Social constraints and women's education: Evidence from Afghanistan under radical religious rule

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A R T I C L E   I N F O

A B S T R A C T

Noury, Abdul G., and Speciale, Biagio—Social constraints and women's education: Evidence from Afghanistan under radical religious rule

We analyze how growing up under *Taliban* rule affects Afghan women's educational attainments and subsequent labor market and fertility outcomes. While in power from 1996 to 2001, the *Taliban* ruled a large portion of the Afghan territory and introduced a ban on girls' education. Using data from the National Risk and Vulnerability Assessment survey, we rely on the fact that, depending on their year of birth and province of residence, individuals differed in the number of years they were exposed to the *Taliban* government while of school age. Our difference-in-differences estimates show that an additional year of exposure to the *Taliban* occupation while of school age reduces a woman's probability of completing basic education by about two percentage points. The effects on educational outcomes are larger in Pashtun districts and rural areas. These findings are not due to the 1992 introduction of the provisional Islamist government that preceded the *Taliban*, cultural differences related to ethnicity, or varying emigration rates across provinces. The estimates are robust to differences across provinces in the number of violent events before, during, and after the *Taliban* occupation. Women exposed to the *Taliban*'s radical religious rule while they were of school age are also less likely to be employed outside of the household and more likely to have an agricultural job within the household. For fertility choices, exposure to the *Taliban* occupation increases total number of children and lowers age at first marriage. We discuss our empirical findings against theoretical economic literature on radical religious groups (e.g., Iannaccone, 1992; Berman, 2000). *Journal of Comparative Economics* **000** (2016) 1–21. New York University, Abu Dhabi, United Arab Emirates; Paris School of Economics - Université Paris 1 Panthéon-Sorbonne, France.

1. Introduction

In several developing countries, socioeconomic and cultural constraints severely reduce women's human capital investment. Parental attitudes towards their daughters' education, early marriage, childbearing, and expectations about

discriminatory employment practices are examples of such constraints. Religion and religious rules represent other factors that may influence gender inequalities in education. In this paper, we explore the effects of radical religious rules on women's human capital investment and subsequent labor market outcomes and fertility choices. We focus on Afghanistan and study the consequences women experienced because of constraints imposed by the *Taliban*, a political and religious group that ruled Afghanistan from 1996 to 2001. During its regime, the *Taliban* banned girls from going to school and women from working outside the home (Rashid, 2000).[1] After the *Taliban* was removed from power in 2001, they regrouped as an insurgency movement and targeted several girls' schools, their students, and their teachers in violent attacks (for instance, see the Guardian, 2011b and Larson, 2009).

An emerging economic literature has examined the functioning of radical religious groups.[2] According to this research, in weak institutional contexts, radical religious groups may become major suppliers of both political action and social services such as public safety measures, education, justice, and health outcomes. Besides the *Taliban* in Afghanistan, important examples of such groups include *Hamas* in the Gaza Strip and *Hezbollah* in Lebanon. These three groups have the commonality of being radical religious militant groups that turned violent; all three groups also try to rule countries characterized by poor governance. There are, however, several aspects in which they differ. One important difference is that the *Taliban* was an efficient provider of public safety, while the *Hamas* and *Hezbollah* were providers of education and health (for instance, see the Financial Times, 2013). A possible reason for these specializations in providing public goods is demand-based. To increase support for their respective groups, the *Taliban, Hamas,* and *Hezbollah* chose to provide the public good that was highly demanded by the people in their country. There may have been a higher demand for education in Lebanon, the West Bank, and Gaza than in Afghanistan, because Afghanistan had a much lower GDP per capita, more people living in rural areas, and less infrastructure than these other areas. Since education is a normal good, the demand for education increases with income (see, among others, Jacoby, 1994). Conversely, in a country such as Afghanistan, which has suffered several decades of war, the demand for public safety is higher. People in poorer and more unstable regions demand more public safety services than people in more developed regions because they face more social problems (Boustan, 2013).[3]

The club framework—which is used in the literature on radical religious groups and presents voluntary religious organizations as efficient providers of public goods—predicts that the threat of group members' defection can rationally explain episodes of destructive behavior and gratuitous cruelty, such as the subjugation of women and minorities by the *Taliban* in Afghanistan (Berman and Laitin, 2008; Berman, 2009). These restrictions on behavior can target both a club's own members (Iannaccone, 1992) as well as outsiders. The latter argument has been proposed by Berman (2009), who explains that the abuse and repression of the population in Afghanistan improved the *Taliban*'s control over their own governors and troops, preventing members' defection by limiting their options for fraternizing with outsiders.

Despite the rapid increase of recent literature on these topics, we know little about general life under radical religious rules. Empirical investigations of the economic consequences of social constraints imposed by radical religious groups are rare. This is unfortunate, as radical groups such as the *Taliban* in Afghanistan and Pakistan as well as Al-Shabab in Somalia control important parts of these territories.[4] The current Obama administration and the Afghan government consider talking with the *Taliban* and potentially sharing power with them as viable strategies for achieving a more peaceful end to war in Afghanistan (New York Times, 2012).[5] According to recent estimates, the *Taliban* controls about one-fifth of Afghanistan.[6] Therefore, in addition to analyzing the functioning of radical groups, it is important to empirically examine the economic consequences of their rules on the targeted groups.

In this paper, we consider one of the most striking examples of social constraint and destructive behavior associated with a radical religious group: the subjugation of women by the *Taliban* during their government in Afghanistan. There are at least two possible reasons for such actions. First, to establish group cohesion on the battlefield and lower the outside option of members' defection, the *Taliban* restricted women's access to education and other public goods (see Berman and Laitin, 2008; Berman, 2009; and our discussion above). Second, such behavior may have been adopted for ideological reasons, as the *Taliban* is influenced by the religious thought of Deobandi,[7] a movement within Sunni

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[1] This is, however, a controversial question: according to a former high-ranking *Taliban* official who served as Afghanistan's ambassador to Pakistan in 2001, the movement was not against educating women, and the ban on girls' schools was only a "temporary measure" (see the *Guardian*, 2011a).

[2] See Iannaccone (1992), Berman (2000), Berman (2003), Berman and Stepanyan (2004), Caplan (2006), Iannaccone and Berman (2006), Jaeger and Paserman (2006), Benmelech and Berrebi (2007), Berman and Laitin (2008), Berman (2009), Gould and Klor (2010), Jaeger et al. (2012), Makowsky (2012), and McBride and Richardson (2012), among others. Following Berman and Laitin (2008), radical religious groups can be defined as groups that distance themselves from the mainstream culture by creating some sort of tension.

[3] A testable implication of this argument is that both geographical differences in violence and economic development—for instance, the urban versus rural divide—may play a role in explaining the behavior of radical religious groups. We consider both dimensions in our empirical analysis.

[4] Given our focus on the effects on women, the most pertinent examples of radical religious groups more similar to the *Taliban* in their views of women's role in society are ultra-radical Sunni sects such as Al-Shabab, the governments in the Northwest Frontier Provinces and Baluchistan in Pakistan, and the various Al Qaeda sects in parts of Africa. For the literature on the effects of programs that aim at improving the status of women, see Beaman et al. (2012) and Jensen (2012) on India; Duflo et al. (2012) on Kenya; Beath et al. (2013) for Afghanistan; Bandiera et al. (2014) for Uganda.

[5] Several analysts have documented that the *Taliban* moderated their behavior after 2001. A shift in attitude may have occurred with regard to female education as well (Brahimi, 2010).

[6] See the New York Times (2016).

[7] For instance, see Maley (1998).

Islam that insists on patriarchal control and women's seclusion (*purdah*).[8] The latter concept—which is also central in the *pashtunwale* code—is closely related to honor.

We first quantify the consequences of the *Taliban* rule on Afghan women's schooling outcomes. Our difference-in-differences methodology relies on the fact that the *Taliban* did not control all the provinces in Afghanistan and that the occupation was gradual. The *Taliban* ruled about 90% of the Afghan territory. Their occupation in provinces like Kandahar began in 1994, while their rule in provinces such as Kunduz and Parwan started as late as 1999. Therefore, depending on their year of birth and province of residence, women were exposed to the *Taliban* government for different amounts of time while they were of school age. We estimate how being exposed to the rule of the *Taliban* affected the number of years of education, the probability of completing basic schooling, the literacy ability, and the formal school attendance of women. Our estimates show that an additional year of exposure to the *Taliban* occupation while women were of school age reduces the likelihood that they completed basic education by about two percentage points. The estimates are qualitatively similar when using literacy ability (reduction by about three percentage points) and formal school attendance (reduction by more than one percentage point) as dependent variables. These are large effects, since in the entire sample only 7% of women completed nine grades of schooling, 15% were literate, and 16% had at least some formal schooling. Moreover, we find that for women, an additional year of exposure to the *Taliban* occupation while of school age implies a reduction of about 0.2 years of education, representing a 15% decrease compared to the mean value of this variable for the control group. The effects on educational outcomes of the constraints associated with the radical religious rule are larger in Pashtun than non-Pashtun areas and in rural than urban areas.

To provide support to the assumption of parallel trends for the treatment and control groups without the *Taliban* regime—which is required for the difference-in-differences estimation—we run a set of placebo regressions. We rely on an empirical strategy similar to the one used in our main regressions, but we exclude from the estimation sample the individuals who were exposed to the *Taliban* while of school age. We compare women who were exposed to the provisional Islamist government of Burhanuddin Rabbani (1992–96) while they were of school age, or 6–15 years old, with women who were conversely of school age during the Soviet-backed government of Mohammad Najibullah (1987–92). This placebo test returns a statistically insignificant difference and, therefore, provides support to the validity of our difference-in-differences methodology. These estimates are also useful in dismissing the idea that our findings are driven by the introduction of an Islamist government that came before the *Taliban*.

Our results are robust to specifications that control for differences across provinces in emigration rates and differences in violence before, during, and after the *Taliban* occupation. This is an important finding because starting from the Soviet invasion in 1979 and continuing through the provisional Islamist government of Burhanuddin Rabbani (1992–96), the *Taliban* government (1996–2001), and the post-2001 insurgency, several provinces in Afghanistan experienced large emigration rates, with Pakistan and Iran being the two main destinations. Our empirical strategy also indicates that violence explains anywhere from 10% to 28% of the total effect of the *Taliban* occupation on educational outcomes.

Using information on finer education levels, our estimates show that despite the fact that the *Taliban* banned education for girls older than 8, girls in the first two grades were affected as well. This result, at least in part, is likely due to the constraint on female teachers being able to work. It could also be partly explained by changes in expectations concerning female labor market outcomes. We find that an increase of one standard deviation in exposure to the *Taliban* occupation while of school age (i.e., an increase by 2.5 years) leads to a 0.5 percentage point reduction in the probability of being employed outside of the household and a 5 percentage point increase in the likelihood of having agricultural jobs within the household, often as unpaid family workers. These findings are consistent with the effects on women's fertility choices. Our estimates also indicate that a one standard deviation increase in exposure to the *Taliban* while of school age lowers the age at first marriage by 0.2 years (i.e., a 1.2% decrease compared to the mean value of this variable for the control group) and increases the total number of children by about 0.14 (i.e., a 4% increase).

The rest of this paper is organized as follows. Section 2 presents background information on the *Taliban* and the status of women in Afghanistan. Section 3 provides a brief description of the data. Section 4 presents our analysis of the consequences of the *Taliban* religious rule on women's educational outcomes. Section 5 discusses the mechanisms. Section 6 concerns the effects on women's labor market outcomes. Section 7 presents the impact of exposure to the radical religious rule on fertility choices. Finally, Section 8 concludes the paper.

2. Background information on the Taliban and the status of women in Afghanistan

2.1. The Taliban

The *Taliban* is a religious and political group that ruled Afghanistan from 1996 to 2001.[9] Its members mostly belong to the largest ethnic group in Afghanistan, the Pashtun. Several authors have stressed how ethnic divisions had important influences on the politics of the *Taliban* in Afghanistan (Johnson and Mason, 2007). Many of its members studied in religious

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[8] A recent example is the Deoband Dar ul-Uloom's 2010 *fatwa* on Muslim women working outside the home, which deems that women can only work in places where they can be fully veiled and forbids gender mixing in the working place.

[9] For more details on the *Taliban* movement, we refer the interested reader to Rashid (2000).
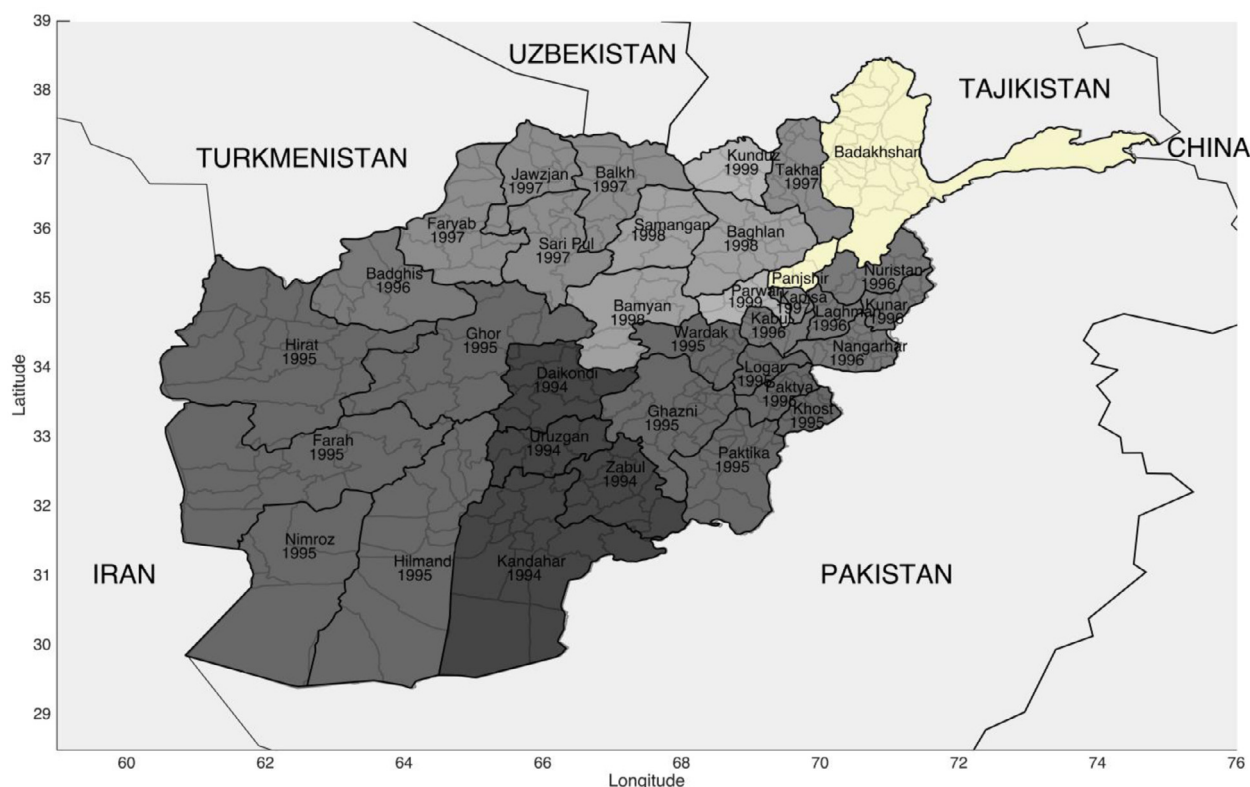
Fig. 1. Timing of the *Taliban* occupation of Afghanistan.
Note. The data sources are Rashid (2000) and CNN (2001)—the latter source referring to information from the US government. The provinces that were never controlled by the *Taliban* are in yellow: Badakhshan and Panjsher. The provinces that were partially occupied by the *Taliban* are Baghlan, Kapisa, Laghman, Kunarha, Nooristan, and Takhar.

boarding schools, or *madrassas,* in Pakistan, which were influenced by the Deobandi philosophy founded at the Dar ul-Ulum *madrassa* in Deoband, India, in 1866.[10]

The *Taliban* movement has often been categorized as a radical Islamist group, and their interpretation of the Sharia law has been criticized several times in public international debates by groups including the United Nations,[11] the US Department of State,[12] and NGOs,[13] among others.

The movement started in Afghanistan during Burhanuddin Rabbani's provisional Islamist government after the 1992 downfall of Mohammad Najibullah, who was the fourth president of the Soviet-backed Democratic Republic of Afghanistan.

The *Taliban* movement was started by Mullah Omar, an ethnic Pashtun from the Hotak tribe of the Ghilzai (Rashid, 2000). As Matinuddin (1999) and Rashid (2000) document, the first time Mullah Omar mobilized his followers and armed *madrassa* students was in the spring of 1994 to free teenage girls who had been abducted and raped by a warlord in Singesar. On that occasion, they hanged the *Mujahideen* commander from the barrel of a tank. In just a few years after this event, the *Taliban* group increased its size, and in September 1996, they seized Kabul and established the Islamic Emirate of Afghanistan. During their occupation, they controlled about 90% of the Afghan territory. Fig. 1 shows the timing of the occupation by province,[14] with different colors providing information on the gradual occupation of the territory. The first provinces conquered in 1994 are those in dark grey: Kandahar, Daykundi, Urozgan, and Zabul. The last occupied provinces, seized in 1999, are represented in light grey: Kunduz and Parwan. The provinces that were never controlled by the *Taliban* are in yellow: Badakhshan and Panjsher.[15] During their rule, the *Taliban* only partially occupied the provinces of Baghlan, Kapisa, Kunarha, Laghman, Nooristan, and Takhar.

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[10] See Andrabi et al. (2006); Andrabi et al. (2008); and Delavande and Zafar (2013) for analyses of religious schools in Pakistan.

[11] See United Nations High Commissioner for Human Rights' (1998/17) Sub-Commission resolution: Situation of Women in Afghanistan.

[12] See US Department of State, Bureau of Democracy, Human Rights and Labor's (2001) Report on the Taliban's War Against Women.

[13] See Physicians for Human Rights (PHR)'s (2008) report.

[14] To the best of our knowledge, there is no single source providing complete information on the timing of occupation by province. For Figure 1, we combined information from Rashid (2000) and CNN (2001)—the latter source referring to information from the US government—and we contacted by email several experts, including Ahmed Rashid and Barnett R. Rubin. The information is consistent among all these sources.

[15] Panjsher became independent from the Parwan province in 2004.

The *Taliban* government lasted until 2001. After the September 11 attacks, the armed forces of the US, the UK, Australia, and the Afghan United Front (Northern Alliance) launched Operation Enduring Freedom, which had the goal of ending the Al-Qaeda's use of Afghanistan as a base as well as the removal of the *Taliban* from power. After they were ousted in 2001, the *Taliban* regrouped as an insurgency movement to fight the NATO coalition forces (the International Security Assistance Force, or ISAF) and the newly established Islamic Republic of Afghanistan. The New York Times (2016) documents that the *Taliban* controls about one-fifth of the country, including the districts of Baharak, Khan Neshin, Warduj, and Waygal.

2.2. The status of women in Afghanistan before and after the Taliban came to power in 1996

In their 1998 report on health and human rights in Afghanistan, the Physicians for Human Rights (PHR) describe the status of women in the Afghan society over time and provide some key dates of their empowerment. In 1964, Afghan women were granted the right to vote. The 1977 Constitution clearly stated in its article 27 that "women and men, without discrimination have equal rights and obligations before the law". The PHR's 1998 report also document that, by the late 1970s, female students outnumbered male students in Kabul.

Establishing the Islamist State of Afghanistan in 1992 implied some slowdown in female emancipation. Women had to be modest in their style of dress and had to cover everything except their face and hands when in public. During the Islamist government of Burhanuddin Rabbani, they could continue to work and study in schools and universities.[16]

The *Taliban* movement's rise to power drastically worsened the status of women in Afghanistan. Soon after they conquered the capital, Kabul, in September 1996, the *Taliban* issued several edicts that restricted female rights and freedom. For instance, women were largely prohibited from working, a law that had negative consequences, especially for the families who had lost a male household member because of the war. In addition, women could leave their homes only if accompanied by a *mahram*, a close male relative (father, brother, husband, or son). When out of their homes with a *mahram*, women had to wear a *burqa*, which covered the face, and were not allowed to wear socks or shoes that were white in color, as this was the color of the *Taliban* flag. Women also faced restrictions against wearing shoes that made noise while they were walking, such as shoes with high heels.

During the *Taliban* period, men and women were segregated into separate hospitals. As the PHR (1998) documents, in September 1997, the Ministry of Public Health ordered all hospitals in Kabul to suspend medical services to women at all but one hospital, which was poorly equipped.

The *Taliban* also introduced a ban on female presence on television and radio as well as a ban on women riding bicycles or motorcycles. The religious police enforced these policies, and punishments were often carried out publicly, as Griffin (2001) documents.

When the *Taliban* ruled Afghanistan, they were persistent in restricting women's rights to schooling and investment in human capital. The movement, led by Mullah Omar, ordered many private schools that had been educating girls to close. Many of these schools were small home-based vocational training programs, which taught girls and young women to weave carpets and sew. Schools were not allowed to teach girls older than 8. Moreover, the content of the education for girls younger than 8 was limited to lessons about the Koran, the Muslim holy book (New York Times, 1998).[17]

After they were ousted in 2001, the *Taliban* burnt school buildings and targeted civilians in violent attacks, including killing many teachers. Instances of activities aimed to discourage girls' school enrollment were numerous. For instance, the Guardian (2011b) and Larson (2009) reported the stories of girls who had acid thrown in their faces while walking to school as well as episodes of gas poisonings at girls' schools, in which dozens of girls fell ill.

3. Data and descriptives

We use data from the 2007/2008 National Risk and Vulnerability Assessment (NRVA) survey, which was conducted by the Central Statistics Organization with the support of international organizations such as the World Bank, the International Labour Organization, and the European Union Delegation to Afghanistan. It delivers a wide variety of development indicators, including information on population, poverty, food security, the labor market, agriculture, health, education, and housing. In our analysis, we use the third round (2007/2008), which provides information on a nationally representative sample for Afghanistan. The fieldwork started in mid-August 2007 and finished at the end of August 2008. Compared to the previous two rounds of the survey (2003 and 2005), the NRVA 2007/2008 shows important improvements in the questionnaire, sample design, and coverage. The twelve-month period accounts for seasonality, while the first two rounds in 2003 and 2005 presented seasonally biased information. In the Afghan context, the fieldwork's length is relevant because of the presence

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[16] The period before the *Taliban* did not provide an ideal context for the human capital investment of both boys and girls, because it was characterized by a major civil conflict that followed the Soviet invasion in 1979. During the pre-*Taliban* period, the provinces that were the most affected by violent events were Baghlan, Kabul, Kunar, Nangarhar, Paktya, and Zabul (Uppsala Conflict Data Program). According to the *Guardian* (2011c), while the *Taliban* was concerned with state-building in order to enforce its interpretation of the sharia law, the *Mujahideen* struggled over resources and this struggle was characterized by internal rivalries, looting and pillaging.

[17] While they were in power, the *Taliban* did not publicly oppose female education, but their official position was that they did not have the resources to establish separate female educational institutions with all-female staff. See BBC News UK, 14 January 2011, "Afghan *Taliban* "end" opposition to educating girls."

Table 1
Descriptive statistics.

Individual characteristics	Women	Women in rural areas	Women in non-Pashtun districts	Men
Years of education	1.2882	0.5654	1.513978	3.9942
	[3.2001]	[2.0438]	[3.3956]	[4.7767]
Completed basic education	0.0665	0.0216	0.0756	0.2304
	[0.2491]	[0.1455]	[0.2644]	[0.4211]
Can read and write	0.1546	0.0818	0.1879	0.4654
	[0.3615]	[0.274]	[0.3907]	[0.4988]
Some formal education	0.1645	0.0847	0.1965	0.4735
	[0.3708]	[0.2785]	[0.3974]	[0.4993]
Labor force participation	0.4467	0.5146	0.481	0.7915
	[0.4971]	[0.4998]	[0.4996]	[0.4063]
Wage work	0.0181	0.0118	0.0264	0.2408
	[0.1333]	[0.1078]	[0.1605]	[0.4276]
Unpaid family worker	0.3171	0.3872	0.3036	0.1126
	[0.4654]	[0.4871]	[0.4599]	[0.3161]
Employment external to the household	0.0139	0.0061	0.02	0.1688
	[0.1169]	[0.0782]	[0.14]	[0.3746]
Agricultural employment within the household	0.3639	0.4505	0.3697	0.4148
	[0.481]	[0.4976]	[0.4827]	[0.4927]
Non-agricultural employment within the household	0.0984	0.0971	0.1199	0.2356
	[0.297]	[0.2961]	[0.3249]	[0.4244]
Total number of kids	3.1474	3.1497	3.2116	
	[2.2139]	[2.2281]	[2.3153]	
Age at first marriage	17.457	17.4313	17.123	
	[2.8079]	[2.7897]	[2.8185]	
Years of exposure to the Taliban occupation	3.2603	3.1862	2.7451	3.4489
	[2.499]	[2.5484]	[2.4531]	[2.4646]
Province variables		All provinces	Treatment group	Control group
Violent events before Taliban (normalized by population)		0.0007	0.0007	0.0004
		[0.0013]	[0.0014]	[0.0003]
Violent events during Taliban (normalized by population)		0.0021	0.0021	0.003
		[0.0023]	[0.0023]	[0.0042]
Violent events after Taliban (normalized by population)		0.001	0.0011	0.00003
		[0.0018]	[0.0018]	[0.00002]
Emigration rate		0.1815	0.191	0.0302
		[0.1612]	[0.1615]	[0.0236]

Note. The data source for the individual characteristics is the 2007/2008 National Risk and Vulnerability Assessment (NRVA) Survey, for the violent events the Uppsala Conflict Data Program (UCDP), and for the emigration rate the 2005 Census of Afghans in Pakistan and the United Nations High Commissioner for Refugees (UNHCR) Iran. See tables below for the variable definitions. Descriptive statistics on women's education, labor market outcomes and fertility choices (sample means and, in brackets, standard deviations) refer to the estimation samples of Tables 2, 8 and 9, respectively. Descriptive statistics for men refer to individuals of similar age.

of the war. In this case, if it was dangerous to interview a primary sampling unit, the 2007/2008 round allowed considering the primary sampling unit at a later date rather than replacing it.[18]

Table 1 presents descriptive statistics on schooling indicators, the labor market, and fertility outcomes. In particular, with regard to the human capital variables, the table includes information on years of education, share of people who completed nine grades of schooling, literacy rates (share of individuals who could read and write) and share of people who had at least some formal education (versus people who never attended a formal school). Table 1 also includes information on the shares of individuals who participate in the labor force, have wage work, are unpaid family workers, have employment outside of the household, hold agricultural employment within the household, or have non-agricultural employment within the household. While the focus of this paper and most of the regression analysis below is the analysis of the consequences for women of social constraints associated with the *Taliban* rule, in this section, for a descriptive purpose, we compare outcomes of women with those of men. The descriptive information in Table 1 concerning women refers to the estimation samples of Tables 2, 8, and 9. We break Table 1 down by urban versus rural and Pashtun versus non-Pashtun districts. For schooling indicators and labor market outcomes, the information for women is compared to descriptive statistics for men of similar age.

All the schooling indicators show the high level of educational gender inequalities in Afghanistan. Only 7% of the women in the estimation sample completed basic (nine grades) education, while about 23% of the men of comparable age did. Among the men, about 47% can read and write, and a similar percentage has attended at least some formal schooling. The literacy rate for women in the estimation sample is about 15%. A large percentage of the women, approximately 84%, never

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[18] The difficulty in collecting good quality data in the presence of a long conflict implies that the literature in economics and political science that uses data from Afghanistan is relatively recent. See for example Condra et al. (2010); Berman et al. (2011); Gilligan and Noury (2011); Jaeger and Siddique (2011); Beath et al. (2013); Burde and Linden (2013); Lyall et al. (2013); Blair et al. (2014); Callen et al. (2014); Lind et al. (2014); and Blumenstock et al. (2016).

Table 2

Difference-in-Differences estimation of the effect of the *Taliban* occupation on schooling outcomes of women.

	Years of education		Completed 9 grades of schooling		Can read and write		At least some formal school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PANEL A: Treatment group: Provinces that were entirely or partially occupied by the Taliban								
Years exposure Taliban	−0.2093***	−0.2278***	−0.0173***	−0.0186***	−0.0233***	−0.0282***	−0.0123*	−0.0130*
	[0.073]	[0.077]	[0.006]	[0.007]	[0.007]	[0.008]	[0.007]	[0.007]
Years exposure Taliban × province emigration rate		0.0829		0.0060		0.0223**		0.0032
		[0.092]		[0.008]		[0.011]		[0.010]
District dummies	yes	yes	yes	yes	yes	yes	yes	yes
Year of birth dummies	yes	yes	yes	yes	yes	yes	yes	yes
Mean value for the control group	1.4567	1.4567	0.0839	0.0839	0.1743	0.1743	0.1836	0.1836
Observations	19,169	19,169	19,170	19,170	19,171	19,171	19,171	19,171
R-squared	0.299	0.299	0.206	0.206	0.226	0.226	0.304	0.304
PANEL B: treatment group: provinces that were entirely occupied by the Taliban								
Years exposure Taliban	−0.1120**	−0.1167**	−0.0076*	−0.0080*	−0.0157***	−0.0196***	−0.0079*	−0.0074
	[0.045]	[0.052]	[0.004]	[0.005]	[0.005]	[0.005]	[0.004]	[0.005]
Years exposure Taliban × province emigration rate		0.0224		0.0019		0.0185		−0.0025
		[0.102]		[0.009]		[0.012]		[0.011]
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean value for the control group	1.245	1.245	0.0654	0.0654	0.1482	0.1482	0.1619	0.1619
Observations	19,169	19,169	19,170	19,170	19,171	19,171	19,171	19,171
R-squared	0.298	0.298	0.205	0.205	0.226	0.226	0.304	0.304

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes women whose year of birth is $1976 \leq t \leq 1992$. "*years exposure Taliban*" represents the number of years a woman was exposed to the *Taliban* while she was of school age. "*province emigration rate*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population. The control group of Panel A includes Badakhshan and Panjsher. The control group of Panel B includes Badakhshan, Baghlan, Kapisa, Laghman, Kunarha, Nooristan, Panjsher, and Takhar. "*years of education*" is the number of years of completed education. "*completed 9 grades of schooling*" is a dummy variable equal to 1 if the woman completed nine grades of schooling, 0 otherwise. "*can read and write*" is a dummy variable equal to 1 if the woman can read and write, 0 otherwise. "*at least some formal school*" is a dummy variable equal to 1 if the woman attended at least some formal school, 0 otherwise. Sampling weights are used in all regressions.

had formal schooling. The average number of years of education is about 4 for men and 1.29 for women. All the education outcomes of women are larger in urban than in rural areas.

With regard to the labor market variables, 45% of the women in the estimation sample of Table 8 participate in the labor force. This is much lower than the percentage of men of comparable age, which is 79%. The percentage of women who hold wage work is 2%, and those who have employment outside of the household represent 1% of the estimation sample. Many women are unpaid family workers (32%) and have an agricultural employment within the household (36%).[19] 24% of men of similar age are employed in jobs for which they receive a wage, while 17% of them are employed outside of the household. Women's labor force participation, the likelihood of holding wage work, the likelihood of being employed outside of the household, and the likelihood of having non-agricultural employment within the household are larger in non-Pashtun than Pashtun areas. The probability of being an unpaid family worker is conversely larger in Pashtun areas.

The NRVA survey questionnaire also asks about fertility outcomes to ever-married women. The average age at first marriage is 17 years old, and the average number of children is 3. There are only slight differences between Pashtun and non-Pashtun districts and between urban and rural areas. For the total children variable, the difference between urban and rural areas is not statistically different from zero.

In our regression analysis, we combine information from the NRVA survey with emigration rates and violence at the province level. To construct emigration rates, for each province of origin we sum the number of Afghans in Pakistan from the 2005 Census of Afghans in Pakistan and the number of Afghans in Iran for the same year from the United Nations High Commissioner for Refugees (UNHCR) Iran. We then normalize this stock variable by the population in each province of origin to get emigration rates. Table 1 shows that the average emigration rate was about 18%, with provinces such as Kunar and Paktya experiencing emigration rates as high as 55%. In 2005 the main provinces of origin of Afghan migrants residing in Iran were Hirat (155,512 people), Kabul (117,968), and Bamyan (116,810). For Afghan migrants residing in Pakistan, the leading provinces were Nangarhar (524,877 people), Kabul (326,196), and Kandahar (299,343). With regard to the ethnic group composition, 46% of the migrants residing in Iran were Hazara, 30% Tajik, and 14% Pashtun. On the other hand, 81.5% of the Afghan people living in Pakistan were Pashtun, 7.3% Tajik, 2.3% Uzbek, and 1.3% Hazara. There are some differences as well in the period of first arrival: 89% of the Afghans in Pakistan entered the host country in the Soviet period (from 1978

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[19] Table 1 shows that 45% of the women in the estimation sample who were residing in rural areas have agriculture employment within the household (as opposed to 7% of the women living in urban areas). Urban areas are defined as areas with populations larger than 10,000 households; therefore, some urban areas can be fairly rural, with family farms.

to 1991), versus 56% of the Afghans who arrived in Iran during the same time. About 36% of the Afghan people residing in Iran arrived in the host country during the *Taliban* rule, versus 4.9% of the Afghans in Pakistan. We have information on the age distribution only for Afghan migrants living in Pakistan: in 2005 about 55% of them were under 18 years old and 19.4% under 5. The family size of the Afghan people in Pakistan was 5.6 persons on average. 11% of Afghans in Iran were single.

Data on violence come from the Uppsala Conflict Data Program (UCDP). This source provides information on conflicts in Afghanistan since 1989. It refers to the total number of deaths from state-based violence, non-state violence, and one-sided violence. We consider three different periods: before the *Taliban* occupation (1989, the first year when data are available, to 1994, the year the *Taliban* took control of Kandahar); during the *Taliban* occupation (from 1995 to 2001); and after the *Taliban* occupation (from 2002 to 2007). Before the *Taliban* there were 27,956 total deaths from violent events, more than half (16,351) having taken place in Kabul. During the *Taliban* occupation the total deaths peaked at 44,196, with 9733 in the Balkh province and 4518 in the Takhar province. After 2001 the total deaths decreased to 16,652, and the two provinces where the largest number of violent events occurred were Hilmand (3878) and Kandahar (3439). In the regression analysis, we divide the total number of deaths by the province population. The mean value of this variable was about 0.2% during the *Taliban* and 0.1% before and after the *Taliban*.

Table 1 also shows that the average exposure to the *Taliban* while of school age was about three years, with a standard deviation equal to 2.5 years. In the next sections, we aim to quantify how exposure to the radical religious rule influenced the high level of women's segregation that Table 1 shows.

4. Empirical strategy and results

We start our analysis of the consequences of the *Taliban*'s constraints on Afghan women's economic outcomes by analyzing their effects on education.[20] In contexts of long-lasting wars, like was the case in Afghanistan, while labor market outcomes can improve when conflicts end, low levels of education are likely to leave a permanent "scar." This may lead to a deep poverty trap.

With regard to the econometric methodology, we use a difference-in-differences approach.[21] The identification strategy relies on the fact that, depending on the year of birth and province of residence at the time a woman's education took place, women differed in the number of years they were exposed to the *Taliban* regime. We consider two alternative treatment groups. The first group includes all the provinces that were entirely or partially occupied by the *Taliban*. This implies a control group made by two provinces only: Badakhshan and Panjsher (see provinces in yellow in Fig. 1). This is the main definition of treatment and control groups that we use in all specifications of the paper. For comparison purposes, we check the robustness of our results using an alternative treatment group that includes only the provinces that were entirely occupied by the *Taliban*. In this alternative specification, in addition to Badakhshan and Panjsher, the provinces in the control group are Baghlan, Kapisa, Laghman, Kunarha, Nooristan, and Takhar. The latter provinces were partially occupied by the *Taliban*.

While the treated group includes women who were exposed to the *Taliban* occupation while they were of school age, individuals in the control group resided in the territories of the United Islamic Front for the Salvation of Afghanistan. This opposition alliance (also known as United Front or Northern Alliance) was led by members of the previous government, including the former president Burhanuddin Rabbani and the former minister of defense Ahmad Shah Massoud, among others. The Afghan Northern Alliance practiced a moderate form of Islam. In the districts that were not occupied by the *Taliban*, girls were allowed to go to school.[22]

We estimate the following difference-in-differences equation:

$$s_{idt} = \alpha \text{ years exposure Taliban}_{pt} + \beta_d + \beta_t + \varepsilon_{idt} \tag{1}$$

where β_d and β_t are dummies for district and year of birth, respectively. "*years exposure Taliban*" represents the number of years a woman was exposed to the *Taliban* while she was of school age. It is equal to zero for all cohorts of birth if the individual resided in a province of the control group. It varies from zero to eight years of exposure depending on the year of birth for women living in a province of the treatment group. The mean value of exposure to the *Taliban* is about three years.

For the variable s_{idt}, we consider four alternative dependent variables. First, we consider the number of years of completed education. Second, we include a dummy variable equal to one if the individual completed nine grades of schooling, and zero otherwise. Third, we use a dummy variable equal to one if the individual can read and write.[23] Fourth, we use a dummy variable equal to one if the individual attended at least some formal schooling.[24]

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[20] For the literature showing the importance of female human capital investment, see Behrman et al. (1999); Geddes and Lueck (2002); Currie and Moretti (2003); Goldin (2006); and Doepke and Tertilt (2009).

[21] See Duflo (2001) for a work relying on a difference-in-differences approach to identify effects on education.

[22] In a publication of the US Army Center of Military History, Stewart (2004) distinguishes between the areas controlled by the Northern Alliance and the *Taliban*-occupied districts where the Northern Alliance organized some form of resistance. In the latter areas, the ban on girls' education applied as well.

[23] As the main report of the 2007/2008 NRVA documents (Icon-Institute, 2009), this round of the survey includes a request to the male household head and to the primary female household member to read a sentence from a flash card in order to check the (self-) reported literacy. Tested and self-reported literacy were remarkably similar, which suggests that literacy figures of the survey are likely to be reliable.

[24] Examples of non-formal schooling are home schooling with a private teacher, schooling at a *masjid*, or schooling at a *madrassa*.

We restrict our sample to women who were born between 1976 and 1992 (those whose year of birth is $1976 \leq t \leq 1992$). Because we also look at the probability of having completed basic schooling, we consider women who were over 15 years at the time of the survey (i.e., those with years of birth ≤ 1992). We focus on people who were born in or after 1976 because we want to exclude too-dissimilar cohorts of birth from our sample.

In all regressions of the paper, we estimate the difference-in-differences equation using sampling weights and cluster standard errors at the province *and* cohort of birth level. The choice of the two-way clustering follows the dimensions of variation of the main explanatory variable and ensures a sufficiently large number of clusters (34 provinces $\times$ 17 cohorts of birth).

The difference-in-differences estimator removes biases that could result from permanent differences in the outcomes of interest between the group of individuals living in occupied and not occupied provinces (i.e., the areas that were controlled by the Northern Alliance). For instance, one such difference is related to the district's ethnic composition. The areas that were not controlled by the *Taliban* were inhabited predominantly by Tajiks, who are a Persian-speaking people living in the northern part of the country. By conditioning on district dummies, Eq. (1) avoids the possibility that the coefficient of interest captures time-invariant differences in schooling between Pashtun and Tajik people. Eq. (1) also removes the biases from comparisons over time in the treatment group (i.e., individuals in occupied provinces) that could simply be the result of trends.

The key assumption of this strategy is that the schooling outcomes for the treatment and control groups would have to follow the same time trend in the *Taliban* regime's absence. While this parallel trend assumption cannot be verified, below we provide a set of checks and placebo regressions that support it.

4.1. Parallel trends assumption

One way to check for the validity of the parallel trend assumption is to graphically represent the averages of the schooling outcomes by cohort of birth in provinces that were occupied by the *Taliban* and provinces that were not (see Fig. 2). While in the regression analysis we exploit the variation across provinces in the year of occupation, for sake of simplicity, in Fig. 2 we analyze exposure to the *Taliban* rule, which officially started in 1996. When considering women who were not of school age during the *Taliban* government, i.e., those whose year of birth is $1976 \leq t \leq 1980$, the two depicted trends are relatively parallel and flat. Thus, pre-treatment data provide some evidence that, without the *Taliban* government, the two groups would have followed the same time trend. When looking at the cohorts of birth who might have been exposed to the *Taliban* while of school age, i.e., women with year of birth $1981 \leq t \leq 1992$, in both types of provinces (occupied and non-occupied in the period 1996–2001), we find that younger women are more educated than women from earlier cohorts of birth. This corresponds with a general tendency of an increase in human capital investment in the last decades. However, for the sub-sample of women who live in provinces that were occupied by the *Taliban*, the slope is less steep, supporting the findings presented in the tables below. These trends show how in Afghanistan, exposure to the radical religious rule negatively affected female educational outcomes.

Fig. 2 also shows that, besides the change around the 1981 cohort of birth, there is another change around 1986, when the two types of districts started to diverge significantly. A possible reason for this change is that students born in or after 1986 had a longer exposure to the radical religious rule than students who were born between 1981 and 1985.[25]

Focusing on the cohorts of birth that were not exposed to the *Taliban* rule while of school age, i.e., the pre-treatment cohorts, Fig. 2 suggests that areas that would be subsequently controlled by the *Taliban* had better average educational outcomes than areas that would not be exposed to the radical religious rule. Fig. 2 provides further confirmation that the differences we estimate in the regression analysis were due to exposure to the *Taliban* occupation; we might have expected the exposed areas to continue to have better education outcomes when compared to the other areas in the absence of the radical religious rule.

In Section 4.3, we further verify the parallel trends assumption by presenting results of placebo regressions that refer to the provisional Islamist government of Burhanuddin Rabbani.

4.2. Effects of the Taliban occupation of Afghanistan on women's education: results

Table 2 presents results from estimating Eq. (1). In Panel A, we include in the treatment group the provinces that were entirely or partially occupied by the *Taliban* during their rule. In these specifications, the control group includes Badakhshan and Panjsher. In Panel B, the treated group instead refers to the provinces entirely conquered by the *Taliban*, which constitutes a larger control group: Badakhshan, Baghlan, Kapisa, Laghman, Kunarha, Nooristan, Panjsher, and Takhar. While we will focus more on the mechanisms driving the relationship of interest in Section 5, the specifications of Table 2 allow us to test whether the results are simply due to differences in emigration rates across provinces. In the even columns, we add an interaction term "*years exposure Taliban$_{pt}$* $\times$ *emigration rate$_p$*," where "*emigration rate$_p$*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population.

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[25] In the regression analysis, we exploit the differences in treatment intensity.
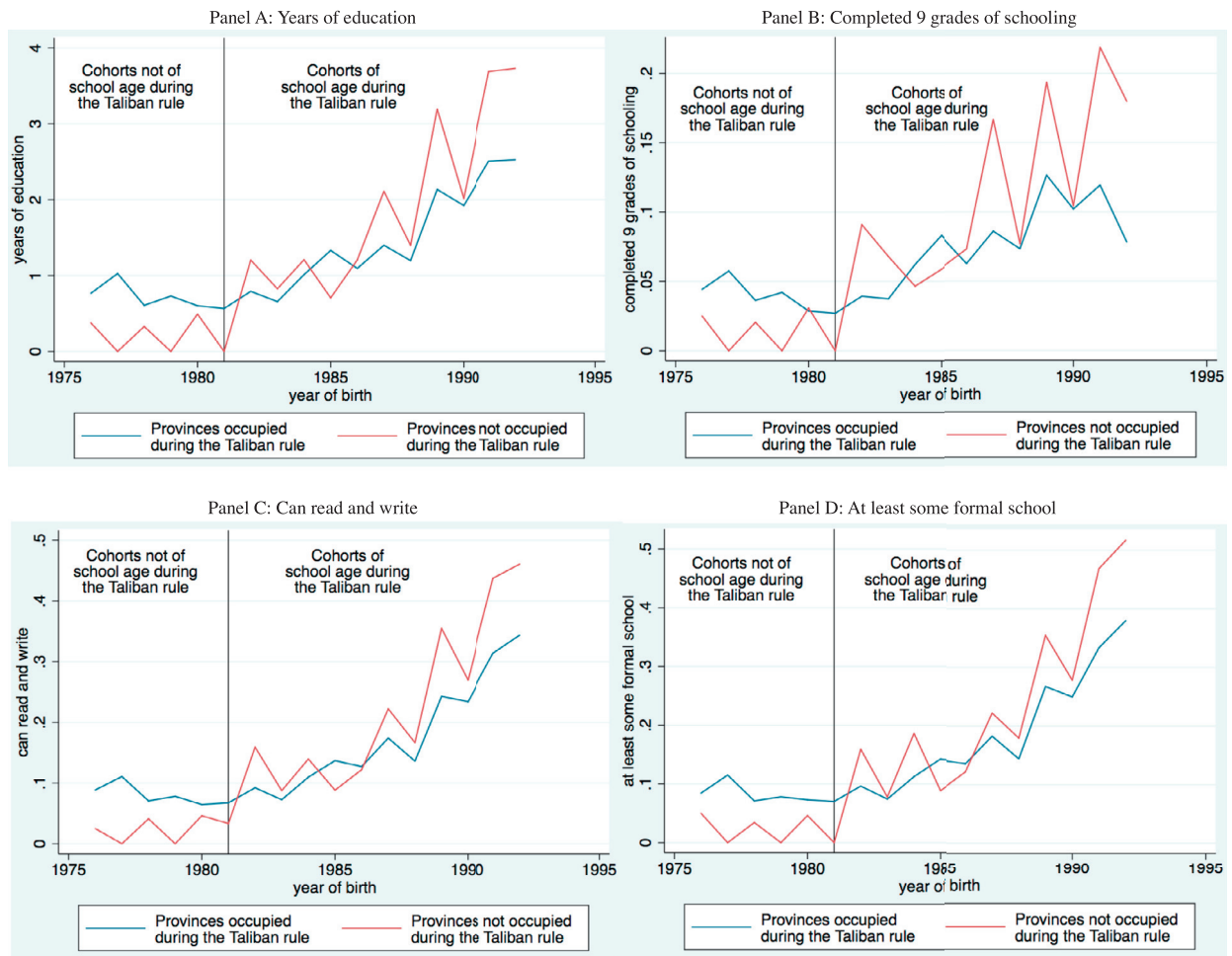
Fig. 2. Average female schooling outcomes by cohort of birth in provinces that were occupied by the *Taliban* and provinces that were not.

In the specifications where we add the interaction term "*years exposure Taliban$_{pt}$ × emigration rate$_p$*," the estimated co-efficient of the variable "*years exposure Taliban$_{pt}$*" gives us the effect of exposure to the *Taliban* while of school age after controlling for differences in emigration across provinces. This check is important because as the descriptive statistics in Table 1 show, the people living in *Taliban*-occupied areas were more likely to move away from the province of residence. Over the last decades, starting with the Soviet occupation in 1979, many Afghan people escaped situations of uncertainty and violence. Therefore it is important to check whether the estimated effects simply capture the disruptions associated with migration.

Results in Panel A of Table 2 show that a one standard deviation increase (i.e., an increase by 2.5 years) in the number of years of exposure to the *Taliban* occupation while of school age leads to a decrease in women's education by about 0.57 years if we condition on differences in emigration rates across provinces. When we estimate the equation without controlling for the interaction term "*years exposure Taliban$_{pt}$ × emigration rate$_p$*," this figure is about 0.52 years. Furthermore, a similar size increase in exposure to the treatment implies a lower likelihood, by 4.6 percentage points, that women would complete basic schooling. When considering as outcomes of interest the probability that the individual can read and write as well as the probability that the individual has at least some formal education, the estimated difference between treated and control group is about seven and three percentage points, respectively.[26]

Results in Panel B of Table 2—where we consider a larger control group—confirm the findings in Panel A. The estimated coefficients are smaller in absolute value. In all the remaining regressions of the paper, we use the definitions of treatment and control group as in Panel A.

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[26] Results are robust when we evaluate how internal migration affects our estimates. The NRVA survey only includes information on the current household of residence. This implies that we know the district of residence at the time of the survey, but not the one at the time the human capital investment takes place. We have information on whether the woman ever lived outside the district for at least three consecutive months in the five years before the survey. We exclude these internal migrants from the estimation sample of all regressions in the paper. In unreported regressions, we find that results are qualitatively similar when we include internal migrants in the sample.

Table 3
Placebo regressions and exposure to the provisional Islamist government under Burhanuddin Rabbani (1992–1996).

	Years of education (1)	Completed 9 grades of schooling (2)	Can read and write (3)	At least some formal school (4)
Cohort of birth 1977–1980 × province Taliban	−0.0042 [0.133]	−0.0014 [0.010]	0.0055 [0.014]	−0.0013 [0.014]
District dummies	Yes	Yes	Yes	Yes
Year of birth dummies	Yes	Yes	Yes	Yes
Mean value for the control group	0.4009	0.0236	0.0495	0.0472
Observations	7200	7200	7200	7200
R-squared	0.211	0.163	0.181	0.211

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes women whose year of birth is 1972 ≤ t ≤ 1980. "*cohort of birth 1977–1980*" is a dummy variable equal to 1 if the woman was born between 1977 and 1980, 0 otherwise. "*province Taliban*" is a dummy variable equal to 1 if the woman resided in a province occupied by the *Taliban*, 0 otherwise. The control group includes Badakhshan and Panjsher. "*years of education*" is the number of years of completed education. "*completed 9 grades of schooling*" is a dummy variable equal to 1 if the woman completed nine grades of schooling, 0 otherwise. "*can read and write*" is a dummy variable equal to 1 if the woman can read and write, 0 otherwise. "*at least some formal school*" is a dummy variable equal to 1 if the woman attended at least some formal school, 0 otherwise. Sampling weights are used in all regressions.

4.3. Placebo regressions and the provisional Islamist government of Burhanuddin Rabbani

In 1992, the Soviet-backed government of Mohammad Najibullah collapsed when the *Mujahideen* (warriors of God) took over Kabul. Burhanuddin Rabbani, an ethnic Tajik with a PhD in Islamic philosophy, became the president of the Islamic State of Afghanistan. Its government lasted until the *Taliban* regime started in 1996. In this subsection, we present a placebo test that provides additional support to the parallel trends assumption.

The idea behind this robustness check is to estimate a difference-in-differences model similar to the one presented above, considering the schooling outcomes in provinces that were later occupied by the *Taliban* and in provinces that were not, but for women who were not between the ages of 6 and 15 during the rule of the *Taliban*.

In particular, in our placebo regressions we analyze whether exposure while of school age to the provisional Islamist government of Burhanuddin Rabbani (from 1992 until the *Taliban* took power in 1996) affected schooling outcomes differently in provinces that were later occupied by the *Taliban* and provinces that were not, the latter being Badakhshan and Panjsher (i.e., the control group). Because this is a placebo test, we exclude from the regressions women who were exposed to the *Taliban* between the ages of 6 and 15 (i.e., we consider those with year of birth ≤ 1980). We compare women exposed while of school age to the provisional Islamist government of Burhanuddin Rabbani (1992–96) with women who were instead exposed to the Soviet-backed government of Mohammad Najibullah (1987–92).

Table 3 presents the findings from these placebo tests. The coefficient of interest from these regressions is never statistically significant. In addition to supporting the parallel trends assumption, which is required for our identification strategy, these placebo regressions are particularly informative. They show that the differences in schooling outcomes between provinces later occupied by the *Taliban* and provinces in the control group were not related to another important policy change, i.e., the introduction of an Islamist government in Afghanistan.

4.4. Effects of the Taliban occupation of Afghanistan on men's educational outcomes

One may wonder whether the *Taliban* more broadly affected people's attitudes toward schooling and educational institutions. As a possible method for checking whether the rule had a broader effect, we look at the educational outcomes of men. The sign is theoretically ambiguous. On the one hand, the rule might have been equally bad for males, perhaps because of female teachers not being allowed to work. On the other hand, if households had a fixed educational budget, they might have compensated the reduction in girls' education by increasing the investment in boys' human capital.

Results in Table 4 show no effect of men's exposure to the *Taliban* while of school age on their schooling outcomes for three of the four educational variables: completion of basic schooling, literacy ability, and attendance of formal schools. Exposure to the treatment negatively affects the number of years of education for men (see column 1), but the effect becomes statistically insignificant when we condition on the province-level emigration rate.

4.5. Heterogeneity of the Taliban effects on education

After quantifying and assessing the robustness of the effects of the *Taliban* on women's education, we now verify whether results differ across subgroups of the population.

4.5.1. Pashtun versus non-Pashtun districts

An important dimension of heterogeneity of the Afghan districts is the ethnic composition of the population. The *Taliban* members mostly belong to the Pashtun, the largest ethnic group in Afghanistan. The Pashtunwali—the Pashtun tribal code—

Table 4

Difference-in-Differences estimation of the effect of the *Taliban* occupation of Afghanistan on schooling outcomes of men.

	Years of education		Completed 9 grades of schooling		Can read and write		At least some formal school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Years exposure Taliban	−0.0479*	−0.0116	−0.0026	−0.0002	−0.0036	0.0010	−0.0035	0.0016
	[0.027]	[0.030]	[0.002]	[0.002]	[0.003]	[0.004]	[0.003]	[0.004]
Years exposure Taliban × province emigration rate		−0.1888***		−0.0124***		−0.0242***		−0.0267***
		[0.058]		[0.004]		[0.007]		[0.008]
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean value for the control group	5.0462	5.0462	0.3062	0.3062	0.5527	0.5527	0.5647	0.5647
Observations	17,570	17,570	17,570	17,570	17,581	17,581	17,580	17,580
R-squared	0.274	0.274	0.178	0.179	0.251	0.251	0.290	0.291

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes men whose year of birth is 1976 ≤ t ≤ 1992. "*years exposure Taliban*" represents the number of years a woman was exposed to the *Taliban* while she was of school age. "*province emigration rate*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population. The control group includes Badakhshan and Panjsher. "*years of education*" is the number of years of completed education. "*completed 9 grades of schooling*" is a dummy variable equal to 1 if the man completed nine grades of schooling, 0 otherwise. "*can read and write*" is a dummy variable equal to 1 if the man can read and write, 0 otherwise. "*at least some formal school*" is a dummy variable equal to 1 if the man attended at least some formal school, 0 otherwise. Sampling weights are used in all regressions.

may influence women's educational investment and healthcare through its concept of gender boundaries (*purdah* or *namus*) (Kakar, 2003).

To determine whether ethnic differences represent a source of heterogeneity of the *Taliban's* effect on education, we run regressions similar to those of Table 2, but considering an additional variable, "*non-Pashtun*," that is equal to one if women reside in non-Pashtun districts and equal to zero if the district population is entirely Pashtun or a mix of Pashtun and other ethnicities. The sources for the ethnicity data are the ethnic geography maps provided by the Program for Cultural and Conflict Studies at the Naval Postgraduate School and the UN High Commissioner for Refugees (UNHCR) district profiles.[27] The "*non-Pashtun*" variable enters the specifications interacted with "*years exposure Taliban*," while the district dummies absorb the non-interacted term.

Results are reported in Panel A of Table 5. For two of the four educational variables— "*completed 9 grades of schooling*" and "*can read and write*" —exposure to the *Taliban* occupation while of school age affects women's outcomes in an equal way in Pashtun and non-Pashtun areas. Because of an additional year of exposure to the radical religious rule, women are two percentage points less likely to complete basic schooling and three percentage points less likely to be able to read and write. We instead find a differential effect when the dependent variable is "*years of education*" or "*at least some formal school.*" The estimates show that the *Taliban* occupation did not influence women's attendance of formal schools in non-Pashtun areas (see the p-value of the test with null hypothesis that the sum of the coefficients of the variables "*years exposure Taliban*" and "*years exposure Taliban × non-Pashtun*" is equal to zero), while an additional year of exposure to the treatment implies a two-percentage point decrease of the same variable in Pashtun areas. A one standard deviation increase in the number of years of exposure to the radical religious rule reduces the number of years of education by 0.7 (-0.2831 × 2.5) in Pashtun areas and 0.36 ((−0.2831 + 0.1386) × 2.5) in non-Pashtun areas.

To summarize, when considering years of education and attendance of formal schools, the effects of the radical religious rule seem to significantly vary depending on the ethnic composition of population in the district of residence. The impact is larger and more precisely estimated in Pashtun areas.

4.5.2. Rural versus urban areas

Another potentially important source of heterogeneity of the *Taliban* effect on schooling is the rural versus urban divide. The sign of the differential effect of the radical religious rule in rural areas is theoretically ambiguous. On the one hand, during the period of the *Taliban* ban on girls' education, it was less costly to organize informal schooling in cities than in it was in rural areas because of differences in population density. On the other hand, as Rashid (2000) documents, during their rule the *Taliban* enforced restrictions more stringently in Kabul and other cities than they did in rural areas. These differences in enforcement level can be explained using rational club models where voluntary religious organizations are efficient providers of local public goods and their destructive behavior, such as the subjugation of women and harassment of non-members, can be interpreted as an attempt to lower the outside option of a defector (Berman, 2009). Heterogeneity in restrictions during the rule and costs in organizing informal schooling could explain differential effects of the radical religious rule between rural and urban areas.

Panel B of Table 5 presents estimation results in which we exploit the information of whether the household lives in a rural area. Our estimates show evidence of a larger negative effect of exposure to the *Taliban* occupation while of school age

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[27] We thank Michael Gilligan for sharing these data with us. The NRVA survey does not provide information on ethnicity.

Table 5

Difference-in-Differences estimation of the effect of the *Taliban* occupation of Afghanistan on schooling outcomes of women. Heterogeneity of effects: Pashtun versus non-Pashtun and rural versus urban areas.

	Years of education		Completed 9 grades of schooling		Can read and write		At least some formal school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
PANEL A								
Years exposure Taliban × non-Pashtun (1)	0.1167***	0.1386***	0.0010	0.0019	0.0024	0.0055	0.0128***	0.0145***
	[0.042]	[0.045]	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
Years exposure Taliban (2)	−0.2366***	−0.2831***	−0.0185***	−0.0203***	−0.0248***	−0.0313***	−0.0157**	−0.0193**
	[0.075]	[0.080]	[0.006]	[0.007]	[0.008]	[0.008]	[0.007]	[0.008]
Years exposure Taliban × province emigration rate		0.1975*		0.0076		0.0276**		0.0154
		[0.101]		[0.009]		[0.012]		[0.010]
District and year of birth dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H0: (1)+(2) = 0 (p-value)	0.1596	0.0924	0.02	0.0151	0.0106	0.0039	0.7217	0.5569
Mean value for the control group	1.4567	1.4567	0.0839	0.0839	0.1743	0.1743	0.1836	0.1836
Observations	18,815	18,815	18,816	18,816	18,817	18,817	18,817	18,817
R-squared	0.303	0.303	0.209	0.209	0.229	0.230	0.308	0.308
PANEL B								
Years exposure Taliban × rural (1)	−0.1011*	−0.1054*	−0.0149***	−0.0153***	−0.0149***	−0.0159***	−0.0116**	−0.0118**
	[0.059]	[0.058]	[0.004]	[0.004]	[0.005]	[0.005]	[0.006]	[0.006]
Years exposure Taliban (2)	−0.1340	−0.1581*	−0.0062	−0.0085	−0.0122	−0.0177*	−0.0037	−0.0052
	[0.091]	[0.093]	[0.007]	[0.007]	[0.009]	[0.009]	[0.009]	[0.009]
Years exposure Taliban × province emigration rate		0.1227		0.0118		0.0283**		0.0076
		[0.094]		[0.008]		[0.011]		[0.010]
District and year of birth dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H0: (1)+(2) = 0 (p-value)	0.0014	0.0007	0.0008	0.0004	0.0004	0	0.0285	0.0216
Mean value for the control group	1.4567	1.4567	0.0839	0.0839	0.1743	0.1743	0.1836	0.1836
Observations	19,169	19,169	19,170	19,170	19,171	19,171	19,171	19,171
R-squared	0.294	0.295	0.193	0.193	0.269	0.269	0.309	0.309

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes women whose year of birth is 1976 ≤ t ≤ 1992. "*years exposure Taliban*" represents the number of years a woman was exposed to the *Taliban* while she was of school age. "*province emigration rate*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population. The control group includes Badakhshan and Panjsher. "*non-Pashtun*" is equal to 1 if the woman resides in a non-Pashtun district, 0 if the district population is entirely Pashtun or a mix of Pashtun and other ethnicities. "*rural*" is a dummy variable equal to 1 if the woman resides in a rural area, 0 if in an urban area. "*years of education*" is the number of years of completed education. "*completed 9 grades of schooling*" is a dummy variable equal to 1 if the woman completed nine grades of schooling, 0 otherwise. "*can read and write*" is a dummy variable equal to 1 if the woman can read and write, 0 otherwise. "*at least some formal school*" is a dummy variable equal to 1 if the woman attended at least some formal school, 0 otherwise. Sampling weights are used in all regressions.

on years of education and literacy ability in rural areas. The radical religious rule does not significantly affect the probability of women completing basic schooling and attending formal schools for those residing in urban areas, while an additional year of exposure reduces the probability of these two variables by about two percentage points in rural areas.

5. Effects on education: discussion on the mechanisms

The negative relationship between exposure to the *Taliban* occupation and women's educational outcomes can be related to several theoretical mechanisms. While we believe that we are estimating a net effect of the radical religious rule on women, we now try to assess how different theoretical mechanisms explain the relationship of interest. In particular, we discuss six such mechanisms.

5.1. The role of the ban on girls' education and female employment

Section 2.2 presented the introduction of the ban on girls' education during the radical religious rule as potentially the most important channel through which the *Taliban* affected female human capital investment. Similarly, we expect the ban on female teachers being able to work to be another important mechanism explaining a reduction in education. Griffin (2001) documents that during the radical religious rule, about 8000 female teachers were dismissed.[28] This caused several schools to close.

To check the role of the bans on girls' education and female employment, we exploit the fact that during the radical religious rule, schools were not allowed to teach girls older than 8. We look at finer levels of education and the probability

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[28] See Andrabi et al. (2013) for an article that focuses on teacher shortages as a key supply-side constraint. They show that the construction of government girls' secondary schools in Pakistan had a large causal impact on the education market and private school location because it augmented local teacher supply in an environment with low female geographical and occupational mobility.

that the individual's highest level of education is the 1st grade, 2nd grade, and so on up to the 9th grade. The estimates in Table 6 show that exposure to the *Taliban* affected women's probability of completion of each of the nine grades, including the first two grades, which were not covered by the ban on girls' education. The impact of the radical religious rule is larger for higher grades. The negative consequences for enrollment in the first two grades were likely due to the constraints on female employment in a "one-room schoolhouse" system in which a single teacher instructed multiple grades.

5.2. The role of uncertainty and violence

Violence itself may be bad for education, as a growing body of literature shows.[29] Therefore, it is particularly important to control for it. As Table 1 shows and as we discuss in Section 3, the period from the occupation of Kandahar to the end of the radical religious rule was characterized by a high number of violent events. Both provinces in the treatment group and control group were subject to security stress. The provinces that were occupied by the *Taliban* during its rule are also the areas in which the number of violent events was higher during the anti-Soviet insurgency from 1979 to 1992, the civil war from 1992 to 1996, and the post-2001 insurgency. In Table 7, we use the information from the Uppsala Conflict Data Program (UCDP) and condition on the number of violent events before, during, and after the *Taliban*; therefore, in these specifications, our estimated coefficient of interest "*years exposure Taliban*" does not identify the violence channel. Comparing the conditional estimates in Table 7 with the unconditional estimates in Table 2, our empirical strategy shows that violence can explain from 10% to 28% of the total impact of exposure to the *Taliban* occupation on educational outcomes.[30]

5.3. The role of cultural differences among ethnic groups

Most of the members of the *Taliban* belong to the largest ethnic group in Afghanistan, the Pashtun. The *Taliban* and the Pashtun population share the same language and are often linked by kinship ties. This was a possible reason why it was relatively easier for the *Taliban* to occupy the Pashtun districts rather than the non-Pashtun districts.

If culture affects education choices and if Afghan ethnic groups differ in cultural traits, then schooling outcomes would differ not because of the radical religious rule but because of the population's ethnic composition. If this were a relevant channel, we would expect to have larger effects of the radical religious rule in non-Pashtun districts, because it is in these areas that the occupation would represent a larger change in cultural and social norms. Results in panel A of Table 5 show that the effects of the rule was not statistically different between Pashtun and non-Pashtun districts for the variables "*years of education*" and "*at least some formal school*," while the impact of the *Taliban* was larger in Pashtun areas when the dependent variables are "*completed 9 grades of schooling*" or "*can read and write.*" This may suggest that cultural differences among ethnic groups are unlikely to be the main channel explaining the negative relationship between exposure to the radical religious rule and women's human capital investment.

5.4. The role of changes in health associated with the radical religious rule

Negative effects on female human capital investment could also be related to the *Taliban* policies that might have worsened women's health (see Section 2.2). This could happen because children's health is likely to have a positive impact on educational outcomes (see Glewwe and Miguel, 2008 for a review of recent literature with a focus on less-developed countries).

In unreported regressions, we checked whether exposure to the *Taliban* rule negatively affected women's health. In particular, we considered several health measures as dependent variables. We use the information regarding whether the woman has difficulty seeing (even wearing glasses), hearing (even if using a hearing aid), walking or climbing steps, remembering or concentrating, or difficulty with self-care such as washing all over or dressing. Exposure to the *Taliban* while of school age does not have a statistically significant effect on any of these health outcomes.[31] As a consequence of the fact that the treatment is not associated with deterioration in health status, the negative relationship between exposure to the radical religious rule and women's human capital investment does not seem to depend on this channel.

5.5. The role of introducing an Islamist government

One may wonder whether the findings in Section 4 are not caused by religious radicalism but are simply a result of introducing an Islamist government. Along these lines, Cooray and Potrafke (2011) show an association between gender inequality in education on the one hand and culture and religion on the other hand, with discrimination against girls

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[29] See, among others, Ichino and Winter-Ebmer (2004), Akresh and de Walque (2011), Chamarbagwala and Morán (2011), Merrouche (2011), Miguel and Roland (2011), Shemyakina (2011), León (2012), Verwimp and Van Bavel (2013), and Di Maio and Nandi (2013).

[30] For instance, considering the coefficient of interest of the regressions with "*completed 9 grades of schooling*" as dependent variable (see column 4 of Table 7 and column 4 of Table 2, Panel A), we compute the impact of this channel as follows: (0.0186-0.0133)/0.0186=0.284.

[31] Comparing two neighborhoods in Greater Cairo that are comparable in several dimensions but not in local governance, Blaydes (2014) finds that women under Islamic rule enjoyed better outcomes related to reproductive health than a statistically matched set of women in the comparable neighborhood.

Table 6

Difference-in-differences estimation of the effect of the *Taliban* occupation of Afghanistan on schooling outcomes of women. Finer education levels.

	Highest educ. level 1st grade		Highest educ. level 2nd grade		Highest educ. level 3rd grade		Highest educ. level 4th grade		Highest educ. level 5th grade		Highest educ. level 6th grade		Highest educ. level 7th grade		Highest educ. level 8th grade		Highest educ. level 9th grade	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Years exposure Taliban	−0.0120*	−0.0127*	−0.0131*	−0.0135*	−0.0159**	−0.0166**	−0.0160**	−0.0169**	−0.0180**	−0.0206***	−0.0181**	−0.0211**	−0.0211***	−0.0225***	−0.0207***	−0.0222***	−0.0173***	−0.0186***
	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]	[0.008]	[0.007]	[0.008]	[0.008]	[0.008]	[0.007]	[0.008]	[0.007]	[0.007]	[0.006]	[0.007]
Years exposure Taliban × province emigration rate		0.0030		0.0021		0.0033		0.0038		0.0116		0.0133		0.0063		0.0068		0.0060
		[0.010]		[0.010]		[0.009]		[0.010]		[0.010]		[0.010]		[0.009]		[0.009]		[0.008]
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes
Mean value for the control group	0.1836	0.1836	0.1827	0.1827	0.1799	0.1799	0.165	0.165	0.1538	0.1538	0.1379	0.1379	0.1165	0.1165	0.1044	0.1044	0.0839	0.0839
Observations	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170	19,170
R-squared	0.304	0.304	0.302	0.302	0.296	0.296	0.287	0.287	0.277	0.277	0.271	0.271	0.263	0.263	0.240	0.240	0.206	0.206

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes women whose year of birth is 1976 ≤ t ≤ 1992. "*years exposure Taliban*" represents the number of years a woman was exposed to the *Taliban* while she was of school age. "*province emigration rate*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population. The control group includes Badakhshan and Panjsher. "*highest educ. level: n grade*" is a dummy variable equal to 1 if the woman's highest level of education is *n* grades, 0 otherwise. Sampling weights are used in all regressions.

Table 7

Difference-in-Differences estimation of the effect of the *Taliban* occupation of Afghanistan on schooling outcomes of women. Controlling for violence before, during and after the *Taliban* occupation.

	Years of education		Completed 9 grades of schooling		Can read and write		At least some formal school	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Years exposure Taliban	−0.1454*	−0.1839**	−0.0130*	−0.0133*	−0.0240***	−0.0309***	−0.0065*	−0.0099*
	[0.081]	[0.084]	[0.007]	[0.008]	[0.008]	[0.009]	[0.003]	[0.005]
Years exposure Taliban × violence before occupation	−26.7345***	−28.8057***	−0.2214	−0.2362	−0.2229	−0.5932	−2.5537***	−2.7380***
	[8.757]	[8.618]	[0.839]	[0.857]	[0.951]	[0.969]	[0.741]	[0.734]
Years exposure Taliban × violence during occupation	2.3980	5.2935	−1.5704**	−1.5498**	1.9555**	2.4741**	1.3991	1.6578*
	[9.779]	[10.183]	[0.767]	[0.806]	[0.935]	[0.970]	[0.941]	[0.969]
Years exposure Taliban × violence after occupation	−10.6488	−10.1854	−1.7868**	−1.7835**	−0.0128	0.0697	−1.2740	−1.2325
	[8.313]	[8.344]	[0.719]	[0.724]	[1.456]	[1.463]	[0.902]	[0.905]
Years exposure Taliban × province emigration rate		0.1788*		0.0013		0.0320***		0.0160
		[0.099]		[0.009]		[0.011]		[0.010]
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean value of the dependent variable for the control group	1.4567	1.4567	0.0839	0.0839	0.1743	0.1743	0.1836	0.1836
Mean value violence before occupation (1989–1994)	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Mean value violence during occupation (1995–2001)	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
Mean value violence after occupation (2002–2007)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Observations	19,169	19,169	19,170	19,170	19,171	19,171	19,171	19,171
R-squared	0.299	0.300	0.206	0.206	0.227	0.227	0.305	0.305

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes women whose year of birth is $1976 \leq t \leq 1992$. "*years exposure Taliban*" represents the number of years a woman was exposed to the *Taliban* while she was of school age. "*province emigration rate*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population. The control group includes Badakhshan and Panjsher. Violence before the *Taliban* occupation refers to the period from 1989 (the first year when the UCDP data are available) to 1994, the year the *Taliban* took control of Kandahar). Violence during the *Taliban* occupation refers to the period from 1995 to 2001. Violence after the *Taliban* occupation refers to the period from 2002 to 2007. "*years of education*" is the number of years of completed education. "*completed 9 grades of schooling*" is a dummy variable equal to 1 if the woman completed nine grades of schooling, 0 otherwise. "*can read and write*" is a dummy variable equal to 1 if the woman can read and write, 0 otherwise. "*at least some formal school*" is a dummy variable equal to 1 if the woman attended at least some formal school, 0 otherwise. Sampling weights are used in all regressions.

being especially pronounced in Muslim-dominated countries. Norton and Tomal (2009) find a negative link between female educational attainment and the proportion of Muslim adherents in a country, with similar results for the gender gap. Kuran (2004) argues that human capital deficiencies are rooted in applications of Islamic law. The traditional Islamic institutions that worked well in earlier centuries became the sources of inefficiency in the modern globalized world, and this decreased the return to investment in education in Muslim countries. Using data on literacy from colonial India, Chaudhary and Rubin (2011) show that Muslim literacy is negatively correlated with the proportion of Muslims in the district, but this effect loses statistical significance when controlling for the period of Muslim political collapse. Using a regression discontinuity design, Meyersson (2014) shows how in Turkey the Islamic rule increased female high school education; in the longer run, the effects on young women's education remained positive 17 years after the treatment.[32]

Estimates in Table 3 show that the Burhanuddin Rabbani's provisional Islamist government, which followed the collapse of the Soviet-backed government of Mohammad Najibullah and came before the *Taliban* government, had no effect in reducing human capital investment. Therefore, we can exclude that the introduction of an Islamist government in Afghanistan is the mechanism driving the results in Section 4.

5.6. The role of labor market changes

Another potential mechanism acts through the labor market. During the radical religious rule, women were also largely prohibited from working, which negatively influenced their labor market experience and subsequent expectations on the returns to education. While our data do not allow for an analysis of how the radical religious rule affected women's expectations on the returns to education, we can investigate the labor market consequences. In the next section, we present

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[32] For the literature exploring the effects of other religions on schooling and/or gender inequalities in education, see Botticini and Eckstein (2005, 2007), Becker and Woessmann (2008), Becker and Woessmann (2009), and Becker and Woessmann (2010). For works that analyze the effects of schooling on religiosity, see Cesur and Mocan (2014), Gulesci and Meyersson (2014), and Mocan and Pogorelova (2014). See also Clingingsmith et al. (2009), who show that performing the Hajj pilgrimage to Mecca leads to more favorable attitudes toward women, including greater acceptance of female education.

results that may support the idea that the radical religious rule may have partly affected women's schooling through (expected) changes in the labor market.[33]

6. Effects of the *Taliban* occupation on women's labor market outcomes

We now turn our attention to the consequences of the *Taliban* occupation of Afghanistan on women's labor market outcomes. We consider the following six dummy variables as outcomes of interest: a dummy equal to one for labor force participation (zero otherwise), if the woman has wage work,[34] if she is an unpaid family worker, if she has employment outside of the household, if she has agricultural employment within the household, and if she has non-agricultural employment within the household. Therefore, the information we have allows us to distinguish between employment within or outside of the household. This distinction is important for a broader analysis of how exposure to the radical religious rule has affected the emancipation of Afghan women.

All specifications condition on the following variables: a dummy equal to one if the woman is married (zero otherwise), the number of children who are younger and older than two years, a rural residence dummy variable, and, as proxies of wealth, two dummies equal to one in case of ownership of inherited irrigated land and/or inherited dwelling by any of the household members.

Results of the reduced form effect of exposure to the *Taliban* while of school age on women's labor market outcomes are presented in Table 8.[35] In these specifications, the main explanatory variable "*years exposure Taliban$_{pt}$*" may affect labor market outcomes through education and through other mechanisms as well. For this paper, this approach is informative because the question of interest is the analysis of the consequences of social constraints associated with the *Taliban* rule rather than the effects of education on labor market outcomes.

Table 8 shows that an additional year of exposure to the *Taliban* occupation while of school age increases by 1.8 percentage point the probability of participating to the labor force, after controlling for differences in emigration rates across provinces. A similar size increase in exposure to the radical religious rule while of school age increases the rates of women's employment in the family farm and the likelihood of being an unpaid family worker by about two percentage points. The estimates also suggest a 0.2 percentage point lower probability of employment external to the household, which represents a 12% decrease, compared to the mean value of this dependent variable for the control group (1.68 percentage points).

7. Effects of the *Taliban* occupation on fertility

Links between religion, fertility, and labor markets are well established in the economics of religion literature (Iannaccone, 1998). Berman et al. (2012) discuss how club-theoretic models predict that religious prohibitions may distance women from labor markets and consequently reduce the opportunity cost of childrearing. Other works have looked at the fertility effects of interfaith marriages (Lehrer, 1996) or have analyzed the relationship between religious affiliation and adoption decisions (Medoff, 1993).

In Table 9 we study how exposure to the radical religious rule under the *Taliban* affects the total number of children and the age at first marriage of women in Afghanistan. A one standard deviation increase in the number of years of exposure to the *Taliban* occupation while of school age reduces the age at first marriage by about 0.2 years, which represents a 1.2% decrease compared to the mean value for the control group. A similar size increase in exposure to the treatment raises the number of total children by about 0.14, i.e., a 4% increase compared to the mean value of total children for the control group. These findings are consistent with the results on labor market outcomes.

8. Concluding remarks

The economic theory of radical religious clubs predicts that voluntary religious organizations providing local public services may rationally choose a disruptive behavior to lower the outside option of members' defection (Berman and Laitin, 2008; Berman, 2009). We have analyzed the effects of an example of such behavior, the subjugation of women by the *Taliban* and the ban on girls' education that the religious group imposed.

Our estimates suggest that a one standard deviation increase in the number of years of exposure to the *Taliban* occupation while of school age leads to a decrease of 4.7 percentage points in the probability of a woman completing basic education. This large effect explains about 28% of the gender gap in this variable. The effects of the radical religious rule on female schooling outcomes are larger in Pashtun and rural areas.

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[33] However, this is unlikely to be the main mechanism driving the results in Section 4, because it would require a large degree of forward-looking behavior.

[34] This dummy takes the value of zero in case the woman is an unpaid family worker, self-employed, or unemployed. As the descriptive statistics in Table 1 show, only 2% of women hold a job for which they receive a wage. This makes the potential analysis of the *Taliban* rule on the wage level unreliable, given that the regressions would only include a few hundred observations. For this reason, rather than considering the wage level, among the dependent variables, we use a dummy equal to one if the woman holds a wage job, zero otherwise.

[35] We do not employ the Instrumental Variable estimator and exposure to the *Taliban* while of school age as an instrument for women's years of education because the validity of the exclusion restriction for the IV estimator would require the unrealistic assumption that the *Taliban* rule only impacts labor market outcomes through its effects on education.

Table 8

The effect of the *Taliban* occupation of Afghanistan on women's labor market outcomes.

	Labor force participation		Wage work		Unpaid family worker		Employment external to the household		Agricultural employment within the household		Non-agricultural employment within the household	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Years exposure Taliban	0.0072*	0.0176***	−0.0014	−0.0015	0.0134***	0.0259***	−0.0019*	−0.0021*	0.0120***	0.0219***	0.0000	−0.0000
	[0.004]	[0.004]	[0.001]	[0.001]	[0.004]	[0.004]	[0.001]	[0.001]	[0.004]	[0.004]	[0.002]	[0.002]
Years exposure Taliban × province emigration rate		−0.0539***		0.0006		−0.0646***		0.0014		−0.0517***		0.0002
		[0.012]		[0.003]		[0.011]		[0.002]		[0.011]		[0.006]
Married	−0.0433***	−0.0432***	−0.0225***	−0.0225***	0.0176*	0.0177*	−0.0172***	−0.0172***	0.0225**	0.0226**	−0.0507***	−0.0507***
	[0.012]	[0.012]	[0.005]	[0.005]	[0.010]	[0.010]	[0.004]	[0.004]	[0.010]	[0.010]	[0.007]	[0.007]
# of children younger than 2 (/10)	−0.0050	−0.0016	−0.0377**	−0.0377**	0.1717***	0.1758***	−0.0296*	−0.0297*	0.1203*	0.1236**	−0.0951**	−0.0952**
	[0.069]	[0.068]	[0.017]	[0.017]	[0.060]	[0.059]	[0.015]	[0.015]	[0.063]	[0.062]	[0.038]	[0.038]
# of children older than 2 (/10)	0.1474***	0.1385***	−0.0733***	−0.0732***	0.2356***	0.2249***	−0.0601***	−0.0599***	0.2534***	0.2448***	0.0063	0.0064
	[0.041]	[0.040]	[0.014]	[0.014]	[0.036]	[0.035]	[0.014]	[0.014]	[0.036]	[0.036]	[0.021]	[0.021]
Rural	0.1468***	0.1473***	−0.0170**	−0.0170**	0.1552***	0.1558***	−0.0314***	−0.0314***	0.1664***	0.1668***	0.0123	0.0123
	[0.020]	[0.020]	[0.007]	[0.007]	[0.017]	[0.017]	[0.007]	[0.007]	[0.021]	[0.021]	[0.020]	[0.020]
Inherited irrigated land	0.0367***	0.0370***	−0.0027	−0.0027	0.0364***	0.0366***	0.0007	0.0007	0.0354***	0.0356***	0.0027	0.0027
	[0.009]	[0.009]	[0.003]	[0.003]	[0.009]	[0.009]	[0.002]	[0.002]	[0.009]	[0.009]	[0.005]	[0.005]
Inherited dwelling	−0.0169*	−0.0173*	−0.0018	−0.0018	−0.0076	−0.0082	−0.0022	−0.0022	0.0015	0.0010	−0.0100*	−0.0100*
	[0.009]	[0.009]	[0.002]	[0.002]	[0.007]	[0.007]	[0.002]	[0.002]	[0.008]	[0.008]	[0.005]	[0.005]
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year of birth dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean value for the control group	0.4743	0.4743	0.0168	0.0168	0.3957	0.3957	0.0168	0.0168	0.4471	0.4471	0.014	0.014
Observations	19,107	19,107	19,107	19,107	19,107	19,107	19,107	19,107	19,107	19,107	19,107	19,107
R-squared	0.316	0.317	0.072	0.072	0.353	0.355	0.062	0.062	0.383	0.384	0.291	0.291

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes women whose year of birth is $1976 \leq t \leq 1992$. "*years exposure Taliban*" represents the number of years a woman was exposed to the *Taliban* while she was of school age. "*province emigration rate*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population. The control group includes Badakhshan and Panjsher. "*married*" is a dummy variable equal to 1 if the woman is married, 0 otherwise. "*# of children younger than 2*" is the number of children who are younger than 2 years. "*# of children older than 2*" is the number of children who are older than 2 years. "*rural*" is a dummy variable equal to 1 if the woman resides in a rural area. "*inherited irrigated land*" is a dummy variable equal to 1 in case of ownership of inherited irrigated land by any of the household members, 0 otherwise. "*inherited dwelling*" is a dummy variable equal to 1 in case of ownership of inherited dwelling by any of the household members, 0 otherwise. "*labor force participation*" is a dummy variable equal to 1 in case the woman participates in the labor force, 0 otherwise. "*wage work*" is a dummy variable equal to 1 if the woman has a wage work, 0 otherwise. "*unpaid family worker*" is a dummy variable equal to 1 if the woman is an unpaid family worker, 0 otherwise. "*employment external to the household*" is a dummy variable equal to 1 if the woman has an employment outside the household, 0 otherwise. "*agricultural employment within the household*" is a dummy variable equal to 1 if the woman has an agricultural job within the household, 0 otherwise. "*non-agricultural employment within the household*" is a dummy variable equal to 1 if the woman has a non-agricultural job within the household. Sampling weights are used in all regressions.

Table 9

The effect of the *Taliban* occupation of Afghanistan on fertility choices.

	Age at first marriage		Total number of kids	
	(1)	(2)	(3)	(4)
Years exposure Taliban	−0.0707**	−0.0836**	0.0432**	0.0555**
	[0.030]	[0.036]	[0.019]	[0.024]
Years exposure Taliban × province emigration rate		0.0659		−0.0629
		[0.079]		[0.053]
Rural	0.2541	0.2534	−0.0613	−0.0604
	[0.174]	[0.174]	[0.114]	[0.114]
Inherited irrigated land	−0.0404	−0.0398	0.0028	0.0021
	[0.066]	[0.066]	[0.046]	[0.046]
Inherited dwelling	0.0042	0.0048	0.0539	0.0534
	[0.059]	[0.060]	[0.039]	[0.039]
District dummies	Yes	Yes	Yes	Yes
Year of birth dummies	Yes	Yes	Yes	Yes
Mean value for the control group	17.204	17.204	3.2177	3.2177
Observations	12,500	12,500	12,387	12,387
R-squared	0.169	0.169	0.504	0.504

Note. Robust standard errors in brackets, clustered at the province and cohort of birth level. *significant at 10%; **significant at 5%; ***significant at 1%. The estimation sample includes women whose year of birth is $1976 \leq t \leq 1992$. "*years exposure Taliban*" represents the number of years a woman was exposed to the Taliban while she was of school age. "*province emigration rate*" is the sum of the 2005 stock of Afghans residing in Pakistan and Iran, i.e., the two main countries of destination. This information is available for each province of origin in Afghanistan. To compute emigration rates, we normalize this measure of migrants' stock by the province of origin population. The control group includes Badakhshan and Panjsher. "*rural*" is a dummy variable equal to 1 if the woman resides in a rural area. "*inherited irrigated land*" is a dummy variable equal to 1 in case of ownership of inherited irrigated land by any of the household members, 0 otherwise. "*inherited dwelling*" is a dummy variable equal to 1 in case of ownership of inherited dwelling by any of the household members, 0 otherwise. Sampling weights are used in all regressions.

Our empirical strategy identifies a net effect of the *Taliban* occupation on women's education. The bans on girls' schooling and female teachers not being allowed to work are likely the most important channels reducing the probability of girls' enrollment. Changes in the labor market and expected returns to education may also have partly explained the reduction in female education. Differences in violence across provinces also play an important role.

Our analysis allows us to discard several alternative mechanisms, such as the introduction in 1992 of the provisional Islamist government that came before the *Taliban*, cultural differences related to ethnicity, or varying emigration rates in different provinces.

The constraints on women imposed in Afghanistan during the radical religious rule are likely to have long-term consequences. In this paper, we have also explored the impact of the *Taliban* occupation on subsequent women's fertility and labor market outcomes. Our results suggest that women affected by the *Taliban* occupation tend to have lower ages at first marriage and more children. Exposure to the radical religious rule while of school age also implies a subsequent switch for women from employment outside of the household to agricultural employment within the household. This finding has clear consequences for the emancipation of Afghan women.

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