeo and R. Zanca. Bloomington: Indiana University Press.
- Fathi, Habiba. 2006. "Gender, Islam, and Social Change in Uzbekistan." *Central Asian Survey* 25(3):303–17.
- Froese, Paul. 2008. *The Plot to Kill God*. Berkeley: University of California Press.
- Hacker, J. David. 2016. "Ready, Willing, and Able? Impediments to the Onset of Marital Fertility Decline in the United States." *Demography* 53(6):1657–92.
- Levi, Margaret. 1997. "A Model, a Method, and a Map: Rational Choice in Comparative and Historical Analysis." Pp. 19–41 in *Comparative Politics: Rationality, Culture, and Structure*, edited by M. I. Lichbach and A. S. Zuckerman. Cambridge: Cambridge University Press.
- Pettersson, Therese and Peter Wallensteen. 2015. "Armed Conflicts, 1946-2014." *Journal of Peace Research* 52(4):536–50.
- Pierson, Paul. 2000. "Increasing Returns, Path Dependence, and the Study of Politics." *The American Political Science Review* 94(2):251–67.
- Pierson, Paul. 2004. *Politics in Time: History, Institutions, and Social Analysis*. Princeton: Princeton University Press.

Chapter 2: The Long-Term Effect of Armed Conflict on Declines in Educational Attainment

It is difficult to overstate the importance of education, at both the macro- and micro-levels. Educational attainment is a key component of development goals, and an important predictor for other socio-economic outcomes. International organizations have consistently prioritized increasing access to quality education as a central tenet of development (The World Bank 2011; UNICEF 2017; United Nations 2013). At the macro-level, educational outcomes are associated with economic growth and stability (Barro and Lee 2013). Further, growth and stability are critical for the reduction of the risk of reemergence of violence after war (Collier, Hoeffler, and Soderbom 2008). At the micro-level, disparities in educational attainment can map onto socio-economic outcomes later in life, exacerbating inequalities over the life course (Crosnoe and Benner 2016). Low levels of education have consistently been linked to crime, employment instability, and poor health through adulthood (among many others, see Kirkpatrick Johnson et al. 2016; Leopold 2018; Masters, Hummer, and Powers 2012; Osborne and Higgins 2015). Education is a crucial domain to investigate during and after both political transition and armed conflict.

This study examines the long-run consequences of the Tajikistani civil war and the collapse of the Soviet Union on educational outcomes. I depart from the cross-national approach in studies of political transition conflict and inequality, and instead examine a single case. 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 post-war Tajikistan. I ask (1) if men and women 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 men and women 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, (3) if armed conflict and political transition also affect the ability of children to attain as much or more education as their parents,

and (4) if the effect of investment in girls' education by the Aga Khan in the autonomous region of Gorno-Badakhshan mitigates the negative effect of transition for girls in that region.

The findings 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. In Tajikistan, boys who were in their teenage years at the start of the conflict were much less likely to finish secondary education if they lived in conflict zones than non-conflict zones, perhaps indicating that recruitment into 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 effects of exposure to armed conflict are not as strong, suggesting that although armed conflict may have caused disruptions for some girls, political transition to a new educational system was *universally* detrimental to girls' educational attainment in the long run. These findings have implications for our understanding of the dynamics of the aftermath of armed conflict and its long-term effects on human capital accumulation over the life course. In addition, the findings around intergenerational educational mobility suggest that not only do armed conflict and political transition contribute to overall declines in educational attainment, but also to the reproduction of inequality. Finally, the findings in the Gorno-Badakhshan region suggest that investment that explicitly targets gender equity in educational attainment has a protective effect that mitigates the damage that armed conflict can wreak on girls' schooling.

Background

The collapse of the Soviet Union was a political, social, and economic shock that had both short- and long-term ramifications for former socialist republics. The political transition that ensued is often referred to as an implosion due to the unexpectedly low levels of armed conflict that emerged in the subsequent power vacuum (Kotkin 2001). However, the institutional collapse that accompanied this political transition was devastating to Central Asia, which was particularly vulnerable to the shock. The lasting effects of this disruption were not equitably distributed. Out of the five Central Asian states, only Tajikistan suffered the additional destruction of violent armed conflict in the wake of independence. The

onset of war co-occurred within only three months of the collapse of the USSR in December 1991. Both war and political transition can undermine educational outcomes for particular age groups, and these linked processes can subsequently contribute to declines in educational mobility – a key component in reducing inequality.

Theoretical Framework

How Political Transition Affects Education in the Long Run

Sweeping transitions in political regimes have the power to transform, disrupt, or dismantle existing institutions. These institutions take a long time to recover. Even in the absence of conflict, political transition may disrupt educational trajectories. At higher levels of education, uncertainty may increase around the value of the diploma, causing students in secondary and higher education to abandon the pursuit. The disarray that often accompanies political transition can also create gaps in the quality of education. In extreme cases, teachers and white-collar workers in other education-related professions may leave the country altogether.

In a large cross-national study, Walder et al. (2015) investigate the co-occurrence of transition from state socialism and economic recession. The authors find that the Soviet successor states that suffered more protracted power struggles fell into deeper recessions for longer than other states which experienced rapid transitions, or the other surviving communist states. These deep recessions can lead to stagnation in or reductions in educational spending. In Kyrgyzstan, for example, 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). This effect, however, varies by context. 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). After 1948 in Czechoslovakia, transition *into* socialist education curriculum seemed to narrow the gender gap in educational attainment, but had little effect on inequalities

stemming from social origin (Matějů 1993). This is not to say that stagnation in and of itself is not an important effect, however. In contexts in which educational opportunities are rapidly expanding, stagnation of attainment signals the impact of armed conflict on halting the otherwise positive trajectories for those affected.

In short, political transition fundamentally transforms the institution of education for whole cohorts of school-aged children. These effects can be long-lasting for those cohorts, leading to declines in likelihood of completing mandatory education for individual children, and to declines in levels of educational attainment across the state.

How Armed Conflict Affects Education in the Long Run

In cross-national studies, 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; Lai and Thyne 2007). Because conflict disrupts education at both the institutional and individual level, these effects can be long-lasting. Several years after the genocide in Rwanda, for example, children who were school-aged and lived in areas with higher war intensity had attained half a year less schooling than children of the same age in lower intensity areas (Akresh and de Walque 2008). These gaps had persisted after the war had ended and amidst reports that the institution of education had recovered in Rwanda. Exposure to conflict in the Tajikistani civil war led to disruptions in school enrollment for girls, but not boys, though research has not yet linked this contemporaneous disruption to the long-term implications for girls' educational attainment (Shemyakina 2011). In addition, armed conflict has the capacity to destroy infrastructure and displace families. Highly-skilled teachers may leave conflict zones, damaging the quality of schools that remain.

In short, armed conflict creates a temporary but dramatic disruption in educational trajectories among those children who were both school-aged and in conflict-affected areas. The extent of the long-

term effect of these disruptions depends on the recovery ability of the individual, the institution of education, and the state as a whole.

The Long-Term Effects of the Co-Occurrence of Armed Conflict and Political Transition

It is not only direct exposure to violence that results in these long-lasting effects. Conflict often emerges from or results in fundamental transformations of the society in which it is contested. Wars of independence that are successful, for instance, force new states to address the socio-economic reality of the aftermath of conflict while also building (or rebuilding) institutions within the new social order. In this scenario, the impacts on education are two-fold.

Declining access to educational resources can be a product of both political transition and armed conflict. 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 powers may abruptly stop, leaving a gap to be filled by an underdeveloped and overburdened newly independent state, and/or by international development organizations.

Further, the combination of transition to independence and armed conflict may exacerbate the decline in educational resources. For example, in Nigeria, the development of African-centered curriculum was delayed a decade longer after independence than similar efforts in Kenya, Mozambique, and Mali (Woolman 2001). All four countries experienced a political transition during independence, but Nigeria also suffered a devastating civil war and decades of oscillation between political instability and repressive regimes. Thus, access to educational resources may be embedded in political transition but exacerbated by armed conflict, leading to deeper declines in educational attainment over the long-run.

A Life Course Approach

By the very nature of educational enrollment in most contexts, effects of major macro-level events such as conflict and political transition will depend on the cohort into which an individual is born. A great deal

of literature has argued for a life course approach to a wide range of outcomes (for an extensive review, see Shanahan, Mortimer, and Kirkpatrick Johnson 2016). The life course perspective considers age a socially-constructed position that is linked to socially-defined roles, so that events occurring during one phase of life are fundamentally different than if they had occurred at an earlier or later phase. Exposure to violence and combat at certain stages of the life course can have serious long-term ramifications, particularly in key transitional stages of the life course (Korinek and Teerawichitchainan 2014; London and Wilmoth 2016).

An emerging body of literature has used life course theoretical frameworks to understand educational trajectories and inequalities (Crosnoe and Benner 2016). This perspective argues that 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 these additional components, 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. Disruptions at this stage, then, decrease the likelihood of future educational success.

Later, in adolescence, the education system becomes more differentiated and hierarchical, which simultaneously creates more room for agency and reinforces path dependent decision-making. Students who choose more challenging courses early on will be more likely to go on to more challenging college preparatory courses later in their career, and the inverse is also true (Crosnoe and Benner 2016). In many contexts, this stage of the educational career is also in direct competition with the labor market. Depending on regional and national norms and regulations of youth employment, in countries like Tajikistan, adolescents may decide to enter the labor force either part- or full-time, informally or in family business, in agricultural work, or formally in private businesses. For children in poor households, these decisions can be particularly consequential, as entering the labor force provides a temporary 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).

Degree attainment at the secondary and post-secondary levels are markers of achievement and preparedness for occupations that tend to be better paid and less hazardous than those available without a degree. The life-long returns to higher education can be of such a magnitude that, “increasingly, college graduation is a dividing line between the haves and have-nots in the U.S. and in other industrialized societies,” (Crosnoe and Benner 2016:186). In developing contexts, rates of college education are much lower than rates of secondary completion, and so we might expect that under these conditions, a high school degree would replace the college degree as the critical credential for success on the labor market (Barro and Lee 2013). However, for the post-Soviet context, the legacy of Soviet tertiary educational institutions makes college education a prerequisite for many employment sectors.

Disruptions to education during the secondary schooling years have the potential to not only delay but completely derail degree attainment. The direct competition with entry into the labor force only increases with age, so that 16- and 17-year-olds in most contexts can work longer hours and make more money than their 12- to 15-year-old counterparts. Disruption due to violent conflict may last for longer than a year and exacerbate absolute poverty conditions. Decisions to return to schooling or enter the labor force may be particularly difficult during this stage of life, especially for children in poor households. For many, returning to schooling after a long disruption would delay short-term earnings, even as it ensured long-term earnings potential.

This decision-making process is directly linked to the duration of the conflict – a one-year disruption may be easier to overcome than one lasting five or more years. This mechanism is also sensitive to the age of the child at the start of the war. Consider a 12-year-old in middle school who is unable to attend for one year and returns to school only a year behind, at age 13. That same child suffering a five-year disruption would be less likely to return to middle school at 17 years old.

There are opportunity costs associated with continuing education. Competition from non-educational arenas begins to emerge at certain ages. In many contexts, this competition is remarkably gendered, but with similar outcomes – the labor force primarily appeals to boys, while marriage and childbearing appeal to girls. The same 17-year-old child in the scenario above may well decide to pursue

employment (through migration, perhaps) or to pursue family formation instead of returning to school at an older age. The opportunity cost of choosing education over these alternatives is informed by familial norms around education for those with highly educated parents, the domestic and foreign labor markets, and the accessibility of adult education programs.

[Table 1 about here]

<i>Table 1. Plausible mechanisms linking conflict and regime change to long-term educational consequences</i>			
	<i>Resources</i>	<i>Disruption</i>	<i>Opportunity costs</i>
<i>Exposure to violent conflict</i>	<p>States fund war instead of social services.</p> <p>Displacement of families and teachers.</p> <p>Destruction of schools.</p>	<p>Bombing of schools.</p> <p>Landmines on major roads.</p> <p>Physical access to schools reduced.</p> <p>Fear of physical &/or sexual violence against girls.</p> <p>Mobilization of boys.</p>	<p>(Depends on disruption.)</p> <p>Increased competition with duration of conflict-related disruption.</p>
<i>Political transition</i>	<p>State may be vulnerable to collapse, ceasing funding.</p> <p>Investment in education declines – perhaps temporarily – as the new state grapples with depleted funds.</p> <p>Disappearance of subsidies from former colonial power.</p>	<p>Uncertainty around value of diploma.</p> <p>Declining quality of education.</p> <p>White-collar flight of teachers, related occupations.</p>	<p>(Depends on disruption.)</p> <p>Increased competition with protracted declines in quality and increased time to recruit and train new teachers.</p>

Hypotheses

Detailed above, I consider hypotheses that align with the mechanisms of disruption and long-term consequences of both armed conflict and political transition on educational attainment. Increasing opportunity costs of education are cohort-specific, thus, 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 less likely to complete secondary education, even years after the conflict ends.*

Unequal Effects

Beyond cohort effects, certain groups are more vulnerable than others to the negative effects of violent conflict, particularly in the long-run. Disparities at the earliest stages of the educational trajectory can subsequently affect an individual's life chances into adulthood, so that inequalities that begin in childhood are compounded over time, not reduced. Policy-makers have strongly argued that the key to reducing later educational inequality is to provide pre-primary interventions (Heckman 2006).

Recovery from disruptions is not impossible, but it requires human and social capital, which can be less accessible for marginalized people, including women, minorities, and children from poor and/or rural communities. In many contexts, these are the very groups that are disadvantaged in educational opportunities in the absence of war. In urban China, for example, the country's political conditions have long affected the mechanisms that present barriers to education for minorities, women, and rural families, although to varying degrees during specific historical periods such as the Great Leap Forward and the Cultural Revolution (Zhou, Moen, and Tuma 1998).

The specific challenges that arise for educational attainment during wartime produce inequitable outcomes for these populations. Disadvantaged groups have fewer resources to withstand the impacts of

war. Relative to more advantaged groups, they are less able to seek alternative education while displaced, and to recover from long disruptions or delays in schooling. Further, because of the persistence of inequality and the close link between education and employment, these outcomes can affect earnings potential throughout the life course and exacerbate social stratification.

Gender

The experiences of war are deeply gendered. 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 in countries like Tajikistan are unlikely to have been active combatants as soldiers or armed militants but they may be especially prone to suffer the indirect effects of war – such as those that result from damage to infrastructure, public health, and social order – more than men (Grimard and Laszlo 2014; Plumper and Neumayer 2006). Although combatants are overwhelmingly male, violence against civilians proportionately affects women as much as men. Rape, forced impregnation, and violence against women and girls can become a wartime tactic (Cohen 2013; Farwell 2004). The fear of violence or kidnapping can convince parents to keep girls at home instead of sending them to school, causing disruptions to enrollment and attainment.

Although from the accounts above, we might expect conflict to equitably affect school-aged girls and boys, research examining gender differences in education during civil wars suggests that the magnitude of the effect of conflict is greater for girls' educational outcomes. Shemyakina (2011) finds that during the civil war in Tajikistan, girls in conflict-affected areas were less likely to enroll in compulsory schooling than girls in non-affected areas. The same pattern did not persist for boys. Chamarbagwala and Moran (2011) find educational disparities among *minority* boys and girls during the

Guatemalan civil war, with sharper declines in schooling years for girls (up to 30% less) than for boys (up to 23% less).

Political transition is likewise a gendered process, due largely to the reshaping (sometimes temporarily) of gender relations during these macro-level changes (Waljee 2008). Particularly in post-colonial and post-Soviet cases, transitions from strong states to ones where state capacity and obligation is greatly reduced, the burden of survival falls to the family unit, led by women (2008:94). These new pressures of survival during transition increase the opportunity costs of continuing education. Short-term needs to feed, house, and protect a family replace long-term educational aspirations or desires.

Hypotheses

Armed conflict creates disruptions. These disruptions generate long-term declines in educational attainment *when individuals and communities do not have the ability to recover from these otherwise short-term disruptions*. It is not only the exposure to armed conflict, but also the nature of the impact on educational trajectories that create long-lasting effects. 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 armed conflict. Thus, I expect:

H3: *Armed conflict will have a greater long-term impact on women than men, due to 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 is the attainment level of her 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 in addition to genetics (Blau and Duncan 1967; Blossfeld and Shavit 1993; Bourdieu and Passeron 1977; Liu 2018; Monaghan 2017; Teachman 1987). Many of these mechanisms may well be protective during and after exposure to violent conflict and political transition. Material resources, such as income, that are

tied to higher educational attainment make available some options for security and safety during armed conflict, such as refugee migration to safer parts of the country or abroad. Other nonmaterial resources that in peacetimes allow parents to create a home environment that fosters academic achievement may help create a sense of normalcy and structure during and after armed conflict. An educated parent is able to bestow upon her children the cultural capital that fosters the knowledge and values that make one successful in educational and occupational pursuits (Bourdieu and Passeron 1977). These same strong familial educational values may also motivate children to return to schooling after disruption to their education, mitigating the negative repercussions of such a disruption.

Intergenerational mobility – that is, a child’s ability to out-perform her parents in education, income, and wealth accumulation – is an important dimension of social mobility, more generally. When children’s schooling is directly tied to the socio-economic and educational status of their parents, inequality is reproduced. Thus, it is not enough to consider changes in educational attainment alone in order to understand the dynamic changes brought about by armed conflict and political transition, particularly in the former Soviet Union, where education was an important institution for efforts to reduce inequality. The gains (or losses) made by children relative to their Soviet-educated parents provide an important insight to the effects of transition to independence on educational attainment.

Hypotheses:

Because of the strong influence of parental education on familial norms around the importance of degree completion, and the correlation with family resources to assist students in completing schooling, I expect:

H4: Parental educational attainment levels of respondents will be a strong predictor of educational outcomes, regardless of conflict exposure.

In addition, I expect that intergenerational educational mobility will be affected by political transition and by exposure to armed conflict events. I posit that while political transition will cause a general decline in

the ability for children to out-perform their parents on educational attainment, armed conflict will exacerbate these negative effects through disruption at key stages during the life course.

***H5:** 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.*

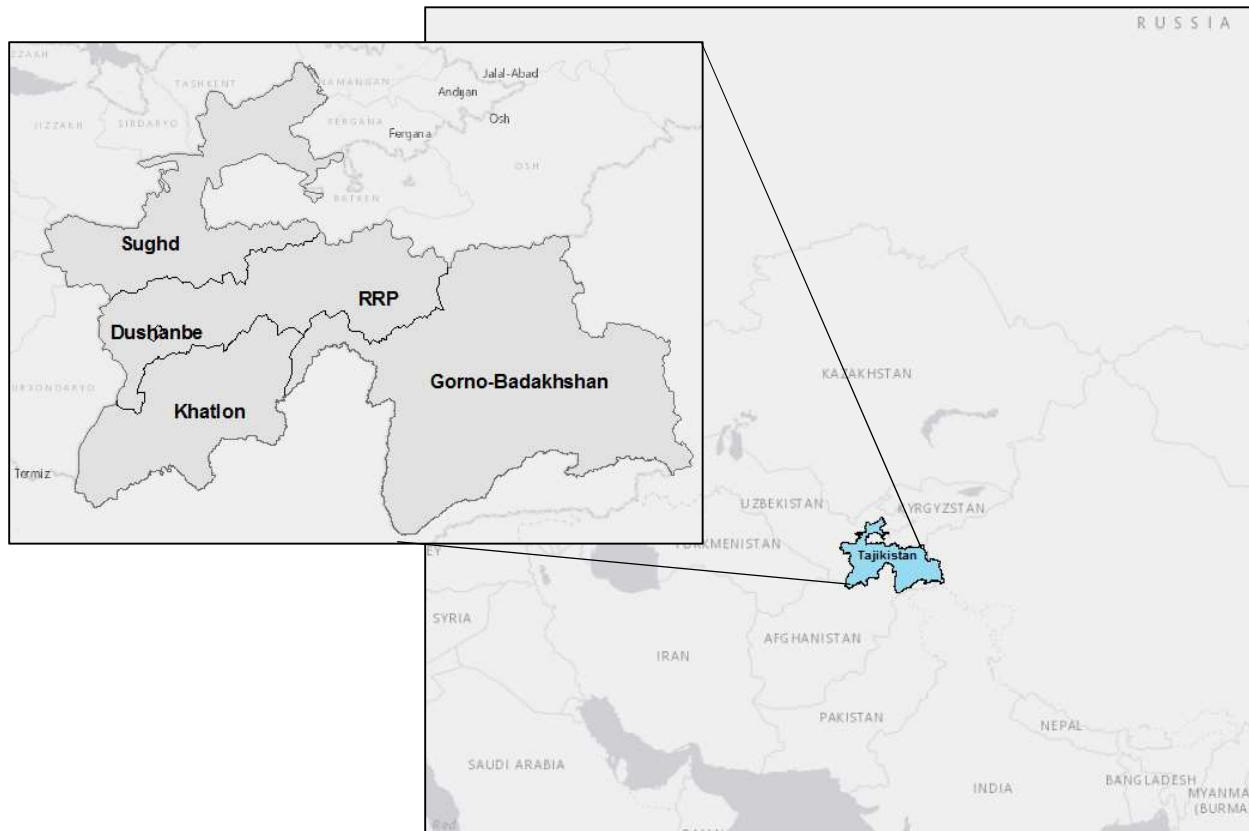
***H6:** Cohorts negatively affected by armed conflict will be **even less likely** to achieve the same or greater educational attainment levels as their parents, even years after the war has ended.*

The Case of Tajikistan

Located at the south end of Central Asia, Tajikistan is a small, land-locked 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.

[Figure 1 about here]

Figure 1. Regional map of Tajikistan



Despite mass emigration after the collapse of the Soviet Union, and excess mortality during the armed conflict 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 are 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).

Civil War

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). After declaring independence in December 1991, along with many other Soviet

Socialist Republics, the interim government lasted only a few months before opposition protests began, and martial law was declared in Dushanbe (Nourzhanov and Bleuer 2013). Widespread discontent over institutionalized corruption had 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) (Driscoll 2015; Dudoignon 1997). This unexpected alliance was distinctly anti-Soviet, and positioned against the northern elites from Khujand, who rallied around the incumbent (and Soviet-backed) Rahmon Nabiev. The economic shock of the collapse of the Soviet Union brought with it hunger and job scarcity; Tajikistan remained the poorest former socialist republic, and without important subsidies from Moscow, conditions deteriorated. By April 1992, an estimated 100,000 protestors filled the main square in Dushanbe, demanding that Nabiev resign (Nourzhanov and Bleuer 2013:300). Violence in Dushanbe began in May as the IRPT began arming demonstrators (2013:316). Violent events were widespread through 1992 and 1993, primarily in Qurgonteppa in the southwest, the home base of United Tajik Opposition (UTO), Qurgonteppa, in the Rasht Valley, home to the Gharmi opposition, and in the Gorno-Badakhshan Autonomous Oblast. The northern Soviet-era elites in Khujand allied themselves with the rural poor in southern Kulyob. Violence peaked in 1993, but continued on intermittently for the next four years, until a peace agreement was finally signed in 1997, between the new president backed by the Khujand-Kulyob alliance, Emomali Rahmon, and the leaders of the United Tajik Opposition.

The conflict resulted in substantial human and material losses. In a country with a population then of a little more than 5 million, experts estimate that between 20,000 and 60,000 were killed, and up to a million people were displaced within Tajikistan and to neighboring countries (Olcott 2012). The conflict caused widespread damage to infrastructure, institutions, and private dwellings. UNICEF estimates that nearly 200 primary schools were destroyed and between 2 and 12% of household structures were damaged in the conflict across the various regions (Shemyakina 2011). During the conflict, foreign and domestic investment in the economically important mining industry in Tajikistan practically came to a standstill (Levine 1996). Both during and after the conflict, regional divides were salient, producing “a

highly regionalized pattern of politics... [and] an unusually high degree of congruence between patronal networks and territorially defined populations,” (Hale 2014:154). This regionality is an important factor during the post-conflict reconstruction period, in which Rahmon’s closest allies were rewarded and the territories that supported the major opposition groups were penalized.

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). In Central Asia, the Soviets focused on dismantling traditional Islamic madrasas, and instead providing free, secular education, with the union-wide goal of creating the ideal ‘socialist person’ through general secondary education (Deyoung 2006). Of course, this isn’t to say that every madrasa shuttered was eventually replaced by a modern Soviet school (Khalid 2007). Nevertheless, the focus on education brought the literacy rate across Central Asia from the lowest in the Soviet Union to 90% by 1965, whereas fewer than 30% of Iranians, Pakistanis, or Turks were literate then (Froese 2008:96). Women were specifically targeted by the ambitions of Soviet education policies, which encouraged them to “liquidate their illiteracy,” (Edgar 2006:257). Although far from perfect, many Central Asians now recall the Soviet era favorably, largely because of the state’s involvement in meeting essential needs, especially education (McMann 2007).

Education after Independence

When the Soviet Union collapsed, Tajikistan “lost nearly half of its budget and much of its supplies of food and energy. By the time that the civil war began in May 1992, the mechanisms of social control were well on the way to breaking down,” (Rubin 1998:140). By the end of the conflict in 1997, 1 in 5 primary schools in Tajikistan had been destroyed (UNICEF). Table 2 shows the changes in the number of preschools in rural and urban areas of each administrative district (oblast’). Rural areas in the Districts of

Republican Subordination, the 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).

Table 2. Percentage change in preschools (дошкольное учреждение) during and after the civil war

	GBAO		Khatlon		Soghd		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.

During the conflict, parents had to assess 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, separating families and 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, leading to disruptions in school enrollment and completion of diplomas during the conflict. These temporary but dramatic disruptions in education created short-term declines in enrollment, but also have the potential to shape the path-dependent educational trajectory of individuals at certain stages of the life course.

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). In regions where schools were damaged or destroyed, recovery was a slow process. Although the population grew rapidly after independence, 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). General declines in educational attainment may well follow these declines in institutional capacity. These long-term changes are part of the degradation of the educational system

associated with this political transition, and should affect certain cohorts, regardless of exposure to armed conflict events.

Analytical Strategy

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 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. To investigate these dynamics, I use individual and household data from the 2007 Tajikistan Living Standards Survey (LSS), conducted through a partnership between the World Bank and UNICEF. Approximately 4,800 households constituted by over 21,000 individuals were interviewed in November 2007 for the LSS. Table 3 describes the sample, which includes four regions and Dushanbe, as well as approximately 270 *jamoats*. Both 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.

[Table 3 about here]

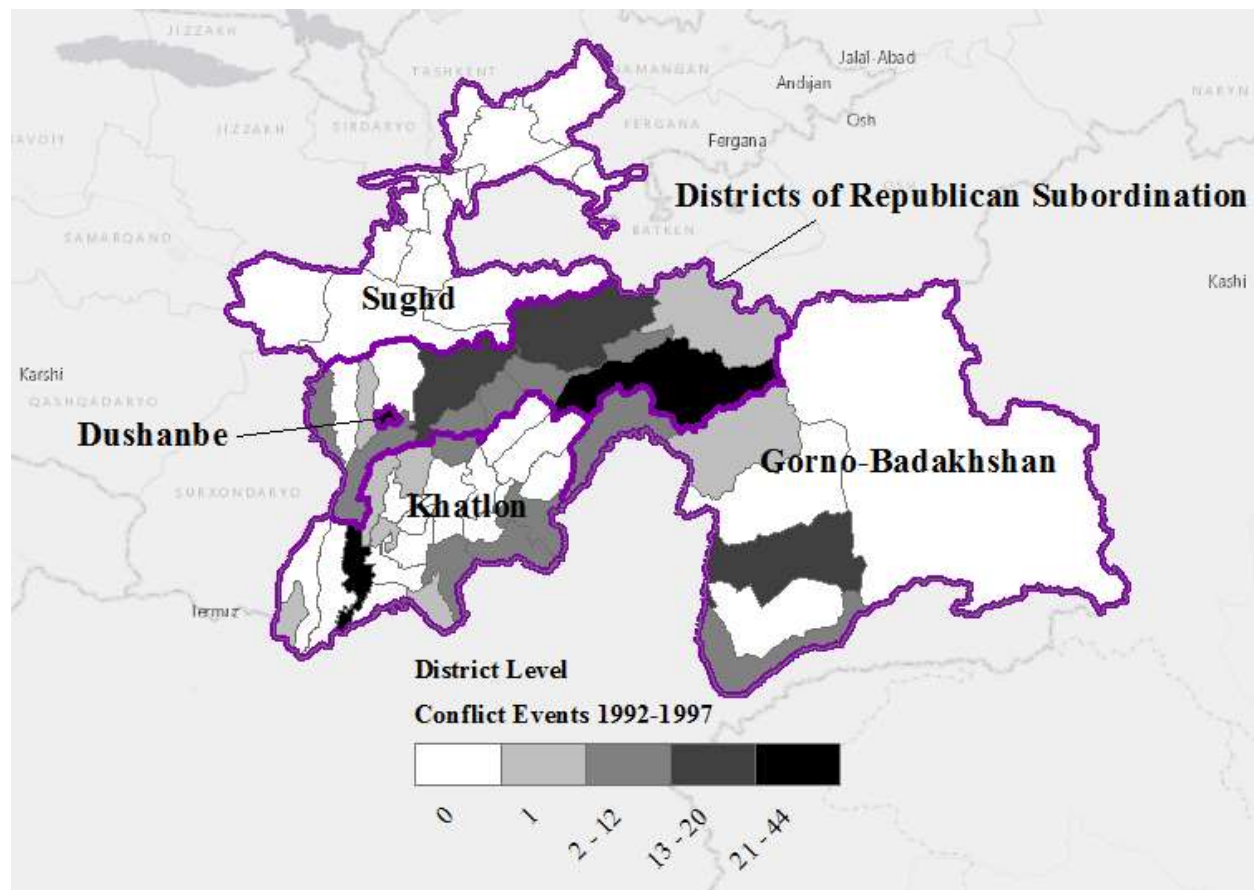
<i>Table 3. Geographic Distribution of the TLSS 2007 Sample</i>					
	Men	Women	Total Number of Respondents	% Respondents	% overall population
Dushanbe	1,401	1,634	3,035	13.95	9.86
Sughd	2,320	2,644	4,964	22.83	30.39
Khatlon	2,959	3,194	6,153	28.30	36.43
Districts of Republican Subordination	2,272	2,442	4,714	21.68	23.44
Gorno-Badakhshan	1,353	1,525	2,878	13.24	2.80
<i>Note: Percentages are author's calculations</i>					

Conflict event data were obtained from the Uppsala Conflict Data Program (UCDP). The UCDP collects annual data on events through publicly available local and international sources and extracted from Factiva. The UCDP errs on the side of moderation, and tends to underestimate, particularly when dealing with unreliable reports. Leveraging the subnational variation of conflict events², I aggregate the UCDP event data into a single count measure for each of the 58 districts nested within four oblasts and the capitol city, Dushanbe. These data represent all conflict-related events from 1992-1997, shown in Figure 3. The events were not spatially equally distributed. Much of the violence that occurred toward the end of the conflict was concentrated in the Districts of Republican Subordination, which surrounds, but does not include, Dushanbe. There were no credible reports of armed conflict events in the Sughd oblast. 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 the variable as continuous 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.

[Figure 2 about here]

Figure 2. Spatial distribution of conflict events, 1992-1997

² See Nyseth Brehm 2017; Williams et al. 2012 on the operationalization of armed conflict not as a single continuous 'event', but as a varied set of events that take place at the subnational level.



Sample Restrictions

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 her educational pathway, and the size of the sample in each category.

Because of the gendered nature of war, and my expectations that exposure to conflict and power transition will differentially affect boys and girls, I estimate all the models separately for men and women. For the purposes of this study, I restrict all the analyses to respondents who were born after 1945, in order to exclude respondents who were pensioners by the start of the war, and whose own educational

attainment was subject to the multiple Soviet policy changes before WWII. Likewise, I restrict the sample to those respondents who were 16 years of age or older by 2007, so that all respondents had the opportunity to complete at least basic education. This initial restriction leaves over 7500 men and 8600 women in the sample. In each of the five regions in Tajikistan (four large regions and the city of Dushanbe), women are slightly more represented in the sample than men. As in the population overall, most of the sample resides outside of Dushanbe.

With the cohort specifications below, I estimate regression models to predict the educational attainment for men and women separately. In the first step of the analysis, I retain the entire sample as described above, and model the educational attainment through basic (compulsory) education (grade 8 or 9). All cohorts have the opportunity by 2007 to complete this basic educational diploma that is required by the state. For this model, I estimate a logistic regression model on a binary dependent variable that indicates that the respondent has completed at least basic education (1) or not (0).

In the second step, I restrict the sample further to those respondents who are at least 18 years old, and thus have had the opportunity to complete secondary by 2007. This means removing the youngest cohort, leaving a subsample of approximately 6,800 men and 7,800 women. I estimate a logistic regression model on a binary dependent variable that indicates that the respondent has completed at least secondary education (1) or not (0).

Finally, in the last step of the analysis, I investigate the upward or downward mobility in human capital accumulation for respondents over the age of 22 at the point of data collection. These respondents have had the opportunity to finish higher education. I create new variables indicating whether the respondent has achieved the same level, higher, or lower than the parent of the same gender. I remove all observations in which the parental education attainment is 'Unknown' – this constitutes a maximum reduction of 166 for men and 260 observations for women. Although this appears to be a substantial deletion, respondents with known parental education and respondents with unknown parental education do not have significantly different educational attainment (in a Pearson's chi-square test, $\alpha = .39$).

Selection into different educational outcomes based on reporting a parent’s educational attainment as “unknown” should not affect the analysis.

Table 4. Cohort specification based on education life course stages

Steps of Analysis incl.	Age in 1992 at start of war	Age in 2007 (time of survey)	Prob. stage of educ. in 1992	Max. attainment possible by youngest age in 2007	No education		Primary (Grade 4)		Basic (Grade 8/9)		Secondary		Post-secondary	
					N	%	N	%	N	%	N	%	N	%
Step 1 only	Under 3	16 – 17	Not yet enrolled	Basic	9	0.6	253	17	935	64.3	258	17.7	0	0
Steps 1 and 2	3 – 6	18 – 22	Not yet enrolled	Sec.	21	0.9	96	4.0	512	21.5	1,720	72.3	30	1.26
Steps 1, 2, and 3	7 – 10	23 – 25	Primary	Post-sec.	7	0.4	75	3.9	364	18.7	1,318	67.8	179	9.21
Steps 1, 2, and 3	11 – 15	26 – 30	Basic	Post-sec.	3	0.2	41	2.2	309	16.3	1,275	67.1	271	14.3
Steps 1, 2, and 3	16 – 17	31 – 32	Sec.	Post-sec.	2	0.3	8	1.3	70	11.7	472	71.4	91	15.2
Steps 1, 2, and 3	18 +	33+	Post-sec.	Post-sec.	26	0.4	163	2.4	798	11.8	4,722	69.8	1,052	15.6

Measures and Operationalization

1. Dependent variables

I use three separate operationalizations of education for each step of the analysis strategy. In the first approach with the entire sample, I use a dichotomous indicator in which respondents receive a 0 for educational attainment less than 8th grade (achieving the ‘basic education’ diploma) and a 1 for achieving at least the basic education diploma. In the second step, I use a dichotomous indicator that represents achieving at least the secondary diploma. In the final approach, I restrict the sample to those respondents who were over 22 years old in 2007. In this step, I use the difference between the parent’s attainment and the respondent’s as the dependent variable. 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 deeply gendered society, I argue that daughters are more likely to

follow the example presented by their mothers, and the same with sons and fathers. Table 5 shows the distribution of children's education relative to the parent of the same gender.

[Table 5 about here]

Table 5. 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%)

Highlighting indicates upward mobility (green) and downward mobility (yellow)

2. Conflict Events

Data on conflict events comes from the Uppsala Conflict Data Program (UCDP). 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.

3. Cohorts

I specify cohorts based on the stage of educational career the respondent would have been in at the start of the conflict in 1992 and at the point of data collection in 2007. This specification is detailed in Table 3.

4. Controls

These factors are included to reduce estimation bias based on household and individual-level characteristics. They are also included to control for factors that preceded conflict, such as birth region, and altitude, that may have influenced the level of exposure to conflict experienced in those districts.

- **Parent's educational attainment** is an important predictor of a child's attainment and represents not only family-level characteristics such as parents encouraging education as a priority, but also the ability for parents to help mitigate the negative effects of disruptions through the use of their own human capital. In the first two sets of models predicting attainment for men, I use the father's educational attainment, and in the models for women, I use the mother's attainment. This indicator controls for previously existing family characteristics that make greater educational attainment more likely for some children, with or without conflict.
- **Ethnicity** is categorized as Tajik, Uzbek, Russian, Kyrgyz, or 'Other', listed here in order of their population size.
- **Urban** residence is a dichotomous variable that indicates whether the household is located in a town (1) or the countryside (0). More than twice as many respondents live in the countryside than the towns. Dushanbe is the only administrative region with no rural households.
- **Residence in Gorno-Badakhshan (GBO)** is an important factor in understanding educational outcomes for women. In this far eastern province of Tajikistan, respondents identify largely as Pamiri, and adhere to the Ismaili branch of Shia Islam. The associated Aga Khan Foundation has provided a great deal of aid to the Ismaili communities across south and central Asia, including substantial investment in education (Mastibekov 2014; Steinberg 2011).

- **Altitude** is measured by The World Bank at the time of the survey, and ranges from 234 to 3861 meters. In Tajikistan, districts that are geographically close by may be isolated in reality, due to the logistical challenges of traveling over mountainous terrain. High altitudes hinder agricultural development and may exacerbate poverty for areas that development organizations have difficulty reaching. Although in cross-national studies, “rough terrain” has been modeled as favorable to the onset of civil wars (Fearon and Laitin 2003), when comparing districts within Tajikistan, altitude was not strongly correlated with conflict events in bivariate correlations.

Results and Discussion

Step 1 – Basic Education

For both girls and boys, there is a clear and consistent cohort effect in which younger cohorts (in the absence of conflict) have a much lower probability to finish the mandated basic education relative to the Soviet-educated cohorts. The results in Table 6, below, suggest that much of the decline in compulsory education stems from the institutional changes to education as Tajikistan transitioned from the Soviet era to its post-independence era. This general trend is contrary to the hypotheses that armed conflict would affect educational attainment, but only for compulsory education levels.

Exposure to conflict in 1992 affects the probability of a girl finishing basic education if she was between the ages of 11 and 15 (see Table 6, $\beta = -.051$), which is the stage during the life course in which she should have completed primary education but not yet attained the basic diploma. This suggests that girls who were exposed to conflict may have 1) experienced a disruption in their education (as Shemyakina (2012) argues) and 2) were unable to recover these losses after the conflict ended. Relative to their counterparts who were not exposed to conflict, even controlling for other education-related factors, these girls have a lower probability to finish the mandated basic education. This inability to recoup the conflict-related losses to educational attainment after the war had ended is an important mechanism in identifying the long-term consequences of armed conflict on persisting inequalities. This finding for girls

partially supports H1 suggests that for those respondents aged 11 to 15 (moderate evidence to support) and 16 to 17 (no evidence to support for girls), the negative effects of conflict would be more pronounced than their peers who were not living in conflict zones in 1992.

Boys who had not yet begun any kind of pre-primary education (those under 3 years old at the start of the conflict, $\beta = .066$ in Table 6) and who had not yet begun any kind of primary schooling (those between 3 and 6, $\beta = .092$ in Table 6) had a higher probability of finishing basic education with more conflict events, even though the cohort effect makes this generation less likely than the Soviet-educated one to complete the mandated schooling. This finding partially supports H2, in that the negative effects of the armed conflict are less pronounced for boys in the youngest cohorts, who had the longest amount of time to recover their educational trajectories after the conflict ended. However, this did not account for the overall negative cohort effect that those respondents exhibit, nor did I hypothesize a gender difference in this finding.

[Table 6 about here]

Table 6 – Analysis Step 1. Logistic regression results for men and women
Dependent variable is a binomial indicator of educational attainment, divided into none or primary attainment (0), and at least basic attainment (1)

	Men				Women			
	Simple Model		Full Model		Simple Model		Full Model	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Intercept	4.30***	.169	3.61***	.335	3.34***	.103	2.44***	.240
Conflict (topcoded)	-.055**	.017	-.052*	.019	-.026*	.012	-.017	.013
Cohort (age in 1992) (ref = 18+)								
Under 3	-2.79***	.201	-3.00***	.237	-1.83***	.151	-2.26***	.326
3 to 6	-.777**	.270	-1.07***	.299	-.512**	.168	-.729**	.273
7 to 10	-.388	.324	-.449	.371	-.496**	.181	.248	.307
11 to 15	-.038	.360	-.192	.386	.456^	.259	.248	.307
16 to 17	1.51	1.14	1.27	1.45	.349	.427	.025	.435
Conflict * Cohort (ref = 18+)								
Under 3	.064**	.023	.066**	.025	.021	.019	.024	.040
3 to 6	.073*	.037	.092*	.044	-.025	.019	.028	.034
7 to 10	.047	.044	.032	.044	.001	.022	.001	.027
11 to 15	.020	.041	.018	.042	-.040	.026	-.051^	.027
16 to 17	-.101	.072	-.093	.072	.053	.080	.043	.084
Parents' educational attainment (ref = None)								
Primary	---	---	.376	.329	---	---	.481*	.206

Basic	---	---	.586 [^]	.322	---	---	.875 ^{***}	.221
Secondary	---	---	.821 ^{**}	.282	---	---	.982 ^{***}	.237
Higher	---	---	1.25 ^{***}	.335	---	---	3.12 ^{**}	1.03
Unknown	---	---	.795	.760	---	---	.343	.317
Ethnicity (ref. Tajik)								
Kyrgyz	---	---	-.11	.812	---	---	.297	1.05
Russian	---	---	.002	1.10	---	---	.514	1.02
Uzbek	---	---	.406 [^]	.224	---	---	.352 [^]	.193
Other	---	---	-.430	1.07	---	---	X	X
Urban	---	---	.070	.165	---	---	.233	.150
Residence in GBAO	---	---	.358	.406	---	---	1.75 ^{***}	.505
Altitude (in 000s of meters)	---	---	-.030	.199	---	---	-.086	.187
N =	7385	7585			8645		8645	
AIC	1848.5	1653.5			3290.5		1862.9	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1								
X indicates too few cases to include in the analysis								

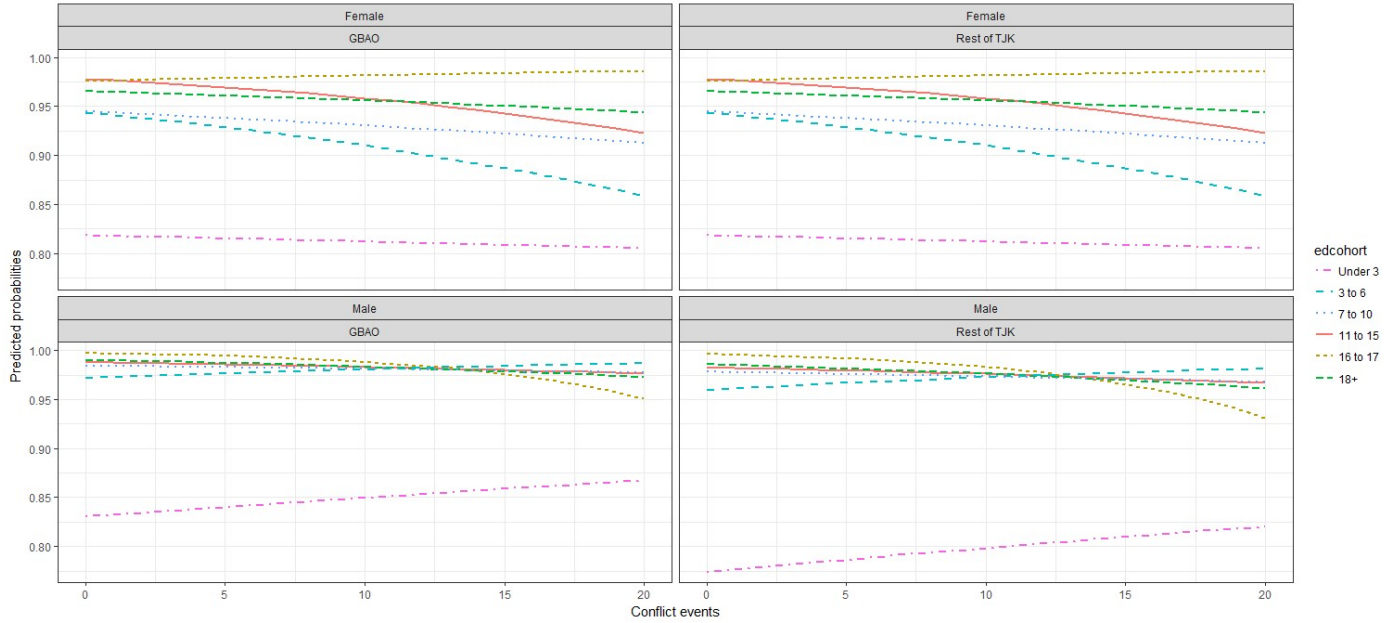
Also reported in Table 6, above, are the control variables. Parental education at secondary ($\beta = .821$) and higher ($\beta = 1.25$) levels are important for this attainment level for both boys. For girls, any known educational attainment level for the mother (Primary $\beta = .481$, Basic $\beta = .875$, Secondary $\beta = .982$, Higher education $\beta = 3.12$) increases the likelihood that her daughter will complete compulsory education. Ethnicity appears to have little bearing on attainment, with only moderately significant evidence that Uzbek respondents were more likely to have completed basic education than their Tajik counterparts ($\beta = .406$ for boys and $\beta = .352$ for girls). As expected, residence in Gorno-Badakhshan positively influences the probability of basic attainment for girls and not boys ($\beta = 1.75$). This is consistent with the deep investments made in education, particularly for girls, that the Aga Khan has made in the Ismaili Muslim community over the last few decades.

The predicted probabilities³ for the full models in Step 1 are shown below in Figure 3. Predictions are calculated for typical male and female respondents for each cohort, assuming the same-sex parent had completed compulsory education, and with a distinction between those who live in Gorno-Badakhshan (GBAO) and the rest of Tajikistan.

³ Note that although the model is estimated using a linear term for conflict events, it is the logit transformation of the probability that is being modeled as a linear function of the variables. Predicted probabilities may have nonlinear slopes.

[Figure 3 about here]

Figure 3. Probability of completing at least basic education, Respondents 16+



Step 2 – Secondary Education

In this analysis, I consider the likelihood of completing secondary education, for all but the youngest cohorts, who have not yet had an opportunity to transition out of this stage of the educational trajectory. The results are presented in Table 7, below. Cohort effects are again strong in these models, particularly for those younger than 16 at the start of the war (for instance, $\beta = -1.51$ for boys and $\beta = -.588$ for girls ages 3 to 6 at the start of the conflict, and $\beta = -1.11$ for boys and $\beta = -.705$ for girls ages 7 to 10 at the start of the conflict). These findings point to the effects of the transition to independence. Conflict events negatively impact boys who were 16 to 17 ($\beta = -.076$) and girls who were 7 to 10 ($\beta = .029$) 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 mechanism does not account 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, but this hypothesis is supported only for boys and not for girls. It also supports H4, in which boys at mobilization ages would face a greater risk of failing to complete secondary education.

[Table 7 about here]

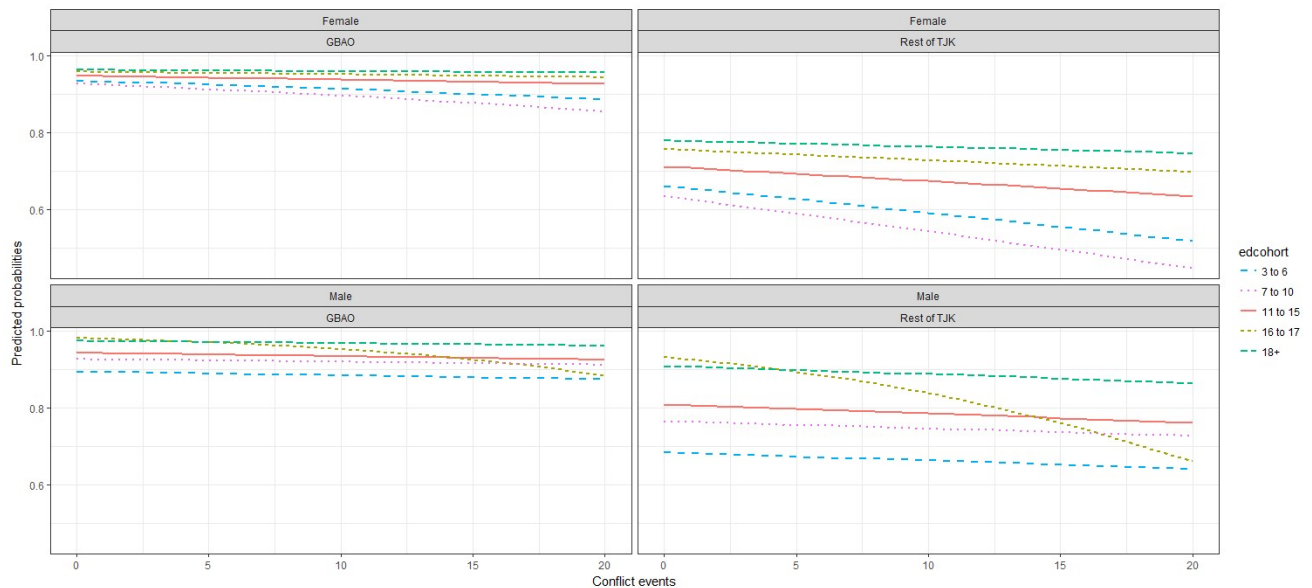
	Men				Women			
	Simple Model		Full Model		Simple Model		Full Model	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Intercept	2.54***	.076	1.99***	.186	1.423***	.048	.609***	.131
Conflict (topcoded)	-.023*	.010	-.022*	.010	-.020**	.006	-.009	.007
Cohort (age in 1992) (ref = 18+)								
Under 3								
3 to 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+)								
Under 3								
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
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1				
X indicates too few cases to include in the analysis				

For boys in conflict zones, there is a significant decline in the likelihood of secondary attainment as the number of conflict events increase. The difference is substantial. Consider the predicted probabilities of secondary attainment for an urban Tajik man who was 16 or 17 when the conflict started, whose father had basic education, and who lives in western Tajikistan. In a non-conflict zone, he has over a 90% chance of completing at least secondary education, while in a zone with 20 or more events, that likelihood drops to below 70% (see Figure 4, bottom right quadrant).

[Figure 4 about here]

Figure 4. Probability of completing at least secondary education, respondents 16+



Girls who were ages 7 to 10 at the start of the conflict see a decrease in likelihood to complete secondary education relative to their peers for each conflict event in their district (see the trajectory of the

pink dashed line in the top two quadrants of Figure 4). While girls who attended school in the 1990s are certainly at a disadvantage compared to girls who were educated in the Soviet system, direct exposure to the conflict and disruption to enrollments seems to have affected only one life course stage, while the long-term impacts on educational attainment that emerged out of the transition from Soviet institutions to Tajik ones appear to be much more widespread.

Step 3 – Education relative to parents’

In Step 3, I investigate educational mobility – that is, the ability for the child to out-perform his or her parent on educational attainment. 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 H5. 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) educational attainment. Table 8 displays the relative risk for the respondent having greater attainment (left) or less attainment (right), with a reference category of 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. Unlike the models in Steps 1 and 2, I do not include an indicator for parental educational attainment in the controls, as this is “baked in” to the dependent variable⁴.

Table 8 – Relative risks of educational mobility among men and women

	Men		Women	
Educational Attainment Mobility (ref = Same as parent)	Greater than Father’s	Less than Father’s	Greater than Mother’s	Less than Mother’s
Intercept	2.12***	.207***	4.48***	.204***
Conflict (topcoded)	1.01	1.02^	1.00	.978

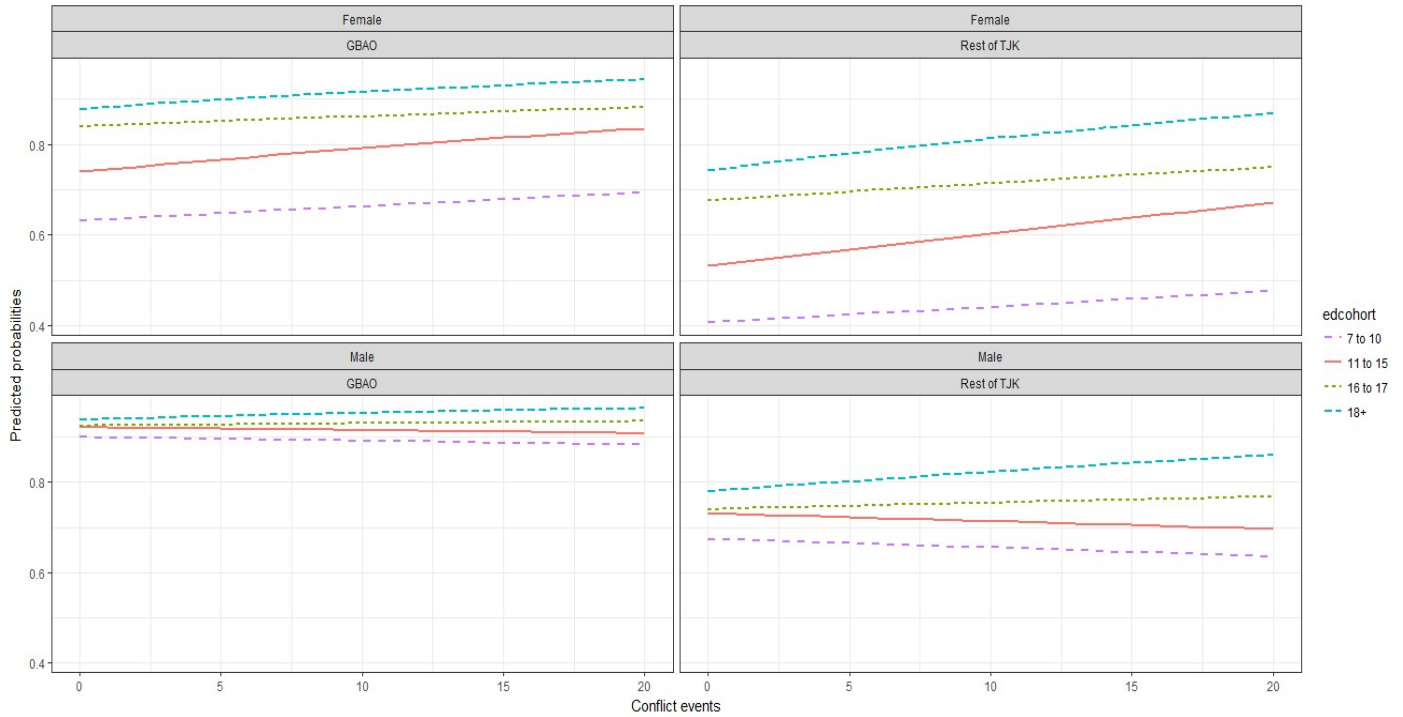
⁴ Note: In testing the robustness of the models when including parental education, the model fit using AIC was better for men but much worse for women when including parental educational attainment. Further investigation into this puzzling gender difference is needed.

Cohort (age in 1992) (ref = 18+)				
Under 3				
3 to 6				
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+)				
Under 3				
3 to 6				
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
Parents' educational attainment (ref = None)				
Primary				
Basic				
Secondary				
Higher				
Unknown				
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
N =				
Fit statistic				

This step of the analysis complements Step 1 and Step 2 by considering intergenerational gains in educational attainment. Relative to the cohort that had completed secondary education by the time the Soviet Union fell, girls and boys in younger cohorts have a smaller chance of achieving attainment levels greater than their parents. For boys in all the cohorts that were in school at the onset of conflict are more likely to achieve *less* than their fathers did. For girls, those who were just beginning primary school at the onset of conflict are more likely to have achieved less than their mothers. This cohort of girls is significantly affected by conflict exposure. Of the control variables, respondents who live in urban areas are less likely to achieve less education than their parents. Those in GBAO are less likely to have either less or greater attainment than their parents – likely an artifact of the already higher education in that region for respondents' parents.

[Figure 5 about here]

Figure 5. Prob. of attaining the same or greater level of educ. as same-sex parent, respondents 22+



Predicted probabilities for average respondents in Figure 5 show the relatively higher levels of education in all cohorts for those in GBAO versus the rest of Tajikistan (TJK). For men, the cohort differences are quite small, with differences of only 1-2% in GBAO, even at the highest levels of conflict. These differences expand in the rest of Tajikistan as conflict exposure intensifies.

The cohort effects are particularly pronounced for women in this visualization. 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 those who completed Soviet education, around 85% for those who were 16-17 years old at the onset of conflict, around 77% for those 11-15 years old, 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 expands. The rise associated with conflict intensity is particularly muted for those in the 7-10 year old cohort. For the rest of the 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.

The GBAO Effect

The political and social context of the Gorno-Badakhshan Autonomous Oblast (GBAO) is unique. This large region is covered by the striking Pamir mountains, and relatively sparsely populated. Residents primarily practice Ismaili Islam, which is distinguished from the rest of Shia Islam through its following of the living imam, the Aga Khan. This ethno-religious distinction has also been characterized by an emphasis on gender equality relative to more conservative Muslim practice found in much of the rest of Tajikistan (Bliss 2006; Breu and Hurni 2003; Waljee 2008). The current Aga Khan heads a large and influential foundation, which has provided an immense amount of aid – in both goods and services – to Ismaili communities around the world. During the war, the Aga Khan Development Network (AKDN) provided essential goods to the Pamiri community in GBAO, likely saving hundreds of lives from starvation and the spread of disease typically associated with wartime devastation⁵.

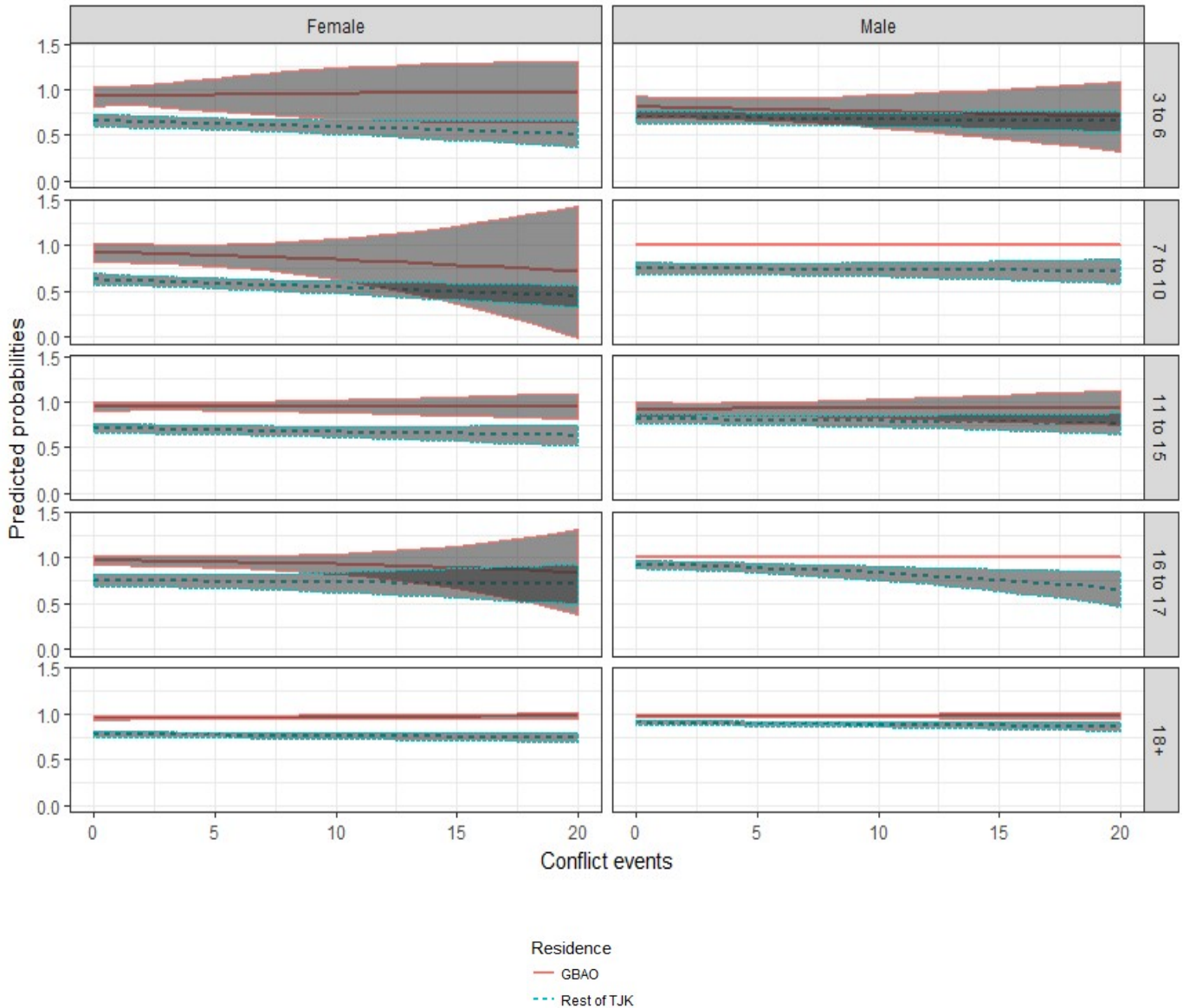
In this section, I present the predicted probabilities from modified alternative models estimated for Step 2 and Step 3. In these modified models, I use a three-way interaction between residence in Gorno-Badakhshan, cohort, and conflict events. Full model results with fit statistics are included in the appendix. The Gorno-Badakhshan three-way interaction model fits better than the original Step 2 models for women, but the original model is a marginally better fit for men than the GBAO model.

Figure 6 below shows the predicted probabilities (with 95% prediction intervals, shaded) of completing at least secondary education for respondents 18+ (Step 2) with this three-way interaction. On the left hand of the grid are the probabilities for women, and on the right hand for men. Each row is a different cohort based on age in 1992. The red line shows predicted probabilities for residents of GBAO and the blue dashed line for the rest of Tajikistan.

⁵ During my 2017 fieldwork in Tajikistan, interviews with Pamiri people in Gorno-Badakhshan as well as prominent social scientists in the region retrospectively provided these accounts. The portrait of the Aga Khan occupies a place of importance in Pamiri homes, English is spoken more widely than in the rest of Tajikistan, and young women are quick to point out their cultural distinctions and positions of relative status vis-a-vis Muslim women outside of GBAO.

[Figure 6 about here]

Figure 6. Probability of completing at least secondary education, GBAO respondents 18+



For women, the probability of completing secondary education in the absence of conflict is higher in GBAO than it is in the rest of Tajikistan. For men, most cohorts in GBAO have a significant attainment advantage, except the youngest (3 to 6 years old at the start of the conflict, top row of Figure 6) and the middle (11 to 15 years old at the start of the conflict, middle row of Figure 6). The steep decline in probability of completing secondary education as conflict intensity increases appears to be partially mitigated by residence in GBAO, particularly for boys who were either 7 to 10 or 16 to 17 years old at the

start of the war⁶. These boys were likely mobilized to join state armed forces or the opposition during this time and declined to return to formal education after the war ended. In areas where the conflict was the most intense, educational outcomes are the worst for boys. While the difference between non-conflict zones and the highest intensity zones for boys in the rest of Tajikistan is approximately 30 percentage points, the difference for boys in GBAO is only 10 percentage points. For girls, residence in GBAO moderates the negative effects of conflict in the 11 to 15 year old cohort (middle row, Figure 6). In the other cohorts, for girls exposed to the highest levels of conflict (10+ events) there is no significant difference between residence in GBAO and the rest of Tajikistan. In conflict zones with fewer than 10 events, girls in GBAO fare better than their peers in the rest of Tajikistan across all cohorts. Similar models for achieving the same or greater levels of attainment as the parent of the same sex show no significant differences in any cohort except for men, ages 7 to 10 at the start of the conflict. Given the results of the previous analyses, this is most likely due to the consistently higher educational outcomes for multiple generations in GBAO, especially for women.

Conclusion

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 cohort specification based on a life course approach to education, this research has examined the linked effects of the collapse of the Soviet Union and exposure to conflict events.

The results suggest that the negative outcomes of these linked shocks of political transition and armed conflict were not equitably distributed. There appear to be different mechanisms underlying the long-term

⁶ 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 ten years later necessarily does not include those who perished during the war. Those boys who perished did not complete their degrees, but also do not contribute to the variation in the data and subsequently in the model estimation. In that way, these models are underestimating the negative effect of armed conflict on the probability of completing secondary or higher education for boys at age 16 to 17 in 1992. The order of magnitude is likely higher if one had the data on boys who died during the war.

consequences of armed conflict and political transition for educational outcomes for boys and girls in school. Secondary educational attainment for boys who were at combat ages (16 and 17 years old) at the start of the war was particularly negatively affected by exposure to conflict events, but this effect did not hold for their basic educational attainment. Declines in educational attainment for girls seems to be more influenced by the transition from the Soviet education system to the newly independent one. In addition, children who were school aged during the transition were substantially less likely to out-perform their parents on educational attainment, contributing to stunted social mobility during independence. Finally, the findings from GBAO are informative and perhaps prescriptive for the reconstruction process in post-conflict societies. Investment in education for girls mitigates the negative effects of armed conflict and political transition, even when controlling for the higher parental educational attainment in the region.

This study contributes to our understanding of the political and social forces contributing to long-term changes in educational attainment in post-conflict societies. The type of intrastate civil war that unfolded in Tajikistan is the most common type of modern organized violence (Pettersson and Wallensteen 2015). For those wars that co-occur with the transition from imperial or colonial powers into independence, this study has implications for how core social institutions such as education can change. Because of its importance in social cohesion and control, changes to education have widespread ramifications for the resilience and recovery of a conflict-affected region.

References

- Akresh, Richard and Damien de Walque. 2008. "Armed Conflict and Schooling: Evidence from the 1994 Rwandan Genocide." *The World Bank Development Research Group Policy Research Working Paper* 4606.
- Arps, Sebastian. 2005. "Prolonging Inequality? Education in Germany after Unification." *Journal of Education Policy* 20(2):159–87.
- Barro, Robert J. and Jong Wha Lee. 2013. "A New Data Set of Educational Attainment in the World, 1950–2010." *Journal of Development Economics* 104:184–98.
- Bernhardt, Annette, Martina Morris, Mark S. Handcock, and Marc A. Scott. 2001. *Divergent Paths: Economic Mobility in the New American Labor Market*. New York: Russell Sage.
- Blau, Peter M. and Otis D. Duncan. 1967. *The American Occupational Structure*. New York: Wiley.
- Bliss, Frank. 2006. *Social and Economic Change in the Pamirs (Gorno-Badakhshan, Tajikistan)*. London ; New York: Routledge.
- Blossfeld, Hans-Peter and Yossi Shavit. 1993. "Persisting Barriers: Changes in Educational Opportunities in Thirteen Countries." in *Persistent Inequality: Changing Educational Attainment in Thirteen Countries, Social Inequality Series*, edited by Y. Shavit and H.-P. Blossfeld.
- Bourdieu, Pierre and Jean-Claude Passeron. 1977. *Reproduction in Education, Society, and Culture*. Beverly Hills, CA: Sage.
- Breu, Thomas and Hans Hurni. 2003. *The Tajik Pamirs: Challenges of Sustainable Development in an Isolated Mountain Region*. Bern: CDE.
- Brück, Tilman and Damir Esenaliev. 2018. "Post-Socialist Transition and Intergenerational Educational Mobility in Kyrgyzstan." *Economics of Transition* 26(1):61–89.
- Chamarbagwala, Rubiana and Hilcías E. Morán. 2011. "The Human Capital Consequences of Civil War: Evidence from Guatemala." *Journal of Development Economics* 94(1):41–61.
- Choudhary, Akanksha and Ashish Singh. 2017. "Are Daughters Like Mothers: Evidence on Intergenerational Educational Mobility Among Young Females in India." *Social Indicators Research* 133(2):601–21.
- Cohen, David K. 2013. "Explaining Rape during Civil War: Cross-National Evidence (1980-2009)." *American Political Science Review* 107(3):461–77.
- Collier, Paul, Anke Hoefler, and Mans Soderbom. 2008. "Post-Conflict Risks." *Journal of Peace Research* 45(4):461–78.
- Crosnoe, Robert and Aprile D. Benner. 2016. "Educational Pathways." Pp. 179–200 in *Handbook of the Life Course*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Cham: Springer International Publishing.
- Dagiev, Dagikhudo. 2014. *Regime Transition in Central Asia: Stateness, Nationalism and Political Change in Tajikistan and Uzbekistan*. London ; New York: Routledge.

- Deyoung, Alan J. 2006. "Problems and Trends in Education in Central Asia since 1990: The Case of General Secondary Education in Kyrgyzstan." *Central Asian Survey* 25(4):499–514.
- Driscoll, Jesse. 2015. *Warlords and Coalition Politics in Post-Soviet States*. Cambridge; New York: Cambridge University Press.
- Dudoignon, Stephane A. 1997. "Political Parties and Forces in Tajikistan, 1989-1993." Pp. 52–85 in *Tajikistan: The Trials of Independence*, edited by M.-R. Djalili, F. Grare, and S. Akiner. New York: St. Martin's Press.
- Edgar, Adrienne. 2006. "Bolshevism, Patriarchy, and the Nation: The Soviet 'Emancipation' of Muslim Women in Pan-Islamic Perspective." *Slavic Review* 65(2):252.
- Farwell, Nancy. 2004. "War Rape: New Conceptualizations and Responses." *Affilia* 19(4):389–403.
- Fearon, James D. and David D. Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *The American Political Science Review* 97(1):75–90.
- Froese, Paul. 2008. *The Plot to Kill God*. Berkeley: University of California Press.
- Gates, Scott, Havard Hegre, Havard Mokleiv Nygard, and Havard Strand. 2012. "Development Consequences of Armed Conflict." *World Development* 40(9):1713–22.
- Goldstein, Joshua S. 2003. "War and Gender." in *Encyclopedia of Sex and Gender*, edited by C. R. Ember and M. Ember. Boston: Springer.
- Grimard, F. and S. Laszlo. 2014. "Long-Term Effects of Civil Conflict on Women's Health Outcomes in Peru." *World Development* 54:139–55.
- Hale, Henry E. 2014. *Patronal Politics: Eurasian Regime Dynamics in Comparative Perspective*. Cambridge: Cambridge University Press.
- Heckman, James J. 2006. "Skill Formation and the Economics of Investing in Disadvantaged Children." *Science* 312:1900–1902.
- Khalid, Adeb. 2007. *Islam after Communism*. Berkeley: University of California Press.
- Khasanzoda, G. et al., eds. 2016. "Education in the Republic of Tajikistan: 25 Years of State Independence."
- Kirkpatrick Johnson, Monica, Jeremy Staff, John E. Schulenberg, and Megan E. Patrick. 2016. "Living Healthier and Longer: A Life Course Perspective on Education and Health." Pp. 369–88 in *Handbook of the Life Course: Volume II*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Cham: Springer International Publishing.
- Korinek, Kim and Bussarawan Teerawichitchainan. 2014. "Military Service, Exposure to Trauma, and Health in Older Adulthood: An Analysis of Northern Vietnamese Survivors of the Vietnam War." *American Journal of Public Health* 104(8):1478–87.
- Kotkin, Stephen. 2001. *Armageddon Averted: The Soviet Collapse, 1970-2000*. Oxford: Oxford University Press.

- Lai, Brian and Clayton Thyne. 2007. "The Effect of Civil War on Education, 1980—97." *Journal of Peace Research* 44(3):277–92.
- Laruelle, Marlène and Sebastien Peyrouse. 2013. *Globalizing Central Asia: Geopolitics and the Challenges of Economic Development*. Armonk, New York: M.E. Sharpe.
- Leopold, Liliya. 2018. "Education and Physical Health Trajectories in Later Life: A Comparative Study." *Demography* 55(3):901–27.
- Levine, Richard M. 1996. *The Mineral Industry of Tajikistan*. Washington, DC: U.S. Geological Survey.
- Liu, Hexuan. 2018. "Social and Genetic Pathways in Multigenerational Transmission of Educational Attainment." *American Sociological Review* 83(2):278–304.
- London, Andrew S. and Janet M. Wilmoth. 2016. "Military Service in Lives: Where Do We Go From Here?" Pp. 277–300 in *Handbook of the Life Course*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Cham: Springer International Publishing.
- Lynch, Don. 2001. "The Tajik Civil War and Peace Process." *Civil Wars* 4(4):49–72.
- Maclure, Richard and Myriam Denov. 2006. "'I Didn't Want to Die So I Joined Them': Structuration and the Process of Becoming Boy Soldiers in Sierra Leone." *Terrorism and Political Violence* 18(1):119–35.
- Masters, R. K., R. A. Hummer, and D. A. Powers. 2012. "Educational Differences in U.S. Adult Mortality: A Cohort Perspective." *American Sociological Review* 77(4):548–72.
- Mastibekov, Otambek. 2014. *Leadership and Authority in Central Asia: The Ismaili Community in Tajikistan*. London: Routledge.
- Matějů, Peter. 1993. "Who Won and Who Lost in a Socialist Redistribution in Czechoslovakia?" Pp. 251–72 in *Persistent Inequality, Social Inequality Series*, edited by Y. Shavit and H.-P. Blossfeld. Boulder: Westview Press.
- McMann, Kelly M. 2007. "The Shrinking of the Welfare State: Central Asians' Assessments of Soviet and Post-Soviet Governance." Pp. 233–47 in *Everyday Life in Central Asia*, edited by J. Sahedo and R. Zanca. Bloomington and Indianapolis: Indiana University Press.
- Monaghan, David. 2017. "Does College Enrollment and Bachelor's Completion by Mothers Impact Children's Educational Outcomes?" *Sociology of Education* 90(1):3–24.
- Nourzhanov, Kirill and Christian Bleuer. 2013. *Tajikistan: A Political and Social History*. ANU Press.
- Nyseth Brehm, Hollie. 2017. "Subnational Determinants of Killing in Rwanda." *Criminology* 55(1):5–31.
- Osborne, Dustin and George E. Higgins. 2015. "Education and Crime." *The Encyclopedia of Crime and Punishment* Vol 1:1–5.
- Parmar, Parveen Kaur et al. 2015. "Health and Human Rights in Eastern Myanmar after the Political Transition: A Population-Based Assessment Using Multistaged Household Cluster Sampling" edited by J. A. Singh. *PLOS ONE* 10(5):e0121212.

- Pettersson, Therese and Peter Wallensteen. 2015. "Armed Conflicts, 1946-2014." *Journal of Peace Research* 52(4):536–50.
- Plumper, Thomas and Eric Neumayer. 2006. "The Unequal Burden of War: The Effect of Armed Conflict on the Gender Gap in Life Expectancy." *International Organization* 60(3):723–54.
- Rothstein, Donna S. 2001. "Youth Employment during School: Results from Two Longitudinal Surveys." *Monthly Labor Review* 124(8):25–37.
- Rowland, Richard. 2005. "National and Regional Population Trends in Tajikistan: Results from the Recent Census." *Eurasian Geography and Economics* 46(3):202–23.
- Rubin, Barnett R. 1998. "Russian Hegemony and State Breakdown." in *Post-Soviet Political Order: Conflict and State Building*, edited by B. R. Rubin and J. Snyder. London ; New York: Routledge.
- Shanahan, Michael J., Jeylan T. Mortimer, and Monica Kirkpatrick Johnson, eds. 2016. *Handbook of the Life Course: Volume II*. Springer International Publishing.
- Shemyakina, Olga. 2011. "The Effect of Armed Conflict on Accumulation of Schooling: Results from Tajikistan." *DEVEC Journal of Development Economics* 95(2):186–200.
- Steinberg, Jonah. 2011. *Isma'ili Modern: Globalization and Identity in a Muslim Community*. Chapel Hill: University of North Carolina Press.
- Teachman, Jay D. 1987. "Family Background, Educational Resources, and Educational Attainment." *American Sociological Review* 52(4):548.
- The World Bank. 2011. *Learning for All: Investing in People's Knowledge and Skills to Promote Development. World Bank Group Education Strategy 2020*. Washington, DC.
- UNICEF. 2017. *UNICEF Annual Report 2016*.
- United Nations. 2013. *The Millennium Development Goals Report*. New York.
- Walder, Andrew G., Andrew Isaacson, and Qinglian Lu. 2015. "After State Socialism." *American Sociological Review* 80(2):444–468.
- Waljee, Anise. 2008. "Gendered Education, Marketisation and Islam in Tajikistan." Pp. 110–14 in *Gender Education and Equality in a Global Context: Conceptual frameworks and policy perspectives*, edited by S. Fennell and M. Arnot. London ; New York: Routledge.
- Whitsel, Christopher M. 2011. "Counting the Costs: Informal Costs and Corruption Expenses of Education in Post-Soviet Tajikistan." *Problems of Post-Communism* 58(3):28–38.
- Williams, Nathalie E., Dirgha J. Ghimire, William G. Axinn, Elyse A. Jennings, and Meeta S. Pradhan. 2012. "A Micro-Level Event-Centered Approach to Investigating Armed Conflict and Population Responses." *Demography* 49(4):1521–46.
- Woolman, David C. 2001. "Educational Reconstruction and Post-Colonial Curriculum Development: A Comparative Study of Four African Countries." *International Education Journal* 2(5):27–46.

Zhou, Xueguang, Phyllis Moen, and Nancy Brandon Tuma. 1998. "Educational Stratification in Urban China: 1949-94." *Sociology of Education* 71(3):199.

Appendix

Table A1. Logistic regression results with a three-way interaction between GBAO * Conflict events * 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 * 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 * Conflict	.034	.061	.042	.041
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	3774.16		5128.01	
AIC of original model	3776.22		5112.16	

Chapter 3: Does Armed Conflict Have Long-Term Effects on Abortion?

In the 1990s, following the collapse of the Soviet Union, Tajikistan was devastated by a brutal civil war, which killed tens of thousands and displaced an estimated million people from their homes. While some research has examined marriage patterns during and after the war (Shemyakina 2013), we know less about ways that war affected the dynamics of fertility and family planning. In high fertility, developing countries, such as Tajikistan, “demographic theory is ambiguous with respect to the likely effects” of war on fertility (Lindstrom and Berhanu 1999:247). One of the sparsely examined *direct determinants* (Bongaarts’ 1978) of fertility is induced abortion.

Research on the relationship between conflict and abortion has primarily focused on forced abortion as a human rights violation that affects other health outcomes like life expectancy for women (Gardam and Charlesworth 2000; Plümper and Neumayer 2006). However, in many developing contexts, and especially in the former territories of the Soviet Union, abortion is a widely-used alternative to contraceptives. Examining the use of abortion during and after armed conflict can provide new insights into fertility decision-making under conditions of uncertainty and violence.

In contrast to hormonal contraceptives like the birth control pill, abortions require only one point of contact with a health practitioner, whereas the pill requires a consistent supply and frequent contact with healthcare institutions. During armed conflict, this may be impossible or impractical. After conflict, as individuals begin to recover from exposure to violence and instability, healthcare institutions may take much longer to resupply medicine and equipment. In this study, I examine the relationship between conflict and abortion. Does exposure to armed conflict affect abortion rates? When pregnant, do women make different choices about abortion, or does their choice set become restrained due to institutional decay, particularly in the public health sector?

Scholars and policy-makers often consider declines in health in Tajikistan as a function primarily of the transition from the Soviet era to independence, but rarely incorporate indicators of exposure to

armed conflict when assessing contemporary public health outcomes (Falkingham 2003; Khodjamurodov et al. 2016) When the Soviet Union collapsed, so did access to free and comprehensive health care (Khodjamurodov et al. 2016). Certainly, the political transition was important for women's health, including contraceptive use and abortions. This research asks whether exposure to armed conflict matters *in addition to* the political transition for the readiness and ability of women to terminate unintended pregnancies.

Tajikistan is an ideal case to examine the relationship between armed conflict and abortion in the context of institutional change. After independence, many Central Asians lamented the decay of the formal institutions built by the Soviets (see Froese 2008 on education). Relative to the starting points of other post-colonial nations, the Soviet legacy gave Tajikistan a 'head start' in many ways. Although in purely economic terms, Tajikistan was one of the poorest former Soviet states when the USSR collapsed, other indicators like literacy, life expectancy, and the Human Development Index (HDI) were more comparable to 'medium' income countries than the economic peers in the region like Iran and Pakistan (Falkingham et al 1997, Falkingham 2000). Healthcare was particularly strong in the Soviet era. Prenatal care was free and comprehensive. The ratio of physicians per 100,000 population was 255 in 1990, comparable to average rates in the European Union at the time (Khodjamurodov et al. 2016). Health-care institutions were embedded in everyday life, and their decline since independence has had meaningful implications for public health.

Abortions were the primary method of birth control in the Soviet Union, including for around half the population of Tajikistan (Remennik 1991). In spite of the fall of the Soviet Union, abortion in Tajikistan remains legal, relatively free of social stigma, and commonly practiced. First trimester abortions for any reason have been legal in Tajikistan since 1955, placing it in the 'broadly legal' category of abortion policies and setting it apart from many other majority Muslim countries (United Nations Population Division 2002). Rates in Tajikistan are not the highest of the former Soviet Union. Eastern European countries and Russia have historically had much higher ratios of abortions to live births, while Kyrgyzstan and Uzbekistan are more comparable to Tajikistan. Still, the former Soviet Union has

been described as having a strong “abortion culture,” even in Central Asia. (Agadjanian 2002). At least in some places in Tajikistan, qualitative evidence suggests that abortions remained a primary method of birth control through 2000 (Tajikistan Ministry of Health 2000). Between 1990 and 2014, abortion rates across Central Asia remained fairly stable (Sedgh et al. 2016). In Tajikistan, there was an overall decline in abortion rates, but this decline began after the civil war, with an *increase* during the war (see Fig. 1).

[Figure 1 about here]

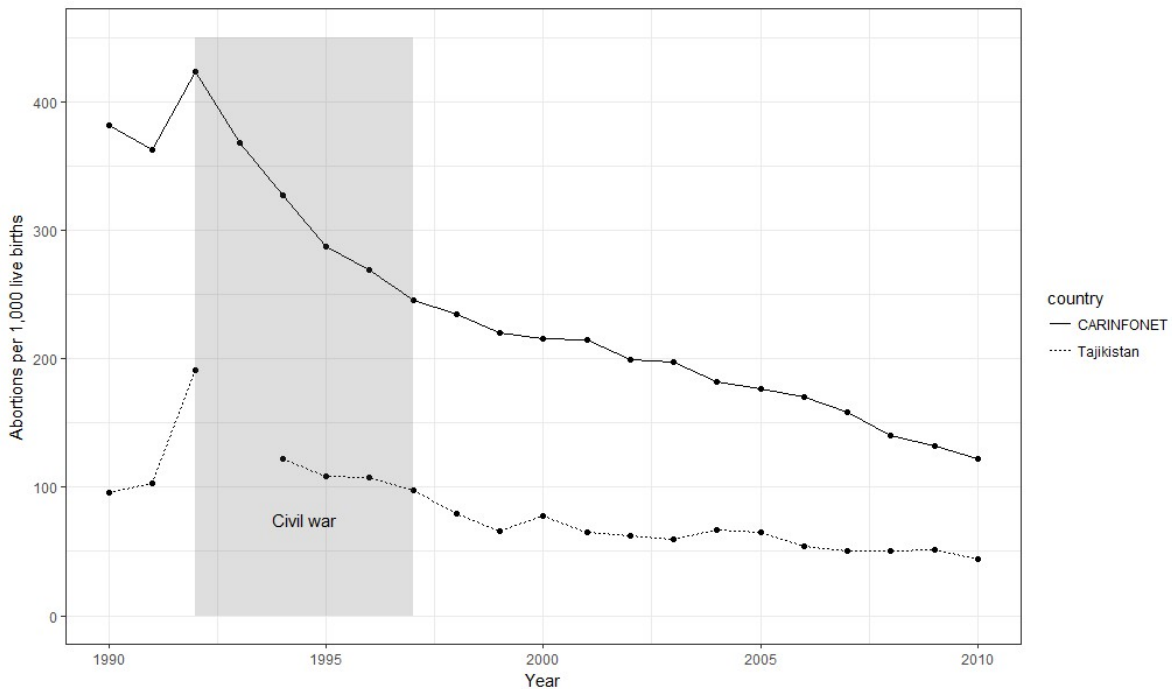


Figure 1. Trends in Abortion Rates for Central Asian Countries and Tajikistan (Source: European Health for All (WHO) 2015; NB Data for 1993 Not Available)

This study utilizes subnational variation in conflict events in the case of Tajikistan, along with individual-level survey data from women ages 15-49, surveyed in the 2007 Tajik Living Standards Survey (LSS) to examine the relationship between armed conflict and abortion. The survey includes self-reported counts of abortion. Employing these responses instead of official abortion rates allows for more insight into poor and rural areas, where women are often making healthcare decisions without professional consultation or assistance.

The problem

Why does this relationship matter in post-conflict and transitional societies? First, micro-level changes to abortion and contraceptive use during armed conflict can predict macro-level changes in fertility. War and family formation have a complex, multi-faceted relationship. This complexity is perhaps best illustrated by results showing opposing and even null effects of armed conflict – in some cases that armed conflict accelerates fertility decisions (Lindskog 2016; Urdal and Che 2013), in others that it postpones them (Agadjanian and Prata 2002; Heuveline and Poch 2007; Williams et al. 2012), and in yet others, that even in the midst of conflict, both marriage and fertility remained “remarkably stable” (Randall 2005). By focusing on abortion in Tajikistan, this research provides insight into one of the plausible components of the complex relationship between armed conflict and fertility.

Second, understanding this kind of institutional change is critical to post-conflict rebuilding. Policy-makers concerned with efficient spending on public health programs can use better and deeper understandings of behavioral responses combined with the institutional changes in the aftermath of armed conflict to target health interventions at the subnational level. Because conflict, development, education, religiosity, and health outcomes tend to vary on the subnational level, I expect to find corresponding regional differences in individual decision-making and access to healthcare. It is in these affected areas that health interventions may be both the most pressing and less commonly pursued.

In this case, I find that exposure to armed conflict events increases the likelihood that women under the age of 30 at the onset of war will have an abortion. This finding suggests that for women at childbearing ages during the conflict, there is sufficient readiness, willingness, and ability to induce abortion. Although multiple abortions reported is less common, exposure to conflict marginally increases the number of abortions reported by women who were ages 15-20 at the onset of conflict. Further, when the analysis is restricted to only the women who were too young to be making fertility decisions *during* the conflict, exposure to conflict events also increases their likelihood to experience an abortion. This finding suggests that the relationship between conflict exposure and abortion is long-lasting and does not fade after the turmoil of war has ceased. This important contribution provides a better understanding of

fertility decision-making in a conflict-affected society, both through the prevalence of abortions and through the durability of the effect of armed conflict on the likelihood of having an abortion.

Background

Located at the south end of Central Asia, Tajikistan is a small, land-locked 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. The map below (Figure 2) includes the five regions (Sughd, Dushanbe, Khatlon, the Regions of Republic Subordination, and the Gorno-Badakhshan Autonomous Oblast).

[Figure 2 about here]

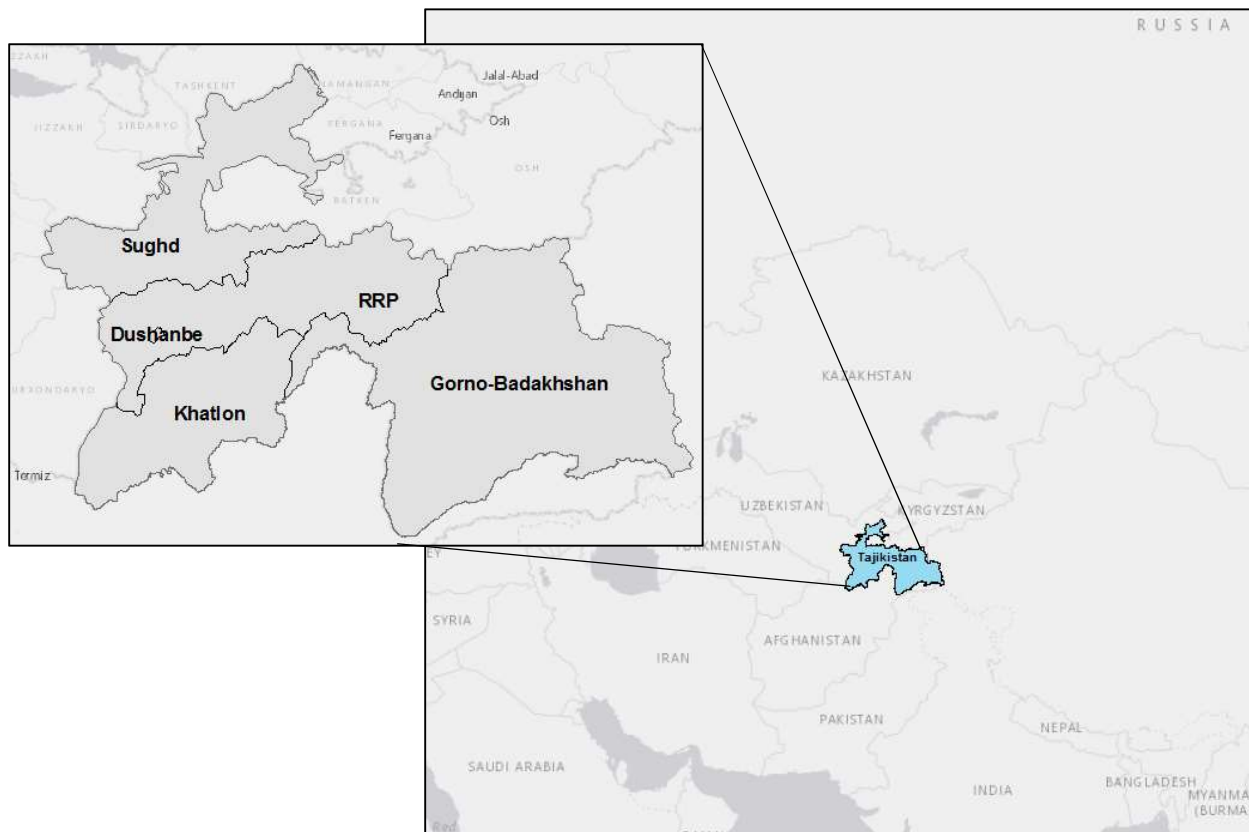


Figure 2: Location of Tajikistan in Central Asia and Regional Divisions within Tajikistan

Half the population of Tajikistan are living under the poverty line. Migration is a common livelihood strategy and 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).

Civil War

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). After declaring independence in December 1991, along with many other Soviet Socialist Republics, the interim government lasted only a few months before opposition protests began, and martial law was declared in Dushanbe (Nourzhanov and Bleuer 2013). Widespread discontent over institutionalized corruption had 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) (Driscoll 2015; Dudoignon 1997). This unexpected alliance was distinctly anti-Soviet, and positioned against the northern elites from Khujand, who rallied around the incumbent (and Soviet-backed) Rahmon Nabiev. The economic shock of the collapse of the Soviet Union brought with it hunger and job scarcity; Tajikistan remained the poorest former socialist republic, and without important subsidies from Moscow, conditions deteriorated. By April 1992, an estimated 100,000 protestors filled the main square in Dushanbe, demanding that Nabiev resign (Nourzhanov and Bleuer 2013:300). Violence in Dushanbe began in May as the IRPT began arming demonstrators (2013:316). Violent events were widespread through 1992 and 1993, primarily in Qurgonteppa in the southwest, the home base of United Tajik Opposition (UTO), in the Rasht Valley, home to the Gharimi opposition, and in the Gorno-Badakhshan Autonomous Oblast. The northern Soviet-era elites in Khujand allied themselves with the rural poor in southern Kulyob. Alliances shifted regularly, ceasefires were rarely followed, and all sides took part in violence against one another, as well as violence

against civilians. Gun battles between armed groups were fought in villages, towns, and mountainous regions along the border with Afghanistan. Noncombatants and peacekeeping forces alike were shot in bazaars and their vehicles rigged with explosives (Pannier 2017). The violence peaked in 1993, but continued on intermittently for the next four years, until a peace agreement was finally signed in 1997, between the new president backed by the Khujand-Kulyob alliance, Emomali Rahmon, and the leaders of the United Tajik Opposition. The peace process was facilitated by military and political intervention from both Russia and neighboring Uzbekistan, each of which having a vested interest in regional stability (Horsman 1999).

In all, the conflict resulted in substantial human and material losses. In a country with a population then of a little more than 5 million, experts estimate that between 20,000 and 60,000 were killed, and up to a million people were displaced within Tajikistan and to neighboring countries (Olcott 2012). The conflict caused widespread damage to infrastructure, institutions, and private dwellings. UNICEF estimates that nearly 200 primary schools were destroyed and between 2 and 12% of household structures were damaged in the conflict across the various regions (Shemyakina 2011). During the conflict, foreign and domestic investment in the economically important mining industry in Tajikistan practically came to a standstill (Levine 1996). Both during and after the conflict, regional divides were salient, producing “a highly regionalized pattern of politics... [and] an unusually high degree of congruence between patronal networks and territorially defined populations,” (Hale 2014:154). This regionality is an important factor during the post-conflict reconstruction period, in which Rahmon’s closest allies were rewarded and the territories that supported the major opposition groups were penalized.

Abortion Practice during the Soviet Era

During the Soviet era, hospital care and acute curative treatments were practiced far more than preventative medicine (Khodjamurodov et al. 2016). This bureaucratization of health care permeated all sectors of medicine, including maternal health. Traditional midwives were, and continue to be, considered “dangerous to the health of mother and child,” and births occurring outside a healthcare institution are

punishable under the law (Roche 2016:213). This is not to say that home births and traditional medicine are not practiced – maternal health care services are much less likely to be utilized by women with less education and fewer resources to pay the high formal (and informal) fees associated with comprehensive care (Falkingham 2003). As part of maternal health care, access to and the use of induced abortion follows both trends of bureaucratization and of increasing disparities in access.

From the mid-1950s on, abortion was widely available and used as a primary method of birth control in many parts of the Soviet Union (Agadjanian 2002; Remennik 1991). By the early 1980s, illegal abortions were still commonplace, prompting the Soviet government to issue a decree that allowed abortion to be induced through the 28th week of pregnancy for certain medical reasons (United Nations Population Division 2002). The ease of access to and the lack of stigma around abortion was broadly seen as emancipatory for Soviet women, but came with a number of complications – not least of which was the recurring absence of modern birth control due to the overreliance on abortion (Agadjanian 2002:237–38).

Abortion Practice in post-Soviet Tajikistan

Since independence, the healthcare system in Tajikistan has suffered both from the infrastructural devastation of the civil war and from the loss of Soviet policies and subsidies. After the war ended in 1997, private fee-based healthcare facilities were introduced, and in 2003 the government removed the constitutional right to free health care and introduced fees for state-run health services. Through the mid-2010s, there was little investment in existing Soviet-built infrastructure, and regional disparities in access to and quality of medical facilities is stark.

Basic human resources have suffered since independence, as well. The number of physicians, nurses, and midwives per capita have precipitously declined since 1990, with steep decreases during the war and no recovery in sight by 2013. Some occupations, like pharmacists, declined during the war but eventually recovered (Khodjamurodov et al. 2016). Figure 3 shows the changes in health expenditures over time, which fluctuated during the war and never fully recovered to Soviet-era levels (Falkingham 2000). In short, material and human capital in the health care system in Tajikistan has suffered since

independence. These institutional deficits are associated with troubling public health outcomes, such as increasing maternal and infant mortality.

[Figure 3 about here]

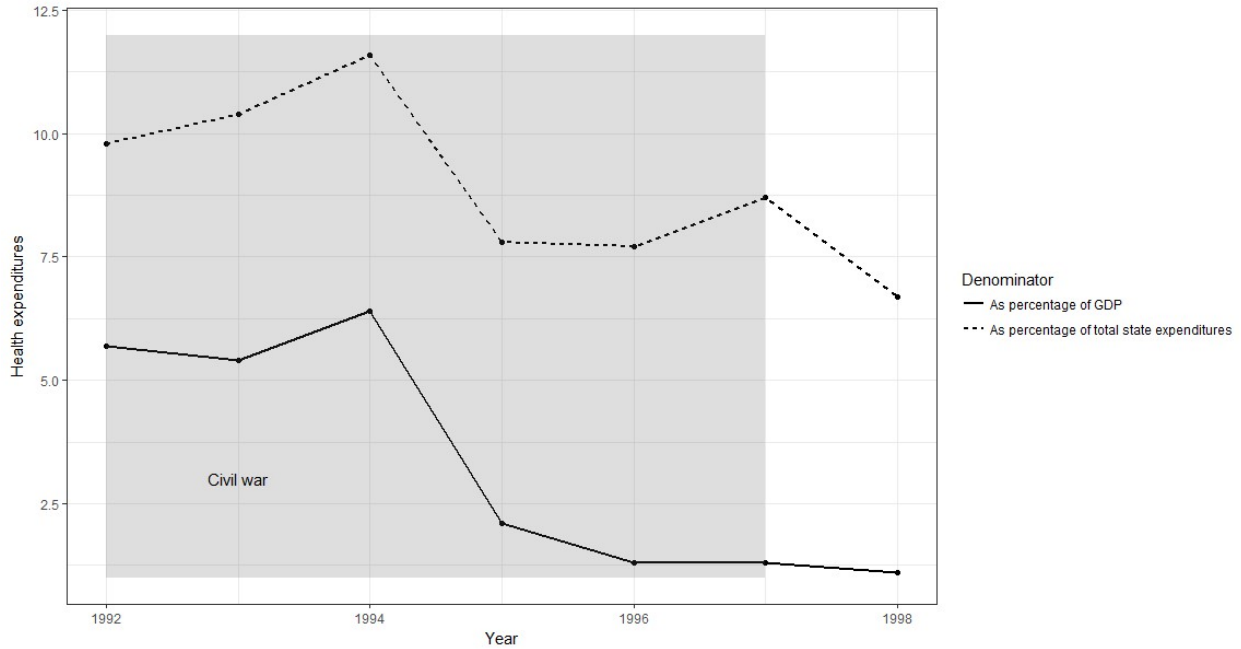


Figure 3: Trends in total health expenditures as a percentage of GDP and government expenditures, 1992-1998

Since independence, abortions continue to be allowed for any reason through the first trimester, and with medical or social reasons through the 28th week (United Nations Population Division 2002). Although there has been some decline in nationwide abortion rates since independence, evidence from survey data shows that of all women who had ever been pregnant, 12.6% in 2005, 11% in 2007, and 10% in 2012 had experienced at least one abortion (Statistical Agency under the President of the Republic of Tajikistan; Ministry of Health, Measure DHS, ICF International 2013).

Conceptual Framework

To understand the relationship between armed conflict and abortion, I use the Ready, Willing, and Able (RWA) framework popularized by Coale (1973) and applied to fertility transition by Hacker (2016). In the RWA framework, fertility transition depends on the following preconditions:

(1) couples must perceive smaller families as economically advantageous (i.e. couples must be *ready*); (2) the practice of marital fertility control must be ethically acceptable (i.e., couples must be *willing*); and (3) the means to control fertility must be known and available (i.e., couples must be *able*), (Hacker 2016:1658, *emphasis original*).

Incorporating armed conflict into this framework requires an additional distinction between individual and institutional effects of conflict. Figure 4 maps this framework.

[Figure 4 about here]

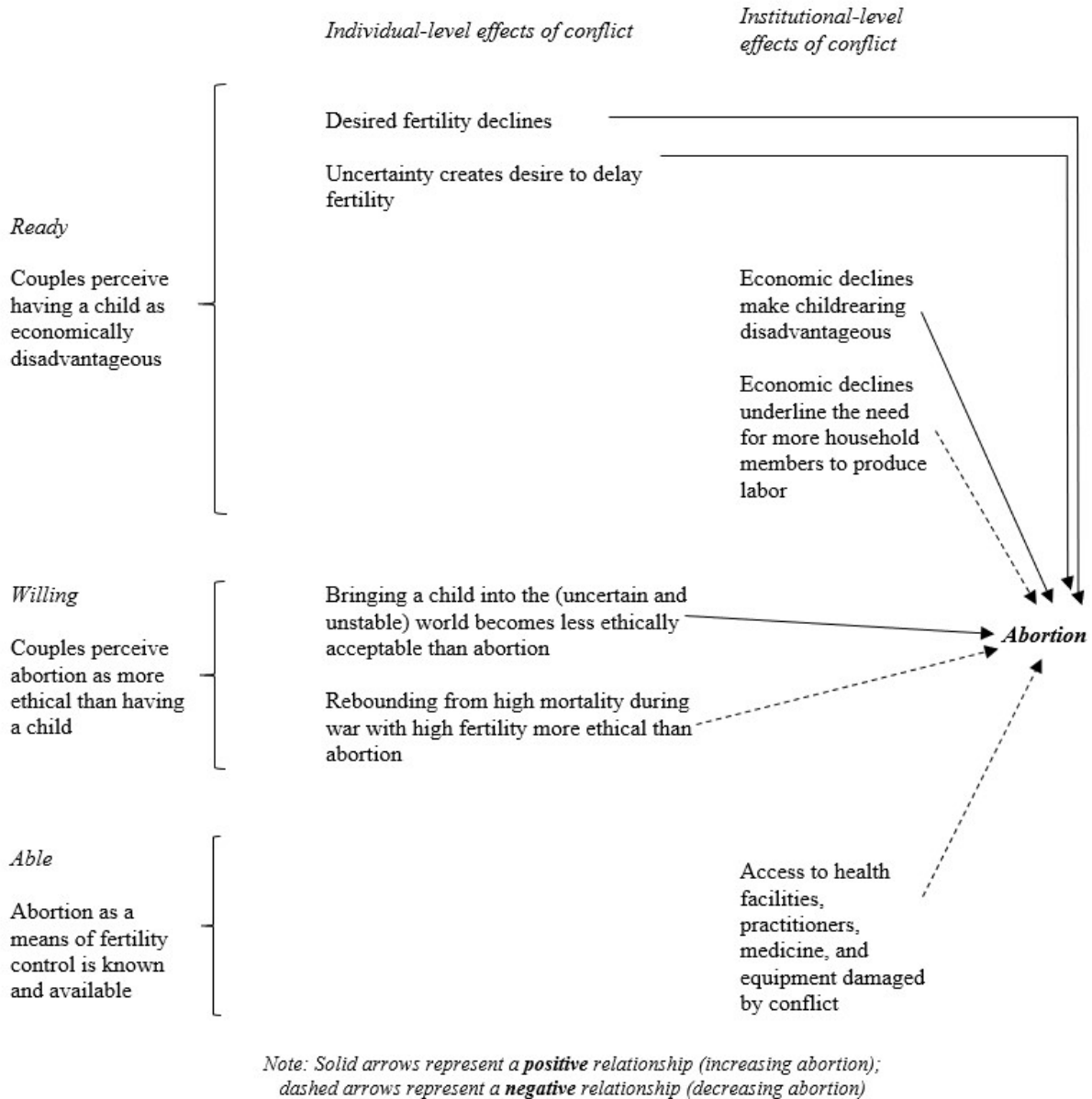


Figure 4: How armed conflict affects the readiness, willingness, and ability to terminate pregnancy

For couples to be *ready* to induce abortion, they must perceive another child as economically disadvantageous. Readiness can be affected by armed conflict through a change in desired fertility, or through a stronger desire to delay fertility. That is, couples might abort if they perceive another child as disadvantageous in general but also if they perceive it as disadvantageous *for now*. Thus, stopping versus spacing is relevant to this conceptual category. At the institutional level, armed conflict may generate

economic declines that make childrearing prohibitively expensive. Households can lose resources as livelihoods are disrupted. These factors can all increase the likelihood of abortion. On the other hand, economic declines may push people from other sectors into agriculture, which requires no formal employment structure. Indeed, this was the case with Tajikistan, where the percentage of men and women in the workforce who were in the agricultural sector was 19% before the war, 24% of women and 20% of men during, and 30% of women and 27% of men after the war (Falkingham 2000). Rural households that are dependent on agriculture need larger families to produce more labor, increasing resources (see related arguments by Hirschman and Guest 1990; Krishnaji 1980). This effect could in turn decrease the likelihood of abortion during *and after* the conflict. Further, reconstruction is not altogether an economic and infrastructural project. During war, kinship networks and social bonds are damaged. After war, couples could prefer to have large families in order to rebuild those social institutions. This mechanism should decrease the likelihood of abortion after conflict.

For couples to be *willing* to induce abortion, they must perceive abortion as an ethically acceptable method of fertility control. In contrast to the concept of willingness as applied to demographic transition, here I consider the willingness of the couple to use abortion, specifically, and not simply the willingness to control childbearing within marriage. There are two ways in which armed conflict may affect willingness to abort. The first is by increasing the perception that bringing a child into the world during a destabilizing conflict may be seen as irresponsible. This should increase abortion uptake during armed conflict, but the effect should fade as peace and stability resume. On the other hand, after disasters with high mortality rates, families seek to have more children as part of the rebuilding process (Nobles, Frankenberg, and Thomas 2015). Thus, a family's willingness to induce abortion in order to avoid births can be affected by the conflict in either direction.

Finally, for couples to be *able* to induce abortion, it must be a known and available method of contraception. For Tajikistan, as with for most former Soviet states, abortion is a widely known method of fertility control. The question of access is not as straight-forward. For this condition to be met, couples must have access to healthcare practitioners, medicine, or equipment. This can include physicians,

midwives, or nurses, and does not necessarily have to be tied to physical infrastructure. Abortions can be self-induced or performed clandestinely. Armed conflict often damages this access to healthcare institutions through the displacement of health care workers and through infrastructural damage to hospitals and clinics. It is also possible that reduced access to abortion providers during armed conflict pushes couples to seek abortions clandestinely, or to take up other forms of birth control. Sharp declines in official abortion rates after war may reflect institutional decay and increasingly self-induced and unsafe abortions or increasing usage of other methods of birth control.

In Table 1, below, I summarize the three concepts as they may apply to the case of Tajikistan during the Soviet era, the civil war, and reconstruction. For each concept, the era can score a low, mixed, or high level of readiness, willingness, and ability to abort. These levels are not intended to operationalize the concepts but rather to guide the empirical expectations of this research.

Table 1. Readiness, willingness, and ability to abort in Tajikistan over three eras				
RWA Concept (Coale 1973; Hacker 2016)	Definition	Levels of RWA during Soviet era (1991 and before)	Levels of RWA during civil war (1992-1997)	Levels of RWA during Reconstruction (1998 and after)
<i>Ready</i>	Couples perceive having a(nother) child as economically disadvantageous	Moderate. Many families struggle financially, but maternal healthcare is free and comprehensive.	High. Economic turmoil. Collapse of most industries. High levels of uncertainty.	Mixed: Mechanisms in both directions. Some couples will have long-term lower fertility desires. Some couples will want to rebuild with larger families.
<i>Willing</i>	Couples perceive abortion as more ethical than having a child	High. Very low stigma.	High. Very low stigma. Bringing a child into the world is unethical.	Mixed: Mechanisms in both directions. Stigma may vary due to emerging variations in religiosity. Rebuilding may become priority.

<i>Able</i>	Abortion as a means of fertility control is known and available	High. Widely known, practiced, and available method. Large number of physicians per capita.	Moderate. Widely known, but physicians per capita decline, access to medical equipment decreases.	Moderate. Widely known, but decay of healthcare institutions and rises in costs may make abortion prohibitively expensive.
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Hypotheses

For the contemporaneous consequences of armed conflict on abortion, the RWA conceptual framework seems to point to higher likelihood of aborting for women in conflict-affected areas. Women who are making fertility decisions at the onset of war, who are also exposed to those conflict events, will be more likely to be ready, willing, and able to terminate her pregnancy. I expect this to affect both the likelihood of abortion and the number of abortions a woman has over her life course. Thus,

Hypothesis 1: A woman at peak childbearing age who was exposed to conflict events during the civil war will have a *higher* probability to abort a pregnancy than her peers who were not exposed.

Hypothesis 2: A woman at peak childbearing age who was exposed to conflict events during the civil war will have *more* abortions than her peers who were not exposed.

For the long-term consequences of armed conflict on abortion, the RWA conceptual framework outlines plausible effects in *either direction*. Therefore, the second set of hypotheses contains two parts. In the first part, I consider the possible long-term outcomes of armed conflict to be reduced desire for large families, reduced economic incentives for children, and lingering uncertainty for those who were exposed to conflict events in their youth. Thus,

Hypothesis 3a: A woman who was too young to make fertility decisions during the conflict will have a *higher* probability to abort a pregnancy than her peers who were not exposed.

Hypothesis 4a: A woman who was too young to make fertility decisions during the conflict will have *more* abortions than her peers who were not exposed.

On the other hand, the opposite effect is also plausible. Women who were affected by conflict may be more likely to want large families as part of the rebuilding process. They may be more likely to rely on agricultural work, providing an incentive for larger families. Thus,

Hypothesis 3b: A woman who was too young to make fertility decisions during the conflict will have a *lower* probability to abort a pregnancy than her peers who were not exposed.

Hypothesis 4b: A woman who was too young to make fertility decisions during the conflict will *fewer* abortions than her peers who were not exposed.

Much of the narrative thus far has revolved around the institutional factors that shape women's readiness, willingness, and ability to induce abortion. Residence in urban areas gives people much improved access to healthcare institutions. Because of this access, I hypothesize that:

Hypothesis 5: All else equal, women in urban areas will have a higher probability to abort.

Data

To examine this question, I use the women's questionnaires in the 2007 Tajikistan Living Standards Survey (LSS), conducted by *Goskomstat* (the State Statistical Agency) and the World Bank. In addition to the main household survey on individual and household characteristics, the women's questionnaires were used to collect data from nearly 9,000 female respondents between the ages of 15 to 49 in 2007.

Questions included whether they had ever had an induced abortion, and if so, how many abortions they'd experienced over the course of their lives. The survey also asks questions about live births, still births, and miscarriages.

Self-reported survey responses provide more insight into abortions than official data. Official data from the Ministry of Health do not include abortions conducted by private health clinics, self-induced or illegal abortions. However, the questionnaire is retrospective and carries the same limitations as similar survey data. It is very unlikely that women will forget whether they have had an abortion. The LSS does not ask about the timing of these events, and so the recall of the precise timing of the abortion is not a concern for this study. However, because abortion is a private and sensitive question, women responding

to the questionnaire may undercount their abortions, or characterize them as miscarriages or still births. In an innovative survey to examine abortion underreporting among women in Estonia, Anderson et al. (1994) interviewed only women who had recently had a registered abortion in Tallinn. The authors surveyed the women about public health, including questions about recent abortions. They find that indeed some women (about 15%) do conceal their recent abortion experiences from interviewers. However, 93% of the women with recent abortion experiences reported having either an abortion, miscarriage, or still birth. The more ambiguous definition increased reporting accuracy by nearly 10%. Why might this be the case? The authors argue that unmarried women, especially those living at home would be the most likely to mischaracterize their abortion as a miscarriage or still birth. If this were true in the LSS, we might expect to find that the largest increases in reports of abortions, when redefined, would occur among unmarried women and daughters of the head of household.

Table 2. Percentage of women reporting abortions as strictly defined versus those who report abortions, miscarriages, and still births			
	% reported an abortion as defined in LSS questionnaire	% reported an abortion as defined by Anderson et al.	Percent increase
All women	11.1	24.5	121
Unmarried	6.9	13.8	100
Married	11.2	24.5	119
Daughters of household head	10.5	22.3	112
Ethnic Tajik	11	25	127
Ethnic Russian	26.3	34.2	30
Ethnic Uzbek	11.5	22.6	96.5
Rural	8.6	21.9	155
Urban	16.6	29.9	44.5
<i>Source: Tajik Living Standards Survey, 2007. Author's calculations.</i>			

In the case of Tajikistan, the increases in abortion count do not justify the use of the Anderson alternative measure. While Anderson et al. (1994) found only a ten percent improvement in accuracy, the difference

between the two definitions creates a 121% increase in reported abortions. This is not altogether plausible. The difference is the largest among rural women – who are also potentially more likely to miscarry because of poor access to healthcare. The smallest differences are among ethnic Russians and the urban population, who have much better access to health facilities in towns and cities and may be more likely to get prenatal care to prevent miscarriages.

Dependent Variables

- **Abortion** is a dichotomous variable that indicates whether a woman who has ever been pregnant has reported at least one abortion over the course of her life. In this sample, the percentage of women who have ever been pregnant and who have had at least one abortion is 11.1%.
- **Abortion ratio per pregnancy** is a continuous variable that indicates how many abortions a woman has had, relative to the number of pregnancies she has had, regardless of outcome. The total number of pregnancies was constructed by summing the number of live births, still births, miscarriages, and abortions into one continuous variable per woman. Her reported number of induced abortions was divided by the total number of pregnancies to calculate this ratio. I multiply this ratio by 100 for ease of coefficient interpretation. Most women have had zero abortions. Of the women who have had any abortions, 54% report having only one, 29% report having two, and another 10% report having three. The maximum number of abortions reported in this sample is 10 (less than 0.1% of the sample reported ten abortions).

Independent Variables of Interest

- **Cohort** specifications are based on Shemyakina's (2013) work on marital timing in Tajikistan. These cohorts are important indicators of a woman's position in the life course when war broke out in 1992. Using this approach, I assume that women experiencing similar life course events will act similarly, net of period or age effects. Women who are similar in age and experiencing similar events (such as *perestroika*, the fall of the Soviet Union, conflict) will behave more

similarly to each other than women of the same age experiencing different events in different periods of time.

Age in 1992 (start of conflict)	Age in 1997 (end of conflict)	Age in 2007 (start of survey)	Cohort Label	N	%
30+	35+	45+	Pre-War	770	15
26-29	31-34	41-44	Early-War I	659	12.9
21-25	26-30	36-40	Early-War II	890	17.4
15-20	20-25	30-35	Late-War I	1,083	21.1
12-14	17-19	27-29	Late-War II	549	10.7
Under 12	Under 17	Under 27	Post-War	1,173	22.9
<i>Note: Sample size and percentages calculated using restricted sample of women who have ever been pregnant, consistent with modeling strategy</i>					

- Conflict events** are topcoded at 20 in order to reduce sensitivity by removing information at the extreme end. These data come from the Uppsala Conflict Data Program’s georeferenced event dataset, drawing on conflict events that occurred in Tajikistan between 1992 and 1997 (Sundberg and Melander 2013). Some events are measured at the district level, whereas others are measured at more precise units. For comparability, I aggregate all the events over the five year period to the district level and attach this count of events to each woman who was living in that district in 1992. The distribution of events is clustered around Dushanbe (the capitol), Qurgonteppa, the Rasht Valley, and the more populated areas of the Gorno-Badakhshan Autonomous Oblast. Figure 5 maps the spatial variation of events in the dataset.

[Figure 5 about here]

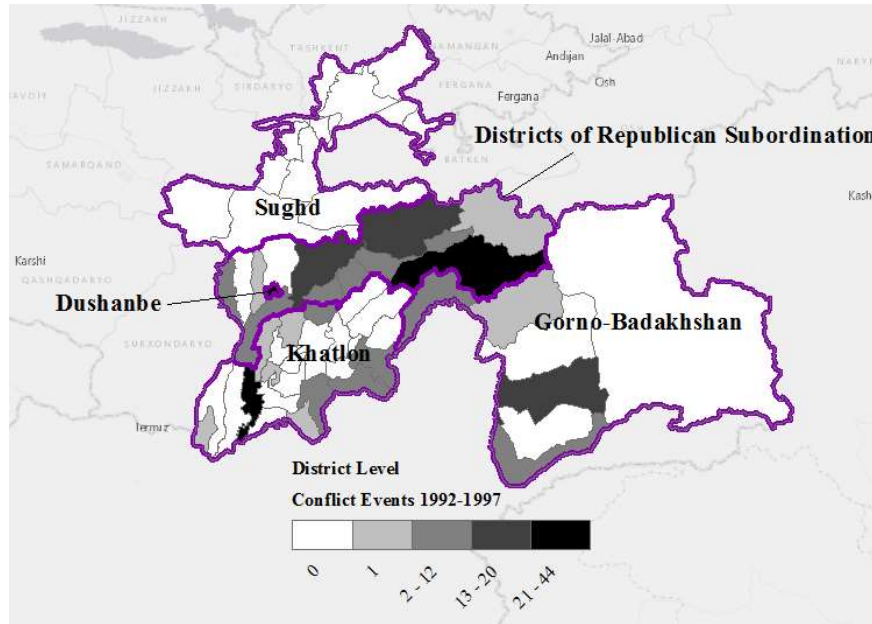


Figure 5. Conflict events in the districts of Tajikistan, 1992-1997

- **Interaction between conflict events and cohort** is used to isolate the effects of exposure to conflict on women at specific stages of the life course, relative to women at the same stage of the life course who were not in a conflict zone at the time of the war.

Control Variables

- **Ethnicity** is categorized as Tajik, Uzbek, Russian, or ‘Other’, listed here in order of their population size.
- **Urban** residence is a dichotomous variable that indicates whether the household is located in a town (1) or the countryside (0). As with the population-at-large, 70% of the respondents live in rural areas, and 30% in towns. Dushanbe is the only administrative region with no rural households.
- **Residence in Gorno-Badakhshan (GBO)** is an important factor in understanding a wide range of social and demographic outcomes for women. In this far eastern province of Tajikistan, respondents identify largely as Pamiri, and adhere to the Ismaili branch of Shia Islam. The

associated Aga Khan Foundation has provided a great deal of aid to the Ismaili communities across south and central Asia, including substantial investment in education for girls (Mastibekov 2014; Steinberg 2011). This emphasis on increasing the socio-economic status of girls and the more moderate religious views may well affect abortion patterns there.

- **Educational attainment** is categorized as having primary or less (through grade 4), basic (through grade 8/9 depending on Soviet or Tajik systems), secondary (through grade 11) or higher education. Most women (61.7%) have completed secondary education.
- **Pregnancies** is a count of the number of pregnancies a woman has had over the course of her life, with any outcome. This control is only used in the dichotomous model to determine the likelihood of having an abortion or not, as this variable is used in the calculation of the abortion ratio in the count model.

Sample Characteristics

Half the married respondents were the wives of the heads of household, and 45% of the married respondents were daughters-in-law, whereas unmarried women were much more likely to be daughters (82% of unmarried respondents). The median age at first marriage among respondents was 19 years old, with the youngest respondents marrying at 14. The most common age at first marriage is 18 years old (24% of respondents) with nearly 80% of respondents marrying by age 21. Table 4, below, summarizes descriptive statistics for each cohort of women in the LSS sample. As expected, percentages of women currently married and ever pregnant (regardless of the outcome) are much higher in older cohorts. Among the cohort of women who were over 30 at the time of the onset of the war, 98% are married, 98% have been pregnant, and the mean number of pregnancies per woman is 5.5.

As expected, the oldest four cohorts have the highest percentage of women who have ever been pregnant who report ever having aborted. The youngest three cohorts have the highest ratio of abortions per pregnancy. Between half and 60% of women in each cohort were exposed to at least one conflict

event in their 1992 district of residence, and among those women, the average number of events in the district is consistently approximately four.

[Table 4 about here]

<i>Table 4. Sample descriptive statistics by cohort specification</i>						
	Pre-War	Early War I	Early War II	Late War I	Late War II	Post-War
Age group in 1992	30 and over	26-29	21-25	15-20	12-14	Under 12
Mean age in 2007	46.8	42.4	38	32.5	27.9	20
% married in 2007	98.4	96.4	96	92.7	79.3	33.8
Mean age at first marriage ^a	20.1	20	20.2	20	20.2	19.4
% ever pregnant	97.8	97.7	94.9	89.8	74.3	27.3
Mean pregnancies per woman ^b	5.5	5	4.7	3.7	2.9	1.7
% ever aborted ^b	13.4	15.2	15.5	12.8	9.3	3.4
Mean abortions per pregnancy ^c	.28	.26	.29	.32	.32	.39
% with at least basic education	90.9	90.5	93.8	91.2	88.9	78.8
% urban	30	30.3	35.6	33.1	31.6	27.7
% reside in Gorno-Badakhshan	14	14	15	14	14	11
% ethnic Tajik	78.9	79.9	80.8	80.5	80.9	80.2
% ethnic Uzbek	18.4	18.8	17.4	17.3	17.5	18.1
% ethnic Russian	1	0.4	0.8	0.6	0.5	0.5
% exposed to at least one conflict event in '92 residence	52	55.1	56.7	55.7	58	56
Mean conflict events in '92 residence ^d	3.8	4.1	4.7	4.0	4.1	4.1
<i>Source: 2007 Tajik Living Standards Survey, author's calculations</i>						
<i>Note:</i>						
<i>^a indicates that values have been calculated with only respondents that have ever been married</i>						
<i>^b indicates that value has been calculated with only respondents that have ever been pregnant</i>						
<i>^c indicates that value has been calculated with only respondents that have ever aborted a pregnancy</i>						
<i>^d indicates that value has been calculated with only respondents exposed to at least one conflict event</i>						

Analytical Strategy

I estimate regression models using two sample restrictions. In the first set of models, I restrict the sample to all women who have ever been pregnant, regardless of the outcome. This is the risk pool for

experiencing an abortion. The reduced sample contains 5,124 observations. Of these observations, 113 respondents reported that they had ever been pregnant, but did not report the outcome of the pregnancy. Nearly all of these women (108) were in the two youngest cohorts. These observations are removed from the analysis, and the results are robust to this deletion.

Because I use a categorical x continuous interaction term in the full sample, I test the interaction as a whole by comparing fit statistics for those models. With the interaction, the logistic regression model has a lower AIC (2564 vs. 2566), and thus we accept the interactive model over the reduced one. In the results section, below, I discuss which of the cohorts are likely driving this relationship.

Results

First, I estimate a generalized logistic regression model on the likelihood of having at least one abortion using the dichotomous measure. I then estimate a quasipoisson regression model on the ratio of abortions per pregnancy, multiplied by 100 for interpretation. Figure 6, below, shows the predicted probabilities of having at least one abortion for an average respondent in the full sample.

[Figure 6 about here]

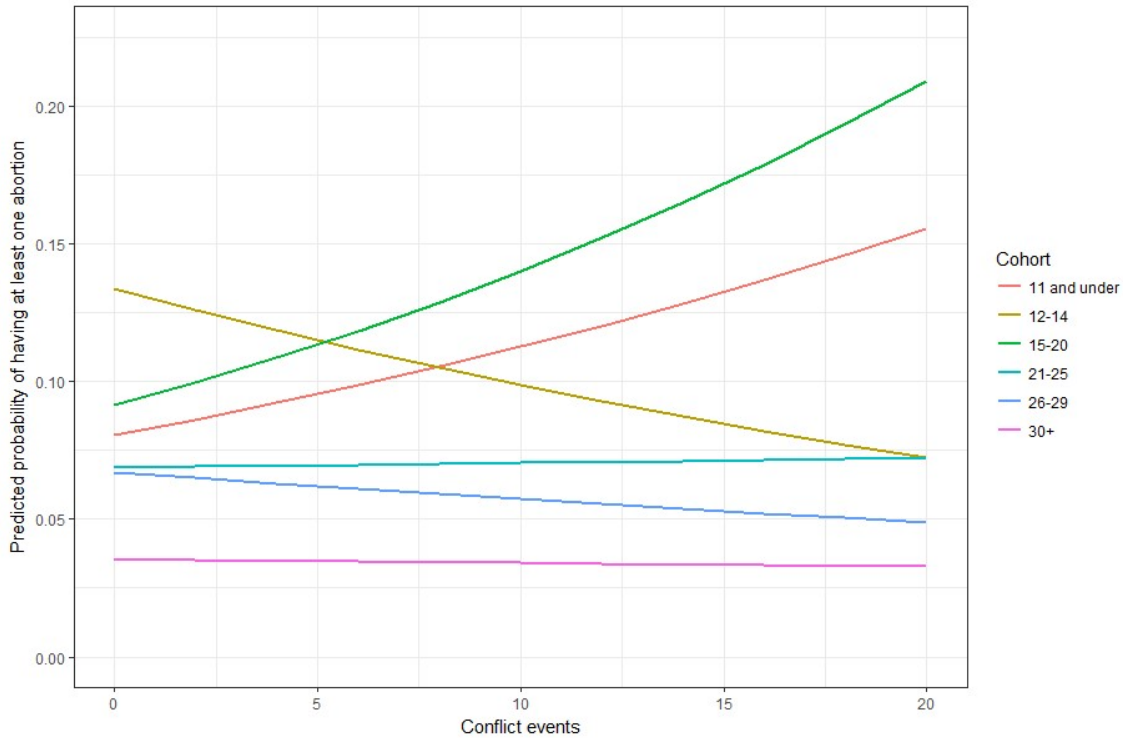


Figure 6: Predicted probabilities of having at least one abortion for an average respondent

Coefficients and parameters for this model are presented in Tables 5, below. The major finding from this model is that for women who were 15-20 years old at the onset of the conflict (represented by the green line in Figure 3) the relationship between conflict events and likelihood of experiencing an abortion increases differently than every other cohort, except the youngest (Under 12). Relative to the reference cohort shown in Table 5 (ages 30+), the effect of conflict events is $\beta = .052$ greater in this cohort (for a slope of $\beta = .048$ when taking into account the non-interacted term for conflict events). In subsequent testing (not shown), I confirm this finding by alternating the reference cohort in five additional model estimations. This finding supports **Hypothesis 1**, which posits that women at peak childbearing ages will have a higher likelihood to abort when exposed to conflict events. This association is in addition to the strong, statistically significant cohort effect in which all cohorts are more likely to induce an abortion than the women in the Pre-War cohort who had reached 30 years or older at the onset of conflict (in order, $\beta = .678$, $\beta = .704$, $\beta = 1.01$, $\beta = 1.44$, and $\beta = .846$). These findings suggest that while abortion rates

nationwide are declining, the number of women choosing to induce at least one abortion in her lifetime could be rising.

Regarding the control variables, Uzbek and Russian women appear to be more likely to abort than their ethnic Tajik counterparts ($\beta = .585$ and $\beta = 1.91$, respectively). Likewise, urban women and women in Gorno-Badakhshan are more likely to abort ($\beta = 1.03$ and $\beta = .678$, respectively). Educational attainment does not appear to be associated with the likelihood of abortion, with the exception of those with basic education having marginally significantly reduced likelihood of an abortion ($\beta = -.542$, $\alpha = .086$). The total number of pregnancies increases the likelihood of having at least one abortion ($\beta = .564$, $\alpha < .001$).

Turning to the Quasipoisson model using the abortion ratio, presented on the right hand side of Table 5, I find conflict events increase the ratio of abortions per pregnancy for women over 30 at the onset of conflict ($\beta = .035$, $\alpha = .022$). The relationship between conflict events and abortions per pregnancy for the rest of the cohorts are lower. Figure 4, below, shows the predicted ratio of abortions per pregnancy for all cohorts. The relationship between conflict events and ratio of abortions per pregnancy is remarkably similar for women who were over 30 (pink) and women who were 15-20 years old (green) at the onset of the conflict. For those who were 11 and under at the onset of conflict, the relationship is positive, but much lower and at a weaker slope than the previously mentioned cohorts. For two of the cohorts, 26-29 (blue) and 12-14 years old (gold), the relationship between conflict and abortion ratio is negative. Finally, there appears to be no relationship for the average respondent in the 21-25 year old cohort.

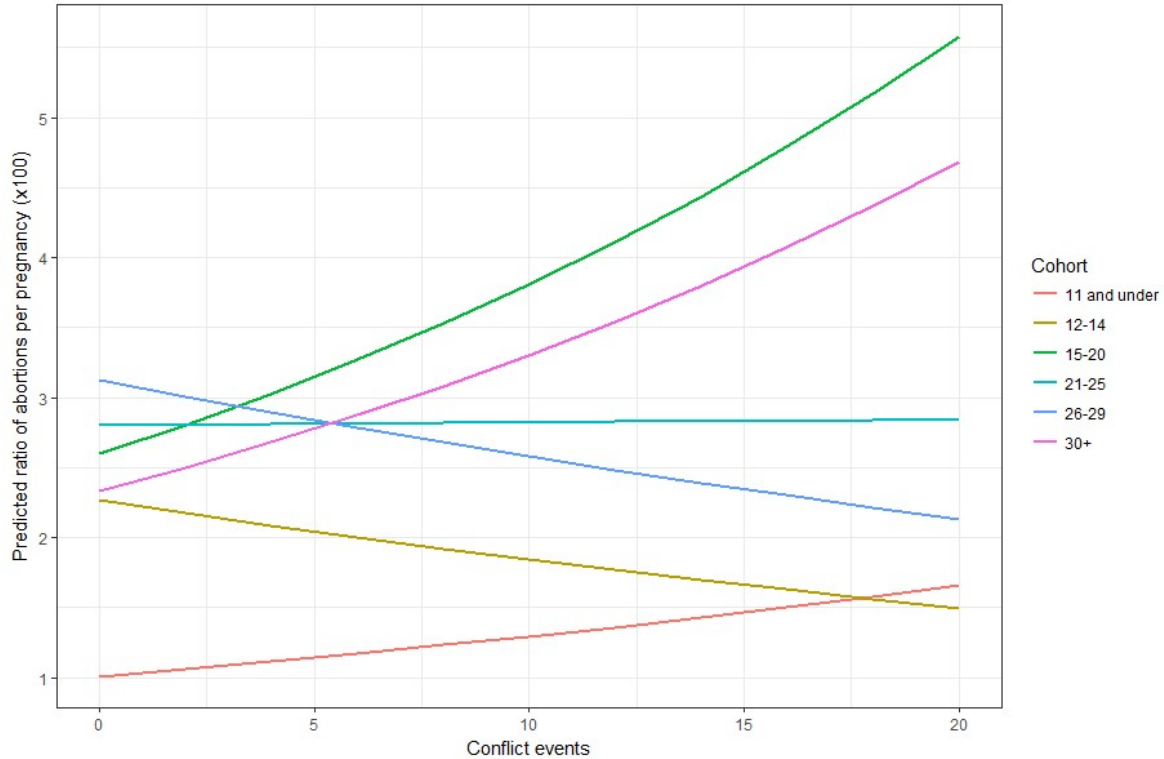


Figure 7. Predicted ratio of abortions per pregnancy (x100) for an average respondent

The findings from this model suggest that for women over 30 there is a strong positive relationship between conflict events and the number of abortions per pregnancy (shown in pink on Figure 4; $\beta = .035$ in Table 5). This relationship is mirrored by the cohort that was in peak *first birth* years, ages 15-20 at the onset of conflict (in green on Figure 4; $\beta = .035 + .003$ in Table 5). However, for other women, conflict events seem to exert a downward pressure on this ratio, in direct contradiction of **Hypothesis 2**. Thus, the findings are mixed for Hypothesis 2. Different cohorts respond to armed conflict in very different ways.

Regarding the control variables, Uzbek and Russian women have significantly more abortions than their Tajik counterparts ($\beta = .225$ and $\beta = 1.14$), although the coefficient for the Uzbek women is only marginally significant. Urban residence is significantly associated with more abortions per pregnancy ($\beta = .757, \alpha < .001$), providing support for **Hypothesis 5**. Neither residence in GBAO, nor any educational attainment level is significantly associated with more or fewer abortions per pregnancy.

[Table 5 about here]

<i>Table 5. Logistic and Quasipoisson regression results for the pooled sample of all women ever pregnant</i>				
Dependent variable	Ever had an abortion		Abortions per pregnancy (x100)	
Type of regression	Logistic		Quasipoisson	
	Coeff. (SE)	p-value	Coeff. (SE)	p-value
(Intercept)	-5.80*** (.387)	< .001	1.08*** (.279)	< .001
Conflict events	-.004 (.021)	.855	.035* (.184)	.022
Cohort (ref. Pre-war, 30+ in 1992)				
Early-War I (26-29)	.678** (.207)	.001	.293 (.184)	.111
Early-War II (21-25)	.704*** (.200)	< .001	.184 (.174)	.289
Late-War I (15-20)	1.01*** (.202)	< .001	.109 (.169)	.520
Late-War II (12-14)	1.44*** (.260)	< .001	-.029 (.215)	.895
Post-War (Under 12)	.846** (.287)	.003	-.836*** (.223)	< .001
Conflict events * Cohort (ref. Pre-war, 30+ in 1992)				
Conflict events * Early-War I (26-29)	-.013 (.030)	.660	-.054* (.025)	.031
Conflict events * Early-War II (21-25)	.006 (.026)	.805	-.034^ (.021)	.096
Conflict events * Late-War I (15-20)	.052* (.026)	.043	.003 (.019)	.861
Conflict events * Late-War II (12-14)	-.031 (.038)	.425	-.056^ (.031)	.075
Conflict events * Post-War (Under 12)	.042 (.031)	.174	-.010 (.025)	.683
Ethnicity (ref. Tajik)				
Uzbek	.585*** (.140)	< .001	.225^ (.122)	.066
Russian	1.91*** (.436)	< .001	1.14*** (.263)	< .001
Other	-.545 (.697)	.434	-.340 (.566)	.549
Urban residence	1.03*** (.115)	< .001	.757*** (.098)	< .001
Residence in GBAO	.678*** (.183)	< .001	-.070 (.158)	.656
Educational attainment (ref. Primary)				
Basic	-.542^ (.315)	.086	-.395 (.271)	.144
Secondary	-.333 (.293)	.256	-.238 (.248)	.337
Higher	.272 (.336)	.419	-.021 (.278)	.939

Total number of pregnancies	.564*** (.028)	< .001	---	---
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In the second set of models, I further restrict the sample to women who have ever been pregnant *and* who were under the age of 15 when the war began in 1992. These women were too young at the onset of conflict to make fertility decisions. The results of these models provide insight into the long-term consequences of exposure to armed conflict for abortion. As with the pooled sample, this reduced sample also removes unknown pregnancy outcomes, a deletion of 108 observations, with 1,614 observations remaining. Removing these unknown pregnancy outcomes from the sample did not substantively change the results of this model. It is also necessary to drop the cohort variable due to the nature of the sample restriction, as well as the ‘Other’ ethnic category, which did not contain enough observations to include in the model. I present the results in Table 6, below.

Conflict events are not statistically significantly associated with the likelihood of having an abortion ($\beta = .004$, $\alpha = .833$ on the left hand side of Table 6) or the number of abortions these younger women have had ($\beta = .004$, $\alpha = .840$ on the right hand side of Table 6). These findings do not provide evidence to support either direction of **Hypothesis 3** or **Hypothesis 4**, suggesting instead that there is no long-term effect of armed conflict on abortions for the cohort of women who were under 15 years old at the onset of war.

Turning to the control variables, ethnic Russian women are more likely to induce abortion ($\beta = 2.69$, $\alpha < .001$) and ethnic Russians are significantly associated with more abortions per pregnancy ($\beta = 1.83$, $\alpha < .001$). Unlike in the pooled sample, among this younger cohort, there is no ethnic difference between Tajiks and Uzbeks when it comes to either likelihood of abortion or the number of abortions. Urban residence continues to be strongly associated with abortion likelihood ($\beta = 1.07$, $\alpha < .001$) and with the number of abortions per pregnancy ($\beta = .968$, $\alpha < .001$), providing additional support for **Hypothesis 5** among this age group. Women in GBAO were more likely to induce abortion ($\beta = 1.23$, $\alpha = .025$), but the same does not hold for the abortion ratio. Educational attainment has no significant effect on abortion

for this age group, consistent with the findings for the pooled sample. As expected, the number of pregnancies is positively associated with the likelihood of abortion ($\beta = .964, \alpha < .001$).

Table 6. Logistic and Quasipoisson regression results for women who were under 15 years old at the onset of conflict (Late-War II and Post-War cohorts)

Sample restriction	Women who have ever been pregnant and were under 15 years old in 1992			
Dependent variable	Ever had an abortion		Abortions per pregnancy (x100)	
Type of regression	Logistic		Quasipoisson	
	Coeff. (SE)	p-value	Coeff. (SE)	p-value
(Intercept)	-5.65*** (.603)	< .001	.815* (.409)	.046
Conflict events	.004 (.021)	.833	.004 (.018)	.840
Ethnicity (ref. Tajik)				
Uzbek	.131 (.370)	.724	-.276 (.361)	.444
Russian	2.69*** (.817)	< .001	1.83*** (.500)	< .001
Other	NA	NA	NA	NA
Urban residence	1.07*** (.283)	< .001	.968*** (.249)	< .001
Residence in GBAO	1.23* (.547)	.025	.633 (.466)	.174
Educational attainment (ref. Primary)				
Basic	-.918^ (.553)	.097	-.631 (.441)	.153
Secondary	-.575 (.509)	.258	-.581 (.395)	.141
Higher	-.408 (.700)	.559	-.511 (.552)	.355
Total number of pregnancies	.964*** (.091)	< .001	NA	NA

Discussion

Taken together, the findings suggest that for some conflict-affected women, conflict increases the likelihood of having an abortion, but for others, it decreases the number of abortions experienced over the life course. For women who were younger during the cohort (15 to 20 years old), the likelihood of having

an abortion increases with the conflict events in her district of residence at the onset of war. Women in Tajikistan at these ages are preparing to marry and have children. That planning may well have been disrupted by exposure to armed conflict, increasing the likelihood for young women – potentially with spouses killed, disabled, unemployed, or absent from the household – to terminate an unintended pregnancy. This effect disappears when restricting the sample to the youngest cohorts, suggesting that the effect is temporary.

For the cohort of women who 30 or older at the start of the war, conflict events have a positive association with abortions per pregnancy. This relationship is remarkably similar for women who were ages 15-20 years old. These two cohorts of women are likely facing very different fertility decisions during and after conflict. If we consider that the mean age at first birth in the sample is 21.6 and that nearly all the women in the sample have a first birth before the age of 28 and the average number of children per woman is 3.3, women who were over 30 were likely making fertility decisions about higher order births – potentially even the third, fourth, or fifth child. In fact, sixty-five percent of women in this cohort have had between 3 and 6 children. During the conflict, these women likely already had children and may have opted to abort instead of having another child. On the other hand, those who were 15-20 years old were younger than the average age at first birth, and thus over the five years of the civil war were most likely making fertility decisions about their first birth. These two very different cohorts of women may have had higher readiness to abort.

The conceptualization of women's readiness, willingness, and ability to induce an abortion is a helpful guide to understanding these results. For a woman to be ready to abort, she must perceive having a child (or more children) as economically disadvantageous. This was certainly the case during the conflict, where the already weak economy in Tajikistan was devastated and couples were faced with rising uncertainty. After the war, during reconstruction, I expected that some couples would have their fertility preferences altered over the long run, while some couples would want to rebuild with larger families. A third option could be at work in this case: couples can return to their previously held fertility preferences, with their family formation *timing* delayed, but not the number of children they have.

For a woman to be willing to abort, a woman must perceive abortion as more ethical than having a child. This relative decision-making process considers the stigma and morality associated with abortion, which may be affected by ethnicity and religiosity, as well as the morality around bringing a child into an uncertain, war-torn world. In this case, it is of particular note that in Tajikistan, despite its majority Muslim population, is not all that far removed from its Soviet history. The stigma around abortion in Central Asia is far lower than in other countries, and abortion is broadly legal in Tajikistan. This may be changing as the population of Tajikistan becomes more religious, but qualitative evidence on attitudinal factors is required to address that emerging change.

Finally, for a woman to be able to abort, she requires both the knowledge and the access to abortions. In this case, abortion as a means of fertility control has been widely known for generations. Access to safe, assisted abortions, however, fluctuates along with the changing quality of health institutions. As physicians per capita decreased, private for-profit health enterprises emerged, and Soviet subsidies disappeared, health institutions across the country suffered. In the conflict-affected areas especially, infrastructure was damaged and destroyed. In the aftermath of the civil war, places where the opposition had emerged were penalized by Rahmon's administration. While these results show that some women were less likely to have more abortions in conflict-affected areas, that does not mean that demand decreased – it could well have been access.

Limitations

I do not know the date of either pregnancies or abortions for the women in this dataset. For Table 5, this means that I cannot adjudicate between pregnancies or abortions that happened before, during, or after the conflict. Because of the sample selection, however, the results presented in Table 6 are a strong proxy for pregnancies and abortions that happened after conflict. Thus, while the findings in this study are suggestive, future research would benefit from more specific data to answer this question.

Conclusion

Armed conflict affects abortion – for some women at certain stages of the life course. In this research, I present evidence that for women of certain ages, exposure to armed conflict events *increases* the likelihood of ever having an abortion, but for other women, it *decreases* the number of abortions over the life course. Scholars often consider declines in health in Tajikistan as a function primarily of the political transition. This is most certainly a major factor in maternal health. However, these findings suggest that when indicators of conflict exposure are included in the analysis, a more complex story emerges. Young women on the brink of family formation who are exposed to armed conflict are affected *differently* from their peers who were not exposed. The findings of this research suggest that in addition to the political transition, the readiness and ability of women to terminate unintended pregnancies temporarily changes.

This research contributes to our understanding of armed conflict and abortion, a topic that garners very sparse attention, despite the large proportions of women in developing countries who have ever had an abortion. By taking a demographic perspective and focusing on abortion as a contraceptive method, this research contributes an insight into the fertility decision-making process during and after armed conflict, which is tremendously complex. These family planning decisions in the midst of organized violence and institutional change are critical of post-conflict reconstruction, resource distribution, and public health planning. For instance, after war, health interventions that focus on maternal health – before, during, and after conception – may be the most pressing in conflict-affected areas.

References

- Agadjanian, Victor. 2002. "Is 'Abortion Culture' Fading in the Former Soviet Union? Views about Abortion and Contraception in Kazakhstan." *Studies in Family Planning* 33(3):237–48.
- Agadjanian, Victor and Ndola Prata. 2002. "War, Peace, and Fertility in Angola." *Demography* 39(2):215–231.
- Anderson, Barbara A., Kalev Katus, Allan Puur, and Brian D. Silver. 1994. "The Validity of Survey Responses on Abortion: Evidence from Estonia." *Demography* 31(1):115.
- Coale, Ansley. 1973. "The Demographic Transition." *IUSSP Liege International Population Conference* 1:53–72.
- Driscoll, Jesse. 2015. *Warlords and Coalition Politics in Post-Soviet States*. Cambridge; New York: Cambridge University Press.
- Dudoignon, Stephane A. 1997. "Political Parties and Forces in Tajikistan, 1989-1993." Pp. 52–85 in *Tajikistan: The Trials of Independence*, edited by M.-R. Djalili, F. Grare, and S. Akiner. New York: St. Martin's Press.
- Falkingham, Jane. 2003. "Inequality and Changes in Women's Use of Maternal Health-Care Services in Tajikistan." *Studies in Family Planning* 34(1):32–43.
- Falkingham, Jane. 2000. *Women and Gender Relations in Tajikistan. Country Briefing Paper*. Asian Development Bank.
- Froese, Paul. 2008. *The Plot to Kill God*. Berkeley: University of California Press.
- Gardam, Judith Gail and Hilary Charlesworth. 2000. "Protection of Women in Armed Conflict." *Human Rights Quarterly* 22(1):148–66.
- Hacker, J. David. 2016. "Ready, Willing, and Able? Impediments to the Onset of Marital Fertility Decline in the United States." *Demography* 53(6):1657–92.
- Hale, Henry E. 2014. *Patronal Politics: Eurasian Regime Dynamics in Comparative Perspective*. Cambridge: Cambridge University Press.
- Heuveline, Patrick. and Bunnak. Poch. 2007. "The Phoenix Population: Demographic Crisis and Rebound in Cambodia." *Demography* 44(2):405–26.
- Hirschman, Charles and Philip Guest. 1990. "Multilevel Models of Fertility Determination in Four Southeast Asian Countries: 1970 and 1980." *Demography* 27(3):369.
- Horsman, Stuart. 1999. "Uzbekistan's Involvement in the Tajik Civil War 1992-97: Domestic Considerations." *Central Asian Survey* 18(1):37–48.
- Khodjamurodov, Ghafur, Dilorom Sodiqova, Baktygul Akkazieva, and Bernd Rechel. 2016. *Tajikistan: Health System Review*. 18(1). World Health Organization.
- Krishnaji, N. 1980. "Agrarian Structure and Family Formation: A Tentative Hypothesis." *Economic and Political Weekly* 15(13):A38–43.

- Laruelle, Marlène and Sebastien Peyrouse. 2013. *Globalizing Central Asia: Geopolitics and the Challenges of Economic Development*. Armonk, New York: M.E. Sharpe.
- Levine, Richard M. 1996. *The Mineral Industry of Tajikistan*. Washington, DC: U.S. Geological Survey.
- Lindskog, Elina Elveborg. 2016. "War Effect on Fertility Behavior in the Democratic Republic of Congo." *Stockholm Research Reports in Demography* 4:2–32.
- Lindstrom, David P. and Betemariam Berhanu. 1999. "The Impact of War, Famine, and Economic Decline on Marital Fertility in Ethiopia." *Demography* 36(2):247.
- Lynch, Don. 2001. "The Tajik Civil War and Peace Process." *Civil Wars* 4(4):49–72.
- Mastibekov, Otambek. 2014. *Leadership and Authority in Central Asia: The Ismaili Community in Tajikistan*. London: Routledge.
- Nobles, Jenna, Elizabeth Frankenberg, and Duncan Thomas. 2015. "The Effects of Mortality on Fertility: Population Dynamics After a Natural Disaster." *Demography* 52(1):15–38.
- Nourzhanov, Kirill and Christian Bleuer. 2013. *Tajikistan: A Political and Social History*. ANU Press.
- Pannier, Bruce. 2017. "Tajikistan's Civil War: A Nightmare The Government Won't Let Its People Forget." *Radio Free Europe/Radio Liberty*, June 23.
- Plümper, Thomas and Eric Neumayer. 2006. "The Unequal Burden of War: The Effect of Armed Conflict on the Gender Gap in Life Expectancy." *International Organization* 60(03).
- Randall, Sara. 2005. "The Demographic Consequences of Conflict, Exile and Repatriation: A Case Study of Malian Tuareg." *European Journal of Population / Revue Européenne de Démographie* 21(2–3):291–320.
- Remennik, Larissa. 1991. "Epidemiology and Determinants of Induced Abortion in the U.S.S.R." *Social Science & Medicine* 33(7):841–48.
- Roche, Sophie. 2016. "A Sound Family for a Healthy Nation: Motherhood in Tajik National Politics and Society." *Nationalities Papers* 44(2):207–24.
- Sedgh, Gilda et al. 2016. "Abortion Incidence between 1990 and 2014: Global, Regional, and Subregional Levels and Trends." *The Lancet* 388(10041):258–67.
- Shemyakina, Olga. 2013. "Patterns in Female Age at First Marriage and Tajik Armed Conflict." *European Journal of Population / Revue Européenne de Démographie* 29(3):303–43.
- Shemyakina, Olga. 2011. "The Effect of Armed Conflict on Accumulation of Schooling: Results from Tajikistan." *DEVEC Journal of Development Economics* 95(2):186–200.
- Statistical Agency under the President of the Republic of Tajikistan; Ministry of Health, Measure DHS, ICF International. 2013. *Tajikistan Demographic and Health Survey, 2012*. Dushanbe.
- Steinberg, Jonah. 2011. *Isma'ili Modern: Globalization and Identity in a Muslim Community*. Chapel Hill: University of North Carolina Press.

- Sundberg, Ralph and Erik Melander. 2013. "Introducing the UCDP Georeferenced Event Dataset." *Journal of Peace Research* 50(4):523–32.
- Tajikistan Ministry of Health. 2000. *Findings of the Survey on the Reproductive Health of Women in Some Towns and Rayons of Khatlon Oblast, Republic of Tajikistan*. World Health Organization, United Nations Population Fund, and the Ministry of Health of the Republic of Tajikistan.
- United Nations Population Division. 2002. *Abortion Policies: A Global Review*. New York ; Geneva.
- Urdal, Henrik and Chi Primus Che. 2013. "War and Gender Inequalities in Health: The Impact of Armed Conflict on Fertility and Maternal Mortality." *International Interactions* 39(4):489–510.
- Williams, Nathalie E., Dirgha J. Ghimire, William G. Axinn, Elyse A. Jennings, and Meeta S. Pradhan. 2012. "A Micro-Level Event-Centered Approach to Investigating Armed Conflict and Population Responses." *Demography* 49(4):1521–46.

Chapter 4: The Long-Term Consequences of Armed Conflict for Migration

Violent conflict creates uncertainty, endangers one's physical safety, and threatens destruction of infrastructure and institutions. A growing body of social science literature connects political conflict to increased refugee migration (Davenport, Moore, and Poe 2003; Melander and Öberg 2006; Moore and Shellman 2004; Morrison and May 1994; Schmeidl 1997, 2001; Stanley 1987), including studies modeling migration as complex household and individual decisions, even under conflict scenarios (Lundquist and Massey 2005; Morrison and May 1994; Williams 2013; Williams et al. 2012). Yet the literature has so far largely neglected migration dynamics in the *aftermath* of conflict. Weakened institutions, changes in collective trust and uncertainty, new settlement patterns, and reconstruction projects may all drive increases in migration after a conflict ends. These factors and their effects can persist after conflict events have ceased. Examining the influence of recent historical conflict on contemporary migration decision-making is critical to better understanding the dynamics of population change in developing countries, to more effectively distribute aid to build and rebuild institutions. This chapter attempts to fill this gap in examining the long-term consequences of armed conflict on contemporary migration. Specifically, I focus on the reconstruction process in the aftermath of conflict and how conflict-related changes to the district affect current residents' migration behaviors.

To investigate this relationship, I examine the case of post-conflict Tajikistan. Tajikistan is an important case for understanding the long-term consequences of armed conflict on migration. It represents the most common type of armed conflict, an internal civil war in which opposing sides battled for control of the state (Pettersson and Wallensteen 2015). Migration is widely prevalent in Tajikistan, making it an appropriate case to study this specific demographic behavior. Finally, development in Tajikistan has also been geographically varied, and not necessarily aligned with the humanitarian need caused by the events of the war.

While migration from most Central Asia countries to Russia after independence from the Soviet Union has been substantial, Tajikistan is exceptional. In 2002, remittances from migrants constituted only

6% of the national GDP, whereas a mere four years later, remittances accounted for 36% of GDP. Most migration research using the case of Tajikistan considers migration to be a labor and livelihood decision (Abdulloev, Gang, and Landon-Lane 2012; Mughal 2007; Olimova and Bosc 2003). There are many economic reasons why one might migrate from Tajikistan, but in this study, I demonstrate that *in addition to* those economic reasons, migration continues to be influenced by the legacy of conflict.

Theoretical Framework

Increases in contemporaneous migration in response to conflict events is well-documented (Castles 2003; Czaika and Kis-Katos 2009; Davenport et al. 2003; Ibáñez and Vélez 2008; Jones 1989; Lindley 2010; Melander and Öberg 2006; Moore and Shellman 2004; Richmond 1988; Schmeidl 1997, 2001; Stanley 1987; Williams 2013; Williams et al. 2012). Thinking more broadly about the relationship between conflict and migration, there are many ways in which war might matter for migration in the long-run as well. The long-term consequences of war have roots in institutional and organizational change, in addition to political violence. For example, a bomb blast in a town may generate a short-term fear-based response – either to flee, or to avoid transportation and roads. The same bomb blast can also affect long-term change through the destruction of infrastructure, such as schools, hospitals, or markets, and their corresponding institutions.

The context in which migration decisions are made is a critical focus of this study and is part of a broad perspective that links armed conflict to migration behaviors. “[P]hysical threat is undoubtedly an important motivation to migrate away from conflict, [but] it is only one of many ways in which conflict affects individuals and families. They are also affected by a variety of harmful social, economic, and political consequences both during and after conflict or violent events,” (Williams 2013:355). Thus, conflict can have transformational effects on infrastructure, institutions, and future development efforts, and these effects can lead to long-term changes in demographic behaviors, including migration.

The Long-Term Consequences of Armed Conflict for Socio-Economic Outcomes

Some research has considered this broad perspective in examining the role of armed conflict on a range of socio-economic outcomes over the long run. Economists suggest that there are both short- and long-term outcomes of exposure to conflict events, including economic investment and growth (Besley and Mueller 2012; Brakman, Garretsen, and Schramm 2004; Guidolin and La Ferrara 2007; Singh 2012). Although many of the economic outcomes of war are temporary, Miguel and Roland (2011) find a persistent negative relationship between U.S. bombings in the Vietnam war and economic development through 2002, nearly three decades after the war ended. Additional evidence points to long-term effects of conflict exposure on human capital accumulation (Akresh and de Walque 2008; Leon 2012; Shemyakina 2011b), as well as on uncertainty and crime rates (Moodie 2011).

Conflict and public health are perennial concerns, but only a handful of studies explicitly examine long-term outcomes (Akresh, Lucchetti, and Thirumurthy 2012; Ghobarah, Huth, and Russett 2003; Pedersen 2002). These studies highlight the complex reconstruction processes that involve individuals, households, communities, international NGOs and the state. For instance, in considering the public health consequences of the Vietnam war, Teerawichitchainan and Korinek (2012) find few differences on multi-dimensional health profiles of civilians in a northern Vietnam commune, between those who were directly exposed and those who were not. However, the authors later find that for Vietnamese survivors of the war, exposure to war trauma was an important determinant of certain health indicators in late adulthood (2014), suggesting that perhaps the consequences of war exposure are exacerbated over the long run.

Conflict can affect other demographic behaviors, in the long run, too. Williams et al. (2016) simulate long-term marriage patterns under the conditions of actual and hypothetical conflict scenarios in Nepal. Although the differences in *exposure* lasts only four years, differences in marriage rates between scenarios persist for several years after the end of the conflict, and suggest that these changes persist because of the interwoven nature of demographic behaviors, such as marriage, family formation, and migration.

The Long-Term Consequences of Armed Conflict for Migration

Turning to the focus of this research, one of the long-term consequences of armed conflict may be migration. There are a number of ways in which the nature of social relationships can change after conflict that in turn affect migration. The boundaries between groups can become reified if made salient by conflict (Brubaker 2004). Networks are eroded through emigration and displacement, and horizontal trust can become damaged (Ostrom and Ahn 2003). Because migration is often facilitated by certain kinds of social capital, these changes may limit the migration potential of individuals after armed conflict (Curran et al. 2005; Garip 2008). While the immediate threats of the war may dissipate in subsequent years, changes to organizations, institutions, and the nature of social relationships have the potential to linger for years and decades after the conflict ends. Because of this lingering effect, areas that experienced more conflict events will create favorable conditions for increased labor migration.

H1: Residents living in an area that sustained more conflict events will demonstrate a higher probability to migrate out after the conflict ends.

Development and Migration

If armed conflict has long-term implications for migration, then we should expect that the subsequent development effort (or reconstruction) would moderate this relationship. In areas not affected by conflict, the relationship between development and migration is complex. Research suggests that development projects that specifically aim to deter migration through increases in youth employment can counter-intuitively increase migration in the short- and medium-term on the way to creating long-term labor market stability (Clemens and Postel 2017). Certain projects can provide incentives for potential migrants to stay, even without the explicit function of migration deterrence. For instance, a construction project to rebuild a school damaged by a bomb blast creates employment opportunities for young men with a specific set of skills. However, these projects are also generating human capital gains for potential

migrants, increasing their chances to secure jobs in more attractive destinations (de Haas 2007; Vogler and Rotte 2000). Community-based development projects might further develop social capital after a conflict, (for example, by creating community councils where ties between villages are expanded and strengthened), which facilitates migration by connecting potential migrants to knowledgeable community members with valuable information on employment opportunities abroad (Garip 2008). For this project, I expect that development, in general, will increase migration by building these kinds of capital.

H2: Residents in an area with a development project will be more likely to migrate.

Conflict, Development, and Migration

It is not only destruction during armed conflict that can change the landscape, but also the reconstruction process afterwards. Paul Collier and colleagues refer to civil war as ‘development in reverse,’ (2003:13). The costs of conflict are often far more than can be shouldered by a developing state, especially one with a new governing authority, and the challenges that they face are multi-faceted – economic, political, and social – in addition to the urgent need to mitigate the risk of ongoing violence and the re-emergence of conflict (Collier, Hoeffler, and Soderbom 2008). In fact, the winners of the war who now hold centralized power, are sometimes absent from the development process altogether, allowing instead for international intervention (Heathershaw and Lambach 2008). For these reasons, international aid has focused on community-centered development strategies that engage local governance and existing community institutions, which have demonstrated effects on social cohesion and cooperation (Fearon, Humphreys, and Weinstein 2009). The extent to which war creates a temporary or lasting effect on certain socio-economic outcomes may be tied to the focus of the subsequent reconstruction projects. For example, consider the case of post-WWII Germany. After strategic bombings of population centers in both East and West Germany, the authorities in West Germany explicitly declared a policy of rebuilding cities, while those in East Germany instead pursued new industrial centers where workers could move (Brakman et al.

2004). The bombings in West Germany led to a temporary shock from which the government was able to rebuild. In East Germany, these same events created lasting damage that influenced cities for decades.

One way we might interpret the role of the development projects in conflict zones is that they facilitate two different kinds of capital that have opposite effects on the propensity to migrate. On the one hand, development may help individuals build human capital, gaining valuable work experience and training that can provide a comparative advantage when entering foreign labor markets. Further, these projects may create previously non-existent local labor markets. Responding to community needs may involve the refurbishing or rebuilding of a school, hospital, or market, or perhaps the reconstruction of roads and other infrastructure. In places where conflict was the most intense, we might expect heavier destruction of infrastructure. In that case, responding to the most urgent community needs require the funneling of new resources into these communities, and specifically, resources that create a demand for construction and manual labor. These kinds of occupations are typical for most migrants from developing countries. Development projects after war may be creating local job markets in heavy conflict zones which incentivize potential migrants to stay in their home districts. On the other hand, however, development projects may, by the very act of bringing together community leaders, strengthen bridging social capital. These patterns of social relations may facilitate migration with information about work opportunities and friendly employers abroad (Garip 2008).

In conflict zones, I expect that the development will have a moderating effect. I consider this expectation to be analogous to Brakman et al.'s (2004) discussion of WWII bombing in Germany. For those districts where intense conflict occurred, sustained development efforts may, as they did in West Germany, create only short-term shocks that dissipate in the long-term. However, for those conflict zones with little reconstruction effort, as was the case in East Germany, the damage from the war will have a positive effect on migration.

H3: In those areas that both sustained more conflict events and received development projects, residents will be less likely to migrate, while in conflict-sustaining areas without a development project, they will be more likely to migrate.

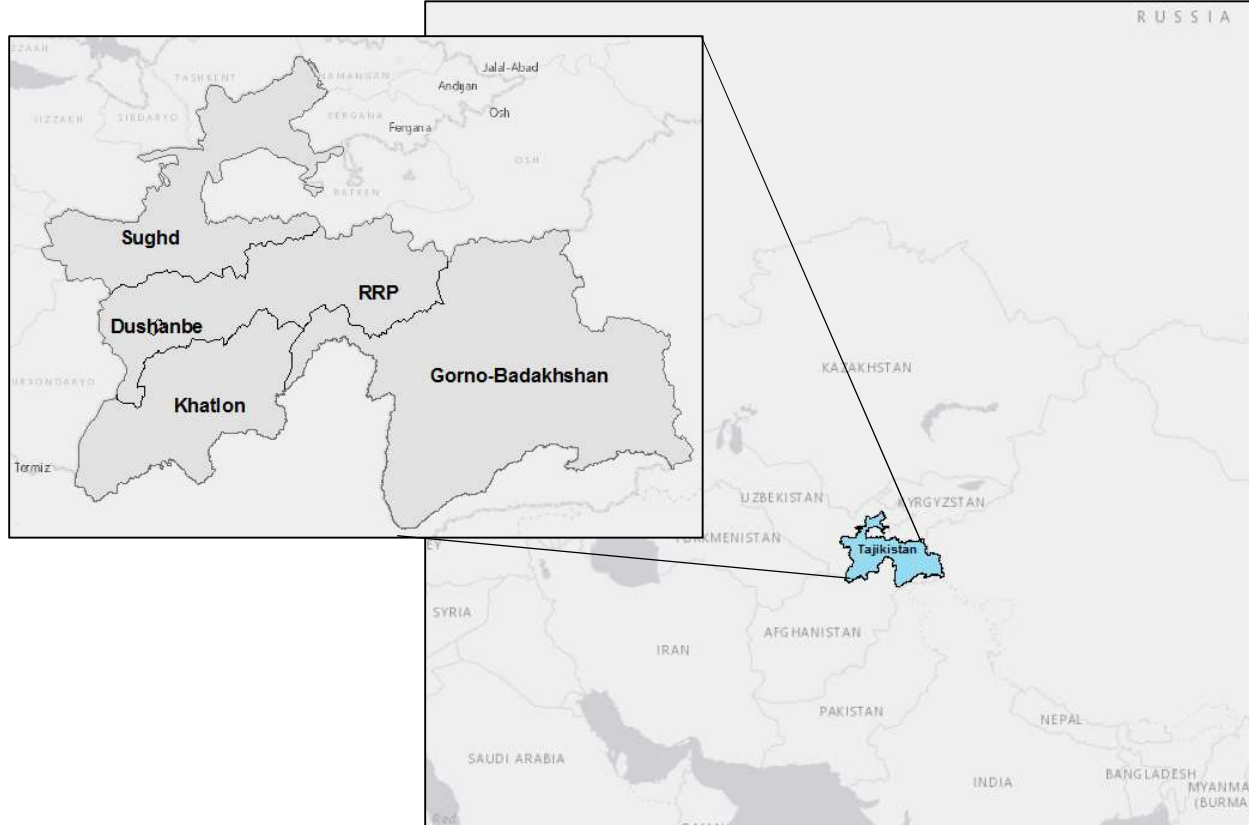
Setting

Located at the south end of Central Asia, Tajikistan is a small, land-locked 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. This case is a good one for testing the theoretical propositions above for several reasons.

[Figure 1 about here]

First, Tajikistan sustained a geographically varied, regionally-based civil war from 1992-1997. Second, labor migration in Tajikistan is widely prevalent and the country is the most remittance-dependent in the world. Finally, development in Tajikistan has also been geographically varied, and not necessarily aligned with the humanitarian need caused by the events of the war. This case, then, provides subnational variation along both the expected outcome (migration), conflict events, and development projects.

Figure 1. Regional map of Tajikistan



Civil War

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). After declaring independence in December 1991, along with many other Soviet Socialist Republics, the interim government lasted only a few months before opposition protests began, and martial law was declared in Dushanbe (Nourzhanov and Bleuer 2013). Widespread discontent over institutionalized corruption had provoked unexpected alliances, such as between the moderate Ismaili sect in Gorno-Badakhshan and the then-banned Islamist political party called the Islamic Renaissance Party of Tajikistan (IRPT) (Driscoll 2015; Dudoignon 1997). These unexpected alliances were distinctly anti-Soviet, and positioned themselves against the northern elites, who rallied around the incumbent (and Soviet backed) Rahmon Nabiev. The economic shock of the collapse of the Soviet Union brought with it

hunger and job scarcity. By April 1992, an estimated 100,000 protestors filled the main square in Dushanbe, demanding that Nabiev resign (Nourzhanov and Bleuer 2013:300). Violence in Dushanbe began in May as the IRPT began arming demonstrators (2013:316). Violent events were widespread through 1993, primarily in Qurgonteppa in the southwest, the home base of United Tajik Opposition (UTO), Qurgonteppa, in the Rasht Valley, home to the Gharmi opposition, and in the Gorno-Badakhshan Autonomous Oblast. Violence peaked in 1993, but continued on for the next four years, until a peace agreement was finally signed in 1997, between the new president, Emomali Rahmon, and the leaders of the opposition.

The conflict resulted in substantial human and material losses. In a country with a population then of a little more than 5 million, experts estimate that between 20,000 and 60,000 were killed, and up to a million people were displaced within Tajikistan and to neighboring countries (Olcott 2012). The conflict caused widespread damage to infrastructure, institutions, and private dwellings. UNICEF estimates that nearly 200 primary schools were destroyed. Estimates of the proportion of household structures damaged in the conflict vary regionally, from 2-12% (Shemyakina 2011). During the conflict, foreign and domestic investment in the economically important mining industry in Tajikistan practically came to a standstill (Levine 1996). Both during and after the conflict, regional divides were salient, producing “a highly regionalized pattern of politics... [and] an unusually high degree of congruence between patronal networks and territorially defined populations,” (Hale 2014:154). This regionality is an important factor during the post-conflict reconstruction period, in which Rahmon’s closest allies were rewarded and the territories that supported the major opposition groups were penalized.

Post-War Migration

Migration is a common livelihood strategy in post-Communist Tajikistan, with an estimated 10% of the population working abroad (Heleniak 2008). In the immediate aftermath of the war, remittances constituted between 4 and 7% of GDP in Tajikistan. Since then, however, there has been a massive growth in the role of remittances, swelling to 36% of national GDP by 2006 (World Bank). Nearly all the

migrants from Tajikistan go to Russia for work, and much of the research on migration in Tajikistan after the civil war has focused on remittances and the left-behind household members (Bennett, Clifford, and Falkingham 2013; Clement 2011; Justino and Shemyakina 2012; Mughal 2007; Olimova and Bosc 2003).

Development Strategies After War

One of the major international development organizations to begin work in Tajikistan after independence, the United Nations Development Programme, began establishing community resource centers (*Jamoat* Resource Centers, or JRCs) in 1996 – after the peak violence had subsided but before the peace accord was signed. With the state’s attention squarely focused on the war and, in later years, on the reintegration of ex-combatants, local governance became critical in international aid distribution and the institutional landscape of Tajikistan, and the UNDP was one of the only international organizations invested in development at the *jamoat* (municipality) level (Heathershaw 2009; Olcott 2012).

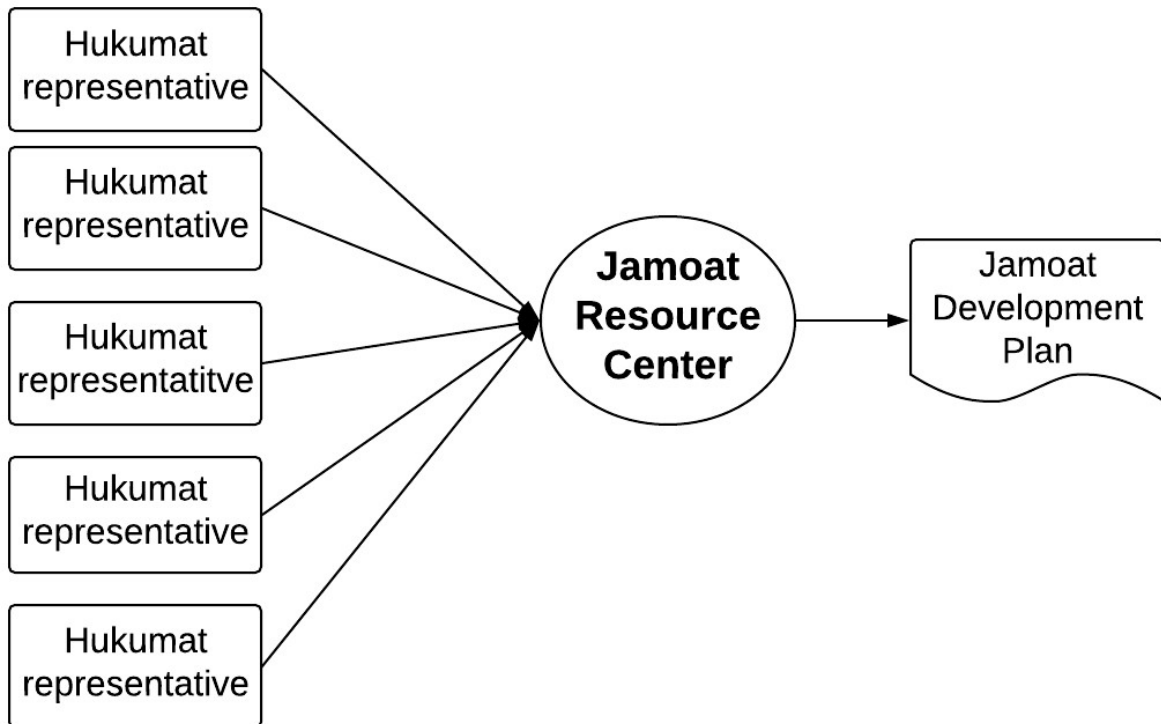
In July and August of 2017, I conducted interviews with key informants in development organizations in Tajikistan⁷. During these interviews, representatives from the United Nations’ Communities Program responsible for the JRC initiative told me that in the beginning of the project in the 1990s, officers visited each village and facilitated the election of village representatives who would then meet at the *jamoat* center. Each representative generated a list of needs specific to his or her village. The representatives collectively prioritized the needs of the *jamoat* based on urgency and expected gains. Then with the help of the umbrella organization, the UNDP, they engaged in writing proposals and securing funding (sometimes from the UNDP and sometimes from outside donors such as USAID) for these projects. According to my informants, this model was at first informal, but became formalized around 2008 in the JRCs and by 2010 the state had adopted this method as a legal requirement for each *jamoat*. These are now termed *Jamoat Development Plans*. Figure 2 illustrates the basic structure of a JRC, with

⁷ This fieldwork involved semi-structured interviews with key informants (Lynch 2013) at the United Nations Development Programme, UNICEF, the Sharq Scientific Research Center, as well as independent researchers and scholars who did not want to be identified with their institutions. Fieldwork was undertaken primarily in Dushanbe, where NGOs are most likely to be headquartered, in July and August 2017.

hukumat (village) representatives coming together to the jamoat resource center to produce a jamoat-wide development plan with village-level strategic priorities.

[Figure 2 about here]

Figure 2. Structure of the Jamoat Resource Centers



JRCs were, at least until 2008, so heavily focused on local issues that the UNDP developed new goals to explicitly address the challenge ahead of scaling up development efforts (Linn 2012). Set up to “parallel the generally weak Jamoat administrations,” (2012:12), programs differed between *jamoats* based on the urgency of development needs. When asked about these differences as they pertain to conflict and non-conflict zones, my respondents discussed the logistical and need-based considerations in establishing a community center. The UNDP supported intensive reconstruction of homes, schools, hospitals and water pipes that were destroyed in conflict zones. Years later, when they expanded into the Sughd province in

the north, which did not sustain direct exposure to the conflict, the type of development projects changed. The infrastructure projects in the north focused on refurbishment of neglected buildings and roads that had deteriorated since independence. Focusing on refurbishment rather than repair and rebuilding meant that these projects required less time, labor, and capital than those in the conflict-affected areas.

In considering the specific kinds of development programs in Tajikistan that would potentially mitigate migration decision-making, the *jamoat* resource centers (JRCs) are well-suited to study because of the level of involvement (at the community level) and their relative detachment from the centralized government of Tajikistan. JRC-led projects were not managed by the central government, and so, in the polarized post-war setting, were more likely to be equitably distributed and less likely to be politically motivated.

Data and Methods

I examine the long-term consequences of the Tajik Civil War on migration using multiple sources of data. I use individual and household data from the 2007 Tajikistan Living Standards Survey (LSS), conducted through a partnership between the World Bank and UNICEF. Approximately 4,800 households constituted by over 21,000 individuals were interviewed in November 2007 for the LSS. Table 1 describes the sample, which includes four regions and Dushanbe, as well as approximately 270 *jamoats*. Both 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.

[Table 1 about here]

<i>Table 1. Geographic Distribution of the Sample</i>					
	Men	Women	Total Number of Respondents	% Respondents	% 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	4,714	21.68	23.44
Gorno-Badakhshan	1,353	1,525	2,878	13.24	2.80

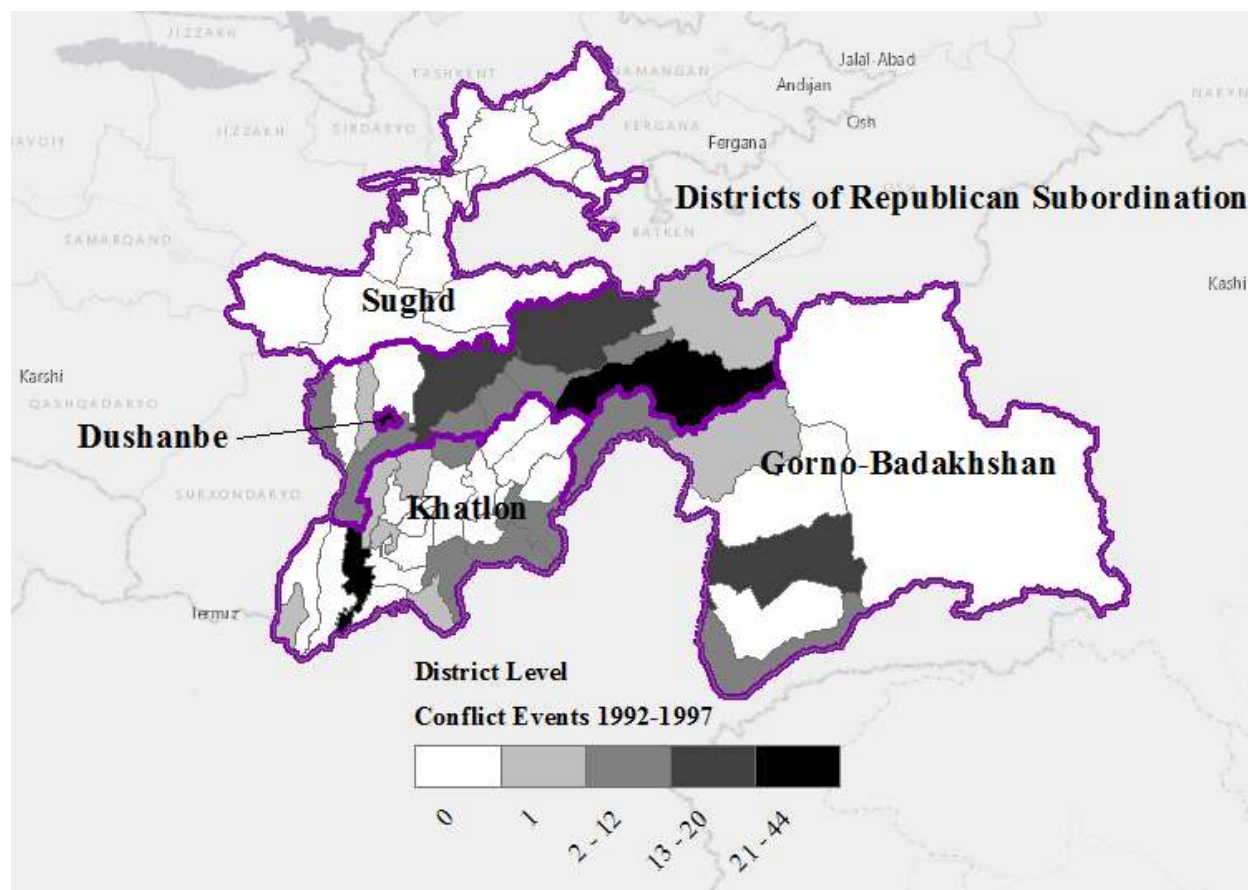
Respondents answered questions about educational attainment, marital status, literacy, occupation and income, and household economy. The LSS dataset is exceptional in that it contains a monthly migration history for each individual in 2006, whether or not s/he is currently in the household. Approximately 3% of individuals in interviewed households had migrated in 2006. Men were far more likely to migrate than women in Tajikistan, especially between the ages of 25 and 50.

Conflict event data were obtained from the Uppsala Conflict Data Program (UCDP). The UCDP collects annual data on events through publicly available local and international sources and extracted from Factiva. The UCDP errs on the side of moderation, and tends to underestimate, particularly when dealing with unreliable reports. Leveraging the subnational variation of conflict events⁸, I aggregate the UCDP event data into a single count measure for each district, representing all events from 1992-1997, shown in Figure 3. The events were not spatially equally distributed. Much of the violence that occurred toward the end of the conflict was concentrated in the Districts of Republican Subordination, which surrounds, but does not include, the capitol city Dushanbe. There were no reliable reports of conflict events in the Sughd oblast.

[Figure 3 about here]

Figure 3. Spatial distribution of conflict events, 1992-1997

⁸ See Nyseth Brehm 2017; Williams et al. 2012 on the operationalization of armed conflict not as a single continuous 'event', but as a varied set of events that take place at the subnational level.



Data on the location and establishment of community resource centers was provided by the United Nations Development Programme in Tajikistan and included the exact (*jamoat*) location of each center as well as the year in which it was established.

Sample

The sample contains over 18,000 individuals in approximately 4,200 households. In each of the five oblasts in Tajikistan (four large regions and the city of Dushanbe), women are slightly more represented in the sample than men. As in the population overall, most of the sample resides outside of Dushanbe. The average age of respondents is 34 years, with a minimum age of 14 years. More respondents are married than single, and this holds for both men and women. Most people have secondary education. Many more women than men have only primary education, and more men than women have completed

higher education. One-tenth of the rural households have no access to land for agriculture, either rented or owned. One-third of the sample live in regions that had established a JRC by 2006, the year immediately preceding the survey, while nearly 60% live in a region that experienced at least one conflict event.

Measures and Operationalization

Table 2 describes the data sources and summary statistics for each variable used in this study.

[Table 2 about here]

<i>Table 2. Measures</i>					
	Level of Analysis	Timeline	Data Source	Sample percentage	Sample Mean (Median)
Migration	Individual	2006	LSS	2.95	---
Conflict Events	District	1992-1997	Uppsala		
Jamoat Resource Centers	Jamoat (municipality)	1996-2006	United Nations Development Programme	33.37	---
Age	Individual	2007	LSS	---	34.52
Gender	Individual	2007	LSS	(% female) 52.71	---
Marital Status	Individual	2007	LSS	(% married) 58.51	---
Education	Individual	2007	LSS		
Primary				30.69	---
Secondary				52.51	---
Higher				16.80	---
Altitude (in meters)	Jamoat	2007	LSS	---	1004.09
Current residence in Gorno-Badakhshan	Individual	2007	LSS	(% yes) 13.24	---

5. Dependent variable

The dependent variable in this study is a dichotomous measure indicating that a respondent migrated outside of Tajikistan in 2006 for at least one month. This question is asked of all household members who were in residence at the time of the survey, either in the first round of household interviews conducted in September 2007 or the follow-up round in November 2007. Approximately 3% of the sample migrated and returned during this time frame. Nearly all of the migrants told interviewers that they went abroad to look for work, and nearly all went to Russia. A quarter of the migrants said they went to their destination country because they had been there before, another quarter had a job pre-arranged for them, and about 40% said that they went because they had friends, relatives, or acquaintances there. Around 80% of the migrants said that they started or found work while abroad, and of those workers, half were employed in the construction sector.

6. Conflict Events

Data on conflict events comes from the Uppsala Conflict Data Program (UCDP). 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.

7. Jamoat Resource Centers

The measure indicating whether a district had established a JRC comes directly from the United Nations Development Programme (UNDP). The data include the precise location of the center as well as its year of establishment. These centers were not evenly distributed⁹. The UNDP did not establish any JRC in the autonomous oblast Gorno-Badakhshan¹⁰. I use a dichotomous measure indicating the absence (0) or presence (1) of a JRC by the end of 2005.

⁹ In fact, we might be concerned that the establishment of a JRC is related to the intensity of the conflict experienced. Not altogether unsurprisingly, this was not the case in Tajikistan. Logistical issues, the United Nations' relationship with the government, and general developmental needs were considered for JRC placement. To further investigate this potential confounder, I model the probability of establishing a JRC in any given district and find that the strongest predictors are economics and not conflict. These results are available in the appendix.

¹⁰ Whereas many regions presented the UNDP with logistical and political challenges to establishing JRCs, Gorno-Badakhshan (GBAO) had the misfortune to experience a combination of many steep obstacles to development. The region is covered in the stunningly high peaks of the Pamir mountain range, and at the time of JRC establishments elsewhere in the country, travel in GBAO was notoriously difficult. Additionally, GBAO was a place of contention with the state during the conflict, and projects in

8. Interaction of JRC and Conflict

I interact the JRC variable and the measures of conflict, to capture differences between development projects in conflict zones and non-conflict zones.

9. Controls

Individual factors are self-reported by the respondent or his or her head of household. I use characteristics that may affect both the probability that an individual might migrate and the probability that they may be affected by conflict. Controlling for these factors significantly reduces the estimation bias in modeling the relationship between conflict and migration.

- **Age and age-squared.** The median age is 30 years old, while the 25th percentile is 20 years old.
- **Gender.** There are approximately 10,000 male and 11,000 female respondents in the sample.
- **Marital status.** Around 60% of men and 57% of women in the sample are married. I use a simplified dichotomous measure, so that a code of 0 might mean single (32% of the sample), widowed (5%), divorced (<1%), separated (<1%), or living together (<1%).
- **Educational attainment (categorical).** This indicator includes four levels of education: None, primary only, secondary education (includes technical schools), and higher education, including graduate school. More than half the sample has completed secondary education. Approximately 17% of the sample have completed higher education. Women in the sample are more likely than men to complete only primary education, and men are more likely than women to complete higher education.

I control for additional measures that have some substantive meaning and may be directly or indirectly related to development resource centers.

the region at that time and immediately after were difficult to secure politically. Later in the reconstruction period, efforts to reach Gorno-Badakhshan may well have been ignored because of the involvement of the Aga Khan, the living Imam of the Ismaili branch of Islam. Aga Khan and his related organizations distributed aid in the region when goods and cash were nearly entirely absent for several years after the end of the conflict. For a robustness check, I replicate the analyses in this paper removing the residents of GBAO. The results are robust to this test.

- **Altitude** is measured by The World Bank at the time of the survey. In Tajikistan, districts that are geographically close by may be isolated in reality, due to the logistical challenges of traveling over mountainous terrain. High altitudes hinder agricultural development and may exacerbate poverty for areas that development organizations have difficulty reaching. Although in cross-national studies, “rough terrain” has been modeled as favorable to civil wars (Fearon and Laitin 2003), when comparing districts within Tajikistan, altitude did not seem to be strongly correlated with conflict events in bivariate correlations. Altitude is weakly correlated with the establishment of JRCs as well. Importantly, it cannot be said that altitude has been caused by either conflict or the JRCs, and this makes altitude a helpful control in reducing bias.
- **Residence in Gorno-Badakhshan.** This dummy variable indicates residence in the autonomous oblast that is home to the Pamiri ethnic group. This group differs from the rest of Tajikistan in a few important ways, including religious and cultural beliefs. Pamiri ascribe to the Ismaili branch of Islam, distinguished by its living imam, the Aga Khan. Because of this, the Aga Khan Foundation has been very active in Gorno-Badakhshan during and after the conflict. Reports from that time indicate that the Aga Khan Foundation provided basic survival items to every individual in Gorno-Badakhshan starting in 1994. Although basic survival goods are not the same kind of development as resource centers, interviews with officers at the United Nations Development Programme indicate that the region was considered adequately supplied and thus, did not establish JRCs there. In addition to including this indicator, I replicate the models on data excluding residents of Gorno-Badakhshan. In these tests, I find no substantive difference in the magnitude, direction, or statistical significance of the variables of interest.
- **Interaction between Gorno-Badakhshan and Conflict Events**
Because of the special case of Gorno-Badakhshan, I estimate an additional model interacting residence in this oblast and conflict events. The type of development provided by the UNDP in other regions was substantially different from the type of development provided by the Aga Khan Foundation to Gorno-Badakhshan. If my hypothesis about the role that the Jamoat Resource

Centers play in providing an alternative labor market for potential migrants is correct, then I expect to see no effect of this interaction term. In that case, although residents in Gorno-Badakhshan did receive development, broadly construed, it did not function in a way that ought to affect migration, whereas the JRCs did. Non-significant results for this term lend support to my hypothesis. On the other hand, if the term were significant, one might argue that the aid itself, regardless of form, has some effect on migration outside of the broader perspective presented here.

Methods and Findings

Model Estimation

I estimate bivariate and multivariate logistic regression models to examine *H1: Residents living in a district that sustained more conflict events will demonstrate a higher probability to emigrate after the conflict ends*. Table 3 shows the full model results from all models, with standard errors.

[Table 3 about here]

	Bivariate model	Std error	Multi-variate Model	Std error	Interactive Model with JRCs	Std error
Conflict events	.010**	.005	.014**	.006	.030**	.007
Jamoat Resource Center (1 = yes)	---	---	---	---	.297**	.130
JRC (yes) x Conflict	---	---	---	---	-.048**	.021
Age	---	---	.406***	.004	.405***	.036
Age squared	---	---	-.005***	.000	-.005***	.000
Gender (1 = Female)	---	---	-2.79***	.173	-2.80***	.173
Married (1 = yes)	---	---	-.228	.152	-.218	.152
Education (ref. Primary only)						
Secondary	---	---	.691***	.178	.681***	.178
Higher Education	---	---	-.225	.214	-.238	.215

Altitude	---	---	.0001	.001	.00003	.000
Residence in Gorno-Badakhshan	---	---	-.214	.276	-.219	.287
Intercept	-3.58***	.054	-9.81***	.575	-9.99***	.625
AIC	5002.1		3742.9		3739.4	
N	19,250		18,321		18,321	
*** p < .01 ** p < .05 * p < .10						

The results suggest that there is a positive significant relationship between conflict events and migration that persists when controlling for the individual and household characteristics described above. Figure 4 shows predicted probabilities (solid line) and 95% confidence interval (shaded area) of migration from the bivariate model across the range of conflict values.

[Figure 4 about here]

Figure 4. Simulated Probabilities of Out-Migration Across the Range of Conflict Events

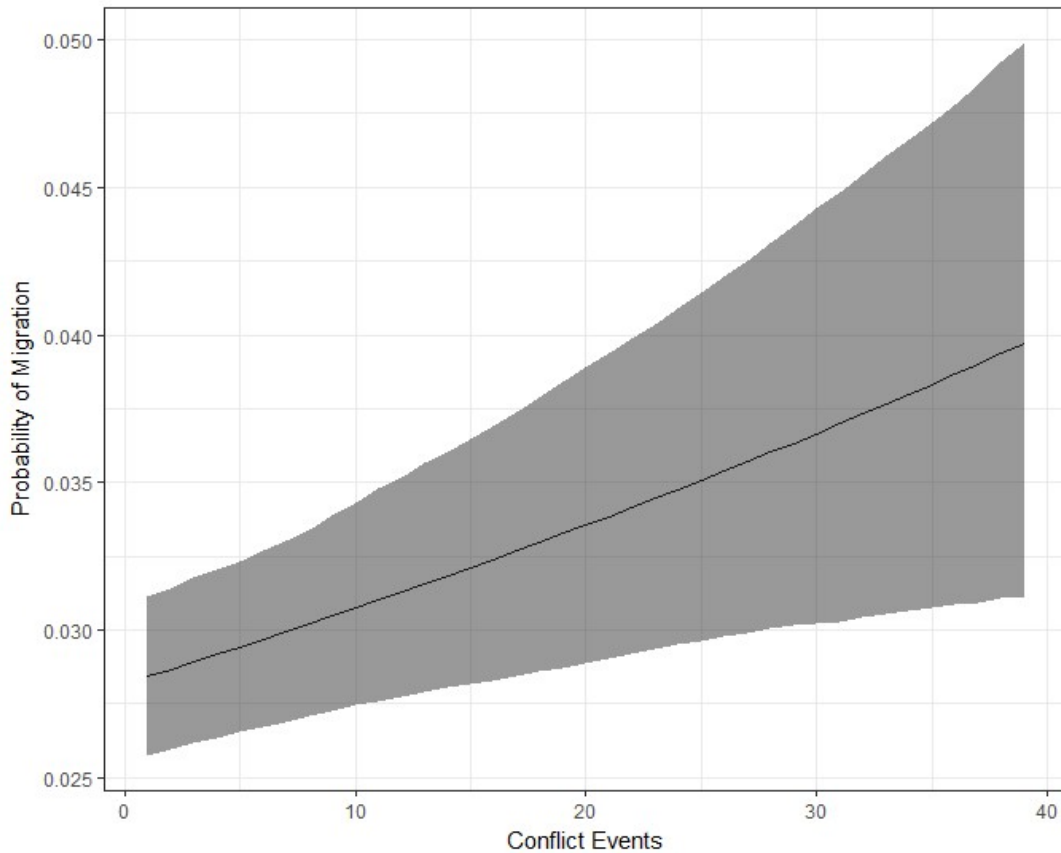
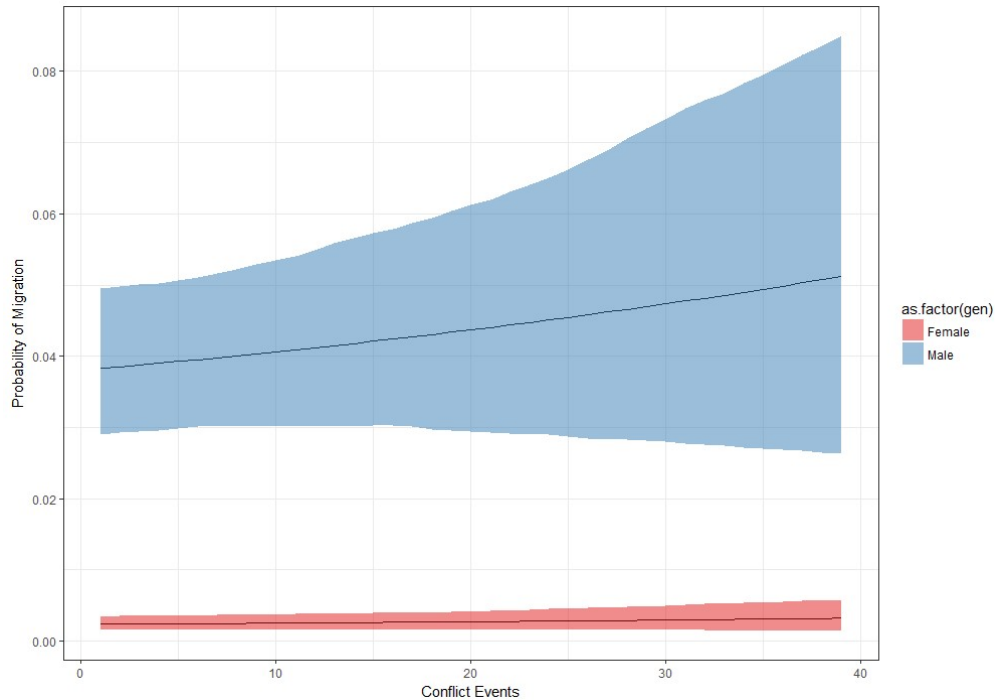


Figure 5 shows the predicted probabilities (solid line) and 95% confidence intervals (shaded area) from the multivariate model, which incorporates individual, household, and district-level controls. I have simulated separate probabilities for men and women, holding all other predictors at their mean, as described in King et al. (2000). As is the case in most developing countries, men have a much higher probability to migrate than women, and men appear to be driving the general upward trend. Uncertainty continues to increase as conflict events do, even for women, although on a much smaller scale.

[Figure 5 about here]

Figure 5. Simulated Probabilities of Out-Migration for Men and Women, with controls



The findings suggest support for H1, that residents in districts with more conflict events have higher probabilities to migrate out, even ten years after the war has ended.

Other findings from the multivariate model indicate that age, gender, and secondary (but not higher) education influence migration, while marital status does not. Neither altitude, nor residence in Gorno-Badakhshan Autonomous Oblast appear to affect migration.

Development as a Moderating Factor?

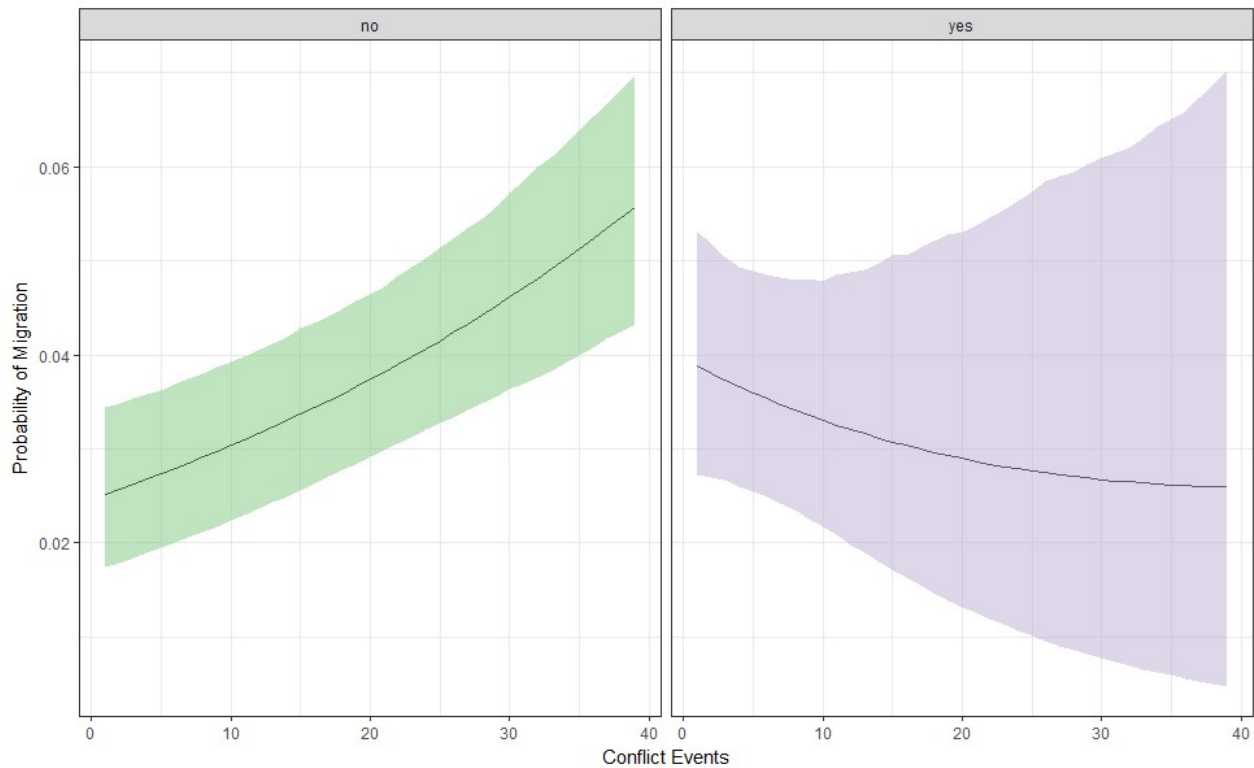
Next, I turn to modeling the relationship hypothesized in H2: *Residents in a district with a development project will be more likely to migrate* and in H3: *In those districts that both sustained more conflict events and received development projects, residents will be less likely to migrate, while in conflict-sustaining districts without a development project, they will be more likely to migrate.* In this multivariate logistic regression model, I integrate development resource centers into the model and interact them with the conflict events. Figure 6 shows the simulated probabilities (solid line) and 95% confidence interval (shaded area) of out-migration for a typical male resident in districts *with* or *without* JRCs, holding all

other indicators at their mean. In districts that sustained no conflict events, the probability to migrate out is higher with a JRC than without. In former conflict zones, however, as conflict events increase, the probability to migrate out in a district with a JRC *decreases*. This finding suggests that JRCs moderate the positive effect of conflict on migration.

However, as conflict events increased, uncertainty follows suit. Perhaps JRCs provide some resources that incentivize migration *and* some that incentivize staying in the origin, but it is difficult to precisely identify these mechanisms in the data available.

[Figure 6 about here]

Figure 6. Simulated Probabilities for Out-Migration for Men, with controls and JRCs



Development may be one key mechanism that links historical conflict and contemporary migration decision-making, and this analysis suggests that further research is needed. If migration is a commonly

utilized livelihood strategy for young men in developing contexts, and the likelihood of migrating is increased through conflict, development projects in conflict zones may be unintentionally creating local employment markets that resemble migrant employment opportunities abroad.

Gorno-Badakhshan Development Model

Finally, I turn to the aforementioned model in which I interact residence in Gorno-Badakhshan with conflict events. Using the same controls as in previous models, I find no significant association between Gorno-Badakhshan, conflict, and migration. These results suggest that it is not development, per se, that affects migration over the long-run in conflict-affected areas, but rather that the type of development project matters. The type of survival goods and direct transfer of assistance to residents in Gorno-Badakhshan did not contribute to broader transformation of institutions or social relations the way that the JRCs did. These findings lend confidence to the interpretation of development as a moderating factor in conflict-affected areas.

[Table 4 about here]

Table 4. Logistic regression results with Gorno-Badakhshan interaction instead of JRC interaction		
	GBAO Model	Std error
Conflict events	.014**	.006
Jamoat Resource Center (1 = yes)	---	---
JRC (yes) x Conflict	---	---
Age	.406***	.004
Age squared	-.005***	.000
Gender (1 = Female)	-2.79***	.173
Married (1 = yes)	-.221	.152
Education (ref. Primary only)		
Secondary	.691***	.178
Higher Education	-.225	.214

Altitude	-.0001	.000
Residence in Gorno-Badakhshan	-.293	.297
Gorno-Badakhshan * Conflict events	.020	.026
Intercept	-9.80***	.574
AIC	3744.3	
N	18,321	
*** p < .01 ** p < .05 * p < .10		

Conclusion

Despite social science scholarship on the transformative nature of war, demographic research has largely neglected migration dynamics after conflict. The main finding of this analysis is that, nearly a decade after the conflict has ended, there is a statistically significant association with armed conflict and migration. This finding is robust to different methods of operationalization of conflict. The analysis suggests that the impacts of armed conflict on migration decision-making are longer lasting than previously considered. Linking historical conflict and contemporary migration is a difficult test. From the onset of war to the point of measurement for this study, a great deal of change can and has occurred in Tajikistan. Nevertheless, I continue to find association with conflict zones and those that produce migrants, net of individual and household economic indicators, and community-level features.

Migration in Tajikistan is widely considered to be exclusively tied to wage labor by both scholars and policy-makers alike, and with good evidence to support both the economic determinants of migration decision-making and the economic rewards of sending remittances home (Abdulloev et al. 2012; Bennett et al. 2013; Olimova and Bosc 2003). However, this focus on labor migration in a post-conflict society misses part of the story. Even under poor economic conditions, I find lingering impacts of armed conflict on migration.

Limitations and Future Research

The established relationship between armed conflict and migration, ten years after the war ended in Tajikistan, is promising for future research. I have focused here on first establishing the direct effects of

the armed conflict but have not tested many of the mechanisms – such as trauma, damaged trust, and changes in network structures – that could facilitate this relationship. For this, and other cases of conflict, there is a wealth of opportunity to test these mechanisms if the data are collected. Second, the LSS data captures only migrations that occurred (and completed) in 2006. These migrations were completed before the global financial crisis of 2007 that deeply affected Russia’s economy, and before the 2012 immigration regulations that severely restricted migration to Russia from Central Asia. How long this relationship persists may well be affected by these policy changes at the destination and could be an area for future research as the relationship between Russia and Tajikistan continues to develop.

The operationalization of migration in this study necessarily depends on the return of the individual. In Tajikistan, most migrants engage in temporary, circular labor migration. Thus, the chapter focuses on labor migration as a livelihood strategy because I cannot analyze out-migration with no return. Further, in this chapter I have argued that the conflict events variable is salient at the district of residence in 2006 because of the *institutional* changes experienced by the district and not the behavioral changes made by the *individual*. To examine behavioral changes based on individual assessment of uncertainty, research ought to use the conflict events at the individual’s residence at the onset of war.

Implications

The empirical inattention to the aftermath of conflict does not align with the lived experience of war. Demographic behavior does not necessarily return to previous states after the peace accord is signed. The effects of war are interrelated, and can have lasting economic, social, and political impacts. Former conflict zones may be the recipients of aid and development projects that create labor markets and provide access to human capital as well as improved and repaired infrastructure, which further alter their trajectories. This study sheds light on migration decision-making in the decade after armed conflict in the case of Tajikistan. The civil war was a transformative event on the people, social structures, and economy in much of the country. The findings of this analysis suggest that conflict may influence demographic behavior not only during war, but after as well. Migration in developing contexts is commonly utilized as

a livelihood strategy, but in this case, historical conflict influences migration even while controlling for the household economic and poverty indicators that are typically associated with migration.

These findings have implications for the way scholars incorporate armed conflict into the study of migration and development in post-war settings. Often conflict is implicitly acknowledged but not explicitly modeled or analyzed. This study provides evidence supporting a more complex analysis of migration in these settings, in which conflict is considered a determinant of migration even after the violence has ceased. This is an especially important addition to the understanding of migration as conflicts like Syrian civil war continue to inflict widespread infrastructural damage, and the Peace Research Institute of Oslo continues to report dozens of conflicts and hundreds of thousands of casualties worldwide (Dupuy et al. 2017). The case of Tajikistan is an important test to consider the effects of a commonly experienced type of political conflict. Expanding this analysis to other cases will help develop much-needed comparative evidence of this relationship. Future comparative research could influence how demographers examine migration in post-conflict settings.

References

- Abdulloev, Ilhom, Ira N. Gang, and John Landon-Lane. 2012. "Migration as a Substitute for Informal Activities: Evidence from Tajikistan." Pp. 205–27 in *Informal Employment in Emerging and Transition Economies*. Vol. 34, *Research in Labor Economics*, edited by H. Lehmann and K. Tatsiramos. Emerald Group Publishing Limited.
- Agadjanian, Victor and Ndola Prata. 2002. "War, Peace, and Fertility in Angola." *Demography* 39(2):215–231.
- Akresh, Richard, Leonardo Lucchetti, and Harsha Thirumurthy. 2012. "Wars and Child Health: Evidence from the Eritrean-Ethiopian Conflict." *Journal of Development Economics* 99:330–40.
- Akresh, Richard and Damien de Walque. 2008. "Armed Conflict and Schooling: Evidence from the 1994 Rwandan Genocide." *The World Bank Development Research Group Policy Research Working Paper* 4606.
- Arps, Sebastian. 2005. "Prolonging Inequality? Education in Germany after Unification." *Journal of Education Policy* 20(2):159–87.
- Barro, Robert J. and Jong Wha Lee. 2013. "A New Data Set of Educational Attainment in the World, 1950–2010." *Journal of Development Economics* 104:184–98.
- Bennett, Rachel, David Clifford, and Jane Falkingham. 2013. "Household Members' Migration and the Education of Children 'Left Behind': Empirical Findings from Tajikistan and Reflections for Research Practice." *Population, Space and Place* 19:1–14.
- Bernhardt, Annette, Martina Morris, Mark S. Handcock, and Marc A. Scott. 2001. *Divergent Paths: Economic Mobility in the New American Labor Market*. New York: Russell Sage.
- Besley, Timothy and Hannes Mueller. 2012. "Estimating the Peace Dividend: The Impact of Violence on House Prices in Northern Ireland." *American Economic Review* 102(2):810–33.
- Blau, Peter M. and Otis D. Duncan. 1967. *The American Occupational Structure*. New York: Wiley.
- Bliss, Frank. 2006. *Social and Economic Change in the Pamirs (Gorno-Badakhshan, Tajikistan)*. London ; New York: Routledge.
- Blossfeld, Hans-Peter and Yossi Shavit. 1993. "Persisting Barriers: Changes in Educational Opportunities in Thirteen Countries." in *Persistent Inequality: Changing Educational Attainment in Thirteen Countries, Social Inequality Series*, edited by Y. Shavit and H.-P. Blossfeld.
- Bongaarts, John. 1978. "A Framework for Analyzing the Proximate Determinants of Fertility." *Population and Development Review* 4(1):105.
- Bongaarts, John and John Casterline. 2013. "Fertility Transition: Is Sub-Saharan Africa Different?" *Population and Development Review* 38:153–68.
- Bourdieu, Pierre and Jean-Claude Passeron. 1977. *Reproduction in Education, Society, and Culture*. Beverly Hills, CA: Sage.

- Brakman, Steven, Harry Garretsen, and Marc Schramm. 2004. "The Strategic Bombing of German Cities during World War II and Its Impact on City Growth." *Journal of Economic Geography* 4(2):201–18.
- Breu, Thomas and Hans Hurni. 2003. *The Tajik Pamirs: Challenges of Sustainable Development in an Isolated Mountain Region*. Bern: CDE.
- Brubaker, Rogers. 2004. *Ethnicity Without Groups*. Cambridge, Mass.: Harvard University Press.
- Brück, Tilman and Damir Esenaliev. 2018. "Post-Socialist Transition and Intergenerational Educational Mobility in Kyrgyzstan." *Economics of Transition* 26(1):61–89.
- Castles, S. 2003. "Towards a Sociology of Forced Migration and Social Transformation." *Sociology* 37(1):13–34.
- Chamarbagwala, Rubiana and Hilcías E. Morán. 2011. "The Human Capital Consequences of Civil War: Evidence from Guatemala." *Journal of Development Economics* 94(1):41–61.
- Choudhary, Akanksha and Ashish Singh. 2017. "Are Daughters Like Mothers: Evidence on Intergenerational Educational Mobility Among Young Females in India." *Social Indicators Research* 133(2):601–21.
- Clemens, Michael A. and Hannah M. Postel. 2017. *Deterring Emigration with Foreign Aid: An Overview of Evidence from Low-Income Countries. GLM|LIC Synthesis Paper*. 8. Bonn, Germany: IZA - Institute of Labor Economics.
- Clement, Matthieu. 2011. "Remittances and Household Expenditure Patterns in Tajikistan: A Propensity Score Matching Analysis." *Asian Development Review* 28(2):58–87.
- Clifford, David, Jane Falkingham, and Andrew Hinde. 2010. "Through Civil War, Food Crisis and Drought: Trends in Fertility and Nuptiality in Post-Soviet Tajikistan." *European Journal of Population / Revue Européenne de Démographie* 26(3):325–50.
- Cohen, David K. 2013. "Explaining Rape during Civil War: Cross-National Evidence (1980-2009)." *American Political Science Review* 107(3):461–77.
- Collier, Paul et al. 2003. *Breaking the Conflict Trap: Civil War and Development Policy. A World Bank Policy Research Report*. Washington, DC : Oxford, UK: The World Bank and Oxford University Press.
- Collier, Paul, Anke Hoeffler, and Mans Soderbom. 2008. "Post-Conflict Risks." *Journal of Peace Research* 45(4):461–78.
- Commercio, Michele E. 2015. "The Politics and Economics of 'Retraditionalization' in Kyrgyzstan and Tajikistan." *Post-Soviet Affairs* 31(6):529–56.
- Constantine, Elizabeth. 2007. "Practical Consequences of Soviet Policy and Ideology for Gender in Central Asia and Contemporary Reversal." Pp. 115–26 in *Everyday Life in Central Asia*, edited by J. Sahadeo and R. Zanca. Bloomington: Indiana University Press.

- Crosnoe, Robert and Aprile D. Benner. 2016. "Educational Pathways." Pp. 179–200 in *Handbook of the Life Course*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Cham: Springer International Publishing.
- Curran, Sara R., Filiz Garip, Chang Y. Chung, and Kanchana Tangchonlatip. 2005. "Gendered Migrant Social Capital: Evidence from Thailand." *Social Forces* 84(1):225–255.
- Czaika, M. and K. Kis-Katos. 2009. "Civil Conflict and Displacement: Village-Level Determinants of Forced Migration in Aceh." *Journal of Peace Research* 46(3):399–418.
- Dagiev, Dagikhudo. 2014. *Regime Transition in Central Asia: Stateness, Nationalism and Political Change in Tajikistan and Uzbekistan*. London ; New York: Routledge.
- Davenport, Christina, Will Moore, and Steven Poe. 2003. "Sometimes You Just Have to Leave: Domestic Threats and Forced Migration, 1964-1989." *International Interactions* 29(1):27–55.
- Deyoung, Alan J. 2006. "Problems and Trends in Education in Central Asia since 1990: The Case of General Secondary Education in Kyrgyzstan." *Central Asian Survey* 25(4):499–514.
- Driscoll, Jesse. 2015. *Warlords and Coalition Politics in Post-Soviet States*. Cambridge; New York: Cambridge University Press.
- Dudoignon, Stephane A. 1997. "Political Parties and Forces in Tajikistan, 1989-1993." Pp. 52–85 in *Tajikistan: The Trials of Independence*, edited by M.-R. Djalili, F. Grare, and S. Akiner. New York: St. Martin's Press.
- Dupuy, Kendra et al. 2017. *Trends in Armed Conflict, 1946-2016*. Oslo: Peace Research Institute Oslo (PRIO).
- Edgar, Adrienne. 2006. "Bolshevism, Patriarchy, and the Nation: The Soviet 'Emancipation' of Muslim Women in Pan-Islamic Perspective." *Slavic Review* 65(2):252.
- Farwell, Nancy. 2004. "War Rape: New Conceptualizations and Responses." *Affilia* 19(4):389–403.
- Fathi, Habiba. 2006. "Gender, Islam, and Social Change in Uzbekistan." *Central Asian Survey* 25(3):303–17.
- Fearon, James D., Macartan Humphreys, and Jeremy M. Weinstein. 2009. "Can Development Aid Contribute to Social Cohesion after Civil War? Evidence from a Field Experiment in Post-Conflict Liberia." *The American Economic Review* 99(2):287–91.
- Fearon, James D. and David D. Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *The American Political Science Review* 97(1):75–90.
- Froese, Paul. 2008. *The Plot to Kill God*. Berkeley: University of California Press.
- Garip, Filiz. 2008. "Social Capital and Migration: How Do Similar Resources Lead to Divergent Outcomes?" *Demography* 45(3):591–617.
- Gates, Scott, Havard Hegre, Havard Mogleiv Nygard, and Havard Strand. 2012. "Development Consequences of Armed Conflict." *World Development* 40(9):1713–22.

- Ghobarah, Hazem Adam, Paul Huth, and Bruce Russett. 2003. "Civil Wars Kill and Maim People - Long After the Shooting Stops." *American Political Science Review* 97(2):189–202.
- Goldstein, Joshua S. 2003. "War and Gender." in *Encyclopedia of Sex and Gender*, edited by C. R. Ember and M. Ember. Boston: Springer.
- Grimard, F. and S. Laszlo. 2014. "Long-Term Effects of Civil Conflict on Women's Health Outcomes in Peru." *World Development* 54:139–55.
- Guidolin, Massimo and Eliana La Ferrara. 2007. "Diamonds Are Forever, Wars Are Not: Is Conflict Bad for Private Firms?" *The American Economic Review* 97(5):1978–93.
- de Haas, Hein. 2007. "Turning the Tide? Why Development Will Not Stop Migration." *Development and Change* 38(5):819–41.
- Hale, Henry E. 2014. *Patronal Politics: Eurasian Regime Dynamics in Comparative Perspective*. Cambridge: Cambridge University Press.
- Handrahan, Lori. 2004. "Hunting for Women: Bride-Kidnapping in Kyrgyzstan." *International Feminist Journal of Politics* 6(2):207–33.
- Heathershaw, John. 2009. *Post-Conflict Tajikistan: The Politics of Peacebuilding and the Emergence of Legitimate Order*. London: Routledge.
- Heathershaw, John and Daniel Lambach. 2008. "Post-Conflict Spaces in International Relations." *Journal of Intervention and Statebuilding* 2(3):269–90.
- Heckman, James J. 2006. "Skill Formation and the Economics of Investing in Disadvantaged Children." *Science* 312:1900–1902.
- Heleniak, Timothy. 2008. "An Overview of Migration in the Post-Soviet Space." Pp. 29–68 in *Migration, Homeland, and Belonging*. Washington, DC: Woodrow Wilson Center Press.
- Heuveline, Patrick. and Bunnak. Poch. 2007. "The Phoenix Population: Demographic Crisis and Rebound in Cambodia." *Demography* 44(2):405–26.
- Hill, Kenneth. 2004. *War, Humanitarian Crises, Population Displacement, and Fertility: A Review of Evidence*. Washington, D.C.: National Academies Press.
- Ibáñez, Ana María and Carlos Eduardo Vélez. 2008. "Civil Conflict and Forced Migration: The Micro Determinants and Welfare Losses of Displacement in Colombia." *World Development* 36(4):659–76.
- Islam, Asadul, Chandarany Ouch, Russell Smyth, and Liang Choon Wang. 2016. "The Long-Term Effects of Civil Conflicts on Education, Earnings, and Fertility: Evidence from Cambodia." *Journal of Comparative Economics* 44(3):800–820.
- Jayaraman, Anuja, Tesfayi Gebreselassie, and S. Chandrasekhar. 2009. "Effect of Conflict on Age at Marriage and Age at First Birth in Rwanda." *Population Research and Policy Review* 28(5):551–67.

- Jones, Richard C. 1989. "Causes of Salvadoran Migration to the United States." *Geographical Review* 79(2):183.
- Justino, Patricia and Olga Shemyakina. 2012. "Remittances and Labor Supply in Post-Conflict Tajikistan." *IZA Journal of Labor & Development* 1(8).
- Khalid, Adeb. 2007. *Islam after Communism*. Berkeley: University of California Press.
- Khasanzoda, G. et al., eds. 2016. "Education in the Republic of Tajikistan: 25 Years of State Independence."
- King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." *American Journal of Political Science* 44:341–55.
- Kirkpatrick Johnson, Monica, Jeremy Staff, John E. Schulenberg, and Megan E. Patrick. 2016. "Living Healthier and Longer: A Life Course Perspective on Education and Health." Pp. 369–88 in *Handbook of the Life Course: Volume II*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Cham: Springer International Publishing.
- Korinek, Kim and Bussarawan Teerawichitchainan. 2014. "Military Service, Exposure to Trauma, and Health in Older Adulthood: An Analysis of Northern Vietnamese Survivors of the Vietnam War." *American Journal of Public Health* 104(8):1478–87.
- Kotkin, Stephen. 2001. *Armageddon Averted: The Soviet Collapse, 1970-2000*. Oxford: Oxford University Press.
- Lai, Brian and Clayton Thyne. 2007. "The Effect of Civil War on Education, 1980—97." *Journal of Peace Research* 44(3):277–92.
- Laruelle, Marlène and Sebastien Peyrouse. 2013. *Globalizing Central Asia: Geopolitics and the Challenges of Economic Development*. Armonk, New York: M.E. Sharpe.
- Leon, Gianmarco. 2012. "Civil Conflict and Human Capital Accumulation: The Long-Term Effects of Political Violence in Peru." *Journal of Human Resources* 47(4):991–1022.
- Leopold, Liliya. 2018. "Education and Physical Health Trajectories in Later Life: A Comparative Study." *Demography* 55(3):901–27.
- Levi, Margaret. 1997. "A Model, a Method, and a Map: Rational Choice in Comparative and Historical Analysis." Pp. 19–41 in *Comparative Politics: Rationality, Culture, and Structure*, edited by M. I. Lichbach and A. S. Zuckerman. Cambridge: Cambridge University Press.
- Levine, Richard M. 1996. *The Mineral Industry of Tajikistan*. Washington, DC: U.S. Geological Survey.
- Lindley, Anna. 2010. "Leaving Mogadishu: Towards a Sociology of Conflict-Related Mobility." *Journal of Refugee Studies* 23(1):2–22.
- Lindskog, Elina Elveborg. 2016. "War Effect on Fertility Behavior in the Democratic Republic of Congo." *Stockholm Research Reports in Demography* 4:2–32.
- Linn, Johannes F. 2012. *Scaling Up Development Interventions: A Review of UNDP's Country Program in Tajikistan. Working Paper*. 50. Washington, DC: Brookings Institute.

- Liu, Hexuan. 2018. "Social and Genetic Pathways in Multigenerational Transmission of Educational Attainment." *American Sociological Review* 83(2):278–304.
- London, Andrew S. and Janet M. Wilmoth. 2016. "Military Service in Lives: Where Do We Go From Here?" Pp. 277–300 in *Handbook of the Life Course*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Cham: Springer International Publishing.
- Lundquist, Jennifer and Douglas S. Massey. 2005. "Politics or Economics? International Migration during the Nicaraguan Contra War." *Journal of Latin American Studies* 37(1):29–53.
- Lynch, Don. 2001. "The Tajik Civil War and Peace Process." *Civil Wars* 4(4):49–72.
- Lynch, Julia. 2013. "Aligning Sampling Strategies to Analytical Goals." Pp. 31–44 in *Interview Research in Political Science*, edited by L. Mosley. Ithaca, NY: Cornell University Press.
- Maclure, Richard and Myriam Denov. 2006. "'I Didn't Want to Die So I Joined Them': Structuration and the Process of Becoming Boy Soldiers in Sierra Leone." *Terrorism and Political Violence* 18(1):119–35.
- Masters, R. K., R. A. Hummer, and D. A. Powers. 2012. "Educational Differences in U.S. Adult Mortality: A Cohort Perspective." *American Sociological Review* 77(4):548–72.
- Mastibekov, Otambek. 2014. *Leadership and Authority in Central Asia: The Ismaili Community in Tajikistan*. London: Routledge.
- Matějů, Peter. 1993. "Who Won and Who Lost in a Socialist Redistribution in Czechoslovakia?" Pp. 251–72 in *Persistent Inequality, Social Inequality Series*, edited by Y. Shavit and H.-P. Blossfeld. Boulder: Westview Press.
- McMann, Kelly M. 2007. "The Shrinking of the Welfare State: Central Asians' Assessments of Soviet and Post-Soviet Governance." Pp. 233–47 in *Everyday Life in Central Asia*, edited by J. Sahedo and R. Zanca. Bloomington and Indianapolis: Indiana University Press.
- Melander, Erik and Magnus Öberg. 2006. "Time to Go? Duration Dependence in Forced Migration." *International Interactions* 32(2):129–52.
- Monaghan, David. 2017. "Does College Enrollment and Bachelor's Completion by Mothers Impact Children's Educational Outcomes?" *Sociology of Education* 90(1):3–24.
- Moodie, Ellen. 2011. *El Salvador in the Aftermath of Peace: Crime, Uncertainty, and the Transition to Democracy*. Philadelphia: University of Pennsylvania Press.
- Moore, W. H. and Stephen M. Shellman. 2004. "Fear of Persecution: Forced Migration, 1952-1995." *Journal of Conflict Resolution* 48(5):723–45.
- Morrison, Andrew R. and Rachel A. May. 1994. "Escape from Terror: Violence and Migration in Post-Revolutionary Guatemala." *Latin American Research Review* 29(2):111–32.
- Mughal, Abdul-Ghaffar. 2007. *Migration, Remittances, and Living Standards in Tajikistan: A Report Based on Khatlon Remittances and Living Standards Measurement Survey (KLSS 2005)*. Geneva; Dushanbe: International Organization for Migration.

- Nedoluzhko, Lesia and Victor Agadjanian. 2015. "Between Tradition and Modernity: Marriage Dynamics in Kyrgyzstan." *Demography* 52(3):861–82.
- Nobles, Jenna, Elizabeth Frankenberg, and Duncan Thomas. 2015. "The Effects of Mortality on Fertility: Population Dynamics After a Natural Disaster." *Demography* 52(1):15–38.
- Nourzhanov, Kirill and Christian Bleuer. 2013. *Tajikistan: A Political and Social History*. ANU Press.
- Nyseth Brehm, Hollie. 2017. "Subnational Determinants of Killing in Rwanda." *Criminology* 55(1):5–31.
- Olcott, Martha Brill. 2012. *Tajikistan's Difficult Development Path*. Washington: Brookings Institution Press.
- Olimova, Saodat and Igor Bosc. 2003. *Labour Migration from Tajikistan*. Geneva; Dushanbe: International Organization for Migration and the Sharq Scientific Research Center.
- Osborne, Dustin and George E. Higgins. 2015. "Education and Crime." *The Encyclopedia of Crime and Punishment* Vol 1:1–5.
- Ostrom, Elinor and T. K. Ahn. 2003. *Foundations of Social Capital*. Cheltenham, UK: Edward Elgar Publishing Limited.
- Parmar, Parveen Kaur et al. 2015. "Health and Human Rights in Eastern Myanmar after the Political Transition: A Population-Based Assessment Using Multistaged Household Cluster Sampling" edited by J. A. Singh. *PLOS ONE* 10(5):e0121212.
- Pedersen, Duncan. 2002. "Political Violence, Ethnic Conflict, and Contemporary Wars: Broad Implications for Health and Social Well-Being." *Social Science & Medicine* 55:175–90.
- Pettersson, Therese and Peter Wallensteen. 2015. "Armed Conflicts, 1946-2014." *Journal of Peace Research* 52(4):536–50.
- Philipov, D. and J. Dorbritz. 2003. *Demographic Consequences of Economic Transition in Countries of Central and Eastern Europe*. Strasbourg: Council of Europe Publishing.
- Pierson, Paul. 2000. "Increasing Returns, Path Dependence, and the Study of Politics." *The American Political Science Review* 94(2):251–67.
- Pierson, Paul. 2004. *Politics in Time: History, Institutions, and Social Analysis*. Princeton: Princeton University Press.
- Plumper, Thomas and Eric Neumayer. 2006. "The Unequal Burden of War: The Effect of Armed Conflict on the Gender Gap in Life Expectancy." *International Organization* 60(3):723–54.
- Randall, Sara. 2005. "The Demographic Consequences of Conflict, Exile and Repatriation: A Case Study of Malian Tuareg." *European Journal of Population / Revue Européenne de Démographie* 21(2–3):291–320.
- Richmond, Anthony H. 1988. "Sociological Theories of International Migration: The Case of Refugees." *Current Sociology* 36(2):7–25.

- Rothstein, Donna S. 2001. "Youth Employment during School: Results from Two Longitudinal Surveys." *Monthly Labor Review* 124(8):25–37.
- Rowland, Richard. 2005. "National and Regional Population Trends in Tajikistan: Results from the Recent Census." *Eurasian Geography and Economics* 46(3):202–23.
- Rubin, Barnett R. 1998. "Russian Hegemony and State Breakdown." in *Post-Soviet Political Order: Conflict and State Building*, edited by B. R. Rubin and J. Snyder. London ; New York: Routledge.
- Schmeidl, Susan. 1997. "Exploring the Causes of Forced Migration: A Pooled Time-Series Analysis, 1971-1990." *Social Science Quarterly* 78(2):284–308.
- Schmeidl, Susanne. 2001. "Conflict and Forced Migration." in *Global migrants, global refugees*. New York: Berghahn Books.
- Shanahan, Michael J., Jeylan T. Mortimer, and Monica Kirkpatrick Johnson, eds. 2016. *Handbook of the Life Course: Volume II*. Springer International Publishing.
- Shemyakina, Olga. 2013. "Patterns in Female Age at First Marriage and Tajik Armed Conflict." *European Journal of Population / Revue Européenne de Démographie* 29(3):303–43.
- Shemyakina, Olga. 2011a. "The Effect of Armed Conflict on Accumulation of Schooling: Results from Tajikistan." *DEVEC Journal of Development Economics* 95(2):186–200.
- Shemyakina, Olga. 2011b. "The Effect of Armed Conflict on Accumulation of Schooling: Results from Tajikistan." *Journal of Development Economics* 95(2):186–200.
- Singh, Prakarsh. 2012. "Impact of Terrorism on Investment Decisions of Farmers: Evidence from the Punjab Insurgency." *Journal of Conflict Resolution* 57(1):143–68.
- Spoorenberg, Thomas. 2015. "Explaining Recent Fertility Increase in Central Asia." *Asian Population Studies* 11(2):115–33.
- Spoorenberg, Thomas. 2013. "Fertility Changes in Central Asia since 1980." *Asian Population Studies* 9(1):50–77.
- Stanley, William Deane. 1987. "Economic Migrants or Refugees from Violence? A Time-Series Analysis of Salvadoran Migration to the United States." *Latin American Research Review* 132–154.
- Steinberg, Jonah. 2011. *Isma'ili Modern: Globalization and Identity in a Muslim Community*. Chapel Hill: University of North Carolina Press.
- Teachman, Jay D. 1987. "Family Background, Educational Resources, and Educational Attainment." *American Sociological Review* 52(4):548.
- Teerawichitchainan, Bussarawan and Kim Korinek. 2012. "The Long-Term Impact of War on Health and Wellbeing in Northern Vietnam: Some Glimpses from a Recent Survey." *Social Science & Medicine* 74:1995–2004.
- The World Bank. 2011. *Learning for All: Investing in People's Knowledge and Skills to Promote Development. World Bank Group Education Strategy 2020*. Washington, DC.

- UNICEF. 2017. *UNICEF Annual Report 2016*.
- United Nations. 2013. *The Millennium Development Goals Report*. New York.
- Urdal, Henrik and Chi Primus Che. 2013. "War and Gender Inequalities in Health: The Impact of Armed Conflict on Fertility and Maternal Mortality." *International Interactions* 39(4):489–510.
- Vogler, Michael and Ralph Rotte. 2000. "The Effects of Development on Migration: Theoretical Issues and New Empirical Evidence." *Journal of Population Economics* 13:485–508.
- Walder, Andrew G., Andrew Isaacson, and Qinglian Lu. 2015. "After State Socialism." *American Sociological Review* 80(2):444–468.
- Waljee, Anise. 2008. "Gendered Education, Marketisation and Islam in Tajikistan." Pp. 110–14 in *Gender Education and Equality in a Global Context: Conceptual frameworks and policy perspectives*, edited by S. Fennell and M. Arnot. London ; New York: Routledge.
- de Walque, Damien. 2006. "The Socio-Demographic Legacy of the Khmer Rouge Period in Cambodia." *Population Studies* 60(2):223–31.
- Whitsel, Christopher M. 2011. "Counting the Costs: Informal Costs and Corruption Expenses of Education in Post-Soviet Tajikistan." *Problems of Post-Communism* 58(3):28–38.
- Williams, Nathalie E. 2013. "How Community Organizations Moderate the Effect of Armed Conflict on Migration in Nepal." *Population Studies* 67(3):353–69.
- Williams, Nathalie E., Dirgha J. Ghimire, William G. Axinn, Elyse A. Jennings, and Meeta S. Pradhan. 2012. "A Micro-Level Event-Centered Approach to Investigating Armed Conflict and Population Responses." *Demography* 49(4):1521–46.
- Williams, Nathalie E., Michelle L. O'Brien, and Xiaozheng Yao. 2016. "Using Survey Data for Agent-Based Modeling: Design and Challenges in a Model of Armed Conflict and Population Change." Pp. 159–84 in *Agent-Based Modelling in Population Studies, The Springer Series on Demographic Methods and Population Analysis*, edited by A. Grow and J. Van Bavel. Springer.
- Woolman, David C. 2001. "Educational Reconstruction and Post-Colonial Curriculum Development: A Comparative Study of Four African Countries." *International Education Journal* 2(5):27–46.
- Zhou, Xueguang, Phyllis Moen, and Nancy Brandon Tuma. 1998. "Educational Stratification in Urban China: 1949-94." *Sociology of Education* 71(3):199.

Appendix

Robustness Testing

For robustness, I estimate the models excluding residents in the Gorno-Badakhshan region. As discussed above, this region is fundamentally different to other parts of Tajikistan on a wide range of factors, including the development strategy of the Aga Khan Foundation that provided goods to these residents during and after the war. This reduces the sample size by approximately 2,800 individuals. The results from these models reveal no change in the variables of interest in direction, magnitude, or statistical significance.

Table A1. Logistic regression models, excluding GBAO						
	Bivariate Model	Std error	Multi- variate Model	Std error	Interactive Model with JRCs	Std error
Conflict events	.007	.005	.014**	.006	.023***	.0007
Jamoat Resource Center (1 = yes)	---	---	---	---	.285**	.131
JRC (yes) x Conflict	---	---	---	---	-.045**	.021
Age	---	---	.391***	.038	.391***	.038
Age squared	---	---	-.005***	.0004	-.005***	.0004
Gender (1 = Female)	---	---	-3.05***	.204	-3.06***	0.204
Married (1 = yes)	---	---	-.152	.167	-0.147	0.167
Education (ref. Primary only)	---	---				
Secondary	---	---	.633***	.181	.623***	.181
Higher Education	---	---	-.300	.219	-.314	.221
Altitude	---	---	-.0002	.0001	.0001	.0002
Intercept	-3.52***	.057	-9.55***	.605	-9.75***	.611
AIC	4494.7		3300.1		3297.5	
N	16,685		15,772		15,772	
*** p < .01 ** p < .05 * p < .10						

What factors determine the location of a JRC? Could these factors be endogenous to the migration decision-making process? I conduct a number of tests for sensitivity and correlation. Table A2 is a bivariate correlation matrix, which includes several factors in the model presented in this study and the JRC presence. The presence of a JRC is weakly *negatively* correlated with the presence of at least one conflict event and moderately *negatively* correlated with the conflict levels defined above. This provides some evidence that JRCs did not simply go to the worst affected conflict zones, and indeed may have gone to less affected zones for a multitude of logistical reasons. A logistic regression on the likelihood of having a JRC in a district based on district-level economic and geographic indicators provides more evidence that JRCs did not go to the most conflict-affected areas and is presented in Table A3. In this sample, JRCs are significantly associated with rural places found at lower altitudes, and in places where there is a higher proportion of poor, but not extremely poor households. It appears that the location of JRCs is likely determined both by need, but also by the cost of operations, which may have resulted in their absence from the most affected conflict zones.

Table A2. Bivariate correlation matrix

	Mig this year	age	gender	married	ed_cat	Land_t ot	poor	pcfood	JRC 0/1	Altitude	Conflict events	GBAO dummy
Mig this year	1.00											
age	0.001	1.00										
gender	-0.158	-0.015	1.00									
married	0.067	0.435	-0.026	1.00								
ed_cat	0.043	0.195	-0.111	0.265	1.00							

Land_tot	-0.026	0.000	-0.012	0.012	-0.041	1.00						
poor	0.004	0.002	-0.018	-0.004	0.029	0.007	1.00					
Pcfood	-0.013	0.047	-0.010	-0.019	0.066	-0.078	0.572	1.00				
JRC 0/1	0.012	-0.206	0.000	0.007	-0.074	0.291	-0.020	-0.109	1.00			
Altitude	-0.021	0.039	0.004	-0.036	0.042	0.162	0.049	0.123	-0.269	1.00		
Conflict events	0.016	-0.009	0.009	-0.016	0.024	-0.483	0.025	0.143	-0.352	-0.086	1.00	
GBAO dummy	-0.021	0.055	0.004	-0.038	0.034	0.122	0.064	0.146	-0.305	0.836	-0.164	1.00

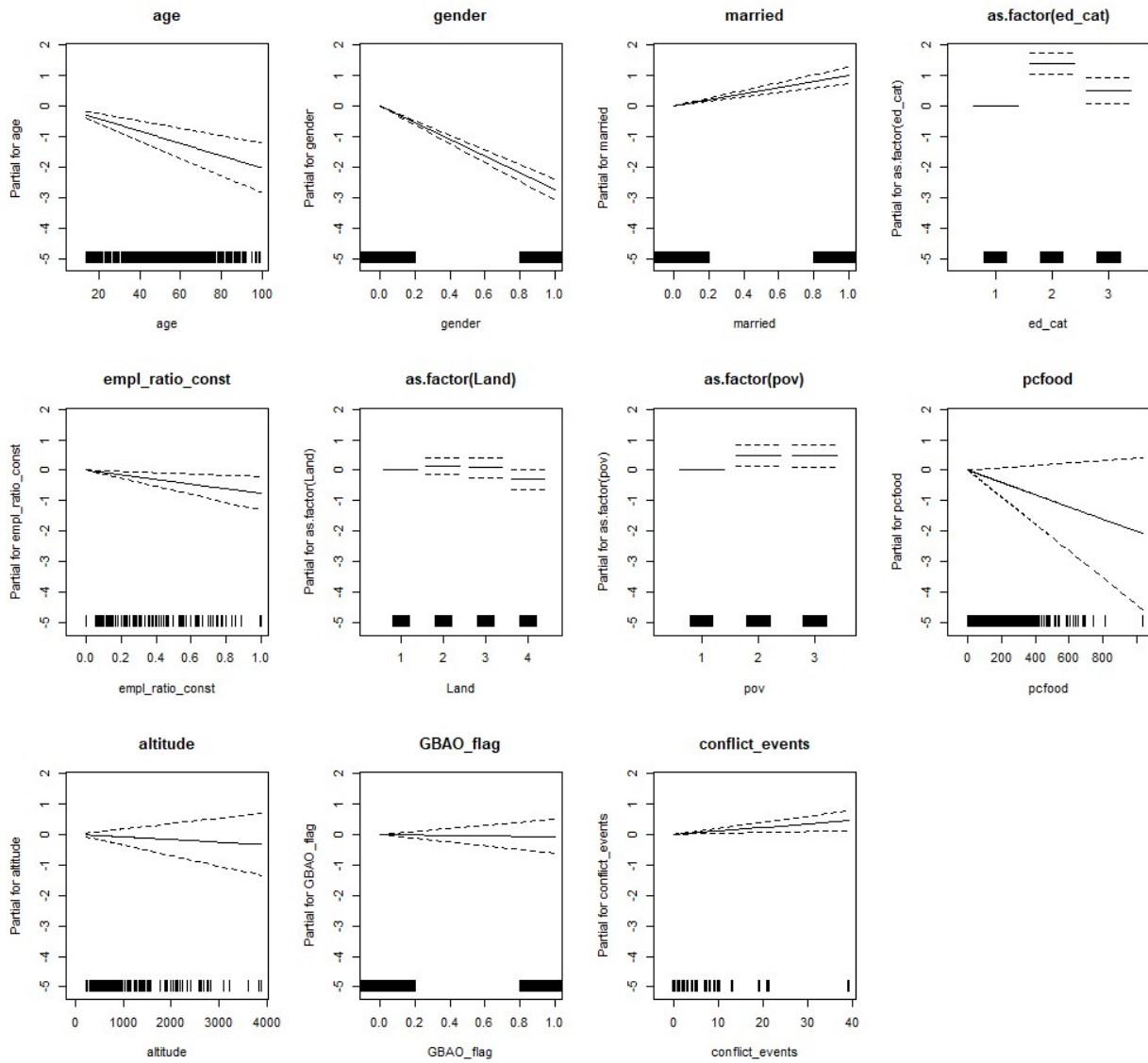
Boldface indicates statistically significant at the 0.05 level

	Bivariate model	Std error	Multivariate model	Std error
Conflict events	-.094***	.004	-.124***	.006
Percent pop change in district	---	---	.093***	.008
Altitude	---	---	-.002***	.0001
Urban	---	---	.079	.179
Per capita food consumption (HH)	---	---	.002*	.001
Intercept	.046	.045	-.854***	.199
AIC	1.518		1.476	
N	19,250		17,539	

*** p < .01 ** p < .05 * p < .10

Finally, I test for nonlinearity in the relationship between conflict and migration using a general additive model, the results of which are presented in Figure A1, below. The results for conflict are fairly linear, and support the decision to topcode the variable at 20+ events.

Figure A1. Tests of nonlinearity with a general additive model



Chapter 5: Conclusion

Armed conflict casts a long shadow on individuals and communities. This dissertation considers the impact of war not only *during* the conflict, but over the long-run. There are many plausible reasons we might expect long-term social and demographic consequences of armed conflict. Uncertainty about security, retaliation from the state, uneven reconstruction efforts, and limited access to economic institutions all may play a role. The intertwined relationship between politics and economics makes it difficult to tease out long-term processes that are affected by armed conflict. For that reason, much of the literature examining the effects of armed conflict tend to favor proximate causes. Tracing the *long-term* processes that emerge within and after a conflict requires the identification of a multitude of actors with their own goals and motivations, and an analysis of the spending of time and resources to rebuild (or not) certain areas, and both a conceptualization and an operationalization of complex variables that overlap and interact. Dramatic changes in these linked behaviors lead individuals, households, regions, and countries on a new path, one from which reversal is costly (Levi 1997; Pierson 2004, 2000). Path dependent processes shape and reshape the aftermath of armed conflict. It is in this shaping and reshaping of the aftermath that states and institutions are able to ensure stability and recovery, or risk instability and the reemergence of violence. Demographic decisions are sensitive to the environments in which they are made. Much of what we know about how conflict affects these decisions comes from research on contemporaneous and short-term outcomes. Previous research does not consider the long-term consequences of war on educational attainment, family formation, and migration. This dissertation aims to augment our understanding of the social and demographic responses to war through an examination of the following questions: How do short-term disruptions *during* war affect individuals *after* the war has ended? How do conflict-driven changes in the institutional landscape affect livelihoods over the life course?

Investigating these questions has generated new evidence about the nature of the relationship between armed conflict and short- and long-term outcomes. The empirical inattention to the aftermath of

conflict by social scientists and demographers does not align with the lived experience of war. In the first chapter, I take a life course approach to investigate the effect of armed conflict and political transition for cohorts, based on their position in the education system at the onset of war. Whereas political transition may create long-lasting institutional changes, armed conflict creates a temporary disruption. I find that, controlling for parents' education, ethnicity, urban or rural residence, residence in Gorno-Badakhshan Autonomous Oblast (GBAO), and altitude, short term disruptions to education affect long-term educational attainment and intergenerational mobility for boys. Further, regime change and the associated institutional shift in the education system produced steep declines in attainment for girls. These declines were not found at nearly the same levels in Gorno-Badakhshan, where there has been strategic investment in providing education for girls, suggesting that although armed conflict and political transition negatively affect educational attainment, these effects can be moderated with thoughtful policy and development strategies.

In the second chapter, I ask whether exposure to conflict events makes women at childbearing ages more likely to induce abortion. I hypothesize that women at peak childbearing ages will have a higher likelihood to abort when exposed to conflict events and find that indeed, women who were 15-20 years old at the onset of the conflict, the relationship between conflict events and likelihood of experiencing an abortion increases. Further, I find conflict events increase the ratio of abortions per pregnancy for women over 30 at the onset of conflict. On the other hand, conflict events *decrease* the ratio of abortions per pregnancy for women 26-29 years old and 12-14 years old at the onset of conflict. However, the consequences of armed conflict for abortion seem to be short-term. For women who were younger than 15 at the onset of conflict, and thus most likely making their fertility decisions *after* the conflict ended, the relationship between conflict events and likelihood to abort disappears.

Finally, in the third chapter, I consider the *institutional* exposure to armed conflict. Nearly a decade after the conflict has ended, there is a statistically significant association with armed conflict and migration, suggesting that the impacts of armed conflict on migration decision-making are longer lasting

than previously considered. Migration decisions are made by individuals embedded in their communities, and in the case of post-conflict settings, exposure to armed conflict is part of that environment.

Together, these findings highlight the major theoretical contribution of this dissertation: when it comes to the *long-term* outcomes of armed conflict, it is not only *individual* exposure that matters, but also *institutional* exposure. What happens to educational attainment during and after conflict depends *both* on the extent of short-term disruptions to enrollment *and* on the institutional changes that follow. What happens to contraceptive use during conflict depends not only on individual preferences and responses to uncertainty, but also on the strength of health institutions and the ability to provide safe, effective care. How armed conflict is associated with migration a decade after the war ends has much more to do with changes in the institutional landscape than an individual's fear-based response to bomb blasts or gun battles. Although fear and uncertainty are important during and immediately after the war, institutions – including trust and networks in addition to education and health – take a long time to recover.

Implications

Conflicts like the Syrian civil war continue to inflict widespread infrastructural damage, and the Peace Research Institute of Oslo continues to report dozens of conflicts and hundreds of thousands of casualties worldwide (Dupuy et al. 2017). The findings from this dissertation have implications for the way that scholars incorporate individual and institutional exposure to armed conflict into research in post-war settings. In these contexts, scholars often implicitly acknowledge but do not explicitly model the legacy of armed conflict. In contrast, this dissertation provides evidence that conflict has long-term consequences on social and demographic outcomes, even a decade after the war has ended.

A deeper understanding of the long-term consequences of armed conflict is critical for policy-makers, as well. The aftermath of war is a critical time for states and international organizations to support stability and recovery. During this period, instability, population pressure and scarce resources, and growing inequalities are risk factors for the reemergence of organized violence. The combination of

these forces has been implicated in the onset of armed conflict and in the recruitment strategies of the Islamic State (Fearon, Humphreys, and Weinstein 2009; Fearon and Laitin 2003). Disentangling the long-term processes that emerge from violent conflict is an important endeavor for social scientists, policy-makers, and development organizations.

Future Research

Social scientists are well-positioned to study these contexts of institutional change, but research on the long-term consequences of armed conflict are rare. This dissertation provides insight from one case into how these long-term effects unfold under the same macro-level economic and political conditions. While this approach allows for the isolation of conflict exposure as I have conceptualized it, it also generates new questions. Comparative research can answer these lingering questions. One direction for future research is to consider contexts in which the macro-level economic and social conditions are similar, but the dynamics of armed conflict are different. Selecting cases along this spectrum of conflict dynamics would allow researchers to isolate not only exposure to conflict but also to identify the features of armed conflict that generate long-lasting effects.

Another approach for future research takes on measurement precision of exposure to conflict events, specifically, how time and space might affect our definitions of exposure. Time is an important issue for social scientists and demographers. We have developed event history modeling and survival analysis precisely for the purpose of studying duration to an event (Allison 2010; Box-Steffensmeier and Jones 2004). However, often times due to the limitations of available data, we tend to measure ‘exposure’ at one point in time. This is imprecise. For example, Wodtke et al. (2011) find that when they accounted for duration of exposure to disadvantaged neighborhoods, disparities in high school achievement were much more severe than previously reported. The authors define neighborhood disadvantage as a composite score at the tract-level that consists of poverty, unemployment, welfare, female-headed households, education, and occupational structure. They do not consider violence in their analysis. Does this line of inquiry translate to not just the conditions of the environment, but a series of violent events?

An individual might have a more severe fear-based response to repeated conflict events, or she may become desensitized. If the behavioral responses to conflict events last for several months, a year, or several years, should we expect different long-term effects?

Related to duration is the issue of intensity. If we expect that there should be differences across cases with different duration of conflict events, we might also expect that there should be differences based on the intensity of the events. The question itself generates new issues, primarily: how do we conceptualize intensity? Considering the number of fatalities in each event can give us some insight, but measurement errors and biased news outlets often make these data unreliable. Can we measure intensity through the spatial (or even psychological) proximity of the individual to the event? Is an event more intense if it kills a family member, or if you were physically present at a market when a bomb detonated, or if the gun battle between rebel groups and the government created chaos on your street?

To return to the major theme of this dissertation, the issue of duration and intensity are framed here and in previous research as differentially affecting individuals, but what about the effect on institutions? Can we expect the same kinds of institutional changes in response to protracted armed conflict, such as the Tajikistani civil war, and short-term conflicts, such as the 100 day genocide in Rwanda? As with long-term series of events, short-term intense events can have long-lasting ramifications that fundamentally transform the social world. Consider the collective response to the terrorist attacks on the World Trade Center in New York City on September 11, 2001. Although the event itself lasted less than a day, security procedures developed in the aftermath continue to affect daily life for Americans – an effect that can be measured today at any major airport in the country. Measuring both the temporal and spatial dynamics of conflicts can provide deeper insight into *how* and *why* long-term effects emerge in the aftermath of conflict.

References

- Allison, Paul D. 2010. "Survival Analysis." P. 413 in *The Reviewer's Guide to Quantitative Methods in the Social Sciences*. Routledge.
- Bongaarts, John. 1978. "A Framework for Analyzing the Proximate Determinants of Fertility." *Population and Development Review* 4(1):105.
- Box-Steffensmeier, Janet and Bradford Jones. 2004. *Event History Modeling: A Guide for Social Scientists*. Cambridge: Cambridge University Press.
- Dupuy, Kendra et al. 2017. *Trends in Armed Conflict, 1946-2016*. Oslo: Peace Research Institute Oslo (PRIO).
- Fearon, James D., Macartan Humphreys, and Jeremy M. Weinstein. 2009. "Can Development Aid Contribute to Social Cohesion after Civil War? Evidence from a Field Experiment in Post-Conflict Liberia." *The American Economic Review* 99(2):287–91.
- Fearon, James D. and David D. Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *The American Political Science Review* 97(1):75–90.
- Geoffrey T. Wodtke, David J. Harding, and Felix Elwert. 2011. "Neighborhood Effects in Temporal Perspective: The Impact of Long-Term Exposure to Concentrated Disadvantage on High School Graduation." *American Sociological Review* 76(5):713–36.
- Levi, Margaret. 1997. "A Model, a Method, and a Map: Rational Choice in Comparative and Historical Analysis." Pp. 19–41 in *Comparative Politics: Rationality, Culture, and Structure*, edited by M. I. Lichbach and A. S. Zuckerman. Cambridge: Cambridge University Press.
- Pierson, Paul. 2000. "Increasing Returns, Path Dependence, and the Study of Politics." *The American Political Science Review* 94(2):251–67.
- Pierson, Paul. 2004. *Politics in Time: History, Institutions, and Social Analysis*. Princeton: Princeton University Press.