

# Removing Cultural Barriers to Education: State-run Islamic Schools and Female Education in Turkey\*

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## Abstract

This paper studies the impact of access to state-run Islamic schools on female educational attainment, fertility, and labor market participation in Turkey. In contrast to traditional secular schools, Islamic schools offered a hybrid curriculum that also included religious instruction, a more conservative school environment, and a more tolerant attitude towards the use of headscarves. Islamic schools expanded rapidly in the mid-1970s, and girl students achieved the legal right to attend these schools after the 1976 Council of State ruling. Exploiting the variation in exposure to Islamic schools across district centers and cohorts, I find that girls exposed to Islamic schools were more likely to complete lower and upper secondary school, while the corresponding effects for boys were small and insignificant. Moreover, affected female cohorts had lower fertility and higher labor force participation during early adulthood. My results suggest that making secular institutions inclusive towards religious conservatives by eliminating cultural barriers on education managed to keep religious women in schooling and integrate them into public life.

**JEL Classification:** I24, I25, J13, J16, J22, Z12

**Keywords:** Culture, Religion, Education, Women Empowerment, Islam

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# 1 Introduction

During the age of secular mass schooling, the world has experienced a substantial increase in educational participation. Yet, the progress in low-income and developing countries lags significantly behind the developed world, and the gender gap in education persists (UNESCO, 2015). Women in developing countries often leave schools after primary education, marry, and give birth at a young age. Addressing such behaviors associated with adverse outcomes is therefore essential for women's empowerment and economic development (Duflo, 2012; Doepke et al., 2012). Policies increasing education at large and keeping women in school, in particular, are central issues to economic and policy interests.

While there is a vast amount of empirical studies evaluating the impact of various education policy interventions, we have limited knowledge about how cultural constraints buried in educational institutions would affect households' decisions on participation in education. Besides its vital role in developing human capital that benefits individuals for labor market, education is also a way to impart a cultural identity idealized by institutions (Alesina and Reich, 2015; Ansell and Lindvall, 2013; Bandiera et al., 2019; Cantoni et al., 2017). At the same time, parents would like to transmit their own cultural and religious traits to their offsprings (Bisin and Verdier, 2000, 2001). A growing body of theoretical literature shows that parents may resist to education by keeping their children away from schools when the cultural identity idealized by educational institutions differs from their own (Akerlof and Kranton, 2000, 2002; Carvalho and Koyama, 2016). Policies mitigating culture-related barriers by making educational institutions more inclusive towards culturally excluded groups may reverse the backlash and lead to an increase in educational attainment in such cases. Yet, to this date, no causal empirical studies have shown whether such policies would effectively increase educational participation and keep women in schools.

This paper explores the consequences of providing religious-friendly state-run

secondary-level "Imam Hatip" schools (Islamic schools henceforth) as an alternative to secular schools in the 1970s. In practice, this policy change removed several religion-based barriers that stemmed from the strictly secular nature of the Turkish education system and achieved an inclusive education system towards religious conservatives. I find that access to Islamic schools had an empowering effect for women by keeping girls from religious families within the school system and incorporating them into public life.

Turkey in the 1970s provides an ideal setting to explore this question since it is a stark example among Muslim countries with strictly secular institutions and a remarkably religious population. This paradox may have created direct and indirect culture-related barriers for children's educational participation from conservative families. In addition, the voluntary nature of attendance in education after primary schooling during this period further enabled parents to keep their children away from secondary schools in such cases. Access to Islamic schools eliminated several cultural barriers, such as lack of religious instruction, a non-conservative school environment, coeducation, and the headscarf ban for girl students.

Religious schooling was reintroduced in 1950 when the government reopened secondary-level Islamic schools as vocational schools that shut down during the 1920s top-down secularization effort. However, these schools were primarily located in province capitals (administrative centers of first-level subdivisions) and were only available to men. Between 1974-1977, the Islamic school network expanded into district centers (administrative centers of second-level subdivisions) due to bottom-up community effort. As a result, the number of Islamic schools increased from 71 to 350 in a short period. Girl students only achieved the legal right to attend Islamic schools in 1977 after a Council of State ruling. Surprisingly, the decision to make Islamic schools available for women came from Turkey's highly secular judicial institution.

To empirically assess the impacts of access to Islamic schools, I construct a new data set

that contains locations and founding years of Islamic schools built by 1980 and combine it with a nationally representative 5% micro-sample of the 1990 Population Census. Then, I employ a difference-in-differences strategy by relying on both within-cohort (comparing district centers with and without an Islamic school) and within-district-center variation (comparing cohorts came secondary school age after access to Islamic schools with older cohorts).

I find that access to Islamic schools increased the likelihood of attaining a lower secondary degree for exposed female cohorts by 2.1 percentage points (s.e=0.8 p.p.), corresponding to a relative increase of 6 percent. The effect of treatment was small both in absolute and relative terms for exposed male cohorts with a statistically insignificant increase of 1 percentage points (s.e.= 0.6 p.p.), corresponding to a relative increase of 2 percent. The treatment also increased the likelihood of having a upper secondary degree for women by 1.7 percentage points (s.e.= 0.5 p.p.), corresponding to a relative increase of 7 percent. The likelihood of having primary school degree for both genders was unaffected as expected since Islamic schools only operated at the secondary level. Examining the official annual school enrollment data at the national level, I show that Islamic school enrollments were the driving force behind the accelerating growth in total lower secondary schooling during that period. Further, the heterogeneity of the treatment effect by gender indicates a decrease of 1.2 percentage points (s.e.=0.8 p.p.) in the gender gap in lower and upper secondary school completion rates, corresponding to a relative reduction of 9 percent, yet estimated less precisely. The estimated coefficient on gender gap for a placebo access to Islamic schools assumed to happened twenty years before the in 1957 were negative, which indicates that the gender gap were enlarging in favor of men for older cohorts in treated district centers. Access to Islamic schools reversed this pattern and decreased the gender gap in education.

Next, I examine how access to Islamic schools affected early adulthood fertility outcomes of exposed female cohorts. There are three sets of related results. First, I find

that exposed female cohorts were associated with lower numbers of births, even though the probability of ever giving birth remained unaffected. Second, I present pieces of evidence that the reduction was mainly a result of staying in education. I argue that affected women that remained in schooling due to access to Islamic schools postponed their first pregnancy, who otherwise would marry unofficially before age 18 and give birth to their first baby as teen moms. To support this argument, I show that the decrease in fertility is primarily driven by a lower likelihood of delivering two or more births by early adulthood (by the age of 18-25). This result is consistent with my argument, as having been given numerous births by these ages requires starting having births already at adolescence. Last, I construct an imperfect measure of age at first birth variable using "the relation to household head" information in the census. In line with previous evidence, exposed female cohorts were associated with older age at first birth.

Finally, I explore whether access to Islamic schools impacted women's labor market outcomes during early adulthood. Although around one-third of the Islamic school's curriculum contains religious content at the upper secondary level, Islamic schools had one extra schooling year to compensate for it. Thus, exposure to secular secondary school content at similar levels with secular schools and having a secondary school degree in a population with low levels of education may benefit women in the labor market, as the outside option was no secondary education. Consistent with this argument, I find that exposed female cohorts became more likely to participate in the labor market and work the week prior to the census.

Overall, my results suggest that access to Islamic schools in Turkey during the 1970s increased the overall education levels of women substantially, yet the increase for men was small and statistically insignificant. These results imply that, while Islamic schools effectively attracted religious parents to keep their daughters in the education system, they mainly enabled parents to substitute secular schools with Islamic ones for their sons. Religion-based barriers to participation in education that stemmed from secular

institutions in Turkey were binding most exclusively for women, potentially due to stronger gender roles and social norms in Islam and lower anticipated returns to female education by parents. Keeping girls in school was also accompanied by outcomes associated with women's empowerment and economic development. Affected women had lower fertility in early adulthood, suggesting delayed marriages and delayed pregnancies, and had higher labor force participation rates. These results indicate that relaxing strictly secular institutions, which excluded religion from the public sphere, had managed to achieve women's empowerment, which was one of the original aims of the Turkish republic's secularization effort.

This paper contributes to several strands of the literature. It first relates to the literature on educational policies and cultural backlash. A body of theoretical literature suggests institutional policies targeted to assimilate the identity of marginalized minorities can lead to a backlash and result in resistance to education. [Akerlof and Kranton \(2002\)](#) and [Carvalho and Koyama \(2016\)](#) show that marginalized groups can underinvest in education when the identity idealized by institutions threatens them with assimilation. [Carvalho and Koyama \(2016\)](#) predict that culturally inclusive policies that mitigate the threat of identity assimilation for marginalized communities can lead to an increase in the overall rate of education within the population.<sup>1</sup> Prior empirical studies primarily focus on assimilationist educational policies and their impact on identity and schooling due to cultural backlash ([Abdelgadir and Fouka, 2020](#); [Bazzi et al., 2020](#); [Fouka, 2020](#); [Sakalli, 2019](#)). This paper is, to my knowledge, the first to provide empirical evidence that culturally inclusive policies may reverse the cultural backlash and increase the education levels of culturally marginalized communities.<sup>2</sup>

This study also relates to the literature on the roots of educational inequality. In particular, it is related to the literature on social norms and origins of gender and

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<sup>1</sup>Apart from education, [Carvalho \(2013\)](#) further shows that bans on the headscarf, in particular, can inhibit social integration for pious women and increase their religiosity.

<sup>2</sup>[Clots-Figueras and Masella \(2013\)](#) studies the impact of a culturally inclusive educational reform in Spain, namely, the introduction of Catalan instruction in Catalonia, on Catalan identity.

cultural inequality in educational participation in developing contexts (Alesina et al., 2020; Jayachandran, 2015). I contribute to this literature by showing that providing culturally inclusive educational institutions may decrease educational inequality towards marginalized groups when the interaction between exclusionist institutions and social norms acts as a source of educational inequality. Therefore, I provide evidence that inclusive changes to schooling that take into account cultural sensitivities can mitigate educational inequalities by cultural or religious background.

This paper also contributes to the literature studying the impacts of educational policy interventions on outcomes related to women empowerment in developing countries (Duflo, 2012; Doepke et al., 2012; Jayachandran, 2021).<sup>3</sup> Specifically, it is related to the literature on creating a safer schooling experience for girl students by adjusting the educational intuitions infrastructure or characteristics (Adukia, 2017; Bandiera et al., 2020; Burde and Linden, 2013; Kazianga et al., 2013; Kim et al., 1999; Muralidharan and Prakash, 2017). I add to this literature by showing that providing a culturally safer school environment that eliminates religion-based barriers to education can increase female schooling and lead to women's empowerment in a conservative and low-income context where female participation in secondary education is strikingly low.

Finally, this paper relates a broader literature on the role of culture for economic development (Barro and McCleary, 2003; Guiso et al., 2006; Tabellini, 2010). In particular, it refers to those studies examining the relationship between religion and institutions.<sup>4</sup> Examining Catholicism in France during the Second Industrial Revolution, Squicciarini (2020) shows that religiosity can hamper economic development through religious schooling. I contribute this literature by showing the interaction between religion as an informal institution and education systems as a formal institution can play a vital role in parents' decisions related to human capital investment, especially for daughters. I show

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<sup>3</sup>See Evans and Yuan (2019) and Evans and Mendez Acosta (2021) for recent surveys on interventions related to girls' education.

<sup>4</sup>See Iannaccone (1998) and Iyer (2016) for surveys of economics of religion. See Kuran (2018) for a survey specific for Islam.

that, when the outside option is resistance to the status quo educational institutions, state-run religious schooling may effectively integrate girls from religious families into public life and lead to economic development driven by women's empowerment. One closely related article to mine is [Meyersson \(2014\)](#), which focuses on political institutions' effect on women's empowerment in Turkey.<sup>5</sup> [Meyersson \(2014\)](#) documents the positive impact of Islamic mayors in Turkey on female secular upper secondary school participation by using an RD design for the 1994 elections. He acknowledges that the Turkish secular educational institutions have several barriers on entry to education for religious women, including coeducation, a secular curriculum, and a headscarf ban. His explanation on the increase in secular schooling for women is that Islamic mayors effectively overcome previously mentioned and still-valid barriers to secular education. This paper adds to previous findings by disentangling the role of participation constraints in education by directly focusing a specific educational policy change that removed these cultural barriers and led to an increase in religious schooling. Therefore, I show that the culturally inclusive design of the public education systems can be effective in keeping girls in schooling independently of the characteristics of the local political leadership.

The remainder of the paper is organized as follows. Section 2 provides the historical and institutional background information about secular institutions and Islamic schools in Turkey. Section 3 presents and summarizes the data. Section 4 presents the empirical strategy and main results. Section 5 provides the robustness checks. Section 6 concludes.

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<sup>5</sup>In a similar empirical setting to [Meyersson \(2014\)](#), [Corekcioglu \(2021\)](#) disentangles one of the potential mechanisms behind the impact of Islamist political local rule on women empowerment and finds that repealing the headscarf ban increased female employment in Islamist municipalities in Turkey. She also shows that Islamist mayors employ fewer women relative to secular mayors when there is a ban on headscarf use at work.

## 2 Historical and Institutional Background

### 2.1 History of Secular Education in Turkey

After the fall of the Ottoman Empire, the founders of the new Turkish republic, led by Mustafa Kemal Atatürk, initiated broad-scale reforms in various fields to secularize and modernize the institutions of the country. Education was one of the most crucial domains of the reform movement. It was the first step to instill the secular and nationalist values of the new republic to younger generations ([Kaplan, 2006](#)). It was also an efficient way to curb the religious identity remnant from the Ottoman Empire. According to the government program, they intended to “adopt western civilization as a whole including western secular culture, to improve the nation to the contemporary western level, and avoid the superstition, mystical feelings, scholastic ideas, and out-of-date principles of life, adopting positivism.”([Zaim, 1987](#), p.501).

To achieve its secularization goals, the government implemented several radical and top-down reforms in education during the 1920s. Some of these reforms directly targeted to decrease the role of religion in education. The 1924 Unification of Education Law (Tehvid-i Tedrisat) abolished all traditional Islamic education institutions, including “*medreses*,” and unified all educational instruction under the Ministry of Education. Even though the law allowed a few numbers of Imam and Preacher (Imam Hatip) training schools to operate, these schools eventually shut down in 1930. The Arabic alphabet that had used in Ottoman Empire replaced with the Latin alphabet. Religion courses removed from the curriculum of lower secondary schools in 1927 and upper secondary schools in 1924. Religious instruction was non-existent in Turkey until the freshly elected conservative government reintroduced Islamic schools in 1950.

At the same time, education was gender-segregated due to the religious nature of former institutions. The investment in girls’ education was poor, making boys’ schools as the main body of the school network in the Ottoman Empire. To achieve universal

access to secular education regardless of gender, the new government aimed to increase the educational participation of girls and made the mixed-gender schooling universal with few exceptions ([Durakbaşa and Karapehlivan, 2018](#)). They also introduced compulsory education of 5 years, making participation in secondary education voluntary. Between 1923 and 1931, the share of girls among enrolled students in primary schools increased from 18.4% to 35% ([Szyliowicz, 1973](#)). Despite the significant increase in primary education, educational participation in secondary education remained low, and the gender gap persisted. Secondary education only became compulsory at lower secondary level in 1997 with the extension of compulsory schooling to 8 years.

## **2.2 The Rise of Islamic Schools and 1976 Council of State Ruling**

After the re-establishment of Islamic schools in 1950, these schools experienced a period with ups and downs until 1973. This was mainly due to the involvement of the secular army into politics. The number of Islamic schools opened by the state stayed modest, and most of them were located only in district centers that are also province capitals. Due to the reluctance of governments in opening Islamic schools in relatively less populated district centers, the communities started to form charity foundations to finance the construction of Islamic schools within their localities ([Öcal, 2013](#)). The government blocked this effort by introducing a law in 1967 that set a population threshold of 50,000 inhabitants to open Islamic schools. There were a handful of district centers with more than 50,000 population during that period, which made the expansion of Islamic schools nearly impossible.<sup>6</sup> Another blow to Islamic schools came after the 1971 Turkish military memorandum. The religion courses have been removed from the curriculum of lower secondary Islamic schools, ultimately led to the closure of some of these schools in 1971 due to insufficient demand. Islamic schools continued to operate at

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<sup>6</sup>Resmi Gazete, 8 August 1967, Number 12668; MEB Tebligler Dergisi, 11 September 1967, Number 1469 pg. 313-314.

the upper secondary level. Even though the 1973 Basic Education Law prepared by a technocratic government had reversed the decision, the temporary closure of Islamic lower secondary schools led to a temporary reduction in the number of students attending Islamic schools. Another drop in number of students attending Islamic schools happened during the military rule between 1981-1983. Yet, it quickly recovered after civil government established as seen in Figure 2 and 3. 1973 Basic Education Law had also brought some favorable changes to Islamic schooling that made Islamic schools an alternative to secular schools. Maybe the most important of them was making Islamic school degrees equivalent to secular school degrees. It allowed Islamic school students to apply for higher education programs in various fields of social sciences after secondary education.

The rise of Islamic schools had started after the 1973 general elections when an Islamist party, Milli Selamet (“National Salvation”) Partisi (MSP), entered the parliament for the first time in the history of the republic. MSP received 11.8% of votes nationally and earned 48 seats (9% of total seats) that made them the third biggest political party within parliament. As the rest of the parties failed to form a single-party government, MSP had a favorable position in coalition talks as the strongest candidate for the minor coalition partner position. MSP ended up participating in several coalitions during the 1973-1978 period with both secularist-left and center-right parties separately.<sup>7</sup> One of the main agendas of MSP was to enable Islamic schools to become an alternative to secular schooling in Turkey (Landau, 1976). In all coalitions, MSP prerrequired opening of Islamic schools that were already built or under construction with initiatives of local foundations. Many schools were waiting for permission to open for years but failed to do so due to population threshold and dispute by secular elements. The expansion of Islamic schools, therefore, was fast-paced. Already at the beginning of the 1977 school year, there were a total of 334 Islamic schools operating. When the expansion ended in

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<sup>7</sup>During this period, Islamist party were not in charge of Ministry of Education.

1980, there were 374 Islamic schools in total, as seen in Figure 1.

The expansion of the Islamic school network led to a sharp increase in the share of male students registered to Islamic schools among the new registrations to 6th grade. It increased from 5% to 15% in three years after the opening (see Figure 2). An important feature of the expansion was that the newly opened schools only registered students to 6th grade and opened the subsequent grades annually. Therefore, registration for intermediate grades was not possible.

Even though there were no legal restrictions on female participation in Islamic schools prior to 1973, the participation of girls was almost non-existent, as Islamic schools seen by the government as a school to train imams and preachers(vocations exclusive for men).<sup>8</sup> Against the push towards making Islamic schools as an alternative for secular schools, a gender rule introduced for registration to Islamic schools.Being a male added as a requirement to attend Islamic schools in 1973.<sup>9</sup> The doors of Islamic schools remained shut to female students even though the expansion of these schools. Although the Islamist party was a coalition member during this period, it did not attempt to abolish the gender rule. Female students had only achieved the legal right to attend Islamic schools after an unanticipated ruling of the Council of State in 1976.<sup>10</sup> The highly secular high-court of the judiciary ruled that the gender requirement violated the equality in access to schooling and lifted the law. This unexpected development resulted in a substantial increase in the number of female students attending Islamic schools in the 1977 school year. The growth of the share of females registered to Islamic schools kept increasing throughout the years and even caught up with the share of male students registered to Islamic schools in the late-1990s(see Figure 2). An exception to the increasing trends happened between 1981 and 1984 when female registrations to Islamic schools dropped sharply during the military rule years. Evidence from gender ratio in

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<sup>8</sup>Resmi Gazete, 22 May 1972, Number 141193.

<sup>9</sup>See MEB Tebligler Dergisi, 29 May 1972, Number 1700 pg. 185.

<sup>10</sup>Court case filed by a father whose daughter got rejected to register an Islamic school in Kayseri. See Council of State Ruling nr. 1976/4374, 15 December 1976 for more detail.

Islamic schools and secular-to-Islamic ratio in female registrations, in panel b of appendix figure A.6 and panel a of appendix figure A.8 respectively, show that military rule depressed female Islamic school registrations the most, resulting in female Islamic school registrations underperformed its potential.

## 2.3 Islamic Schools of Turkey: “Imam Hatip Schools”

Islamic schools in Turkey have a unique nature as they differ in many dimensions relative to their counterparts in other Muslim countries.<sup>11</sup> They are tuition-free state schools, likewise secular schools. Ministry of Education (MOE) is the responsible authority to determine and inspect all of the curriculum and textbook contents, and to appoint the staff. Therefore, only the MOE itself has control and power over the management of these schools. The involvement of religious foundations and organizations only occurs in the context of financial support through charity and extra-curricular social events under the surveillance of the ministry. They have vocational school status, as they initially aimed to educate imams and preachers for the mosques. They were available as lower secondary schools from grades 6 to 8, and as upper secondary from grades 9 to 12 between 1950-1997.<sup>12</sup>

The secular nature of education, combined with the cultural social norms and beliefs about girls’ education, often creates direct or indirect barriers to participation in voluntary education in religious communities. Islamic schools have several advantages over secular schools to attract religious parents’ children by eliminating primarily culture-related barriers. First, they overcome the lack of religious education in secular schools. Islamic schools in Turkey teach a hybrid curriculum that combines secular subjects with religious ones.<sup>13</sup> Although about one-third of the educational content at upper secondary level is religion related, Islamic school students spend one more year to

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<sup>11</sup>See Ozgur (2012) and Pak (2004) for in-depth ethnographic analyses of Imam Hatip schools.

<sup>12</sup>See Appendix Figure A.3 for education system in Turkey in the 1970s.

<sup>13</sup>See Appendix A for curriculum of Islamic schools in 1975

compensate it. Therefore, upper secondary Islamic schools did not teach religion courses in the expense of secular content.<sup>14</sup> Second, Islamic schools alleviate both secular peer and secular teacher role model effects that can concern some of the religious parents. Islamic schools primarily attract students with religious and conservative family backgrounds. Therefore, peers in Islamic schools are less likely to transmit secular ideas to each other relative to peers in secular schools. As almost one third of the curriculum involves religious subjects, teachers who teach these courses also come from a religious background.<sup>15</sup> Islamic schools can also alleviate religious parents' concerns about mix-gender schooling. These schools have a more conservative environment compared to secular schools. The interaction between girls and boys is limited due to visible and invisible barriers (Ozgur, 2012). For example, girls and boys either sit on different sides of the classroom or participate courses in separate classrooms, if possible. In some cases, girls and boys were receiving education in separate floors or buildings within the school complex. Due to female seclusion in Islamic culture that restricts interpersonal relations of women with men outside of the family, it is a norm in these schools to have a lower level of interaction between students of different genders. Last, and probably the foremost advantage of Islamic schools is the lax application of the headscarf ban in Turkey.<sup>16</sup> Parents that would like to see their daughters veiled after puberty had to choose between their daughters' education and veiling. Loose application of this ban was a prominent advantage of Islamic schools over secular schools for a long time in terms of attracting female students from conservative and religious families.

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<sup>14</sup>Upper secondary level Islamic schools get similar share of common courses as literature track of upper secondary secular schools.

<sup>15</sup>Teachers of religion-related courses need to be graduated from Theology departments of universities or institutions. On the other hand, rest of the teachers are graduates of the Faculty of Education.

<sup>16</sup>Use of headscarf during religion courses in Islamic schools have excluded from the ban in 1983. The headscarf ban abolished for all type of schools in 2013.

### 3 Data and Summary Statistics

The data used in this paper primarily come from the Turkish Statistical Institute's 5% micro-sample of the 1990 Population Census. Census data provide the necessary information for the main analysis, including individuals' gender, birth year, district of residence in 1990, locality status, province of birth, and the highest educational degree completed. Unfortunately, there is no information on whether the degree obtained was from an Islamic school or not. Census data also contain information on individuals' marital status, fertility, and labor market information to study the effect of access to Islamic schools on related outcomes.

Another crucial piece of information to conduct the analysis is the locations and establishment years of Islamic schools. The National Educational Statistics of MOE only provides annual information on the total number of Islamic schools by province. Since it is not possible to locate the district centers with an Islamic school from the official sources, I constructed a new data set using web sources that contain information on establishment years and locations of each Islamic school opened before 1981. I validated my data by cross-checking with the province-level official statistics and from a source that lists Islamic school locations in 1990 ([Özüdoğru, 1991](#)). In 1980, there were 374 Islamic schools located in 373 district centers. Each district center had only one Islamic school with one exception. Figure 3 provides information on the locations of Islamic schools in 1980. Finally, I merged school locations data with individual-level census data to identify individuals exposed to Islamic schools. I restrict my main analysis to the subpopulation of residents living in district centers in 1990 since Islamic schools were only available in district centers. However, I also utilize rural subpopulation as a placebo sample in my analysis since Islamic schools were out of catchment areas of rural residents.

Panel A of Table 1 provides summary statistics on related outcomes for exposed and non-exposed cohorts at district centers with and without an Islamic school. I present

summary statistics separately for male and female subsamples. Panel C of Table 1 provides information on available district center characteristics included as controls, such as population sizes in 1970, 1990 and Islamic party vote shares in 1973. In 1990, there were 894 district centers located in 71 provinces. District centers with Islamic schools have, on average, significantly higher population sizes in 1970, higher Islamic party vote share in 1973 and more province capitals compared to district centers without Islamic schools. Though, the difference in Islamic party vote shares is not statistically significant.

## 4 Empirical Analysis

### 4.1 Empirical Strategy and Descriptive Evidence

My first objective is to evaluate the impact of access to Islamic schools on the educational participation of men and women. My main outcomes of interest are indicators for whether an individual has completed lower or upper secondary school, education levels that were available in Islamic schools. My identifying variation is an individual's exposure to access to Islamic schools that are jointly determined by the date of birth and locality of residence.

In Turkey, children generally were attending lower secondary schools starting from age 11 during the 1970s. Therefore, children at the age of 11 or younger during the year of access to Islamic schools were fully exposed to the treatment. When the Islamic school network expansion started in 1974, newly established schools registered students only to the sixth grade and introduced upcoming grades in a yearly order. In theory, the staggered introduction of grades made registration for older cohorts not possible. For women, I consider children who were 11 years old or younger in 1977, the year they earned legal right to attend Islamic schools, as fully-exposed cohorts, and the older children as non-exposed cohorts. For men, I consider children who were 11 years old or younger in 1974, the year when the expansion of Islamic schools started, as fully exposed cohorts and the

older children as non-exposed cohorts.<sup>17</sup> I exclude individuals aged 12 from my analysis since some children may be fully exposed to the treatment due to the calendar effect.<sup>18</sup>

Islamic schools were only available in some district centers, so not everyone had access to these schools. Since my data do not include the district center of education information of an individual, I assign individuals to treatment with respect to individuals' locality of residence during the 1990 census. Therefore, I implicitly assume that people lived in the same district-center about 10 years ago. To alleviate concerns about assumptions I made on mobility, I conduct a series of robustness checks in Section 5.5.

I use a difference-in-differences empirical strategy to estimate the impact of access to Islamic schools. My empirical strategy is based on comparing cohorts of secondary school-age and cohorts too old to be at school between district centers with and without an Islamic school. My main identifying assumption is that, in the absence of access to Islamic schools, outcomes of female (male) cohorts living in a district center with an Islamic school would otherwise have changed similarly, on average, to those female (male) cohorts residing in a district center without an Islamic school.

Figure 4 presents descriptive evidence in support of my identifying assumption using raw data on the lower secondary school completion rates in treated district-centers and comparison district-centers over the analysis period.<sup>19</sup> Lower secondary school completion rates of both groups follow a similar trend for male and female cohorts too old to benefit from the access to Islamic schools. Non-exposed cohorts also have similar levels of education, overall, for both genders. The trend in lower secondary school completion rates for female cohorts breaks in favor of district centers with Islamic schools right after access, and they have relatively higher completion rates for all treated

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<sup>17</sup>Few individuals from older cohorts may be exposed to the treatment due to entry in primary schooling at later ages or grade repetition. Results are robust to excluding these cohorts.

<sup>18</sup>During the 1970s, the cut-off month for starting primary schooling was September. Therefore, most of the children born after September in a given year may start primary school the next school year. Yet, including age 12 in my analysis does not change the results.

<sup>19</sup>In appendix figure A.5, I also present the evolution of outcome means instead of overall trend. The main takeaways remain similar to overall level trends.

cohorts. The trend for male cohorts stays similar even after the expansion of the Islamic school network, and break in favor of district centers with Islamic schools occurs later.

As I do not observe the type of completed school, one would like to learn whether the increase in educational participation of women is driven by Islamic school enrollment or the strategic response of the secular schooling system or secular parents.<sup>20</sup> During my analysis period, the Turkish state had a monopoly over education provision, and private Islamic schools were not allowed in Turkey. This would require that the strategic supply-side response would be only by the state, which provides both types of education. One way to investigate the possibility of strategic secular supply- and demand-side response is to check the overall patterns in official school enrollment trends by school type before and after access to Islamic schools. As seen from panel a of figure 8, the slope of the increasing trend in secular school enrollments remains precisely the same after the access to Islamic schools during my analysis period. If anything, it became slightly lower when there was a substantial increase in Islamic enrollments after 1987. Panel b of figure 8 provides further encouraging evidence that Islamic schooling was the driver behind the positive change in the trend of total school enrollments. While the trend in secular enrollments remained almost the same over forty school years, Islamic school enrollments added to secular school enrollments and increased overall growth rate of total school enrollments after 1977. Therefore, general patterns in enrollments by school type increase my confidence that Islamic school enrollments were the main driver behind my results on the increase in educational participation of women.<sup>21</sup>

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<sup>20</sup>Bazzi et al. (2020) document the strategic response of the private Islamic schooling sector to the construction of secular public primary schools. Islamic private secondary schools entered the areas that were affected more by the secular primary school expansion.

<sup>21</sup>I present the case for male school enrollments in appendix figure A.7. Instead, the general patterns in enrollment rates imply that the Islamic school enrollments depressed the secular school enrollments for men.

## 4.2 Islamic Schools and Educational Attainment

### 4.2.1 Regression Framework

While previous results present descriptive evidence on the impact of access to Islamic schools, it could be subject to district center- or cohort-level confounders. Next, I estimate a more demanding econometric specification similar to [Duflo \(2001\)](#), separately for male and female subsamples, that allows for the inclusion of controls:

$$y_{ipdc} = \gamma_d + \delta_c + \sum_k \beta_k (I_c^k \times Islamic_{pd}) + \sum_c \alpha_c \log(pop70)_{pd} + \eta_{pc} + \epsilon_{ipdc}, \quad (1)$$

where  $y_{ipdc}$  is the outcome of interest (educational attainment, marriage and fertility, labor market) of individual  $i$ , residing in district center  $d$  of province  $p$ , and belongs to 3-age-cohort  $c$ .  $Islamic_{pd}$  is a dummy indicating whether the district center  $d$  had an Islamic school in 1980.  $I_c^k$  is a dummy indicating whether the individual belongs to 3-age cohort  $k$ .<sup>22</sup>  $\gamma_d$  and  $\delta_c$  are full set of district center and age-cohort fixed effects. In my preferred specification, I change age-cohort fixed effects with  $\eta_{pc}$  that are set of province-by-cohort fixed effects and include interaction between cohort dummies and  $\log(pop70)_{pd}$  that is natural log of the population size of district center  $d$  in 1970. The omitted category corresponds to the individuals who were at the age of 14-16 during the access to Islamic schools. I cluster standard errors at the district-center of residence level.

This dynamic difference-in-differences (DiD) specification allows the effects of having access to Islamic schools to vary flexibly and across cohorts. Cohort fixed effects control for all factors that are common for all individuals in a cohort, such as nation-wide shocks. District center fixed effects control for all time-invariant factors that are common for all individuals residing in a district center. Table 1 and Figure 2 shows differences in population sizes and regional distribution between treated and

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<sup>22</sup>I use 3-age-cohort instead of single-age cohorts in my main analysis due to two reasons. The first one is to overcome substantial cases of age heaping visible in the data (See Figure A.3 in the appendix). The second one is to gain statistical power in my regressions. Yet, I present the results with single-age cohorts in the appendix for all outcomes used in my main analysis.

comparison groups. Introducing province-by-cohort fixed effects and interaction between cohort dummies and initial population sizes allows cohorts to have differential trends across provinces and cohort trends to be related to district-center initial population size.  $\beta_k$  are the 3-age-cohort specific DiD estimates that are identified out of within-cohort-variation across districts centers with and without an Islamic school conditional on cohort-specific population size and province trends. For non-exposed cohorts, I expect  $\beta_k = 0$ . For fully exposed cohorts, I expect  $\beta_k > 0$  if access to Islamic schools affects the likelihood of completing lower or upper secondary school positively. For the likelihood of completing primary school, which is a natural placebo outcome due to lack of primary level teaching in Islamic schools, I expect  $\beta_k = 0$ .

Figure 5 plots the estimates of the 3-age-cohort specific treatment effects for my preferred specification separately for male and female subsamples.<sup>23</sup> The dependent variable is a dummy that captures whether an individual completed lower secondary school (in panel A), upper secondary school (in panel B), or primary school (in panel C). For all outcomes, the estimates for non-exposed cohorts are close to 0 and do not follow any specific trend as expected. Lack of pre-existing trends for both genders provides supportive evidence on my main identifying assumption. In panel A, estimates for women become positive, starting from cohorts aged 11-13 that are half fully-exposed and half non-exposed. The estimates stay positive and become significant for fully exposed cohorts, with an exception for cohorts aged 5 to 7 in 1977 that are affected by the military rule. This is expected since the female enrollments dropped sharply during the military rule as I already mentioned in 2.2. These results indicate an increase in the likelihood of completing lower secondary school for women after the access to Islamic schools and are also in line with the overall trend in Islamic school enrollment in the official data in Figure 2. For male subsample, the estimates of fully exposed cohorts are smaller in magnitude, and statistically indistinguishable from 0. The results are similar

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<sup>23</sup> Appendix figures A.12, A.13 and A.14 present results on specification only controlling for district-center and age-cohort fixed effects for all outcomes.

for the likelihood of completing upper secondary school, as seen in panel B. This suggests that some of the female students who attended Islamic lower secondary schools continued their education at the upper secondary level as well. In panel C, the estimates on the likelihood of completing primary school are close to 0 for fully exposed female cohorts, and the trend stays flat. This is in line with previous expectations as there was no primary level education in Islamic schools.

#### 4.2.2 Main Regression Estimates

In this section, I present the main regression estimates to assess the overall magnitude and significance of the impact of access to Islamic schools on education levels. I estimate the following generalized difference-in-differences specification separately for the subsample of men and women:

$$y_{ipdc} = \gamma_d + \delta_c + \beta(Young_c \times Islamic_{pd}) + \sum_c \alpha_c \log(pop70)_{pd} + \eta_{pc} + \epsilon_{ipdc}, \quad (2)$$

This replaces the 3-age-cohort specific  $\beta_k$  treatment effects in equation (1) with a single interaction of  $Young_c$  dummy and  $Islamic_{pd}$ .  $Young_c$  dummy equals to 1 for cohorts fully exposed to the treatment – that is, individuals aged 11 or younger in 1977 for women and in 1974 for men – , and equals to 0 for non-exposed cohorts. Otherwise, the specification remains unchanged to equation (1). I exclude individuals that are aged 12 in 1977 for women and in 1974 for men that may include exposed and non-exposed cohorts together due to calendar effect. Non-exposed cohorts are the last ten cohorts that are older than age 12 during the access year.<sup>24</sup> I cluster standard errors at the district-center of residence level. Under the parallel trends assumption and in the absence of time-varying confounding factors, the estimated  $\beta$  is the coefficient of interest, which reflects the average causal effect of access to Islamic schools on exposed cohorts.

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<sup>24</sup>For robustness of the results to different bandwidth selections, see Appendix Table A2.

Table 2 displays the main results on the effect of access to Islamic schools on the completed educational level of individuals. Odd columns present results from the simpler specification that only controls for district-center fixed effects and age-cohort fixed effects. Even columns present the preferred specification mentioned previously, where I insert province-by-cohort fixed effects and initial population size of district-centers interacted with cohort dummies, in addition to district-center fixed effects. In columns (1) and (2) of panels a and b, I investigate the effect on the likelihood of completing lower secondary schools. After access to Islamic schools, the likelihood of completing lower secondary school of exposed female cohorts increased by 2.1 percentage points, which is about 6.2 percent relative to the mean. For men, if anything, the likelihood of completing lower secondary school increased by 1 percentage point, which is about 2.1 percent relative to the mean, but statistically indistinguishable from 0 and economically small in magnitude. Column 4 shows similar results on the likelihood of completing upper secondary school for both genders. While the likelihood of completing upper secondary increased for exposed female cohorts by 1.7 percentage points, which is about 7.2 percent relative to the mean, there was no statistically significant effect for men.

Next, I focus on the educational outcome that was not the direct target of access to Islamic schools, namely the likelihood of completing primary school, which acts as a natural falsification test. Islamic schools were not available at the primary school level, so one would not expect access to Islamic schools to increase the likelihood of completing primary school significantly. In line with expectations, Columns 6 of both panels in Table 2 show that access to Islamic schools had no significant effect on the probability of completing primary school for both genders.

Overall, my results suggest that access to Islamic schools increased overall education of affected women. When considered together with the evidence from official registrations reported in Figure 2, results indicate that many of the female students

registered in Islamic schools would not continue secondary education without access to Islamic schools.<sup>25</sup> On the contrary, the increase in overall education for men is systematically smaller and statistically insignificant. As seen from official registrations reported in Figure 2, although male registrations to Islamic schools were substantially larger than female registrations, it did not lead to an increase in education levels of men. This result indicates that most of the male students registered in Islamic schools were substituting secular schools with Islamic schools. My results, therefore, suggest asymmetries by child gender in trust to secular schools from conservative and religious parents.

### 4.3 Effects on Family and Labor Market Outcomes

As Islamic schools were mainly attracting female students from religious and conservative families, another interesting set of outcomes to analyze would be marriage and fertility behaviors of exposed female cohorts. There is a vast amount of literature that examines impacts of educational interventions on marriage and fertility decisions due to access to secular education. However, consequences of an educational intervention with access to Islamic schooling may have differential results. On the one hand, staying in secondary education can make female teenagers postpone their marriage or fertility after graduation. Since the target group was religious women, the effect can be substantial. On the other hand, attending an Islamic school and exposure to Islamic teaching may influence them to have more conservative marriage and fertility behaviors (Ali, 2010). Yet, the latter explanation is ambiguous in my context as girl students, which would drop-out of schools, had became exposed to a substantial amount of secular content as well. In this paper, I only present evidence on the latter argument that is the postponement of fertility and marriage for affected female cohorts by focusing

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<sup>25</sup>Anectodally, Pak (2004, p.333) states that "In fact, many of the parents I interviewed mentioned that they would not have sent their daughters to upper secondary school at all unless it was an Imam Hatip school."

on early adulthood. Unfortunately, analyzing the final fertility is not possible due to data limitations and timing of the census, therefore, beyond the scope of this paper.

To analyze the effect of access to Islamic schools on marital and fertility decisions, I estimate the same dynamic difference-in-differences specification as in equation (1) by using the marital and fertility outcomes as my outcomes of interest. Here, I focus on cohorts who were age 18 or older, the legal marriage age in Turkey.<sup>26</sup> I also exclude highly fertile eastern and south-eastern regions of Turkey, where the treatment had no effect and mostly existed in my control group, to achieve a better counterfactual.<sup>27</sup> Everything else stays the same.

Ideally, one would like to have information on age at first marriage and first birth, as well as information about marriage status, and the total number of births.<sup>28</sup> However, the census does not include information on age at first marriage and first birth. Therefore I analyze several other related outcomes to link access to Islamic schools to delayed fertility and delayed marriages. I start my analysis by using an indicator outcome variable that provides information on whether the individual has ever married. Panel A of Figure 6 shows that access to Islamic schools is associated with a higher likelihood of ever marrying for the exposed female cohorts; however, estimates are highly noisy and statistically insignificant. This noisy and small in magnitude increase in marriages can be due to having higher value in the marriage market, particularly the one for religious and conservative individuals.<sup>29</sup> Second, I use the likelihood of ever giving birth as an outcome. Panel B of Figure 6 shows that differences in the likelihood of ever giving birth

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<sup>26</sup>Although the legal marriage age is 18 in Turkey, teen marriage is a common phenomenon as it is possible to have a religious marriage performed by an imam at earlier ages. Yet, this type of marriage is not recognized by the state and marrying before age 18 is a punishable crime by law.

<sup>27</sup>Nevertheless, I provide the results on family outcomes with full sample in appendix figure A.15 and results on labor market outcomes in appendix figure A.16.

<sup>28</sup>See Appendix A for summary statistics of outcome variables related to marital, fertility and labor market.

<sup>29</sup>Consistent with this finding, Ashraf et al. (2020) find that school constructions in Indonesia had a large positive effect on the educational participation of women among ethnic groups with bride price custom, while it had no effect among groups without bride price custom. They show that this is due to an increase in the value of brides result from more education.

stay similar for exposed cohorts.

Next, I use the total number of births given by an individual as my outcome. As shown in panel c of Figure 6, there are negative, but declining, pre-treatment differences before Islamic school access. After the treatment, the trend reverses, and exposed female cohorts experience a decreasing trend in the total number of births. I provide further evidence that links the decrease in total fertility to fertility postponement. I use two different indicators identifying whether an individual gave at a particular amount of births or more, namely two or more and three or more births. Panel b already showed that the likelihood of delivering at least one or more birth does not change for the exposed cohorts. Panel d shows a picture similar to total birth given for the likelihood of delivering two or more births, as there are negative, but declining, differences before the treatment, the trend reverses in favor of exposed female cohorts after Islamic school access. Finally, we see a sharp decrease in the likelihood of giving at least three or more births for the exposed cohorts in Panel e.

I argue that the reduction in early adulthood fertility is due to the postponement of fertility and marriage. Female children, who would potentially leave the school in the absence of treatment, would marry unofficially in a religious marriage and start giving birth at an early age. Therefore, by ages 18 to 25, they would have their second or more birth, while those who stayed in schools due to access to Islamic schools would be giving their first or second birth. Finally, I create an imperfect measure of age at first birth by using the relationship to family head information in census data. Then, I do the same analysis on self-constructed age at first birth as my outcome by restricting the sample to have-given-birth women and present the result in panel f. Similar to previous analysis, while there are negative, but overall a relatively declining pre-treatment differences before Islamic school access, the trend reverses sharply for fully exposed cohorts after the access to Islamic schools. Therefore, the main takeaway remains unchanged and confirms the previous evidence.

In Turkey, women's labor force participation has been persistently low throughout the history of the Turkish Republic (Özsoy and Atlama, 2009). This makes increasing the labor force participation of women a central issue in policy-making. Having a secondary degree in a developing country with low levels of education may be rewarding in the labor market that incentivizes women with a secondary degree to participate in the labor market. To examine the effect of access to religious school on labor market outcomes for females, I estimate the dynamic DiD specification in equation (1) where outcome variables are dummies indicating whether the individual participates labor force or was working one week prior to the census. Here, I exclude the eastern and south-eastern regions of Turkey as in the family-related analysis. Figure 7 show that there are no differences in outcomes for non-exposed cohorts. After access to Islamic schools, exposed cohorts became more likely to participate in the labor force and to work one week prior to the census. Results indicate that the increase in the overall education levels of women paid off in the labor market as well.

Table 4 reports the corresponding pooled differences-in-differences estimates for family and labor market outcomes for women. Overall, my results on education, family, and labor market outcomes indicate an empowering effect of access to Islamic schools on conservative religious women. The exclusionist nature of the secular institutions in Turkey, combined with the social norms and strict gender roles, enabled the transformation of cultural barriers to the educational participation of pious women and excluded them from public life. Removing cultural barriers and making the education system more inclusive through access to religious-friendly state-run Islamic schools attracted religious parents to keep their daughters in secondary schooling after five-year compulsory education and led to women's empowerment and integration into public life.

## 5 Robustness Checks

### 5.1 No Evidence of Pre-Existing Trends and Confounding Policies or Shocks

The main identifying assumption behind my empirical strategy is that, in the absence of access to Islamic schools, female (male) cohorts living in a district center with an Islamic school would otherwise have changed similarly, on average, to those female (male) cohorts residing in a district center without an Islamic school. Even though this assumption is untestable, the non-existence of pre-trends is supportive evidence for my parallel trends assumption. Note that results presented in Figure 4 and Figure 5 support this assumption. The point estimates of non-exposed cohorts for both genders are close to zero and do not follow any specific trends.

Another concern for my identification is the possibility of confounding policies or shocks that may overlap with the expanding access to Islamic schools. As depicted in Figure A.26, the positive jump in estimated coefficients for both genders happen right after the access for the first exposed cohorts and stay positive consistently for women. Up to my knowledge, there are no other policy changes or time-variant shocks that would affect district centers with an Islamic school and comparison group differentially, beginning from the same year with Islamic school access and persistently along the analysis period. The trend for exposed female cohorts is also in a similar fashion to the official registration data plotted in Figure 2.

### 5.2 Additional Checks for Robustness

Here, I conduct several other robustness checks and present them in panels a and b of Figure A.19 for women and men, respectively. The first rows of each gender panel present my main results on the likelihood of completing lower secondary school for

comparison. Second rows include as controls the average value of the dependent variable for the non-exposed cohorts interacted with cohort dummies. Third rows include Islamic party vote shares in the 1973 election interacted with cohort dummies as a proxy control for religiosity. The results stay robust and suggest that my main estimates are unlikely to be driven by religious and low-educated district centers experiencing a differential evolution of lower secondary school completion rates over cohorts.

Fourth rows exclude district-centers located in Eastern and South-Eastern Turkey, where the availability of religious schools was rare and had remarkably low levels of female education. The results are robust, suggesting that the evolution of lower secondary school completion rates in those regions is not driving my results. Fifth rows drop cohorts came secondary school age during military rule. Estimated coefficients become slightly larger and more significant for women. Sixth and seventh rows exclude relatively large and small district-centers, respectively, and estimates remain unchanged. Eighth row exclude schools opened after 1977 court ruling. Ninth row exclude district-center with an Islamic school prior to the school expansion and military service age-groups for male subsample. Finally, I show that my results on education are not sensitive to different bandwidth selections in appendix table A.2. Overall, all results are highly robust to several checks conducted in this section.

### 5.3 Alternative Estimator

A growing literature in DID methodology raises concern about the bias in TWFE estimators due to staggered adoption designs and negative weights or treatment effect heterogeneity. This paper uses a generalized DID design that lets the treatment status only change at a single point of time for all treated cohorts while the comparison group's

treatment status remains unchanged. So, the former concern is irrelevant to my design.<sup>30</sup> However, as suggested by De Chaisemartin and d'Haultfoeuille (2020), there may still be bias in the TWFE estimator in the existence of treatment heterogeneity. To alleviate these concerns, I utilize the DIDM estimator developed by De Chaisemartin and d'Haultfoeuille (2020) for education outcomes and present them in appendix figure A.17 with baseline controls and appendix figure A.18 without controls. Both figures show that estimates and trends from the DIDM estimator are largely similar to the TWFE estimator, albeit I slightly lose precision with the DIDM estimator. Consequently, this robustness check reassures that my results are not sensitive to the treatment heterogeneity.

## 5.4 Rural Sample As a Placebo

Islamic schools were located in cities with district center status, and the catchment area of these schools was narrow as the road and transportation network was limited. Most of the rural towns and villages were out of catchment areas of Islamic schools. Although there were some schools, mostly located in province capitals, which had dormitories to accommodate students coming from rural areas, these dormitories were only available for male students. If rural areas are out of catchment area of Islamic schools, one would not expect to have any significant effect of access to Islamic schools on the educational attainment of individuals residing in rural areas. I explore this by estimating equation 2 for rural residents sample as a placebo test. Table 3 reports the estimated coefficients for male and female subsamples separately. For rural females, all the estimates are small in magnitude and statistically highly insignificant. For rural males, the estimates are relatively larger and similar to district-center sample. This may be due to availability of dormitories for male students.<sup>31</sup> There is no effect on the likelihood of completing any

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<sup>30</sup>I further check the existence of any negative weights in my estimation using *twowayfweights* Stata command introduced by De Chaisemartin and d'Haultfoeuille (2020) and find no negative weights in my TWFE estimation.

<sup>31</sup>In fact, more than half of registrations to Islamic lower secondary schools between 1967 and 1973 were students from rural villages (DIE, 1977). The information is not available for my analysis period.

school or being literate, as Islamic schools did not operate at the primary level. I further present dynamics of treatment effect for all outcomes in appendix figures A.9, A.10 and A.11 from equation (1) for rural sample.

## 5.5 Migration and Province-level Evidence

A central concern for the identification is that the effects are driven by mobility related to migration. Ideally, one would like to assign individuals to treatment where they were residing at the age of 11 when they decided on participation in secondary education. Since I do not have the information about the migration history of individuals, I define the assignment to treatment with respect to where they resided during the 1990 census by assuming that they did not move since their schooling-age. It is not likely to be the case, as migration was a common phenomenon in Turkey since the 80s. If migration trends are unrelated with access to Islamic schools, then it would only attenuate the results towards 0 since it introduces random measurement error to the treatment variable. If migration trends are related with access to Islamic schools, then the bias could go either direction.

To alleviate concerns related to mobility, I make several robustness checks. First, I use another identification strategy, which I can define the assignment to the treatment with respect to birth locations of individuals instead of individuals' locality of residence in the 1990 census. As all the affected female cohorts (most of the exposed male cohorts) were already born prior to access to Islamic schools, location of birth and access to Islamic schools are unlikely to be endogenous with each other. Even though it is not possible to identify the district center of birth for individuals, I can identify the province of birth and whether individuals were born in any of the district centers within their province. I restrict my sample to individuals born in any district center. I construct an intensity variable to measure the exposure to treatment at the province level. Intensity is the number of Islamic schools within province  $p$  in 1980 divided by the average cohort size in young cohort by gender in province  $p$  cohort  $c$  scaled by 1000. I employ a dynamic

difference-in-differences strategy as before and estimate the following equation separately for both male and female subsamples:

$$y_{ipc} = \gamma_p + \delta_c + \sum_l \beta_k (I_c^k \times Intensity_{pc}) + \epsilon_{ipc}, \quad (3)$$

where  $y_{ipc}$  is my main outcome variable of interest: the likelihood of completing lower secondary school.  $\gamma_p$  and  $\delta_c$  are full set of the province of birth and birth cohort fixed effects.  $I_c^k$  is an indicator for 3-age cohorts. I cluster standard errors at the province of birth level.

Appendix figure A.24 present the estimated coefficient of equation (3) for both genders.<sup>32</sup> There are no pre-treatment differences in estimated coefficients for unexposed cohorts of both genders. The coefficients are close to 0 and statistically highly insignificant for women. For men, there is a slight upward trend prior to the treatment and it seems that it continues after the access as well. Estimates become positive and statistically significant for the exposed female cohorts with a consistent upward trend after access to Islamic schools. These results support that it is unlikely that my results are mainly driven by mobility.

I conduct additional checks to mitigate concerns with selective migration and present them in appendix figure A.20. The first rows of each gender panel present my main results on the likelihood of completing lower secondary school for comparison. Migration from rural areas to urbanized district centers was the most common emigration pattern observed in Turkey since the 50s. To rule out differential trends in rural-to-urban migration as a driver of the effect, I drop all the individuals born in rural areas from my sample. Estimated coefficients stay unaffected for the male subsample, and it got even larger for the female subsample. Second, I drop all the inter-province movers from my sample. Estimated coefficients are nearly identical to the baseline. Thus,

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<sup>32</sup> Appendix figure A.25 present relevant estimates for my placebo sample that consists only rural-born individuals.

inter-province mobility was not the driven force behind my results. Last, I drop all individuals who moved from where they lived five years ago, and coefficients again stay similar.

Finally, I utilize a piece of information in the 1990 census that records individuals' residency in 1985. I assign individuals to treatment according to their residency in 1985 instead of 1990. By doing this, I assign individuals to locations where they lived closer to their schooling ages, especially for treated younger cohorts. However, this brings two potential biases. First, people may misreport where they lived five years ago, and some might be recorded as unknown therefore excluded from the analysis. This would lead to an attenuation bias if misreporting is random. Second, there may be sampling bias since sampling is conducted according to 1990 census locations so that some areas may be over-sampled. Nevertheless, I do the same analysis for all outcomes and present them in the appendix. Appendix table A.1 reports the estimates from standard DiD specification in equation 2 by assigning individuals to treatment according to 1985 residency. Although magnitude of the likelihood of completing lower secondary school are slightly less pronounced for both genders, remaining estimates are similar to the main analysis. I further present the dynamics of treatment effects in appendix figures A.21, A.22 and A.23. Overall, trends and main takeaways remain unchanged, and this exercise provides further support that it is unlikely that my results are mainly driven by mobility.

## 5.6 Only a Supply Effect or More? Evidence on Gender Gap in Education

Access to Islamic schools comes bundled with an increase in the supply of school, as the latter is a natural consequence of the former. Thus, one may be concerned about the effects are merely driven by the supply of an additional schools in district centers, instead of access to Islamic schooling, which eliminates direct and indirect barriers arising from strictly secular institutions for religious communities. If there are no

capacity constraints that prevent school-age individuals from participating in secondary education, then the supply effect would be less of a concern. The district centers are the most urbanized centers of their vicinity with full access to primary, lower secondary, and upper secondary schools during the period of analysis. Yet, table 1 shows that older female cohorts are about 45% less likely to complete lower secondary school relative to older male cohorts. While the gap decreases for the younger cohorts, we still see a substantial difference between male and female secondary education completion rates. Since there were not any gender-related institutional restrictions on participation in secular schools, the gender gap in education cannot be solely explained by capacity constraints.

To analyze this phenomenon further, I benefit from growing access to Islamic schools that happened around the same period for both men and women and discover the heterogeneous effect of the treatment between genders. Here, I focus on exposed cohorts who were at age of 11 or younger in 1977. Therefore, I exclude the first three fully-exposed male cohorts from this analysis as women of same cohorts had no access to Islamic schools. I use a specification akin to triple-differences strategy by interacting every term in equation (2) with  $I_g$  variable indicating gender of an individual and estimate the following equation on the pooled sample of men and women:

$$y_{ipdc} = \beta(Young_c \times Islamic_{pd} \times I_g) + \theta^m(Young_c \times Islamic_{pd}) + \gamma_d I_g + \eta_{pc} I_g + \sum_c \alpha_c \log(pop70)_{pd} I_g + \epsilon_{ipdc}, \quad (4)$$

where  $\beta = \theta^f - \theta^m$  is the coefficient of interest that captures the change in gender differences in educational attainment after access to Islamic schools. As I interact every term in equation (2) with  $I_g$ ;  $\gamma_d I_g$  and  $\eta_{pc} I_g$  are full sets of gender-specific fixed effects. I also include interaction between cohort dummies, gender indicator and  $\log(pop70)_{pd}$  that is natural log of the population size of district center d in 1970. I cluster standard

errors at the district center level.

Table 5 presents the estimates of the triple differences specification outlined in equation (4) on the educational attainment in different levels of education. Column 1 in Panel A shows that the exposed female cohorts are 1.2 percentage points (s.e=0.8 p.p.) more likely to complete lower secondary school compared to exposed male cohorts that experienced expanding access to Islamic schools around a similar period. This corresponds to a 9% reduction in gender gap in relative terms. The estimated coefficient for upper secondary school completion rates are similar in magnitude and more precisely estimated. As one would expect, the estimated coefficients for the likelihood of primary schooling in column 3 is insignificant and similar to placebo coefficients. Access to Islamic schools only reduces the gender gap for the level of education targeted by the treatment. As shown in panel b, there is no statistically significant effect for placebo access that imaginarily assumed access to Islamic schools happened 20 years earlier in 1957. The coefficient in column 1 is negative, indicating that the gender gap was enlarging in favor of men. Access to Islamic schools in 1977 reverted this trend and decreased the gender gap in favor of women. The evidence on the gender gap supports that the supply of additional schools did not merely drive the effect, but it was due to eliminating cultural barriers on participation in secondary education and achieving more inclusive institutions for female students from religious and conservative families.

## 6 Concluding Remarks

This paper studies impacts of a culturally inclusive policy change that removed religion-based barriers to education stem from strictly secular institutions in Turkey by providing Islamic schools as an alternative to secular schools. Using cohort variation in exposure and district center level variation in the availability of Islamic schools, I estimate the effects of access to Islamic schools in Turkey during the 1970s and 1980s.

The results reveal that, being seen as religious-friendly schools, Islamic schools managed to attract women from religious communities to stay in schools and led to an overall increase in secondary levels of education. The effect for men was small and insignificant, implying that men were primarily substituting secular schools with Islamic schools. The results further reveal that women staying in schools accompanied by outcomes that were initially aims of secularization effort of the new Turkish republic, such as lower fertility at early adulthood, delayed pregnancies, and higher labor force participation.

The findings of this article have two main implications. First, this paper implies that cultural constraints play a remarkable role in parent's decisions about their children's educational participation under specific circumstances. Differential effects by gender further indicate that cultural constraints to participating in education primarily were binding for girl children from religious families in the Turkish context. This suggests an asymmetry in parent's trust in secular schools by the gender of children. Second, it shows that, when the cultural backlash exists, culturally inclusive policies that eliminate cultural barriers can effectively reverse the backlash and increase overall levels of education within the population. Although Islamic schools were habitually inclusive towards pious by nature, providing a safer school environment that removes a mixture of gender- and religion-related barriers may be sufficient to keep girls in schooling regardless of religious school status. Nevertheless, cultural exclusion is a reality for other identities, including ethnicity, sexual orientation, migration, displacement, and race ([United Nations Educational and Organization, 2020](#)). It is therefore essential that policies designing educational institutions have a culturally inclusive nature.

At this point, it is vital to highlight limitations related to my study's external validity. Particularly, I analyze the impact of access to Islamic schools in the Turkish context during a period of strong secular institutions, where secondary education was low and voluntary. Thus, my results cannot be generalized automatically to the expansion of the Islamic school network in Turkey that happened during the last decade. Modern-day

Turkey has a twelve-years compulsory education law and remarkably high female participation in education. The strictness of secular institutions also has gotten significantly looser during Islamist AKP party rule relative to my analysis period.<sup>33</sup> Notwithstanding, findings reported here are mostly relevant for low-income Muslim countries with remarkably religious populations and strong secular institutions, so further investigations are needed in other institutional settings. Non-Arabic Muslim countries in Africa with the world's lowest levels of female education may be a relevant region to study, as those countries have both religion- and ethnic-based cultural constraints due to their colonial assimilation history.<sup>34</sup> Therefore, more investigation is needed concerning cultural barriers towards other sorts of cultural identities.

Another direction for future work is to investigate further the impacts of Islamic schools, particularly state-run schools, on outcomes such as religious and political identity shaping. Finally, future work may examine the causal effects of Islamic schooling on academic performance. One implication of this paper was that men were mainly substituting secular schools with Islamic schools. Although religious content of curriculum did not come at the expense of secular content in my context, it usually replaces a portion of secular content in many others. Therefore, it is important to learn about the general welfare effects of Islamic schooling on societies.

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<sup>33</sup>Many of the laws that restrict the role of religion in public life have changed during the rule of Islamist party AKP since 2002.

<sup>34</sup>The role of culture on education in Africa have been a focal point in various fields of social sciences (e.g. Brenner, 2007; Csapo, 1981; Moumouni, 1968; Nduka, 1964; Niles, 1989; Platas, 2018).

## References

- Abdelgadir, Aala and Vasiliki Fouka**, "Political Secularism and Muslim Integration in the West: Assessing the Effects of the French Headscarf Ban," *American Political Science Review*, 2020, 114 (3), 707–723.
- Adukia, Anjali**, "Sanitation and education," *American Economic Journal: Applied Economics*, 2017, 9 (2), 23–59.
- Akerlof, George A and Rachel E Kranton**, "Economics and identity," *The Quarterly Journal of Economics*, 2000, 115 (3), 715–753.
- and —, "Identity and schooling: Some lessons for the economics of education," *Journal of economic literature*, 2002, 40 (4), 1167–1201.
- Alesina, Alberto Francesco and Bryony Reich**, "Nation building," 2015.
- Alesina, Alberto, Sebastian Hohmann, Stelios Michalopoulos, and Elias Papaioannou**, "Religion and Educational Mobility in Africa," Working Paper, National Bureau of Economic Research 2020.
- Ali, Kecia**, *Marriage and slavery in early Islam*, Harvard University Press, 2010.
- Ansell, Ben and Johannes Lindvall**, "The political origins of primary education systems: Ideology, institutions, and interdenominational conflict in an era of nation-building," *American Political Science Review*, 2013, 107 (3), 505–522.
- Ashraf, Nava, Natalie Bau, Nathan Nunn, and Alessandra Voena**, "Bride price and female education," *Journal of Political Economy*, 2020, 128 (2), 591–641.
- Bandiera, Oriana, Myra Mohnen, Imran Rasul, and Martina Viarengo**, "Nation-building through compulsory schooling during the age of mass migration," *The Economic Journal*, 2019, 129 (617), 62–109.

—, Niklas Buehren, Robin Burgess, Markus Goldstein, Selim Gulesci, Imran Rasul, and Munshi Sulaiman, “Women’s empowerment in action: evidence from a randomized control trial in Africa,” *American Economic Journal: Applied Economics*, 2020, 12 (1), 210–59.

**Barro, Robert J and Rachel M McCleary**, “Religion and Economic Growth across Countries, *American Sociological Review*,” 2003, 68, 760–781.

**Bazzi, Samuel, Masyhur Hilmy, and Benjamin Marx**, “Islam and the State: Religious Education in the Age of Mass Schooling,” Working Paper, National Bureau of Economic Research 2020.

**Bisin, Alberto and Thierry Verdier**, ““Beyond the melting pot”: cultural transmission, marriage, and the evolution of ethnic and religious traits,” *The Quarterly Journal of Economics*, 2000, 115 (3), 955–988.

— and —, “The economics of cultural transmission and the dynamics of preferences,” *Journal of Economic theory*, 2001, 97 (2), 298–319.

**Brenner, Louis**, “The transformation of Muslim schooling in Mali: The madrasa as an institution of social and religious mediation,” *Schooling Islam: The culture and politics of modern Muslim education*, 2007, pp. 199–223.

**Burde, Dana and Leigh L Linden**, “Bringing education to Afghan girls: A randomized controlled trial of village-based schools,” *American Economic Journal: Applied Economics*, 2013, 5 (3), 27–40.

**Cantoni, Davide, Yuyu Chen, David Y Yang, Noam Yuchtman, and Y Jane Zhang**, “Curriculum and ideology,” *Journal of Political Economy*, 2017, 125 (2), 338–392.

**Carvalho, Jean-Paul**, “Veiling,” *The Quarterly Journal of Economics*, 2013, 128 (1), 337–370.

— and Mark Koyama, “Resisting education,” GMU Working Paper in Economics 2016.

**Chaisemartin, Clément De and Xavier d'Haultfoeuille**, "Two-way fixed effects estimators with heterogeneous treatment effects," *American Economic Review*, 2020, 110 (9), 2964–96.

**Clots-Figueras, Irma and Paolo Masella**, "Education, language and identity," *The Economic Journal*, 2013, 123 (570), F332–F357.

**Corekcioglu, Gozde**, "Unveiling the effects of a headscarf ban: Evidence from municipal jobs in Turkey," *Journal of Comparative Economics*, 2021, 49 (2), 382–404.

**Csapo, Marg**, "Religious, social and economic factors hindering the education of girls in northern Nigeria," *Comparative education*, 1981, 17 (3), 311–319.

**DİE**, "Milli Eğitim İstatistikleri Mesleki ve Teknik öğretim 1967-73," *Ankara: Devlet İstatistik Enstitüsü Yayınları*, 1977.

**Doepke, Matthias, Michele Tertilt, and Alessandra Voena**, "The economics and politics of women's rights," *Annu. Rev. Econ.*, 2012, 4 (1), 339–372.

**Duflo, Esther**, "Schooling and labor market consequences of school construction in Indonesia: Evidence from an unusual policy experiment," *American economic review*, 2001, 91 (4), 795–813.

—, "Women empowerment and economic development," *Journal of Economic literature*, 2012, 50 (4), 1051–79.

**Durakbaşa, Ayşe and Funda Karapehlivan**, "Progress and Pitfalls in Women's Education in Turkey (1839-2017)," *Encounters in Theory and History of Education*, 2018, 19, 70–89.

**Educational, Scientific United Nations and Cultural Organization**, "Global Education Monitoring Report 2020: Inclusion and Education: All Means All," 2020.

**Evans, David K and Amina Mendez Acosta**, "Education in Africa: What Are We Learning?," *Journal of African Economies*, 2021, 30 (1), 13–54.

— and Fei Yuan, *What We Learn about Girls' Education from Interventions that Do Not Focus on Girls*, The World Bank, 2019.

**Fouka, Vasiliki**, "Backlash: The unintended effects of language prohibition in US schools after World War I," *The Review of Economic Studies*, 2020, 87 (1), 204–239.

**Guiso, Luigi, Paola Sapienza, and Luigi Zingales**, "Does culture affect economic outcomes?," *Journal of Economic perspectives*, 2006, 20 (2), 23–48.

**Iannaccone, Laurence R**, "Introduction to the Economics of Religion," *Journal of Economic Literature*, 1998, 36 (3), 1465–1495.

**Iyer, Sriya**, "The new economics of religion," *Journal of Economic Literature*, 2016, 54 (2), 395–441.

**Jayachandran, Seema**, "The roots of gender inequality in developing countries," *Annual Review of Economics*, 2015, 7 (1), 63–88.

— , "Social norms as a barrier to women's employment in developing countries," *IMF Economic Review*, 2021, pp. 1–20.

**Kaplan, Sam**, *The pedagogical state: Education and the politics of national culture in post-1980 Turkey*, Stanford University Press, 2006.

**Kazianga, Harounan, Dan Levy, Leigh L Linden, and Matt Sloan**, "The effects of "girl-friendly" schools: Evidence from the BRIGHT school construction program in Burkina Faso," *American Economic Journal: Applied Economics*, 2013, 5 (3), 41–62.

**Kim, Jooseop, Harold Alderman, and Peter F Orazem**, "Can private school subsidies increase enrollment for the poor? The Quetta Urban Fellowship Program," *The World Bank Economic Review*, 1999, 13 (3), 443–465.

**Kuran, Timur**, "Islam and economic performance: Historical and contemporary links," *Journal of Economic Literature*, 2018, 56 (4), 1292–1359.

**Landau, Jacob M**, "The National Salvation Party in Turkey," *Asian and African Studies*, 1976, 11 (1).

**Meyersson, Erik**, "Islamic Rule and the Empowerment of the Poor and Pious," *Econometrica*, 2014, 82 (1), 229–269.

**Moumouni, A.**, *Education in Africa*, F. A. Praeger, 1968.

**Muralidharan, Karthik and Nishith Prakash**, "Cycling to school: Increasing secondary school enrollment for girls in India," *American Economic Journal: Applied Economics*, 2017, 9 (3), 321–50.

**Nduka, O.A.**, *Western Education and the Nigerian Cultural Background*, Oxford University Press, 1964.

**Niles, F Sushila**, "Parental attitudes toward female education in northern Nigeria," *The Journal of social psychology*, 1989, 129 (1), 13–20.

**Öcal, Mustafa**, "100. Yılında İmam–Hatip Liseleri," *Ensar Neşriyat, İstanbul*, 2013.

**Ozgur, Iren**, *Islamic schools in modern Turkey: Faith, politics, and education* number 39, Cambridge University Press, 2012.

**Özsoy, Ceyda and Sevilay Atlama**, "An Analysis of Trends in Female Labor Force Participation in Turkey," *Proceedings of the Challenge for Analysis of the Economy, the Businesses, and Social Progress*, 2009.

**Özüdoğru, Şükrü**, *Kuruluşundan bugüne Türkiye'de imam hatip liseleri ve Konya İmam Hatip Lisesi: 1951-1991: 40. yıl*, S. Özüdoğru, 1991.

**Pak, Soon-Yong**, "Articulating the Boundary between Secularism and Islamism: The Imam-Hatip Schools of Turkey," *Anthropology & education quarterly*, 2004, 35 (3), 324–344.

**Platas, Melina R**, "Culture and the Persistence of Educational Inequality: Lessons from the Muslim–Christian Education Gap in Africa," *New York University Abu Dhabi Working Paper*, 2018.

**Sakalli, Seyhun Orcan**, "Secularization and religious backlash: Evidence from Turkey," Working Paper 2019.

**Squicciarini, Mara P**, "Devotion and development: religiosity, education, and economic progress in nineteenth-century France," *American Economic Review*, 2020, 110 (11), 3454–91.

**Szyliowicz, Joseph S**, *Education and modernization in the Middle East*, Cornell University Press Ithaca, NY, 1973.

**Tabellini, Guido**, "Culture and institutions: economic development in the regions of Europe," *Journal of the European Economic association*, 2010, 8 (4), 677–716.

**UNESCO**, "Education for All 2000-2015: achievements and challenges; EFA global monitoring report," Technical Report, UNESCO Publishing, Paris 2015.

**Zaim, Sabahaddin**, "The Development of Educational System in Turkey (The Impact of Westernization On The Education)," *İstanbul Üniversitesi İktisat Fakültesi Mecmuası*, 1987, 45 (1-4).

**Table 1:** Summary Statistics

**(a) Panel A. Women**

	Old Cohorts			Young Cohorts		
	Obs.	Mean	S.D.	Obs.	Mean	S.D.
Lower Secondary School Completed	137644	0.28	0.45	161900	0.40	0.49
Upper Secondary School Completed	137644	0.21	0.40	91409	0.28	0.45
Primary School Completed	137644	0.83	0.38	161900	0.90	0.30
Ever Married	123542	0.92	0.27	95847	0.51	0.50
Total Births	123484	2.29	1.63	95805	0.57	0.91
1+ Births	123484	0.86	0.35	95805	0.37	0.48
2+ Births	123484	0.71	0.45	95805	0.15	0.35
3+ Births	123484	0.38	0.49	95805	0.04	0.19
Age at First Birth	88243	21.23	3.56	21746	19.25	2.38
Participate Work Force	123547	0.21	0.41	95853	0.24	0.43
Worked Last Week	123539	0.20	0.40	95842	0.18	0.39

**(b) Panel B. Men**

	Old Cohorts			Young Cohorts		
	Obs.	Mean	S.D.	Obs.	Mean	S.D.
Lower Secondary School Completed	144172	0.45	0.50	230658	0.50	0.50
Upper Secondary School Completed	144172	0.33	0.47	151445	0.35	0.48
Primary School Completed	144172	0.96	0.20	230658	0.96	0.19

**(c) Panel C. Distict-centers**

	Without Islamic School					With Islamic School				
	Obs.	Mean	Min	Max	S.D.	Obs.	Mean	Min	Max	S.D.
1970 Population	521	8934	358	418082	29518	373	27491	1318	417662	47436
1990 Population	521	19624	802	712304	60662	373	61935	2250	1328276	123352
1973 Islamist Vote	521	0.10	0.00	0.75	0.11	373	0.11	0.00	0.52	0.09
Province Capital	521	0.05	0	1	0.21	373	0.22	0	1	0.41

*Notes:* The table reports summary statistics on education related outcomes of old cohorts (aged between 13-22 in 1977 for women and in 1974 for men) and young cohorts (aged between 2-11 in 1977 for women and aged between -1 and 11 in 1974 for men) in Panel A and Panel B. In panel A, table reports summary statistics on family and labor outcomes for women, excluding individuals reside in Southeast and Eastern Turkey. Panel C reports district-center level characteristics based on 1970 and 1990 Population Census and 1973 general elections data.

**Table 2:** Access to Islamic Schools and Educational Attainment

(a) Panel A. Women

	Outcome: [...] School Completed					
	Lower Secondary (1)	Upper Secondary (2)	Upper Secondary (3)	Upper Secondary (4)	Primary (5)	Primary (6)
Islamic x Young	0.016* (0.009)	0.021*** (0.008)	0.011 (0.007)	0.017*** (0.005)	-0.000 (0.007)	0.006 (0.005)
Outcome Mean	0.342	0.342	0.236	0.236	0.867	0.867
R <sup>2</sup>	0.090	0.096	0.072	0.077	0.164	0.175
N	299544	299544	229053	229053	299544	299544
Clusters	894	894	894	894	894	894
District-center FE	✓	✓	✓	✓	✓	✓
Cohort FE	✓		✓		✓	
Province-by-cohort FE		✓		✓		✓
1970 Population Control		✓		✓		✓

(b) Panel B. Men

	Outcome: [...] School Completed					
	Lower Secondary (1)	Upper Secondary (2)	Upper Secondary (3)	Upper Secondary (4)	Primary (5)	Primary (6)
Islamic x Young	0.010 (0.007)	0.010 (0.006)	-0.000 (0.006)	0.003 (0.006)	0.000 (0.002)	0.003 (0.002)
Outcome Mean	0.476	0.476	0.336	0.336	0.960	0.960
R <sup>2</sup>	0.042	0.049	0.037	0.045	0.055	0.062
N	374830	374830	295617	295617	374830	374830
Clusters	894	894	894	894	894	894
District-center FE	✓	✓	✓	✓	✓	✓
Cohort FE	✓		✓		✓	
Province-by-cohort FE		✓		✓		✓
1970 Population Control		✓		✓		✓

*Notes:* This table reports estimates of equation (2) separately for women and men, respectively. The sample contains only the individuals reside in a district-center in 1990. Islamic refers to district centers with an Islamic school in 1980. Young refers to cohorts aged less than 11 in 1977 for women, and in 1974 for men. Population control includes log of 1970 district-center population sizes interacted with cohort dummies. Odd columns only control for district-center and age-cohort fixed effects. Even columns control for district-center FE, province-by-cohort FE, and population size in 1970.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors clustered by district center of residence.

**Table 3:** Access to Islamic School and Educational Attainment for Rural Sample (Placebo Test)

**(a) Panel A. Women**

Outcome: [...] School Completed			
	Lower Secondary (1)	Upper Secondary (2)	Primary (3)
Islamic x Young	0.003 (0.004)	0.004 (0.003)	-0.006 (0.007)
Outcome Mean	0.078	0.045	0.742
R <sup>2</sup>	0.073	0.050	0.317
N	189762	132520	189762
Clusters	888	887	888
District-center FE	✓	✓	✓
Province-by-cohort FE	✓	✓	✓
1970 Population Control	✓	✓	✓

**(b) Panel B. Men**

Outcome: [...] School Completed			
	Lower Secondary (1)	Upper Secondary (2)	Primary (3)
Islamic x Young	0.009 (0.006)	0.009* (0.005)	-0.000 (0.004)
Outcome Mean	0.225	0.137	0.920
R <sup>2</sup>	0.072	0.046	0.137
N	207484	156142	207484
Clusters	890	890	890
District-center FE	✓	✓	✓
Province-by-cohort FE	✓	✓	✓
1970 Population Control	✓	✓	✓

*Notes:* This table reports estimates of equation (2) separately for women and men, respectively. The sample contains only the individuals reside in rural areas of districts in 1990. Islamic refers to district centers with an Islamic school in 1980. Young refers to cohorts aged less than 11 in 1977 for women, and in 1974 for men. Population control includes log of 1970 district-center population sizes interacted with cohort dummies. All specifications include district-center FE, province-by-cohort FE, and population size in 1970.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors clustered by district of residence.

**Table 4:** Access to Islamic School and Impacts on Family and Labor Outcomes

(a) Panel A. Full Sample

Outcome:	Ever Married (1)	1+ births (2)	Total Births (3)	2+ births (4)	3+ births (5)	Age at First birth (6)	Participate Labor Force (7)	Worked Last Week (8)
Islamic x Young	0.015 (0.012)	0.004 (0.006)	-0.063* (0.035)	-0.021* (0.012)	-0.031** (0.013)	0.039 (0.076)	0.029** (0.014)	0.025* (0.014)
Outcome Mean:	0.741	0.644	1.539	0.463	0.232	20.889	0.221	0.190
R <sup>2</sup>	0.315	0.347	0.390	0.381	0.257	0.106	0.039	0.043
N	219389	219289	219289	219289	219289	109270	219400	219381
Clusters	750	750	750	750	750	745	750	750
District-Center FE	✓	✓	✓	✓	✓	✓	✓	✓
Province-by-Cohort FE	✓	✓	✓	✓	✓	✓	✓	✓
1970 Population Control	✓	✓	✓	✓	✓	✓	✓	✓
Small Sample								

(b) Panel B. Small Sample

Outcome:	Ever Married (1)	1+ births (2)	Total Births (3)	2+ births (4)	3+ births (5)	Age at First birth (6)	Participate Labor Force (7)	Worked Last Week (8)
Islamic x Young	0.014 (0.011)	-0.001 (0.005)	-0.077** (0.033)	-0.026* (0.014)	-0.032*** (0.011)	0.089 (0.069)	0.030** (0.015)	0.027* (0.014)
Outcome Mean:	0.671	0.555	1.248	0.347	0.146	20.391	0.223	0.184
R <sup>2</sup>	0.276	0.303	0.342	0.313	0.196	0.120	0.039	0.044
N	164126	164052	164052	164052	164052	65989	164136	164119
Clusters	750	750	750	750	750	725	750	750
District-Center FE	✓	✓	✓	✓	✓	✓	✓	✓
Province-by-Cohort FE	✓	✓	✓	✓	✓	✓	✓	✓
1970 Population Control	✓	✓	✓	✓	✓	✓	✓	✓
Small Sample	✓	✓	✓	✓	✓	✓	✓	✓

Notes: This table reports estimates of equation (2) for female subsample. The sample contains only the individuals reside in a district-center in 1990, excluding eastern and southeastern regions of Turkey. Islamic refers to district centers with an Islamic school in 1980. Young refers to cohorts aged less than 11 and older than 4 in 1977. Full sample includes age-cohort 22 and younger in 1977, while small sample includes age-cohort 17 and younger in 1977. Population control includes log of 1970 district-center population sizes interacted with cohort dummies. All specifications include district-center FE, province-by-cohort FE, and population size in 1970.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors clustered by district center of residence.

**Table 5:** Heterogeneous Effects on Education by Gender

(a) Panel A. Islamic school access in 1977

	Outcome: [...] School Completed		
	Lower Secondary (1)	Upper Secondary (2)	Primary (3)
Islamic x Young x Female	0.012 (0.008)	0.012* (0.006)	0.004 (0.007)
Islamic x Young	0.010 (0.007)	0.005 (0.007)	0.002 (0.002)
Outcome Mean (Men - Women)	0.142	0.112	0.107
R <sup>2</sup>	0.095	0.077	0.180
N	608829	459125	608829
Clusters	894	894	894
District-center FE	✓	✓	✓
Province-by-cohort FE	✓	✓	✓
1970 Population Control	✓	✓	✓

(b) Panel B. Placebo Islamic school access in 1957

	Outcome: [...] School Completed		
	Lower Secondary (1)	Upper Secondary (2)	Primary (3)
Islamic x 1957 Placebo x Female	-0.011 (0.008)	-0.006 (0.007)	0.007 (0.010)
Islamic x 1957 Placebo	0.011 (0.008)	0.009 (0.007)	0.004 (0.006)
Outcome Mean (Men - Women)	0.185	0.134	0.279
R <sup>2</sup>	0.137	0.113	0.261
N	331266	331266	331266
Clusters	894	894	894
District-center FE	✓	✓	✓
Province-by-cohort FE	✓	✓	✓
1970 Population Control	✓	✓	✓

*Notes:* This table reports estimates of equation (4). The sample contains only the individuals reside in district centers in 1990. Islamic refers to district centers with an Islamic school in 1980. Young refers to cohorts aged between 2-11 in 1977 for the main experiment in Panel (a). In Panel (b), 1957 Placebo refers to cohorts aged between 2-11 in 1957. Young and 1957 Placebo dummies takes 0 for cohorts aged between 13-22 in 1977 for the main experiment and in 1957 for the placebo experiment. Female is an indicator of individual's gender. All specifications include interaction of gender indicator *Female* with district-center and province-by-cohort fixed effects, and log of the 1970 population of district-center interacted with cohort dummies.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors clustered by district center of residence.

**Table 6:** Heterogeneous Effects on Education by Islamist Party Vote Share

(a) Women

	Outcome: [...] School Completed					
	Lower Secondary		Upper Secondary		Primary	
	(1)	(2)	(3)	(4)	(5)	(6)
Islamic x Young	0.025*** (0.010)	0.019** (0.009)	0.013* (0.008)	0.009 (0.007)	0.007 (0.008)	0.008** (0.004)
Islamic x Young x Islamist V.S. Above Median	-0.003 (0.015)	-0.004 (0.012)	0.012 (0.010)	0.012 (0.009)	-0.002 (0.010)	-0.000 (0.006)
R <sup>2</sup>	0.100	0.100	0.080	0.081	0.180	0.182
N	299503	299503	229014	229014	299503	299503
Clusters	894	894	894	894	894	894
District-Center FE	✓	✓	✓	✓	✓	✓
Province-by-Cohort FE	✓	✓	✓	✓	✓	✓
1970 Population Control	✓	✓	✓	✓	✓	✓
Old Cohorts Education Control				✓		✓

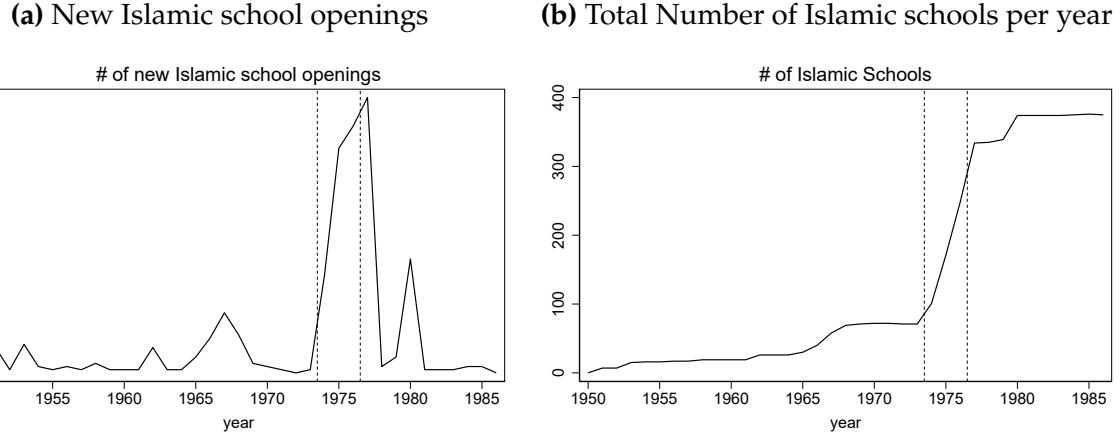
(b) Men - Conscription Cohorts Excluded

	Outcome: [...] School Completed					
	Lower Secondary		Upper Secondary		Primary	
	(1)	(2)	(3)	(4)	(5)	(6)
Islamic x Young	0.002 (0.008)	-0.001 (0.008)	-0.003 (0.008)	-0.005 (0.008)	-0.000 (0.003)	0.001 (0.002)
Islamic x Young x Islamist V.S. Above Median	0.014 (0.011)	0.011 (0.010)	0.022** (0.011)	0.015 (0.010)	0.003 (0.004)	0.003 (0.003)
R <sup>2</sup>	0.052	0.052	0.048	0.048	0.067	0.069
N	321990	321990	242780	242780	321990	321990
Clusters	894	894	894	894	894	894
District-Center FE	✓	✓	✓	✓	✓	✓
Province-by-Cohort FE	✓	✓	✓	✓	✓	✓
1970 Population Control	✓	✓	✓	✓	✓	✓
Conscription Cohorts Excluded	✓	✓	✓	✓	✓	✓
Old Cohorts Education Control				✓		✓

Notes: This table reports estimates of equation (4). The sample contains only the individuals reside in district centers in 1990. Islamic refers to district centers with an Islamic school in 1980. Young refers to cohorts aged between 2-11 in 1977 for women and in 1974 for men. Islamist V.S. Above Median indicates whether district center had above median Islamist vote share in the 1973 election. All specifications include district-center fixed effects and interactions of Islamist vote share above median indicator with province-by-cohort fixed effects and log of the 1970 population of district-center interacted with cohort dummies.

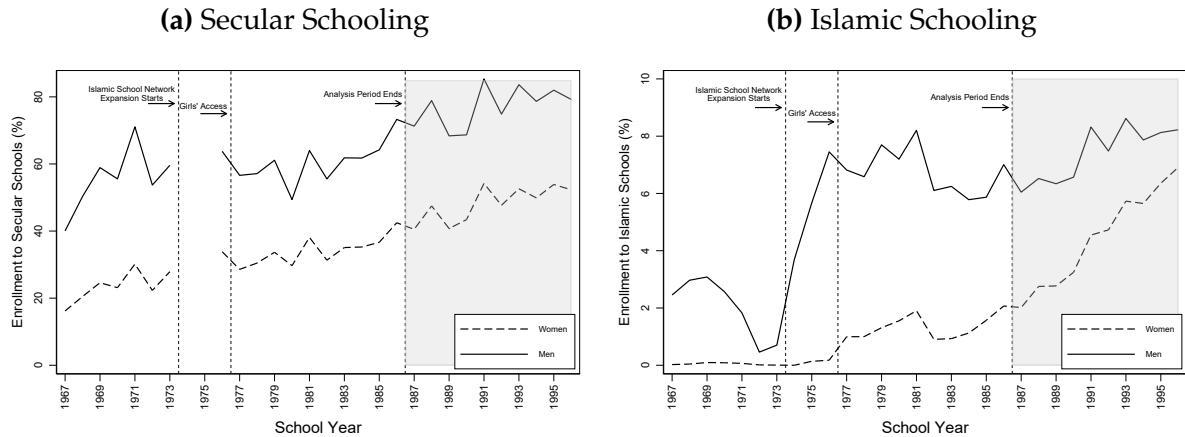
\*p<0.1, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors clustered by district center of residence.

**Figure 1: Evolution of Islamic School Numbers**



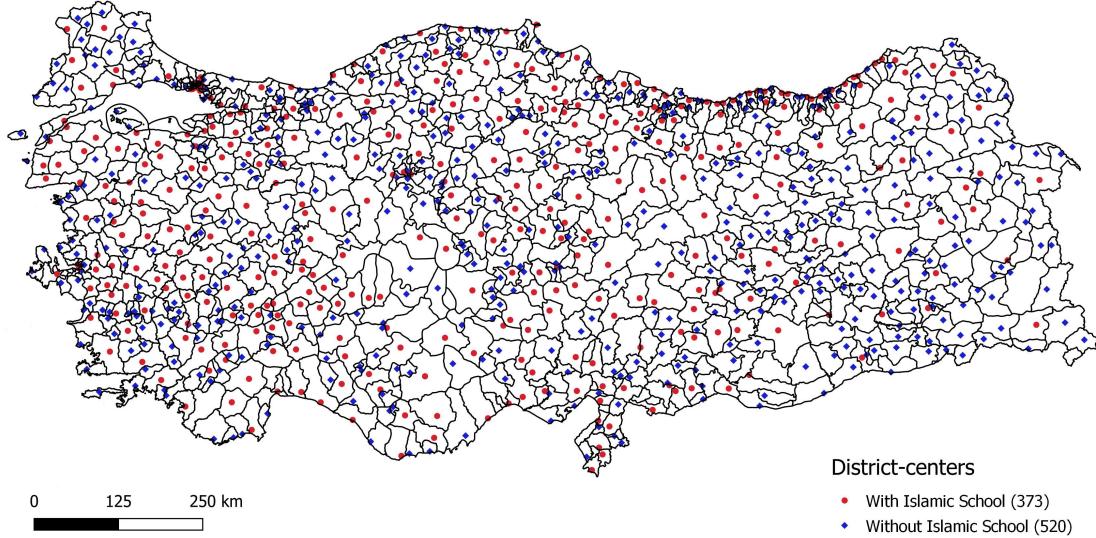
Notes: Panel (a) shows the distribution of opening years of all Islamic lower secondary schools in Turkey. Panel (b) shows the total number of open Islamic lower secondary schools in Turkey in a given year.

**Figure 2: Enrollment Rates to 6th Grade by School Types and Gender**



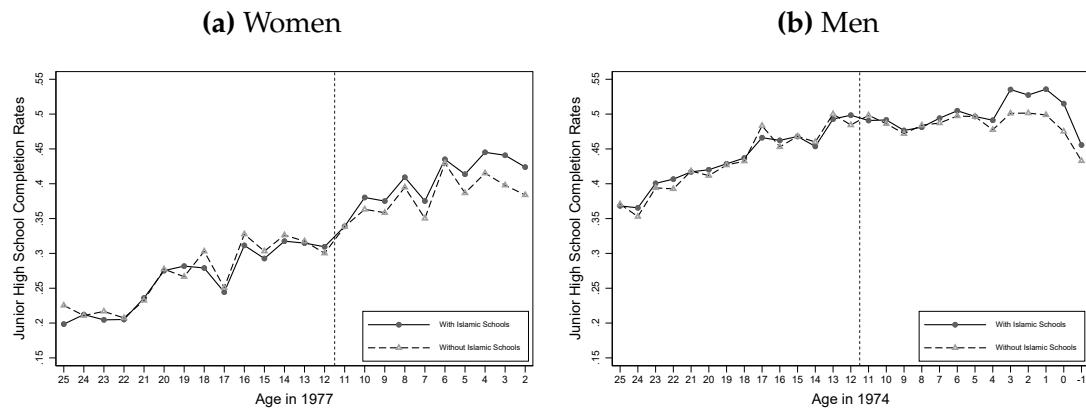
Notes: This figure shows the evolution of enrollment rates to 6th grade in a given school year by school type and gender. Enrollment rates calculated by dividing the total new students registered to theoretical cohort size of 6th graders for a given school year measured by using population censuses between 1970-1995.

**Figure 3: Locations of Islamic Schools**



Notes: Map of Turkey showing the geographic locations of Islamic schools in 1980. Each dot represents a district center as of 1990.

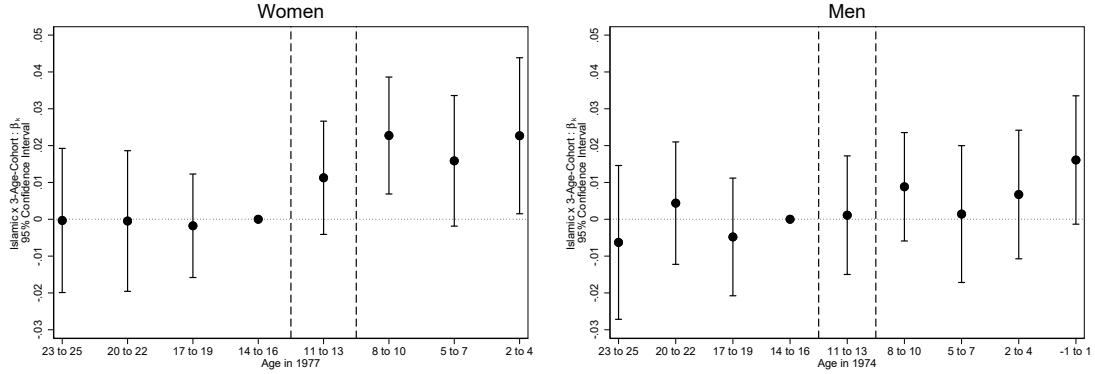
**Figure 4: Lower Secondary School Completion Rates - Raw Data**



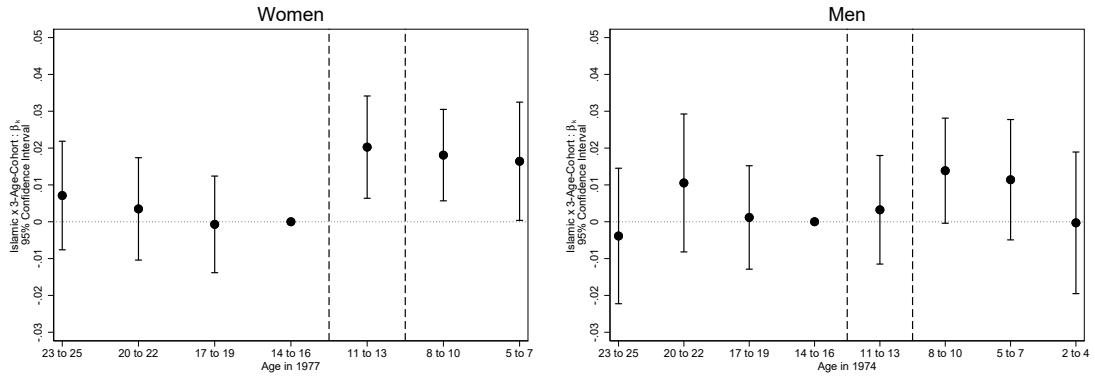
Notes: This figure shows the fraction of individuals that have completed lower secondary school residing in district centers with and without an Islamic school in 1980. Panel (a) and panel (b) restrict the sample to women and men, respectively. Cutoff years differ by gender as female students achieved legal rights to attend Islamic schools in 1977, three years after the expansion of Islamic school network. Cohorts on the right side of vertical dotted lines are fully exposed cohorts.

**Figure 5: Access to Islamic Schools and Education - Effects by 3-Age-Cohorts**

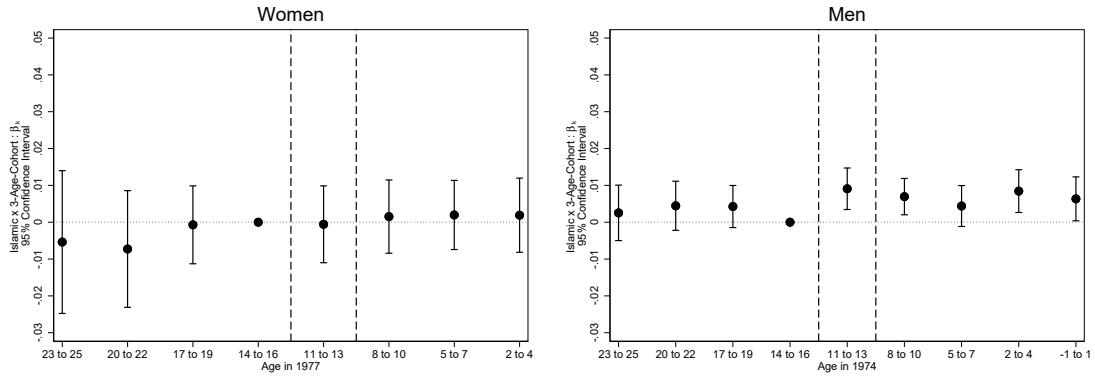
**(a) Dep. Var.: Lower Secondary School Completed**



**(b) Dep. Var.: Upper Secondary School Completed**

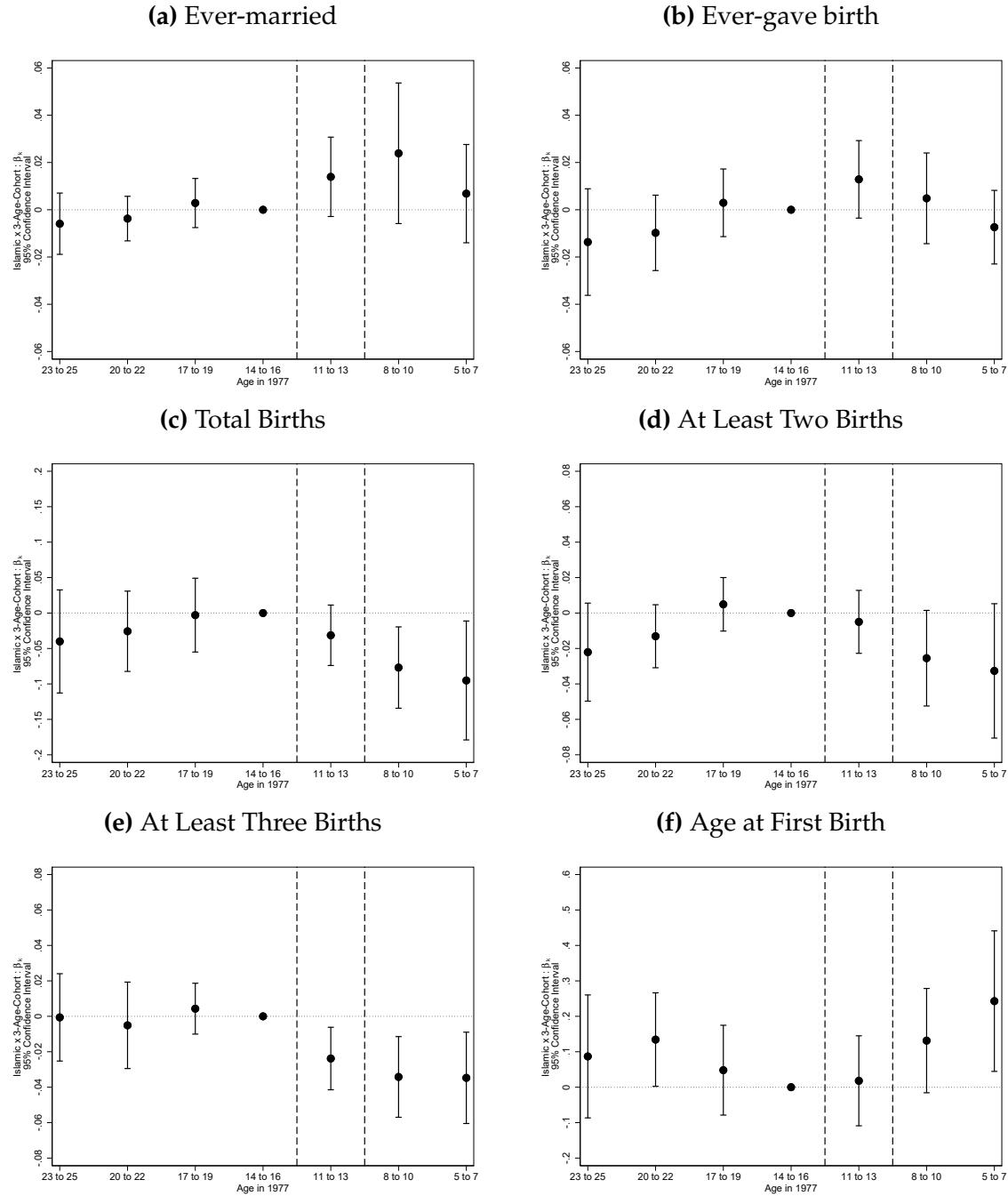


**(c) Dep. Var.: Primary School Completed (Placebo)**



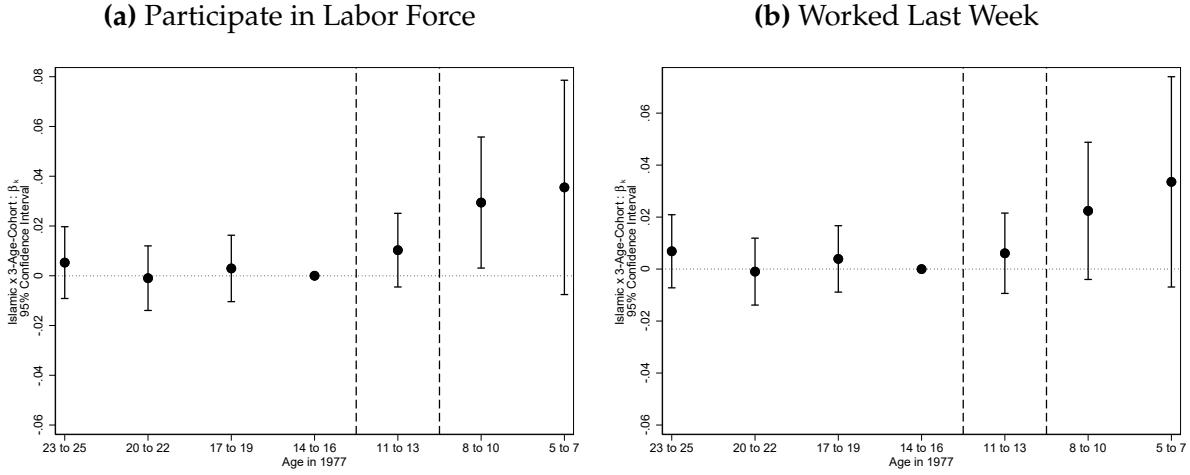
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women and men subsamples, respectively. The sample contains only the individuals reside in district centers in 1990. Islamic refers to district centers with an Islamic school in 1980. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district center of residence.

**Figure 6: Access to Islamic Schools and Family Outcomes - Effects by 3-Age-Cohorts**



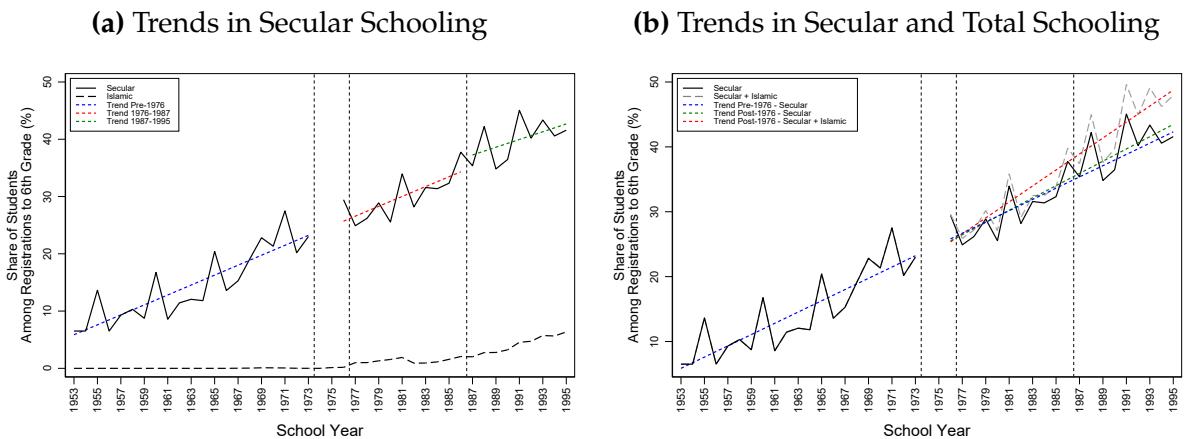
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district centers in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual has ever married in panel (a), ever gave birth in panel (b), given two or more births in panel (d), and given three or more births in panel (e). The dependent variables measure the total number of birth given in panel (c), and the age at first birth in panel (f). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 serve as the reference group. Standard errors clustered by district center of residence.

**Figure 7: Access to Islamic Schools and Labor Outcomes - Effects by 3-Age-Cohorts**



*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district-centers in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual participates labor force in panel (a), and was working the week prior to census in panel (b). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 serve as the reference group. Standard errors clustered by district center of residence.

**Figure 8: Evolution of School Enrollment Rates to 6th Grade for Women**



*Notes:* This figure shows the evolution of enrollment rates and its trends to 6th grade in a given school year by school type. Enrollment rates calculated by dividing the total new female students registered with respect to school type by the theoretical female cohort size of 6th graders for a given school year measured by using population censuses between 1950-1995.

## A Additional Tables

**Table A.1:** Access to Islamic Schools and Educational Attainment - Assigned according to 1985 residency

(a) Panel A. Women

	Outcome: [...] School Completed					
	Lower Secondary (1)	Upper Secondary (2)	Upper Secondary (3)	Upper Secondary (4)	Primary (5)	Primary (6)
Islamic x Young	0.018** (0.009)	0.015* (0.008)	0.017** (0.007)	0.015*** (0.005)	-0.001 (0.007)	0.004 (0.004)
Outcome Mean	0.343	0.343	0.238	0.238	0.868	0.868
R <sup>2</sup>	0.096	0.103	0.075	0.080	0.175	0.186
N	292292	292292	223363	223363	292292	292292
Clusters	894	894	894	894	894	894
District-center FE	✓	✓	✓	✓	✓	✓
Cohort FE	✓		✓		✓	
Province-by-cohort FE		✓		✓		✓
1970 Population Control		✓		✓		✓

(b) Panel B. Men

	Outcome: [...] School Completed					
	Lower Secondary (1)	Upper Secondary (2)	Upper Secondary (3)	Upper Secondary (4)	Primary (5)	Primary (6)
Islamic x Young	0.010 (0.007)	0.006 (0.007)	0.008 (0.006)	0.005 (0.006)	-0.001 (0.002)	0.001 (0.002)
Outcome Mean	0.477	0.477	0.337	0.337	0.961	0.961
R <sup>2</sup>	0.041	0.047	0.036	0.042	0.056	0.063
N	367962	367962	291159	291159	367962	367962
Clusters	894	894	894	894	894	894
District-center FE	✓	✓	✓	✓	✓	✓
Cohort FE	✓		✓		✓	
Province-by-cohort FE		✓		✓		✓
1970 Population Control		✓		✓		✓

*Notes:* This table reports estimates of equation (2) separately for women and men, respectively. The sample contains only the individuals reside in a district-center in 1985. Islamic refers to district centers with an Islamic school in 1980. Individuals assigned to treatment variable *Islamic* according to their residency in 1985. Young refers to cohorts aged less than 11 in 1977 for women, and in 1974 for men. Population control includes log of 1970 district-center population sizes interacted with cohort dummies. Odd columns only control for district-center and age-cohort fixed effects. Even columns control for district-center FE, province-by-cohort FE, and population size in 1970.

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors clustered by district center of residence.

**Table A.2:** Access to Islamic Schools and Educational Attainment - Robustness to different bandwidths

(a) Panel A. Women

		Outcome: [...] School Completed							
Bandwidth:		Lower Secondary			Upper Secondary		Primary		
		N=10 (1)	N=7 (2)	N=4 (3)	N=7 (4)	N=4 (5)	N=10 (6)	N=7 (7)	N=4 (8)
Islamic x Young		0.021*** (0.008)	0.020*** (0.007)	0.021*** (0.007)	0.017*** (0.005)	0.019*** (0.006)	0.006 (0.005)	0.005 (0.004)	0.005 (0.004)
Outcome Mean		0.342	0.341	0.333	0.236	0.235	0.867	0.872	0.876
R <sup>2</sup>		0.096	0.086	0.075	0.077	0.070	0.175	0.170	0.154
N		299544	208701	101254	229053	143199	299544	208701	101254
Clusters		894	894	888	894	892	894	894	888
District-center FE		✓	✓	✓	✓	✓	✓	✓	✓
Province-by-cohort FE		✓	✓	✓	✓	✓	✓	✓	✓
1970 Population Control		✓	✓	✓	✓	✓	✓	✓	✓

(b) Panel B. Men

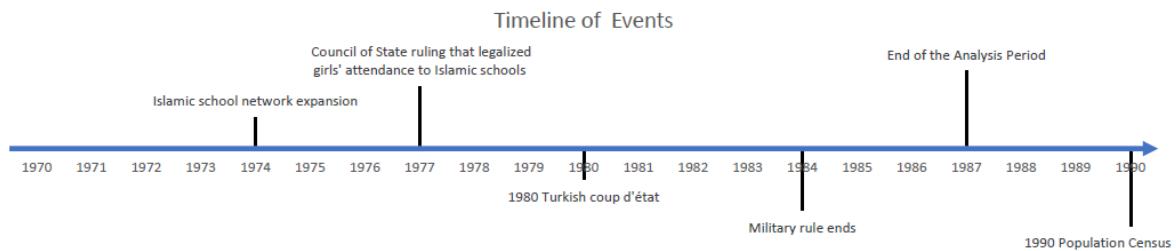
Outcome: [...] School Completed									
Bandwidth (Pre & Post):	Lower Secondary			Upper Secondary			Primary		
	N=10 N=13 (1)	N=7 N=10 (2)	N=4 N=7 (3)	N=10 (4)	N=7 (5)	N=4 (6)	N=10 N=13 (7)	N=7 N=10 (8)	N=4 N=7 (9)
Islamic x Young	0.010 (0.006)	0.009 (0.006)	0.008 (0.006)	0.003 (0.006)	0.011** (0.006)	0.002 (0.007)	0.003 (0.002)	0.003 (0.002)	0.002 (0.002)
Outcome Mean	0.476	0.481	0.483	0.336	0.340	0.344	0.960	0.962	0.964
R <sup>2</sup>	0.049	0.048	0.046	0.045	0.044	0.045	0.062	0.063	0.063
N	374830	277593	176098	295617	204921	114073	374830	277593	176098
Clusters	894	894	894	894	894	894	894	894	894
District-center FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Province-by-cohort FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
1970 Population Control	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: This table reports estimates of equation (2) separately for women and men, respectively. The sample contains only the individuals reside in a district-center in 1990. Islamic refers to district centers with an Islamic school in 1980. Young refers to cohorts aged less than 11 in 1977 for women, and in 1974 for men. Population control includes log of 1970 district-center population sizes interacted with cohort dummies. All specifications include district-center FE, province-by-cohort FE, and population size in 1970. Ever

\*p<0.1, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors clustered by district center of residence.

## B Additional Figures (Incomplete)

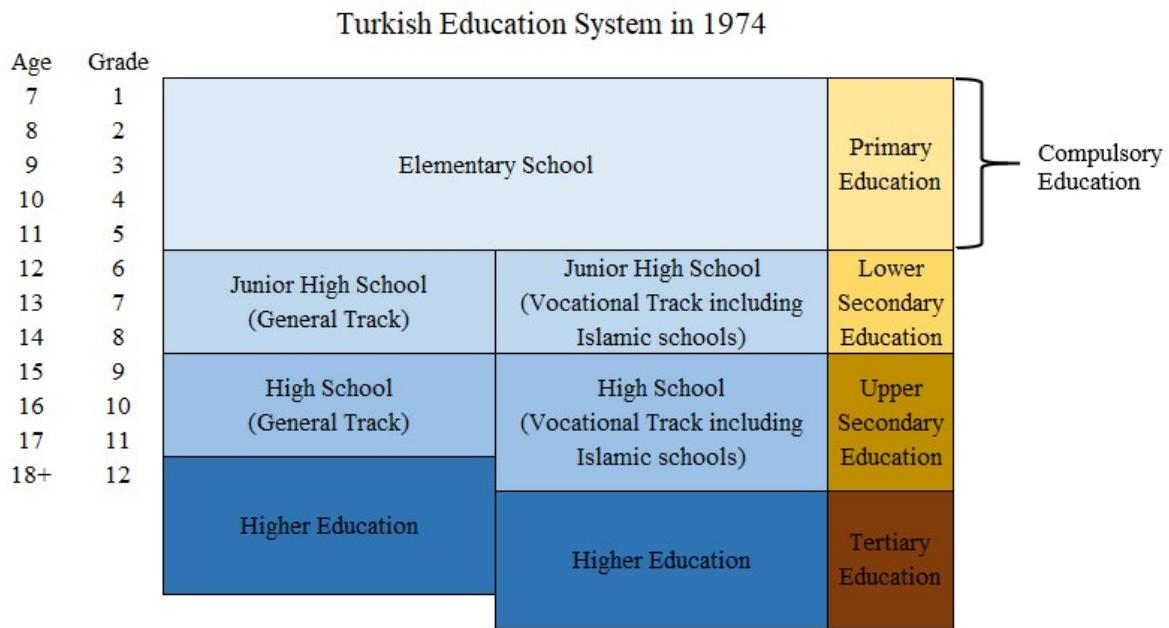
**Figure A.1:** Timeline of Events



**Figure A.2:** Curriculum of Islamic Schools in 1975

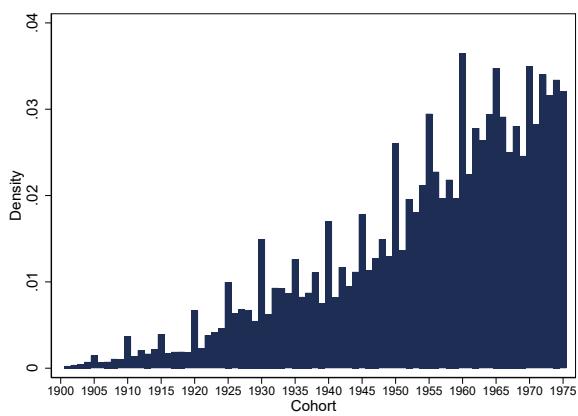
Islamic Junior High Schools		Islamic High Schools	
Common Courses	Cumulative	Common Courses	Cumulative
Turkish	15	Turkish Language and Literature	15
Maths	12	History	6
Social Studies	10	Art History	1
Science	9	Geography	6
Foreign Language	9	Maths	10
Arts	3	Physics	7
Music	3	Chemistry	5
Physical Education	3	Biology	5
Morals	3	Psychology	2
		Philosophy	6
		Morals	2
		Foreign Language	12
		Physical Education	3
		National Security	3
Total	67 (72%)	Total	83 (60%)
Religion Courses	Cumulative	Religion Courses	Cumulative
Quran	9	Quran	16
Arabic	9	Arabic	14
Religion Studies	8	Doctrines	2
		Islamic Theology	2
		Religious Studies	6
		Islamic Jurisprudence	2
		Quranic Exegesis	6
		Prophetic Tradition	6
		Life of Prophet	1
		Public Speaking	2
Total	26 (28%)	Total	57 (40%)

**Figure A.3:** Turkish Education System in the 1970s

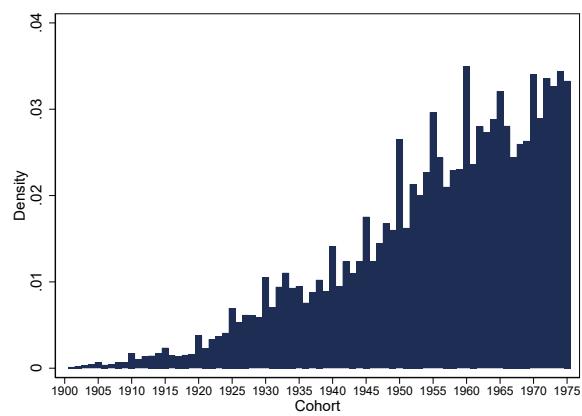


**Figure A.4:** Cohort Size Histograms

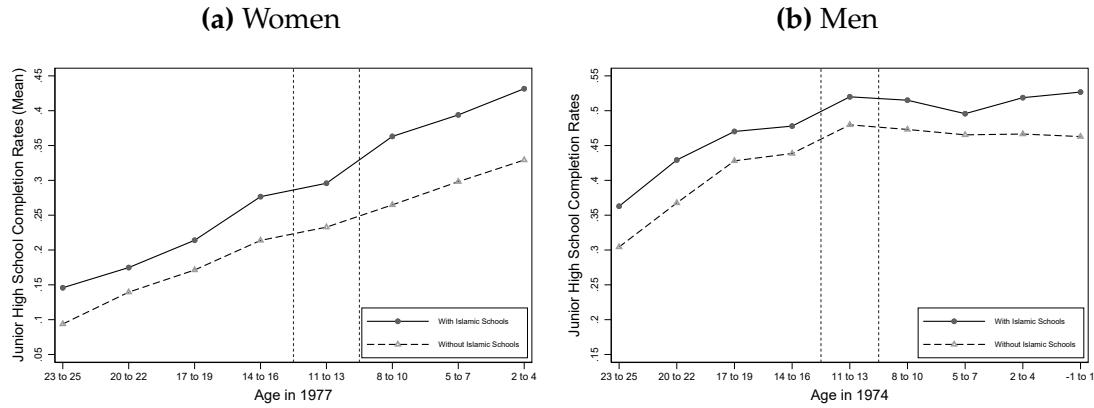
**(a) Women**



**(b) Men**

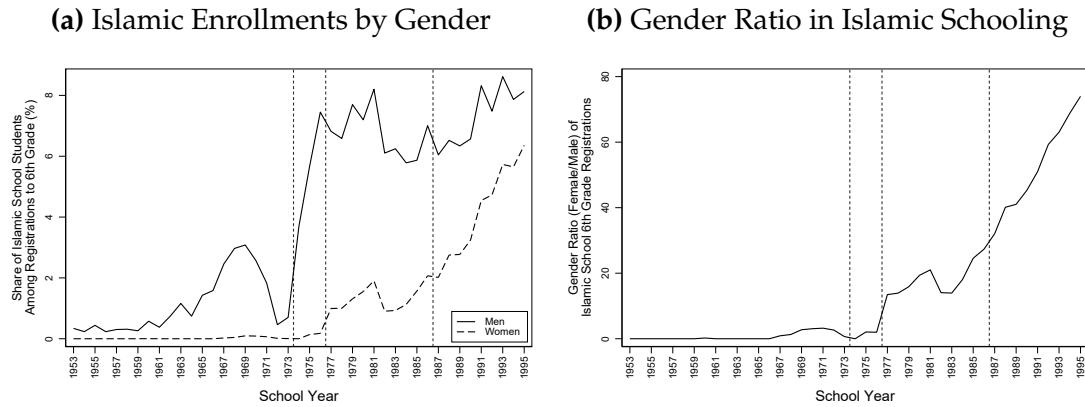


**Figure A.5: Lower Secondary School Completion Rates in Means - Raw Data**



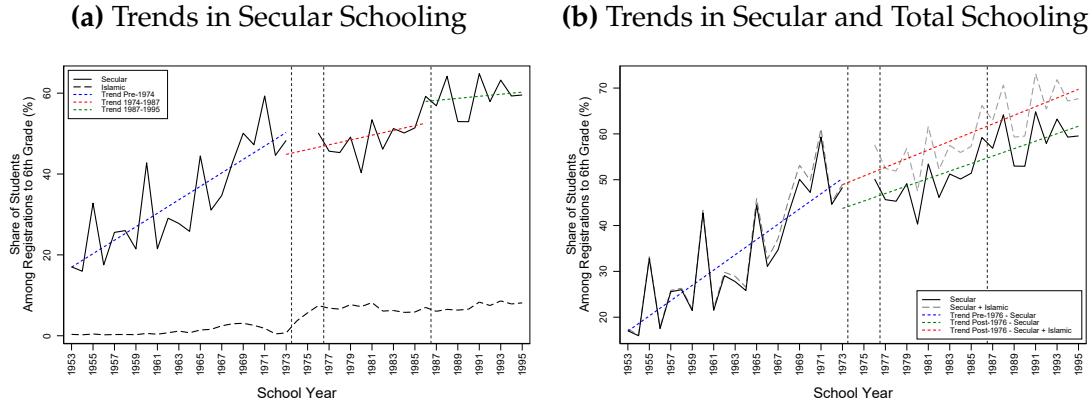
*Notes:* This figure shows mean lower secondary school completion rates in district centers with and without an Islamic school in 1980. Panel (a) and panel (b) restrict the sample to women and men, respectively. Cutoff years differ by gender as female students achieved legal rights to attend Islamic schools in 1977, three years after the expansion of Islamic school network. Cohorts on the right side of vertical dotted lines are fully exposed cohorts.

**Figure A.6: Evolution of Islamic School Enrollment Rates to 6th Grade**



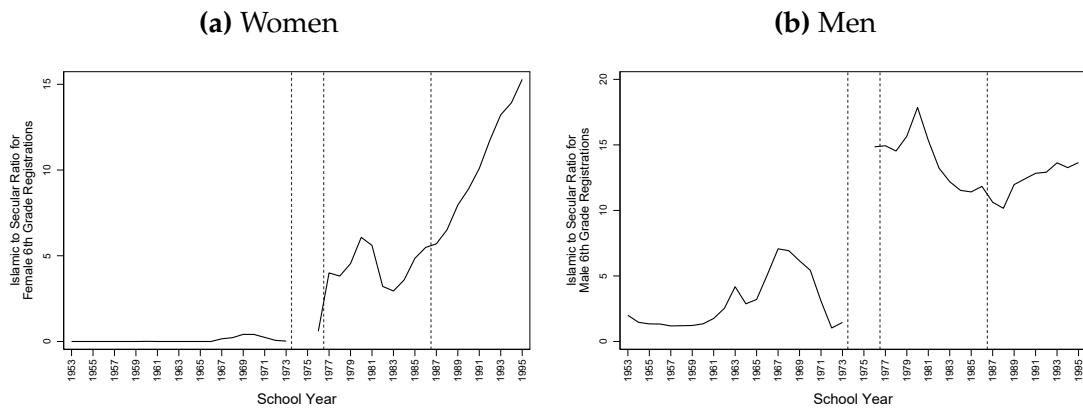
*Notes:* This figure shows the evolution of Islamic school 6th grade enrollment rates in a given school year. Enrollment rates calculated by dividing the Islamic school students registered to 6th grade by the theoretical cohort size of 6th graders for a given school year measured by using population censuses between 1950-1995.

**Figure A.7: Evolution of School Enrollment Rates to 6th Grade for Men**



*Notes:* This figure shows the evolution of enrollment rates and its trends to 6th grade in a given school year by school type. Enrollment rates calculated by dividing the total new male students registered with respect to school type by the theoretical male cohort size of 6th graders for a given school year measured by using population censuses between 1950-1995.

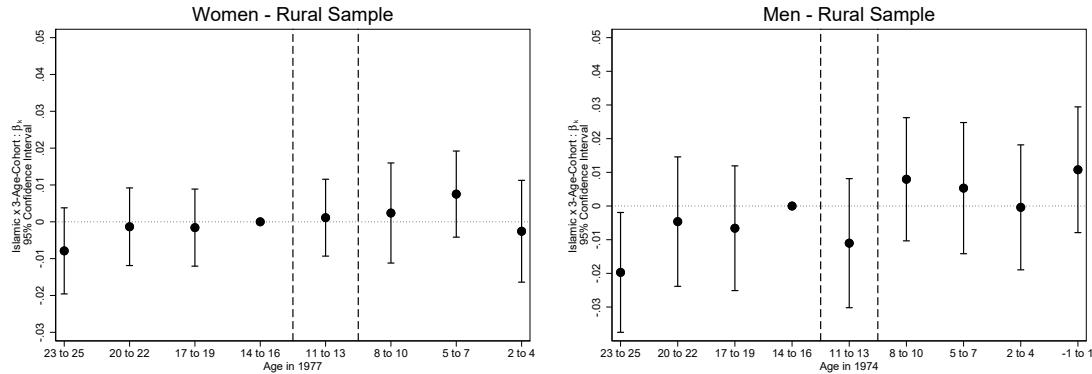
**Figure A.8: Secular to Islamic 6th Grade Enrollment Ratio**



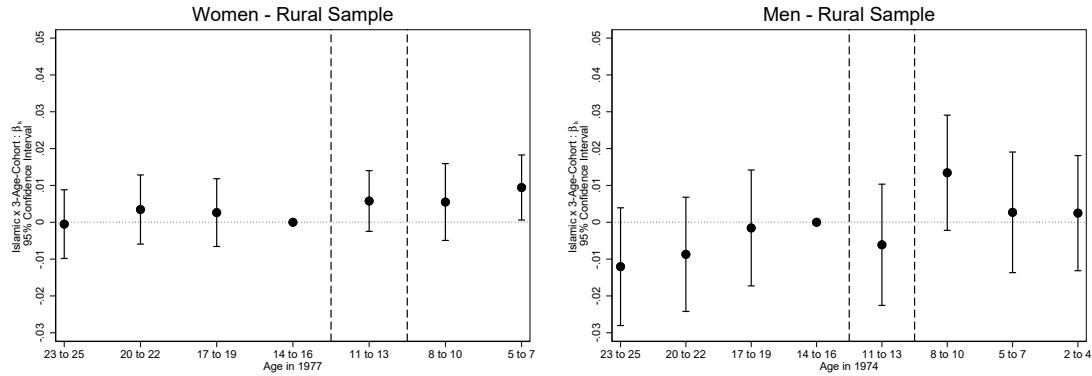
*Notes:* This figure shows the evolution of ratios in enrollment rates to 6th grade in a given school year by school type. Enrollment ratios calculated by dividing Islamic school enrollments to secular school enrollments for a given schooling year for each gender.

**Figure A.9:** Access to Islamic Schools and Education in Rural Sample (Placebo) - Effects by 3-Age-Cohorts

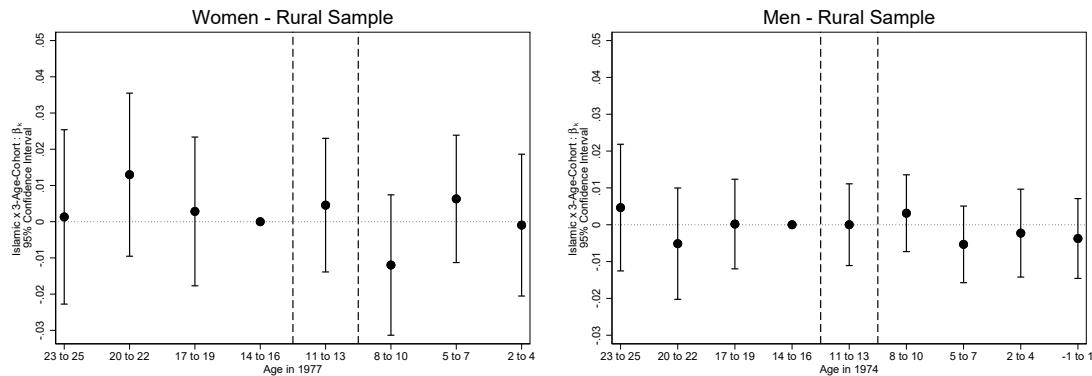
(a) Dep. Var.: Lower Secondary School Completed



(b) Dep. Var.: Upper Secondary School Completed

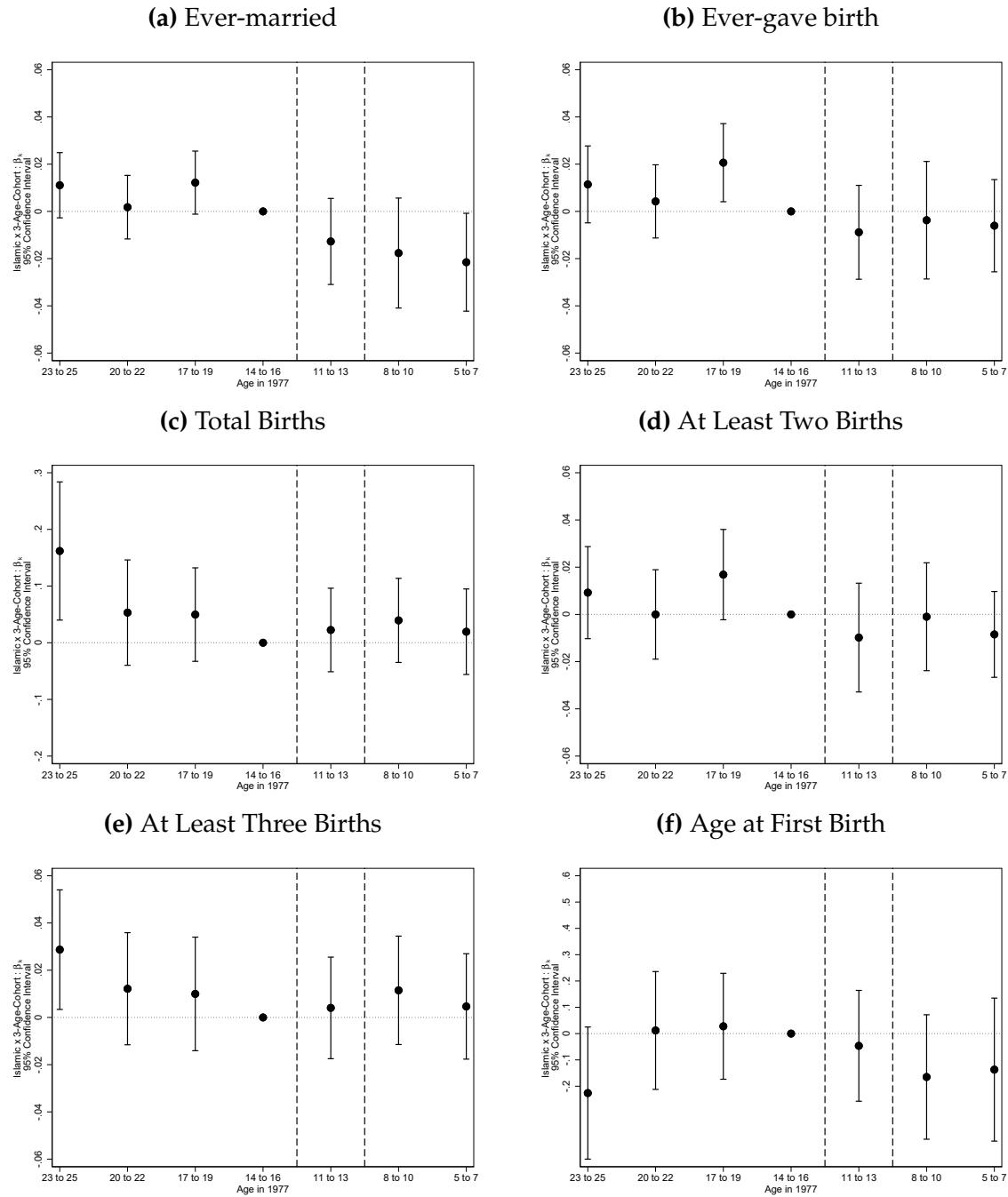


(c) Dep. Var.: Primary School Completed



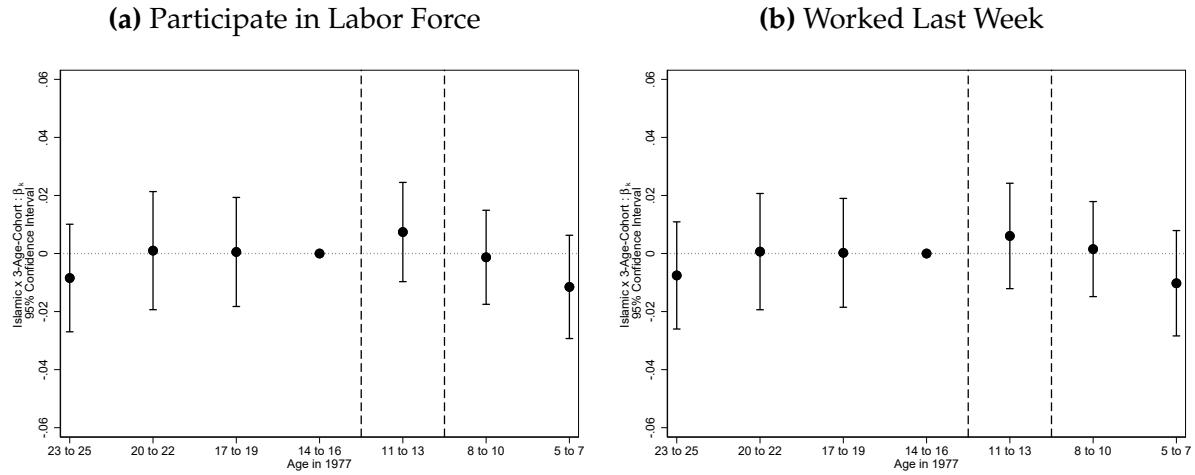
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women and men subsamples, respectively. The sample contains only the individuals reside in rural areas of districts in 1990. Islamic refers to areas that its district-center had an Islamic school in 1980. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district of residence.

**Figure A.10:** Access to Islamic Schools and Family Outcomes in Rural Sample (Placebo) - Effects by 3-Age-Cohorts



*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in rural areas of districts in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual has ever married in panel (a), ever gave birth in panel (b), given two or more births in panel (d), and given three or more births in panel (e). The dependent variables measure the total number of birth given in panel (c), and the age at first birth in panel (f). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district of residence.

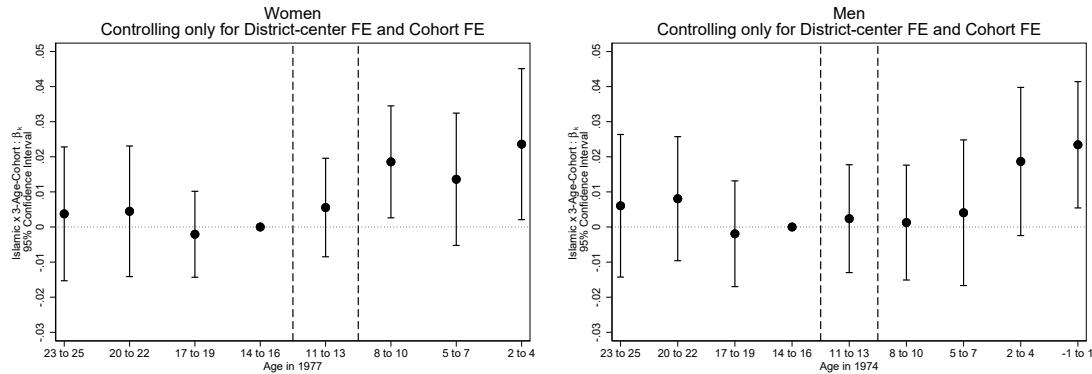
**Figure A.11:** Access to Islamic Schools and Labor Outcomes in Rural Sample (Placebo) - Effects by 3-Age-Cohorts



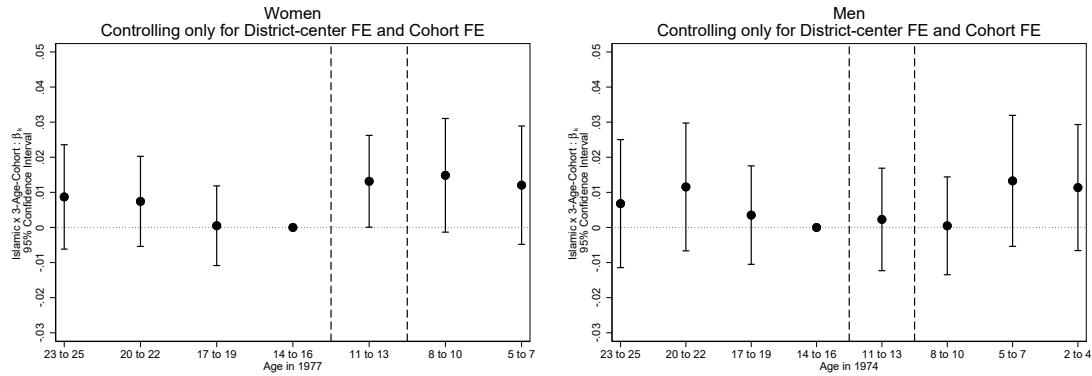
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in rural areas of districts in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual participates labor force in panel (a), and was working the week prior to census in panel (b). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district of residence.

**Figure A.12:** Access to Islamic Schools and Education without controls - Effects by 3-Age-Cohorts

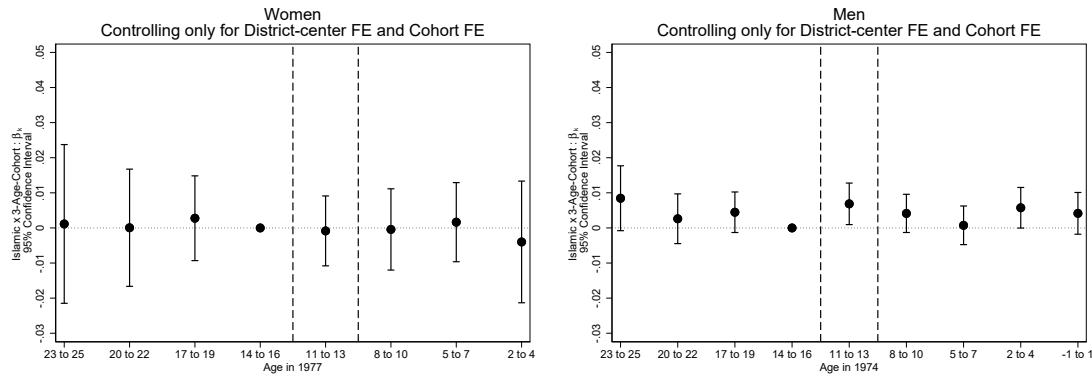
(a) Dep. Var.: Lower Secondary School Completed



(b) Dep. Var.: Upper Secondary School Completed

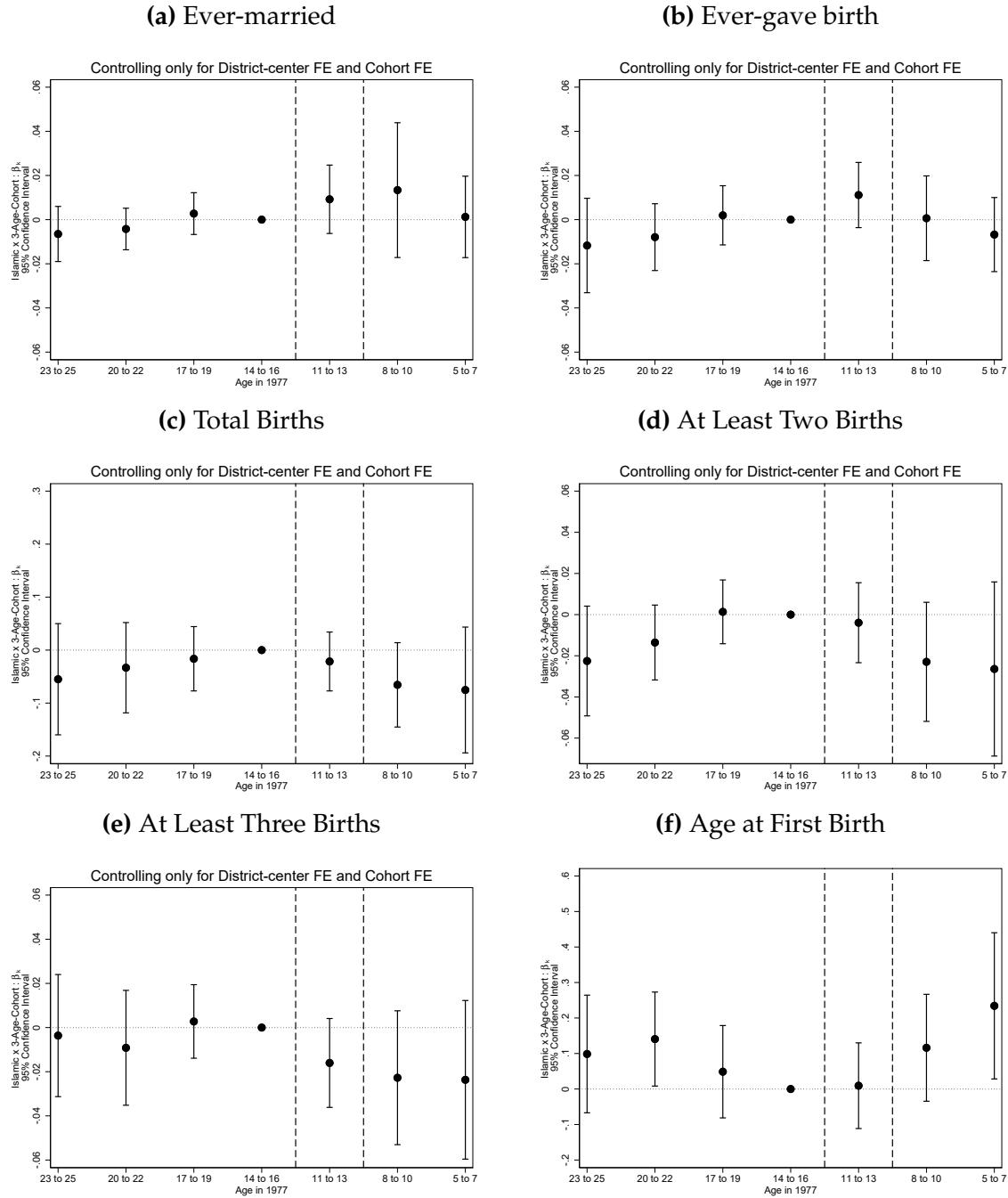


(c) Dep. Var.: Primary School Completed (Placebo)



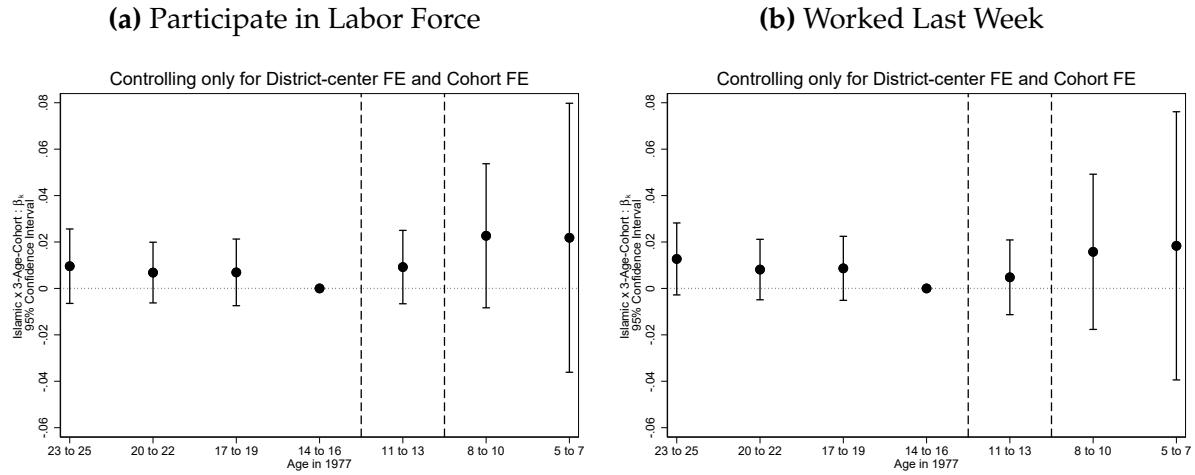
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women and men subsamples, respectively. The sample contains only the individuals reside in district centers in 1990. Islamic refers to district centers with an Islamic school in 1980. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include district-center and age-cohort fixed effects. Cohorts between two vertical lines include half fully-exposed and half partially-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district center of residence.

**Figure A.13: Access to Islamic Schools and Family Outcomes without controls - Effects by 3-Age-Cohorts**



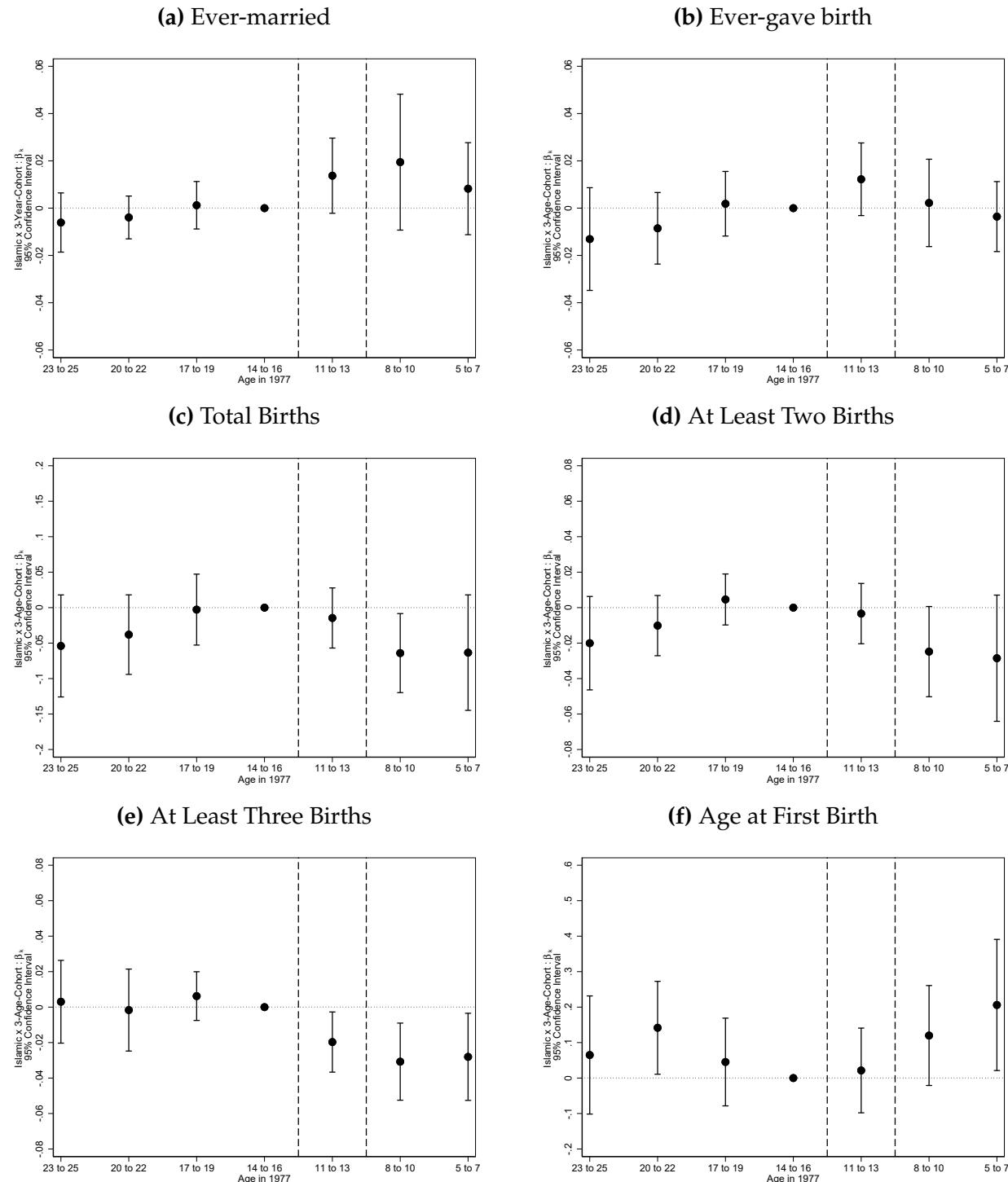
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district centers in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual has ever married in panel (a), ever gave birth in panel (b), given two or more births in panel (d), and given three or more births in panel (e). The dependent variables measure the total number of birth given in panel (c), and the total number of child mortality in panel (f). All specifications include district-center and age-cohort fixed effects. Cohorts between two vertical lines include half fully-exposed and half partially-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 serve as the reference group. Robust standard errors clustered by district center of residence.

**Figure A.14:** Access to Islamic Schools and Labor Outcomes without controls - Effects by 3-Age-Cohorts



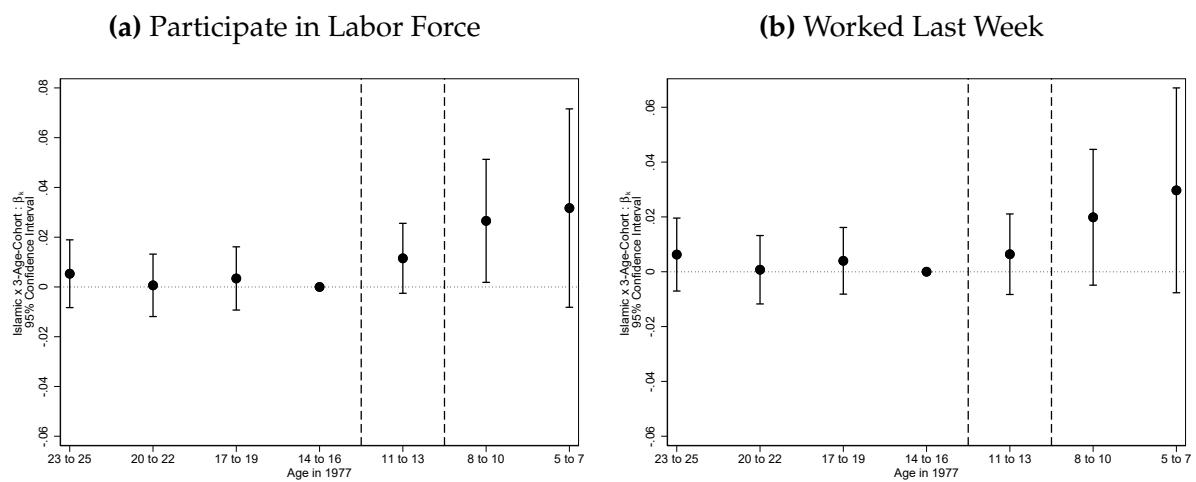
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district centers in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual participates labor force in panel (a), and was working the week prior to census in panel (b). All specifications include district-center and age-cohort fixed effects. Cohorts between two vertical lines include half fully-exposed and half partially-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 serve as the reference group. Robust standard errors clustered by district center of residence.

**Figure A.15: Access to Islamic Schools and Family Outcomes - Effects by 3-Age-Cohorts - Full Sample**



Notes: This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district centers in 1990. The dependent variables include an indicator equal to one if the individual has ever married in panel (a), ever gave birth in panel (b), given two or more births in panel (d), and given three or more births in panel (e). The dependent variables measure the total number of birth given in panel (c), and the age at first birth in panel (f). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district center of residence.

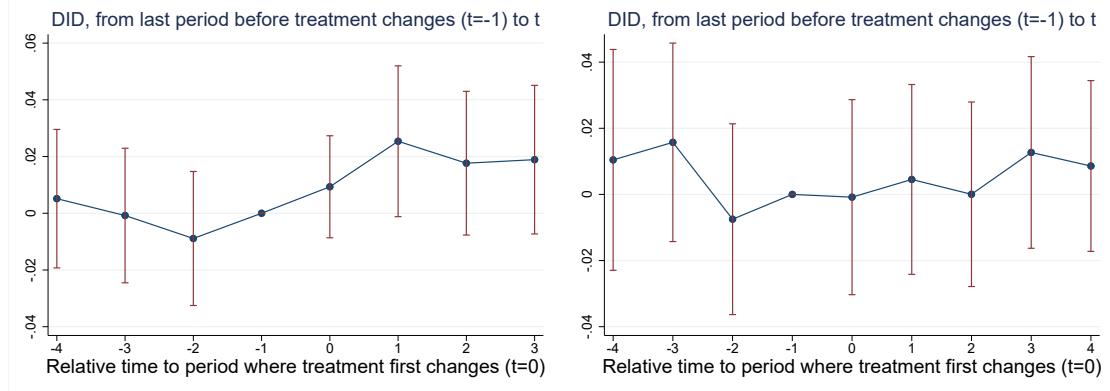
**Figure A.16:** Access to Islamic Schools and Labor Outcomes - Effects by 3-Age-Cohorts - Full Sample



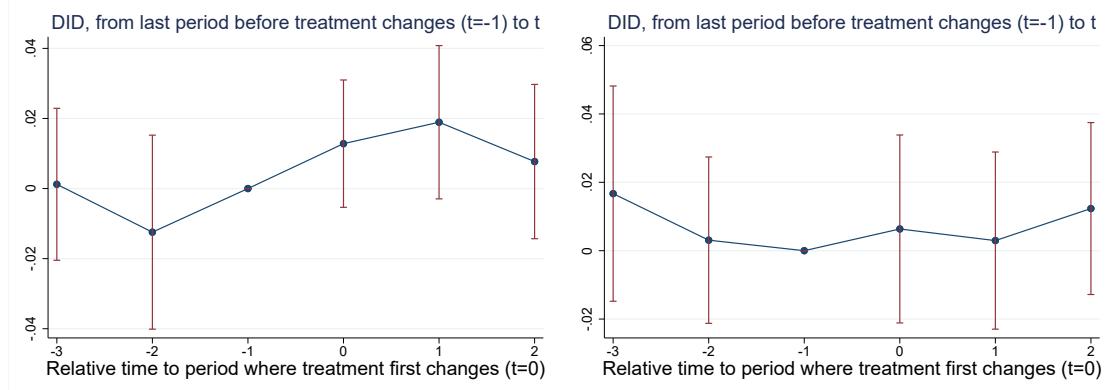
Notes: This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district-centers in 1990. The dependent variables include an indicator equal to one if the individual participates labor force in panel (a), and was working the week prior to census in panel (b). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts between two vertical lines include half fully-exposed and half non-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977. Standard errors clustered by district center of residence.

**Figure A.17:** Access to Islamic Schools and Education with  $DID_M$  estimator

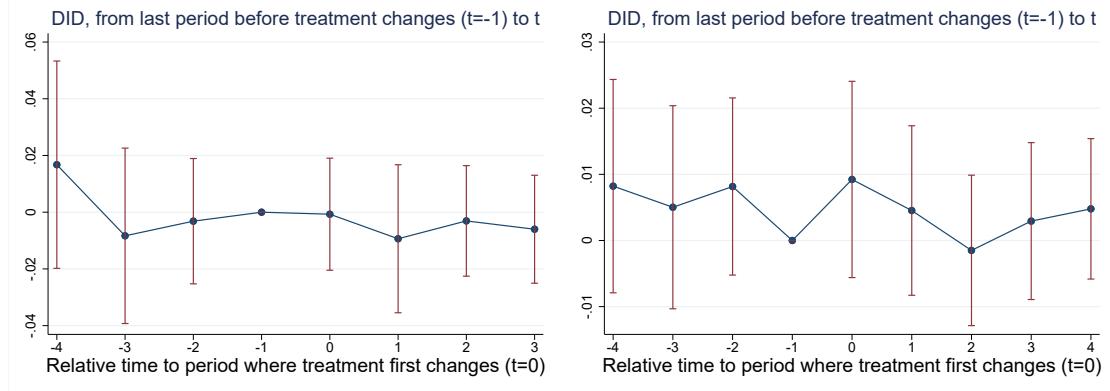
**(a) Dep. Var.: Lower Secondary School Completed**



**(b) Dep. Var.: Upper Secondary School Completed**



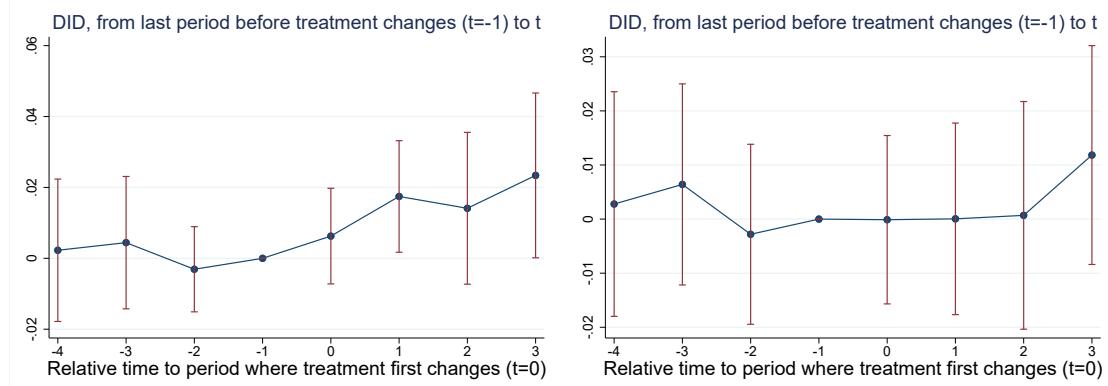
**(c) Dep. Var.: Primary School Completed (Placebo)**



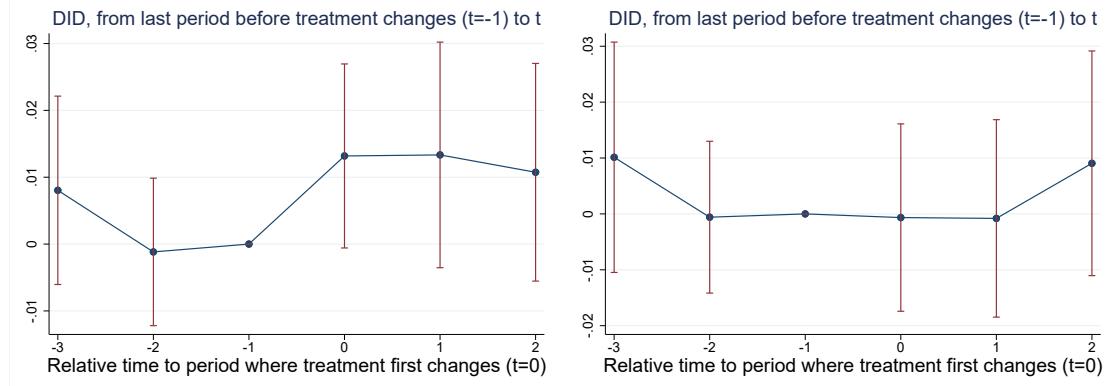
*Notes:* This figure reports coefficients and 95% confidence intervals of the  $DID_M$  estimators according to [De Chaisemartin and d'Haultfoeuille \(2020\)](#) methodology using `did_multipleGT` command in Stata for women and men subsamples, respectively. The sample contains only the individuals reside in district centers in 1990. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include log of the 1970 population of district center and non-parametric province trends as controls. Standard errors clustered by district center of residence.

**Figure A.18:** Access to Islamic Schools and Education with  $DID_M$  estimator - No controls

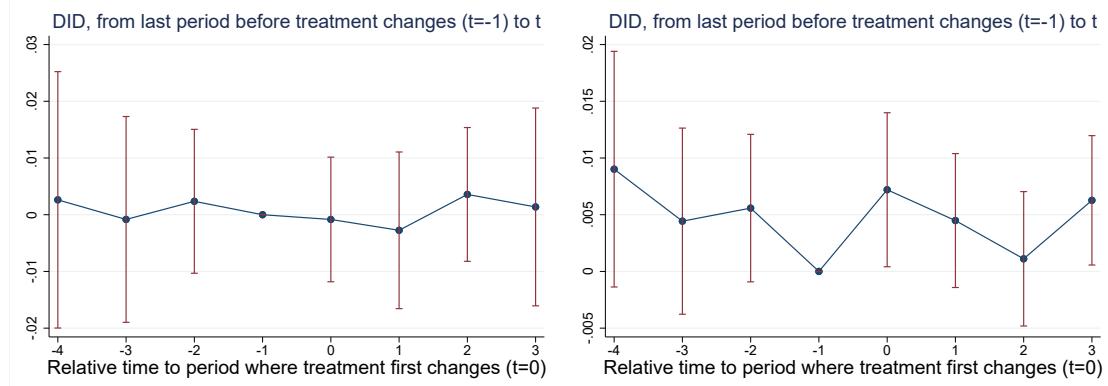
(a) Dep. Var.: Lower Secondary School Completed



(b) Dep. Var.: Upper Secondary School Completed

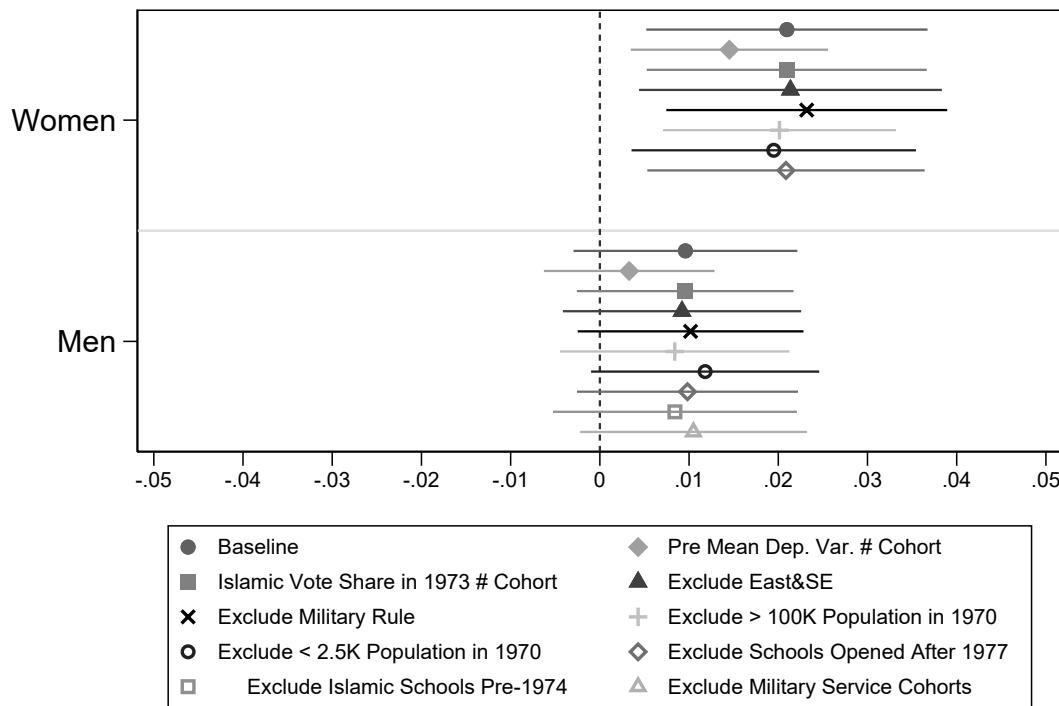


(c) Dep. Var.: Primary School Completed (Placebo)



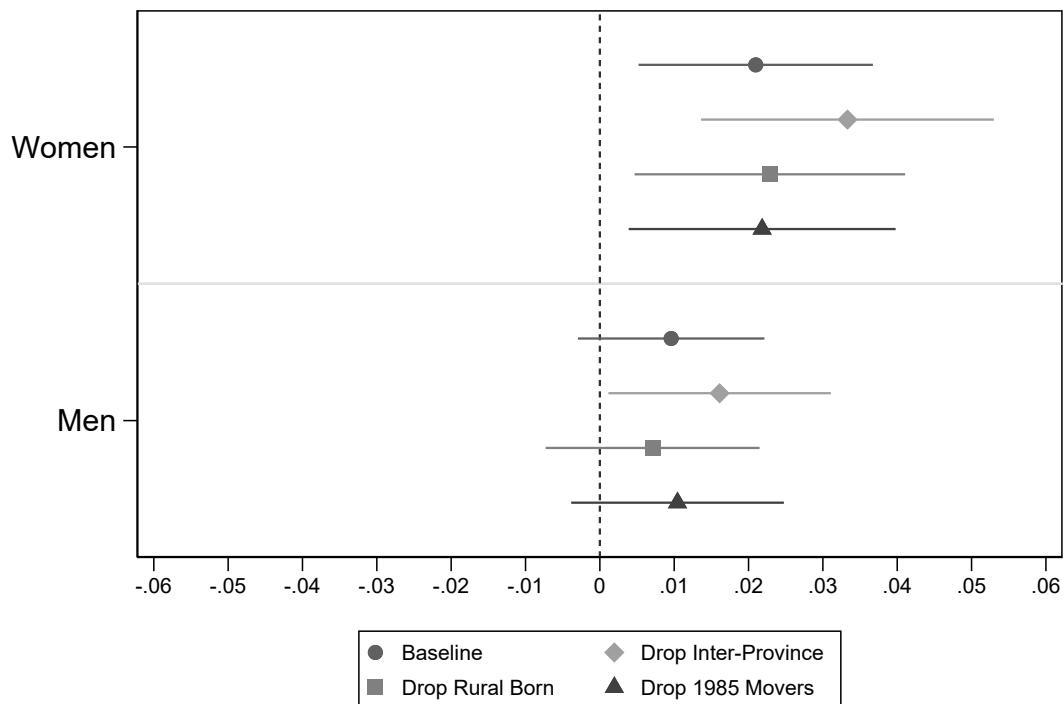
*Notes:* This figure reports coefficients and 95% confidence intervals of the  $DID_M$  estimators according to De Chaisemartin and d'Haultfoeuille (2020) methodology using did\_multipleGT command in Stata for women and men subsamples, respectively. The sample contains only the individuals reside in district centers in 1990. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). Standard errors clustered by district center of residence.

**Figure A.19: Additional Robustness Checks**



*Notes:* This graph reports estimates of equation (2) on several robustness checks separately for women and men, respectively. The sample contains only the individuals reside in a district-center in 1990. The dependent variable include an indicator equal to one if the individual has ever completed lower secondary school for all coefficients. All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Standard errors clustered by district center of residence.

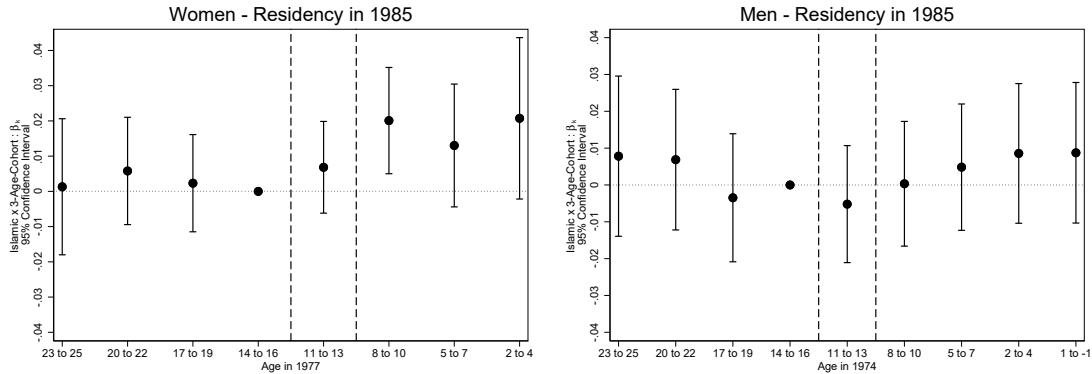
**Figure A.20:** Robustness checks for mobility



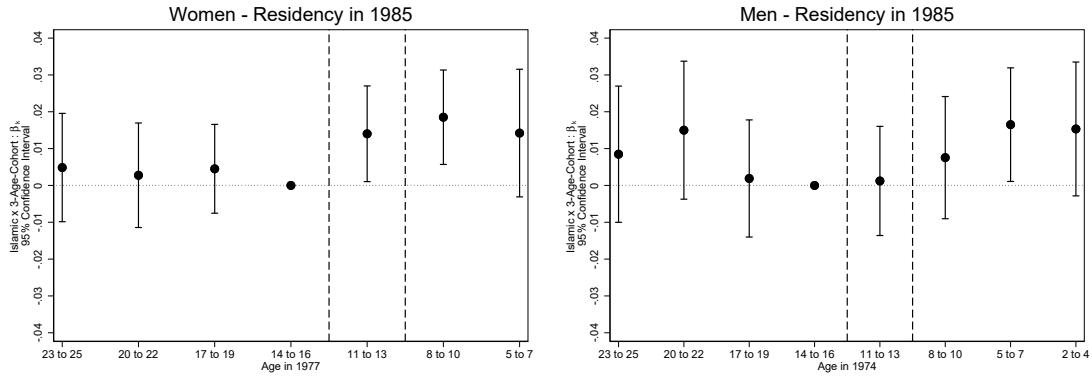
*Notes:* This graph reports estimates of equation (2) on several mobility robustness checks separately for women and men, respectively. The sample contains only the individuals reside in a district-center in 1990. The dependent variable include an indicator equal to one if the individual has ever completed lower secondary school for all coefficients. All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Standard errors clustered by district center of residence.

**Figure A.21:** Access to Islamic Schools and Education - Assigned treatment according to 1985 residency - Effects by 3-Age-Cohorts

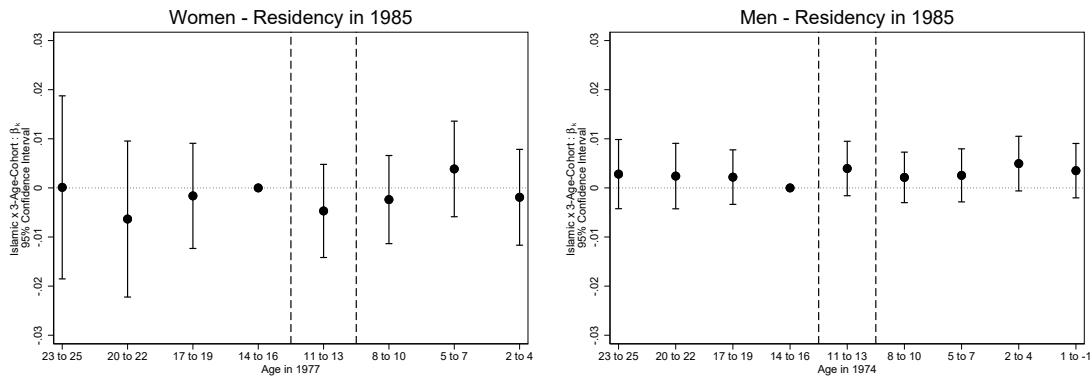
(a) Dep. Var.: Lower Secondary School Completed



(b) Dep. Var.: Upper Secondary School Completed

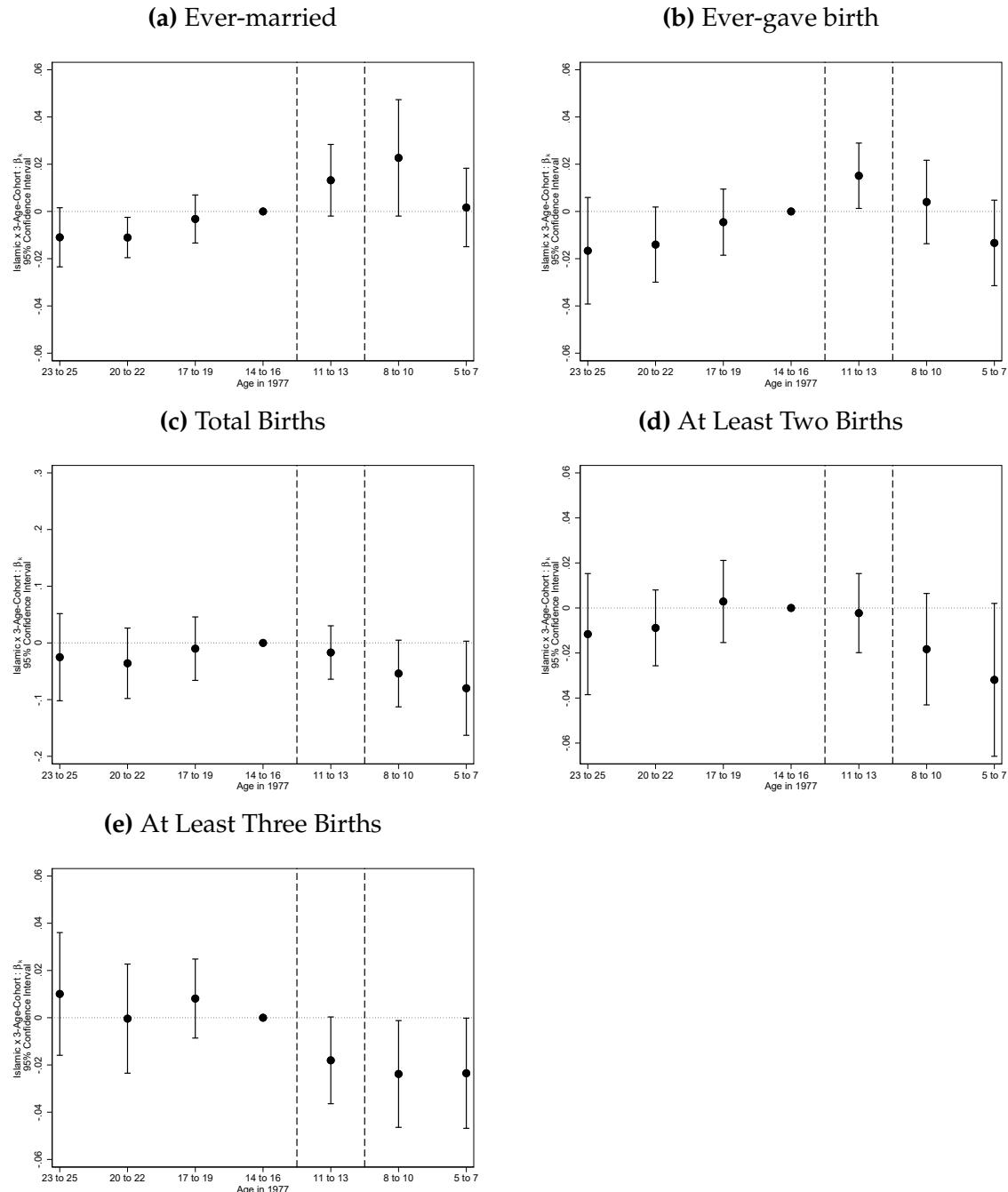


(c) Dep. Var.: Primary School Completed (Placebo)

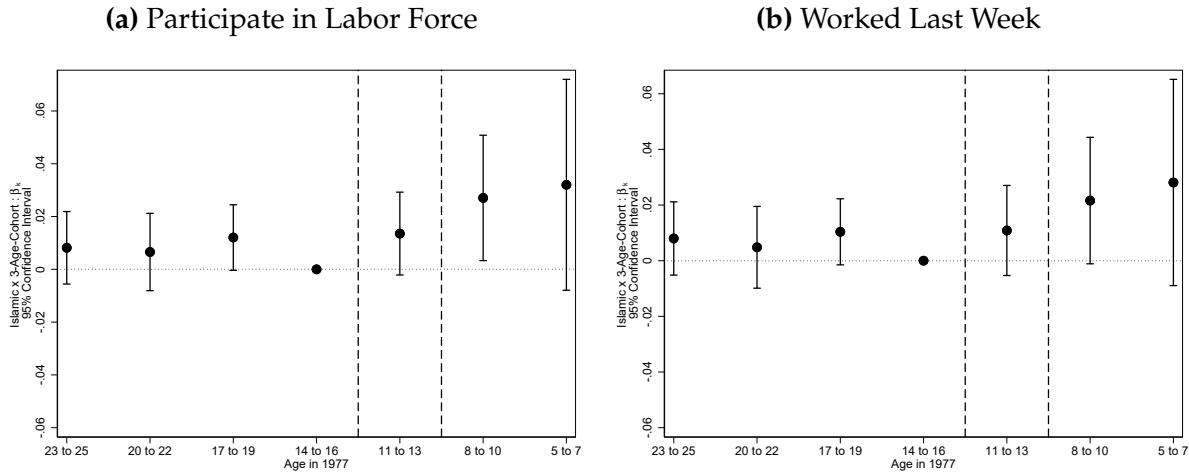


*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women and men subsamples, respectively. The sample contains only the individuals reside in a district-center in 1985. Islamic refers to district centers with an Islamic school in 1980. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include district center of residence and age-cohort fixed effects, log of the 1970 population of district center interacted with cohort dummies, and province-cohort fixed effects. Cohorts between two vertical lines include half fully-exposed and half partially-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district center of residence in 1985.

**Figure A.22: Access to Islamic Schools and Family Outcomes - Assigned treatment according to 1985 residency - - Effects by 3-Age-Cohorts**



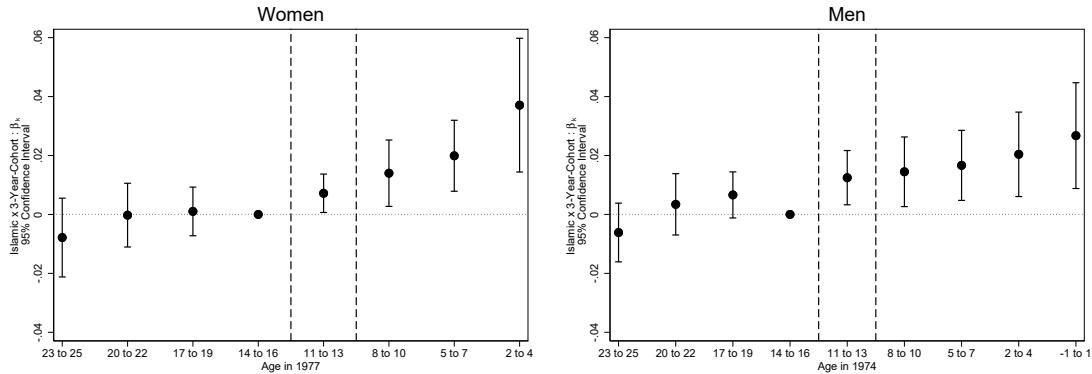
**Figure A.23:** Access to Islamic Schools and Labor Outcomes - Assigned treatment according to 1985 residency - Effects by 3-Age-Cohorts



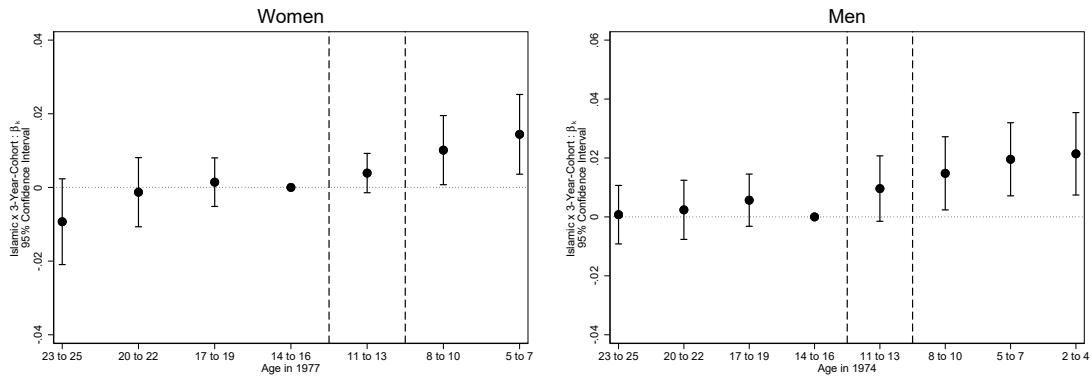
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains only women reside in a district-center in 1985, excluding Southeastern and Eastern Turkey. Islamic refers to district centers with an Islamic school in 1980. The dependent variables include an indicator equal to one if the individual participates labor force in panel (a), and was working the week prior to census in panel (b). All specifications include district center of residence and age-cohort fixed effects, log of the 1970 population of district center interacted with cohort dummies, and province-cohort fixed effects. Cohorts between two vertical lines include half fully-exposed and half partially-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 serve as the reference group. Robust standard errors clustered by district center of residence in 1985.

**Figure A.24:** Access to Islamic Schools and Education with province-level evidence - Effects by 3-Age-Cohorts

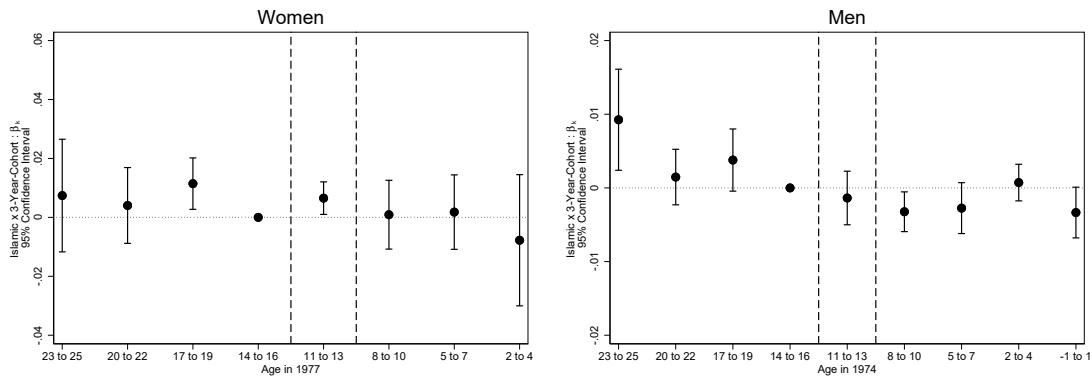
(a) Dep. Var.: Lower Secondary School Completed



(b) Dep. Var.: Upper Secondary School Completed



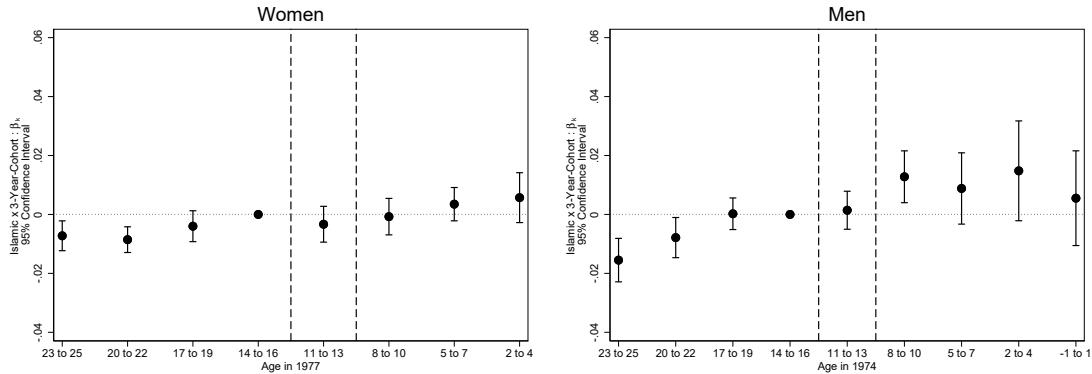
(c) Dep. Var.: Primary School Completed (Placebo)



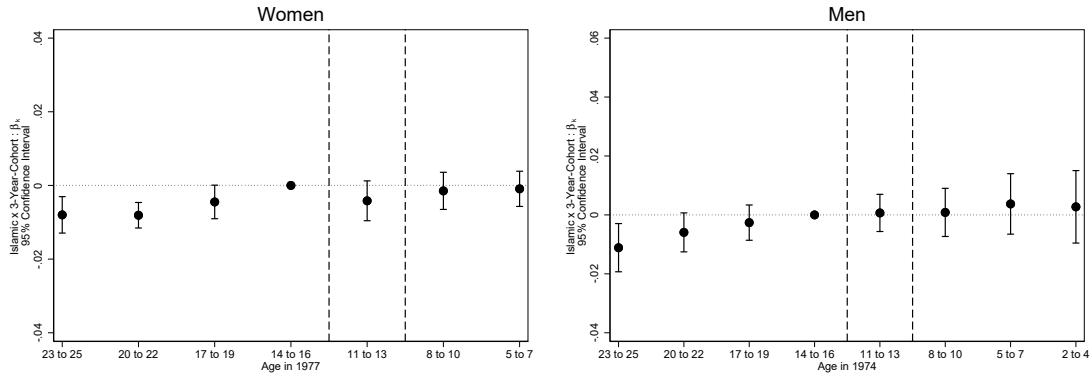
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (3) for women and men subsamples, respectively. The sample contains only the individuals born in district centers. Islamic refers to intensity of treatment of each province as explained in section 5.5. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include province of birth and age-cohort fixed effects. Cohorts between two vertical lines include half fully-exposed and half partially-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by province of birth.

**Figure A.25:** Access to Islamic Schools and Education with province-level evidence - Effects by 3-Age-Cohorts - Placebo Sample (Rural-borns)

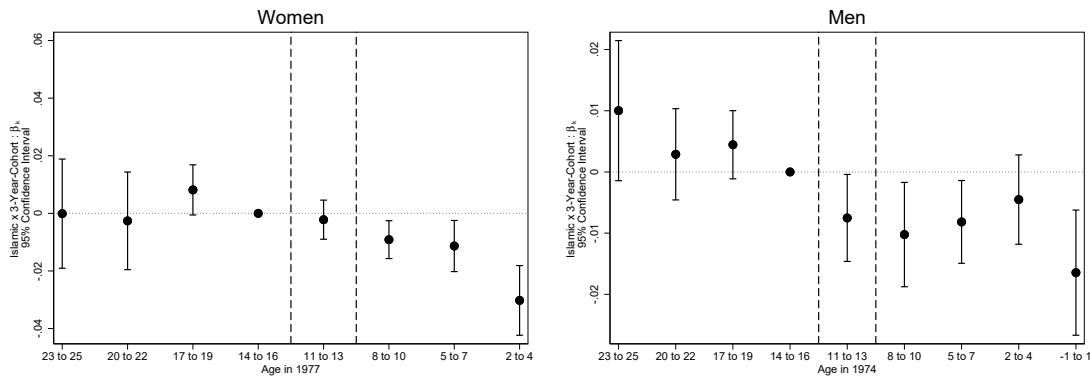
(a) Dep. Var.: Lower Secondary School Completed



(b) Dep. Var.: Upper Secondary School Completed



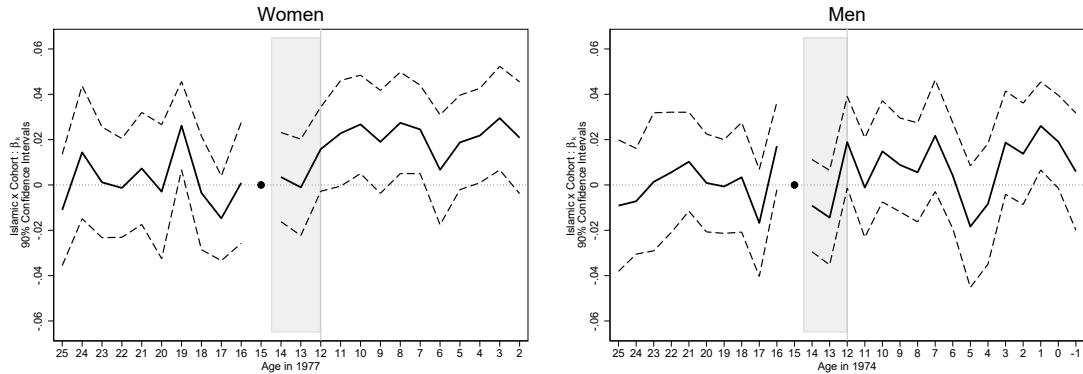
(c) Dep. Var.: Primary School Completed (Placebo)



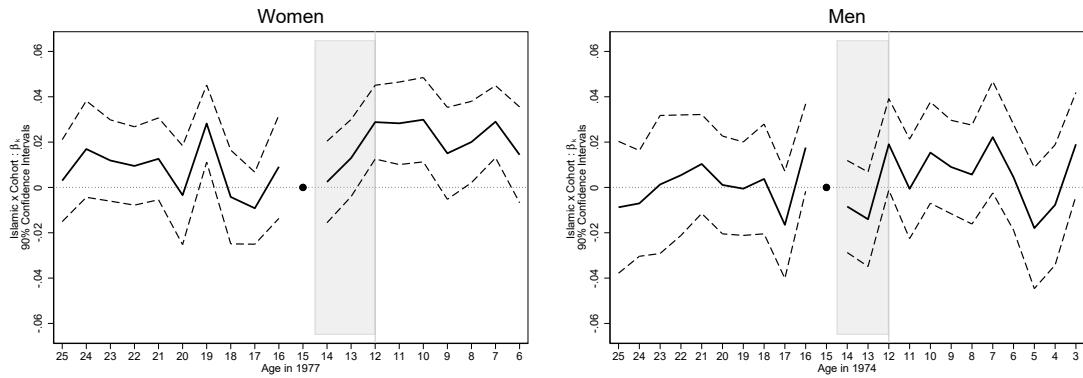
*Notes:* This figure reports 3-age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (3) for women and men subsamples, respectively. The sample contains only the individuals born in rural areas. Islamic refers to intensity of treatment of each province as explained in section 5.5. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include province of birth and age-cohort fixed effects. Cohorts between two vertical lines include half fully-exposed and half partially-exposed cohorts. Cohorts on the right side of the second vertical lines are fully-exposed. Cohorts aged between 14-16 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by province of birth.

**Figure A.26:** Access to Islamic Schools and Education - Effects by Single-Age-Cohorts

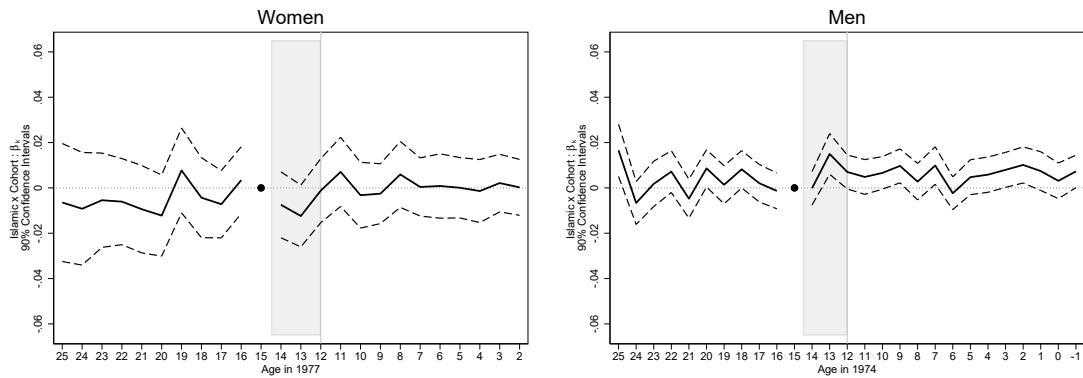
(a) Dep. Var.: Lower Secondary School Completed



(b) Dep. Var.: Upper Secondary School Completed

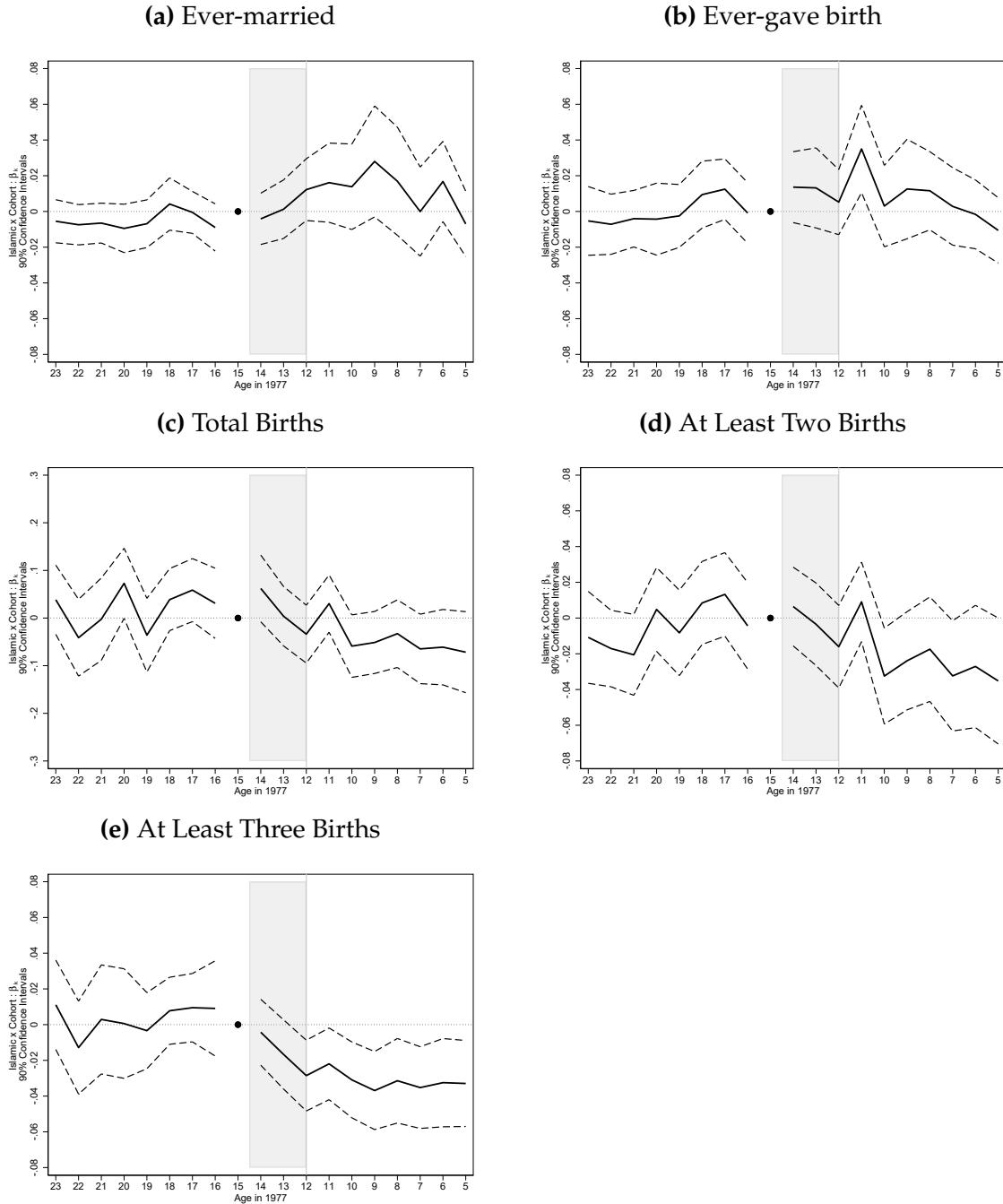


(c) Dep. Var.: Primary School Completed



Notes: This figure reports age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women and men subsamples, respectively. The sample contains only the individuals reside in district centers in 1990. Islamic refers to district centers with an Islamic school in 1980. The dependent variables include an indicator equal to one if the individual has ever completed lower secondary school in panel (a), upper secondary school in panel (b), and primary school in panel (c). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts on the right side of the vertical lines are fully-exposed. Cohorts aged 15 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district center of residence.

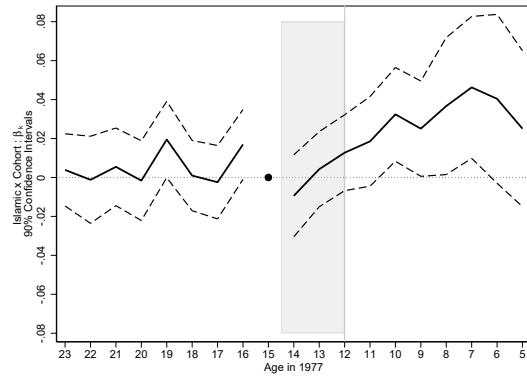
**Figure A.27: Access to Islamic Schools and Family Outcomes - Effects by Single-Age-Cohorts**



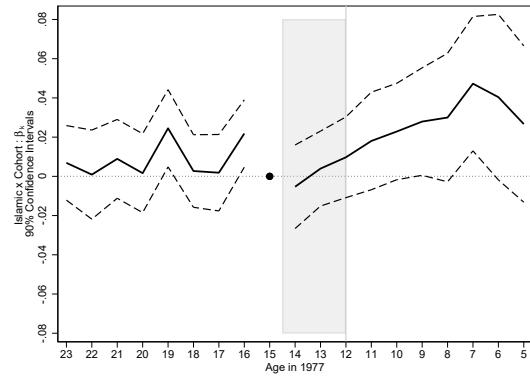
Notes: This figure reports age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district centers in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual has ever married in panel (a), ever gave birth in panel (b), given two or more births in panel (d), and given three or more births in panel (e). The dependent variables measure the total number of birth given in panel (c), and the age at first birth in panel (f). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts on the right side of the vertical lines are fully-exposed. Cohorts aged 15 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district center of residence.

**Figure A.28:** Access to Islamic Schools and Labor Outcomes - Effects by Single-Age-Cohorts

(a) Participate in Labor Force



(b) Worked Last Week



*Notes:* This figure reports age-specific estimates of  $\beta_k$  and 95% confidence intervals in equation (1) for women subsample. The sample contains the women aged 18 and older who reside in district-centers in 1990, excluding Eastern and Southeastern Turkey. The dependent variables include an indicator equal to one if the individual participates labor force in panel (a), and was working the week prior to census in panel (b). All specifications include district-center and province-by-cohort fixed effects, and log of the 1970 population of district center interacted with cohort dummies. Cohorts on the right side of the vertical lines are fully-exposed. Cohorts aged 15 in 1977 for women and in 1974 for men serve as the reference group. Standard errors clustered by district center of residence.