ISLAMIC RULE AND THE EMPOWERMENT OF THE POOR AND PIOUS

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Does Islamic political control affect women's empowerment? Several countries have recently experienced Islamic parties coming to power through democratic elections. Due to strong support among religious conservatives, constituencies with Islamic rule often tend to exhibit poor women's rights. Whether this reflects a causal relationship or a spurious one has so far gone unexplored. I provide the first piece of evidence using a new and unique data set of Turkish municipalities. In 1994, an Islamic party won multiple municipal mayor seats across the country. Using a regression discontinuity (RD) design, I compare municipalities where this Islamic party barely won or lost elections. Despite negative raw correlations, the RD results reveal that, over a period of six years, Islamic rule increased female secular high school education. Corresponding effects for men are systematically smaller and less precise. In the longer run, the effect on female education remained persistent up to 17 years after, and also reduced adolescent marriages. An analysis of long-run political effects of Islamic rule shows increased female political participation and an overall decrease in Islamic political preferences. The results are consistent with an explanation that emphasizes the Islamic party's effectiveness in overcoming barriers to female entry for the poor and pious.

KEYWORDS: Political Islam, regression discontinuity, education.

1. INTRODUCTION

AS MANY MUSLIM COUNTRIES HAVE IMPLEMENTED democratic elections, an often quoted concern is that Islamic political control will adversely affect women's living standards (The Economist (2003), Kristof (2011)). If the expansion of political religious freedoms endangers gender equality, this implies that democratic institutions could result in adverse development consequences for large numbers of the population. At the root of this concern is that Islamic parties tend to represent poor and religiously conservative constituencies with correspondingly low women's rights. A common feature of Muslim democracies is therefore that the politicians with the most conservative views on women are elected in areas where women are most vulnerable. Yet, to this date, no research has shown that democratically elected Islamic politicians lead to either

worsened women's rights or more religiously conservative preferences. This study is the first to examine the causal effects of Islamic political representation on these outcomes.

Turkey is a useful testing ground for evaluating the consequences of Islamic political representation. It is one of very few countries to have experienced Islamic party participation in the democratic process for a long period. Although it was founded as a secular republic, the influence of Islam in politics has increased substantially over the years. In 1994, Turkey experienced a seismic political change in the local elections when the pro-Islamic *Refah* Party became the second largest party in terms of votes. This gave political Islam unprecedented representation in the democratic system and accelerated an ongoing debate on public expressions of religion, especially for women. The party was later banned by Turkey's Constitutional Court for having become a "center of activities contrary to the principle of secularism" (ECHR (2003)).

I study the consequences of Islamic political control on education and related outcomes using a new and unique data set of 2600 Turkish municipalities combining elections in 1994 and the 2000 Population Census. In order to isolate the causal impact of local Islamic rule, I implement a regression discontinuity (RD) design. This allows the estimation of a meaningful causal treatment effect by comparing education outcomes where an Islamic mayor barely won or lost the election.

Despite negative raw correlations between Islamic rule and female secular high school completion, the RD results reveal a positive effect of 3 percentage points, corresponding to relative increase of 20 percent. Similar positive effects can be found on enrollment as well as other education types where participation is both voluntary and subject to secular restrictions. Effects on mandatory primary school and proxies for religious types of schooling remain unaffected. The treatment effects are both smaller and less precise for men.

The explanation I propose for this relative success of the Islamists focuses less on its religious profile than a set of pragmatic policies facilitating female education in areas where poverty, religious conservatism, and the secular nature of the national education system made this particularly challenging. Secular high school in Turkey combines secular restrictions with voluntary participation. In religiously conservative communities, characteristics like the headscarf ban, mixed classes, and a strongly secular curriculum can exacerbate existing socioeconomic constraints to raise severe barriers to entry for women. I argue that the Islamic party's positive effect on female education is due to its relative effectiveness in overcoming these barriers. The party's explicit refusal to uphold the headscarf ban in controlled municipalities was one piece of evidence held against it in the court case that ultimately banned it from political participation; the party's willingness to cooperate with religious foundations to provide education facilities more amenable to religious conservatives was another. But these controversial actions may also have been two among several policies that encouraged female participation in education among the poor and pious.

Consistent with this, I show that Islamic rule had more pronounced effects on education in communities both poorer and more religiously conservative, where arguably the barriers to entry were higher. I also show that Islamic rule led to an increase in educational facilities sponsored by religious charities; anecdotal evidence suggests that such facilities made poor and pious parents more willing to send their daughters to school. Finally, not only are treatment effects for men's education, on average, more muted, but, whereas those for women are more pronounced among the poor and pious, this is not the case for men. This is likely the consequence of female participation in education representing a more contentious subject among the poor and pious than that of male participation. To the extent that barriers to entry in education are biased against women, the results are thus consistent with the Islamic party having an advantage over secular alternatives in alleviating those barriers.

In the longer run, effects on young women's education remained positive 17 years after the treatment, and reduced female adolescent marriage rates. I also show positive treatment effects on female political participation, with more women being elected to the municipal council in 2009. Finally, I test whether having Islamic rule led to increased political preferences for Islamic parties. Despite the persistence of Islamic preferences over time, I document negative—albeit less precise—treatment effects on voting for Islamic parties in five subsequent elections. These long-run results may indicate a deeper shift in treated municipalities' ability to lower barriers to female entry in education and beyond.

All in all, my results contradict a prevailing view that local Islamic rule is—without exception—detrimental to women and that it generates religiously conservative outcomes. The large discrepancy between unconditional correlations and RD estimates are likely the result of bias in the former due to pre-existing constraints to female participation prevalent among religiously conservative communities. Independent of such factors, I instead document relative empowering effects of Islamic rule as well as a moderation of political preferences. However, the uncovered results emphasize not just competitive elections with gender-biased barriers to entry, but also the specific environment of Turkey in the 1990s: a Muslim country with strong secular and relatively democratic institutions. Future research of the consequences of Islamic rule in other institutional settings is required to allow greater external validity.

There exists a substantial literature on the economic effects of political parties, with recent work by Ferreira and Gyorko (2009), Lee, Moretti, and Butler (2004), and Pettersson-Lidbom (2008). Research on the effects of other political cleavages like religion are rare, especially with regard to Islam. An exception is Henderson and Kuncoro (2009), who documented a reduction in corruption outcomes following increased representation of Islamic parties in Indonesia. In autocratic Egypt, Blaydes (2010) found better health outcomes for women living in a district of Cairo controlled by radical Islamists. In contrast to the broader literature on Islam and development, where both institutions and

religious preferences are often the main subject of interest, this study instead examines the consequences of a political shock in isolation of such factors.[2]

Section 2 describes the institutional framework; Section 3 describes the RD design, as well as the data used in the analysis. Section 4 presents the main empirical results and the validity of the RD design. Section 5 discusses different channels of causality, and Section 6 present longer-run effects of Islamic rule. Section 7 concludes the paper.

2. POLITICAL ISLAM, LOCAL GOVERNMENTS, AND EDUCATION IN TURKEY

By 1994, Turkey had undergone substantial economic, political, and social change. Fueled by conflict in the Southeast, as well as a decade of extensive deregulation, an accelerated urbanization had resulted in a new demographic composition in the cities, with substantial political consequences.

Whereas previously Turkey's cities had been dominated by relatively wealthy, educated, and secular inhabitants, often referred to as "White Turks," urbanization brought in different groups of citizens from rural areas. Poorer, less-educated, and deeply pious, these so-called "Black Turks" filled working-class neighborhoods and squatter areas to create microcosms of outsiders, simmering with unemployment, poverty, and resentment over inadequate government policies (Yavuz (1997, 2000)). Demand for services such as infrastructure, education, and social welfare fell heavily on local governments who, in terms of policymaking, had limited formal powers compared to the central government (World Bank (2004)).

The main local government in Turkey is the municipality (*belediye*), for which a mayor and a council are elected every five years. The council plays an important role in approving budgets, but significant executive powers make the mayor the single most important municipal government authority (Bayraktar (2007)). Municipal budgets correspond to 4–5 percent of GDP (at par with many Western countries) but hide large size differences between metropolitan and non-metropolitan municipalities. Out of circa 3000 municipalities, 16 are metropolitan (*büyükşehir*) municipalities, 923 are district (*ilçe*) center municipalities, 65 are province (*ilçe*) municipalities, and the rest consist of township (*belde*) municipalities, essentially settlements with more than 2000 inhabitants. The overwhelming majority of local administrations are thus small in size, and since transfers are determined by population, they are also financially weak. Furthermore, municipalities have limited formal policy powers beyond basic services such as water provision, waste management, and urban planning (World Bank (2004)). Areas related to education, health, and social welfare remain mostly with either the national government or civil society organizations.

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[2]In addition to research relying on cross-sectional studies of Islam and development (Barro and McCleary (2006), Donno and Russet (2004), Fish (2002)), see also Clingingsmith, Khwaja, and Kremer (2009), Kuran (2010), and Rubin (2011).

After a military coup in 1980, the military junta implemented legislation allowing Islamic organizations to take a larger role in civil society. As a counterbalance to primarily leftist ideologies, these organizations were essentially modern incarnations of the traditional Islamic brotherhood (*tarikat*). In an era where associational freedoms were severely restricted, these Sufi-influenced brotherhoods became essential components of social aid, particularly with regard to education; one study suggests that two large brotherhoods "each accommodate over one hundred thousand students" (Ayata (1996)).

The primacy of education in Turkey dates back to its founding as a secular republic by Mustafa Kemal Atatürk. Seeing secular education as a fundamental step toward modernization, one of his reforms was making primary education mandatory for both men and women (Mango (1999)). The current mixed-sex education curriculum remains heavily influenced by its founder, and requires students to forego wearing religious symbols in school, including the headscarf for women.

Despite above-parity participation levels in primary education, significant gender inequalities remain. In a recent Gender Gap Report, the World Economic Forum ranked Turkey 121st out of the 128 countries included.[3] Inequalities in post-primary education are one of the main drivers of this inequality (World Bank (2006)).[4] Although primary school (enrolling students 6–11 years old) is mandatory, education such as middle school (*Ortaokul*, enrolling students 11–14) and high school (*lise*, enrolling students 14–17 years old) are voluntary.[5] These post-primary education types also each have a vocational alternative which includes religious, *imam-hatip*, schools.

Gender inequality is largely correlated with development levels, and, in Turkey, poverty often means piety, according to a recent survey by Çarkoğlu and Toprak (2006). The survey showed that lower-income respondents tend to report being more religious—on both a personal as well as a political level—and that such preferences often clash with state-mandated restrictions on participation. The survey also showed that poorer parents were less willing to send their daughters to school without a headscarf. The headscarf ban thus represents a real barrier to entry for religious conservatives, and "in practice, the law leaves some women no choice but to remove themselves from the state educational system" (Human Rights Watch (2004)).

[3]The Gender Gap, World Economic Forum, http://www.weforum.org/issues/global-gender-gap.

[4]The gender gap in education is merely one expression of a broader problem where women are restricted to the role of wife and mother. In addition to a flawed legal framework for women's rights, low labor- and political participation, violence, and adolescent—often forced—marriages are prevailing features of a society in need of substantial improvements in women's rights. There is an extensive literature on the root causes of this gender inequality in Turkey, and for a useful summary, see World Bank (2003).

[5]In 1998, primary school, *İlkokul*, and middle school, *Ortaokul*, were merged into one 8-year-long compulsory schooling, *İlköğretim*. For this reason, although effects on middle school are similar to those on high school, the main focus in this study will be on high school education.

As tensions between social groups escalated throughout the 1990s, educational facilities became one of several contended platforms where an increasingly concentrated mass of poorer and religiously conservative individuals found the content of, and restrictions to, education incongruous to their preferences. Meanwhile, established parties seemed neither willing to nor capable of accommodating them.

In this political vacuum, the *Refah* ("Welfare") Party found its core constituency. Created in 1983 as a continuation of a series of previously banned Islamic political parties, its early participation in the elections of 1989 and 1991 met with limited success. But by the mid-1990s, the party had struck a chord among a broader segment of Turkish voters. Positioning itself as pro-Islamic as well as both anti-West and anti-establishment, it found support among groups as diverse as the urban poor of metropolitan Istanbul and Ankara, traditional Sunni Kurds in the southeast, and the pious middle class in central Anatolia and the Black Sea (Yavuz (1997)).

Disillusioned with established parties, weak coalitions in parliament, as well as mismanagement and corruption in local governments, these groups of voters were instrumental in making the 1994 local elections a watershed event for political Islam in Turkey. Receiving 20 percent of the votes nationally, *Refah* won 12 percent of the municipal mayor seats. This share somewhat downplays the significance of the result, as two of those mayorships—Istanbul and Ankara—account for nearly a quarter of the entire population of Turkey.

In power, *Refah* municipalities often experienced improvements in their core policy responsibility, the provision of basic services (White (2002)). Yet equally notable features of this local Islamic rule were displayed in precisely those areas extending *beyond* the municipality's official role. Decentralized, personalized, and very effective, the *Refah* political machine assisted its constituencies with health care, education, housing, as well as employment.

As municipal budgets alone were insufficient to support such activities, other Islamic organizations became crucial in providing resources. In education, these organizations provided facilities better tailored to religious conservatives; in ways further discussed in Section 5, extracurricular Qur'an study centers and dormitories became key complements to especially female participation in secular education for conservative parents. But in doing so, they also raised concerns among the secular establishment.

According to Arat (2005), women came to hold a "curious" position in *Refah*'s political ideology. The party stood for socially conservative views, women's role in society as limited to the household, and the upbringing of children as their primary responsibility. But the differences with existing secular parties on *conditions* to female participation also resulted in significant female political support—no party could boast a similar membership of women, and

their political participation is often attributed as key to *Refah*'s electoral success (Jenkins (2008)).[6]

As *Refah* became the largest member of a coalition government following the 1995 national elections, focus shifted away from the party's local success to its increasingly radical rhetoric. Through a series of speeches, *Refah* members broke one taboo after another, with references to Sharia law, perceived threats of violence, as well as an explicit refusal to uphold the headscarf ban (ECHR (2003)). The party's alliance with Islamic brotherhoods, which had been instrumental in providing education facilities in its municipalities, turned to a liability as secular critics complained of religious indoctrination (Balli (1998)). The mechanism with which Islamic rule threatened women put education at the core, as told by Arat (2010):

> "Party cadres with sexist values infiltrate the political system, and religious movements that were once banned establish schools, dormitories and off-campus Quranic courses, socialising the young into religiously sanctioned secondary roles for women."

The secular establishment increasingly came to view the actions of *Refah* as a deliberate strategy to turn Turkey into an Islamic state, and the party was banned by the Constitutional Court in 1998.[7] This verdict was later upheld by the European Court of Human Rights (ECHR), cementing the labeling of *Refah* as an "Islamist" party, and its closure as "necessary in a democratic society" (ECHR (2003)).

Worldwide, *Refah* represents one out of many different images of political Islam. Nonetheless, it is regularly referred to in comparative research; Roy (1994) mentioned its relevance as operating in an "electoralist and multiparty framework," and Kepel (2002) pointed out that *Refah* was the first Islamic party in the world to "grapple with democratic constraints."

3. DATA AND EMPIRICAL STRATEGY

3.1. *The RD Design*

A key contribution of this paper is the identification of the causal impact of local Islamic rule. The main problem with comparing municipal outcomes

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[6]As an example from the 1991 elections, a party declaration featured a well-known *hadith* (a record of the traditions or sayings of the Prophet Muhammad) mentioning the need to honor and respect women: "*According to our beliefs, 'Heaven is under the feet of mothers.' Mothers of today and tomorrow will raise those who will build and serve the great Turkey once again. What a great goal, what an honorable service!*" Refah Partisi 20 Ekim 1991 Genel Seçimi Seçim Beyannamesi (Welfare Party October 20 1991 General Elections Election Declaration (1991, pp. 95–96)).

[7]The ban served mostly to exclude the top party leadership, while the local component of the movement remained intact. A partial reincarnation of *Refah*, the Virtue Party (FP), was once more banned in 2001, and split the political Islamic movement into the Felicity Party (SP), continuing to subscribe to the policies of the previous Islamic parties, and the Justice and Development Party (AKP), which came to adopt a less pronounced Islamic profile. Several key members of the earlier Islamic parties are today prominent members of the AKP. They include the current Prime Minister and President of Turkey.

by whether an Islamic or secular mayor was elected is that the assignment of
mayor type is not random; for example, the municipalities most likely to elect
an Islamic mayor may also be those where female participation in education is
more constrained for other reasons. Such unobserved factors could then lead
to less education *as well as* an elected Islamic politician, and therefore esti-
mates from standard regression analysis may be biased.

The RD design (Hahn, Todd, and Van der Klaauw (2001), Imbens and
Lemieux (2008)) exploits a discontinuity in the treatment assignment to iden-
tify a causal effect. It can be used when treatment assignment, m_i, is deter-
mined solely on the basis of a *cutoff score*, c, on an observed *forcing variable*, x_i.
The forcing variable in this design is the win margin for the Islamic party rel-
ative to the largest non-Islamic party, and the cutoff is therefore $c = 0$. The
municipalities that fall below the cutoff ($m_i = 0$), the control group, receive
a secular mayor. Those above the cutoff, the treatment group ($m_i = 1$), re-
ceive an Islamic mayor. The assignment follows a known deterministic rule,
$m_i = 1\{x_i \geq c\}$, where $1\{\cdot\}$ is the indicator function.

Consider the following specification for estimating the RD treatment effect:

$$(1) \qquad y_i = \alpha + \beta m_i + f(x_i) + \varepsilon_i,$$
$$\forall x_i \in (c - h, c + h),$$

where y_i is the outcome in question, m_i is the treatment, x_i is the forcing vari-
able, and h is a neighborhood around c, hereby referred to as the bandwidth.
The control function $f(x_i)$ is some continuous function, usually an n-order
polynomial in the forcing variable on each side of c.[8] Local linear regressions
(Hahn, Todd, and Van der Klaauw (2001), Porter (2003), Imbens and Lemieux
(2008)) combine setting a suitable bandwidth with a linear control function
and is the main method employed in this paper. Following Imbens and Kalya-
naraman (2012), I use their algorithm to find an optimal bandwidth (hereby
referred to as $\hat{h}$) for each outcome.

3.2. *Main Data Description*

Data on municipal mayoral elections come from the Turkish Statistical Insti-
tute (henceforth, TurkStat) and are reported by municipality, the main unit of

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[8]Previous research has used different approaches to RD estimation, but are predominantly
variations of equation (1) with different bandwidths and control functions. At one end, Angrist
and Lavy (1999) used a "discontinuity sample" to compare means on each side by only using ob-
servations arbitrarily close to the cutoff (i.e., setting a low h and excluding $f(x_i)$ altogether). This
method, although simple and straightforward, can be demanding if the number of observations
is limited, and could result in noisy estimates. At the other end of the spectrum, Lee, Moretti,
and Butler (2004) included all observations (setting h high) and defined a higher-order polyno-
mial in the control function. While this method makes full use of the data available, it puts equal
weight on observations far from the cutoff, which is intuitively not very appealing and relies on
the correct specification of $f(x_i)$.

analysis in this paper. In 1994, elections were held in 2710 municipalities. Fourteen parties received votes and numerous independent candidates also ran for election.[9] Islamic parties, mainly *Refah* and one fringe party, received about 20 percent of the national vote share and won 329 mayoral seats.[10] Since all mayoral elections are determined by plurality, the treatment—Islamic mayor in 1994—is an indicator variable taking the value 1 if an Islamic party had more votes than any other party and zero otherwise.

The forcing variable used in the RD design is defined as the difference in vote share between the largest Islamic party and the largest secular party, resulting in a cutoff point at zero. Consequently, the Islamic mayor indicator is equal to 1 when this measure, hereby labeled the *Islamic win margin*, is positive and zero when it is negative. Each municipality will have a value of the Islamic win margin anywhere between −1 and 1.

A particularly useful attribute of the RD design applied to Turkish municipalities is that voter fragmentation across different parties leads to close elections over a wide range of underlying Islamic vote shares. This is illustrated in Figure 1, which shows the Islamic win margin plotted against the Islamic vote share from the same year. Observations close to the horizontal gray line marking the cutoff vary from just under 20 percent (with votes split across many parties) up to 50 percent (with votes more concentrated across fewer parties) of total vote shares for Islamic parties. The RD treatment effect is thus not singular to a specific preference point, but representative of a more heterogeneous constellation of political circumstances. This has the additional benefit that a core assumption of the design—that Islamic preferences are continuous over the threshold—can be explicitly tested.

The main outcome variable and the control variables come from TurkStat's Population Census of 2000. Data on educational attainment (primary, high school, and vocational, etc.) and demographics like population, age, gender, and economic activity (including individuals classified as students) are reported by municipality and age groups.

The focus of the paper is on high school attainment for individuals whose high school education could have been affected during the period 1994 to 2000. Given the data available, I examine the share of the 15–20-year cohort who, in the 2000 census, were recorded to have completed high school.[11] These individuals were between 9 and 14 years old at the time of the 1994 election, and

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[9]TurkStat reported vote totals for all independent candidates combined. For this reason, the elections where the total vote share of the independents is either the highest, or the second highest, are removed.

[10]The fringe party is the BBP, or *Büyük Birlik Partisi* (Great Union Party, in English). The party is often characterized as both an Islamic and a far-right nationalistic party. In the 1994 local elections, it received 0.94 percent of the national vote and won 11 municipal mayor seats (YerelNet, http://www.yerelnet.org.tr/basvuru_kaynaklari/secim_sonuclari/index.php?yil=1994).

[11]The use of this specific age cohort is the result of a compromise with TurkStat so as to balance the detail of the data with data confidentiality.
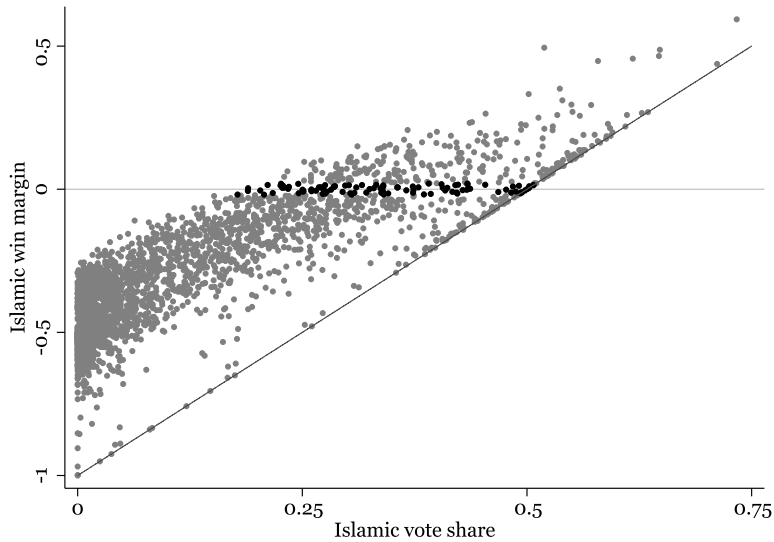
FIGURE 1.—Islamic win margin and Islamic vote share in 1994. The graph shows the total vote share for the Islamic party plotted against the Islamic win margin—the difference between the Islamic party's vote share and the largest secular party's vote share—both in 1994. Observations within 2 percentage points of the threshold at zero are in black. The diagonal line is the hypothetical one-to-one relationship between the two variables in an election with only two parties.

thus the older half of this cohort could have had their high school completion affected during the time leading up to 2000. The younger half of this cohort could, correspondingly, have had their middle school completion affected during the same period.

Matching municipalities across time periods is somewhat intricate. As cities have grown, new provinces and districts have been created, with the result that municipalities change names and associated districts and provinces.[12] Since matching localities across time periods is all done manually, there is some loss of observations when combining the data set of the 1994 election and the 2000 census. When a further match is done with the 1990 census, the number of observations falls further by 40 percent. For this reason, in the baseline specifications I include two sets of controls: one from the 1994 election and one from the 2000 census. From the former are population, the Islamic vote share, the total number of parties receiving votes, and municipality type dummies. From the latter are demographic controls (age composition and gender ratio) and household size. Controls from the 1990 census are included in the robustness

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[12]These changes are tracked manually using two sources, *Mahalli Idareler Genel Müdürlüğü* (www.yerelbilgi.gov.tr) and *Türkiye ve Orta Doğu Amme İdaresi Enstitüsü* (www.yerelnet.org.tr).

section.[13] The matched municipal data set of 1994 elections and 2000 census data has 2629 observations. Table I reports summary statistics for the municipalities used in the analysis. The average high school attainment for the 15–20 cohort is 16.3 percent for women and 19.2 percent for men.[14] Around 12 percent of the municipalities elected Islamic mayors, and the municipal-average Islamic vote share is 14 percent.

Column 4 in the table tests for differences in group means of municipalities with Islamic and secular mayors. Municipalities that elected Islamic mayors in 1994 had 2.6 percentage points lower female shares of completed high school education in 2000, corresponding to 16 percent decrease relative to the mean. There is no such negative correlation for men, implying that the negative association between Islamic rule and education is mostly a phenomenon among women. The following rows in the same column further reveal that Islamic municipalities were younger, larger, more politically fragmented, had larger households, and had almost four times the Islamic vote share as that of secular-run municipalities. Although informative of differences between Islamic and secular municipalities, this table does not establish whether differences represent causal effects of the Islamic mayor.

Before moving to the RD results, I present two standard validity checks (Imbens and Lemieux (2008)). First, I examine whether the density of the forcing variable, the Islamic win margin, is continuous at the discontinuity. Figure 2(a) first shows a histogram of the forcing variable for the entire range in bins of 2 percent. The lower Figure 2(b) further implements the more formal McCrary (2008) density test of a jump at the discontinuity. Neither figure reveals any obvious sorting around the discontinuity, and the estimate from the McCrary test is small and statistically insignificant.

Second, in Figure 3, I inspect the control variables, used in later regressions, at the discontinuity. Each graph consists of local averages of the outcome, in 8-percent bins, plotted against the forcing variable, with overlaid smoothed linear regression lines based on raw data on each side of the cutoff. The gray lines mark 95 percent confidence intervals. None of the graphs indicate any significant jumps at the cutoff.[15] Of particular interest is the upper left graph

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[13]This has little consequence for the magnitude of the RD estimates, as the robustness tests later show, and merely serves to retain enough close elections to get more precise estimates.

[14]These shares are particularly low because the cohort group includes individuals too young to have completed high school. Assuming that individuals 17 or above could have finished high school when the Census was recorded in October 2000, and that this subgroup constitutes half the 15–20 age cohort, the corresponding shares are 32.6 and 38.4 percent, respectively. These adjusted municipal-level averages are somewhat lower than official statistics of the population, a logical consequence of the municipal-level analysis giving more weight to smaller and poorer communities. (See, e.g., "National Education Statistics 2011–2012," http://sgb.meb.gov.tr/meb_iys_dosyalar/2012_12/06021046_meb_istatistikleri_orgun_egitim_2011_2012.pdf.)

[15]Regression analogues to these figures (Table S.I) as well as corresponding estimates for the 1990 census covariates (Table S.II) can both be found in the Supplemental Material (Meyersson (2014)).

TABLE I

SUMMARY STATISTICS[a]

|	Mayor Type			Difference
	All (1) Mean (S.D.)	Islamic (2) Mean (S.D.)	Secular (3) Mean (S.D.)	(2) − (3) (4) Est. (S.E.)
Main outcome variables				
Share women aged 15–20 with high school education	0.163 (0.096)	0.140 (0.090)	0.166 (0.096)	−0.026*** (0.006)
Share men aged 15–20 with high school education	0.192 (0.077)	0.196 (0.076)	0.192 (0.078)	0.004 (0.005)
Main explanatory variable				
Islamic mayor in 1994	0.120 (0.325)	1.000 (0.000)	0.000 (0.000)	1.000 (0.000)
Covariates				
Islamic vote share 1994	0.139 (0.154)	0.415 (0.114)	0.101 (0.116)	0.313*** (0.007)
Number of parties receiving votes 1994	5.541 (2.192)	5.889 (3.019)	5.494 (2.050)	0.395** (0.131)
Log population in 1994	7.840 (1.188)	8.315 (1.767)	7.775 (1.070)	0.540*** (0.071)
Population share below 19 in 2000	0.405 (0.083)	0.445 (0.075)	0.400 (0.082)	0.046*** (0.005)
Population share above 60 in 2000	0.092 (0.040)	0.073 (0.031)	0.095 (0.040)	−0.022*** (0.002)
Gender ratio in 2000	1.073 (0.253)	1.076 (0.117)	1.073 (0.266)	0.003 (0.015)
Household size in 2000	5.835 (2.360)	6.445 (2.147)	5.752 (2.376)	0.693*** (0.141)
District center	0.345 (0.475)	0.394 (0.489)	0.338 (0.473)	0.056 (0.029)
Province center	0.023 (0.149)	0.067 (0.250)	0.017 (0.129)	0.050*** (0.009)
Sub-metro center	0.022 (0.146)	0.076 (0.266)	0.014 (0.119)	0.062*** (0.009)
Observations	2629	315	2314	2629

[a]Columns 1–3 report means and standard deviations in parentheses. Column 4 reports differences of group means between columns 2 and 3 with standard errors in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

(a) Global histogram

Discontinuity est. = -0.049, s.e. = 0.161
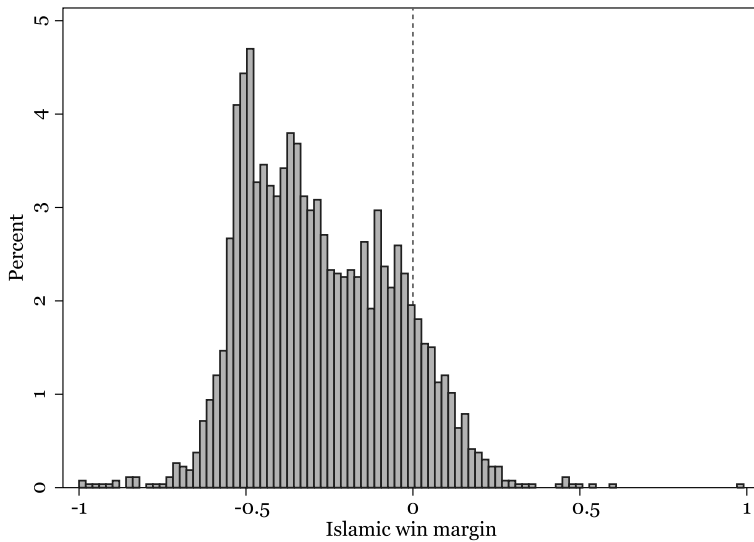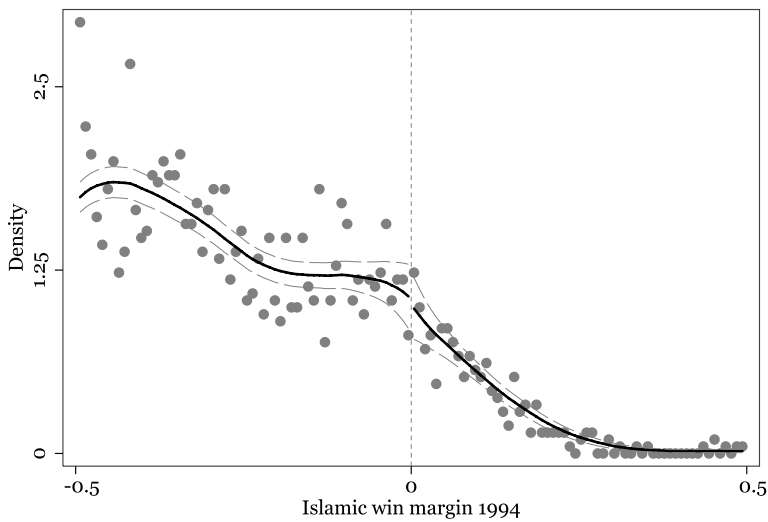
(b) Density test

FIGURE 2.—Is the density of the Islamic win margin continuous at the threshold? Panel (a) shows histogram of the Islamic win margin in 1994 for the full range in 2 percent bins. The graph in panel (b) shows the McCrary (2008) test of whether there is a discontinuity in the density of the Islamic win margin.
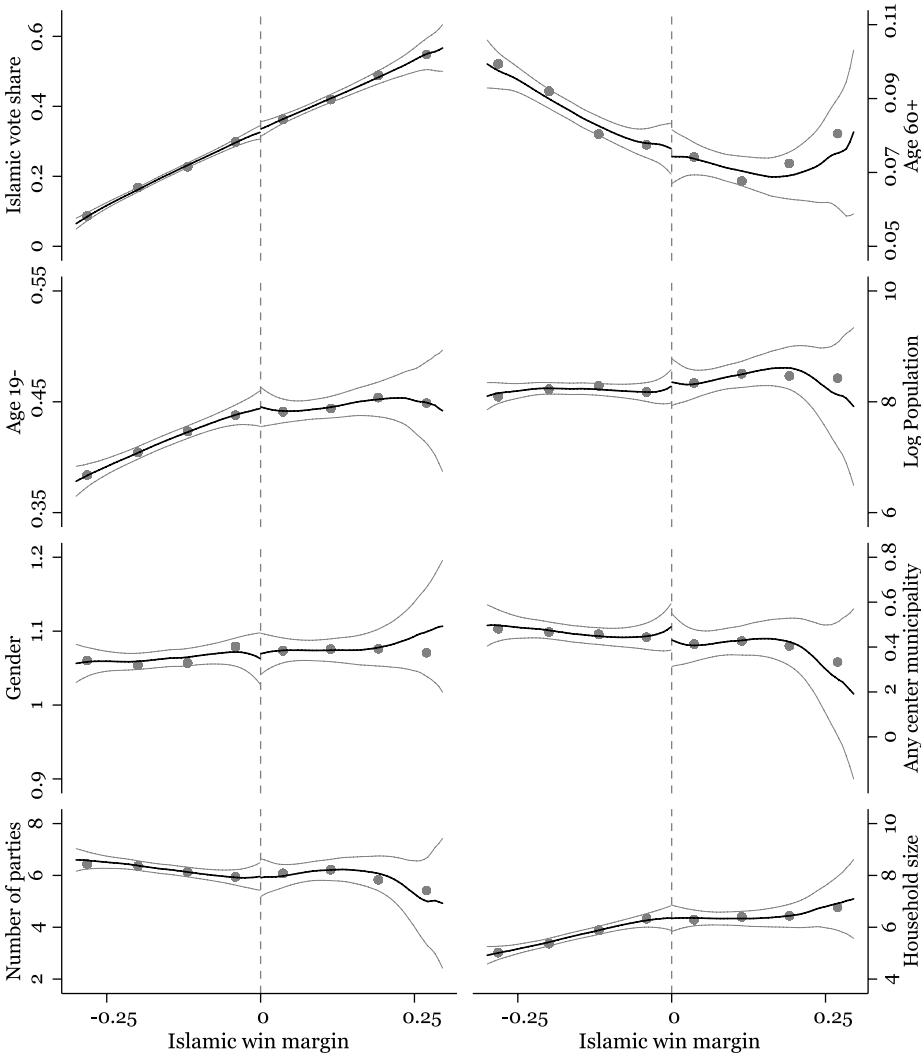
FIGURE 3.—Balanced covariate checks. The panels refer to the following covariates: Islamic vote share, population share above 60, population share below 19, log population, the gender ratio, a dummy for a center municipality, the number of vote-receiving parties, and household size. Each dot corresponds to the unconditional mean in bins of 8 percent by the Islamic win margin in mayoral elections 1994. The solid line represents the predicted values of a local linear smoother estimated using raw data on each side of the threshold at zero. Outer gray lines indicate 95 percent confidence intervals. A SUR test of the coefficients joint significance results in a *p*-value of 0.87.

plotting the Islamic vote share against the Islamic win margin. The absence of a jump here is consistent with the assumption that Islamic preferences were continuous over the cutoff point.

4. ISLAMIC RULE AND EDUCATION

4.1. *Main Results*

I begin with a graphical illustration of the RD design in Figure 4, where local averages of female (graphs (a) and (c)) and male (graphs (b) and (d)) high school completion shares in the 15–20 age cohort are plotted against the 1994 Islamic win margin in bins of 4 percent. The graphs (a) and (b) include outcomes recorded in 2000, and the graphs (c) and (d) include those recorded in 1990. In each graph, a local linear smoother is overlaid using raw (i.e., unbinned) data on each side of the cutoff, with gray lines indicating standard confidence intervals. The vertical dashed line marks the cutoff at zero.

Figure 4(a) for women in 2000 reveals an overall negative relationship between female education and the Islamic win margin, confirming the negative association between Islamic municipalities and female education. The most striking feature of this graph, however, is the positive jump in high school education at the discontinuity of around 3 percentage points. In Figure 4(b), which shows outcomes for men in 2000, there is less of a downward slope overall, and less evidence of a jump at the cutoff.

An illustrating validity test for the RD design is to compare these graphs with those using similar outcomes from the 1990 Census. Since these occurred before the assignment of the mayor in 1994, there should be no discontinuous pattern at the cutoff for these placebo outcomes. This placebo test further supports the identification strategy, as evidenced by the observed smooth pattern over the cutoff in the two bottom graphs.

Figure 5 provides RD graphs for different education types in 2000: enrollment (graph (a)), primary school (graph (b)), general high school (graph (c)), vocational education (graph (d)), general middle school (graph (e)), and vocational middle school (graph (f)). All but the enrollment outcome, which is for the 15–30 age cohort, are calculated for the 15–20 age cohort. In all left-hand graphs, the outcome exhibits a positive jump at the cutoff point for women but less so for men, whereas in the right-hand graphs, both gender-specific outcomes appear continuous over the cutoff point.

The graphs on the left-hand side not only show an increase in educational participation, but especially the middle and lower left graphs also suggest that this occurred in education types both voluntary and secular in nature. Primary school is secular but mandatory. Vocational middle and high school are voluntary, but since they also include religious (imam-hatip) schools, they can arguably be considered less secular on average. The lack of any effect on both middle and high vocational schooling further suggests that the increase in the
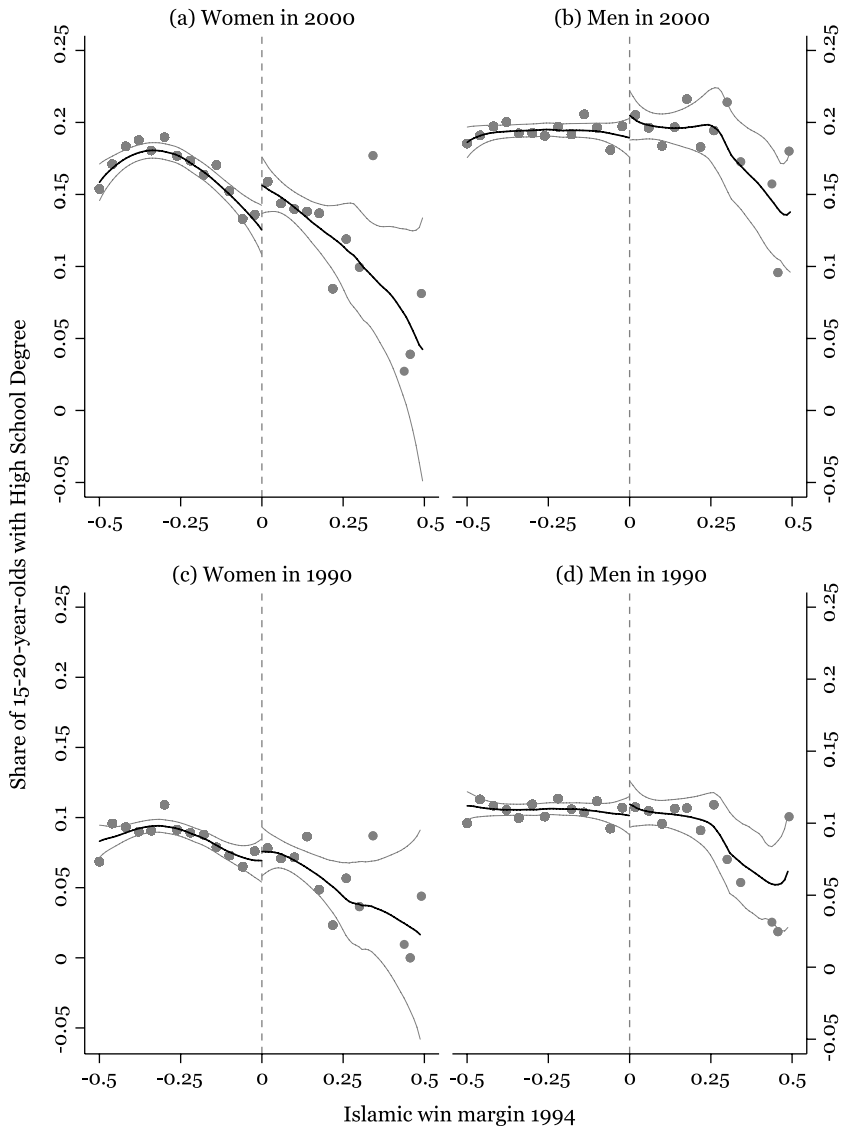
FIGURE 4.—Graphical illustration of RD design: High School Education in 2000 and 1990. The graphs show unconditional means in 4-percent bins for the share of women (graphs (a) and (c)) and men (graphs (b) and (d)), respectively, between 15 and 20 years of age with a high school degree in 2000 (graphs (a) and (b)) and 1990 (graphs (c) and (d)). The solid black line represents the predicted values of a local linear smoother on each side of the threshold at zero. The outer gray lines denote 95 percent confidence intervals.

(a) Enrolled

(b) Completed Primary School

(c) Completed High School

(d) Completed Vocational High School

(e) Completed Middle School

(f) Completed Jr. Vocational Middle School

Islamic win margin
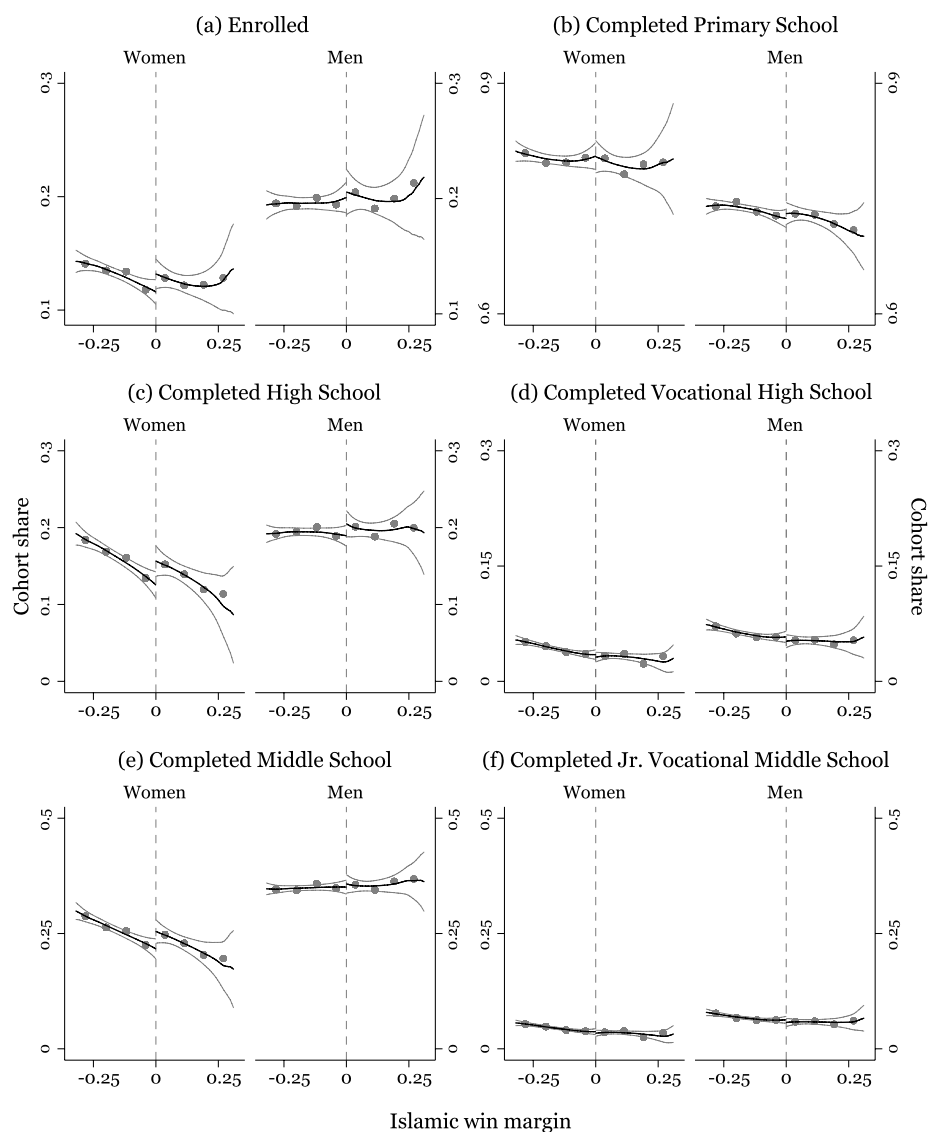
FIGURE 5.—Graphical illustration of RD design: Education types in 2000. The graphs show unconditional means in 8-percent bins for the share of women (left within panel) and men (right within panel). The graph (a) shows the share of the 15–30 age cohort categorized as students in the 2000 census. The rest of the graphs show, for the 15–20 age cohort, completion rates of primary school (b), high school (c), vocational high school (d), middle school (e), and vocational middle school (f). The solid black line represents the predicted lines from local linear smoothers estimated using raw data on each side of the discontinuity. The outer gray lines mark 95 percent confidence intervals.

corresponding secular types of schooling are not driven by a shift from one type to another.[16]

Even though these figures indicate a positive RD treatment effect of having an Islamic mayor, they still leave room for more refined analysis. For this purpose, Table II presents regression results for women in Panel A and men in Panel B. In each panel, the first row provides outcome means for the relevant sample. In all columns except the last, the outcome is the share of the 15–20 age cohort with completed high school in 2000. In the final column, the outcome is the share of the 15–30 age cohort enrolled in any type of education. All but columns 1 and 3 include controls for log population, the Islamic vote share, the number of vote-receiving parties, the share of the population under 19 years, the share of the population above 65 years, the gender ratio, municipality type dummies, and province fixed effects.[17]

Starting with Panel A and the results for women, columns 1 and 2 report unconditional and conditional ordinary least squares (OLS) estimates. The former shows a negative coefficient of 2.6 percent, identical to that in Table I. Adding the set of controls in the latter column, however, results in a positive estimate of 1.2 percentage points, statistically significant at conventional levels.[18]

Turning to the RD regressions, the optimal bandwidth, $\hat{h}$, calculated using the Imbens and Kalyanaraman (2012) algorithm, results in a bandwidth of 0.24 for women and 0.32 for men. The somewhat narrower bandwidth for women can be attributed to the female outcome's more nonlinear relationship with the forcing variable, as seen by comparing Figures 4(a) and 4(b), and this results in a smaller bandwidth on which a linear regression can suitably be run.

Using a local linear specification, column 3 reveals an RD estimate of a 3.2 percentage point treatment effect on female high school education, and is statistically significant at 1 percent. Adding controls in column 4 results in a more precisely estimated but nearly identical estimate of 2.8 percentage points.[19] In terms of magnitude, a 3 percent increase in the 15–20 age cohort's high school completion corresponds to a 20 percent increase relative to the mean. Importantly, this increase in absolute terms went a long way toward closing the observed gender gap in high school completion.

The rest of the columns in Panel A reflect variations in the specification, and all these estimates remain positive and statistically significant at 1 percent. Halving the bandwidth in column 5 results in a slightly larger estimate,

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[16]Regression analogues to this figure can be found in Table S.III of the Supplemental Material.

[17]For the sake of brevity, estimates of these controls are suppressed in this table and are instead reported in Table S.V of the Supplemental Material.

[18]This is solely due to the inclusion of Islamic vote share on the right-hand side, as can be seen in Table S.V of the Supplemental Material.

[19]This estimate is small in absolute terms, and to some extent artificially so, as the 15–20 age cohort includes many individuals who, in 2000, were likely too young to have finished high school. Assuming only individuals aged 18–20 in 2000 could have finished high school, and that these constitute half of the entire 15–20 age cohort, an adjusted estimate would be 6 percent.

TABLE II
ISLAMIC RULE AND HIGH SCHOOL EDUCATION[a]

Outcome	Completed High School in 2000								Enrollment
Age Cohort	15–20								15–30
Control Function	None		Linear				Quadratic	Cubic	Linear
Bandwidth	Global		$\hat{h}$		$\hat{h}/2$	$2\hat{h}$	$\hat{h}$	$\hat{h}$	$\hat{h}$
Covariates	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel A: Women								
Outcome mean	0.163	0.163	0.152	0.152	0.144	0.166	0.152	0.152	0.127
Islamic mayor in 1994	−0.026***	0.012**	0.032***	0.028***	0.032***	0.022***	0.028***	0.043***	0.014***
	(0.006)	(0.006)	(0.010)	(0.007)	(0.011)	(0.006)	(0.011)	(0.016)	(0.005)
Bandwidth	1.000	1.000	0.240	0.240	0.120	0.480	0.240	0.240	0.205
R^2	0.01	0.55	0.03	0.65	0.65	0.58	0.65	0.65	0.48
Observations	2629	2629	1020	1020	589	2049	1020	1020	904

(*Continues*)

TABLE II—*Continued*

Outcome	Completed High School in 2000								Enrollment
Age Cohort	15–20								15–30
Control Function	None		Linear				Quadratic	Cubic	Linear
Bandwidth	Global		$\hat{h}$		$\hat{h}/2$	$2\hat{h}$	$\hat{h}$	$\hat{h}$	$\hat{h}$
Covariates	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel B: Men								
Outcome mean	0.192	0.192	0.194	0.194	0.195	0.193	0.194	0.194	0.197
Islamic mayor in 1994	0.004	0.009	0.007	0.010	0.015*	0.011*	0.015*	0.019	0.014
	(0.005)	(0.006)	(0.008)	(0.007)	(0.008)	(0.006)	(0.009)	(0.012)	(0.009)
Bandwidth	1.000	1.000	0.323	0.323	0.161	0.646	0.323	0.323	0.230
R^2	0.00	0.41	0.00	0.43	0.47	0.41	0.43	0.43	0.41
Observations	2629	2629	1341	1341	747	2584	1341	1341	993
	Panel C: Test of coefficient equality between women and men								
p-value	0.000	0.472	0.001	0.004	0.031	0.027	0.169	0.042	0.993

[a]Panel A reports regression results for women and Panel B shows the corresponding results for men. Panel C reports p-values from SUR tests that coefficients for each column in Panels A and B are equal. The outcome in columns 1–8 is the municipal share of individuals between 15 and 20 years of age with completed high school in 2000, and the student share of 15–30-year olds in column 9. The first row in each panel shows the outcome mean for the relevant sample. Columns 1–2 are OLS specifications using the entire sample with and without any controls. Specifications in columns 3–4, are RD specifications with and without controls. Both these specifications include a linear control for the Islamic win margin on each side of the discontinuity. The discontinuity is determined by the Islamic win margin, defined as the difference in vote share between the largest Islamic party and the largest secular party in 1994. In both columns, the sample is restricted to a bandwidth of $\hat{h}$, determined by the Imbens and Kalyanaraman (2012) algorithm. Columns 5–8 are alternative RD specifications using the control function and bandwidth pairs: linear and $\hat{h}/2$, linear and $2\hat{h}$, quadratic and $\hat{h}$, as well as cubic and $\hat{h}$. Column 9 is a local linear RD specification with bandwidth $\hat{h}$. Covariates include the Islamic vote share, the number of vote-receiving parties, the share of the total population under 19 years, the share of the total population above 60, the gender ratio, log total population, dummies for municipality types, and province fixed effects. Standard errors, clustered by province, are in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

while doubling the bandwidth in column 6 leads to a slightly smaller estimate. Columns 7 and 8 keep the baseline bandwidth unchanged and instead increase the order of the control function to a quadratic polynomial in the former and a cubic one in the latter, both without meaningfully affecting the results. The last column in Table II shows the impact of having an Islamic mayor on enrollment share among the 15–30 age cohort, and confirm the positive effect for women's participation even one year after the 1994-elected mayor's tenure ended.

In Panel B, estimates for men in both OLS and RD specifications are smaller in magnitude and mostly statistically insignificant. RD estimates are still positive and roughly half the magnitude of the female outcomes. Relative to the mean, the impact for men is 5 percent, a mere fourth of the relative impact for women. The difference in the treatment effects for men and women is tested in Panel C. This panel reports *p*-values from seemingly unrelated regressions (SUR) of column-wise tests whether the male and female estimates are statistically different from each other. For two thirds of the columns, the hypothesis of no difference between female and male estimates can be rejected at 5 percent significance. The absence of any significant estimates for men—by either OLS or RD—is consistent with an absence of factors restricting participation in the same manner as for women. This is discussed further in the next section.

Imbens and Lemieux (2008) recommended extensive sensitivity analysis of the RD specification with respect to the bandwidth. Other researchers like Dell (2010), as well as Lee and Lemieux (2009), expanded this to also include variations in the control function, and, following these benchmarks, Table III reports additional RD estimates for additional bandwidths and polynomial orders in the control function. Female outcomes appear in Panel A and male outcomes in Panel B. Variation in bandwidths is ordered by column and polynomial order in the control function by row. Throughout this table (which all contains the same set of controls as in Table II), estimates are robustly positive and significant for women's high school completion. In combinations where the bandwidth is large and the polynomial order of the control function is low, RD estimates tend toward the conditional OLS estimate. For men, some specifications produce positive and significant estimates, although most remain smaller and less precise than those for women.

Table IV includes additional robustness tests using different controls and samples. The table shows that estimates are robust to including only controls from the 1990 census, past Islamic political control, and several proxies for income. Furthermore, the baseline effect of Islamic rule is largely driven by an Islamic party effect, since the treatment effect remains robust to only including close elections with other right-wing parties.[20] The treatment effect is also positive in both center- as well as the smaller township municipalities, although

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[20]Other right-wing parties, such as the center-right party ANAP under Turgut Özal and the nationalist far-right party MHP, have often catered to the same poor and conservative voter base as the Islamic parties. Whereas the difference between Islamic and left-wing parties can be attributed to both a religious and left-right component, on the right-wing of the political spectrum

TABLE III

ALTERNATIVE RD SPECIFICATIONS[a]

	Bandwidth				
	1 (1)	0.5 (2)	0.25 (3)	0.1 (4)	0.05 (5)
Panel A: Women					
Polynomial order of control function					
None	0.012**	0.015**	0.018***	0.025***	0.018*
	(0.006)	(0.006)	(0.006)	(0.007)	(0.010)
Linear	0.014**	0.021***	0.025***	0.028**	0.039**
	(0.007)	(0.006)	(0.007)	(0.012)	(0.019)
Quadratic	0.027***	0.030***	0.033***	0.032*	0.051
	(0.007)	(0.007)	(0.010)	(0.018)	(0.032)
Cubic	0.031***	0.026***	0.036**	0.057**	0.054
	(0.007)	(0.010)	(0.015)	(0.028)	(0.042)
Quartic	0.030***	0.032**	0.044**	0.067**	0.028
	(0.009)	(0.012)	(0.017)	(0.033)	(0.056)
Observations	2628	2177	1049	489	257
Panel B: Men					
Polynomial order of control function					
None	0.009	0.011*	0.012*	0.015*	0.010
	(0.006)	(0.006)	(0.007)	(0.008)	(0.011)
Linear	0.010*	0.014**	0.012*	0.011	0.017
	(0.006)	(0.006)	(0.007)	(0.012)	(0.013)
Quadratic	0.016**	0.016**	0.019*	0.024	0.048*
	(0.007)	(0.007)	(0.010)	(0.016)	(0.025)
Cubic	0.017**	0.016	0.025*	0.038*	0.048
	(0.007)	(0.010)	(0.013)	(0.023)	(0.041)
Quartic	0.017*	0.028**	0.026*	0.071**	0.035
	(0.010)	(0.012)	(0.015)	(0.028)	(0.058)
Observations	2628	2177	1049	489	257

[a]The outcome is the municipal share of individuals 15 to 20 years old with completed high school for women (Panel A) and men (Panel B). Each cell represents an RD estimate from a specification using the bandwidth displayed column-wise and the control function displayed row-wise. All specifications include controls for the Islamic vote share, the number of vote-receiving parties, the share of the total population under 19 years, the share of the total population above 60, the gender ratio, log total population, and dummies for municipality types. Standard errors, clustered by province, are in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

more precise and larger effects are found among the latter. In Figure S.1 of the Supplemental Material, placebo tests for alternative discontinuities in the

the difference is mainly related to the role of Islam in society. I am grateful to an anonymous referee for pointing this out.

TABLE IV

ADDITIONAL ROBUSTNESS CHECKS[a]

Outcome	High School Completed Among 15–20 Age Cohort in 2000							
Specification	Baseline Estimate	1990 Census Controls	Islamic vs. Secular		Building Census Controls	1989 Islamic Mayor Control	Municipality Type	
			Right	Left			*Merkez*	*Belde*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Women								
Outcome mean	0.152	0.168	0.149	0.174	0.150	0.171	0.204	0.115
Islamic mayor in 1994	0.028***	0.015**	0.023***	0.039	0.023***	0.024***	0.016	0.029***
	(0.007)	(0.007)	(0.007)	(0.026)	(0.007)	(0.009)	(0.015)	(0.009)
Bandwidth	0.240	0.305	0.283	0.256	0.242	0.303	0.278	0.282
R^2	0.65	0.75	0.62	0.80	0.69	0.62	0.65	0.52
Observations	1020	769	964	191	1014	948	512	658

(*Continues*)

TABLE IV—*Continued*

Outcome	High School Completed Among 15–20 Age Cohort in 2000							
Specification	Baseline Estimate	1990 Census Controls	Islamic vs. Secular		Building Census Controls	1989 Islamic Mayor Control	Municipality Type	
			Right	Left			*Merkez*	*Belde*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel B: Men							
Outcome mean	0.195	0.204	0.193	0.201	0.194	0.202	0.221	0.172
Islamic mayor in 1994	0.010	0.009	0.006	0.052**	0.008	0.011	0.006	0.020**
	(0.007)	(0.007)	(0.007)	(0.023)	(0.007)	(0.008)	(0.010)	(0.010)
Bandwidth	0.307	0.235	0.280	0.298	0.314	0.571	0.412	0.323
R^2	0.45	0.57	0.45	0.66	0.46	0.43	0.45	0.40
Observations	1281	592	951	228	1285	1828	739	744
	Panel C: SUR test of equality between women and men							
p-value	0.006	0.414	0.005	0.494	0.018	0.037	0.202	0.312

[a]The outcome is the female (Panel A) and male (Panel B) shares of 15–20 age cohort with completed high school in 2000. Panel C reports *p*-values from SUR tests of equality between the estimates in Panels A and B. All RD specifications include a linear control for the Islamic win margin on each side of the discontinuity and a bandwidth calculated using the Imbens and Kalyanaraman (2012) algorithm. Column 1 is the baseline local linear RD estimate with controls for Islamic vote share, number of vote-receiving parties, household size, log population, share below 19, share above 60, gender ratio, municipality type dummies, and province fixed effects. Column 2 includes as controls only the 1990 census variables log population, age below 19, age above 60, gender ratio, share married, share employed women, share 15–20 with high school, municipality type dummies, and province fixed effects. The specifications in columns 3 and 4 include only observations where the Islamic win margin measures the difference either between an Islamic and right-wing secular party (column 3) or between an Islamic and left-wing secular party (column 4). Column 5 adds log total floor space of all buildings and the share of education building space, all measured in 1990. Column 6 includes a control for whether an Islamic mayor was elected in the 1989 election. Columns 7 and 8 runs separate regressions for center (*merkez*) and township (*belde*) municipalities, respectively. Standard errors, clustered by province, are in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

forcing variable further fail to find significant discontinuities at points of the forcing variable other than zero.

4.2. *RD Treatment Effects and the Poor and Pious*

A rather striking aspect of the RD estimate for female education is that it has the opposite sign of the unconditional OLS estimate. In contrast, the choice of estimation method has hardly any bearing on estimates for men, which remain smaller and less precise.

After the battery of validity checks, there is little reason to doubt the design's identification assumptions, but the RD treatment effect nonetheless identifies a *local* treatment effect at the specific cutoff value of the Islamic win margin. To the extent that the subpopulation around the cutoff differs from the whole population, and without the strong assumption of homogeneous treatment effects, the RD treatment effect can differ from the average treatment effect.

Several factors contribute to make the estimated RD treatment effect both credible and relevant. A fortunate aspect of the RD design used is that, as Figure 1 showed, the forcing variable around the cutoff constitutes a wide range of underlying Islamic vote shares, and therefore a varied group of close elections. The conditional OLS estimate for women also shows a positive significant estimate, and as this does not rely on a comparison of close elections, it lends further credibility to the RD estimates.[21] However, regardless of whether the estimated treatment effect is identical to the average treatment effect or not, an equally relevant question is to what extent the estimated local effect is of economic importance.

I claim that the RD treatment effect is driven by areas that are both poorer and more religiously conservative; areas that are, for reasons described in Section 2, likely to exhibit higher barriers to entry for women than for men. While this may provide limited inference for wealthier and higher-educated communities, it is nonetheless of significant relevance for areas where the improvement of women's rights is of the highest importance.

A reasonable conjecture is thus that the municipalities close to the discontinuity constitute communities with higher preexisting constraints to female participation. This consequently leads to the hypothesis that areas both poorer and more pious ought to experience larger treatment effects of Islamic rule on female high school.

I investigate this possible heterogeneity in Table V. In order to allow heterogeneous RD effects of Islamic rule on education in the current framework, I first identify proxy measures for poverty and piety. In the absence of direct measures of income, I use the municipal literacy rate measured in 2000 in Panel A as a proxy for poverty. For piety, I use the Building Census data to create a variable defined as the religious building share of all building space in

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[21]See Dell (2010) for a useful discussion of comparing RD and OLS estimates to infer external validity.

TABLE V

HETEROGENEOUS RD TREATMENT EFFECTS[a]

Outcome	High School Attainment Among 15–20			
	Women		Men	
Sample	Above Median (1)	Below Median (2)	Above Median (3)	Below Median (4)
Panel A: Sample split at median literacy share				
Outcome mean	0.200	0.104	0.218	0.173
Islamic mayor in 1994	0.017 (0.011)	0.029*** (0.008)	0.010 (0.010)	0.007 (0.010)
p-value	0.362		0.834	
Bandwidth	0.250	0.250	0.250	0.250
Observations	524	524	525	525
Panel B: Sample split at median share of religious buildings				
Outcome mean	0.140	0.161	0.191	0.198
Islamic mayor in 1994	0.036*** (0.011)	0.011 (0.011)	0.006 (0.010)	0.018* (0.010)
p-value	0.096		0.360	
Bandwidth	0.250	0.250	0.250	0.250
Observations	517	517	518	518
Panel C: Sample split at median Islamic vote share				
Outcome mean	0.125	0.179	0.188	0.203
Islamic mayor in 1994	0.027*** (0.008)	−0.004 (0.017)	0.007 (0.009)	0.020 (0.016)
p-value	0.077		0.470	
Bandwidth	0.250	0.250	0.250	0.250
Observations	524	525	525	526

[a]The table shows heterogeneous RD treatment effects by splitting the sample of observations, within a bandwidth of 0.25 of the Islamic win margin, at the median value of three variables: the average literacy share across all individuals (Panel A), the share of religious building space (Panel B), and the Islamic vote share (Panel C). Odd columns report above-median RD estimates and even columns report below-median RD estimates for women in columns 1–2 and men in columns 3–4. All specifications include a linear control for the Islamic win margin on each side of the discontinuity and additional controls for log population, population share below 19, population share above 60, gender ratio, municipality type dummies, and province fixed effects. Standard errors, clustered by province, are in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Panel B. In Panel C, I also use the Islamic vote share in 1994 as a more direct measure of Islamic preferences. There are no significant RD treatment effects on any of these proxy measures.[22] As can be seen comparing above- and below-

[22]The statistically insignificant RD estimates of Islamic mayor on the literacy rate, the share of religious building space, and the Islamic vote share are −0.002 (s.e. 0.002), −0.005 (s.e. 0.009), and 0.006 (s.e. 0.012), respectively.

median averages in the first rows of each panel, for women, all but the literacy share are negatively correlated with high school education, and vice versa for correlations with having an Islamic mayor. For men, the correlations are of the same sign, but much smaller. We should thus expect to find larger effects on women for the below-median literacy sample on the one hand, and the above-median sample for both religious building share and Islamic vote share on the other. Before splitting the sample at the median along these three dimensions, I first reduce the sample to only include observations within a bandwidth of 0.25 (i.e., the baseline bandwidth from column 3 in Table II) for both men and women, so as to make the analysis of median samples more relevant for the RD design.

The three panels in Table V show that the RD treatment effect is larger in municipalities that are poorer, in Panel A (i.e., have below-median literacy rates) and more religious, in Panels B (i.e., have above-median shares of religious buildings) and C (have a higher Islamic vote share). As shown by the *p*-values, which test whether the above- and below-median estimates are statistically different from each other, this difference is only significant in Panels B and C. The significant differences in treatment, above and below the median for the two lower panels but not the upper one, suggest that the baseline RD estimates are not driven solely by poverty, but also by factors related to religious conservatism. Nonetheless, even in Panel A it is clear that the average estimates seem driven by larger and more precise estimates among the poorer constituencies.

All in all, this serves to show that Islamic rule had more pronounced participation effects for women in communities where arguably the barriers to entry were higher. The absence of similar heterogeneous effects for men is consistent with lower corresponding barriers to male entry. Why and how the Islamic parties were effective in increasing female participation in these communities is the topic of the next section.

5. DISCUSSION OF CAUSAL MECHANISMS

Several researchers have emphasized Islamic parties' effectiveness in mobilizing groups whose barriers to entry in education are particularly high (Arat (2005), Yavuz (1997), and White (2002)). These barriers do not just relate to economic considerations, but also to those related to tradition, culture, and religion. According to Human Rights Watch (2004), this specifically affects women's access to education in that

> "families with traditional values remain reluctant to send their daughters to school, particularly as they approach puberty. This self perpetuating process locks generations of women out of the learning environment with the consequence that, in some regions of the country, the provision of a universal free state education has failed to impact traditional values to the extent that might have been predicted."

For education to increase in their municipalities, *Refah* policies must have alleviated these frictions somehow. Examples of policies to target the poor only tell part of the story, and as White (2002) explained, *Refah*'s strategy was about more than an exclusive "politics of the poor." As I argue in this section, *Refah* lowered barriers to entry to female education by overcoming restrictions related to religious conservatism as well. I focus on two examples of this: neglect of the headscarf ban and shifting educational facilities toward those more acquiescent to religious conservatives. Although not meant to be exhaustive of the channels in which female education became more accessible, these two are widely quoted examples of a policy of overcoming constraints to participation more broadly.

The first of these—the headscarf ban—stands out as a more direct barrier to female participation in education. The ban juxtaposes the demand for education with traditional values, since the headscarf is often a sign of modesty or piety and sometimes even a vehicle for moving outside of the household (Human Rights Watch (2004), White (2002)). As Section 2 mentioned, an overwhelming majority of Turkish women wear some form of head cover when in public, and there is significant resistance among parents in sending daughters to school without one.

A defining part of *Refah*'s legacy, documented in court documents (ECHR (2003)), was an explicit unwillingness to enforce this headscarf ban. Two statements by party chairman Erbakan served as evidence against the party when Turkey's constitutional court banned the party. In the first statement, from 1993, Erbakan referred to *Refah*'s local government experience, saying that "when we were in government…there was never any question of hostility to the wearing of headscarves." In another statement made two years later, Erbakan referred specifically to education, saying that heads of education facilities would "retreat before the headscarf when Refah comes to power." Yet despite the threat of not enforcing the headscarf ban as perceived by the judiciary, there exist no systematic data on variation in enforcement of the ban, and therefore it is difficult to determine whether this may have been due to local Islamic rule.

A second controversial aspect of *Refah*'s actions was its close affiliation with other Islamic organizations, especially the economically powerful Islamic brotherhoods. These organizations, through the use of foundations, so-called *vakıfs*, are directly linked to an education-related policy area where the mayor had more formal authority, namely urban planning.

In Turkey, education spending is almost entirely within the realm of the central government. Yet even though municipalities' official responsibilities do not include education, they are not prohibited from this policy area. Municipalities also indirectly affect education through their control of urban planning policies. Any construction or large repair of buildings, including education-related buildings, needs the approval, in the form of a building permit, from the municipal mayor.

Focusing on buildings also allows me to more formally examine the Islamic party's link with religious organizations, in particular the *vakıf*.[23] Such religious foundations are frequent providers of academic scholarships and subsidized schooling supplies, in addition to building student dormitories and Qur'anic study centers (White (2002) and World Bank (2000)).

When a *vakıf* builds a school, either a religious or a secular one, it is subject to state monitoring through the Ministry of Education, and must adhere to a centrally determined curriculum. But when these are extracurricular facilities, including religious study centers and student dormitories, few of them exhibit any real state monitoring. These facilities often allow women to wear the headscarf, use prayer rooms, interact with a local imam, and attend religious courses outside the central education curriculum. Even in places where the headscarf ban was enforced, boys and girls were often separated.[24] As such, the provision of extracurricular education facilities more amenable to religious conservatives may have lowered the cost of participation for a sizable group of parents. While this fueled the secular establishment's concerns over unmonitored religious instruction (Balli (1998), Kinzer (1997)), these facilities thus became "a strong selling point" for parents in sending daughters to school (Cowell (1994)).

Against this background, I examine whether the Islamic mayors shifted the allocation of the urban space toward education, as well as the role of *vakıf* physical investment in education. For these purposes, I examine the effect of Islamic rule on two types of outcomes in Table VI. The first relates to completed buildings between 1990 and 2000 by owner from the 2001 Building Census. The second consists of building permits approved by the municipal mayor between 1994 and 1999.

The first five columns in the table report the results on buildings completed between 1990 and 2000. The first row in column 1 is the average share of all building space (in square meters) that comprises education buildings (schools, dormitories, etc.). On average, about 3 percent of the construction between 1990 and 2000 consisted of such buildings. Out of these educational facilities, most were either government- (58 percent, column 5) or privately-owned (20 percent, column 2); smaller fractions were owned by religious charities (1.6 percent, column 3) and municipalities (2.3 percent, column 4).

In Panel A, I report OLS estimates with and without covariates. Unconditional estimates illustrate how Islamic mayors relied on private and charity funding for their education facilities, although adding controls results in insignificant estimates close to zero across the board. Panel B reports RD

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[23]The *vakıf*, a common form of organization in the Muslim world with roots in Islamic Law (Kuran (2001)), is a religious foundation that is legally distinct from other civil society organizations, and has larger economic freedoms (White (2002)). The *vakıf* achieves its preferred legal status over general associations (*dernekler*) once it is endowed with property as collateral, and may engage in a wide number of charitable activities, including education (Yavuz (2003)).

[24]"What Scares Turkey's Women?" The Daily Beast, http://www.thedailybeast.com/articles/2012/03/21/what-scares-turkey-s-women.html.

TABLE VI

BUILDINGS[a]

	Share of Educational Buildings (1)	Share of Educational Buildings by Owner Type				Building Permits	
		Private (2)	Vakıf (3)	Munic. (4)	Gov. (5)	Educ. Share (6)	Private Shr. of Educ. (7)

				Panel A: Global OLS			
Outcome mean	0.028	0.202	0.016	0.023	0.579	0.028	0.254
			Model 1. Unconditional estimates				
Islamic mayor in 1994	0.001 (0.003)	0.046** (0.020)	0.017** (0.007)	−0.008 (0.007)	−0.033 (0.028)	−0.002 (0.007)	0.141*** (0.046)
			Model 2. Conditional estimates				
Islamic mayor in 1994	0.002 (0.003)	0.006 (0.023)	0.006 (0.009)	−0.002 (0.010)	0.030 (0.038)	−0.022* (0.012)	0.018 (0.061)
Bandwidth	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Observations	2641	2010	2010	2010	2010	2099	661
			Panel B: Conditional local linear RD				
Outcome mean	0.028	0.218	0.017	0.016	0.554	0.040	0.294
			Model 1. Bandwidth = $\hat{h}$				
Islamic mayor in 1994	0.004 (0.006)	0.036 (0.043)	0.040** (0.016)	−0.012 (0.014)	−0.007 (0.050)	−0.025 (0.019)	0.282** (0.120)
Bandwidth	0.217	0.208	0.122	0.224	0.243	0.253	0.161
Observations	953	743	485	793	847	838	241
			Model 2. Bandwidth = $\hat{h}/2$				
Islamic mayor in 1994	−0.002 (0.009)	0.043 (0.058)	0.060** (0.028)	−0.022 (0.018)	−0.012 (0.066)	−0.011 (0.027)	0.514* (0.268)
Bandwidth	0.108	0.104	0.061	0.112	0.121	0.126	0.081
Observations	547	415	260	447	483	472	125
			Model 3. Bandwidth = $2\hat{h}$				
Islamic mayor in 1994	0.001 (0.005)	0.012 (0.030)	0.030** (0.013)	−0.004 (0.010)	0.017 (0.042)	−0.027* (0.015)	0.063 (0.085)
Bandwidth	0.433	0.417	0.244	0.448	0.486	0.505	0.323
Observations	1858	1408	848	1515	1634	1798	431

[a]The table shows results on outcomes from the Building Census of 2001; column 1 shows the education share of all building space (in square meters) constructed between 1990 and 2000. Columns 2 through 5 show, for the same period, shares of education building spaces privately owned (column 2), owned by religious foundations (vakıflar, column 3), owned by municipalities (column 4), and owned by the central government (column 5). Panel A reports standard OLS estimates for the entire sample with (Model 1) and without (Model 2) controls. Panel B reports local linear RD estimates with covariates and bandwidth sizes $\hat{h}$, $\hat{h}/2$, and $2\hat{h}$ in Models 1, 2, and 3, respectively. The bandwidth $\hat{h}$ is determined by the Imbens and Kalyanaraman (2012) algorithm. All RD specifications include a linear control in the Islamic win margin on each side of the discontinuity. Covariates include the log total building space area, the Islamic vote share, the number of vote-receiving parties, log population, age below 19, age below 60, gender ratio, municipality type dummies, and province fixed effects. Standard errors, clustered by province, are in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

treatment effects from conditional local linear specifications for three separate bandwidths: the optimal bandwidth, $\hat{h}$, as well as half and twice the size of this bandwidth.[25] These estimates show that Islamic rule, while not leading to any overall expansion in education facilities, did result in a shift in the educational building space toward those owned by religious charities. Corresponding effects can also be seen, in the last two columns, on building permits approved. TurkStat produces annual building permits by owner and type, although vakıf permits are included among the group private owners in these data. Looking at the effect on the total share of permits given to education buildings between 1994 and 1999, if anything there is a small and imprecise negative effect. There is, however, a significant increase in the private share of education facilities, consistent with an overall increase in non-state activity in the affected municipalities.

This confirms that educational policy in Islamist municipalities was complemented by investments from private religious charities. Several sources report these facilities as instrumental in overcoming existing barriers to participation for women. Yet to what extent the increase in these facilities had any causal impact on female enrollment is not established in Table VI, and is beyond the scope of this paper.[26] Therefore, it can at most be deemed consistent with an already prevalent view that Islamist municipalities in Turkey pursued educational policies more tailored to religious conservatives.

Another plausible mechanism is that Islamic and secular parties do not necessarily differ in their preference for female education, but in the *motive* for this preference. As noted in Section 2, Islamic parties often accepted female education as a means for becoming better mothers. For more secular mayors, education may have served a different purpose more toward broader secularization and modernization. Thus, a secular mayor bundling participation in education with significant secular expectations may have been more challenging than an Islamic mayor pushing education as well as conservative values. The latter politician arguing for more female education may thus have more credibility. As we will see in the next section, however, Islamic rule did not lead to more conservative values.

So far, what these mechanisms have in common is a focus on lowering barriers to entry, albeit in potentially different ways. To assign a single mechanism as responsible for the substantial uptick in female education over a period of six years would be inconsistent with the Islamic party's ability to customize policies to different regions. For example, in the poorest Southeastern region, policies may have been more focused on economic aid to families who could not otherwise afford their daughters' education or who might have had security concerns

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[25]Specifications relying on variations in control functions instead of the bandwidth produce near-identical estimates.

[26]For a recent study aiming to estimate the effect of reducing gender inequalities in the supply of education facilities in India, see Meller (2012).

over distances to educational facilities. In the Anatolian heartland, policies to increase female education may have focused more on accommodating parents' demands for education under more religiously acceptable circumstances (see Yavuz (1997) for a discussion).

An alternative mechanism not relying on lowering barriers to entry, but instead on migration, is one where Islamic rule causes sorting of well-educated (and implicitly, richer) conservative families into poor and pious municipalities, supposedly because the environment has become more Islamic. There are, after all, RD effects on older cohorts, even small ones for the parent cohort between 31 and 64 (see Table S.VI of the Supplemental Material). This, however, is unlikely to be the main mechanism for several reasons. First, as Table S.VI of the Supplemental Material shows, treatment effects on the older parent cohort are largely orthogonal to the treatment effect on the 15–20 age cohort. Moreover, for a migration-based story to explain the previous results, it would also need to explain why there were positive female effects relative to men, but no other effects on corresponding gender-relative demographic outcomes (Table S.VII in the Supplemental Material). Furthermore, there is no evidence of municipalities becoming more conservative on other outcomes related to labor, social status, etc. (Table S.IV in the Supplemental Material). To assume that families with Islamic preferences choose to move more because of their daughters' education than because of their sons' further defies the fundamental problem that parents more often set the opposite priority among their children. And finally, while effects for the younger cohorts are more pronounced among the poor and pious, this is not the case for the parent cohort. This means increases for older cohorts did not occur in the same municipalities as the increases for the younger cohorts. A migration story navigating through these constraints therefore requires strong, if not culturally eclectic, assumptions. An explanation relying on lowering barriers to entry, however, is not only consistent with the uncovered results, but is further backed up by research across multiple disciplines, including anthropology, political science, and sociology (as referred to in Section 2).

6. LONG-RUN EFFECTS

Even though previous sections show a positive impact of Islamic rule in 1994 on female education in 2000, a concern is whether general-equilibrium effects could undo this effect in the long run. Given the link between Islamic political preferences and female participation, if Islamic rule also increases Islamic preferences, this could result in higher barriers to female entry and lower education levels over time. This section therefore examines the extent to which Islamic rule had any effects on these constraints in the long run.

In doing so, I exploit, as proxies for such constraints to female participation, both socioeconomic outcomes, such as high school education and adolescent marriage, as well as political outcomes, such as Islamic vote shares and

female participation in politics. The former two outcomes reflect their importance as development outcomes for women, and the latter two outcomes reflect the connection between religious conservatism and low female participation. I group these outcomes into two tables. In the first, I examine effects on high school completion in subsequent generations in 2011, as well as rates of adolescent marriage. In the second, I examine outcomes on Islamic voting in five elections after 1994, as well as female participation rates in the municipal council in 2009.

6.1. *Education*

I first start by testing whether having an Islamic mayor had long-term effects on education and adolescent marriage using data from the 2011 Address Based Population Registration System (ABPRS), the successor of Turkey's decennial censuses.[27]

Table VII presents results for high school and adolescent marriage, with outcomes pertaining to women in odd columns and to men in even columns. The first rows in each panel report outcome means: the mean for the full sample in Panel A, and the mean for the sample within the optimal bandwidth $\hat{h}$ in Panel B. For both men and women, I calculate the share with completed high school for two age cohorts, 15–19, and 15–29. The education outcome for the 15–19 cohort is similar to that in Table II, and the education outcome for the 15–29 age cohort accounts for the fact that anybody under 30 could have been affected under the set time frame. The last two columns include the unmarried share of the 15–19 age cohort. In the male cohort, only half a percent were married, while circa 9 percent of the female cohort were married. Panel A of the table reports OLS specifications with and without controls, while Panel B reports conditional local linear RD specifications for the three bandwidth sizes: the optimal bandwidth $\hat{h}$, as well as half and twice this value, respectively.

In Panel A, raw correlations between Islamic rule and female education are invariably negative for women and indistinguishable from zero for men. Conditional OLS estimates reveal positive magnitudes for both sexes, but are only significant for men. In Panel B, the RD treatment effect on the share of women in the 15–19 cohort is positive and marginally significant at 1.7 percentage points, corresponding to 9 percent relative to the mean. The corresponding effect for 15–19-year-old men is smaller and less precise. For the larger and older cohort in columns 3 and 4, estimates are essentially identical for both men and women, ranging from 2 to 3 percentage points. In column 5 and 6, estimates on the unmarried share of 15–19-year-olds is negative and significant for women, while male estimates are essentially zero.

[27]In contrast to the previous census, this data product currently contains only education and social status, making long-run studies on labor-related outcomes difficult. Moreover, the recorded data in ABPRS on high school education do not separate general versus vocational types of schooling.

TABLE VII

RD TREATMENT EFFECTS OF ISLAMIC RULE ON EDUCATION IN 2011[a]

Outcome	High School				Unmarried	
Age Cohort	15–19		15–29		15–19	
Gender	Women	Men	Women	Men	Women	Men
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Global OLS					
Outcome mean	0.193	0.189	0.347	0.420	0.915	0.995
	Model 1. Unconditional estimates					
Islamic mayor	−0.021***	−0.007	−0.047***	−0.010	−0.002	0.000
in 1994	(0.007)	(0.005)	(0.013)	(0.009)	(0.006)	(0.000)
	Model 2. Conditional estimates					
Islamic mayor	0.006	0.010*	0.010	0.022**	0.006	0.001
in 1994	(0.007)	(0.006)	(0.009)	(0.009)	(0.004)	(0.001)
Bandwidth	1.00	1.00	1.00	1.00	1.00	1.00
Observations	2338	2338	2338	2338	2338	2338
	Panel B: Conditional local linear RD					
Outcome mean	0.186	0.182	0.334	0.415	0.912	0.995
	Model 1. Bandwidth $= \hat{h}$					
Islamic mayor	0.017*	0.011	0.022**	0.027*	0.013**	−0.000
in 1994	(0.010)	(0.011)	(0.011)	(0.015)	(0.006)	(0.001)
Bandwidth	0.239	0.199	0.263	0.227	0.280	0.271
Observations	879	766	950	840	1009	976
	Model 2. Bandwidth $= \hat{h}/2$					
Islamic mayor	0.033**	−0.007	0.032*	0.034**	0.008	−0.000
in 1994	(0.013)	(0.014)	(0.016)	(0.015)	(0.008)	(0.001)
Bandwidth	0.119	0.100	0.131	0.114	0.140	0.136
Observations	508	420	544	482	581	554
	Model 3. Bandwidth $= 2\hat{h}$					
Islamic mayor	0.017**	0.013	0.021**	0.022*	0.008*	−0.000
in 1994	(0.007)	(0.012)	(0.010)	(0.013)	(0.005)	(0.001)
Bandwidth	0.477	0.399	0.525	0.454	0.560	0.542
Observations	1795	1486	2066	1710	2191	2143

[a]The table reports results for the outcomes from the 2011 Address-Based Population Register System (ABPRS). In columns 1–4, the outcome is high school completion shares for the age cohort 15–19 in columns 1–2 and the age cohort 15–29 in columns 3–4. In columns 5–6, the unmarried share of the 15–19 age cohort is the outcome. Female outcomes appear in odd columns and male outcomes in even columns. Panel A reports standard OLS estimates for the entire sample with (Model 1) and without (Model 2) controls. Panel B reports estimates from local linear RD specifications with covariates and bandwidth sizes $\hat{h}$, $\hat{h}/2$, and $2\hat{h}$ in Models 1, 2, and 3, respectively. The bandwidth $\hat{h}$ is determined by the Imbens and Kalyanaraman (2012) algorithm. All RD specifications include a linear control for the Islamic win margin on each side of the discontinuity. Covariates include the Islamic vote share, the number of vote-receiving parties, log population, age below 19, age below 60, gender ratio, municipality type dummies, and province fixed effects. Standard errors, clustered by province, are in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

As the younger 15–19 age cohort's high school could not have been directly affected by the mayor elected in 1994, this requires a brief discussion of the mechanisms involved. One possibility is that, over the long run, Islamic rule served to attract young, already-educated individuals, possibly explaining the positive effects also for men; another is that increasing education for the 15–20 cohort in 2000 had intergenerational spillovers on subsequent generations. Practices discussed in the previous section regarding the headscarf ban may have continued in schools after the mayor's tenure, and the vakıf-sponsored educational infrastructure may also have continued to lower barriers to entry. Although, for this duration, I cannot distinguish which of these mechanisms are dominating, these longer-run effects nonetheless confirm a positive effect of Islamic rule on creating environments more conducive to female education among the poor and pious.[28]

6.2. *Islamic Preferences and Women's Participation in Politics*

Notwithstanding the importance of increasing female education, this still leaves the question of whether Islamic rule affected other relevant outcomes. This section therefore focuses on the longer-run effects of Islamic rule on Islamic preferences, as well as on female participation in politics. Table VIII shows results for two types of outcomes, Islamic voting in the five subsequent national and local elections 1999 through 2009, and the share of women in the municipal council in 2009.[29] The table is organized the same as the two previous ones, with unconditional and conditional OLS estimates in Panel A and conditional local linear RD specifications for three bandwidth sizes in Panel B.

The first five columns in the table refer to the effect of Islamic rule on the share of votes going to Islamic parties.[30] The unconditional OLS estimates in Panel A confirm a substantial positive correlation between having an Islamic mayor in 1994 and Islamic voting in subsequent elections. With the exception of the smaller, but still significant, estimate for the 2004 outcome, having an Islamic mayor is correlated with more than a 10 percent increase in vote shares for Islamic parties. (Relative to the mean, this ranges from a 100 percent increase in 1999 to a 25 percent increase in 2009.) The correlation between Is-

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[28]Although not reported in this text, the same heterogeneity with regard to measures of poverty and piety as in Section 4.2 applies here, with more pronounced effects in such areas.

[29]Data on municipal councillors are available only for this year from Turkstat.

[30]In the 1999 election, the only Islamic party was the Virtue Party (Fazilet Partisi, FP), and in subsequent elections, I classify the Felicity Party (Saadet Partisi) as well as the Justice and Welfare Party (Adalet ve Kadimli Partisi, AKP) as Islamic parties. After the banning of the FP in 2001, the previous Islamic political movement split it into the more conservative SP and the more reformed AKP. The latter party is often distinguished from the other Islamic parties and does not refer to itself as an Islamic party. Yet, to the extent that the AKP can still be considered more Islamic than other parties, this has a limited bearing on the purpose of examining whether Islamic rule in 1994 had pro-Islamic effects in the longer run.

TABLE VIII

VOTING FOR ISLAMIC PARTIES AND FEMALE POLITICIANS[a]

Outcome	Islamic Party Vote Shares in Local and National Elections					Shares of Women in 2009 Municipal Council From		
Election Type Year	National 1999	National 2002	Local 2004	National 2007	Local 2009	All Parties	Islamic Parties	Secular Parties
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Panel A: Global OLS					
Outcome mean	0.153	0.360	0.396	0.478	0.445	0.027	0.012	0.015
			Model 1. Unconditional estimates					
Islamic mayor in 1994	0.175***	0.213***	0.068***	0.208***	0.157***	0.004	0.009**	−0.005*
	(0.011)	(0.020)	(0.008)	(0.018)	(0.015)	(0.005)	(0.003)	(0.003)
Joint p-value	0.046							
			Model 2. Conditional estimates					
Islamic mayor in 1994	−0.017	−0.027*	−0.005	−0.026**	0.017	0.005	0.002	0.003
	(0.015)	(0.015)	(0.012)	(0.012)	(0.017)	(0.004)	(0.002)	(0.003)
Joint p-value	0.046							
Bandwidth	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Observations	2540	2554	2659	2539	2355	2232	2232	2232

(*Continues*)

lamic rule in 1994 and subsequent voting thus remains persistent. Adding co-variates in Panel A results in smaller estimates, several being both negative and significant. In Panel B, RD estimates are all negative except one. Although less than half of these RD estimates are individually significant, those from the two lower models are jointly significant at conventional levels (with p-values of 0.05 and 0.000, respectively, for tests of columns 1–5).

The remaining columns have female participation in the municipal council in 2009 as the outcome. Normally, the municipal council has limited power over municipal policy, and appointments typically represent part-time positions.[31] Nonetheless, it remains an important springboard for a future political career (Bayraktar (2007)).

At 3 percent, female participation in the municipal council is remarkably low and indicative of a near-complete absence of women in political positions in Turkey.[32] There are, furthermore, no clear differences between which parties

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[31]I use the municipal council instead of the mayor simply because there are too few of the latter. Despite the first female mayor being elected in 1950, since 1999 the female mayor share has hovered around 0.6 percent, and is thus too small to use as an outcome ("Parties Have Used and Then Dropped Women," Bianet, http://ww.bianet.org/english/gender/112771-parties-have-used-and-then-dropped-women).

[32]On a nation-wide level, out of all the 2009 municipal council seats in Turkey, 3.8 percent were held by women.

TABLE VIII—*Continued*

Outcome	Islamic Party Vote Shares in Local and National Elections					Shares of Women in 2009 Municipal Council From		
Election Type Year	National 1999	National 2002	Local 2004	National 2007	Local 2009	All Parties	Islamic Parties	Secular Parties
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

			Panel B: Conditional local linear RD					
Outcome mean	0.224	0.444	0.434	0.570	0.523	0.031	0.018	0.012
			Model 1. Bandwidth $= \hat{h}$					
Islamic mayor in 1994	−0.019 (0.017)	−0.025 (0.015)	−0.017 (0.022)	−0.014 (0.011)	0.009 (0.038)	0.011** (0.005)	0.005 (0.003)	0.008* (0.004)
Joint *p*-value	0.031							
Bandwidth	0.282	0.316	0.167	0.284	0.140	0.224	0.217	0.174
Observations	1128	1274	797	1139	592	799	785	660
			Model 2. Bandwidth $= \hat{h}/2$					
Islamic mayor in 1994	−0.037* (0.022)	−0.013 (0.020)	−0.061* (0.034)	−0.017 (0.023)	−0.024 (0.049)	0.016* (0.009)	0.009 (0.006)	0.008 (0.008)
Joint *p*-value	0.016							
Bandwidth	0.141	0.158	0.084	0.142	0.070	0.112	0.109	0.087
Observations	647	716	423	657	314	456	444	349
			Model 3. Bandwidth $= 2\hat{h}$					
Islamic mayor in 1994	−0.024* (0.014)	−0.030** (0.014)	−0.011 (0.018)	−0.023* (0.012)	0.047* (0.025)	0.007* (0.004)	0.007** (0.003)	0.002 (0.003)
Joint *p*-value	0.000							
Bandwidth	0.564	0.631	0.334	0.568	0.280	0.448	0.435	0.348
Observations	2390	2502	1415	2397	1024	1611	1562	1222

[a]The table reports results for outcomes from the five elections occurring in 1999, 2002, 2004, 2007, and 2009. Columns 1–5 have Islamic vote shares as the outcome. Column 6 has the female share of municipal council members from all parties as the outcome, while columns 7 and 8 have the female shares of municipal council members from Islamic and secular parties, respectively. Panel A reports standard OLS estimates for the entire sample with (Model 1) and without (Model 2) controls. Panel B reports results from local linear RD specifications with covariates and bandwidth sizes $\hat{h}$, $\hat{h}/2$, and $2\hat{h}$ in Models 1, 2, and 3, respectively. The bandwidth $\hat{h}$ is determined by the Imbens and Kalyanaraman (2012) algorithm. All RD specifications include a linear control for the Islamic win margin on each side of the discontinuity. Covariates include the Islamic vote share in 1994, the number of vote-receiving parties, log population, age below 19, age below 60, gender ratio, municipality type dummies, and province fixed effects. Standard errors, clustered by province, are in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

the women represent, with female shares from Islamic and secular parties at 1.2 and 1.5 percent, respectively.

In columns 6–8 of Panel A, unconditional OLS estimates show that, although Islamic rule is largely uncorrelated with average female participation in the council, this hides a positive correlation with women from Islamic parties and a negative correlation with women from secular parties. This is consistent with

the widely noted political activity of conservative women in the Islamic parties at the local level (Arat (2005), White (2002)).

The RD treatment effects in column 6 reveal a 1.1 percentage point increase in the share of women on the municipal council. Due to the low average, this corresponds to an increase of more than one third in relative terms. Furthermore, column 7 and 8 show that this stems from increases in female councillors from both Islamic and secular parties. Variations in the bandwidth have little bearing on this result.

All in all, local Islamic rule had effects not just on long-term education, but also beyond education itself. I fail to find any evidence of a conservative shift in voting patterns over a 15-year period, and, if anything, Islamic rule led to an imprecise and marginal shift away from Islamic political preferences. Moreover, Islamic rule had a small but meaningfully positive effect on female participation in politics over the same period.

This exercise thus fails to find any evidence that general-equilibrium effects may, in the long run, undo the main effects documented in Section 4. Furthermore, this section's results resonate well with previous studies on the effects of education itself.[33] Yet, to limit the interpretation of the treatment effect as exclusively operating through education for women also means to forego what most researchers on Turkey and political Islam have noted in common, namely, the Islamic party's unprecedented ability to mobilize women among the poor and pious. An interpretation requiring weaker assumptions is thus one where local Islamic rule overcame constraints to participation by better accommodating religious conservatives in education and beyond.

7. CONCLUDING REMARKS

This study implements an RD design to exploit exogenous variation in having a democratically elected Islamic mayor in Turkey. In contrast to simple correlations, the results reveal that Islamic mayors led to higher female participation in both education as well as politics, without a corresponding shift toward more Islamic preferences in the long term. These effects are largely driven by Turkey's lower-income and religiously conservative communities, and thus marks a relative empowerment among the poor and pious.

The empirical design employed here provides a solution to an identification problem where elected politicians are endogenous to constituency characteristics. In this case, constituencies prone to supporting Islamists tend to exhibit

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[33]For example, the results on intergenerational effects of education are consistent with findings in Oreopoulos, Page, and Stevens (2006). Interpreted as a secularizing effect of education, the long-run result on Islamic voting is consistent with Hungerman (2011) and Gulesci and Meyersson (2012), while the result on female participation in politics is resonant with earlier studies on the relationship between education and female political participation (see Dee (2004), Glaeser, Ponzetto, and Shleifer (2007), Milligan, Moretti, and Oreopoulos (2004)).

preexisting traits unconducive to women's rights, resulting in an adverse correlation between Islamic rule and empowerment outcomes. The main contribution of this paper is to evaluate Islamic rule in isolation from such confounding factors.

The implications of these findings are dual in nature. First, it suggests that under specific circumstances, socially conservative politicians can have socially progressive effects. Policies to regulate participation by Islamic political parties thus need to take into account that these controversial but popular movements may have development-related effects difficult for secular parties to replicate. Second, Turkey has both direct and indirect barriers to educational participation that, in combination, may provide Islamic parties with a competitive advantage, which in turn boosts their popularity. On the one hand, secular restrictions to participation, such as the headscarf ban and mixed classes, result in conservative parents being unwilling to send their daughters to school. On the other hand, the voluntary nature of high school further gives parents this option. It is therefore not easy to distinguish the positive effect of Islamic rule on the poor and pious from the barriers to entry that restrain them in the first place.

As with most RD designs, limits to external validity mean results need to be evaluated in the proper context. Due to the nature of local Turkish politics, this RD design allows estimation of treatment effects over a diverse set of political preferences. Notwithstanding, estimates are relevant mostly for places where Islamic parties had a fair chance of winning, or equivalently, lower-income and religiously conservative communities where women's rights were lower. The local treatment effect is thus convenient for causal inference of Islamic rule among the poor and pious, but less so among wealthier and better-educated communities. Further limitations are the specific institutional features of Turkey during the 1990s: a local democratic setting with strong secular institutions which do not automatically generalize to other Muslim societies. The findings reported here therefore call for further analysis in other institutional settings.

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