Islamic Rule and the Emancipation of the Poor and Pious

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Abstract

I estimate the impact of local Islamic rule on secular education and labor market outcomes with a new and unique dataset of Turkish municipalities. Using a regression discontinuity design, I compare elections where an Islamic party barely won or lost municipal mayor seats. The results show that Islamic rule has had a large positive effect on secular secondary education, predominantly for women. This impact is not only larger when the opposing candidate is from a secular left-wing, instead of a right-wing party; it is also larger in poorer and more pious areas. The participation result extends to the labor market, with fewer women classified as housewives, a larger share of employed women receiving wages, and a shift in female employment towards higher-paying sectors. Part of the increased participation, especially in education, seems to come through investment from religious foundations, by providing facilities more tailored toward religious conservatives. Altogether, my findings stand in contrast to the stylized view that more Islamic political representation is invariably associated with adverse development outcomes, especially for women. One interpretation is that limits on religious expression, such as the headscarf ban in public institutions, raise barriers to entry for the poor and pious which Islamic movements may have an advantage in alleviating.

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1. Introduction

Does Islamic political representation prevent or facilitate economic development? This question has received very little attention in economics despite its importance for the development of Muslim countries. Instead, a widely held belief is that, when compared to other religions, Islam has detrimental consequences for development in general (Barro and McCleary [5]; and Kuran [30]), and women’s rights in particular (Fish [18]; and Donno and Russett [14]). Muslim countries exhibit very low levels of female participation in education and the labor force, suggesting limited women’s rights as an important mechanism in explaining the low development levels.

This has led many to infer that a contributing cause of the undesirable performances are political manifestations of Islam, raising doubts whether Islam and democracy are compatible (The Economist [46], The New York Times [47]). Yet despite the robust correlations between Islam and lower development outcomes, it is not clear that this should necessarily lead to the conclusion that popularly elected Islamic politicians have similar effects.

As a contrast to the adverse view of political Islam, a different branch of research documents Islamic organizations’ effectiveness in improving the living conditions for underrepresented groups (see, for example Arat [2], Hefner [24], Yavuz [53], and White [48]). Many political Islamic movements are involved in charity work, ranging from soup kitchens, medical clinics, to subsidizing education. A shared and important characteristic is a strong organizational capacity to assist the poor in ways that may complement, or substitute for, state provision of public goods. The type of research along this line, however rich in detail, is mostly qualitative and case-specific in nature, making generalizations difficult.

One major confounding factor for quantitative analysis of this topic is that Islamic parties often represent poorer and socially conservative groups of people, in this paper loosely referred to as the poor and pious. For this group culture, social norms and preferences may explain not just the type of politician elected but also the outcomes themselves. A negative correlation between Islamic political representation and economic development could therefore reflect voter characteristics rather than Islamic rule per se.

Another confounding factor is that the poor and pious in Muslim countries often face barriers to entry related to public displays of religiosity. Among examples of such restrictions is the headscarf ban. While securing a secular appearance of participation in schools and the workplace, these restrictions may further aggravate women’s ability to participate, especially in more pious
communities. These two confounding factors makes empirical analysis of the impact of Islamic rule difficult, since the true causal effect cannot easily be isolated.

This presents a dilemma for the implementation of secular democratic institutions in the Muslim world, if certain political parties are expected to have substantially negative consequences. Policymakers wanting to implement such institutions would then need to trade off concerns over the compatibility of Islam and democracy against an erosion of trust in the democratic system itself. In many countries – such as Algeria, Egypt, Tunisia, and Turkey – the former has dominated the latter and Islamic parties have been banned or severely restricted in their ability to function. This paper contributes to this important topic by for the first time estimating a causal impact of an Islamic party in a secular democracy.

Turkey is a particularly good testing ground for evaluating these contradicting views. It is one of the very few countries that have experienced Islamic party participation in the democratic process for a long period. Despite the country being founded as a secular republic, the last twenty years has seen the influence of Islam in politics increase substantially. As a result, Turkey experienced a seismic political change in the 1994 local elections when an Islamic party, arguing for a return to Sharia law and political jihad, became the second largest receiver of votes. This gave political Islam unprecedented representation in the democratic system and accelerated an ongoing debate on religious expression in public spaces.

I study the consequences of this political change using a new and unique dataset of 2,700 Turkish municipal elections in 1994 and outcomes from 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 outcomes after elections where an Islamic mayor barely won or barely lost.

My results show that local Islamic rule in Turkey led to substantially higher educational participation especially for women. A municipality that in 1994 received a near-randomly assigned Islamic mayor, rather than a secular mayor, had a 2.5 percentage point higher share of young high-school-educated women in 2000. I find similar impacts on enrollment but in contrast, I find no evidence of any commensurate impact on religious education, which exists as a voluntary alternative to secular secondary education in Turkey, or primary education, which is mandatory. For men, all outcomes reveal both smaller and insignificant impacts. This suggests that local Islamic rule had an effect on reducing barriers to entry to education in situations where young women are particularly constrained from participating.
I argue that this impact comes through the Islamic parties’ advantage in mobilizing and increasing access to education for the poor and pious. Education in Turkey is highly correlated with economic status, where children from poorer households face higher opportunity costs of attending education as well as higher barriers to attend better schools. Social constraints such as the ban on wearing the headscarf in public institutions further raise the barriers to participation in more religiously conservative areas, and surveys show that such constraints play a role in family decisions to invest in education.

Consistent with this, I find that the increase in educational attainment is higher in poorer and more pious areas. An analysis using quantile RD shows that the impact of Islamic rule was relatively larger in lower education quantiles. Furthermore, I use multiple proxies for religiosity to show that Islamic rule had larger impacts for the more religiously conservative both across, and within, municipalities. This is consistent with poor and pious women being more constrained by for example the headscarf ban, and the Islamic party being more capable in improving their access to education.

Even though it is difficult to isolate precisely how the Islamic party is able to increase participation in education, an examination of urban planning policies suggests a channel consistent with research in other social sciences on Islamic organizations. Local governments have relatively little official responsibility for education policy and thus face a challenge of meeting local demands for this type of public goods. In this situation, economically powerful religious foundations, vakıflar, have become important allies of the Islamic party by building Qur’anic study centers, dormitories, and in general targeting their activities to municipalities ruled by the Islamic party. Such infrastructure has often been seen with suspicion by secularists in Turkey.

I show that municipalities with an Islamic mayor did not significantly shift the allocation of urban space towards more education-related buildings. But they did experience a shift in the composition of education building ownership towards increased vakıf ownership. Vakıf-owned facilities like Qur’anic study centers and student dormitories, exempt from public monitoring by the Ministry of Education, allow wearing of the headscarf, house prayer rooms, and offer extracurricular religious courses. Such private “add-on” features to the centrally-governed education system in Turkey may have played an important role in convincing relatively conservative Muslims to send their daughters to secular high school uncovered.

Islamic rule may have affected female participation in a broader fashion—not only by inducing

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1 Admission to both high school and university education is partly determined by national exams. Performing well in such exams often requires private tuition, which not all students can afford (OECD, [38]).
education directly but also by providing better opportunities for the already educated. Examining economic activity, forms of income, and sector employment in Turkish cities, I find broad evidence of improvements for women in the labor market. Having an Islamic mayor led to fewer women classified as housewives, more salaried women in the labor force, and sector shifts away from agriculture to the service sector.

All in all, these results point a more nuanced view of the effects of political Islamic representation. Although not meant to replace one stylized fact with another, and despite the specific Turkish institutional setting, it emphasizes the importance of understanding the very circumstances in which Islamic political parties operate. Perhaps more importantly, it also shows the importance of putting women’s experience under Islamic rule in perspective to what would have been the relevant comparison, or counterfactual, for an alternative type of regime.

There exists a substantial literature on the economic effects of political parties (Ferreira and Gyorko [17], Lee et al. [33], Pettersson-Lidbom [39]). Research on the consequence of other political cleavages like religion, however, are rare and especially scarce with regards to political Islam.²

Below, Section 2 describes the institutional framework, Section 3 describes the RD design I use to estimate the effect of Islamic mayors, and Section 4 presents the data used in the analysis. Section 5 shows the main empirical results on educational attainment and enrollment, and examines the validity of the RD design. Section 6 extends the analysis to heterogenous effects examining whether impacts were different for the poor and pious. Section 7 presents evidence on the consequences of the Islamic party in the labor market. Finally, Section 8 discusses the results and Section 9 concludes the paper.

2. Institutional Framework - Turkey

2.1. The Welfare Party, the Poor, and Political Islam

The period leading up to the electoral success of political Islam in 1994 was characterized by economic liberalization policies and rapid urbanization from poor rural areas into the urban slums and lower middle-class neighborhoods. Once inside the cities, migrants often retained their social norms and customs, and for this reason the link between economic status and religious conservatism tightened. The party of the religious right, therefore, became the party of the urban poor.

²An exception is Henderson and Kuncoro [23] and Blaydes [7]. The findings in this paper also resonate with recent research on local democracy in Muslim countries (see Cheema, Khwaja, and Qadir [9]; and Myerson [37]).
This is illustrated by Figure 1, with data from a recent survey (Çarkoğlu and Toprak [8]). Figure 1A shows that individuals in poorer households rank themselves both more religious and more politically Islamist than those in richer households. Furthermore, according to Figure 1B, poorer women are more likely to wear some form of headcover; more than 60 percent of all respondents did so, and the corresponding share was almost 90 percent among the poorest households. This relation also exists at regional level with poorer regions in Turkey being associated with a stronger influence of religion – as can be seen in the uppermost graph of Figure 2, poorer provinces have a higher proportion of mosques per population than richer ones.

The shifting demographic and political landscape ultimately came to tilt political power in favor of the poor and pious. The 1994 local election for the first time saw an Islamic party, Refah Partisi (eng. “The Welfare Party”, henceforth RP), receive nation-wide prominence as Islamic candidates were elected in numerous municipalities, including Ankara and Istanbul. The RP thus united the religious vote that had previously been spread out among the other right-wing parties (Esmer [16]). As a result, mosque construction (Simsek [44]), increased participation in religious schools, and veiled women in public spaces became potent symbols of the religious movement.

A defining characteristic of the RP was its organizational capacity: the party harnessed a network made up of pious entrepreneurs and Sufi brotherhoods (tarikatlar), the latter primarily through religious foundations (vakıflar). These organizations provided a valuable source for investment in RP-controlled municipalities and, in the case of the vakıflar, substantial experience in organizing relief for the poor and subsidizing education. For example, one contemporary study suggests that two large Sufi brotherhoods, the Süleymança and the Fethullahça, “each accommodate over one hundred thousand students” (Ayata [3]).

The RP often appears as a representative candidate for an Islamic political party in more general studies on political Islam (Kepel [27] and Roy [42]). As a figurehead of political Islam, secular elites increasingly came to view the actions of the RP as a strategy to turn Turkey into an Islamic state, and the party was banned in 1998. However, the ban served mostly to exclude the top party leadership, while the local component of the movement remained intact.3 This ban was later upheld by the European Court of Human Rights (ECHR), cementing the labeling of the RP as an “Islamist” party.4

3 A partial reincarnation of the RP, the 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. This includes the current Prime Minister and President of Turkey.

4 “Turkey Islamists shocked by party ban,” BBC News, July 31st 2001,
categories; “those which tended to show that Refah intended to set up a plurality of legal systems, introducing discrimination on the grounds of belief; those which tended to show that Refah wanted to apply sharia to the Muslim community; and those based on references made by Refah members to jihad (holy war) as a political method.”

As such, the RP stands out as a viable candidate for an Islamic political party, with its relatively pro-Islamic agenda but also through operating in an “electoralist and multiparty framework” (Roy [42]).

2.2. Education in Turkey

Both elementary school and middle school (as of 1998), enrolling students aged 6-14, are mandatory in Turkey. General secondary education, enrolling students aged 14-18, as well as higher forms of education, are voluntary.

For secondary school, there is both a secular and a religious option. On one hand, 1.2 million students were enrolled in secular secondary school in 1995. In the same year, about a quarter of a million students were enrolled in so-called imam-hatip, or religious, schools. These originally served to train future imams, but more recently have become a more common alternative to secular high school.

One of the main reforms imposed by Atatürk after the foundation of the modern state of Turkey was expanding education to include women (Mango [34]). Yet more than eighty years later, there is still a large education gender gap. In their recent Gender Gap Report, the World Economic Forum ranked Turkey 121th, out of 128 countries included, in terms of overall gender equality. A significant part of this abysmal score was driven by Turkey’s low rates of secondary female education (World Bank [51]). Therefore, the main focus in this paper will be on Turkey’s general secondary education, i.e. secular high school.

Women are not allowed to wear the headscarf in any type of schools, neither as students nor as teachers, except in religious high schools. This is part of a general ban on religious symbols in public spaces, which also includes public employment. The stated purpose of these restrictions is to guarantee the equality of religious affiliation and gender, as well as to prevent pressure on students.

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5 See a transcript of the ruling on “Case of the Refah Partisi (The Welfare Party) and Others v. Turkey”, ECHR Third Section judgment and ECHR Grand Chamber judgment (http://echr.coe.int/echr/en/hudoc)
8 Men also face restrictions, such as the ban on facial hair in high school.
However, these restrictions may also limit access for women whose parents object to sending their daughters to school uncovered.

Surprisingly many parents, particularly among low-income households, disapprove of their daughters removing the headscarf to attend education as Figure 1C shows. A quarter of the respondents in the previously mentioned survey disapproved uncovered female participation in education, with a much larger disapproval rate in the low income bracket.

In short, existing rules of participation make access to voluntary education for women difficult among the poor and pious. Policies to improve access therefore needs to overcome not only economic constraints, but also religious customs and social norms.

2.3. Local Governments and Elections

The main form of local government in Turkey is the municipality (belediye), of which there are about 3,000 in total. Municipalities are grouped into 923 districts (ilçe) which, in turn, are grouped into 81 provinces (il). About two thirds of all municipalities are township (belde) municipalities, composed of settlements with more than 2,000 inhabitants in the latest population census. Other types of municipalities act as the center of either a district or a province. Moreover, the 16 largest cities in Turkey have metropolitan (büyükşehir) municipalities governing the larger urban region, and sub-metropolitan municipalities nested within the metropolitan municipality.

The official budget size of municipal governments are about 4-6 percent of GDP, on par with many West European countries. The largest share of revenues is made up of transfers from the central government, while property taxes are one of few locally determined sources of revenue. Transfers are largely determined by population and whether a municipality is a district- or province center (World Bank [50]). The provision of education and health services are in the hands of the central government, leaving local public services and urban development (building permits) as a main formal responsibility of municipal mayors.

However, nothing prevents municipalities from engaging in education or health policy, either directly or indirectly and, in reality, municipal mayors have a considerable influence over their constituencies, even in areas such as education, partly due to urban planning policies (World Bank [50]).

Local elections are held every fifth year, with each municipality electing a mayor (belediye başkanlığı) as well as a council (belediye meclisi). The mayor chairs the municipal council and all other committees, sets the agenda for council meetings, and approves permits. For this reason, I
will exclusively focus on the municipal mayor. Independent candidates are allowed to run for office although the candidates nominated by the large national parties regularly enjoy larger electoral success.

Local mayoral elections are determined by single-round plurality elections, which allows the use of an RD design. Analyzing local governments allows more variation and easier comparisons of parties than national elections. In contrast, national elections are proportional and also include restrictions on minority representation.²

3. Identification Strategy

A key contribution of this paper is the identification of the causal impact of local Islamic rule. The main problem with comparing municipal outcomes by whether an Islamic or secular mayor was elected is that the assignment process of mayor type is not random. As previously noted, the municipalities most likely to vote for an Islamic party may also be those where female participation in education is more constrained or where female returns to schooling are lower. These and other unobserved factors could potentially lead to less education as well as an elected Islamic politician, and thus, traditional regression analysis may not be informative about the causal impact of having an Islamic mayor.

The sharp RD design (Hahn and Van der Klauw [21]; Imbens and Lemieux [26]) exploits a discontinuity in the treatment assignment to identify a causal effect. It can be used when treatment assignment, \( m_i \), is determined 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 relative 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 \( (m_i = 1) \) receive an Islamic mayor. The assignment follows a known deterministic rule, \( m_i = 1 \left\{ x_i \geq c \right\} \), where \( 1 \left\{ \cdot \right\} \) is the indicator function.

The RD treatment effect, \( \tau_{RD} \), on the outcome \( y_i \) for unit \( i \) is thus the difference of two regression functions at the point \( c \):

\[
\tau_{RD} = \lim_{x \rightarrow c} E \left[ y_i | x_i = c \right] - \lim_{x \rightarrow c} E \left[ y_i | x_i = c \right]
\]

(3.1)

If municipalities close to the threshold, with very similar values of \( x_i \), are comparable, treatment can be considered “as good as randomly assigned” close to \( c \). The causal impact of the treatment

\footnote{For a party to receive any representation in parliament, it needs to have received at least ten percent of the national vote.}
can then be evaluated by comparing average outcomes with scores of \(x_i\) just above \(c\) with those just below, and the RD design identifies a treatment effect for municipalities close to the cutoff point.\(^{10}\) Importantly, a consequence of municipalities close to the cutoff being comparable is that agents (i.e. politicians and voters) are unable to precisely manipulate the forcing variable around the cutoff. These assumptions and the validity of the RD design will be investigated in more detail in Section 5 below.

Consider the following specification for estimating the RD treatment effect

\[
y_i = \alpha + \beta m_i + f(x_i) + \varepsilon_i
\]

\(\forall x_i \in (c-h, c+h)\)

where \(y_i\) is the outcome in question, \(m_i\) is the treatment, \(x_i\) is the forcing variable, 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 \(c\). Previous research has used different approaches to RD estimation, but are predominantly variations of equation 3.2 by choosing different bandwidths and control functions. At one end, Angrist and Lavy [1], use a “discontinuity sample” to compare means on each side by only using observations 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 et al. [33] includes all observations (setting \(h\) high) and defines a higher order polynomial in the forcing variable. 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 \(f(x_i)\).

Instead, local linear regressions (Hahn et al. [21], Porter [40], Imbens and Lemieux [26]) combine setting a suitable bandwidth with a linear control function and is the main method employed in this paper. Following Imbens and Kalyanaraman [25] I also use their bandwidth selection procedure and a triangular kernel to put more weight on observations closer to the cutoff. An important point

\(^{10}\) As an illustration to the RD design, suppose that we compare two hypothetical municipalities where the Islamic party, in a race of two parties, received 70 and 30 percent of the vote shares, respectively. In the first municipality, the win margin was 40 percent and in the second it was -40 percent. The large margins will most likely represent certain underlying voter preferences and assignment is therefore unlikely to be random. Comparing outcomes based on party identity will thus not tell us the causal effect of having an Islamic mayor. However, suppose that the Islamic party had instead received 51 and 49 percent of the vote shares in two other municipalities. In the first, the win margin was 2 percent and in the second -2 percent. It is less clear why these two should be systematically different except for which party won the mayor seat. With a sample of such closely determined elections, comparing outcomes by treatment status may yield a better estimate of the causal effect.
is that the choice of bandwidth, control function, and kernel should have marginal consequences for the ensuing estimates (Lee [32]), and as a validity check, multiple methods are reported.

4. Main Data Description

Data for local mayoral elections come from the Turkish Statistical Institute (henceforth TurkStat) and are reported by municipality. In 1994, elections were held in 2,710 municipalities. These include township, district center, province center, metropolitan, and sub-metropolitan mayors. Fourteen parties received votes and numerous independent candidates also ran for election\(^ {11}\). Islamic parties, mainly the RP and one fringe party, received about 21 percent of the total vote share and won 340 mayoral seats. Since all mayoral elections are determined by plurality, the main explanatory variable, Islamic mayor in 1994, is an indicator variable, which is one if an Islamic party had more 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 with a cutoff point of zero.\(^ {12}\) Consequently, the Islamic mayor indicator is one when this measure, hereby labeled the Islamic win margin, is positive and zero when it is negative. Each municipality will have a score of the Islamic win margin anywhere between −1 and 1. The forcing variable is therefore not tied to any particular absolute vote share (such as fifty percent in a two-party race) but will encompass a heterogenous group of elections (this is covered in more detail in section 5.4).\(^ {13}\)

To check that there is no obvious sorting on each side of the cutoff, Figure 3 shows the histogram of the forcing variable, for the entire range in bins of two percent. Inspecting the density of the forcing variable close to the threshold, while the density falls as the forcing variable increases, it appears smooth around the cutoff point (a more formal test is conducted in Section 5.3).

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) and demographics like population, age, gender, and economic activity (including individuals classified as students) are reported by neighborhood (mahalle) for cities (şehir), and by individual villages (köy) outside of

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\(^{11}\) TurkStat reports 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. None of the results are affected by this procedure.

\(^{12}\) More formally, \( x_i \equiv \max \left\{ v_i^{I_1}, \ldots, v_i^{I_K} \right\} - \max \left\{ v_i^{S_1}, \ldots, v_i^{S_M} \right\} \in [-1, 1] \) for the set of \( K \) Islamic parties and \( M \) secular parties with \( v_i^{I_k} \geq 0, v_i^{S_m} \geq 0, k \in K, m \in M \).

\(^{13}\) For example, suppose that two secular parties A and B receive 55 and 25 percent of the votes, respectively, while the Islamic party only receives 10 percent of the votes. The value of the Islamic win margin will thus be -45 percent.
cities. At the municipal level, these variables can be categorized by age groups.

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.\textsuperscript{14} As municipalities across the 2000 and 1990 Census are done manually, the number of observations in the matched dataset falls by a third. For this reason, in the baseline specifications I use population from the 1994 election and demographic controls (age composition and gender ratio) from the 2000 Census as controls, and include the corresponding 1990 variables in the robustness section.\textsuperscript{15} An important missing control variable is income, and in later sections I use a number of different proxies for income. For most of the analysis, the census data are aggregated to the municipal level. For the 1990 Population Census the lowest level of aggregation is the municipality.

Moreover, metropolitan municipalities have grown to incorporate an increasing amount of smaller (i.e. district center- and township) municipalities. For this reason, when data from the 2000 Population Census are aggregated to metropolitan levels, I use 1994 metropolitan borders. The matched municipal dataset of 1994 elections and 2000 census data has 2,631 observations.

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 have completed high school.\textsuperscript{16} These individuals were 9-14 years old at the time of the 1994 election and would have had time to both start and finish high school. However, an empirical regularity is that a non-trivial amount of both men and women finish high school later than the official high school completion age. In fact, surveys show that between 20-25 percent complete high school after the age of 20, and almost ten percent after the age of 30 (Table A1 in the appendix shows the details on high school completion age). The late-completion is more common for men than women, suggesting that women may not only be more constrained from participation but also from completing high school later in life. Due to the possibility of an impact on high school education in older cohorts than suggested by the formal duration of schooling, I will also examine effects on the 20-25 year cohort, for the combined 15-25 year cohort as a whole, and also the student share of the population aged 15-30.

\textsuperscript{14}These changes are tracked manually using two sources, \textit{Mahalli İdareler Genel Müdürlüğü} (www.yerelbilgi.gov.tr) and \textit{Türkiye ve Orta Doğu Amme İdaresi Enstitüsü} (www.yerelnet.org.tr).

\textsuperscript{15}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.

\textsuperscript{16}For this cohort, specifying the share as lowest degree attained or highest degree attained makes no difference given the absence of individuals with university degrees at this age.
As can be seen from column 1 in Table 1, the average high school attainment for the 15-20 cohort is 16.3 and 19.2 percent for women and men respectively. The table also reports demographic and administrative variables. Columns 2 and 3 show group means for municipalities with secular and Islamic mayors while column 4 shows the differences between columns 2 and 3. On average, Islamic municipalities have 2.6 percentage points lower female attainment rates than secular municipalities and no corresponding difference for men. A naive conclusion would be that the cause of the lower education is Islamic rule. Yet Table 1 also shows that Islamic areas differ from secular ones in several other ways. On average, municipalities that elected Islamic mayors in 1994 are larger, younger, and are more likely to be large cities. The following section therefore employs the RD design to estimate the causal impact of local Islamic rule.

5. Main Results

5.1. Graphical Analysis

Figure 4 shows graphical illustrations of the RD design. Local averages for the share of women (to the left) and men (to the right) aged 15-20 with high school degrees are plotted against the Islamic win margin in bins of four percent. The two upper figures are for outcomes recorded in 2000, and the two lower figures are for those recorded in 1990. In each figure a local linear smoother is overlaid using unbinned data on each side of the cutoff. The vertical dashed line shows the cutoff at zero.

The upper left figure for women in 2000 reveals a clear negative association between female education and the forcing variable, in line with earlier sections’ claim that women are more constrained from participating in education in the more Islamic municipalities. The most striking feature of this graph, however, is the apparent positive jump in high school attainment at the cutoff. The size of the jump is about 3 percentage points. The upper right figure, showing outcomes for men in 2000, shows that, not only is there less of a downward slope overall, but there is also less evidence of a clear jump at the cutoff – the jump is both smaller in magnitude and less precise. This is consistent with men being less constrained than women in participating in education, and the Islamic mayor consequently having a less clear impact on their education.

A graphical validity test for the RD design is to compare this with the behavior of outcomes close to the cutoff for the respective 1990 Census outcome. Since these occurred before the assignment of the mayor in 1994, there should be no observable jump for this predetermined outcome.

17 These relatively low education completion rates are mirrored in other data sources. (See for example country comparisons based on OECD data, http://www.oecd.org/dataoecd/45/39/45926093.pdf)
supposition consistent with the observed smooth pattern at the cutoff in the two bottom graphs.

Figure 5 shows the RD graphs not just for high school (in the upper left graph) but also other types of education outcomes including enrollment among 15-30-year-olds (lower left), primary education for 15-20-year-olds (upper right), and vocational education for 15-20-year-olds (lower right) in 2000. These graphs are useful as they show the relative differences between men and women for each outcome. For post-primary education types, high school and enrollment, women are clearly much less participant on average than men. (This can be seen as the pattern of local averages are clearly higher for men than women in these respective graphs). For the share of 15-20-year-olds with a minimum of primary school in the upper right-hand graph, the opposite seems to hold true – women on average have higher shares of primary education. In addition, there is no downward sloping pattern for women in the more Islamic municipalities, nor evidence of a jump at the cutoff. This is not so surprising given that primary school is compulsory, and so municipality-specific characteristics, such as concerns about not wearing a headscarf, should have little correlation with this cohort’s completion of primary education.

The last lower-right hand graph shows attainment of vocational high school, which includes technical high schools as well as religious, or so called imam-hatip, high schools. A noisy measure of religious educational attainment, it still shows no clear impact of having an Islamic mayor. On the other hand, the few women who do get this type of education are allowed to wear the headscarf in school suggesting lower participation constraints to start with.

Figures 4 and 5 are important for several reasons. They are indicative of a positive RD treatment effect of having an Islamic mayor for female high school attainment, despite the apparent negative pattern with fewer educated women in more Islamic municipalities. Moreover, this impact seems limited to voluntary and secular education, where the ban on headscarfs is more likely to constrain female participation. Finally, the impact on enrollment, since its recorded in 2000, suggests that the impact of an Islamic mayor in 1994 even had some persistent effects one year after the end of the mayor’s tenure. This is noteworthy since party turnover at the municipal level was quite high in the 1990s; in fact, only a quarter of the elected Islamic mayors from the 1994 election kept their seats in the 1999 election.

Even though these figures are informative of the RD treatment effect of having an Islamic mayor, they still leave room for more precise estimation. The rest of this section will therefore serve to estimate more precisely, and robustly, the impact on female participation in education uncovered in Figure 4.
5.2. Basic Regression Results

To refine the analysis, Table 2 presents results for women in Panel A and men in Panel B. In each panel, the first row shows the outcome mean for the relevant sample. Columns 1-8 use the share of the 15-20 cohort with high school degrees in 2000, where even columns are without covariates and odd columns include log population, the share of the population below 19, the share of the population above 65, the gender ratio, as well as municipality type dummies. Columns 1 and 2 report OLS regressions of each gender-specific outcome on Islamic mayor in 1994. For women, the correlation is significantly negative both with and without covariates, while for men the correlation is indistinguishable from zero.

Columns 3 and 4 show results from the local linear regression method. The Imbens and Kalyanaraman algorithm suggest an optimal bandwidth of 0.246 and the ensuing estimates confirm the result in Figure 4 of a positive impact around 2.8 percentage points. Adding the covariates in column 4 increases the precision of this estimate but does little to change its magnitude. Moving to columns 5 and 6, including the full set of observations while specifying a fourth-order (quartic) polynomial in the Islamic win margin produce very similar estimates. Even excluding all observations save those less than 2 percentage points away from the cutoff produces no meaningful differences than those in columns 3 and 4.

The next two columns in the table examine the impact of local Islamic rule on high school attainment for the 21-25 cohort. The finding that there is also a positive impact on educational attainment for this age cohort suggests an important effect coming through inducing women to actually complete high school even if they enrolled before 1994. Similarly the last two columns have the enrollment share of 15-30-year-olds in 2000 as the outcome, and reveal a positive impact for women even a year after the subsequent election in 1999.

For men, although the RD estimates are larger than the OLS estimates, these are always smaller in magnitude and statistically not different from zero. Consequently the clear and relatively precisely estimated positive impact found on female educational attainment and enrollment is absent for men.\textsuperscript{18}

That Islamic mayors have a positive impact on female attainment of higher education is somewhat striking. So is the finding that the impact is more pronounced for women than for men. Before exploring further this finding, however, the next subsection examines more thoroughly the validity of the RD design.

\textsuperscript{18} The results also hold for using the ratio of female-to-male 15-20-year-olds with high school degrees as the outcome.
5.3. Validity and Robustness Checks

In the previous section, different RD estimation strategies yielded near identical estimates. This is reassuring as the methods have different strengths and weaknesses. So is the result that adding covariates to the estimation only makes the estimates more precise without affecting the magnitude of the point estimate. Further variations on the combination of the bandwidth, kernel, and control function can be found in Table A2.

Still, these estimates can be interpreted as causal only as long as the assumption of random assignment of party identity around the threshold is upheld. Although the mere existence of manipulation is not sufficient to invalidate the RD design if elections could be perfectly manipulated around the threshold, the assumption is violated (Imbens and Lemieux [26] and Lee and Lemieux [32]). Instead, as long as politicians, municipalities or voters do not have precise control over the forcing variable, random assignment is still valid.

A common validity check is to examine whether baseline covariates are continuous around the threshold. Figure 6 shows that there are no clear and statistically significant jumps at the threshold for the control variables.

Another testable hypotheses underlying the RD design is local continuity in the density of the forcing variable at the threshold ex post. If extensive manipulation around the cutoff was prevalent this could lead to sorting around the threshold. The histogram in Figure 3 showed no visible evidence of sorting but is not a formal test. McCrary [36] proposes a two-step procedure for explicitly testing for a discontinuity in the density of the forcing variable. In the first step, the forcing variable is partitioned into equally spaced bins and frequencies are computed within those bins. The second step treats the frequency counts as a dependent variable in a local linear regression. This is shown graphically in Figure 7. This test rejects any discontinuity in the density at the threshold with a comfortable margin.\(^\text{19}\)

Additional robustness checks are reported in Table 3. Instead of reporting results for both cohorts 15-20 and 21-25 separately, the outcome here is female high school attainment for the combined 15-25 cohort, with the baseline estimate in the first row.

A rather subtle issue is distinguishing an “Islamic-party” effect from a “Right-wing-party” effect. The Islamic party examined in this paper is essentially right-wing and thus, the estimate could potentially confound the impact of an Islamic mayor with that of a right-wing mayor. The second and third columns investigates this possibility by splitting the sample in two by whether

\(^{19}\) See McCrary [36] for more details on the test.
the Islamic win margin measures the distance in a contest between an Islamic and a right-wing secular mayor, or that of an Islamic and a left-wing secular mayor. RD estimates are reported for each sample. In the case of Islamic versus right-wing secular contests, the estimates is somewhat smaller, at 1.6 percentage points, but still less than half a standard error from the baseline RD estimate in row 1. Interestingly, in contests between Islamic and left-wing candidates the impact of receiving an Islamic mayor is clearly larger in magnitude, at 5.1 percentage points, although this is not statistically different from the baseline estimate. The latter estimate is particularly remarkable since left-wing parties in Turkey typically promote women’s rights as an important component in party platforms. At the same time these contests may be particularly those where perspectives on public expression of religiosity among the candidates will differ the most. (The issue of why the effect is larger vis-a-vis left-wing parties will be further discussed in Section 6).

Row 4 includes additional covariates from the 1990 census, not just substituting for the age and gender controls recorded in 2000, but also adding municipal shares of women married, women employed, as well as the share of 15-25-year-old women with high school in 1990. These latter three latter controls serve as proxies for both income and how socially conservative a municipality was before treatment. The next row includes 81 province-specific dummies to account for regional differences in the outcome. Rows 6 and 7 split the sample by more urban center (merkezi) or greater (büyükşehir) municipalities; and more rural township (belde) municipalities. Row 8 includes information from the 2001 building census with the log population density as well as the education floorspace share of all buildings recorded in 1990. Row 9 includes a control for whether an Islamic mayor had been elected in 1989. In none of the specifications in column 4-9 do the estimates deviate meaningfully from the baseline estimate in row 1.

Rows 10 and 11 are two different placebo checks, the first measuring a near-zero effect of the 2004 impact on 2000 outcomes, and the second measuring a near-zero impact of the 1994 outcome on the outcome in recorded in 1990.

Row 12 replaces the outcome with high school attainment for a “parent cohort”, namely women aged 31-64 with high school. The RD estimate for this cohort is a bit more than a fourth of the baseline estimate in magnitude, but is statistically significant. As mentioned in earlier some of this may be due to late completion of women in their mid-to-late 20s, but this could just as well be coming from already-educated women moving into the Islamic-controlled municipality (this will be discussed at length in sections 7 and 8). To check that changes in the composition in older cohort is not what is driving the impact on education for the young row 13 includes the
educational attainment of the parent cohort as a control in estimating the RD treatment effect for the corresponding outcome for 15-20 year-olds. In addition, this specification includes three controls for house ownership in 2000 (share owning property, share renting property, and share living in welfare housing) to capture factors relating to a secular change in the composition of the municipal population.\textsuperscript{20} The estimate, which provides a likely lower bound in this sort of specification, is still in magnitude within a standard error of the baseline estimate.\textsuperscript{21}

A different kind of concern might be the existence of additional discontinuities in the forcing variable at values other than zero which, although not necessarily invalidating the RD design, are usually considered to be unwanted (Imbens and Lemieux [26]). Figure 8 pursues this by estimating placebo RD treatment estimates at other points along the forcing variable using three different specifications of varying control functions and a full bandwidth. The average absolute values of the estimates’ t-statistics are graphed on the left-hand side of the figure. These are also plotted as a histogram on the right-hand side with the purpose of showing that the discontinuity at zero is an outlier in the empirical distribution of potential discontinuities.

5.4. Conveniently Local

One potential concern with RD designs is that they estimate local, or discontinuity-specific treatment effects, specifically at a fixed covariate of the forcing variable. In the presence of heterogenous effects, the RD treatment effect could differ from the average treatment effect. This would be particularly problematic if politicians’ incentives are correlated with the level of political competition. If a candidate wins an election with a very thin margin, she may have incentives to allocate more time towards reelection, perhaps pursuing a moderate policy, as opposed to pursuing her preferred policy. A related issue is whether close elections only occur in very few areas of a certain type, observably distinct from the population as a whole. The main concern is therefore a combination of unrepresentative and homogenous close elections in an environment with heterogenous treatment effects.

Due to the system of Turkish local politics and, consequently, the definition of the forcing variable, these limitations are less damaging in this particular design. Instead, I argue that the RD treatment effect estimated is informative about a substantial and highly relevant group of

\textsuperscript{20} There is a positive impact of having an Islamic mayor on the share of households renting as opposed to the share of households owning their property.

\textsuperscript{21} The coefficient on the parent cohort control is likely to exhibit an upward bias as omitted factors affecting the returns to schooling for the old are likely to be positively correlated with similar factors affecting the same for the young. Thus, under reasonable assumptions the impact of Islamic rule on the student cohort exhibits a downward bias.
In elections where only two parties participate (such as most areas in the US), a close election means being close to a majority at a fifty percent share of the total vote. This hypothetical one-to-one relationship is illustrated by the diagonal line in Figure 9. Such close elections are more likely to be ideologically “moderate” and may also lead politicians to pursue more moderate policies than otherwise.

In contrast, in the current design close elections comprise a heterogenous group – by defining the forcing variable as a win margin between the Islamic party and the largest of several secular parties, this creates a much larger surface of different close election constellations. As can be seen in the figure, the absolute Islamic vote share of the close elections ranges from the high teens to the low fifties. Around a third of the total sample has absolute Islamic vote shares within this range. As a result, several close elections involving Islamic parties occur in municipalities that would vote in a secular mayor with a wide margin if only two parties ran for office. However, due to fragmentation in either block, even a secular-majority municipality may receive an Islamic mayor.

Municipalities with recent close elections are, over time, only marginally more competitive than the average. Factors determining the fragmentation of different political blocks are often quite idiosyncratic, and therefore, so is the incidence of having a close election. For example, analyzing all election periods between 1989-2004, I find that 12 percent of all non-close elections were close in the next election and the corresponding number for close elections was a meagre 19 percent — a politician who just barely won is therefore not meaningfully more likely to subject to a close election the next time around. Consequently, the close elections studied here are not just an eclectic sample of “moderates”, but are characterized by heterogenous political compositions and incentives facing the winning candidate.

An important point is also to what extent close elections are observably representative of Turkish municipalities in general. Table 5 reports summary statistics of several municipality groups and the comparisons among them. In addition to close-election sample, the table includes two groups of municipalities won by either an Islamic or a secular politician with an absolute win margin exceeding 2 percent. These two latter groups are referred to as Far Islamic and Far secular municipalities,

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22 The median number of parties with non-zero votes in the sample is 5.
23 An interesting example is the metropolitan municipality of Ankara, where the divide between the city’s secular upper-class and the poorer, and more pious, community evenly divides the electorate to the right and left. In the 1989 mayoral election, the left-wing SHP candidate Murat Karayalçın won with a comfortable margin since an uncoordinated right-wing bloc (including the RP) received substantial vote support for each party. In the 1994 election, the right-wing bloc was much more concentrated, resulting in a razor-thin win margin for the RP’s Melih Gökçek.
indicating that they are far on either side of the political spectrum. Columns 5 reveals no systematic differences between the sample of close elections and Far Islamic municipalities (with the exception of having slightly older inhabitants and marginally more men). Most noteworthy is the absence of any real differences in education, — a useful proxy for social conservatism and income. Given this, it is less surprising that column 6 shows systematic differences between close elections and Far secular municipalities since, as was shown in Table 1, there are differences between Islamic and secular municipalities overall.

In summary, not only does this RD design capture a heterogenous group of close elections in terms of underlying voter support and politician incentives, but the close election sample is also observably similar to Turkey’s poorer and more socially conservative municipalities. It is thus particularly informative from a development perspective, as it may be helpful in understanding the impact of Islamic rule for the poor and pious. This is the aim of the next section.

6. The Emancipation of the Poor and Pious

How can a religiously conservative mayor from an Islamic party lead to more female participation in secular education? I argue that one mechanism may operate through Islamic parties being more effective in mobilizing groups where barriers to entry in education are particularly high, namely the poor and pious. These barriers may include parents lacking sufficient financial resources to send all or any eligible household members to high school (or university). Equally important, other barriers may be a lacking willingness by pious parents to send their daughters to school without headcover. When social norms and religious practice at the local level conflict with centrally decided rules of secularism, these groups may be the most vulnerable.

The result in row 3 of Table 3 showed that the effect of the Islamic party is particularly large when the contestant to the Islamic party is a left-wing, rather than a right-wing, party. This is surprising since many left-wing parties have women’s rights among their top policy issues. Yet the left-wing parties are also more likely to adhere to Kemalist principles of bundling social and economic reform, thereby raising the barrier to educational participation. In contrast, the Islamic parties’ advantage in harnessing local culture and social norms is well documented in Turkey (Yavuz [53] and White [48]) and in other countries (Hefner [24]). If this is the case, then the groups that are most restrained under the current education system, the poor and pious, should be those benefitting

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24 See the latest party program of the largest secular left-wing party, the CHP available at http://www.chp.org.tr/index.php?module=museum&page=show&entry_id=1659
the most from having an Islamic mayor. This is investigated in the next two sub-sections.

A related question is how Islamic parties are capable of affecting education with limited formal resources. Part of the answer may come from the RP’s close connection with other religious organizations, especially religious foundations which provide an important source of investment in Islamic-ruled regions.\textsuperscript{25} This is investigated in the last sub-subsection.

6.1. Who gets mobilized?

**The Poor** So far, the analysis has mostly centered on the (local) average treatment effect of Islamic rule, but one may also wonder whether the impact varies along the distribution of education; i.e. is the impact different between relatively uneducated and relatively well-educated areas? Educational attainment is also a credible proxy for income as can be seen in the middle graph of Figure 2, and for this purpose, I use quantile regressions (Koenker and Bassett [29]) to estimate the quantile RD (QRD) effects of having an Islamic mayor. This allows me to estimate impacts of local Islamic rule at different percentiles of the distribution of education, rather than just at the mean.

Figure 9 illustrates the results for the share of women in the 15-20 cohort with high school degrees. The estimates are essentially flat, and seem to track the average RD estimate well, with the exception that estimates become increasingly imprecise at the highest quantiles. The similar magnitude of the quantile coefficients hide the fact that the quantile means vary along the distribution. For example, the QRD estimates for 15-20 year-olds in the 25th and median quantiles are almost identical at 2.7 percentage points (both statistically significant), yet the quantile means are 8.2 and 15.6 percentage points, respectively. Consequently, the relative impact is almost twice as large in the lower quantile and is indicative of a more pronounced positive effect of local Islamic rule in the relatively less-educated (and poorer) municipalities.

**The Pious** If Islamic parties help mobilize women in religiously conservative regions, this suggests that the effect of having an Islamic mayor should be relatively larger areas that are more religiously conservative. One such measure can be found in the building census by using the religious share of buildings in a municipality, thus assuming that municipalities with more facilities like mosques and Qur’anic study centers also exhibit a more pious population. I divide the sample into four

\textsuperscript{25} Two related mechanisms that are not examined in detail, mostly due to the absence of relevant data, is direct enforcement of the headscarf ban and Islamic parties’ potential to be more credible than secular parties when inducing the poor and pious to get educated.
quantiles, with the first quantile having the lowest religious building share and the fourth quantile having the highest share. In Panel A of Table 5, the RD treatment effect is estimated for each quantile. The average effect of having an Islamic mayor in the first quantile is negative but not statistically significant, and the corresponding estimate in the fourth quantile of religious building share is about twice that of corresponding effect in the second quantile. Clearly the impact was more pronounced in the more religiously conservative municipalities.

An alternative measure of religious conservatism would be to use the Islamic vote share and see whether the impact of having an Islamic mayor varies along this dimension. This has the obvious drawback that Islamic mayors are not observed in areas with very low municipal Islamic voter support. Instead I test whether the impact was higher in those areas within the municipality that were more religiously conservative. The detail of the 2000 Census is helpful in this respect, as it has data on average educational attainment and demographics by neighborhood for the 923 city municipalities (although not by age cohorts). The neighborhood, of which there are about 10,000 in total, is the administrative unit below the municipality. While data for the local election of 1994 only exists at the municipal level, for the 1995 parliamentary elections data exists by neighborhoods, and the major Islamic party was the same in both elections. Therefore, in order to examine whether the Islamic party in 1994 effect varies by the neighborhood-level support of the party in 1995, I first define a relative Islamic vote share as the neighborhood-specific Islamic vote share divided by the municipal-average Islamic vote share. Then the sample is split into four quantiles along this relative Islamic vote share where neighborhoods with the higher Islamic vote share relative to their municipal means in the higher quantiles and vice versa.26

The use of neighborhood-level regressions requires adjusting for different municipalities including varying number of neighborhoods, and so for reasons of simplicity I employ a rectangular kernel for these regressions, and weight observations by the inverse of the number of neighborhoods within a municipality.27 Moreover, since this means comparing estimates across different regressions which when using Imbens and Kalyanaraman [25] would result in varying optimal bandwidths, I instead use a full-bandwidth quartic control function. Moreover, standard errors are clustered by municipality to allow for correlation within municipalities.

Panel B in Table 5 shows a similar pattern as in Panel A, namely a larger impact in neighborhoods that were relatively more Islamic. What is also noteworthy is that the impact is larger in

26 By definition the average neighborhood-level impact of having an Islamic mayor on the relative Islamic vote share is zero.

27 Estimating the RD treatment effect unweighted in this dimension would give each neighborhood equal weight and therefore more emphasis on larger municipalities (since these include a higher number neighborhoods).
quantiles where high school attainment is clearly lower on average. Altogether, areas that can be considered more religiously conservative experienced the largest effects on female education from having an elected Islamic mayor.

6.2. Education, Islamic Networks and the Vakf

So far, the analysis has solely focused on educational attainment and enrollment, with less time spent on what actual policy might have triggered these changes. The results are not only striking because of their sign and magnitude but also because local governments in Turkey have little official responsibility for education policy. 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 to engage in this policy area. In fact, municipalities do build schools and cater to their constituencies’ demands for better schools in several ways. Municipalities indirectly affect education through urban planning policies, including building permits.28 Any construction or large repair of buildings, including education-related buildings, needs the approval of the municipal mayor.

Focusing on urban planning, i.e. buildings constructed and permits given, also allows me to examine the role of the Islamic party’s link with other religious organizations, in particular the vakf. The vakf, a common form of organization in the Muslim world with roots in Islamic Law (Kuran [31]), is a religious foundation that is legally distinct from other civil society organizations, and has larger economic freedoms (White [48]). The vakf also achieves its preferred legal status versus general associations (dernekler) once it is endowed with property as collateral. A vakf may engage in a wide number of charitable activities including education (Yavuz [54]). Granting scholarships, selling subsidized school supplies at school starts, as well as building student dormitories and Qur’anic study centers are a few examples.

When a vakf builds a school, either a religious or a secular one, it will be subject to monitoring by the state through the Ministry of Education, and must consequently also adhere to a centrally determined curriculum. But a substantial amount of activity also goes into building other education-related facilities including religious study centers and student dormitories, of which few exhibit any real state monitoring. These facilities allow women to wear the headscarf, the use of prayer rooms and access to a local imam as well as the possibility of taking religious courses outside

28 Urban planning are an important and common form of local policy area (see for example Bertrand and Kramarz [6])
the central education curriculum. As such, they may enable religious segments of the population to participate in education.

At times, rapid construction of vakif-sponsored education facilities has led to suspicions of unmonitored spread in religious education (Balli [4], and Kinzer [28]). Nonetheless, the legal and economic strength of such private civil organizations, in a country where associational freedoms are relatively restricted, is an important source of social aid and local public service delivery. Even though the link between the Islamic party and the vakıf is largely implicit, anecdotal evidence provides numerous examples of the connection between the two. Indeed, “a strong selling point for the Welfare Party — at least among many parents — has been its readiness to provide dormitories for women who as students are coming to the big cities for the first time.” (Cowell [11]). Moreover, White [48] notes that officially independent vakıflar often received offices in RP-controlled municipal buildings.

Against this background, the aim of this section is to determine whether Islamic mayors shift the allocation of the urban space towards education, and to assess the role of vakıf physical investment in education. For these purposes, I examine completed buildings between 1990-2000 by type, financier and owner from the 2000 Building Census.

Table 6 reports the effect of an Islamic mayor on buildings completed 1990-2000 as estimated by the local linear regression method. The first row in column 2 is the average share of all building space (in square meters) that comprise education buildings (schools, dormitories etc.). On average, about 3 percent of the construction between 1990 and 2000 consisted of such buildings. A fifth of all the education buildings constructed during the period were privately financed, regardless of who eventually became the owner of the building. Most education buildings, i.e. 56 percent, are owned by state-controlled organizations (mostly the Ministry of Education). Also shown are the average ownership shares of municipalities (2.3 percent) and private vakıf ownership share (1.5 percent). Column 3 report OLS estimates, column 4 local linear regressions, and column 5 shows full-sample regressions with a quartic control function. The results in this panel show that Islamic rule, while not leading to more education facilities per se, did result in a larger share of them being financed privately and subsequently owned by religious charities.

29 Moreover, the dormitories may house students attending both religious as well as secular schools.
30 In addition, the existence of dormitories, in conjunction with boarding schools, may be particularly beneficial for poorer households by reducing the direct costs of education. This comes as children in such facilities often receive free school uniforms, textbooks, and free meals, as well as certain stipends which can be shared with their families (World Bank [52]).
31 For an extensive source of indices of associational freedoms, see the World Freedom Atlas (http://freedom.indiemaps.com/)
32 Results also show positive effects on the share of educational building permits privately financed (data for
These actions will most likely have been complemented by several other more informal means of alleviating the friction of participation in a similar fashion. But nonetheless, part of the increase in female participation in education may have been facilitated by resources and facilities more tailored to religious conservatives.

7. Labor Market Outcomes

Increasing female participation in education is a worthy cause in itself, but is just one component of women’s rights. If educational participation is increased while other forms of participation are simultaneously either unaffected, or even decreased, this would cloud the interpretation of the results. At the same time, if frictions to female participation are truly affected, there is no real reason why this could not also have an impact on other outcomes. A logical follow-up to the previous analysis is therefore whether Islamic rule had any impacts on other measures of female participation and this section therefore examines direct effects of having an Islamic mayor on labor market outcomes.

Unfortunately, detailed and consistent labor market data exist for cities only. For the 923 city municipalities, the Population Census reports neighborhood-level data on several measures of labor market activity, forms of income and sector employment. Since the number of municipal observations is on the low side, and more disaggregated data by neighborhood is available, I focus on RD estimates from regressions at the neighborhood level. Regressions are weighted (as in Section 6) by the inverse number of neighborhoods within a municipality and standard errors are clustered by municipality.

Table 7 shows results on economic activity, forms of income and sector employment for women. Column 2 shows sample means and standard deviations, column 3 the OLS estimates, and the last two columns report RD estimates from a full-bandwidth specification with a quartic control function, and one including only observations less than 2 percent around the cutoff.

For labor supply, i.e. the share of the population classified as participating in the labor force, average female labor market participation is a paltry 8.6 percent (compared to 46 percent for men). A substantial share, on average 70 percent of women, are classified as housewives (ev kadını). The OLS results in column 2 show that local Islamic rule is correlated with lower female employment

building permits does not exist for whether facilities were financed or owned by religious charities). These results are available on request from the author.

For example Curie and Moretti [12] find that mothers’ education increases infant health while Glaeser, Ponzetto, and Shleifer [19] argue that education increases the benefits to civic participation.
and more women classified as housewives, consistent with Islamic municipalities being more socially conservative. However, the RD estimates show no significant effects on female employment and a reduction in the share classified as housewives. Row 4 also shows a small decrease in the share of women who are married. This is consistent with the result obtained earlier of increased participation in education (as can be seen on effects on enrollment in row 3), although not necessarily increased participation in the labor market per se. At the same time, if Islamic parties increase educational attainment for the purpose of later labor force participation, this may not show up as early as in 2000. A successful high school graduate could just as well continue university education as taking a job. Therefore, it may be more informative to look at measures of the type of employment among the already employed.

Panel B shows results for type of income as well as sector composition among the employed. A substantial amount of employed women are family-employed and non-salaried (almost 20 percent) as opposed to being wage-earners, a much larger percentage than for men (8 percent). This can be partly explained by the prevalence of domestic piecework among women in poorer neighborhoods, a form of exchange carried out through the family or a male entrepreneur, often without monetary payments (White [49]). While not all members of such organization of labor are necessarily Islamist, “the Islamist segment of the business class comes primarily from this sector” (Gülalp [20]).

The RD estimates, however, show the opposite effect namely that the share of wage-earners is actually higher at the expense of the proportion of family-employed. This also resonates well with anecdotes of the RP and its affiliated organizations’ use of female labor.34

Finally, as can be seen in Panel C for sector employment, a substantial share of the labor force is employed in agriculture, although the largest employer for women is the service sector. The results show a shift of employed women from the agricultural sector to the service sector.

Although the effects found in this section are relatively small and less precisely estimated, altogether they confirm the view that local Islamic rule increased participation for a large group of women, not only with regard to getting an education but also in some types of labor market participation. Whether the increased educational attainment will directly lead to further participation in the labor force, on the other hand, is too early to tell (although if this is the case, the next 2010 Population Census should reveal more evidence on this).

34 Female Islamic activists have been an important tool in campaigning for the Islamic parties, not only as a symbol at political rallies. In socially conservative neighborhoods, veiled female activists provided a practical advantage over male activists. Whereas it would be culturally inappropriate for a male to enter a house with only women present, female activists had no restrictions against doing so (White [48]).
8. Discussion

At first glance, the main finding that local Islamic rule increases female education seems contrary to the widely held stylized fact of a negative causal relation between Islam and economic development. This is a problematic comparison since this paper examines the effect of a particular type of politician independent of voters’ religious beliefs, culture and other characteristics. In the Islam and development literature, on the other hand, these voter characteristics are an integral component of the comparison. Thus this paper has little bearing on the long-run cross-country finding that Muslim countries tend to be poorer and have lower rates of female participation than countries with different religions.

Instead, the study is more informative of an environment where treatment (in this case receiving an Islamic mayor) means lowering participation constraints for a substantial group of people (the poor and pious). As such, is not necessarily exclusive to the Islamic character of the party, merely that it happens to be the party more effective in lowering constraints in this context.

The finding that electing an Islamic mayor leads to a shift in education facilities towards more investment by religious charities is an indication that at least one of the mechanism comes through providing public goods tailored to the religiously conservative. This mechanism is not meant to be exhaustive but more to confirm previous studies highlighting reasons for the Islamic party’s success, and one specifically centered around inducing women to increase their human capital. The estimated attainment effect for young women is most likely picking up effects from families already living in the municipality at the time of the 1994 election. This does not mean that the lowering of participation constraints in one municipality could not lead to an inflow of students from adjacent secular-run municipalities where constraints would be higher. Any effect along this line would not be picked up due to the Census data being gathered by location of residence in 2000. Conditional on the existence of this additional mechanism, the estimated impact may very well provide a lower bound to the real effect of local Islamic rule on high school attainment.

Moreover, inducing women to get educated by lowering participation constraints does not need to come solely through physical add-on facilities like dormitories or Qur’anic study centers. An untestable (due to lack of data), but still possible, channel is varying enforcement of the headscarf ban. Although technically illegal, the author has encountered individual anecdotes of this occurring in some high schools (despite non-trivial sanctions against head masters who fail to enforce the ban properly). Another related channel may be that Islamic parties, due to their Islamic credentials...
with pious voters, are simply perceived as more credible than secular parties in pushing for female participation in schools.\textsuperscript{35}

An alternative mechanism that could imply a different interpretation would be one where Islamic rule attracts easily-educatable middle class families to the municipality from the outside. The comparison could then be one where these families’ daughters attend education no matter the identity of the mayor or location of residence, but families choose to move to the Islamic municipality simply because it provides a more Islamic environment. This, however, is unlikely for several reasons.

This kind of mechanism assumes that families make relocation decisions based on the ideological characteristics of municipal mayors, of which there was substantial turnover in the 1990s. It further assumes that these families would be those with disproportionate amounts of high-school aged daughters, since the impact for men in this cohort is smaller and statistically not different from zero. A consequence of this would be an increase in this cohort’s gender ratio, which is not borne out in the data. Furthermore, this story should be consistent with families moving to municipalities with observably more religiously conservative outcomes, but as was shown in the previous sections, these municipalities, if anything, exhibit more socially progressive outcomes. Additionally the heterogenous effects presented in Table A4 reveal that while impacts were relatively higher in more Islamic areas for young women, this does not hold to the same extent for older cohorts. This is indicative that these are not necessarily in the same families. In short, this kind of mechanism is unlikely without assuming a set of characteristics for the treated population that, in a Turkish context, would be culturally eclectic.

Instead, the effects found for labor market outcomes suggest that the experience of the treated municipalities goes somewhat beyond affecting education. The advent of Islamic rule may have affected female participation in a broader way, and increases in education among older women seem indicative of women facing improved opportunities for economic activity outside the household. As such the improvement of educational participation through lowering social constraints and by increasing the possibility of continued public participation after completion are most likely complementary.

A key component for analysis are the secular constraints for participating in high school in Turkey. A closely related interpretation of the results is that the positive impact of Islamic rule

\textsuperscript{35}This is, in spirit, similar to a pattern often observed in foreign policy, such as Richard Nixon’s opening up to China (Cukierman and Tommasi [13])
may reflect how costly the ban is when educational attainment is voluntary. In extension, this suggests a set of policy implications for the results. One implication is that banning Islamic parties in a secular democracy may be counterproductive if these have an advantage in facilitating access for those who need it the most. Another is that the friction lies less in the political realm, but in one of two components of the education system. The first is the headscarf ban itself, which by further aggravating barriers to entry for women, in addition furnishes Islamic parties’ with a friction that they have a comparative advantage in alleviating. The second is the voluntary nature of high school in Turkey; if instead this type of schooling became mandatory, it is less clear that the friction would be as prevalent.

9. Concluding Remarks

The institutional setting of local politics in Turkey provides a unique way to test the consequences of Islamic rule on education and labor market outcomes. Since women are often proclaimed to be most vulnerable in the occurrence of Islamic rule, the focus is on this group.

My findings show that despite its pro-Islamic and often socially conservative rhetoric, local Islamic rule had a positive impact on education. An “as good as” randomly-assigned Islamic mayor increased educational attainment and relatively more so for women than for men. An examination of direct impacts on labor market outcomes provide further evidence of a remarkable phenomenon: a religiously conservative Islamic party can be more effective in educating and providing better jobs for women than secular parties, despite the latter often having women’s rights as a key policy issue.

This points to a delicate tradeoff between restrictions on religious expression and constraints to participation for religious conservatives. In Turkey a large majority of women wear some form of headcover. Consequently, the ban on wearing the headscarf in public institutions makes the barriers to participation highest among those who are already more constrained. Policymakers thus face a double challenge of alleviating economic, as well as social, constraints to participation.

One observed mechanism behind the increase in education seems to be investment by private religious charities, the Islamic vakf. These facilities are examples of a different type of public goods with less focus on the exclusion of religious expression in public spaces. For opponents of political Islam, this has been one of several threatening symbols of creeping Islamification. Yet the Islamic party’s capacity to mobilize women may instead have resulted from the unbundling of social and economic reforms. Secular — especially left-wing — parties often pursue a two-fold agenda of economic as well as social modernization. In contrast, the Islamic party seems to have focused
more on the economic reforms while harnessing, rather than attempting to change, existing social norms and customs.

With regards to the external validity of the results, the RD design provides for a local average treatment effect in close elections, and may be less informative about the impact of Islamic rule far away from the threshold, i.e. for uncompetitive elections. At the same time, a consequence of this particular design is that the treatment effect estimated can be considered particularly informative for areas where Islamic rule was plausible. The RD treatment effect is therefore economically meaningful for a substantial and highly relevant subgroup. Nonetheless, the design measures an effect for a single election, and does not take into account whether effects may have changed over time. The focus on local democratic politics also excludes evaluating the impact of Islamic rule on national outcomes.

Much of the discussions about Islam and development is inherently tied to institutions. The approach here has been to evaluate the impact of local Islamic rule, holding the institutions fixed. The results are thus meaningful in an environment with relatively secular and democratic institutions and, as such, do not necessarily imply a direct judgment on secularism in Muslim countries, nor are they informative of Islamic rule in non-democratic systems. However, an indirect interpretation of the results brings the headscarf ban, central to the secular system in Turkey, to the forefront. The ban, and similar regulations, may be so costly to overcome for the religiously conservative segments that a significant portion of the female population end up not getting education. In such a situation, the Islamic movement may have an advantage over secular alternatives in alleviating this friction.

Even though it may be tempting to dismiss the results found here as a particular trait of Islam in Turkey or its institutions, the uniqueness of this study comes not just from the institutional setting, but equally from the possibility of identifying a meaningful causal treatment effect of local Islamic rule. Turkey differs from several of its Muslim neighbors in not being an Arab country. But then again, neither is Bangladesh, Indonesia, Malaysia, or Nigeria – all countries with more or less secular democratic systems. A politically influential military with a track record of overthrowing governments can be found, not just in Turkey, but also in Algeria, Egypt, Indonesia, Nigeria, and Pakistan. More importantly, the initial negative association between Islamic influence and development is the same as in many other settings around the world. Regarding the nature of Islam, even though Turkey never experienced the kind of Salafist or Deobandi influence that became prevalent in some other Muslim countries (Rabasa et al [41]), the influence of the Sufi brotherhoods
like the Nakşibendi, Nurcu, and Stīleyman movements making up the backbone of the vakıflar in Turkey are shared across most of Central Asia (Yavuz [54]). In other words, it is the identification of the causal impact, not the initial setting, that makes the difference.

The irony in the positive impact of Islamic parties on female participation in education and labor markets may not have been completely lost on secular and especially left-wing parties in Turkey. Nonetheless, the headscarf as well as a more general debate on religious expression in public spaces remain contentious. In this regard, Turkey is not the only country with such restrictions, nor is it the only country where the manifestation of political Islam in democratic politics is highly divisive. The school ban on the headscarf exists in Singapore, Tunisia, Malaysia, France and some states in Germany (Saul [43]). Recent immigration into urban areas is also changing the demographics of European cities, resulting in a debate on and the compatibility between secular institutions and the preferences of a growing constituency of religious conservatives. In this regard, Turkey in the 1990s provides an example of where locally elected Islamic governments ended up increasing access to education for those citizens who needed it the most.

References


36 There is some evidence that secular parties may be trying to soften their secular stance in a attempts to broader their appeal to a wider public. For example, the party leader of the CHP recently made headlines appearing on stage at a campaign rally together with women wearing the chador. “Chador not political symbol, opposition leader Baykal says,” Today’s Zaman, November 28, 2008, http://www.todayszaman.com/tz-web/detaylar.do?load=detay&link=159821


A. Appendix: Data and Sources

Source: Türkiye İstatistik Kurumu (Turkish Statistical Institute), www.tuik.gov.tr

A.1. Election Data (Mahalli İdareler Seçimi, Milletvekili Genel Seçimi)

- Islamic mayor in 1994 is a dummy variable taking on the value of 1 if the municipality received a mayor in 1994 from either the Welfare Party (Refah Partisi, RP), which received 19.4% of the votes and was awarded 329 municipalities; or the Great Union Party (Büyük Birlik Partisi, BBP) which received 0.94% of the votes and was awarded 11 municipalities. For the Islamic mayor in 1989 variable, RP is the only Islamic party.

- Islamic win margin is defined as the difference in vote share between the largest Islamic party and the largest secular party.

- Neighborhood-level Islamic vote share relative to municipal-level Islamic vote share in 1995 is the vote share of a neighborhood’s Islamic vote share in the national election in 1995 relative to the municipality’s Islamic vote share in the same election.

- Municipality dummies: Dummy variables indicating whether a municipality is a district center, province center, metropolitan, or sub-metropolitan municipality


- Share of Population with High School Education is the number of individuals (male/female) in either of the cohorts 15-20, 21-25, 15-25, or above 31, recorded in the relevant census municipality or neighborhood as having obtained secondary education degree (Lise) divided by the total population (male/female) in the municipality or neighborhood.

- Share of Population classified as students in the age cohort 15-30: Shares of all men and women within the age cohort 15-30 who in the census are classified as students.

- Share of Population with Primary Education in the 15-20 age cohort is the number of individuals recorded in the relevant census municipality or neighborhood as having obtained primary education degree (İlkokul or İlköğretim) divided by the total population (male/female) in the municipality or neighborhood.
• **Share of Population with Vocational Education in the age cohort 15-20** is the number of individuals recorded in the relevant census municipality or neighborhood as having obtained vocational education degree (Lise dengi meslek) divided by the total population (male/female) in the municipality or neighborhood.

• **Age distribution shares**: the share of the population below 20 years of age, and above 60 years of age.

• **Gender ratio**: ratio of female-to-male population

• **Household size**: Average of household population per household.

• **Employed Women**: The share of all women classified as employed in the labor force.

• **Housewives**: The share of all women classified as ev kadini, or housewife.

• **Married**: The share of all women who are married.

• **Wage-earners**: The share of employed women classified as receiving income from labor.

• **Family-employed**: The share of employed women classified as being non-salaried, family-employed workers

• **In Agriculture**: The share of employed women working in the agriculture sector

• **In Services**: The share of employed women working in the services sector

• **In Industry**: The share of employed women working in the industry sector.


• **Log Population Density 1990**: The logarithm of total population in 1994 divided by total building floor space in 1990.

• **Share of education floor space in 1990**: Share of total municipal floor space stock, consisting of education facilities in 1990.

• **Education Share of All Buildings**: Share of total municipal floor space, constructed between 1990-2000, consisting of education facilities.
- **Privately-financed share of Education Buildings**: Share of all education facilities in floor space, constructed between 1990-2000, consisting of privately-financed education facilities.

- **Vakif-owned share of Education Buildings**: Share of all education facilities in floor space, constructed between 1990-2000, consisting of vakif-owned education facilities.

- **Municipal-owned share of Education Buildings**: Share of all education facilities in floor space, constructed between 1990-2000, consisting of municipality-owned education facilities.

### Table 1. Summary Statistics

<table>
<thead>
<tr>
<th>Municipality Sample</th>
<th>Full Sample (N=2631)</th>
<th>Islamic (N=315)</th>
<th>Secular (N=2316)</th>
<th>Test of means Col. (2)-(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Share Women with High School 15-20 years of age</td>
<td>0.163 (0.096)</td>
<td>0.140 (0.090)</td>
<td>0.166 (0.096)</td>
<td>-0.026 (0.006)</td>
</tr>
<tr>
<td>(2) Share Men with High School 15-20 years of age</td>
<td>0.192 (0.077)</td>
<td>0.196 (0.076)</td>
<td>0.192 (0.077)</td>
<td>0.004 (0.005)</td>
</tr>
<tr>
<td>Main Explanatory variable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Islamic mayor 1994</td>
<td>0.120 (0.325)</td>
<td>1.0 (0)</td>
<td>0.0 (0)</td>
<td>1.0 (0)</td>
</tr>
<tr>
<td>Covariates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Log Population</td>
<td>7.839 (1.188)</td>
<td>8.315 (1.767)</td>
<td>7.774 (1.070)</td>
<td>0.541 (0.071)</td>
</tr>
<tr>
<td>(5) Share below 19 years</td>
<td>0.405 (0.083)</td>
<td>0.445 (0.075)</td>
<td>0.400 (0.082)</td>
<td>0.046 (0.005)</td>
</tr>
<tr>
<td>(6) Share between 20-59 years</td>
<td>0.503 (0.062)</td>
<td>0.482 (0.060)</td>
<td>0.505 (0.061)</td>
<td>-0.023 (0.004)</td>
</tr>
<tr>
<td>(7) Share above 60 years</td>
<td>0.092 (0.040)</td>
<td>0.073 (0.031)</td>
<td>0.095 (0.040)</td>
<td>-0.022 (0.002)</td>
</tr>
<tr>
<td>(8) Gender ratio</td>
<td>1.073 (0.253)</td>
<td>1.076 (0.117)</td>
<td>1.073 (0.266)</td>
<td>0.003 (0.015)</td>
</tr>
<tr>
<td>(9) City municipality</td>
<td>0.345 (0.475)</td>
<td>0.394 (0.489)</td>
<td>0.339 (0.473)</td>
<td>0.055 (0.029)</td>
</tr>
</tbody>
</table>

Standard errors (columns 1-3) and standard errors (column 4) in parenthesis.
<table>
<thead>
<tr>
<th>Outcome</th>
<th>High School Attainment</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Cohort</td>
<td>15-20</td>
<td>21-25</td>
</tr>
<tr>
<td>Specification</td>
<td>OLS</td>
<td>Local Linear</td>
</tr>
<tr>
<td>Covariates</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Outcome Mean</td>
<td>0.16</td>
<td>0.17</td>
</tr>
<tr>
<td>Islamic mayor</td>
<td>-0.026 (0.005)</td>
<td>-0.011 (0.004)</td>
</tr>
<tr>
<td>Obs</td>
<td>2631</td>
<td>2631</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Panel A. Women

| Outcome Mean | 0.19 | 0.26 | 0.19 |
| Islamic mayor | 0.004 (0.005) | 0.007 (0.004) | 0.011 (0.009) | 0.010 (0.008) | 0.018 (0.013) | 0.015 (0.012) | 0.017 (0.015) | 0.019 (0.013) | 0.007 (0.011) | 0.010 (0.010) | 0.008 (0.010) | 0.009 (0.009) |
| Obs | 2631 | 2631 | 1397 | 1397 | 2631 | 2631 | 102 | 102 | 1669 | 1669 | 990 | 990 |
| Bandwidth | 1 | 1 | 0.336 | 0.336 | 1 | 1 | 0.02 | 0.02 | 0.392 | 0.392 | 0.228 | 0.228 |

Panel B. Men

Panel A reports education results for women and panel B shows the corresponding for results men. The outcome in columns 1-8 is the share with high school degrees for the 15-20 age cohort, the same for the 21-25 age cohort in columns 9-10, and share enrolled in the 15-30 age cohort in columns 11-12. The first rows in each panel shows the mean for the relevant sample. Columns 1-2 are basic OLS specifications; columns 3-4 local linear regressions with optimal bandwidth, columns 5-6 are full-bandwidth specifications with a fourth-order (quartic) polynomial in the Islamic win margin estimated on each side of the cutoff at zero, and columns 7-8 are specifications including only observations where the absolute Islamic win margin was less than 2 percent. Column 9-12 are local linear regressions for the share with High School among the 21-25 age cohort (9-10) and share of students in the 15-30 cohort (11-12). The Islamic win margin is defined as the difference in vote share between the largest Islamic party and the largest secular party in 1994. Covariates include 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 are in parentheses (and clustered by province for OLS specifications in columns 1-2 and 5-8).
### Table 3. Robustness Checks

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E</th>
<th>Obs</th>
<th>Bandw.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Baseline Outcome: High School 15-25 Cohort</td>
<td>0.020</td>
<td>(0.008)</td>
<td>1081</td>
<td>0.258</td>
</tr>
<tr>
<td>(2) Only Islamic-Right Contests</td>
<td>0.016</td>
<td>(0.009)</td>
<td>858</td>
<td>0.246</td>
</tr>
<tr>
<td>(3) Only Islamic-Left Contests</td>
<td>0.051</td>
<td>(0.020)</td>
<td>199</td>
<td>0.264</td>
</tr>
<tr>
<td>(4) Additional 1990 Census controls</td>
<td>0.017</td>
<td>(0.008)</td>
<td>927</td>
<td>0.371</td>
</tr>
<tr>
<td>(5) Province fixed effects</td>
<td>0.019</td>
<td>(0.008)</td>
<td>1081</td>
<td>0.258</td>
</tr>
<tr>
<td>(6) City (merkezi) municipalities only</td>
<td>0.022</td>
<td>(0.012)</td>
<td>534</td>
<td>0.291</td>
</tr>
<tr>
<td>(7) Township (belde) municipalities only</td>
<td>0.020</td>
<td>(0.009)</td>
<td>712</td>
<td>0.308</td>
</tr>
<tr>
<td>(8) Building Census controls</td>
<td>0.016</td>
<td>(0.008)</td>
<td>1034</td>
<td>0.249</td>
</tr>
<tr>
<td>(9) Control for Islamic incumbent</td>
<td>0.016</td>
<td>(0.009)</td>
<td>1024</td>
<td>0.324</td>
</tr>
<tr>
<td>(10) Islamic mayor 2004 impact on 2000 outcome</td>
<td>0.003</td>
<td>(0.009)</td>
<td>1353</td>
<td>0.127</td>
</tr>
<tr>
<td>(11) Islamic mayor 1994 impact on 1990 outcome</td>
<td>-0.001</td>
<td>(0.009)</td>
<td>525</td>
<td>0.223</td>
</tr>
<tr>
<td>(12) Impact on &quot;Parent&quot; Cohort</td>
<td>0.006</td>
<td>(0.002)</td>
<td>869</td>
<td>0.191</td>
</tr>
<tr>
<td>(13) Control for Parent Cohort outcome and home ownership</td>
<td>0.012</td>
<td>(0.007)</td>
<td>1039</td>
<td>0.246</td>
</tr>
</tbody>
</table>

All regressions are estimated using local linear regressions with an optimal bandwidth based on Imbens and Kalyanaraman (2009). Row 1 is the baseline estimate using the share of women aged 15-25 with High School and covariates log population, share below 19, share above 60, gender ratio, and municipality type dummies. Rows 2-3 includes only observations where the Islamic winning margin was the difference between an Islamic and right-wing secular party (row 2) or between an Islamic and left-wing secular party (row 3). Row 4 includes only the 1990 census controls log population age below 19, age above 60, gender ratio, share married, share employed women, share 15-20 with high school, and municipality type dummies. Row 5 includes 81 province-specific fixed effects Rows 6 and 7 runs separate regressions for the city center municipalities and township respectively. Row 8 adds log total floor space of all buildings and the share of education building space, all measured in 1990. Row 9 includes a control for whether an Islamic mayor was elected in the 1989 election. Rows 10 and 11 are placebo tests; the first checks that electing an Islamic mayor in 2004 has no impact on female high school attainment in 2000, while row 11 checks that the impact of having an Islamic mayor in 1994 has no effect on the corresponding outcome in 1990. Row 12 uses the high school share for a female "parent cohort" aged 31-64 as the outcome. Row 13 controls for this parent cohort and also includes controls for the home ownership (share renting, owning, and living in welfare housing respectively). Standard errors in parenthesis.
<table>
<thead>
<tr>
<th></th>
<th>Far Secular (1)</th>
<th>Close (2)</th>
<th>Far Islamic (3)</th>
<th>Diff (2)-(1) (4)</th>
<th>Diff (2)-(3) (5)</th>
<th>Diff (3)-(1) (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women 15-20 with High School</strong></td>
<td>0.167 (0.096)</td>
<td>0.145 (0.091)</td>
<td>0.137 (0.089)</td>
<td>-0.022 (0.010)</td>
<td>0.007 (0.010)</td>
<td>-0.029 (0.006)</td>
</tr>
<tr>
<td><strong>Men 15-20 with High School</strong></td>
<td>0.192 (0.078)</td>
<td>0.199 (0.078)</td>
<td>0.194 (0.076)</td>
<td>0.007 (0.008)</td>
<td>0.005 (0.009)</td>
<td>0.002 (0.005)</td>
</tr>
<tr>
<td><strong>Log Population</strong></td>
<td>7.769 (1.059)</td>
<td>8.096 (1.547)</td>
<td>8.343 (1.802)</td>
<td>0.327 (0.110)</td>
<td>-0.247 (0.202)</td>
<td>0.574 (0.076)</td>
</tr>
<tr>
<td><strong>Share below 19 years</strong></td>
<td>0.399 (0.082)</td>
<td>0.446 (0.078)</td>
<td>0.444 (0.075)</td>
<td>0.047 (0.008)</td>
<td>0.002 (0.009)</td>
<td>0.045 (0.005)</td>
</tr>
<tr>
<td><strong>Share between 20-59 years</strong></td>
<td>0.506 (0.061)</td>
<td>0.474 (0.061)</td>
<td>0.484 (0.059)</td>
<td>-0.033 (0.006)</td>
<td>-0.010 (0.007)</td>
<td>-0.022 (0.004)</td>
</tr>
<tr>
<td><strong>Share above 60 years</strong></td>
<td>0.095 (0.040)</td>
<td>0.080 (0.033)</td>
<td>0.072 (0.031)</td>
<td>-0.015 (0.004)</td>
<td>0.008 (0.004)</td>
<td>-0.023 (0.003)</td>
</tr>
<tr>
<td><strong>Gender ratio</strong></td>
<td>1.074 (0.269)</td>
<td>1.047 (0.096)</td>
<td>1.079 (0.120)</td>
<td>-0.026 (0.027)</td>
<td>-0.032 (0.013)</td>
<td>0.006 (0.017)</td>
</tr>
<tr>
<td><strong>City municipality</strong></td>
<td>0.336 (0.472)</td>
<td>0.431 (0.498)</td>
<td>0.393 (0.489)</td>
<td>0.096 (0.048)</td>
<td>0.038 (0.057)</td>
<td>0.057 (0.031)</td>
</tr>
<tr>
<td><strong>Obs</strong></td>
<td>2267</td>
<td>102</td>
<td>262</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table shows summary statistics for 1) secular municipalities where the *Islamic win margin* was within two percent of the cutoff, 2) municipalities where the *absolute Islamic win margin* was below -2 percent, and 3) Islamic-run municipalities where the *Islamic win margin* was above than 2 percent. Standard deviations (columns 1-5) and standard errors (column 6) are in parenthesis.
Table 5. Heterogenous Impact of Islamic mayor.

<table>
<thead>
<tr>
<th>Quartile</th>
<th>First (1)</th>
<th>Second (2)</th>
<th>Third (3)</th>
<th>Fourth (4)</th>
<th>Obs (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome mean</td>
<td>0.15</td>
<td>0.19</td>
<td>0.17</td>
<td>0.14</td>
<td>2614</td>
</tr>
<tr>
<td>Islamic mayor 1994</td>
<td>-0.010</td>
<td>0.027</td>
<td>0.019</td>
<td>0.068</td>
<td>(0.016)</td>
</tr>
</tbody>
</table>

Panel A. Municipal-level impact by religious share of building space

*Dependent variable is Share of 15-20 year-old Women with High School*

| Outcome mean | 0.17 | 0.14 | 0.12 | 0.10 | 8073 |
| Islamic mayor 1994 | 0.010 | 0.017 | 0.017 | 0.024 | (0.018) | (0.016) | (0.013) | (0.012) |

Panel B. Neighborhood-level impact by relative Islamic vote share

*Dependent variable is Share of All Women with High School*

The table shows the impact of having an Islamic mayor elected in 1994 on female high school education in 2000 along two dimensions. In Panel A the sample is split into four quartiles depending on the share of religious buildings in a municipality. For each quartile a specific local linear regression is run measuring the impact of local Islamic rule on high school attainment for the 15-20 age cohort. In Panel B the sample of neighborhoods is split by in similar quartiles by the neighborhood-level Islamic vote share relative to the municipal-level Islamic vote share. For each quartile a specific full-bandwidth regression including a quartic control function on each side of the cutoff where observations are weighted by the inverse number of neighborhoods within a municipality and standard errors are clustered by municipality. Standard errors are in parenthesis.
Table 6. Islamic Rule and Urban Planning

<table>
<thead>
<tr>
<th></th>
<th>Obs (1)</th>
<th>Mean (sd) (2)</th>
<th>OLS (3)</th>
<th>Local linear (4)</th>
<th>Global Quartic (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Education Share of Buildings</td>
<td>2643</td>
<td>0.027</td>
<td>-0.001</td>
<td>0.003</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.046)</td>
<td>(0.003)</td>
<td>(0.005)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>(2) Privately-financed share of educational facilities</td>
<td>2011</td>
<td>0.215</td>
<td>0.031</td>
<td>0.071</td>
<td>0.090</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.333)</td>
<td>(0.020)</td>
<td>(0.047)</td>
<td>(0.045)</td>
</tr>
<tr>
<td>(3) Vakif-owned share of educational facilities</td>
<td>2011</td>
<td>0.015</td>
<td>0.014</td>
<td>0.062</td>
<td>0.073</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.079)</td>
<td>(0.008)</td>
<td>(0.026)</td>
<td>(0.028)</td>
</tr>
<tr>
<td>(4) Municipality-owned share of educational facilities</td>
<td>2011</td>
<td>0.023</td>
<td>-0.002</td>
<td>-0.010</td>
<td>-0.018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.123)</td>
<td>(0.007)</td>
<td>(0.012)</td>
<td>(0.014)</td>
</tr>
<tr>
<td>(5) Government-owned share of educational facilities</td>
<td>2011</td>
<td>0.564</td>
<td>-0.018</td>
<td>-0.005</td>
<td>-0.008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.416)</td>
<td>(0.029)</td>
<td>(0.055)</td>
<td>(0.054)</td>
</tr>
</tbody>
</table>

The table shows results from the Building Census of 2001; row 1 shows the education share of all building space (in square meters) constructed between 1990 and 2000. Rows 2 through 5 show, for the same period, shares of education building spaces financed privately (row 2), owned by religious foundations (vakiflar, row 3), owned by municipalities (row 4), and owned by the central government (row 5). Column 3 are standard OLS estimates, column 4 implements the local linear regressions and column 5 includes a quartic polynomial in the Islamic winning margin on each side of the cutoff (see text for details). All regressions include controls for log population, age below 19, age below 60, gender ratio, and municipality types.
### Table 7. Additional Female outcomes for 2000 Census Neighborhoods.

<table>
<thead>
<tr>
<th></th>
<th>Obs</th>
<th>Mean (sd)</th>
<th>OLS</th>
<th>Global Quartic</th>
<th>Cutoff +/- 2 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td><strong>Panel A. General Economic Activity and Social Status (by share of female population)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Employed</td>
<td>10,194</td>
<td>0.086</td>
<td>-0.019</td>
<td>-0.014</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.078)</td>
<td>(0.003)</td>
<td>(0.012)</td>
<td>(0.012)</td>
</tr>
<tr>
<td>(2) Housewives</td>
<td>10,194</td>
<td>0.702</td>
<td>0.041</td>
<td>-0.020</td>
<td>-0.048</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.107)</td>
<td>(0.006)</td>
<td>(0.019)</td>
<td>(0.018)</td>
</tr>
<tr>
<td>(3) Students</td>
<td>10,194</td>
<td>0.125</td>
<td>-0.007</td>
<td>0.015</td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.050)</td>
<td>(0.003)</td>
<td>(0.009)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>(4) Married</td>
<td>10,194</td>
<td>0.608</td>
<td>0.004</td>
<td>-0.026</td>
<td>-0.021</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.063)</td>
<td>(0.004)</td>
<td>(0.012)</td>
<td>(0.012)</td>
</tr>
<tr>
<td><strong>Panel B. Within Labor Force Outcomes (by share of employed women)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Wage-earners</td>
<td>10,007</td>
<td>0.766</td>
<td>0.009</td>
<td>0.077</td>
<td>0.097</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.248)</td>
<td>(0.014)</td>
<td>(0.045)</td>
<td>(0.054)</td>
</tr>
<tr>
<td>(6) Family-Employed</td>
<td>10,007</td>
<td>0.183</td>
<td>-0.007</td>
<td>-0.073</td>
<td>-0.082</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.233)</td>
<td>(0.013)</td>
<td>(0.041)</td>
<td>(0.050)</td>
</tr>
<tr>
<td><strong>Panel C. Sector Composition (by share of employed women)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) In Agriculture</td>
<td>10,007</td>
<td>0.212</td>
<td>-0.022</td>
<td>-0.074</td>
<td>-0.105</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.274)</td>
<td>(0.015)</td>
<td>(0.047)</td>
<td>(0.055)</td>
</tr>
<tr>
<td>(8) In Services</td>
<td>10,007</td>
<td>0.632</td>
<td>0.010</td>
<td>0.126</td>
<td>0.099</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.277)</td>
<td>(0.018)</td>
<td>(0.060)</td>
<td>(0.067)</td>
</tr>
<tr>
<td>(9) In Industry</td>
<td>10,007</td>
<td>0.147</td>
<td>0.012</td>
<td>-0.050</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.183)</td>
<td>(0.014)</td>
<td>(0.044)</td>
<td>(0.044)</td>
</tr>
</tbody>
</table>

All regressions are estimated with OLS and observations are weighted by the inverse number of neighborhoods within a municipality. Controls include log population, share below 19, share above 60, and the gender ratio. Standard errors clustered by municipality are in parenthesis.
<table>
<thead>
<tr>
<th>Age Cohort</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20</td>
<td>75.0</td>
<td>79.1</td>
</tr>
<tr>
<td>21-25</td>
<td>10.5</td>
<td>8.5</td>
</tr>
<tr>
<td>26-30</td>
<td>4.1</td>
<td>4.0</td>
</tr>
<tr>
<td>31+</td>
<td>10.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Frequency distribution of age completed high school by five-year cohorts. Source: World Values Survey.
Table A2. Alternative parametric specifications by polynomial order and bandwidth.

<table>
<thead>
<tr>
<th>Order</th>
<th>None</th>
<th>Linear</th>
<th>Quadratic</th>
<th>Cubic</th>
<th>Quartic</th>
<th>Obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bw.</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>1</td>
<td>-0.011</td>
<td>0.008</td>
<td>0.024</td>
<td>0.023</td>
<td>0.026</td>
<td>2635</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.007)</td>
<td>(0.007)</td>
<td>(0.008)</td>
<td>(0.010)</td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td>-0.011</td>
<td>0.015</td>
<td>0.025</td>
<td>0.021</td>
<td>0.027</td>
<td>2184</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.006)</td>
<td>(0.008)</td>
<td>(0.010)</td>
<td>(0.013)</td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>-0.001</td>
<td>0.019</td>
<td>0.026</td>
<td>0.025</td>
<td>0.032</td>
<td>1055</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.007)</td>
<td>(0.011)</td>
<td>(0.015)</td>
<td>(0.016)</td>
<td></td>
</tr>
<tr>
<td>0.1</td>
<td>0.011</td>
<td>0.023</td>
<td>0.024</td>
<td>0.044</td>
<td>0.069</td>
<td>495</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.012)</td>
<td>(0.015)</td>
<td>(0.023)</td>
<td>(0.029)</td>
<td></td>
</tr>
<tr>
<td>0.05</td>
<td>0.016</td>
<td>0.032</td>
<td>0.055</td>
<td>0.061</td>
<td>0.034</td>
<td>263</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.014)</td>
<td>(0.025)</td>
<td>(0.032)</td>
<td>(0.045)</td>
<td></td>
</tr>
<tr>
<td>0.02</td>
<td>0.030</td>
<td>0.052</td>
<td>0.067</td>
<td>0.013</td>
<td>0.106</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>(0.011)</td>
<td>(0.021)</td>
<td>(0.036)</td>
<td>(0.049)</td>
<td>(0.069)</td>
<td></td>
</tr>
</tbody>
</table>

The table shows variations on the impact of Islamic mayor 1994 on the share of 15-25-year-olds with High School degree in 2000. The columns indicate the different order of polynomials used and the rows the bandwidth. All regression are unweighted, estimated using OLS, and include controls for log population, share above 60 years, share under 19 years, gender ratio, and municipality type dummies. Polynomial control functions in the Islamic winning margin are estimated on each side of the cutoff. Standard errors clustered by province in parenthesis.
Table A3. Additional covariate checks from 1990 Census

<table>
<thead>
<tr>
<th></th>
<th>Share Married</th>
<th>Share Employed</th>
<th>Share below 19</th>
<th>Share above 60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Islamic mayor 1994</td>
<td>0.004</td>
<td>-0.001</td>
<td>-0.015</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.001)</td>
<td>(0.011)</td>
<td>(0.004)</td>
</tr>
</tbody>
</table>

Table shows additional local linear regression results for 1990 Census outcomes. Controls include log population in 1994 and municipality type dummies.
<table>
<thead>
<tr>
<th>Sex</th>
<th>Women</th>
<th>Men</th>
<th>Sex</th>
<th>Women</th>
<th>Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantile</td>
<td>Full</td>
<td>First</td>
<td>Third</td>
<td>Fourth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td></td>
</tr>
<tr>
<td>Panel A. 15-20 Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome mean</td>
<td>0.16</td>
<td>0.15</td>
<td>0.19</td>
<td>0.17</td>
<td>0.14</td>
</tr>
<tr>
<td>Islamic mayor</td>
<td>0.023</td>
<td>-0.010</td>
<td>0.027</td>
<td>0.019</td>
<td>0.068</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.016)</td>
<td>(0.017)</td>
<td>(0.015)</td>
<td>(0.015)</td>
</tr>
<tr>
<td>Panel B. 21-25 Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome mean</td>
<td>0.16</td>
<td>0.16</td>
<td>0.19</td>
<td>0.17</td>
<td>0.14</td>
</tr>
<tr>
<td>Islamic mayor</td>
<td>0.020</td>
<td>-0.013</td>
<td>0.025</td>
<td>0.016</td>
<td>0.058</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.017)</td>
<td>(0.019)</td>
<td>(0.015)</td>
<td>(0.016)</td>
</tr>
<tr>
<td>Panel C. 26-30 Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome mean</td>
<td>0.09</td>
<td>0.09</td>
<td>0.12</td>
<td>0.10</td>
<td>0.08</td>
</tr>
<tr>
<td>Islamic mayor</td>
<td>0.017</td>
<td>0.009</td>
<td>0.020</td>
<td>0.018</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.014)</td>
<td>(0.012)</td>
<td>(0.011)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Panel D. 31-64 Cohort</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome mean</td>
<td>0.04</td>
<td>0.03</td>
<td>0.06</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>Islamic mayor</td>
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<td>-0.002</td>
<td>0.008</td>
<td>0.008</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.005)</td>
<td>(0.006)</td>
<td>(0.005)</td>
<td>(0.003)</td>
</tr>
</tbody>
</table>

The table shows local linear regression results of having an Islamic mayor elected in 1994 on high school attainment by age cohort and religious building share quantile for men and women. Standard errors are in parenthesis.
Figure 1. Religion, Headscarfs, and Constraints to Education in Turkey

The graphs show results from a survey of 1500 individuals by TESEV in 2006. Fig. 1A: Religiosity measures the degree to which respondents defined themselves as being religious Muslims. The Islamist index allows respondents to place themselves on a range from 1 to 10, with 1 being "Secularist" and 10 being "Islamist". Fig. 1B: Share of female respondents who wear some form of headcover. Fig. 1C: Share of Respondents who would disapprove if daughter removed headscarf to attend education. Source: Çarkoğlu, Ali and Binnaz Toprak, "Religion, Society and Politics in Changing Turkey," TESEV (2006), http://www.tesev.org.tr/
Figure 2. Education, Religion, and Income

The graph shows province-level Log GDP per Capita (x-axis), its distribution (lowest y-axis), female high school education attainment (middle y-axis), and log mosques per population (upper y-axis). Observations are weighted by population and fitted by fractional polynomials, weighted (black) and unweighted (gray).
Figure 3. Histogram of forcing variable

Graph shows histogram of the Islamic winning margin in 1994 for the full range in 2 percent bins.
The graphs show unconditional means in four-percent bins for the share of women (left) and men (right) respectively between 15-20 years of age with a high school degree in 2000 (top) and 1990 (bottom). The solid represent the predicted values of a local linear smoother on each side of the threshold at zero. The outer lines denote 95 percent confidence intervals.
Figure 5. Graphical illustration of RD design: Education types in 2000.

The graphs show unconditional means in four-percent bins for the share of women (left within panel) and men (right within panel) with high school degree in the 15-20 age cohort (panel A), a minimum of primary school in the 15-20 age cohort (panel B), enrollment in the 15-30 age cohort (panel C), and vocational high school in the 15-20 age cohort (panel D). The solid represent the predicted values of local linear smoother estimated using unbinned data on each side of the threshold at zero. The outer gray lines denote 95 percent confidence intervals.
The panels refer to the following municipality characteristics: Share of the population aged below 19 in 2000, share of population aged above 60 in 2000, gender ratio in 2000, log population in 1994, sub-metropolitan municipality indicator, city center municipality indicator, number of parties, and population density in 1990. Each circle corresponds to the unconditional mean in bins of four percent by the Islamic win margin in mayoral elections 1994. The solid line represents the predicted values of a local linear smoother estimated using unbinned data on each side of the threshold at zero. Outer gray lines indicate 95 percent confidence intervals.
Figure 7. Forcing variable density test

The graph shows the McCrary (2008) test of whether there is a discontinuity in the density of the Islamic win margin.

Discontinuity est. = -0.015, s.e. = 0.141
The graph shows the absolute vote share for the Islamic party plotted against the Islamic win margin, both in 1994. Observations less than 2 percentage points away from 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.
Figure 9. Quantile RD Estimates

The panels show quantile RD estimates for high school attainment within the 15-20 age cohort. The dashed lines indicate 95 percent confidence intervals, where standard errors are bootstrapped using 250 replications. All regressions include controls for log population, total population below 19, total population above 60, five gender-specific age cohorts, gender ratio, and type of municipality. The gray bars represent quantile means of high school in the 15-20 age cohort attainment with corresponding values shown on the right-hand side y-axis.
The graph shows, on the left-hand side, average absolute t-statistics of placebo RD estimates at various potential cutoffs. Points above .4 and below -0.8 in the forcing variable are excluded due to the small number of observations beyond these values. The statistics are averages of three different full-bandwidth control function specifications; specifically a quadratic, cubic, and quartic control function estimated on each side of the cutoff. The right-hand side shows the distribution of the t-statistics.