Essays on the Political Economy of Service Provision

by

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Abstract

Service provision has often been studied as an outcome of political decisions and processes. This dissertation examines how the distribution of service provision and its electoral outcomes are also contingent on local social structures. It contributes to theoretical knowledge on the political economy of service provision by introducing novel arguments that explain spatial and temporal variations in state capacity and government services, non-state services, and electoral returns to service provision.

The first paper develops a theory based on bureaucratic efficiency and argues that bureaucratic efficiency increases with social proximity among bureaucrats. I find that social proximity, as proxied by geographic proximity, increases bureaucratic efficiency. However, in line with theoretical expectations, geographic proximity is less likely to lead to high bureaucratic efficiency in socially fragmented network structures or when there are ethnic divisions between bureaucrats. To test this theory, I leverage a spatial regression discontinuity design and novel data from Turkey's over 35,000 villages.

The second paper explores the origins of non-state service provision, with a focus on Islamist political movements. Exploiting the spatial variation in an Islamist service provision network across Turkey's 970 districts, this study shows that service allocation by non-state actors is highly dependent on a group's ability to marshal local resources, specifically through the associational mobilization of local business elites. The findings rely on an original district-level dataset that combines data from over sixty government decrees, archival data, and other novel administrative data.

The third paper introduces a theory suggesting that electoral returns to local public goods will increase with their excludability, i.e., the degree to which they are used only by the local population, as the local population will see them as "club goods" and as a signal of favoritism. Using a panel dataset that contains information on all public education and health investments in Turkey since the 1990s and mobility measures that rely on mobile call data, this study finds that electoral returns to public good investments are higher when they have a club good nature, although the effect is weaker in secular districts, where a perception of favoritism is less likely to develop due to the cleavages with the conservative incumbent party.

Thesis Supervisor: Fotini Christia
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When I started my educational journey, I could never have imagined that, as the child of a couple who were barely able to complete elementary school before having to work and earn money from a very young age in order to survive, I would be so lucky as to become an alumnus of MIT. My experiences while growing up and observing the results of structural inequalities in my everyday life have been my main motivation to study political economy. I am very happy and grateful for the path my life has taken me on. But I am most thankful for it giving to me the opportunity to appreciate the beauty of the following verses from the Anatolian folk poet Yunus Emre:

"Knowledge should mean a full grasp of knowledge:
Knowledge means to know yourself, heart and soul.
If you have failed to understand yourself,
Then all of your reading has missed its call."

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Chapter 1

Introduction

Public services are often the most visible and concrete side of the government to its citizens.Government performance in the provision of public services, therefore, not only forms the foundation of citizens' welfare but also of state legitimacy (Haggard 1990; Przeworski 1991; Rothstein 2009). Poor performance in service provision can undermine trust in the state (Braithwaite and Levi 1998) and in the regime (Anderson and Tverdova 2003; Seligson 2002), support for democracy (Dalton 2004), and compliance with governmental regulations and laws (Fjeldstad 2004; Levi *et al.* 2009). Further, when service quality correlates with identity cleavages, it can fuel ethnic or religious conflict (Gurr and Moore 1997; Stewart 2008; Østby 2008).

Service provision has often been studied as an outcome of political decisions and processes. Starting with the literature of distributive politics, the focus has been on "which political actor allocates what, and why?". Prior research, for example, has asked whether politicians allocate goods to their core or swing constituents (Cox and McCubbins 1986; Dixit and Londregan 1996; Lindbeck and Weibull 1987); or more broadly to population subgroups, variably identifiable by race, ethnicity, or partisanship (Banerjee and Somanathan 2007; Thachil and Teitelbaum 2015). Others more broadly studied the consequences of democratic competition, and by extension, of access to information on

government performance in public services (Besley and Burgess 2002; Brown 1999; Ferraz and Finan 2011; Kudamatsu 2012; Lake and Baum 2001; Min 2015; Stasavage 2005). This line of research explains variations in the quality or quantity of service provision through the "long route" of accountability - electoral competition and citizens influencing policymakers. Non-state service provision, on the other hand, has often been associated with the failure of the state to provide social services (Berman 2003; Gough *et al.* 2004; Koonings and Kruijt 2004; Rubin 1995) or with non-state actors' political motivations such as electoral mobilization or territorial control (Arjona *et al.* 2015; Cammett 2014; Stewart 2008).

My dissertation consists of three papers that shed light on how the distribution of service provision and its electoral outcomes are also contingent on local social structures. Although each paper studies a different facet of the political economy of service provision, they are linked by the theoretical insight that access to services are not only motivated by political decisions, but are also influenced by the very local social context where these services are provided. Critically, my dissertation does not neglect the role of political preferences, but highlights that the end outcome also depends on the set of choices, and that these set of choices are often shaped by local social structures and institutions. Prior research has convincingly demonstrated the importance of local social context for understanding many facets of political behavior or political institutions, including but not limited to political participation and social movements (Huckfeldt and Sprague 1987; McAdam and Paulsen 1993), voting behavior (Ichino and Nathan 2013; Spater 2019), claim-making(Auerbach 2016; Auerbach and Kruks-Wisner 2020), public services (Miguel and Gugerty 2005; Tsai 2007), state capacity and markets (Charnysh 2019). My dissertation joins this body of scholarship with three papers each of which contribute to a different realm of local governance and service provision: government services, non-state service provision, and electoral returns to public services.

In addition to its theoretical contribution, my dissertation introduces a range of novel

empirical data to the study of service provision and governance in the Middle East and hybrid regime contexts. It combines data sources and techniques such as geospatial analysis tools, remote sensing, automated web scraping, historical archives, and mobile call detail records, forming, to my knowledge, the most comprehensive district- and village-level datasets on Turkey.

The main administrative data, which includes information on indicators such as water infrastructure, schools, electricity, e-government performance, civil society associations from Turkey's over 35,000 villages and 970 districts, were collected by scraping tens of thousands of official web pages. Another piece of data that the dissertation employs is the geolocations of the villages in the country, which were collected through automated tools from government web pages and Google Places APIs, and, for a small portion, through manual coding to prevent missing data bias. To map the ethnicity and sect of villages, the dissertation uses an original dataset that was manually coded relying on ethnographic inventories and specialized web-searches, and validated through fieldwork. Information about Islamist service provision, with district-level indicators on schools, dorms, tuition centers, endowments, education officials, and health officials, was compiled from over sixty government decrees. The empirical tests in this dissertation also employ various village- and district-level geospatial indicators constructed using spatial analysis tools and satellite images, as well as network and mobility measures that rely on antenna-level mobile call detail records. They also use archival data on historical state-created associations and public service infrastructure. Other data used in the dissertation include official statistics on building investments, elections, literacy, population, endowments, mosques, private schools, private dorms, and tutoring centers. My dissertation also draws on interviews conducted over the course of 8 months of fieldwork.

The first paper of the dissertation, "The Social Bureaucrat: How Social Proximity Among Bureaucrats Affects Local Governance," investigates the origins of spatial varia-

tion in state capacity and government services. Most studies that examine local government performance with a lack of accountability. However, citizen-based accountability explanations, by definition, focus on politicians' and officials' willingness to provide quality public services rather than on their equally crucial ability to do so. Moreover, given the mixed evidence on electoral accountability and community oversight mechanisms, these approaches probably cannot explain all the variation in service quality. To fill this gap in the literature, I advance a theory based on bureaucratic efficiency in which transaction costs associated with the production process of public services play the key role. Specifically, I argue that bureaucratic efficiency increases with social proximity among bureaucrats, bureaucrats' informal ties with other bureaucrats in their jurisdiction, because informal ties not only serve communication or socialization purposes but also provide channels for informal information exchange and cooperation. Therefore, bureaucratic efficiency is higher in political geographies characterized by high social proximity among bureaucrats.

I find that social proximity, as proxied by geographic proximity, increases bureaucratic efficiency. However, in line with theoretical expectations, geographic proximity is less likely to lead to high bureaucratic efficiency in socially fragmented community structures, as measured by network indicators, or when there are ethnic divisions between bureaucrats. Over 200 interviews conducted in regions of Turkey with different political and ethnic geographies inform the descriptive inferences underlying the theory and its observable implications. I leverage a geographical regression discontinuity design to test my theory. The first theoretical contribution of this study lies in studying local public services outside of the accountability framework and citizen sanctioning, instead revealing capacity-driven sources of government performance. Second, by demonstrating that state capacity is not a uniform feature of the state and varies by the local social context, this study extends the literature on state capacity.

The second paper, "Imams and Businessmen: Islamist Service Provision in Turkey",

investigates the origins of non-state service provision, with a focus on Islamist political movements. Exploiting the spatial variation in the Gulenist service provision network across Turkey's 970 districts, this study shows that Islamist service provision is a function of both the historical associational culture of the district and a movement's ability to mobilize local resources through local business associations. Besides, in contrast to some existing arguments in the literature, the study finds that Islamist service provision is not more prevalent in places with low state capacity. Our inferences rely on an instrumental variable and a panel data design that combine a battery of datasets, including archival data on state-induced associations during the early 20th century and contemporary data from government decrees. The major contribution of this study is to show that as distinct from existing theories, Islamist service provision is not only explained by political strategies and sectarian identities of recipients: the question of when religious groups can provide welfare is equally important. By doing so, our argument also provides an explanation for the variation in relatively homogenous settings, where ethnic or religious boundaries may be irrelevant.

The second paper, "Imams and Businessmen: Islamist Service Provision in Turkey" (co-authored with Fotini Christia), shifts the focus from local government performance to services provided by non-state actors, with a focus on Islamist political movements. Exploiting the spatial variation in the Gulenist service provision network across Turkey's 970 districts, this study shows that Islamist service provision is a function of both the historical associational culture of the district and a movement's ability to mobilize local resources through local business associations. Besides, in contrast to some existing arguments in the literature, the study finds that Islamist service provision is not more prevalent in places with low state capacity. Our inferences rely on an instrumental variable and a panel data design that combine a battery of datasets, including archival data on state-induced associations during the early 20th century, data on Erdoğan government's purge of over 100,000 civil servants and of thousands of institutions, and other

novel data on Islamist or secular business associations, waqfs, banks, and public service infrastructure. The major contribution of this study is to show that as distinct from existing theories, Islamist service provision is not only explained by political strategies and sectarian identities of recipients: the question of when religious groups can provide welfare is equally important. By doing so, our argument also provides an explanation for the variation in relatively homogenous settings, where ethnic or religious boundaries may be irrelevant.

The third paper, "Subnational Variations in Electoral Returns to Local Public Investments," approaches service provision as an independent, instead of a dependent, variable. In this project, I introduce a theory suggesting that electoral returns to local public goods will increase with their excludability, i.e., the degree to which they are used only by the local population. Due to their excludability, the local population will see them as club goods and as a signal of favoritism. This, in turn, will translate to higher reciprocity and electoral returns among the local electorate, except in districts where political, ethnic, or religious cleavages between the government and the local electorate exist. Using a comprehensive panel dataset that contains information on all public education and health investments in Turkey since the 1990s, as well as geocoded and timestamped mobile call data that show across- district mobility patterns, this study finds that excludability increases the electoral returns to health and education investments. However, excludability does not translate to higher reciprocity in secular districts, where a perception of favoritism is less likely to develop due to the cleavages with the Islamist incumbent party, AKP. By revealing that electoral returns to government investments are conditional on characteristics of community structure and composition of beneficiaries, this paper advances the literatures on local public services and electoral accountability.

Chapter 2

The Social Bureaucrat: How Social Proximity among Bureaucrats Affects Local Governance

Abstract

Most studies that examine subnational variations in public services associate low government performance with a lack of accountability. As distinct from these approaches, I offer a capacity-based explanation in which transaction costs associated with the production process of public services play the key role. Specifically, I argue that transaction costs within bureaucracy decrease with *social proximity among bureaucrats* –bureaucrats' informal ties with other bureaucrats in their jurisdiction– because informal ties not only serve communication or socialization purposes but also provide channels for informal information exchange and cooperation. Testing the observable implications of this theory, I find that social proximity, as proxied by geographic proximity, increases bureaucratic efficiency. However, in line with theoretical expectations, geographic proximity is less likely to lead to high bureaucratic efficiency in socially fragmented network structures or when there are ethnic divisions between bureaucrats. Six months of fieldwork in regions of Turkey with different political and ethnic geographies inform the descriptive inferences underlying the theory and its observable implications. I leverage a geographical regression discontinuity design to test my theory. My empirical tests employ novel administrative data from 30,000 villages and 970 districts in Turkey, geospatial indicators constructed using spatial analysis tools and satellite images, and antenna-level mobile call detail records. This study advances research on public goods provision by studying local public services outside of citizen-centered accountability explanations, instead revealing capacity-driven sources of government performance. By demonstrating that state capacity can vary systematically by the local social context, it extends the literature on state capacity.

2.1 Introduction

Government performance in the provision of public services forms the foundation of citizen welfare and state legitimacy. Poor performance in service provision can undermine trust in the state and, when service quality correlates with identity cleavages in a country, can even fuel conflicts. As the real producers of public goods, bureaucrats are critical to public services. Yet, low government performance in public services is typically explained by a lack of accountability: when citizens are unable to hold politicians or bureaucrats accountable, politicians and bureaucrats are not incentivized to perform. As distinct from these approaches, I offer a capacity-based explanation for subnational variations in public service delivery.

Citizen-based accountability explanations[1] focus on politicians' and officials' *willingness* to provide quality public services (Besley and Burgess 2002; Björkman Nyqvist and Svensson 2007; Ferraz and Finan 2011; Tsai 2007), rather than on their equally crucial *ability* to do so. Moreover, given mixed evidence on electoral accountability and community oversight mechanisms, these approaches probably cannot explain all variations in service quality.[2] To fill this gap in the literature, I offer a theory based on bureaucratic efficiency[3] in which transaction costs associated with the production process of public services (e.g., red tape, opportunistic behavior, allocative inefficiency) play the key role. Specifically, I argue that transaction costs within bureaucracy decrease with *social proximity among bureaucrats*—bureaucrats' informal ties with other bureaucrats in

[1]Here, I refer to studies that explain subnational variations in public service delivery through citizen sanctioning and how politicians and bureaucrats respond to that.

[2]For extensive evidence on electoral accountability, see Dunning (2019). For a review of literature on community oversight, see Pande (2011).

[3]Throughout the paper, I use bureaucratic efficiency to refer to how effectively governance and service provision processes function, keeping the inputs constant. It concerns the extent to which bureaucracies can accomplish good outcomes using given levels of time and resources, or the amount of time and resources they need to achieve a certain outcome. Bureaucratic efficiency can involve informational improvements and improvements to bureaucratic accountability (bureaucrats' responsiveness to upper-level bureaucrats); bureaucratic monitoring (bureaucrats' ability to observe the behavior of upper-level bureaucrats); and cooperation between bureaucrats at similar levels of hierarchy and in different institutions. See Section 2.3 for a detailed discussion.

their jurisdiction—because informal ties not only serve communication or socialization purposes but also provide channels for informal information exchange and cooperation. Therefore, bureaucratic efficiency should be higher in communities characterized by high social proximity among bureaucrats.

I test two observable implications of this theory. First, we should observe high bureaucratic efficiency in political geographies with high social proximity between bureaucrats, as proxied by geographic proximity. Second, regardless of bureaucrats' individual geographic positions, we should see lower bureaucratic efficiency in socially fragmented community structures[4] or between bureaucrats from different ethnic backgrounds. Social fragmentation and ethnic divisions make it more difficult to establish social ties and reduces the reachability of any given individual in the community, including bureaucrats, thus lowering bureaucratic efficiency.

To empirically test these implications, I leverage a geographical regression discontinuity design (RDD) that employs village-level data. A geographical RDD allows one to isolate the impact of potential alternative factors on bureaucratic efficiency by focusing only on villages close to district borders. Such villages are, by assumption, very similar in terms of their background characteristics, while the home district of a given village—hence the distance to district headquarters—changes sharply at the border. With respect to the first observable implication, I find that geographic proximity between bureaucrats increases bureaucratic efficiency. Other findings, which help to confirm the mechanisms through which geographic proximity operates, show that geographic proximity becomes a less relevant factor in socially fragmented communities or when there are ethnic divisions between bureaucrats. Empirically, I show that the effect of geographic proximity is heterogeneous across provinces with different levels of social fragmentation, as measured by network indicators. I also find that the effect of geographic proximity decreases when village officials are from Kurdish (ethnic minority) and Alevi (sectarian minority)

[4]That is, network structures characterized by high social distance across subcommunities.

backgrounds, unlike in the case of the majority-Turkish and Sunni district officials with whom they need to cooperate.

I examine the roots of bureaucratic efficiency in Turkey, a Muslim-majority country characterized by a centralized state structure. This setting allows me to examine a context in which social ties are rooted in multiple factors, including ethnic divisions, hometown identities, and political cleavages, and to rule out alternative explanations of government performance, such as inequalities in government resources, that are commonly seen in federal systems. To isolate the role of bureaucratic efficiency from the incentives of local political actors, I focus on access two sectors that are entirely financed and administered by the national government: village infrastructure and e-government.[5]

Six months of fieldwork in regions of Turkey with different political and ethnic geographies, and qualitative data from over 200 interviews, inform the observable implications of and descriptive inferences underlying my theory. My empirical tests employ original datasets that consist of novel administrative, geospatial, and network data from Turkey's over 35,000 villages and 970 districts. Due to the limitations of data availability in Turkey where, as in many hybrid regimes, data accessible to researchers are limited, the main administrative data were obtained by scraping tens of thousands of official web pages. To map the geolocation, ethnicity, and sect of each village, I created two original datasets that combine information collected through automated tools and manual coding from government web pages, Google and Yandex Maps, ethnic inventories, and online communities. To my knowledge, this is the first dataset on the geographical and ethnic distribution of villages in Turkey. For network measures, I used antenna-level mobile call detail records (CDR) that cover all the districts in Turkey.

By showing that bureaucrats' informal channels can do what governments and markets sometimes fail to do and play a complementary role in service delivery (Helmke and

[5]The municipal boundaries of metropolitan provinces were extended from urban boundaries to villages in 2014, rendering municipalities, in addition to the national government, the authorities responsible for village infrastructure. Nevertheless, the village-level research design of this study does not extend to the period after 2014.

Levitsky 2004), this study fills several gaps in the literature. The first theoretical contribution of this paper lies in its study of subnational variations in public service delivery outside of elections and other accountability relationships centered on citizens.[6] By studying bureaucratic performance outside of this accountability framework and shifting the focus from relationships with citizens to informal interactions among bureaucrats, this study balances approaches that place too much faith in the actions of the 'client' of public services.

My research also contributes to the growing body of evidence on how the inner workings of government administration can influence the quality of service delivery (Finan *et al.* 2015). By highlighting the role played by community structures and the social ties among bureaucrats in bureaucratic efficiency, my study shows that state capacity is not a uniform feature of the state and varies by the local social context.

Third, my findings also speak to the literature on ethnicity and public goods (Alesina *et al.* 1999; Chandra 2007b; Miguel and Gugerty 2005), where current studies pay little attention to the impact of ethnic heterogeneity on state capacity.[7] By introducing the effects of social proximity and social fragmentation on the inner workings of bureaucracy, this study offers an alternative explanation for why public services are more likely to deteriorate in heterogeneous communities and in places such as immigrant and minority neighborhoods.

The rest of the paper proceeds as follows. Section 2.2 discusses classical and recent accounts of government performance in public services. Section 2.3 presents my theory of social proximity and bureaucratic efficiency. Section 2.4 describes social and governance structures and local bureaucracy in Turkey. Section 2.5 illustrates the descriptive inferences underlying my theory and its observable implications, drawing on data from 170 structured interviews (including close-ended questions) conducted with bureaucrats. Sections 2.6 and 2.7 present my research design and main findings. The

[6] See Section 2.3 for a detailed discussion.
[7] For an exception, see Charnysh (2019)

following section, Section 2.8, provides additional empirical evidence to support the argument. Finally, Section 2.9 discusses potential alternative explanations and responds to them through additional empirical analyses. Section 2.10 concludes with a discussion of the scope conditions and contributions of the paper.

2.2 Background

Government performance in the provision of public services forms the foundation of citizens' welfare and of state legitimacy. Inequality in access to public services can undermine trust in the state and, when service quality correlates with identity cleavages, can fuel ethnic or religious conflict. A handful of studies have noted differential levels of government performance in service delivery. For the bulk of these studies, variation is the deliberate result of politicians' targeting (Cox and McCubbins 1986; Dixit and Londregan 1996; Magaloni *et al.* 2007) and can be improved through electoral accountability (Ashworth 2012; Besley and Burgess 2002; Ferraz and Finan 2011). Other studies shift the focus from electoral accountability to local accountability institutions and specifically to citizens' oversight over bureaucrats, where oversight takes place either through formal institutions (Björkman Nyqvist and Svensson 2007; Olken 2007) or informal mechanisms such as social sanctioning (Davis 2004; Tendler and others 1997; Tsai 2007).

Because differential performance in service delivery often follows ethnic boundaries, a number of studies narrow their focus to how ethnicity and sectarianism affect government responsiveness in public goods provision.[8] Following the broader literature on accountability and public goods provision, these studies highlight the role of ethnic or sectarian parties and electoral strategies. This line of research broadly argues that ethnicities or parties exclude non-coethnics in service provision as it is simply easier to win the votes of co-ethnics (Chandra 2007b). For example, Islamic sectarian parties deter-

[8]For an alternative approach, see Singh (2015).

mine their targeting decisions based on whether they prioritize electoral mobilization as a political strategy (Cammett 2014) or whether rival co-ethnic parties exist (Corstange 2010). A second group concentrates on the ability of citizens to engage in collective action to hold politicians accountable. This group highlights the role of ethnic diversity, rather than discriminatory allocation against certain ethnic groups, and argues that diverse communities are more disadvantaged in coordinating collective action to demand better social services from the government (Algan *et al.* 2016; Banerjee and Somanathan 2007; Singh and Hau 2014). Some other studies go beyond ethnic boundaries and explain public goods provision by the higher electoral competition in places with more fractionalized family networks (Cruz *et al.* 2019).

These approaches grounded in accountability mechanisms associate good government performance in public goods provision with the ability of citizens or groups to demand service from politicians and service providers. However, this line of research provides mixed evidence. While some findings demonstrate that electoral accountability (Besley and Burgess 2002; Ferraz and Finan 2011) or community oversight (Björkman Nyqvist and Svensson 2007; Díaz-Cayeros *et al.* 2014) improve development outcomes, others take a more pessimistic view (Banerjee *et al.* 2010, 2011; Chong *et al.* 2011; Humphreys and Weinstein 2011; Keefer and Khemani 2014; Olken 2007). This inconclusive empirical evidence indicates that accountability approaches that link differential levels of government performance to citizens' ability to sanction politicians and bureaucrats may place too much faith in citizens.

To fill this gap in the literature, this study proposes a framework in which social proximity among bureaucrats and the resulting bureaucratic efficiency are crucial determinants of government performance in public goods provision. This study shows that the ability of the government to provide quality public services is at least as important as politicians' or bureaucrats' willingness to respond to citizens' sanctioning. As such, my theory provides answers to the questions of why so much variation in public goods pro-

vision persists despite citizens' limited access to information and sanctioning tools, and why variations appear even within electoral districts governed by the same politicians or with the same administrative structure.

With respect to its emphasis on the role of social ties among bureaucrats, this project is most closely related to the developmental state approach (Evans 1995; Johnson 1982). In his seminal work, Evans highlights "the indispensability of informal networks, both internal and external, to the state's functioning." (1995, p. 573). Similarly, Johnson (1982, p. 57-59) emphasizes the centrality of the *gakubatsu* ties, ties among classmates at the elite universities from which officials are recruited, in the performance of Japan's Ministry of Industry. Nevertheless, these studies are centered on external ties to society (or firms)—that is, embeddedness—and on national-level policy-making and coordination. In contrast, this work places at the core of its theory the internal ties within bureaucracy and focuses on all bureaucratic agents in an administrative unit regardless of whether they serve in the same institution or not.

2.3 Theory

In this section, I detail what makes bureaucratic processes in public goods provision costly; how these costs lead to differential levels of bureaucratic efficiency; and finally, how these costs and bureaucratic efficiency vary in different community structures, listing the testable implications the theory yields.

Theories of markets and hierarchical organizations suggest that the production process of public services is associated with various transaction costs stemming from informational asymmetries and lack of sanctioning. I argue that social proximity among bureaucrats, meaning the extent of bureaucrats' informal ties with other bureaucrats in their jurisdiction, is key to overcoming the costs associated with service provision.[9]

[9]Bureaucrats include officials of all kinds of government organizations, municipality workers, and

This is because bureaucrats' informal ties not only serve communication or socialization purposes but also create positive externalities (Manski 2000) by offering informal information and cooperation channels to bureaucrats. Imagine two individuals: a district administrator and a village head he befriends. *Informal information flows* between the administrator and the village head are not limited to personal issues; they simultaneously transmit information on work-related matters. Similarly, repeated informal interactions and informal sanctioning between two bureaucrats cause them to adhere to certain behavioral norms, such as reciprocity and helping others, and thus lead to greater *informal cooperation*. In both cases, social proximity among bureaucrats creates positive externalities that modify bureaucratic behavior and increase bureaucratic efficiency (Easley and Kleinberg 2010). Due to the positive externalities it creates, social proximity among bureaucrats does what governments and markets sometimes fail to do, playing a complementary role in service delivery (Helmke and Levitsky 2004).

2.3.1 Transaction Costs Bureaucrats Face

The defining feature of an ideal Weberian bureaucracy is that it is hierarchical: lower levels are subordinate and answerable to higher levels (Weber *et al.* 1947). In reality, however, bureaucracies face many transaction costs (Moe 1984; Williamson 1975). Especially in local bureaucracies which, instead of taking the form of a single hierarchical unit, consist of a combination of horizontal networks and networks of overlapping principal-agent relationships among bureaucrats, transaction costs can pose an important challenge to bureaucratic efficiency. A more realistic scenario than the Weberian approach for local bureaucracies is that agents can rarely obtain information on other bureaucrats' and administrative units' resources and constraints or their full responsiveness and cooperation in the provision of service delivery.

Transaction costs bureaucrats face include costs stemming from weak monitoring and

village and neighborhood heads.

sanctions such as slacking and shirking (opportunistic behavior); the cost of resource misallocation (allocative inefficiency); and the administrative costs of deciding what, when, and how to produce and allocate (red tape and time costs). First, due to information asymmetries and lack of sanctions, bureaucratic agents are tempted to utilize their informational advantage and show opportunistic behaviors, such as slacking and shirking, toward other bureaucrats. (Alchian and Demsetz 1972; Migué *et al.* 1974; Shleifer and Vishny 1993). Put differently, the bureaucrat tends to shirk responsibility or use less discretion even in contexts where he could actually comply or cooperate. Second, information asymmetries also reduce allocative efficiency. Bureaucrats often make allocation decisions to administrative subunits such as schools, health clinics, or villages. Making decisions without complete information about the actual needs and resources of these units results in cost and allocative inefficiencies in public sector organizations (Niskanen 1971; Williamson 1964). Finally, even in an 'ideal' bureaucracy where bureaucrats avoid shirking or cost inefficiencies, internal bureaucratic processes involve paperwork and time-consuming complex procedures (Banerjee 1997; Wilson 1989), which may be particularly prohibitive for bureaucrats who interact minimally with other bureaucrats, such as those serving in geographically remote schools, health clinics, and villages.

Social proximity among bureaucrats offers a solution to many of these problems. Bureaucrats rely on information obtained from other bureaucrats and administrative units and their responsiveness or cooperation to implement projects and programs. Yet, particularly in local governance, bureaucrats cannot be considered isolated agents in a principal-agent relationship. Instead, they are a part of relational networks and local communities. As local bureaucrats establish informal ties with each other (i.e., as social proximity increases) informal information exchanges and informal cooperation among bureaucrats increase as well, thereby changing the conditions that induce bureaucratic transaction costs in the first place.

2.3.2 Bureaucratic Efficiency

Bureaucratic efficiency, the dependent variable of my main argument, concerns a certain dimension of state capacity that can be categorized under what Berwick and Christia Berwick and Christia (2018) refer to as 'coordination capacity' or what Hanson and Sigman Hanson and Sigman (2013) call 'administration capacity'. Admittedly, transaction costs do not equally influence all dimensions of governance and public goods provision. They may provide little explanation particularly when it comes to explaining inputs such as quantity of investments, about which decisions are made by governments and politicians, or salaries and meritocracy, which depend on the overall quality of bureaucracy. Rather, this study is interested in how effectively governance and service provision processes function when inputs are kept constant. Put differently, bureaucratic efficiency concerns the extent to which bureaucracies can accomplish good outcomes using given levels of time and resources, or the amount of time and resources they need to achieve a certain outcome.

Most scholars use datasets based on expert ratings to measure bureaucratic efficiency (Knack 2002; La Porta *et al.* 1999; Rice and Sumberg 1997). Yet, these country-level indicators cannot be used to explain within-country variations. Measuring bureaucratic efficiency is thus not a simple task. Two points are of note here. First, outcomes in governance and service provision may be attributed to a variety of factors of economic development or policy choices rather than to the ability of the state to best utilize resources (Fukuyama 2013). This is why, if the indicator used for bureaucratic efficiency is an *outcome-oriented* one (such as a public service outcome), a research design must keep input-oriented factors such as financial resources constant. Alternatively, the indicator can be a *process-oriented* one almost entirely dependent on bureaucratic processes. I employ both types of measures, process- (access to bureaucrats' contact information) and outcome-oriented (quality of water infrastructure) ones, in this study. Finally, the indicator can focus on direct measures of bureaucratic efficiency, such as the amount of

time and resources spent to achieve an outcome. Studies that employ this last approach use measures such as financial deficits (Alesina *et al.* 1999).

2.4 Setting: Turkey

This section discusses the governance structure, public services, and social factors that may influence social proximity in my empirical setting, Turkey. Turkey has a strictly centralized governance structure, which allows for the isolation of my findings from competing explanations such as subnational differences in institutional structures or party performance. The services that are the primary focus of this study, village infrastructure and e-government, are administered and financed entirely by the national government and channeled through a nested hierarchy composed of nonpartisan officials.

Turkey, along with several of its successor states, inherited the governance structure of the Ottoman Empire. Within the Ottoman Empire, central power was represented at every administrative level by a nested hierarchy of nonpartisan administrative units: *vilayets*, headed by *valis*, were subdivided into *sancaks* under *muetesarrifs*, further into districts under *kaymakams*, and into villages and *mahalles* (neighborhood) under a *muhtar*. This nested structure, with the exception of *sancaks*, has been preserved to this day. Today, the country is subdivided into 81 *vilayets* (provinces) headed by *valis* (province governors), where each *vilayet* corresponds to one multi-member district. Below these 81 vilayets sit 972 districts governed by *kaymakams* (district governors); each district has several neighborhoods (in urban areas) and villages (in rural areas) (see Table 2.1.).

All local bureaucrats, including province and district governors, must be nonpartisan and are technically employees of the national government. The heads of neighborhoods/villages, *muhtars*, are also nonpartisan and are technically employees of the national government. Despite that, they are elected by the local population. *Muhtars'* main duty is to maintain communication and coordination between the neighborhood/village

Table 2.1: Administrative Structure of Turkey

Administration Level	Appointed (except *muhtars*) (Nonpartisan)	Elected (Partisan)
Province	Province Governorate (Vali)	City Municipalities
District	District Governorate (Kaymakam)	District or Town Municipalities
Neighborhood Village	Neighborhood Village Heads (Muhtar); Service Providers	
Responsibilities	Education, health, village infrastructure, programmatic social assistance	Water, sanitation transportation in *urban areas*

and higher authorities. While their influence is somewhat limited in urban areas, in rural areas they play a critical role in service provision. An important implication of this structure is that while officials working in province and district governorates are mostly from the majority ethnic and religious group in Turkey (Turkish and Sunni), village *muhtars* and village councils are from the local ethnic group, meaning that the village administration in minority villages is either Kurdish (the major ethnic minority group) or Alevi (the major sectarian minority group).[10]

Local Public Services. In Turkey, most public services, which include all health, education, and village infrastructure services, are financed by the central government and administered by its local directorates such as the directorate of education, directorate of health, and unions for village services. Just as the Ministries (of Education, of Health, or of Interior, for example) work under the national government, these directorates work under district and province governorates along with all other local agents. As such, each province and district governorate is a micro-model of the central government. The services provided by the national government are thus channeled through this strict hierarchy.

With the exception of local bureaucrats working for the national government, the

[10]Throughout this paper, I use ethnicity as a broad category which also covers sect.

number of actors involved in public goods provision is limited. The only elected partisan authorities at the local level are municipalities, which geographically sit below or are at the same level as districts. Municipalities only serve in urban areas, meaning that, at least up until the administrative reform of 2014, no villages were under the jurisdiction of municipalities. Thus, villages received all their services from the central government and its local branches. Furthermore, even in urban areas, the duties and responsibilities of municipalities are limited to basic infrastructural services such as water, sewage, solid waste management, and public transportation.

The administrative structure in Turkey creates a setting in which the performance of the national government and its representatives at the local level is vital to the short-term and long-term welfare of citizens. The central government's primary incentive for enforcing the delivery of public services is, expectedly, winning support from citizens. Due to the centralized character of public service provision in sectors such as health, education, and village infrastructure, voters can easily attribute responsibility to the central government, which has been headed by Erdoğan and governed by his AKP (*Adalet ve Kalkınma Partisi* - Justice and Development Party) since 2002. Many public opinion surveys have suggested that the AKP owes its dominance to its reputation in public goods provision. The majority (41%) of the AKP's constituency believes that satisfaction with public services is the primary reason that people continue to vote for it en masse (KONDA 2014).[11] The party's organizational capacity, which is partially associated with its links to Islamic civil society organizations (Bugra and Keyder 2006), has further reinforced its reputation in public goods provision. It is therefore not surprising that the enforcement of public goods provision is of primary interest to the national government.

[11]This favorable view in the public opinion can be attributed in part to the fact that AKP has been successful in eliminating petty corruption, especially in its first years in power (although it reproduced it at a more grand level) (Kimya (2019)).

Incentives of Local Bureaucrats. While politicians' incentives to enforce public services are clear, bureaucrats' extrinsic and intrinsic incentives are also key to public service quality. In Turkey, all local officials are technically hired and appointed by the central government. With the exception of local hirings for non-tenure jobs, hirings are usually made based on exam scores. The stable wage and tenure guarantees associated with civil service jobs make civil service a unique career option for the majority of Turkish citizens with higher education degrees. The number of people (around 3.5 million) who take the annual central state exam compared to the much lower number of available positions (around 100,000 at its peak) reveals how attractive civil service is as a career option. The possibility of being appointed to better locations and positions is also an important source of motivation for civil servants. While initial hirings and appointments are typically made based on exam scores or lottery, after a few years of mandatory service, bureaucrats can usually move to their hometown or to more economically-developed cities.

The main 'stick' mechanisms that authorities in Ankara can levy against local bureaucrats, on the other hand, include performance indicators in the health sector (e.g., the arrival speed of emergency services, the percentage of natural births, infant mortality rates, maternal mortality rates, vaccination rates, and citizen satisfaction with health services), student test scores in the education sector, monitoring visits by high-level bureaucrats, and citizens' and *muhtars*' requests and complaints. Monitoring citizen complaints, which can be easily made through an online system called BIMER, is common in all public sectors.[12] Local actors cannot manipulate complaints made through BIMER since they are simultaneously received and seen by central government agencies in Ankara. Hence, complaints about a doctor, teacher, or district directorate directly concern and can discredit all administrators in the hierarchical structure, from school

[12]While there are no statistics available on how BIMER usage varies at the subnational level, according to a survey conducted by the Turkish Statistics Agency (TUIK), citizen satisfaction with online government services is almost equal in urban and rural areas (87% and 84.5%, respectively), and only 2.6% of rural residents choose the answer 'no idea' (Life Satisfaction Survey, 2012).

directors to province directorates and even province governors.

Influence of Local Bureaucrats. Local bureaucrats often use their discretion in daily service provision processes. Although a significant amount of the budget allocated to province and district governorates are calculated according to formulas based on population and development indicators, province-, district-, and street-level officials have considerable discretion and play the principal role in determining performance in many public services. Their influence varies across different types of public goods and different stages of the service delivery process.

With regard to infrastructural investments in villages, the main unit of analysis of this study, the discretionary power of local bureaucrats is much greater in water and sewage infrastructure than in investments in the health and education sector. District and province headquarters support the infrastructural project of a village either by allocating a budget to it or through in-kind support, sending construction and other equipment and staff to the village. Investments in the education and health sectors, which may include opening or closing a new school or a health clinic, can also be made at the request of directorates in district and province governorates, but requests must be justified through the provision of relevant information and indicators to the Ministry. For instance, if a new health clinic is expected to serve 1,000 people (2,500 people below the national standard), the directorate must provide cogent reasons supporting the construction of the clinic. Such reasons may include the neighborhood or village's remote geographical location or the percentage of elderly in the locality's population. Directorates are also expected to propose a concrete plan, including the land where the health clinic is to be constructed. In the case of school investments, discretion is minimal. For instance, schools in villages with fewer than ten students have to be closed by law.

The equipment needs of villages are also often met by district and province governorates, and if the *muhtar* has close ties with neighboring municipalities, some small

needs can even be met through the *help* of municipalities. In the case of health clinic and school needs for equipment such as stationary materials and inventories, clinics and schools either submit forms to the Ministries or contact the province or district directorates. Nevertheless, even in cases where they need to submit a form to the Ministry, the directorates in province and district governorates are the de facto decision-makers and problem-solvers in emergent cases, since the final allocation is physically made by the directorates within the administrative region.

Finally, the availability of personnel to meet village personnel needs depends on whether a village has a school or health clinic. Education and health providers are appointed to their initial duty stations based on their central exam scores and preferences. Crucial with respect to subnational variation in public services is the fact that the number of open positions in health and education services is reported to the relevant Ministry by local directorates. Local directorates are also able to intervene in the final allocation of the staff within the administrative region.

Social Structure in Turkey. As informal ties are at the center of this project, it is worth noting that traditional power authorities in Turkey were to a considerable extent undercut by the First World War and the Kemalist Revolution. This is because local bourgeoisie, who were mostly composed of Christian minorities, eroded with the first World War and the following nationalization process. Landlords and wealthy farmers were the only civilian power groups to preserve their dominant position in the hinterland. However, these remaining power groups were also subverted during the long single-party era that followed the war and the collapse of the Ottoman Empire. Ataturk, a "determined centralizer," and his party, the CHP, eliminated virtually all of the social and economic privileges of the local elite "by means varying from persuasion to compulsion according to circumstances" (Lewis 1961)). The only region where semi-feudal landowners have survived is the Kurdish region, and the power of Kurdish landlords compared to that

of the state is much more limited today. This social transformation in the hinterland in the early years of the Republic resulted in a social setting where traditional patron-client ties were largely destroyed and the salience of formal and informal state-society relationships was amplified at the local level.

The series of events that destroyed traditional power relationships also homogenized the population of the new Republic. The current population in Turkey, where the major ethnicity is Turkish, and the dominant religion is Sunni Islam, comprises two main minority groups. The first group, the Kurds, is an ethnic group that comprises more than 15% of the total population (KONDA 2006) and is concentrated in southeastern Turkey. While the PKK (Kurdistan Workers' Party) insurgency has been ongoing since the 1980s, the Kurdish movement is also represented in parliament by their own party, the HDP (*Halklarin Demokratik Partisi*-Peoples' Democratic Party). *Alevis*, who adhere to a secularist branch of Islam with links to Shia Islam and Sufism and constitute around 10% of the population, form the second-largest minority group. The majority of *Alevis* support the CHP (*Cumhuriyet Halk Partisi*-Republican People's Party), a party established by Ataturk that is based on secularist ideology. Around 50% of the total Turkish population consists of supporters of the conservative AKP and its allies, while the rest can be categorized as belonging to a combination of liberal, centrist, leftist, and secular camps.

2.5 Political Geography and Social Proximity

In this section, I first discuss how factors pertaining to political geography help form the observational implications of the theory, drawing on the relevant literature. Second, I present descriptive evidence from interviews I conducted with approximately 170 bureaucrats during six months of fieldwork in Summer 2016 and Fall 2017. The interviews reveal how geographic proximity is one factor among several that capture bureaucrats' informal ties with one another. They also explain how bureaucrats with a greater num-

ber of informal ties i) have more information about which official to contact for assistance with a given service and ii) are more likely to overcome bureaucratic obstacles caused by informational asymmetries and a lack of sanctioning.

2.5.1 Observable Implications of the Theory

In what contexts can we observe greater social proximity among bureaucrats? This question yields the potential testable implications of this study. A rich body of evidence suggests that bureaucrats are more likely to establish and maintain social ties when they share a space or identity (e.g., an ethnicity), come together through local institutions, or serve in close-knit communities. This study will only leverage three sources of social proximity: geographic proximity, the network structure of the community, and coethnicity.

The most elementary finding about social proximity is that it increases with geographic and physical proximity and decreases with geographic dispersion: "Being physically proximate is thought to encourage chance encounters and opportunities for interaction, which can lead to the formation of new relationships and the maintenance of existing ones." (Rivera *et al.* 2010). Existing studies on social networks indicate that physical proximity is a significant predictor of the establishment and maintenance of social ties and communication (Marmaros and Sacerdote 2006; Martin and Yeung 2006). Similarly, the economics literature on information and knowledge spillovers provides direct evidence that information flow and reciprocity are more likely to occur between individuals and firms that are located more closely together (Agrawal *et al.* 2008; Fafchamps and Vicente 2013; Jaffe *et al.* 1993; Thompson and Fox-Kean 2005; Zucker *et al.* 1998). Finally, the decentralization literature posits that decentralization improves outcomes through the informational advantages of officials relative to central policymakers. Implicit in this argument is the idea that as the distance between bureaucrats and jurisdictions lessens, bureaucrats meet fewer information asymmetries (Gadenne and Singhal

2014; Oates 1992). The arguments made in these studies can be translated to bureaucrat-bureaucrat relationships. As the geographical proximity between administrative units in a jurisdiction (the proximity of schools and villages to district headquarters, for example) increases, or the overall geographical dispersion decreases, informal ties among bureaucrats should increase. Therefore, one implication of my theory is that *geographical proximity among bureaucrats or administrative units will lead to higher bureaucratic efficiency.*

Social proximity can be represented not only through individual geographical positions but also by the network structure of the community where a bureaucrat serves. In network structures characterized by high social distance across subcommunities, which I term *socially fragmented communities*, the reachability and the likelihood to establish informal ties will be low for any given individual, including bureaucrats. On the other hand, close-knit communities offer a host of advantages to bureaucrats with regard to information diffusion and cooperation. First, social ties in these communities can transmit information on local needs and conditions and on how members of the bureaucratic network behave (Fafchamps and Vicente 2013; Wibbels 2019). Second, they can also provide shared expectations about what constitutes acceptable behavior Greif (1993); Kranton (1996). As a result, it is not only much easier for local officials to establish informal ties in close-knit communities, but also much more likely for them to know who needs what, who is shirking, and how to sanction shirkers. Because social proximity among bureaucrats appears to be less likely on average in socially fragmented communities, I expect that *bureaucratic efficiency will decrease in socially fragmented community structures.*

Finally, a longstanding consensus in the social sciences has held that coethnicity increases social ties, information diffusion, and cooperation.[13] One of the key arguments reinforcing this consensus is homophily, "a tendency for friendships to form between those who are alike in some designated respect" (Lazarsfeld *et al.* 1954, p.23). The ho-

[13]Other factors such as shared membership in a local institution such as churches and associations, albeit not the direct focus of this study, can help individuals establish informal ties as well (Putnam *et al.* 2000, 1994; Tsai 2007).

mophily argument shows that individuals are more likely to create social ties and maintain their relationships with self-similar others, such as their coethnics. Other evidence on the effect of coethnicity comes from the ethnicity literature. This line of research shows that coethnics and ethnically homogeneous groups enjoy advantages in information dissemination (Larson and Lewis 2017; Varshney 2001) and in the identification and punishment of uncooperative individuals (Habyarimana *et al.* 2007; Miguel and Gugerty 2005). Just as ethnic differences within a community constrain overall information diffusion and cooperation, ethnic differences within the bureaucratic community can do so as well. Thus, a final observable implication of my theory tested here is that *social proximity among bureaucrats is less likely when there are ethnic divisions among bureaucrats*, all else being equal.

2.5.2 Geographic Proximity, Network Structure, and Social Proximity

To empirically confirm the extent to which geographic proximity between bureaucrats proxies their informal ties with one another and how that proximity translates to bureaucratic behavior, I primarily examine the responses to my close-ended questions. Most of the interviews were concentrated in two provinces that were specifically selected because they are home to ethnic (Kurdish) and sectarian (*Alevi*) minority populations and districts with different levels of ethnic diversity, another potential source of social proximity, in order to have variation in this alternative independent variable measure as well. While the districts selected within provinces are stratified by ethnic diversity and geographic proximity, they were selected such that they neighbor each other, in order to keep broader regional and cultural variables constant. Within districts with minority populations, some villages were from the minority ethnic (Kurdish) or sectarian (*Alevi*) group, while others were Turkish or Sunni. For sampling, I focused on three groups of public employees: appointed civil servants in province and district governorates, frontline service providers (such as doctors and school directors), and village *muhtars*. In general, I

conducted around 25-30 interviews per district and 75-80 interviews per province.

The first part of descriptive evidence focuses on how well bureaucrats of administrative units at higher levels of the hierarchy know bureaucrats who serve at lower levels. The left column of Figure 2-2 shows how geographic proximity between province governorates and district governorates translates to informal ties between administrators serving in these two units. The right column of Figure 2-2 investigates a similar relationship but focuses on the district-village dyad. Specifically, the x-axis depicts the distance of a given province (district) to the district headquarters (villages) below its jurisdiction, while the y-axis depicts the response of the province (district) administrators to the following question (averaged for all respondents in a given province (district)): *Consider people in the following districts/villages you work with or contact for work-related reasons. Choose which category that person belongs to in terms of how well you know him or her. [List of a random mix of districts/villages with the following options: Family/relative (4), Friend (3), Someone else I can contact (2), No one (1)].* Each point in Figure 2-2 thus represents a certain district (village). As Figure 2-2 shows, there is significant negative correlation between geographic distance and informal ties between bureaucrats.

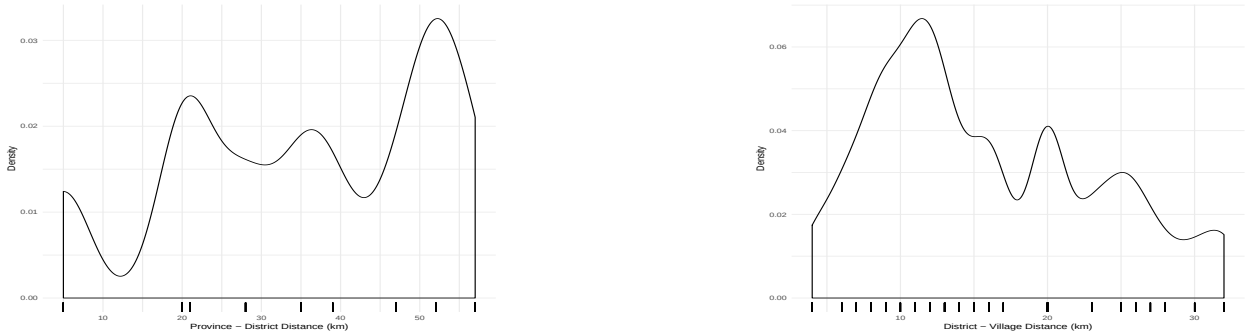


Figure 2-1: Density of District (Left) and Village (Right) Level Bureaucrats in the Sample by Geographic Distance

The second part focuses on the extent to which village *muhtars* know the bureaucrats who serve in their district headquarters or in service provision centers affiliated with the district. In other words, unlike the previous figure, Figure 2-3 shows how well bureau-

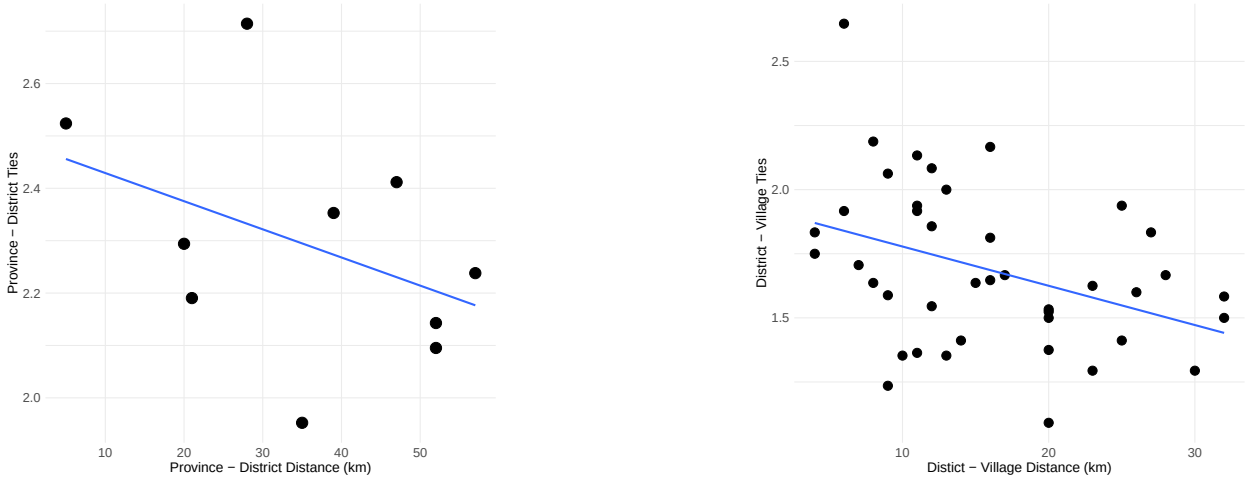


Figure 2-2: Ties of Province (Left) and District (Right) Level Bureaucrats

crats at the lower levels of the hierarchy know those serving at a higher level. Each point on the plot represents a village *muhtar*, while the y-axis represents the average value of the *muhtars'* responses for the following position generator question: *This question is about people working and/or living in the district where you work...If you know several people who have a job from the list below, please only tick the box for the person who you feel closest to. Do you know a woman or a man who works as a ... in your district? [List of a mix of bureaucrats/service providers holding different positions with the following options: Family/relative (4), Friend (3), Someone else I can contact (2), No one (1)].* As expected, there is a significant negative correlation between geographic distance and how well a *muhtar* knows district-level bureaucrats and service providers.

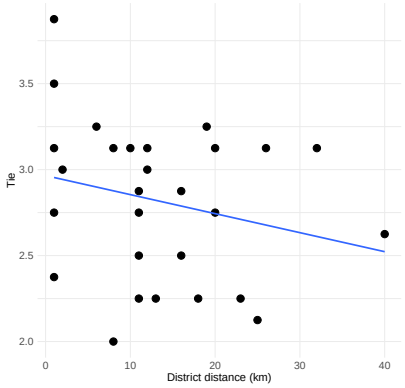


Figure 2-3: Ties of Province-(Left) and District-(Right) Level Bureaucrats

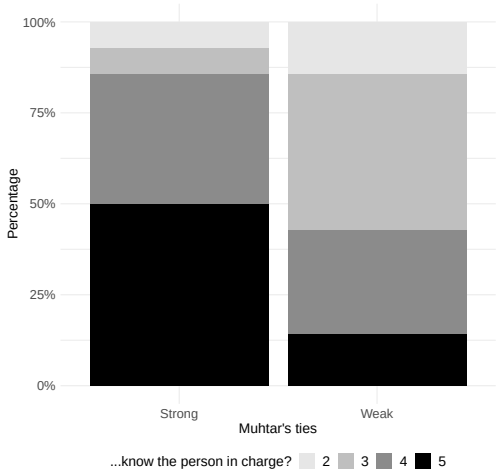


Figure 2-4: Information about the Bureaucrat in Charge

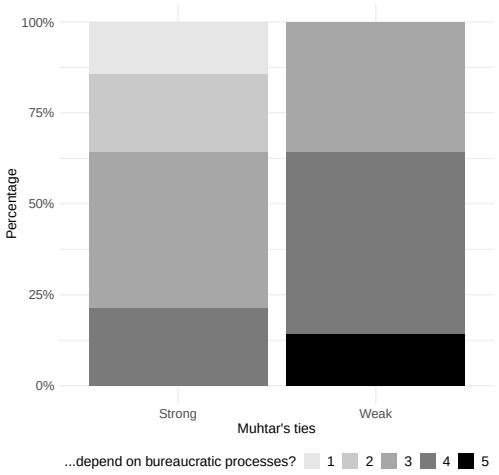


Figure 2-5: Bureaucratic Processes

Finally, Figure 2-4 and 2-5 illustrate whether village *muhtars* with a larger number of informal ties have more information about the exact person they need to reach for a given service and are more likely to overcome bureaucratic obstacles. The figure shows the *muhtars*' response to the two questions below, as grouped by the number of informal ties, such that *muhtars* with stronger ties than the median value are grouped in one group while the rest are in another group: *How much would you agree with the following statements? i) If, to provide ..., the office needs the help of an external unit to provide a service, I would directly know the person in charge.* ii) *Once I ask for the help of the other unit for this specific service, how fast and useful the staff in the other unit are would primarily depend on bureaucratic processes. [Strongly Disagree (1), Disagree (2), Neither Agree nor Disagree(3), Agree (4), Strongly Agree (5)].*

Among *muhtars* with stronger ties to bureaucrats and service providers, 50% report that when they need the help of another bureaucrat to obtain a service, they are likely to personally know the individual in charge, while among *muhtars* with weaker ties, only 12.5% of *muhtars* respond similarly. *Muhtars* with stronger ties also state that their service is less likely to be affected by bureaucratic processes: While only 20% of *muhtars* with stronger ties"agree" or "strongly agree" that bureaucratic processes play a central role in

determining how fast and useful the staff in the other unit would be, among *muhtars* with weaker ties, this ratio is as high as 60%. The correlation between the average strength of a given *muhtar*'s ties with other bureaucrats and their responses to the questions is strikingly high: 0.45 for the first question and -0.3 for the second question.

Officials' answers to structured interview questions also demonstrate the mechanisms that lead to higher bureaucratic efficiency by highlighting the importance of geographic proximity to establishing and maintaining informal ties, overcoming asymmetrical information, and enhancing cooperation. I find that a variety of reasons related to geographic proximity, such as more frequent visits, sharing the same social space (e.g., coffee houses, restaurants, celebrations, and festivities), having a larger number of common acquaintances, or longstanding friendships and family ties, shape informal ties, information flow, and cooperation between bureaucrats.

Frequent social contact between *muhtars* and province or district officials seems to be particularly invaluable for implementing village infrastructural works such as roads, water, and sewage systems. For example, among village *muhtars* with little or no relationship to the officials in the Special Provincial Administration (SPA), the province-level authority that governs infrastructural works, a commonly-held opinion is that budget constraints are the primary reason the SPA cannot help them in a timely fashion. Furthermore, as one *muhtar* points out:"They [the SPA] can never offer us the service they want at the time we need it. And when they do, it is never complete; when they send the pipes the bulldozer is missing, when they send the bulldozer, the cement is missing."[14] However, another village official who serves in a village closer to the SPA and is in contact with them had a very different story: "We did not have enough water... So I visited everyone I knew: the district governorate, the SPA... They said they could only give a limited budget. I said okay, I will collect 30% from you, 30% from the other, and the village will pay the rest... If you come together with them, you always find some

[14]Author interview with a *muhtar*, Kırıkkale, Turkey, October 10, 2017.

solution."[15]

Informal ties not only affect bureaucratic relationships between officials on different levels of the hierarchy, but also across officials on the same level. One *muhtar*, for instance, remembers how having a friend, another *muhtar*, on the evaluation committee on social assistance helped him bring more effective social assistance transfers to his village. He reports that outside of the four-year period when he knew someone on the committee, those who needed assistance the most were not always guaranteed any benefits. To take one example, the committee once rejected the application of an 83-year-old woman based on the justification that she owned agricultural property, despite the fact that she was too old to farm the land and had no family. In general, the committee made correct decisions about transfers when it received first-hand information about the village from the *muhtar* in charge and failed to do so when its decisions were made based on paperwork alone.[16]

It should be noted that geographic proximity does not capture social proximity equally across all contexts. In diverse contexts where all individuals are less likely to establish and sustain informal ties—that is, in socially fragmented communities—*muhtars* appear to rely less on informal ties with headquarters, and therefore, geographical distance becomes a less relevant factor. Most of the village *muhtars* I interviewed in a diverse district of Iğdır, where residents are from different hometowns and ethnic backgrounds (some are Kurdish and others Turkish),[17] state that they submit their requests first to the district governorship and then to the upper authority, the SPA. They follow a Weberian bureaucratic strategy in which it is uncommon for them to engage in any informal information exchanges prior to getting in touch with authorities. This pattern significantly diverges from those reported by village officials in another district of Iğdır. This second district's residents are mostly locals, so it is more homogeneous. In this second district,

[15]Author interview with a *muhtar*, Kırıkkale, Turkey, October 18, 2017.
[16]Author interview with a muhtar, Kırıkkale, Turkey, October 10, 2017.
[17]To avoid disclosing the identities of *muhtars*, I do not reveal district names. They are available upon request.

it is common for *muhtars* to contact district officials on a regular basis. When they need a vehicle, for example, they directly contact the officials in charge. Furthermore, their networks extend beyond the district governorate: in addition to mentioning the names of governorate officials, they frequently mention the names of municipal administrators in interviews.[18]

2.6 Data and Research Design

There are a number of challenges in empirically examining bureaucratic efficiency and distinguishing among the various explanations underlying it. In an attempt to address concerns related to endogeneity and confoundedness, I employ a geographical RDD (Dell 2010; Keele and Titiunik 2015), drawing on its assumption that near district borders, the side of the border on which the village is located is as-if random. This design examines the impact of dyadic social proximity between bureaucrats, as proxied by geographical proximity between villages and district headquarters. The dependent variable is also at the village level. For the dependent variable, I employ both process- and outcome-oriented indicators related to access to bureaucratic information, water infrastructure, and the quality of water services.

2.6.1 Dependent Variables

Cell Phone Information. The first indicator I use to measure bureaucratic efficiency is a process-oriented one: whether district officials can get or have access to village officials' personal cell phone information. The measure comes from a specific e-government project, *YerelNet* (henceforth, Local Network). Local Network was developed in 2001 to provide local administrators and national policy-makers with a platform where they

[18]Multiple author interviews with *muhtars*, Iğdır, Turkey, 18-31 November 2017.

could gather reliable and updated information about local administrations and share their questions and answers through electronic discussion forums. Within the scope of the project, the personal cell phone information of village heads, *muhtars*, needed to be added to villages' e-government profiles (henceforth, e-profiles). I use a dummy variable that takes 1 if the personal cell phone information of the *muhtar* could be entered on the village's e-profile, and 0 if not.

The availability of this information on villages' e-profiles is a good proxy for bureaucratic efficiency for a number of reasons. First and foremost, the task of getting access to *muhtars*' personal cell phone numbers and entering this information on villages' e-profiles depended entirely on bureaucratic coordination between district and village officials and on bureaucratic processes. While all villages had e-profiles that needed to be filled out, villages were not given a log-in account, and gathering information from each village was the district governorate's responsibility. Since villages did not have a log-in account and because getting access to the personal cell phone information of a given *muhtar* required the input of the *muhtar* or other village officials in the village, district governorates had to coordinate with village officials.

This indicator of bureaucratic efficiency is unlikely to be affected by accountability relationships between bureaucrats and citizens—this is crucial as it allows me to rule out potential alternative explanations. Local Network was an e-government project conducted mainly with the aim of providing bureaucrats of all levels with reliable information and collaboration opportunities. Citizens were not specifically informed about the project, and the project was put on hold around 2010 when all other Turkish policies and programs supported by the European Union were also suspended. For these reasons, citizen oversight cannot be an explanation for potential effects estimated through this measure.

Water Infrastructure and Water Services. The other indicators I use to measure bureaucratic efficiency, quality of water infrastructure and water services, are outcome-oriented indicators. I use three different indicators. The first indicator shows whether the village has a water supply network. It is a dummy variable that takes 1 if the village has a water supply network and 0 if it uses alternative ways to access water. The second indicator shows whether the village has a drinking water infrastructure system. It is a dummy variable that takes 1 if the drinking water comes from a water supply network or a borehole, and 0 if it directly comes from a river, lake, dam or percolation well instead. The third indicator is a dummy variable that indicates whether the quality of the water in the village is regularly controlled or not, a task for which health officials in the district and village officials have to coordinate with one another.

Village water infrastructure and water services such as water quality controls are good indicators for bureaucratic efficiency for several reasons. Water is a basic public service that should ideally be provided in every village. Therefore, it does not rely on centralized rules and the decisions of national-level bureaucrats in the same way as schools and health clinics do. At the same time, water infrastructure and water quality controls are public services whose provision is a function of interactions among *muhtars* and district- and province-level bureaucrats in the empirical context: As the qualitative evidence presented in Sections 2.4 and 2.5 indicates, water infrastructure and services can be improved not only by allocating a budget to it but also through in-kind support (through the provision of equipment, staff, etc.) by district and province headquarters. As public goods heavily dependent on the discretion and transactions of local bureaucrats, outcomes related to water infrastructure and the quality of water services are good indicators for bureaucratic efficiency. The data for water indicators come from the database created within the scope of the Local Network project.[19]

[19]The data on the drinking water infrastructure system and access to electricity—another indicator I use in this paper— are available only for a subset of villages. Yet, the analysis in Appendix Table A4 shows that missing values are not correlated with geographic distance.

Since these three indicators related to water infrastructure and water services are public service outcomes, the empirical design must make sure to keep input-oriented factors such as financial resources constant. I address this by using a research design relying on the identification assumption that two villages very similar to each other in other respects are under the jurisdiction of two different districts (See Section 2.6.4 for more detail.).

2.6.2 Measuring Geographic Proximity

To calculate geographic proximity between villages and district headquarters, I use data created using geospatial tools. The main independent variable, *Distance*, is a continuous treatment variable calculated based on the geodesic distance (in kilometers) between the village and district headquarters. To calculate the spatial distance between villages and district governments, I compiled the geo-coordinates (that is, the latitude and longitude) of all villages (of which there are around 35,000) and district governorates (of which there are around 970) in Turkey. The geo-coordinate information was scraped from official government web pages for the majority of villages. The coordinates were then matched with the village names on the e-government site. This strategy allowed me to reach the coordinates of around 27,000 villages. The coordinates for 6,000 of the villages were matched from spatial vector data that specify the geo-locations of local administrations in Turkey. The remaining coordinates (for over 1000 villages) were manually coded using information gathered from Google or Yandex Maps. This manual coding prevents bias and uncertainty resulting from missing coordinates. The geo-coordinate information for district headquarters were gathered using Google Maps Places and Distance Matrix APIs.

2.6.3 Control Variables

Village-Level Controls. My analyses include a set of demographic, geographic, and electoral covariates. The geographic controls include the distance of a given village to the closest highway, and urban areas of different sizes (with populations over 50,000, 100,000, and 500,000) and the elevation of the village (calculated using village geo-coordinates and spatial vector data). Several of these village-level covariates—particularly, distance to urban areas—may capture some post-treatment variation as they may be affected by geographic proximity between the village and district headquarters. Imbalances in distance to the closest urban areas would not be surprising because for some villages in my sample, the nearest urban area, particularly one above the 50,000 population level, may be serving as the village's district headquarter. Therefore, I run my main models both with and without these potential post-treatment variables.

As ethnicity may act as another source of social proximity between village *muhtars* and district headquarters, it must be controlled for as well. Considering that the majority of staff in district headquarters tend to be Turkish Sunni, the dominant ethnic and sectarian group in Turkey, I add controls that indicate minority villages to eliminate any potential bias and reduce uncertainty. To control for sect, I include a binary variable that controls for *Alevi* villages, the major sectarian minority group in the country. To identify *Alevi* villages, I created an original dataset that specifies all *Alevi*villages across the country. Specifically, I constructed a binary measure by manually coding whether a given village is Alevi or Sunni using information from an ethnographic inventory that lists the names of ethnic minority (e.g., Alevi, Kurdish, previous Armenian or Greek, etc.) settlements in Turkey. While around 2,500 out of a total of 35,000 villages are indicated to be Alevi, after I conducted further research in online Alevi communities, the number increased to 3,200. To my knowledge, this is the first comprehensive dataset on the sectarian distribution of villages in Turkey. Kurdish villages, on the other hand,

are controlled for through segment, district, or province fixed effects (when the Kurdish region is included in the sample), as Kurdish villages in Turkey are concentrated in the Kurdish region. I also check the balance for the AKP vote share in the village, although I do not add this covariate to the model due to the concern that it may capture some post-treatment variation—as the incumbent vote share is likely to be affected my dependent variable of interest, bureaucratic performance—and due to data identification issues.

District-Level Controls. In Turkey, districts only serve as administrative units and coordinating agencies, while provinces are the main electoral districts and hold the main administrative power at the local level. In models without district fixed effects, I control for the key development, electoral, and demographic characteristics of districts employing an original night lights dataset, building census data, electoral data, and official statistics. Due to the absence of any district-level data for GDP per capita, I use average night light density in a district as a measure of economic development (Doll *et al.* 2006; Henderson *et al.* 2012). To control for the effect of investments in the district by the national government, I use the number of public health and education buildings (adjusted by population) in a district. The political control variable is the vote share of the ruling party, the AKP. I also control for the literacy rate of the district. Table A2 presents a list of all district-and village-level controls and data sources.

2.6.4 Empirical Strategy

Social proximity between village and district administrators is proxied by the geographic distance between village and district headquarters. Yet, correlational estimates between geographic distance and bureaucratic efficiency incur potential sources of bias. Villages located far away from their district headquarters (distant villages) might not be a valid counterfactual for relatively closer villages (proximate villages). The latter are likely to

have higher education levels and better employment opportunities or to have different socio-demographic characteristics. Thus, the raw correlation between distance to the district center and local government performance may confound the causal effect of interest.

My empirical strategy allows for isolating these confounding factors by focusing only on villages close to district borders. The identification strategy relies on the assumption that the home district of a given village, and so the distance to district headquarters, changes sharply at the border, while other village-level characteristics such as economic, political, and demographic factors change smoothly across the border. I illustrate the empirical strategy in Figure 2-6. The figure shows three districts and the borders separating them. The locations of district headquarters are indicated by district names.

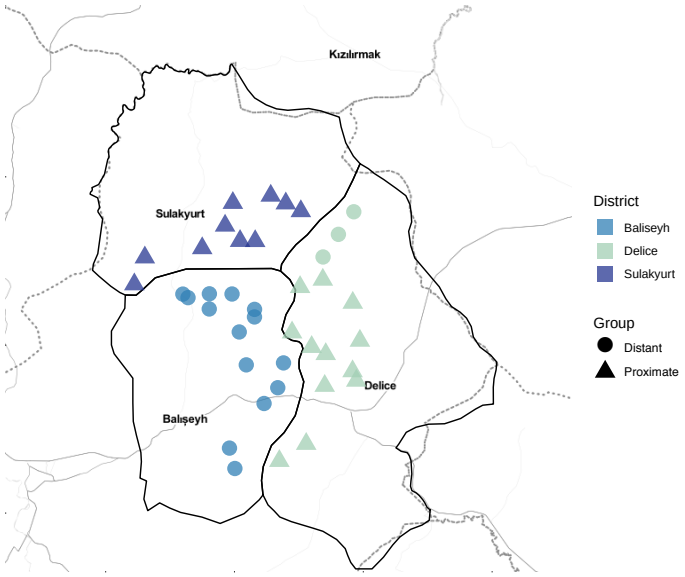


Figure 2-6: Empirical Strategy

Note: The figure does not use any bandwidth, but only includes the villages that are adjacent to one of the three districts shown.

To ensure that I compare villages in close geographical proximity, I create a separate segment for each district-district dyad. Within each segment, the home district of the village changes depending the side of the border on which the village is located. As

I restrict my sample to a small bandwidth around district borders, whether a given village is on one side or the other of a border is, by assumption, the outcome of a chance process. Therefore, two villages very similar to each other in other respects may be under the jurisdiction of two different districts.

While villages have similar background characteristics, some of these villages are 'luckier' in that they are on the side of the border where the district headquarters are closer. While I use a continuous treatment variable, i.e., geodesic distance between the villages and district headquarters, the villages in the district with the closer headquarters can be considered the treatment group, and the villages in the district with the more distant headquarters can be considered the control group. If a given village is on the more advantageous side of the border (in other words, if its home district is the one with the closer headquarters), I refer to it as a proximate village. Otherwise, I refer to it as a distant village. In Figure 2-6, proximate villages are shown with a triangle, and distant villages are shown with a circle. Villages are colored by their home district.

Because district borders form a two-dimensional discontinuity (in longitude and latitude), my baseline model includes a polynomial in latitude and longitude instead of a single variable. Following Gelman and Imbens (2019) and Dell and Olken (2017), I use a linear polynomial in longitude and latitude. I estimate the following geographical RDD equation:

$$y_{vsd} = \beta Distance_{vsd} + f(Location_v) + \gamma Z_v + \eta_d + \theta_s + \epsilon_{vsd} \tag{2.1}$$

where y_{vsd} is the outcome of interest for village v located in district d along segment s of the border between district d and the neighboring district. $Distance_{vsd}$ is my continuous treatment variable. For each segment s, I have villages on both sides of the district border. $f(Location_{vsd})$ is the local linear polynomial that controls for smooth functions of geographic location.

Even though the model assumes that proximate and distant villages have, in expec-

tation, similar demographic, political, and geographic characteristics, I add a battery of village-level controls to the model, as referred to by Z_{vsp}: a dummy variable indicating the ethnicity of the village, distance to the nearest highway, distance to the nearest urban area with a population over 50,000, distance to the nearest urban area with a population over 100,000, distance to the nearest urban areas with a population over 500,000, and elevation. I also check the covariate balance in incumbent vote share. In alternative specifications where I use district-level covariates instead of district fixed effects, X_{dp} indicates the district-level controls: average night lights density, the number of public health and education buildings (per 10k persons), the vote share of the incumbent party, literacy rate, a conservativeness measure (female literacy rate divided by male literacy rate), and a rurality rate (rural population in the district divided by the district's total population).

To confirm my hypothesis—that social proximity, as captured by geographical proximity, has a positive effect on bureaucratic efficiency—I expect the coefficient on the distance variable, β, to be negative and statistically significant. While there is no optimal bandwidth choice for multidimensional RD designs (Dell and Olken 2017), I calculate the CER (coverage error rate)-optimal bandwidths for each dependent variable using geodesic distance between my observations and district borders as the running variable. CER-optimal bandwidths vary between 2.2–3.8 kilometers. I mainly use a bandwidth of 2.5 kilometers (around 1.5 miles) around the district border to interpret the results.

Lastly, given the continuity assumption in RDDs, it is essential to check whether agents appear to sort around geographical borders. If we observe that villages cluster on the side of the border with closer district headquarters, we can suspect that borders are being manipulated to favor certain types of villages. Nevertheless, the running variable in my empirical design, the distance of villages to district borders, has a very balanced distribution (Figure 2-8), and the formal test of discontinuity around the threshold (McCrary 2008) fails to reject the null hypothesis of continuity with a p-value of 0.5 (see

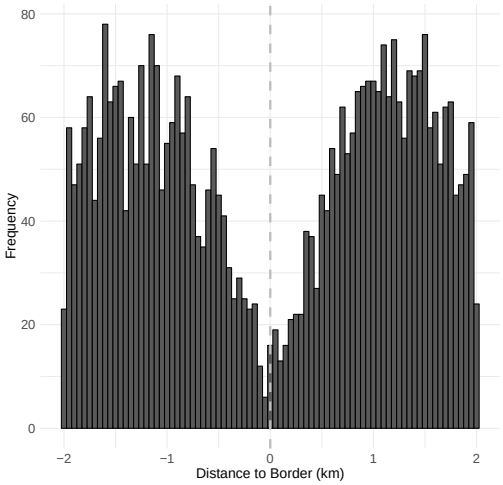


Figure 2-8: Histogram of the Running Variable: Distance to District Borders

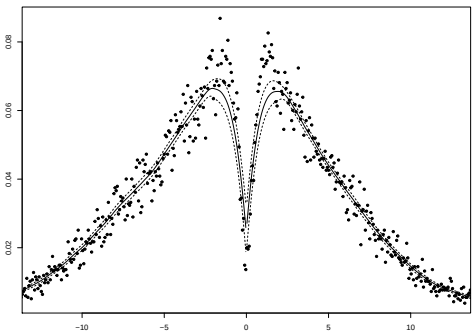


Figure 2-9: McCrary Density Test for Discontinuity in the Running Variable

Figure 2-9).[20] The graph also illustrates the low density of villages around the border; which stems from the fact that district borders usually follow natural boundaries such as rivers and mountains that separate settlement areas.

The null finding for the sorting of villages around the treatment threshold is not surprising because most of the villages in Turkey have their origins in the Ottoman era. Village locations predate district borders, which were drawn mainly in 1924 with the establishment of the Republic of Turkey. Because borders drawn in 1924 were based on certain principles as outlined by provisions of a 1924 law, it is unlikely that they were manipulated to favor some villages and place them in districts with closer headquarters. Article 4 of Law No. 422 reads: “The boundaries of a newly established settlement shall include all the lands that have been used by its residents from early on," and “if it is not possible to pass the borders along any rivers, hills, roads, or other landmarks, then borders should be drawn as straight as possible [...]" (published in Official Gazette No. 68, 07 April 1924).[21] Accordingly, while natural boundaries appear to be the primary determinant of borders in Turkey, land tenure seems to affect district borders as well,

[20]The villages in the district with the closer headquarters are assigned to the treatment group, and the rest to the control group.

[21]This law was amended in 2005 with Article 5 of Law No. 5393, published in Official Gazette No. 25874, 13 July 2005.

because borders were drawn such that land parcels with a single owner were not divided or land parcels were not placed in a neighboring village or district.

The new provinces and districts that have been founded since 1924 were formed by dividing old districts into multiple districts and so did not lead to important changes in preexisting borders. Moreover, the manipulation of district borders with motivations such as gerrymandering is unlikely in Turkey. Districts are the only administrative units below provinces, which constitute the multi-member electoral districts in Turkey. Therefore, changes in district borders do not affect electoral results. This is true even for local elections because voters residing in villages could not vote for provincial or district municipal elections until the administrative reform of 2014.

2.7 Results

2.7.1 Balance checks

I begin my analysis by examining whether the village-level control variables mentioned above are similar in proximate and distant villages. As the focus of the main analysis is the effect of geographic distance, and because I address the heterogeneity by ethnicity—an alternative source of social proximity—in the next section, I exclude district borders in the Kurdish region from the analysis below. Although social proximity between villages and districts can vary with a number of village-level characteristics, my empirical strategy relies on the assumption that village-level characteristics change smoothly at the border. In other words, the treatment variable, *Distance*, should not have a statistically significant effect on the balance variables. To test the continuity assumption, I regress each control variable in the model on the continuous treatment variable and on all other controls in Equation 1. Estimates from these regressions are presented in Table 2.2. If the identification assumptions hold, I should not be able to reject the null hypothesis that β

in these regressions is zero.

The first row in Table 2.2 present estimates from regressing the ethnicity variable on the treatment variable. The following five rows present estimates for village-level geographic controls. The final row shows whether the treatment is associated with any statistically significant difference in AKP vote share. If I find that distant villages have lower levels of support for AKP, and if those villages with lower incumbent support receive fewer public investments, the coefficient of the distance variable would be overestimated. I find that at a bandwidth of 2.5 kilometers, β is statistically indistinguishable from zero for the majority of covariates. It is statistically significant only for three covariates: distance to the nearest city with a population over 50,000, elevation, and AKP vote share. Nevertheless, its substantive significance is negligible for all these three covariates. An additional kilometer in distance to district headquarters corresponds to an around 0.01 standard deviation change in them. Imbalances in distance to the closest urban areas are expected because for some villages in my sample, the nearest urban area, particularly one above the 50,000 population level, may be serving as the village's district headquarters and capture some post-treatment variation. Imbalances in elevation is not surprising either, because, as explained in Section 2.6.4, natural boundaries such as mountains and hills have historically been the primary determinant of district borders and settlements in Turkey, and therefore, may correlate with distance to district centers. Finally, the relationship between distance and AKP vote share is also likely to capture some posttreatment variation as local government performance in previous decades may have increased support for the then newly founded AKP. Furthermore, although the relationship between distance and AKP vote share is statistically significant, the direction of the coefficient is positive, suggesting that omitting this covariate would, if anything, underestimate the size of the treatment effect. Overall, the results illustrate that the covariates are fairly balanced for proximate and distant villages.

Table 2.2: Balance in Covariates

Variable	β	(se)	SD	Change in SD
Minority village	0.00	0.00	0.29	0.000
Distance to City 50k+ (km)	0.22	0.04***	30.29	0.007
Distance to City 100k+ (km)	-0.00	0.00	91.19	-0.000
Distance to City 500k+ (km)	-0.00	0.00	91.19	-0.000
Distance to Highway (km)	-0.03	0.05	141.87	-0.000
Elevation (m)	9.08	1.07***	562.75	0.016
AKP Vote Share	0.26	0.06***	27.00	0.010
Bandwidth: 2.5 km				
Polynomial: Linear in latitude and longitude				

*p<0.1; **p<0.05; ***p<0.01
All models include a linear polynomial in longitude and latitude, segment fixed effects, district fixed effects, and village-level controls (except the control variable for which the balance is calculated).

2.7.2 Main Findings

In this section, I present the main effects of social proximity on bureaucratic efficiency, relying on the idea that social proximity can be proxied by geographical distance. Table 2.3 presents regression coefficients from estimating equation (1) for the four outcome variabless, access to *muhtars*' personal cell phone information, water supply network, drinking water infrastructure, and water quality control. To measure the outcome variables, I use binary measures that indicate whether district officials' got access to the *muhtar's* personal cell phone information for the e-government project, whether the village has a water supply network, whether the drinking water of the village comes from a water supply network or bore hole, and whether the quality of water is being regularly controlled. As the continuous treatment variable for any given village is based on the distance to district headquarters in two adjacent districts, the table presents the impact of each additional kilometer in distance to the district headquarters. For the sake of brevity, I only interpret results for a sample with a bandwidth of 2.5 kilometers.

Columns 1–4 of Table 2.3 present the results. Columns 1–2 present results from a specification with province and segment fixed effects and district-level covariates, while

Table 2.3: Change in Bureaucratic Efficiency at District Borders

Bandwidth: 2.5 km	(1)	(2)	(3)	(4)
		Panel A: Personal Cell Phone Information		
Distance	−0.005*** (0.001)	−0.005*** (0.001)	−0.002** (0.001)	−0.002** (0.001)
Observations	8,627	8,626	8,632	8,631
R^2	0.455	0.456	0.659	0.660
		Panel B: Water Supply Network		
Distance	−0.004*** (0.001)	−0.003** (0.001)	−0.004*** (0.001)	−0.003** (0.001)
Observations	8,627	8,626	8,632	8,631
R^2	0.431	0.434	0.537	0.541
		Panel C: Drinking Water		
Distance	−0.005*** (0.002)	−0.004** (0.002)	−0.006*** (0.002)	−0.005** (0.002)
Observations	2,763	2,763	2,766	2,766
R^2	0.476	0.481	0.535	0.541
		Panel D: Water Quality Control		
vgeodesic	−0.005*** (0.001)	−0.006*** (0.001)	−0.001 (0.001)	−0.002** (0.001)
Observations	8,627	8,626	8,632	8,631
R^2	0.527	0.529	0.760	0.760
Segment fixed effects	Yes	Yes	Yes	Yes
Province fixed effects	Yes	Yes	No	No
District fixed effects	No	No	Yes	Yes
Village conrols	No	Yes	No	Yes

Note: Standard errors clustered at the segment level. *p<0.1; **p<0.05; ***p<0.01

the specifications in Columns 3–4 employ both segment- and district-level fixed effects, as shown in equation (1). Columns 1–3 and 2–4 show the estimates without and with village-level covariates, respectively. According to Model 2, I find that an increase of one standard deviation in the distance to a district headquarters (that is, an increase of 9.13 kilometers) decreases the likelihood to get access to the *muhtar's* personal cell phone information by 0.046 (4.6 percentage points), or 8.63% of the sample mean and 0.1 standard deviation. Estimates from the same analysis show a 0.027 (2.7 percentage points) decrease in the likelihood of having a water supply network, a 0.037 (3.7 percentage points) decrease in the likelihood of having drinking water infrastructure, and a 0.055 (5.5 percentage points) decrease in the likelihood of having water quality controls. These numbers correspond to a %3.86 decrease in water supply network, a % 4.38 decrease in drinking water infrastructure, and a %18.51 decrease in water quality controls, compared to the sample means. In Model 4, the effect sizes decrease for all the dependent variable indicators, corresponding to a % 3.46 decrease in access to the *muhtar's* personal cell phone information, a % 3.86 decrease in water supply network, a %5.48 decrease in drinking water infrastructure, and a % 6.17 decrease in water quality controls, compared to the sample means.

Figure 2-10 presents the results from the most conservative model, the model in Column 4 of Table 2.3, graphically, charting a rise (decrease) in bureaucratic efficiency with proximity (geographic distance). It shows how the coefficients on bureaucratic efficiency change as the bandwidth increases from 1.5 to 3.5 kilometers, after segment fixed effects, district fixed effects, control variables, and a linear polynomial in latitude and longitude are accounted for. The negative values on the x-axis represent different bandwidth choices, where villages are selected based on their (geodesic) distance to the nearest district border. The y-axis shows the effect of only one additional kilometer in distance (where a one standard deviation change in distance corresponds to 9.13 km). The estimates confirm that the main results are robust to different bandwidth choices.

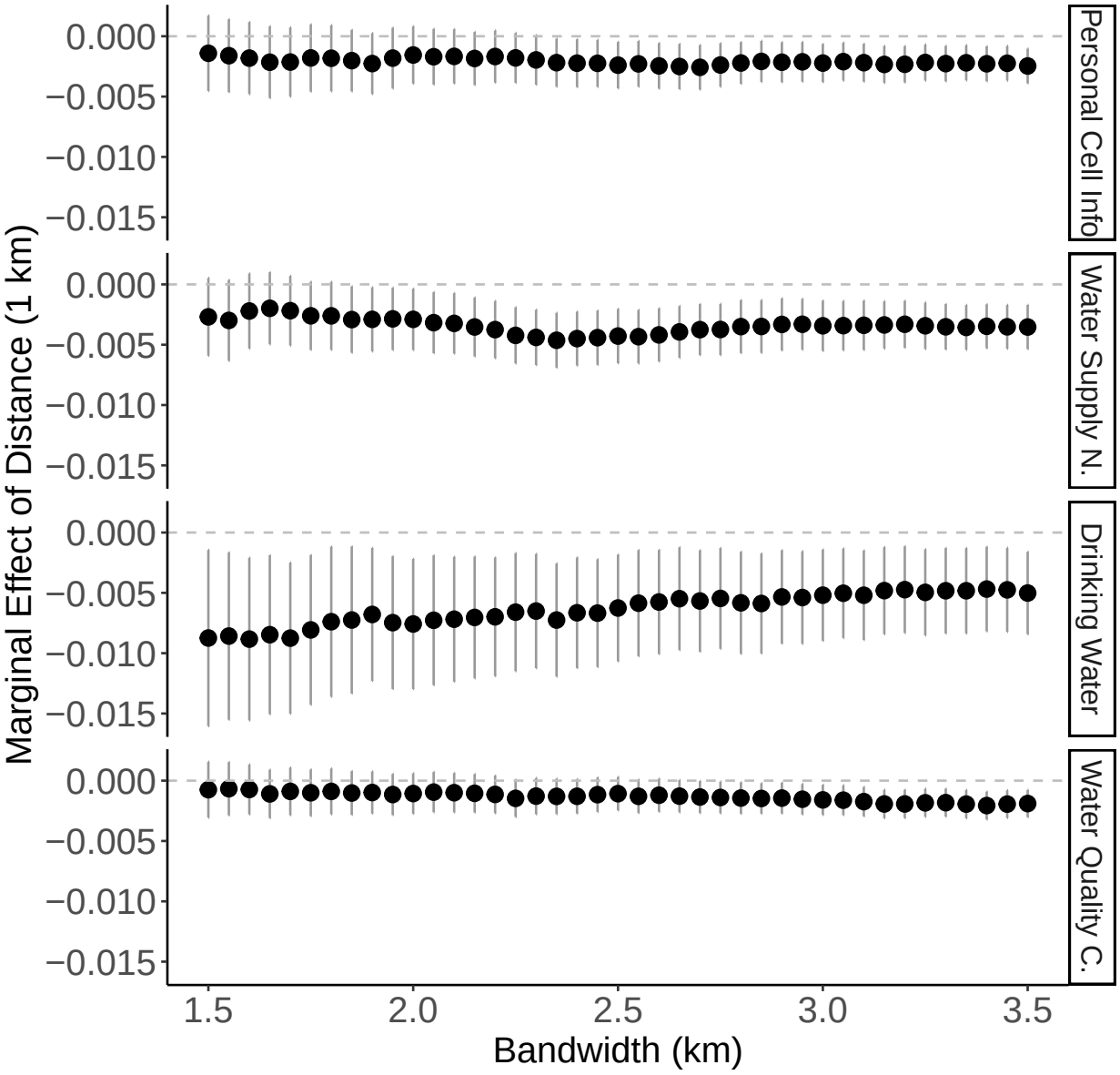


Figure 2-10: Main Estimates by Different Bandwidth Choices

2.7.3 Robustness

Following the main results, I demonstrate whether the results are robust to alternative polynomial choices, sample inclusion criteria, and standard error estimations. Table 2.4 illustrates the coefficients for these robustness checks. One concern might be that the results are driven by the type of the polynomial used, a linear polynomial in latitude and longitude. Panel A of Table 2.4 shows that the results are robust to using a quadratic

polynomial in latitude and longitude and a linear polynomial in (geodesic) distance to border. Then, in Panel B, I present estimates using two-way clustering, specifically by clustering standard errors at both the segment and the district level (Cameron *et al.* 2012). The effect of geographic distance on bureaucratic efficiency is statistically significant across all these specifications.

Finally, while the baseline model does not involve any geographic restriction criteria to limit my sample, geographic features such as mountains create natural barriers (Nunn and Puga 2010). Natural barriers imply that at a border, not only a village's home district but also its geographical conditions may alter. To see whether borders with a significant change in elevation drive the effect, I test whether my estimates are robust to more conservative sample-inclusion criteria. To that end, I drop segments across which the change in elevation is greater than the 95th percentile. Nevertheless, as presented in Panel C, the estimates remain substantially and statistically significant even after segments with high elevation change are excluded from the model.

2.8 Social Fragmentation and Bureaucratic Efficiency

I use network and ethnicity data to provide further evidence for my theory. Two other implications of my theory, which help to confirm the mechanism through which geographic proximity affects bureaucratic performance, is that geographic proximity (or geographic distance thereof) should become a less relevant factor when communities are in socially fragmented units or when there are ethnic divisions between bureaucrats. Empirically, the effect of geographic proximity should be heterogeneous across provinces with different levels of social fragmentation, which I measure by network indicators. In addition, the effect of geographic proximity should decrease when village officials are from Kurdish (ethnic minority) and Alevi (sectarian minority) backgrounds, unlike in the case of the majority-Turkish and Sunni district officials with whom they need to

Table 2.4: Change in Bureaucratic Efficiency at District Borders by Specification

DV Measure	β_1 (se)	Polynomial	Cluster
Panel A: Polynomial			
Contact Cell Information	-0.002^{**} (0.001)	Quadratic	Segment
Contact Cell Information	-0.002^{**} (0.001)	Distance to Border	Segment
Piped Water	-0.003^{**} (0.001)	Quadratic	Segment
Piped Water	-0.003^{**} (0.001)	Distance to Border	Segment
Drinking Water	-0.005^{**} (0.002)	Quadratic	Segment
Drinking Water	-0.006^{***} (0.002)	Distance to Border	Segment
Water Quality Control	-0.002^{**} (0.001)	Quadratic	Segment
Water Quality Control	-0.002^{**} (0.001)	Distance to Border	Segment
Panel B: Multiway Clustering			
Contact Cell Information	-0.002^{**} (0.001)	Linear	District-segment
Piped Water	-0.003^{**} (0.001)	Linear	District-segment
Drinking Water	-0.005^{**} (0.002)	Linear	District-segment
Water Quality Control	-0.002^{**} (0.001)	Linear	District-segment
Panel C: Omitting Natural Borders			
Contact Cell Information	-0.002^{**} (0.001)	Linear	Segment
Piped Water	-0.003^{**} (0.001)	Linear	Segment
Drinking Water	-0.005^{**} (0.002)	Linear	Segment
Water Quality Control	-0.002^{**} (0.001)	Linear	Segment
Bandwidth: 2.5 km			

Note: *p<0.1; **p<0.05; ***p<0.01

cooperate. This is because when administrative boundaries overlap with fragmented communities or when bureaucrats are from different ethnic backgrounds, they may not find opportunities to reach other bureaucrats through personal networks, regardless of the geographic position of the administrative unit in which they serve. In other words, social fragmentation or ethnic differences may impede bureaucrats from expanding their informal networks to other villages, districts, and province centers. In order to empirically test this implication of my theory, I analyze how the effects of geographic proximity differ across provinces with different network structures or for Kurdish and Alevi villages.

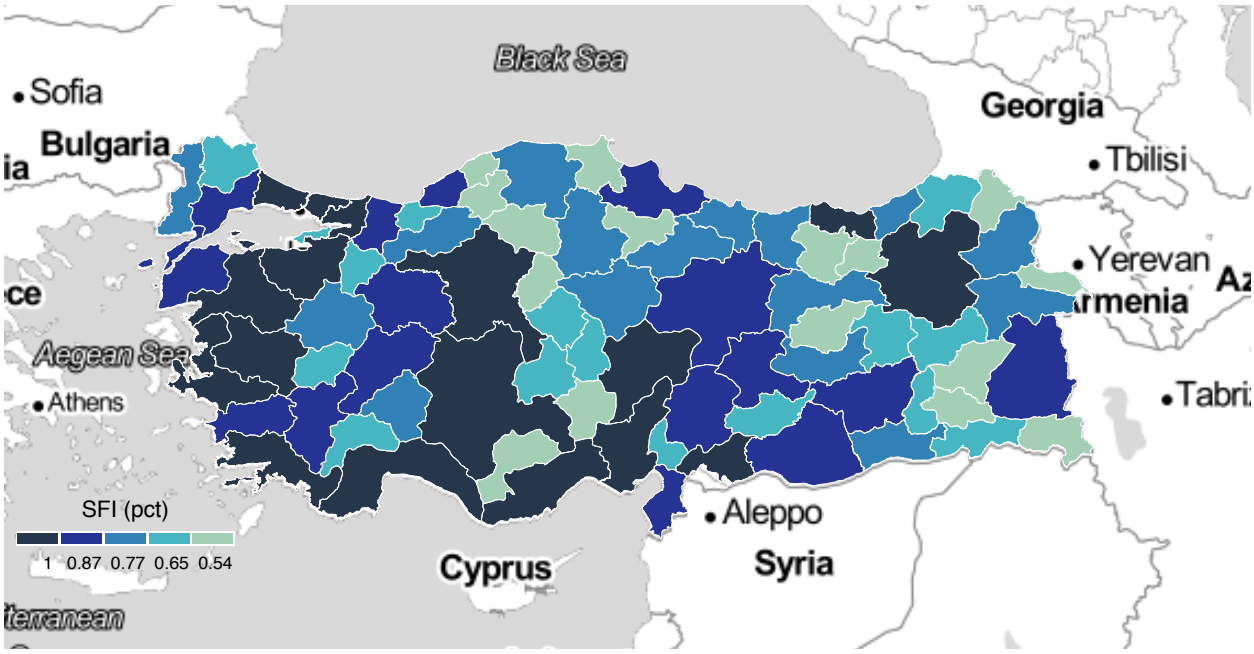


Figure 2-11: Province-Level Social Fragmentation Score

2.8.1 Heterogeneity by Network Structure

Measuring Social Fragmentation. To see whether the effect of geographic proximity is lower in fragmented communities, I use antenna-level mobile call detail records and calculate a province-level social fragmentation score. The mobile call dataset, which covers each province in Turkey, includes information on the site-to-site call traffic of Turk Telekom (TT) customers on an hourly basis over an entire year.[22] The antenna-level site-to-site call traffic enables to see whether and how much subcommunities at different antenna locations communicate with one another. To calculate the province-level social fragmentation score, I first calculate the social proximity of a given antenna location (i.e., node) to all other antenna locations in the province. Following Breza *et al.* (2014), I measure social proximity of a node to other nodes based on the length of the shortest path between them, which, in this context, depends on the presence of calls between

[22]See Salah, A.A., Pentland, A., Lepri, B., Letouzé, E., Vinck, P., de Montjoye, Y.A., Dong, X. and Dağdelen, Ö.: Data for Refugees: The D4R Challenge on Mobility of Syrian Refugees in Turkey. arXiv preprint arXiv:1807.00523 (2018). While the data originally included refugees' call detail records as well, I only employ data on Turkish citizens.

antennas. This is calculated as $1/\sum_{i \neq j} l(i,j)$, where $l(i,j)$ is the number of links in the shortest path between i and j (Jackson 2010). After obtaining a social proximity score for each antenna location, or in other words, for each subcommunity, I calculate the average social fragmentation of a given province. It is simply the average of antenna-level social proximity scores, but scaled such that it takes a value between 0 and 1, where lower values indicate close-knit communities and higher values indicate fragmented communities. Figure 2-11 illustrates province-level variation in the social fragmentation score across Turkey.

Network data as a measure of social fragmentation has certain advantages over other possible fragmentation indicators, such as ethnic fractionalization. While a province's social fragmentation affects the average reachability of the individuals who live there, it may not necessarily be explainable by a single factor like ethnic groupings. Therefore, a social fragmentation measure that only relies on ethnic fractionalization may miss other potential sources of fractionalization in the district and perhaps even lead to omitted variable bias. Thus, a social fragmentation measure relying on network data has the advantage of capturing all of the potential sources of social fragmentation in a province.

In Turkey, as in many other countries, social fragmentation can stem from several factors rooted in identity-based and social distinctions including, but not limited to, hometown backgrounds, ethnic identities, and political views. Figure 2-12 illustrates the relationship between the province-level social fragmentation score and these other diversity indicators. All measures used in the figure are continuous and take values between 0 and 1. The first indicator is a hometown fractionalization index showing the heterogeneity of the district population by the hometowns of its residents, calculated based on the Herfindahl-Hirschman formula.[23] In Turkey, hometown information is written on identification cards. An individual's hometown is usually their birthplace or that of their father or paternal grandparents. Hometown is an important dimension of

[23] If s_j is the share of people from hometown j in a province, then the hometown fractionalization index in the province can be expressed as $HomeFrac = 1 - \sum s_j^2$.

Turkish identity and remains so regardless of the place of residence, as is demonstrated by the number of hometown associations in cosmopolitan cities such as Istanbul: out of 15,821 associations in the city, 6,450 are hometown associations.[24] Ethnic diversity is another potential source of social fragmentation. The second graph in Figure 2-12 shows the correlation of the social fragmentation score with an ethnic fractionalization index calculated by the shares of Turkish and Kurdish populations. As the Turkish state ceased collecting information on ethnicity after the 1965 census, districts' Kurdish populations were calculated by the number of people whose hometown was a majority Kurdish-speaking province according to the 1965 census (or if the province supported the Kurdish party in the 2015 elections). Finally, I also present correlation with a political fractionalization index calculated based on the vote shares of each major political party in Turkey.

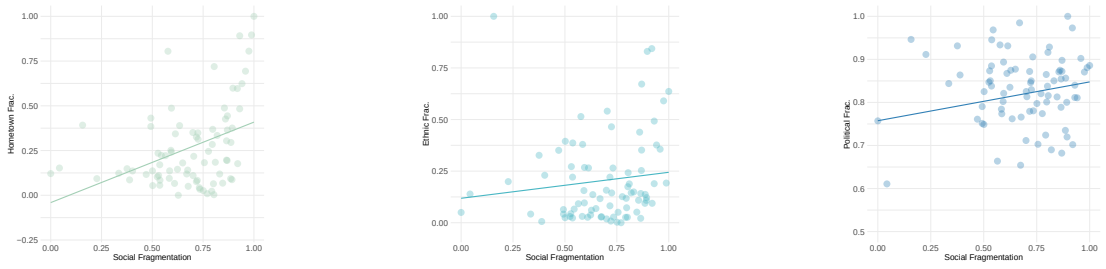


Figure 2-12: Correlation of Social Fragmentation Score with Alternative Indicators by Province

The plot reveals that, as expected, the social fragmentation score is correlated with the measures listed above. This suggests that social fragmentation in a province indeed depends on a multitude of factors and that any indicator that exclusively focuses on a single factor might lead to potential sources of bias in a regression model that employs observational data. Specifically, the correlation of social fragmentation with hometown fractionalization is 0.44, with ethnic fractionalization, 0.38, and with political fractional-

[24]This is calculated based on information from the database of the Ministry of Interior.

ization, 0.17.[25]

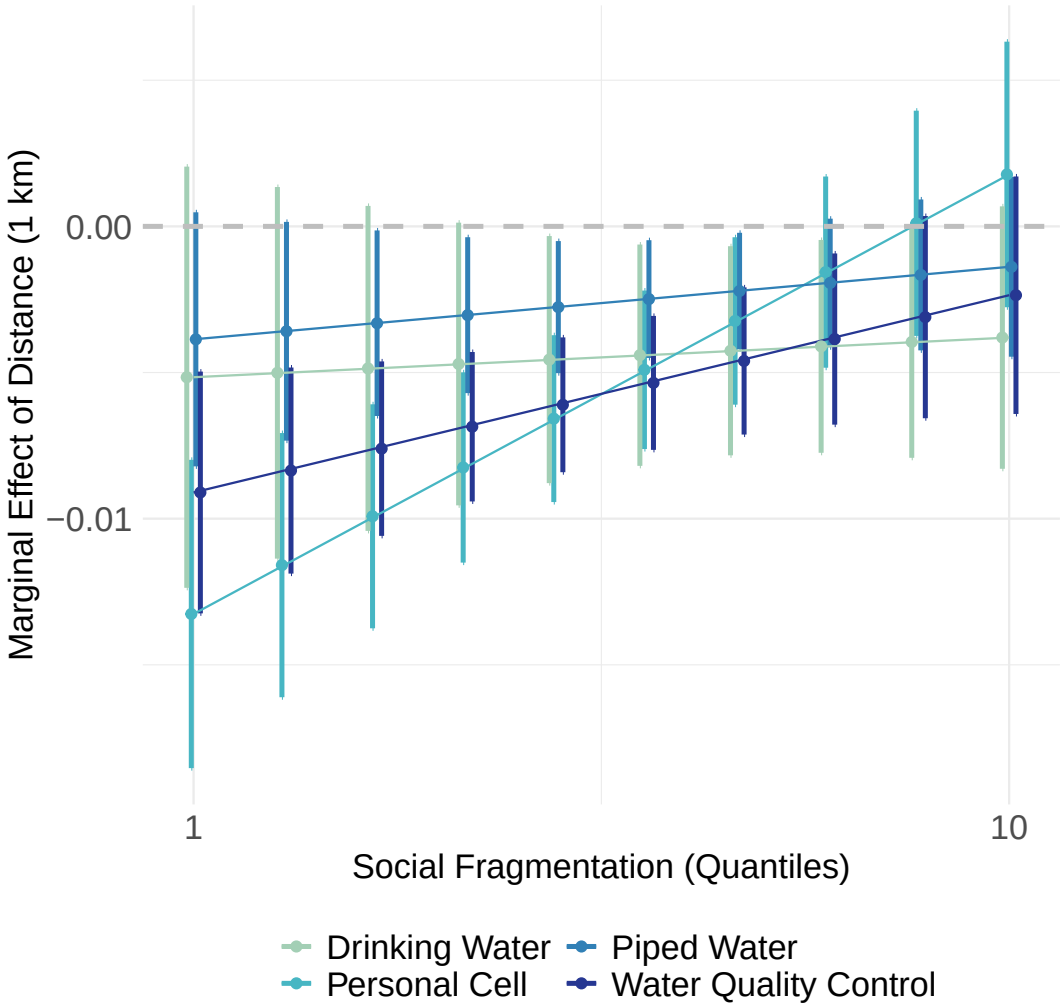


Figure 2-13: Effect of Geographic Proximity at Different Levels of Social Fragmentation

Findings. To examine whether geographic proximity plays a smaller role in inducing social proximity in socially fragmented communities, I demonstrate heterogeneity in the treatment effect across provinces with different network structures. I predict that in socially fragmented provinces, social proximity between bureaucrats is less likely to hold, and therefore, factors such as geographic distance should play a smaller role in

[25]Other potential sources of social fragmentation that may be captured by the social fragmentation score include family networks (Cruz *et al.* 2019) or fragmentation by social class.

inducing social proximity. To test this argument, I add an interaction term to equation (1) (see Appendix Section A.3). This new specification interacts the continuous village-level treatment variable $Distance_{vsp}$ with the province-level social fragmentation score, $SocialFrag_p$. $SocialFrag_p$ is a discrete measure on a scale of 0 to 9 that relies on the quantile values of the social fragmentation score, where 0 indicates the 10% of the provinces with the lowest scores. Given that the coefficient of $Distance_{vsp}$ in the baseline model has a negative sign, and the prediction that this effect would be observed less frequently in socially fragmented communities, the coefficient of the interaction variable, β_2, should have a positive sign here. The results (Figure 2-13) indicate that the effect of geographic distance on bureaucratic efficiency is generally negative and statistically significant ($p < 0.05$) in communities with low social fragmentation. On the other hand, the estimate tends to decrease in size or loses its statistical significance at higher levels of socially fragmentation—albeit the interaction term is not statistically significant for the drinking water infrastructure and water supply network indicators (Appendix Table A3).

2.8.2 The Effect of Ethnic Divisions

Another important observable implication of my theory is that geographic distance should become a less relevant factor of bureaucratic efficiency when there are ethnic divisions between bureaucrats, as individuals are less likely to create social ties and maintain their relationships with out-group members, and so information diffusion and cooperation are less likely between them. To test this implication, I examine whether the effect of geographic distance diminishes when village officials are from ethnic or sectarian minority backgrounds. Specifically, I re-estimate the same results as in Figure 2-10 for two different subsamples that are entirely composed of minority villages: Kurdish and Alevi villages. While officials working in province and district governorates are mostly from the majority ethnic and religious group in Turkey, Turkish and Sunni, *muhtars* and

village councils are from the local ethnic group, and hence village administrations in minority villages are either Kurdish or Alevi. This often leads to ethnic divisions between village officials in minority villages and other public officials. Therefore, I expect the effect of geographic distance to be substantively and/or statistically less significant in these two subsamples.

To categorize Alevi villages, I use an original dataset that maps the sectarian distribution of all villages in Turkey. As Kurdish villages are mostly concentrated in the Kurdish region, to identify them, I simply select those villages located in Kurdish provinces. I categorize a province as Kurdish if the majority of the population speaks Kurdish according to the census conducted in 1965 or if at least 40% of the voters in the province voted for the Kurdish Party (HDP, or Halkların Demokratik Partisi - Peoples' Democratic Party) in the 2015 general elections. I present the coefficients of the continuous treatment variable, $Distance_{vsd}$, in Table 2.5 (See also Appendix Figures A2 and A3 which present estimates with a breakdown according to different bandwidth choices.). As shown in the table, when the analysis is restricted to a comparison within each of the two subsamples, I find that not only are the effects of the distance treatment statistically insignificant across all the dependent variable indicators, but the directions of the effects are either positive or are inconsistent across different bandwidth choices. For instance, in the subsample composed of Alevi villages, I find a positive estimate for the effect of geographic distance on access to the *muhtar's* personal cell phone information and drinking water infrastructure (at bandwidths of 2 and 2.5 kilometers). In the subsample composed of Kurdish villages, the estimates are positive for two of the dependent variable indicators: access to the *muhtar's* personal cell phone information and water quality controls. Overall, the results are consistent with my argument that geographic proximity plays a smaller role in inducing social proximity when there are ethnic divisions between bureaucrats.

Table 2.5: Change in Bureaucratic Efficiency at District Borders by Muhtars' Ethnicity

	Alevi			Kurdish		
Bandwidth	2 km	2.5 km	3 km	2 km	2.5 km	3 km
			Panel A: Personal Cell Info			
	0.007* (0.004)	0.003 (0.004)	−0.001 (0.003)	0.0001 (0.002)	0.001 (0.002)	−0.0004 (0.001)
Observations	732	922	1,098	1,236	1,600	1,937
R^2	0.825	0.785	0.767	0.724	0.697	0.688
			Panel B: Water Supply Network			
Distance (km)	−0.001 (0.004)	−0.001 (0.003)	−0.003 (0.003)	−0.001 (0.002)	−0.0004 (0.001)	−0.001 (0.001)
Observations	732	922	1,098	1,236	1,600	1,937
R^2	0.761	0.711	0.698	0.608	0.587	0.564
			Panel C: Drinking Water			
Distance (km)	−0.011** (0.005)	−0.002 (0.007)	−0.005 (0.008)	−0.0002 (0.006)	−0.001 (0.004)	−0.003 (0.004)
Observations	199	244	280	145	189	225
R^2	0.700	0.722	0.692	0.514	0.529	0.436
			Panel D: Water Quality Control			
Distance (km)	−0.0005 (0.004)	−0.001 (0.003)	−0.003 (0.003)	0.001 (0.001)	0.0005 (0.001)	0.001 (0.0004)
Observations	732	922	1,098	1,236	1,600	1,937
R^2	0.841	0.812	0.780	0.565	0.583	0.537
Segment fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Village controls	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors clustered at the segment level. *p<0.1; **p<0.05; ***p<0.01

2.9 Alternative Explanations

Having presented the effect of social proximity on bureaucratic efficiency, I now address alternative explanations. Particularly public goods outcomes, e.g., water infrastructure, can be influenced by several other factors that are potentially correlated with geographic proximity such as logistical costs and economic development.I address each of these specific alternative explanations below.

Low Infrastructural or Logistical Costs. One alternative explanation for bureaucratic efficiency in proximate villages could be that due to low infrastructural or logistical costs, the quality of any public service is higher in these villages. Although this alternative explanation cannot explain access to *muhtars*' cell phone information, one of the key dependent variable measures used in the main empirical analysis, logistical costs could be a factor affecting the presence of water infrastructure and water quality controls. By considering another major public goods investment, schools, I find evidence that in the context of Turkey, the high logistical costs of investments in distant villages cannot explain service delivery performance. I focus on schools because decisions about these investments are usually made by the national government and Ministry, ideally based on criteria such as the number of school-aged children in the village, with little or no influence from local bureaucrats. Consequently, if geographic proximity has a positive and significant effect on schools, logistical costs could be a plausible explanation.

To formally test this hypothesis, I use equation (1) and estimate the effect of geographic distance on a binary variable that indicates whether a village has any schools. As Panel A in Table 2.6 demonstrates, while school investments require large investments and staff, thus increasing the salience of potential logistical and infrastructural costs, proximate villages do not receive more school investments than villages far from their district headquarters. Furthermore, the direction of the effect of geographic dis-

tance on schools is positive, raising our confidence in the validity of this finding. This finding suggests that infrastructural or logistical costs in geographically distant villages do not pose a barrier to government performance in service provision in Turkey, making this alternative explanation unlikely.

Table 2.6: Change in Alternative Outcomes at District Borders

Bandwidth	2 km	2.5 km	3 km
	Panel A: Elementary School		
Distance (km)	0.002 (0.001)	−0.00004 (0.001)	0.00005 (0.001)
Observations	6,718	8,632	10,334
R^2	0.492	0.452	0.423
	Panel B: Electricity		
Distance (km)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001* (0.0001)
Observations	2,420	3,097	3,732
R^2	0.370	0.305	0.227
	Panel C: Owns Computer		
Distance (km)	0.0004 (0.003)	0.001 (0.002)	0.0001 (0.002)
Observations	2,420	3,097	3,732
R^2	0.669	0.638	0.615
Segment fixed effects	Yes	Yes	Yes
District fixed effects	Yes	Yes	Yes
Village controls	Yes	Yes	Yes

Note: Standard errors clustered at the segment level. *p<0.1; **p<0.05; ***p<0.01

Economic and social development. Finally, the particular legacies of administratively proximate villages may be different if their proximity to district centers causes an overall higher economic and social development process among the population or their village administrators. Yet, if this were a factor, one would expect proximate villages to own more private assets or to forge ahead in services offered by private providers. As Panels B-C in Table 2.6 demonstrate, this does not appear to be the case. To determine how geographic proximity affects private services, I estimate the effect of the geographic

distance treatment on two binary variables: one that indicates whether the village has access to electricity, a service provided by private companies, and one that indicates whether the *muhtar* owns a computer. I find that not only are the effects of the distance treatment statistically insignificant, but the directions of the effects are inconsistent across different bandwidth choices.

2.10 Discussion

The core argument of this study is that social proximity among bureaucrats creates positive externalities that reduce the transaction costs commonly seen in local governance and increase bureaucratic efficiency (Manski 2000). By examining the impacts of dyadic social proximity and community structures on bureaucratic efficiency, this study shows that bureaucrats' informal channels can do what governments and markets sometimes fail to do and play a complementary role in service delivery (Helmke and Levitsky 2004).

Local bureaucrats play the key role in the production and allocation process of local public services. Yet, the effect of social proximity on bureaucratic efficiency should emerge differentially across different types of public goods outcomes. Bureaucratic efficiency may be a less relevant dimension of public service delivery in public goods that are determined by centralized decisions or entirely subject to budgetary constraints. For example, in the Turkish context, the number of schools in a district cannot be attributed to bureaucratic efficiency, as decisions about school investments are in general made by the central government. On the other hand, how fast a school building is constructed, how cost-efficient the construction process is, or the quality of the building are all shaped by local bureaucratic processes. Therefore, in order for bureaucratic efficiency to be a salient dimension of government performance in a given public service, local bureaucrats should play a role in its production and/or allocation process.

How can lessons from the Turkish case be applied elsewhere? Admittedly, the same

social ties among bureaucrats that increase bureaucratic efficiency can also give bureaucrats the opportunity to leverage their private information and sanctioning power for their personal interest. In other words, bureaucrats may abuse their within-bureaucracy ties to engage in corrupt behavior (Ashraf and Bandiera 2018). This concern can be addressed in two ways. First, corruption and overall government performance may not necessarily have a negative correlation. Positive externalities created by social proximity can compensate for corrupt behavior and may still lead to an overall increase in bureaucratic efficiency. Second, the potential negative effects of social proximity among bureaucrats can be prevented by controlling bureaucratic behavior through carrot-and-stick mechanisms, e.g., high salaries, tenure guarantees, or centrally-administered monitoring tools, so that bureaucrats have fewer incentives to abuse their local networks (Aghion and Tirole 1997). Bureaucratic efficiency may increase to the extent to which the overall administrative structure relies on a reasonably well-functioning hierarchy to engage in these controlling mechanisms. Therefore, the implications of my theory might be weaker for countries with failed states, where the national or federal government has zero or limited control over bureaucrats. Third, whether a potential negative effect of social proximity is a threat to government performance depends on the type of service provided: corrupt behavior might not be a concern in 'labor-intensive' services such as collaboration in major school events, while it might be of more concern in 'capital-intensive' services such as allocation of school funds.

Given that the empirical evidence of this study comes from rural areas, how does this theory fare in urban contexts? Although this study utilizes village-level variables in its research design, the theory is not only applicable to rural contexts. On the contrary, one implication of the theory is that bureaucratic efficiency is likely to be higher in close-knit communities and lower in socially fragmented communities. As such, the theory can shed light on the differences between rural and urban settings and on puzzles such as why government performance in public services is sometimes better in poorer rural

areas. The theory predicts that, *other things being constant*, bureaucratic processes might function more easily in rural contexts, where a bureaucrat's informal ties are more likely to expand to different parts of the local bureaucracy.

The theoretical contribution of this study is to link literatures on political geography, ethnic geography, and state capacity, thereby advancing research on public goods provision. This project studies government performance in public services outside of the accountability relationships and citizen sanctioning, revealing instead previously unidentified, capacity-driven sources of government performance. In emphasizing that within-bureaucracy ties may affect public goods provision through state capacity, I offer an explanation that is distinct from but complementary to the emphasis in alternative approaches.

Second, this paper extends the literature on within-country variation in state capacity as well. While some studies emphasize the uneven distribution of state capacity at the subnational level (O'Donnell 1993), surprisingly few studies discuss the sources of subnational variations (Herbst 2014), and even fewer studies point to the relationship between local social context and state capacity (Charnysh 2019). By demonstrating that social ties among bureaucrats and social fragmentation in the communities they serve influence bureaucratic efficiency, this study shows that bureaucratic performance and state capacity can vary systematically at the subnational level. This finding contributes to the growing literature on how the inner workings of the state can influence the quality of service delivery (Finan *et al.* 2015).

Finally, although a number of studies have addressed the adverse effects of ethnic divisions on the provision of public goods, there is little evidence on how these divisions influence the bureaucratic efficiency dimension.[26] While this study confirms the conclusion held by much of the extant research that heterogeneity may undermine public goods

[26]A recent study looks at the effect of ethnic diversity on project completion rates in Nigeria and finds a positive association between (Rasul and Rogger 2015) ethnic diversity and project completion rates using survey data.

provision, this study diverges from that scholarship by demonstrating that heterogeneity in communities not only leads to lower co-production by citizens or lower collective action in demanding service from the state, but also to lower bureaucratic efficiency.

Looking to policy, this work will provide policymakers with key insights concerning the origins of good performance in local public services, yielding important implications for social welfare. It indicates that citizen empowerment and accountability are not the only paths to better governance. This work also reveals alternative explanations for why public services are more likely to deteriorate in ethnically diverse and underrepresented communities, suggesting that states must prioritize maximizing coordination and cooperation within the bureaucracies in such communities. Potential policy recommendations informed by this study include: projects to strengthen local networks among bureaucrats, particularly in socially heterogeneous settings; optimizing jurisdictional borders to ensure that central administrators have access to all bureaucratic agents and groups in the district regardless of geographical segregation or ethnicity; enriching social networks among bureaucrats by using new information technologies such as online apps; and policies to prevent high bureaucratic turnover rates in underdeveloped regions.

Chapter 3

Imams and Businessmen: Islamist Service Provision in Turkey

This paper was co-authored with Fotini Christia.

Abstract

Islamists have a reputation for winning over citizen support through service delivery. Existing works attribute the notable local-level variation in such provision to Islamist strategic choice or low state capacity. Focusing on the Gulen Movement, the largest Islamist group in contemporary Turkey, we find no evidence that state weakness increases Islamist service provision. Rather we show that service allocation is highly dependent on a group's ability to marshal local resources, specifically through the associational mobilization of local business elites. For our inferences, we exploit spatial variation in Islamist service delivery across Turkey's 970 districts and use data on the Erdoğan government's purge of thousands of non-state education institutions and bureaucrats, along with original data on business associations, endowments, public service infrastructure, and early Republican associations.

3.1 Introduction

On the evening of 15 July 2016 a coup attempt took Turkey by storm. Putschists used fighter jets to bomb the parliament and the intelligence headquarters and tried to cap-

ture president Erdoğan who was vacationing in Marmaris. The president, who narrowly escaped, used an online video application to call on his supporters. The public took to the streets to openly oppose the coup. In the violence that ensued, 248 people died and over 2200 were wounded. The Turkish government, which survived almost unscathed, blamed a cleric, Fethullah Gulen, and the Gulen Movement (also referred as *Hizmet* (Service) by its supporters) for the coup-related events and vowed to uproot his widespread religious movement. The movement had an extensive network for public goods provision across the country and several of its members held influential positions in Turkey's civil service. The purge that followed has been the largest in modern Turkish history leading to the closure of about 800 companies, 1100 schools, 850 dorms, and 1400 associations and the termination of over 100,000 civil servants across the education, healthcare, judiciary, and many other sectors.[1]

Islamist movements such as the Gulen Movement have been known to offer services to gain citizen support, recruit and retain members, delegitimize the state or win elections (Brooke 2019; Thachil 2014). Rather than functioning solely as an explanation for Islamist political success, Islamist service provision is so established that it is now seen as a phenomenon worthy of its own line of inquiry. Recent accounts suggesting that Islamist welfare services are targeted to maximize political power (Cammett 2014) primarily focus on the motivations behind such allocation, or attribute the notable expansion of Islamist service provision to low state capacity, be that state weakness or failure (Berman 2003; Jawad 2009; McGlinchey 2009).

While political motivations and state capacity can certainly play an important role

[1]We compiled data on institutions that were shut down from government decrees. For the number of people purged, see press announcements by Turkish officials:

Republic of Turkey Ministry of Justice, "Adalet Bakanı Gül: Yargı, Terörle Mücadeleyi Çok Etkin Şekilde Sürdürmektedir (Gül: Judiciary Continues its Fight against Terrorism Very Effectively)," accessed June 30, 2020, http://www.basin.adalet.gov.tr/Etkinlik/adalet-bakani-gul-yargi-terorle-mucadeleyi-cok-etkin-sekilde-surdurmektedir.

Anadolu Agency, "Başbakan Yardımcısı Bozdağ: KHK'lerle 110 bin 778 kişi ihraç edildi (Vice PM Bozdağ: 110,779 People Purged by Government Decrees)," accessed June 30, 2020, https://www.aa.com.tr/tr/gunun-basliklari/basbakan-yardimcisi-bozdag-khklerle-110-bin-778-kisi-ihrac-edildi/1048373.

in whether and how a movement offers services, we show that such provision is also a function of a movement's capacity to control local resources. Specifically, we find that Islamist service delivery is higher in places with associational mobilization by Islamist local business elites, i.e., places with business associations affiliated with Islamists. Extended Islamist business associations make it easier for Islamist political movements to benefit both from the financial resources and from the elite networks of local business people. To that effect, they act as a honey pot for prospective members that want to expand their business networks; provide local business elites with an institutionalized environment to regularly come together and coordinate service provision; and facilitate the tracking of member contributions, financial or other.

To test this argument, we examine the spatial variation in service delivery of Turkey's Gulen movement, the largest Islamist political movement in the country until the 2016 attempted coup. For our dependent variable, we focus on the education sector, a major area of Islamist service provision and arguably the key to winning hearts and minds (Bazzi *et al.* 2019; Burde 2014; Pohl 2006). We also provide additional evidence from the health and religious sectors showcasing how business mobilization also affected Islamist presence in the local bureaucracy.

Our inferences rely on original data that combine over sixty government decrees on the closure of over 2000 Gulen-affiliated institutions, including schools, dorms, tutoring centers, and endowments, as well as data on the purge of thousands of public officials. Unlike the information on whether an educational institution is Gulenist, which is broadly known and largely not disputed, government purges of civil servants may still include bureaucrats that were not conclusively affiliated with the movement. To address this, we exclude the sectors with the most contested lists from our analysis, such as university and municipal employees, and note that if the remaining purging lists include non-Gulenist bureaucrats, that would bias our estimates of Islamist service provision downwards as it would inflate numbers about Gulenist service provision in places with

stronger leftist or Kurdish presence.

We also draw on what is to our knowledge the most comprehensive district-level dataset on Turkey. This includes archival and contemporary data on public service infrastructure, as well as data scraped from official government websites of Gulenist and non-Gulenist associations, along with official statistics on elections, population, literacy rates, private schools, private dorms, and private tutoring centers. To measure economic development, we use an original nighttime luminosity dataset. For our instrument, we use archival data on the state-created associations of the early Republican era, known as *halkevleri* (People's Houses) which, we argue, informed the current distribution of associational mobilization across the country by offering the local population a certain institutional context and an associated set of organizational skills.

We find strong evidence that Islamist service provision was highest in places with increased levels of associational mobilization among Islamist local business elites, as measured by the number of Gulen-affiliated business associations. We also establish that current levels of Islamist civil society activities are shaped by the distribution of state-formed historical institutions, and we find no evidence that state weakness in service delivery prompts Islamists to fill the vacuum. Our findings remain significant when a panel, instead of an instrumental variable, design is used, and is robust to dropping or adding the post-2002 period, throughout which Erdoğan's AKP (*Adalet ve Kalkınma Partisi* - Justice and Development Party) has been in power. We also show that 'placebo' treatments such as alternative Gulenist institutions other than business associations do not lead to a similar increase in service provision. The corpus of qualitative secondary sources on the Gulen movement with which we engage also underlines the central role of businessmen and their associations on the movement's service-related activities.

Our argument relates to the literature that connects Islamist service provision with middle-class networks (Clark 2004) and the finding that overlapping networks among Islamist social institutions characteristically strengthen horizontal ties among middle-class

volunteers. Horizontal ties in turn foster the development of service provision networks that, according to Clark (2004), primarily serve the middle class instead of lower classes. Our work provides an extension to this lucid line of research on the Islamist advantage in social services by offering a causal explanation for what drives subnational variation in such service provision. Several scholars have noted this variation and have highlighted electoral and political reasons behind these uneven welfare distribution strategies. We in turn show that this is not just driven by Islamists' *motivations* but rather also depends on the *availability* of local resources. As such, this study offers an alternative to arguments that attribute non-state service provision to political strategies or the scarcity of public services, i.e., to a government's constrained ability to reach the poor. Rather, we find that Islamist services are intricately tied to local financial resources and active business networks.

The paper starts out with a discussion of Islamist movements in Turkey and the relevant literature on service provision by religious non-state actors. We then list our hypotheses, describe our data sources, and present our results. We close with a discussion of our findings and directions for future research.

3.2 Islamists in Turkey

Religious groups have been a constituent element of Turkey's Ottoman legacy. Sufi religious orders, known as *tariqat*, were present in towns and villages across the Ottoman Empire and formed an integral part of civil society. Although religious orders persisted throughout the 19th-century rise of Salafi movements and the top-down modernization campaign of the Ottoman empire, known as the *Tanzimat*, they were attacked head-on by Kemal Ataturk in the early years of the Turkish Republic (Fabbe 2019; Taji-Farouki and Beshara 2007). Ataturk considered these orders a threat to his reforms as they were based on a highly entrenched and competing network of social organization. Republican

Decree No. 677 of 30 November 1925 formally dissolved religious orders, seizing their endowments and banning their practices. The outlawing of religious education and the introduction of the Latin alphabet in 1927 further limited their influence. Some religious orders, such as the influential *Naqshbandiyah* order from which the Gulen Movement later sprang, adapted to these new realities by going underground.

Starting with the end of Turkey's single party era in 1950, Islamist groups' social and political activism increased. The competing political elites allowed religious orders to proliferate to weaken their opponents. In the 1960s, Fethullah Gulen, an imam from the Anatolian town of Izmir, took advantage of this relatively unrestricted period of religious growth in the Turkish social sphere to start his own movement, known as the Gulen Movement, which evolved into Turkey's largest Islamist political movement. He began by preaching in mosques and quickly built a large base of supporters through his sermons and writings. Organizationally, the Gulen Movement expanded through local circles with members from various professional backgrounds, who were socialized at informal gatherings or formal associations and were inculcated into the movement's sense of religious purpose and communal responsibility. Members of the movement, Fethullah Gulen himself included, call their organization *Hizmet* (Service), choosing to highlight the group's focus on service provision (Ebaugh 2010, p. 43).

The Gulen Movement's primary emphasis was on educational services and the combination of religious and scientific training. Similarly to many Islamist movements that have viewed the school system as a way to wield control over the hearts and minds of students (Richards and Waterbury 1990, 130), Gulenists used educational institutions as a way to spread their ideas, win over youth, and strengthen their organization (Altınoğlu 1999, p.48). In Gulen's own words, "various institutions of education, from primary schools to universities, with the grace of Allah, will be an opportunity for many people to meet Islamic sentiment and thought. And this is a very important step for the improvement of nowadays' individual" (Gülen and Erdoğan 1995). While the movement's

educational institutions were technically private and also popular among the middle class, the Gulen Movement targeted its community services to the poor. Every year, thousands of needy students from low-income Turkish families stayed in Gulenist student dormitories, studied in their university preparatory courses, and were recipients of local scholarship funds (Hendrick 2013; Pandya and Gallagher 2012).

Between the 1960s and the July 2016 coup attempt, Gulenist local circles and institutions expanded across Turkey (Figure 3-1), attaining significant economic and political power. The Gulen Movement's support for a free market encouraged businessmen to become members and make hefty contributions to the cause. This expansion culminated when the movement started to operate its own financial institutions (e.g., Asya Bank) and media outlets (e.g., Zaman) and brought all its local business associations together under a business confederation known as TUSKON (*Türkiye İşadamları ve Sanayiciler Konfederasyonu* - Turkish Confederation of Businessmen and Industrialists). Beyond identifying Gulen-affiliated organizations, we need to note that given the Gulen Movement's grassroots nature, it is hard to nail down the exact size of the Gulenist membership base.

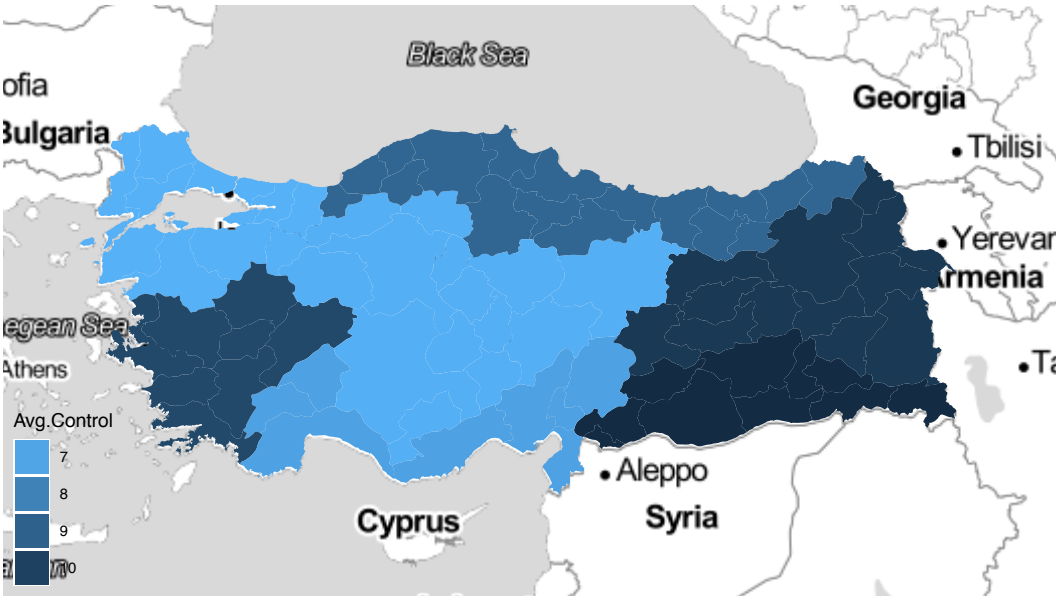


Figure 3-1: Gulen-Affiliated Educational Institutions across Turkey's Regions

Note: Map showing the proportion of Gulenist education institutions as part of all non-state education institutions, by region.

Table 3.1: Percent of Gulen-affiliated Institutions (among non-governmental institutions) and Officials (among all officials)

Dorms	17.6%
Schools	11.6%
Business Associations	10.2%
Tutoring Centers	5.3%
Endowments	2.1%
Police	11.3%
Judiciary	5.4 %
Education Officials	2.4%
Religious Affairs Officials	2.54%
Health Officials	1.4%

Note: All data about Gulen-affiliated institutions and officials—except for business associations—were compiled from government decrees. The list of business associations was compiled from the official website of the Gulen-affiliated TUSKON business confederation.

Educational institutions associated with the movement witnessed significant growth over time and gained a reputation for producing high performing students. The movement also grew internationally, beginning with the fall of communism in the former Soviet Republics in Central Asia. It also spread to Europe, Asia, Africa, Australia, the Middle East, and even the US. At its peak, by some estimates, it was alleged to have run more than 1500 schools in 120 countries across five continents (Holton and Lopez 2015, p. 9). In this paper, we focus only on the movement's service provision within Turkey. Based on government decrees listing closed institutions or purged bureaucrats in the aftermath of the 2016 failed coup, the proportion of Gulenist educational institutions as compared to all private ones varied from about 5% for tutoring centers to 11% for schools, and 18% for dorms (Table 3.1). While it is notably harder to adjudicate individual membership, the proportion of Gulen-affiliated officials across different civil service sectors on these decrees ranged between about 1.5% in healthcare officials to roughly 5% in the judiciary and 11.3% in the police.The spatial distribution of Gulenist services illustrates that the movement's services showed dramatic variation across the country

(Figure 3-3). After the July 2016 coup attempt, the Turkish government declared the Gulen Movement a terrorist organization and banned all its operations.[2]

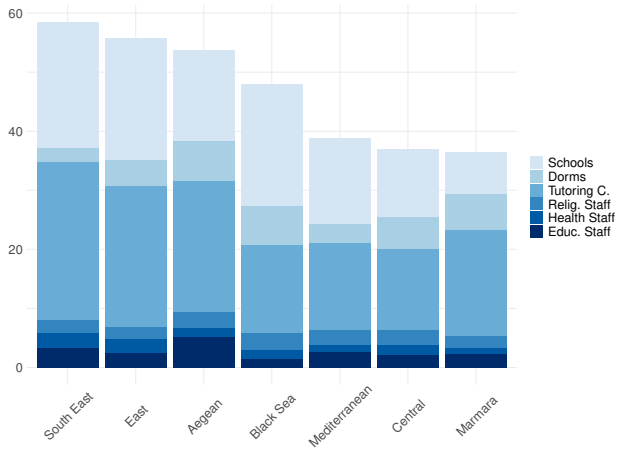


Figure 3-3: Proportion of Gulen-Affiliated Education Institutions and Public Officials by Type and Region

Note: The graph shows the proportion of affiliated institutions as part of all non-state education institutions and affiliated officials as part of all public officials in a given sector.

3.3 Argument: A Resource-Based Approach to Islamist Service Provision

Movements, irrespective of their ideology, have consistently used service provision to mobilize support for their cause. Be they communists or Islamists, nationalists or insurgents (Arjona *et al.* 2015; Cammett *et al.* 2014; Clark 2004; Kertzer *et al.* 1980), groups turn to service delivery as a way to gain favor with their constituents. As such, welfare allocation has not been a prerogative of a particular ideology, even if that is often used to justify the service on offer. Though the tactic of leveraging service provision to gain political power is not confined to a single ethnic, political, or religious view, recent research highlights that religious non-state service providers are highly active particularly

[2]For a discussion of Gulen critics see Tee (2016, 162-182), Şık (2017), Hendrick (2013), and Holton and Lopez (2015).

in the Islamic world (Berman 2003; Brooke 2019; Cammett 2014; Flanigan 2008; Hamayotsu 2011; Masoud 2014; Thachil 2014). Islamist political motivations can range from maintaining control over a particular territory (e.g., Taliban in Afghanistan) to establishing patronage networks (e.g., Gulenist movement in Turkey) or winning elections (e.g., Hezbollah in Lebanon).

With the surge of Islamist welfare allocation, recent studies have started to focus on the origins of its subnational variation. In her notable work on Lebanon, Cammett (2014) shows that religious and sectarian organizations allocate social welfare goods strategically in order to maximize their electoral and political power. Consistent with the providers' motivation, recipients' religious and sectarian identities affect how Islamist groups distribute social services (Corstange 2016). As is the case with ethnic parties (Chandra 2007c; Chhibber 2010), allocation tends to be exclusionary and is directed to specific group members as determined by identity considerations. While this line of work offers strong explanations for the motivations behind the allocation of services, i.e., when and how religious groups *choose* to distribute welfare, the question of when religious groups *can* provide welfare remains unanswered. And though existing research does an excellent job explaining local-level variation in heterogeneous settings (such as multi-sectarian ones), it does not explain variation in service provision in relatively homogenous contexts, where ethnic or religious boundaries are irrelevant.

Another strand in the literature on Islamist service provision, consistent with theories on rebel governance (Kasfir 2015), attributes non-state welfare provision to a scarcity of government-provided public services (Eseed 2018; Jawad 2009; McGlinchey 2009). Though state weakness may be conducive to the rise of non-state service provision as there is both a vacuum to fill and no state capacity to curtail their activity (Berman 2003), it presumes that Islamist groups are able to find the resources necessary for service provision where the state cannot.

Our paper addresses these gaps in the literature by examining what increases Is-

lamist ability to provide public goods and services. Specifically, it assesses their sources of strength as welfare providers at the local level. Moving beyond the view that low state capacity is a precondition for Islamist service provision, we argue that the ability of Islamist movements to provide services depends on whether they can mobilize local resources. Specifically, we propose that Islamist service provision is higher in places with higher associational mobilization by local business elites. Beyond making donations to parties and politicians (Boas *et al.* 2014), such associations provide an institutionalized environment that enables business elites to expand their networks and improve their social status in their community. These associations also facilitate the tracking of members and the collection of funds intended for welfare and service provision. Such involvement on the part of Islamist business elites is key to securing the financial resources required to make infrastructural investments or hire staff for service provision (Wickham 2002), while also helping Islamist movements increase their control over the bureaucracy that oversees service allocation (Clark 2004). Thus, as per Rubin (2017), we highlight the importance and self-reinforcing interactions between religious and economic elites, but extend our analysis to religious actors that operate outside the formal realm of the state.

We proceed to test the hypothesis that there is more Islamist service provision in places with higher associational mobilization by Islamist business elites. To that effect, we are particularly interested in identifying whether and how Islamist service provision is reinforced and expanded by local businessmen and financiers that offer resources, and to what extent it is associated with the pre-existing public service infrastructure. In addition, we examine the implications of historical legacy on political and economic outcomes as per Kuran (2001, 2004), who makes the strong case that Islamic institutions (such as religious endowments, known as *waqfs*) played a role in the economic development of the Muslim world. We do so by identifying a different set of effects of historical social institutions using state-created community centers in early Republican Turkey, *halkevleri*, as an instrument to trace the impact of top-down institutions on the

associational mobilization of Islamist business elites. We then test the dominant alternative explanation that Islamist service provision is higher in areas with lower levels of state-provided services.

3.4 Data

Our empirical analysis relies on a diverse set of data sources. In addition to information on Gulen-affiliated schools, dorms, tuition centers, endowments, and civil servants in the education, health, and religious sectors coded from a series of government decrees, we also use data scraped from official webpages for Gulenist and non-Gulenist associations. In addition, to enable longitudinal analysis, we collected information on the foundation year of all Gulenist schools and business associations. For our instrumental variable, *halkevleri*, which is discussed in detail in Section 3.4, we use archival data from the early Republican single-party period. We also use archival and contemporary data on public service infrastructure and official lists for private schools, dorms, and tutoring centers, as well as official statistics on vote shares, literacy, population, and endowments. When we use panel data or historical indicators in administrative units that have been redistricted, we refit the new data within the old boundaries. We present the summary statistics for our data in Appendix Table B1.

Unit of Analysis. Districts are the lowest administrative unit responsible for the operation of public services and thus serve as our unit of analysis. Each of Turkey's 970[3] districts has a local directorate that oversees the distribution and regulation of education, healthcare, and religious services. Finally, business associations are also mostly organized at the district level.

[3]Based on the number of districts in 2016.

Dependent Variable. We measure Gulenist service provision through data from over sixty government decrees, announced between July 2016 and January 2018, that detail institutional closings and purges. The subset of decrees we use to measure our dependent variable includes Gulenist schools, dorms, and tutoring centers—namely all Gulenist educational institutions. We create a different measure for each of the three types of education institutions (schools, dorms, and tutoring centers). We also construct an alternative measure as a robustness check, that takes the proportion of Gulenist schools, dorms, or tutoring centers over all non-public schools, dorms, or tutoring centers in the district (in percent). The data for the latter group come from the official lists of the Ministry of Education. For the panel data analysis, we coded the period when a given school was founded through specialized web-searches (including information from the school's official pages). In additional analyses, we also look at purged civil servants from the health, education, and religious sectors.

Institutions such as schools, dorms, and tuition centers that form our main dependent variable were largely known by the public and in fact preferred by many parents due to their high performance in nationwide standardized tests and generous scholarship opportunities, raising our confidence in the validity of the data extracted from government decrees. In the case of bureaucrats, however, the post-coup process resulted in the purging of over 100,000 individuals, possibly involving people that were not conclusively affiliated with the movement. We answer this concern in two ways: First, since some of the purging categories such as university professors, municipal staff, and community associations included people and institutions affiliated with the leftist and Kurdish movements, we exclude those from our analysis altogether. Second, if purged individuals also include non-Gulenist government opponents, we expect this to bias our estimate downwards as purged numbers will be inflated in places where Kurdish and leftist movements are stronger and Gulenist business associations weaker.

Independent Variable. We use Gulen-affiliated business associations to measure associational mobilization by Islamist business elites in a given district. Because business associations usually organize at the district level, we use a binary variable that shows whether the district has a Gulen-affiliated business association.[4] We web-scraped the lists of Gulen-affiliated local business associations from the official websites of the Gulenist TUSKON business confederation.[5] We also coded the foundation years of business associations for our panel data analysis, by visiting the web page of each of the 196 local business associations operating under TUSKON.

Control Variables. Resources owned by local business elites can also be mobilized through other associations. We, therefore, include an associational measure in our model: the total numbers of associations per ten thousand persons in the district. We gathered this associational data by scraping the official website of the relevant Ministry. To test the effect of state capacity, we measure the supply of public services using data from the official building census conducted in 2000, which captures the records of public education and health buildings by district. In order to adjust the supply of public services by population, we scale the number of buildings used for public services by the population of the district. The measure is defined as the number of public education and health buildings per ten thousand residents. For the longitudinal analysis, we additionally use archival data from the building census conducted in 1984.

We also control for Gulen-affiliated *waqf* endowments using a binary measure. Endowments are typically set up by an individual or family for charity purposes. As an alternative type of institution, Gulen-affiliated endowments can be considered a 'placebo' independent variable, as the absence of a positive effect can validate that the effect of the

[4]With the exception of a few districts (eleven out of 970), districts have either zero or one Gulen-affiliated association. Most of these eleven districts with more than one association have only two associations.

[5]To access the information in defunct websites, we used web archives available for public access.

main independent variable, business associations, does not derive from spurious correlations between Gulenist institutions. The data for Gulen-affiliated *waqf* endowments are coded based on post-coup government decrees. We also control for the total number of endowments per ten thousand residents in the district. Our other controls include the total number of all private schools, dorms, and tutoring centers per ten thousand residents in the district, except for the models whereby this information is already accounted for through the dependent variable measure (the proportion of Gulen-affiliated education institutions).

To control for key political and socio-economic variables, we rely on official statistics on vote shares, literacy, and population. Specifically, we control for the vote share of the first Islamist party in Turkey, MSP (National Salvation Party - *Milli Selamet Partisi*), which ran for the first time in an election in 1972, because support for political Islam might be a confounding variable correlated with the presence of both Islamist business associations and Islamist service provision, as well as the locations of our instrument, *halkevleri* (discussed in detail in Section 3.5.1). For similar reasons, we also control for the ruling party AKP's (*Adalet ve Kalkınma Partisi* - Justice and Development Party) vote share in the 2002 elections, the first election in which the party participated after it was founded in 2001. We use the 2002 elections instead of the following general elections to avoid any potential "post-treatment" bias, i.e., increases in AKP vote share that might have occurred due to its alliance with Islamist movements such as the Gulen Movement (see Cornell and Kaya (2015)). The third political control we use is the vote share of the nationalist conservative MHP (*Milliyetçi Hareket Partisi* - Nationalist Movement Party).

We construct a social conservativeness measure, which is equal to the ratio of female illiteracy to male illiteracy, drawing on the fact that population conservativeness is largely correlated with female education (Meyersson 2017). We code the districts in the provincial centers—the location of provincial headquarters, as well as city centers as an additional control variable. We also control for the population (log) and literacy rate of

the district. Finally, due to the lack of district-level data for GDP per capita, we control for economic development by measuring average nighttime luminosity (Henderson *et al.* 2012), which we calculate based on NOAA's nighttime satellite images.[6]

3.5 Results

3.5.1 Instrumental Variable Design

There may be several other variables through which associational mobilization by local business elites and notables correlate with service provision. For instance, long-term political leanings or religiosity at the local level might be a source of support for the Gulenist movement among elites, as well as a reason for why the movement wants to build schools or increase its control over public services in these places. To account for such potential endogeneity, we test the proposed hypotheses through a two-stage least squares (2SLS) estimator that we further validate through a panel design. Our instrumental variable (IV) strategy is based on the potential historical determinants of the geographic distribution of Islamist business mobilization. Specifically, it relies on the empirical regularity that social organizations can leave institutional legacies behind for future organizations. Since the landscape of institutions in a country is not uniform but rather varies depending on historical circumstances (Acemoglu *et al.* 2001), social organizations in the past can be used as instruments for social organizations that have formed decades later.

Halkevleri. As an instrument for Gulenist business associations, we use *halkevleri* (People's Houses) founded by the Republican regime in the 1930s, controlling for the

[6]Specifically, we use the Average Visible, Stable Lights, and Cloud Free Coverages from the DMSP-OLS Nighttime Lights Time Series.

number of other associations in the district. *Halkevleri* were the principal grassroots project of the new secular Republic. They were local, state-created community centers that operated through a wide range of cultural, recreational, and educational activities. They were run by local party administrators during the single-party era of the secular Republican regime and primarily aimed at indoctrinating the society with nationalist and secular ideas of the Republican regime. By 1943, a total of 394 *halkevleri* were in operation (Karpat 1963). Our data on *halkevleri* come from an official publication from 1947 that list all *halkevleri* across Turkey.[7]

Halkevleri, we argue, informed the current distribution of associational mobilization across the country by providing the local population with an institutional focal point for gathering and inculcating various organizational skills. Each *halkevi* had an organizational structure composed of several sections, which were free to determine their own program. They had to elect a new executive board every two years. In addition, they were continuously accepting and registering new members (CHP 1934). Thus, in line with theories on state building and social movements (Tarrow 2011), these state-introduced organizations provided a vibrant associational infrastructure and organizational skills such as associational membership, electing managerial boards, and managing the membership base. Therefore, we expect a positive relationship between *halkevleri* and Gulenist business associations, and associational mobilization in general. The first stage results substantiate this relationship. As Appendix Table B2 shows, *halkevleri* indeed predict the overall number of associations in a district, as well as the likelihood of whether the district has a Gulen-affiliated association. Specifically, a one unit increase in the number of *halkevleri* leads to an increase of 1.4 (per 10k persons) in the number of associations.

Rich qualitative evidence demonstrates that this effect of *halkevleri* can be even more

[7]National Education Statistics, 1944-1945. Genel Kitaplıklar ve Müzeler ile Halkevleri, Odaları ve Okuma Odaları Kitaplıkları, 1932-1942 [General Libraries and Museums & People's Houses, Rooms and Reading Rooms Libraries 1932-1942]. Ankara: Başbakanlık Devlet İstatistik Enstitüsü, 1947.

pronounced among pious local elites, suggesting that *halkevleri* might be a particularly strong instrument for Islamist associations. Based on archival evidence, Lamprou (2015) documents how *halkevleri* became places where local elites came face-to-face with and resisted Republican reforms: "[the] scarcity of legitimate opportunity spaces increased the propensity of the *halkevleri* to be a space and a means of and for politics; as such, it invariably operated as a stage for conflicts" (Lamprou 2015, p. 111). *Halkevleri* thus appear to have deepened the grievances among pious local elites in a predominantly Islamic society, facilitating the subsequent mobilization of Islamist groups.

Identification under an IV model requires the exclusion restriction to hold: *Halkevleri* (the exogenous variable in the first stage) cannot affect or be correlated with Gulenist education institutions (the outcome of the second stage) through any channel other than Gulenist business associations (controlling for other associations in the district, as well as a number of other covariates). Three factors strengthen our confidence in this assumption.

First, the locations of *halkevleri* did not have any direct association with the degree of religious leanings in the locality. Instead of locating them in places with more support for or more challenges to the secular regime, the party set them up in areas where there was a requisite level of infrastructure. To that end, Kemal Atatürk used largely the infrastructure and offices of a pan-Turkic movement that arose in the last decade of the Ottoman Empire, upon the claim that it lost its functionality (Üstel 2017).[8]

Second, our instrument is a historical social institution that provided some associational infrastructure between 1930-1950 but was completely eradicated thereafter. *Halkevleri* operated only in that twenty-year period until they were shut down in the 1950s by a newly empowered opposition at the end of Turkey's single party rule.[9]

[8]That organization was called *Türk Ocakları* (Turkish Hearths). It was an identity revival organization focusing its publications on culture and language and organizing performances and literary clubs with the intent to raise awareness around Turkish national identity. By the time it lost its non-political character and was merged into the ruling party of Turkey in 1931, it had 140 branch offices across the country. These pre-existing offices of *Türk Ocakları* were transferred to *halkevleri* (Landau 1995).

[9]The *halkevleri* that have resumed operation in Turkey today have no direct association with this old

Third, we include a large number of control variables in our model so that the results account for a number of potential alternative pathways further ensuring that the exclusion restriction is satisfied. Since we expect *halkevleri* to lead to an overall development of associational culture in the district, and because non-Gulenist institutions might be negatively correlated with our dependent variable of Gulenist service provision, our model controls for the total amount of non-Gulenist associations. To account for *political variables* that may affect both the locations of *halkevleri* and Islamist service provision, we include the vote shares of the first Islamist party of Turkey (MSP), the ruling party AKP, and the nationalist conservative MHP. To account for *socio-economic variables*, we include a measure of conservativeness (ratio of female-to-male literacy), literacy rate, and population (log), and average nightlights density. To account for *state capacity* we include a measure of public service infrastructure. We add a number of other control variables, as explained in the previous section, as well as province fixed effects to keep broader cultural and institutional characteristics constant.

The first stage results where we look at the relationship between *halkevleri* and Islamic vote share further increase our confidence in the exclusion restriction assumption (see Appendix Table B2). Conditional on control variables, we do not find any statistically significant relationship between *halkevleri* and the Islamic vote share in 1972 or AKP vote share in 2002. Furthermore, the coefficient on *halkevleri* is negative in the model with Islamic vote share as the dependent variable. These first stage results suggest that districts with or without a *halkevleri* legacy are not statistically different in terms of their overall support for Islamist parties or movements, making this potential alternative mechanism unlikely.

Specification. We employ a two-stage least squares (2SLS) estimator using the number of *halkevleri* as an instrument. The first stage of the model can be expressed in the

institution from the early Republic.

following equation:

$$Business_d = \alpha_0 + \alpha_1 Z_d + \alpha_2 X_d + \alpha_3 \gamma_p + \epsilon_d^1 \tag{3.1}$$

As business associations usually organize at the district level, $Business_d$ is defined as a binary variable[10] that shows whether there is a Gulen-affiliated business association in the district. Z_d is the number of *halkevleri* in a given district, X_d is a vector of controls, γ_p is a vector of province dummies, and ϵ_d^1 is the error term. If one accepts the exclusion restriction, then the 2SLS estimator recovers the effect of Gulenist business associations on Gulenist service provision, holding all else equal. For the second stage, we estimate:

$$Education_d = \beta_0 + \beta_1 \widehat{Business}_d + \beta_2 X_d + \beta_3 \gamma_p + \epsilon_d^2 \tag{3.2}$$

where $Education_d$ is the number of Gulen-affiliated schools, dorms, or tutoring centers (per 10k persons) in the district d. In the alternative specification, it is defined as the proportion of Gulenist schools, dorms, or tutoring centers to all non-public schools, dorms, or tutoring centers in the district. $\widehat{Business}_d$ is the fitted values from the first stage. Our coefficient of interest is β_1, which, assuming the exclusion restriction holds, is the effect of having a Gulen-affiliated business association in the district on the number or percentage of Gulen-affiliated educational institutions.

Findings. Table 3.2 reports results from 2SLS-IV tests with province fixed effects and the full set of control variables. Columns 1-3 show results from the specification where the dependent variable is measured by the proportion of Gulenist education institutions to all non-public education institutions, whereas in Columns 4-6, the dependent variable is measured by the number of education institutions (per 10k persons). Each of the columns in the table show the findings for a different service provision indicator.

[10]Results remain consistent when it is defined as a continuous variable. See Appendix Table B4.

The full set of controls, including non-Gulenist associations, are included in all models to meet the exclusion restriction assumption. The standard errors are reported in the parentheses and account for both heteroskedasticity and intra-province clustering. The full table is presented in Appendix Table B3.

Table 3.2: Islamist Business Associations and Islamist Education Institutions, 2SLS Design

	Number (per 10k)			Percentage		
	Schools	Dorms	Tutoring c.	Schools	Dorms	Tutoring c.
Affilated assoc. (binary)	50.366***	41.275***	8.371	0.206***	0.795***	0.059
	(11.268)	(14.106)	(6.672)	(0.078)	(0.304)	(0.044)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
First Stage F statistic	30.56	30.56	30.56	29.89	30.07	29.21
Observations	969	969	969	969	969	969

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

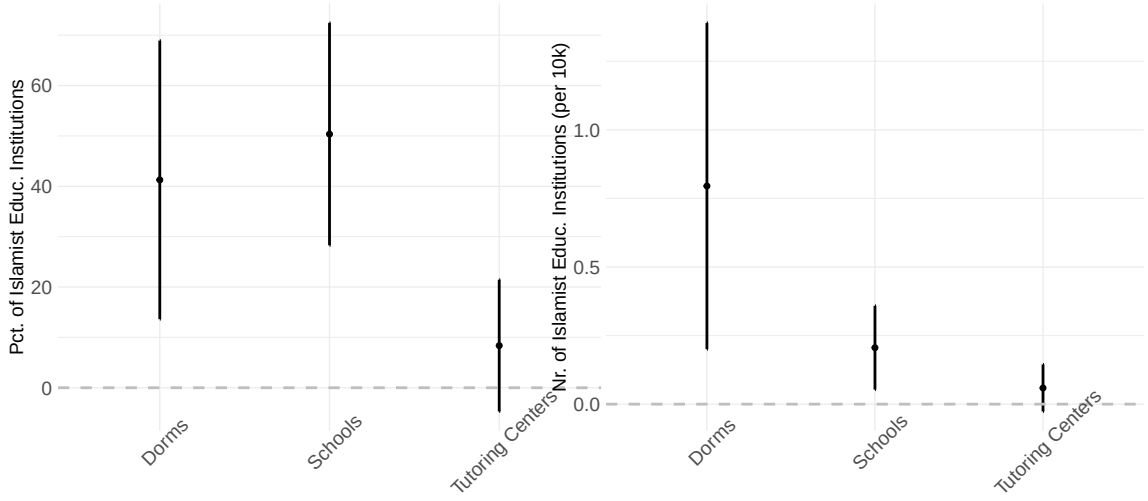


Figure 3-5: Business Associations and Islamist Service Provision in Percentage (Left) and in Numbers (Right)

Note: Errorbars reflect estimated effects and 95% confidence intervals.

The F-statistics of the first stage regression for weak instruments are greater than the critical value, indicating that the instrument strongly predicts the endogenous variable. The 2SLS test therefore does not suffer from a weak instrument. The findings show that

Gulenist business associations lead to a substantively and statistically significant increase in Gulenist service provision. Holding all else equal, whether the district has a Gulen-affiliated business association or not increases the proportion of Gulen-affiliated schools by 50.4 percentage points, dorms by 41.3 percentage points,[11] and tutoring centers by 8.371 percentage points. In numbers (per 10k persons), the increase is around 0.21 in schools and 0.8 in dorms. For all but one of the dependent variable indicators, the statistical significance holds at the 99% confidence level. For tutoring centers, the p-value is above 0.1, which is not surprising considering that a wide range of secular parents also chose to send their kids to Gulen-affiliated tutoring centers prior to them taking their standardized tests, because of their high placement records, which in turn became an important source of profit for the movement. In other words, not only were tutoring centers less dependent on local resources, but they also generated their own resources (Eroler 2019).

To put these numbers into perspective, in a district with the median level of population (30,000), the presence of a Gulen-affiliated business association increased the number of schools by around 0.61 units (where the sample mean is 1). The increase is over 2.35 for dorms (where the sample mean is 0.86), and while statistically insignificant, 0.17 for tutoring centers (where the sample mean is 0.4). These numbers capture the increase we see in a given educational institution in a district with the median level of population when moving from zero to one in the binary independent variable.

These findings are not surprising as local business networks provide two essential resources to Islamist political movements that enhance their service provision *capacity*: financial resources and elite networks, particularly their networks within the bureaucracy. While the connection between business associations and financial capital is obvious, one would need to see evidence of whether business associations are in fact likely to lead to increased presence within the local bureaucracy. Therefore, in addition to the main

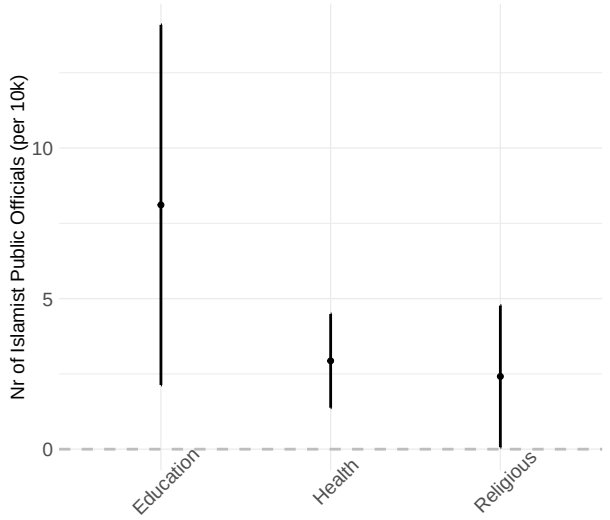
[11]Note that increases in the number of Gulenist education institutions lead to substantial changes in the proportion, as the average number of non-state schools and dorms is around 1 and 0.86 per district.

Table 3.3: Islamist Business Associations and Islamist Bureaucrats, 2SLS Design

	Number (per 10k)		
	(1)	(2)	(3)
Affilated assoc. (binary)	8.111***	2.933***	2.416**
	(3.050)	(0.794)	(1.200)
Controls	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
First Stage F statistic	18.67	18.67	18.67
Observations	969	969	969

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01.

Figure 3-7: Islamist Business Associations and Islamist Public Officials



Note: Errorbars reflect estimated effects and 95% confidence intervals.

evidence that business associations increase the amount of services delivered, we also demonstrate the effect of Islamist business associations on the Islamist network within the local bureaucracy.

Affiliated bureaucrats can substantially facilitate the foundation and expansion of non-state education institutions founded by Gulenists, because in Turkey, as in many other countries, non-state education institutions are under the strict control of the na-

tional Ministry of Education, which monitors non-state education institutions through its directorates at the province and district level. As stated by the relevant law,[12] non-state education institutions must get the Ministry's permission and approval at every stage of the service delivery process, including but not limited to the approval of the location and infrastructure of educational facilities, the number and qualifications of education staff recruited, and the educational curricula the school pursues. Therefore, bureaucrats affiliated with the movement provide it with great leverage in service delivery and immensely enhance its service provision capacity.

To see if Islamist business networks influence the bureaucratic dimension of Islamist service provision capacity through their elite networks, we estimate the effect of business associations on the number of Gulen-affiliated public officials in the health, education, and religious sectors. We include the religious sector in our analysis as an additional robustness check since services provided in mosques—used by the local population on a daily basis—are also provided by public officials appointed by the Turkish state. For estimation, we replace the dependent variable measure in equation (2), *Education*, with the *Bureaucrat* measure, which is simply the number of Gulen affiliated bureaucrats in a given sector per ten thousand residents, as per the lists of purged bureaucrats. Figure 3-7 and Table 3.3 show that Gulenist business involvement leads to a substantively and statistically significant increase in the amount of Gulen-affiliated bureaucrats. In a district with the median level of population (30,000), whether the district has a Gulen-affiliated business association increases the number of affiliated bureaucrats in the education, health, and religious sectors by 23.97 units, 8.7 units, and 7.1 units, respectively. The full results are presented in Appendix Table B5. These findings suggest that, as expected, business elite networks help Islamist movements increase their control over key service sectors in the bureaucracy, thereby leading to higher capacity for service delivery.

[12]The most recent law on non-state educational institutions, numbered 5580, was published in the Official Gazette No. 26434, on 14 February 2007.

3.5.2 Robustness

This section shows that our findings remain consistent when we use a panel data design and when we exclude the period after 2002, the year in which Erdogan's ruling party, the AKP, came to power. Restricting our sample to the period prior to AKP would lead further credence to our findings as with AKP, Turkey started to be ruled for the first time by an Islamist single-party government, which may have facilitated Islamist service provision due to AKP's links with Islamist political movements. In the panel data design, we also look at the effect of an alternative variable, Gulen-affiliated endowments, on Gulenist educational institutions, to validate that our findings do not derive from spurious correlations between Gulenist institutions. We find no evidence that Gulen-affiliated endowments lead to an increase in the number of Gulen-affiliated schools, further strengthening our confidence in the findings.

Since the validity of the IV assumption is by construction not fully testable, we test whether our findings are robust to a panel data design using the indicators for which such data is available. The panel data design increases the causal leverage of our findings by adding year and district-level fixed effects to the model, allowing us to isolate any heterogeneity caused by unobserved district-level factors or any other time-invariant or slowly moving independent variables such as ethnic composition or religiosity. We use the following fixed effects specification:

$$Education_{dt} = \beta_1 Business_{dt} + \beta_2 Endowment_{dt} + X'_{dt}\gamma + \lambda_d + \tau_t + \epsilon_{dt} \tag{3.3}$$

where $Education_{dt}$ denotes the number of Gulen-affiliated schools (per 10k persons) in district d and year t, $Business_{dt}$ is a binary variable that shows whether there is a Gulen-affiliated business association in the district, λ_d is the district dummy, and ϵ_{dt} is the error term. X_{dt} is a vector of time-varying covariates: literacy rate; log population; the conservativeness measure, the ratio of female illiteracy to male illiteracy; the total

number of endowments in district d (per 10k persons), and public service infrastructure. To test the effect of an additional 'placebo' variable, the model also includes a binary variable that shows whether there is any Gulen-affiliated endowments ($Endowment_{dt}$) in the district. More details about these variables can be found in Section 3.4. We present the relevant summary statistics in Appendix Table B6.

Given the unavailability of over-time data for most dependent variable indicators, Islamist service provision is measured only by one indicator here, the one most characteristically linked to the Gulen Movement: Gulen-affiliated schools. Our data for the panel data design consist of two periods (1984 and 2000) in the specification that excludes the AKP period and three periods (1984, 2000, and 2016) in the alternative specification. Thus, the model examines how much of the over-time difference of Gulenist service provision is explained by the change in Gulen-affiliated business associations or other covariates.

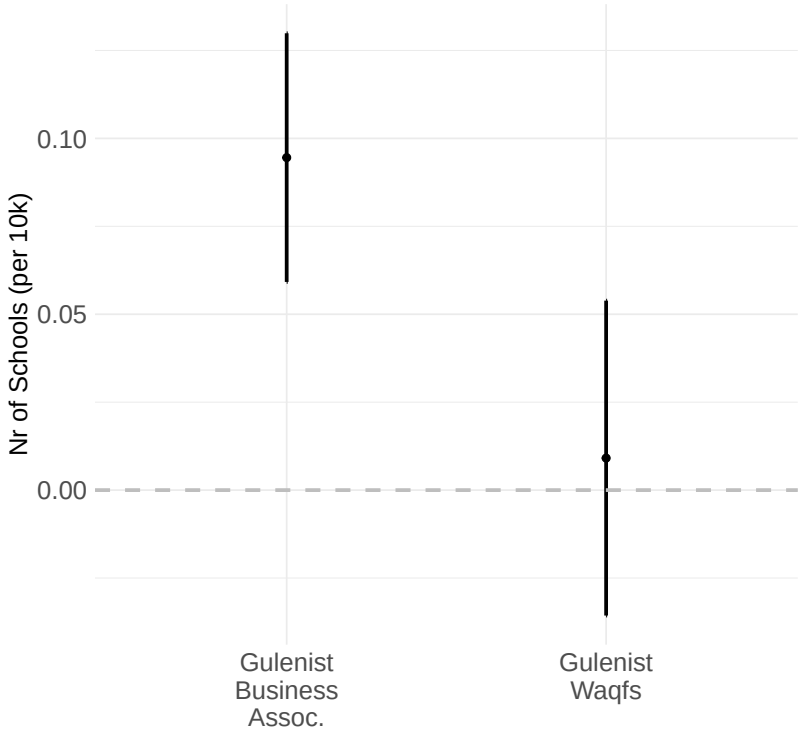
Table 3.4: Islamist Business Associations, Public Service Infrastructure, and Service Provision, Panel Design Results

	Dependent variable:							
	Affiliated schools (per 10k)							
	Excluding AKP Period				Including AKP Period			
	Full Sample		Matched		Full Sample		Matched	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affilated assoc. (binary)	0.105***	0.107***	0.072**	0.074**	0.095***	0.095***	0.062***	0.061***
	(0.031)	(0.032)	(0.034)	(0.034)	(0.018)	(0.018)	(0.022)	(0.023)
Public service infrastructure		0.001		0.011***		0.002**		0.008**
		(0.001)		(0.004)		(0.001)		(0.004)
Affilated endowment (binary)	0.016	0.013	−0.005	−0.015	0.009	0.008	−0.008	−0.013
	(0.023)	(0.023)	(0.025)	(0.026)	(0.023)	(0.023)	(0.023)	(0.024)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,288	1,268	446	439	1,932	1,912	669	662
R^2	0.123	0.127	0.612	0.625	0.260	0.261	0.724	0.727

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Results from this panel data analysis appear in Table 3.4. The full results are presented in Appendix Table B7. The results lend strong support to our findings in the

Figure 3-8: Effect of Gulen-affiliated Business Associations and Alternative Variables on Gulen-affiliated Schools



Note: Errorbars reflect estimated effects and 95% confidence intervals.

IV design. Columns 1 and 5 show the estimates for two and three time periods, respectively. Conditioning on district fixed effects, as well as time-varying covariates, our estimates indicate an around 0.95–0.105 unit increase in the number of Gulen-affiliated schools (per 10k persons) in districts with a Gulen-affiliated business association. This corresponds to a 0.5 standard deviation increase in the number of schools. The estimates are statistically significant at the 99% confidence level, and the effect size is virtually the same across the two different samples.

Columns 3 and 7 show estimates from the same analysis using a matched sample for which balance between districts with and without Gulen-affiliated business associations is more likely to hold. Using a genetic matching algorithm (Diamond and Sekhon 2013), we match all districts that were "treated" as of 1984 to districts untreated during that

period on a number of pre-treatment covariates, including population, literacy rate, land area, Islamist vote share, and conservativeness. The coefficient slightly decreases in magnitude within this subset, but remains statistically and substantively significant. This time our estimates indicate an approximately 0.062–0.072 unit increase in the number of Gulen-affiliated schools (per 10k persons) in districts with a Gulen-affiliated business association. This corresponds to a 0.33 standard deviation increase in the number of schools and remains consistent across the two different samples. Overall, the panel design findings reinforce the idea that to understand the success of Islamist service provision in this context, one needs to look at associational mobilization among local business elites.

The panel data test also further alleviates concerns about potential omitted political variables. It might be argued that conservative incumbent parties encourage service provision by religious groups (Meyersson 2017). This is crucial in the Turkish context because a conservative party, AKP, has been ruling the country—including the whole education sector—since 2002. By extension, this could have resulted in a stronger presence of Gulen-affiliated business associations and education institutions in AKP strongholds, at least until the clashes between the Gulen Movement and the incumbent party started in 2013 (Gumuscu 2016). While the IV models already account for this political variable by including AKP vote share as a control variable in the model, the panel data design further reinforces our argument by showing that the findings hold and remain the same even when the AKP period is excluded altogether.

One might still wonder whether there is a time-varying omitted variable that is not being accounted for in the panel data design. Such an omitted variable may lead to a simultaneous increase in all the different types of Gulenist institutions. This would imply that the coefficient on alternative Gulen-affiliated institutions, such as *waqf* endowments, should be significant and positive as well. To address this concern, we present evidence in Figure 3-8 that the coefficient on Gulen-affiliated endowments is not statistically sig-

nificant. To further address concerns of endogeneity, we also estimate a placebo regression model where lead values (values in time $t+1$) are used to predict current outcomes (outcomes in time t) (Appendix Table B8). We do not find a significant effect in either of the subsets of these placebo regressions, lending further support to our findings.

3.6 Alternative Hypothesis: Low State Capacity

While our findings confirm the importance of associational mobilization by local business elites in Islamist service provision, we also examine whether a second factor, low state capacity, is at play. Not only the literature on rebel groups (Jalali 2006; Koonings and Kruijt 2004), but also accounts on Islamist service provision (Berman 2003; Eseed 2018; Jawad 2009; McGlinchey 2009) attribute critical importance to the lack of state capacity in non-state service delivery. This strand of the literature suggests that state weakness in the developing world contributes to the rise of non-state service providers (Rotberg 2004) because there is both a need for services and a vacuum to fill, while there is no state capacity to curtail or police non-state action. Specifically, while non-state actors have limited appeal and power in regions where the state can provide social welfare, government incapacity or regional inequalities in public services may facilitate competition to distribute goods as a means to win over the allegiance of the local populace. This alternative hypothesis suggests that a non-state actor's opportunity to provide services increases in places with low state capacity. While we want to highlight that business association and low state capacity explanations are a priori non-rival, we find no evidence in support of the state capacity explanation.

To test this alternative hypothesis, we look at the effect of public service-related state infrastructure on Islamist service provision. We adopt a panel data design and use the same model as in equation (3). We slightly modify the model by adding a new independent variable, that of public service infrastructure. We measure public service

infrastructure by the number of public buildings serving educational purposes (per 10k persons), as per the official building census dataset. Following our approach in the main analysis, for robustness we also run the model excluding the AKP period. The model that excludes the AKP period consists of two periods and estimates how much of the difference between the 2000 and 1984-levels of Gulenist service provision is explained by the change in public service infrastructure in the same period. District-level fixed effects control for unobserved time-invariant characteristics of districts. To facilitate comparability with our main hypothesis, we also include the full set of covariates in equation (3) in our model: $Business_{dt}$, $Endowment_{dt}$, $OtherIslamist_{dt}$, literacy rate, log population, and the conservativeness measure.

Table 3.4 reports the results. Columns 2 and 6 show the estimates for two and three time periods, respectively. Column 6 and 8 show estimates from the same analysis using a matched sample described in the previous section. As these results show, we find no evidence in support of the state capacity explanation. If it were the case that Islamist service provision rose in prominence in places where state services did not meet the requisite need, with Islamist services acting as a substitute for the state, the relationship between supply of public services and non-state service provision should have been negative. We find no evidence of this. In the full sample with two time periods, the estimate is statistically insignificant. In the sample with three time periods and in the matched samples, the estimate is statistically significant and the direction of the effect is positive. Overall, the findings are not consistent across different specifications and suggest that Gulenist service provision, if anything, increased in places with more educational infrastructure, pointing out that Gulenist services may be competing with rather than substituting for public services.

One potential explanation for this finding is that a minimum level of education infrastructure may be a prerequisite for non-state service provision. Schools administered by non-state actors have to cooperate with local state actors as these private educational

institutions also have to comply with formal processes such as the official registration of the school, enrollments and transfers of students, permits for the location and infrastructure of educational facilities, approval of the number and qualifications of education staff recruited, and monitoring of the educational curricula, among others. In districts with low state capacity, it might be harder for non-state actors to fulfill and sustain these procedures. Overall, the evidence does not lend support to the hypothesis that Gulenist service provision is stronger in places with low state capacity. More importantly, the effect of business associations remains statistically significant, and the effect size does not change, lending further credence to our main argument.

Geographical Heterogeneity. An explanation for why low state capacity does not increase Islamist service provision might be that districts with low public service supply may be those where citizens prefer to meet their needs through other private services. In addition, regions with low public service supply might also be places where Gulenists had difficulty in establishing themselves, such as the provinces where the Kurdish political movement and non-state actors (e.g., the Kurdish insurgency group PKK) are powerful. To investigate these alternative explanations, we look at the subnational heterogeneity in the effect of state capacity on Gulenist service provision. Moving to the subnational level enables us to focus on the differences between developed and less-developed regions, and between provinces with strong Kurdish non-state actors and others.

We use the same panel design described above, with the addition of interaction terms that enable us to observe any potential heterogeneous effect. To see whether Gulenist service provision responds to low state capacity in less developed regions, we identify the least developed 27 provinces (one-third of the country) based on province-level night lights measures (Taşöz Düşündere 2019). If people's preference for private services is what underlies the null finding, then, at least in these underdeveloped provinces, we

Table 3.5: Public Service Infrastructure and Service Provision by Regional Characteristics, Panel Design Results

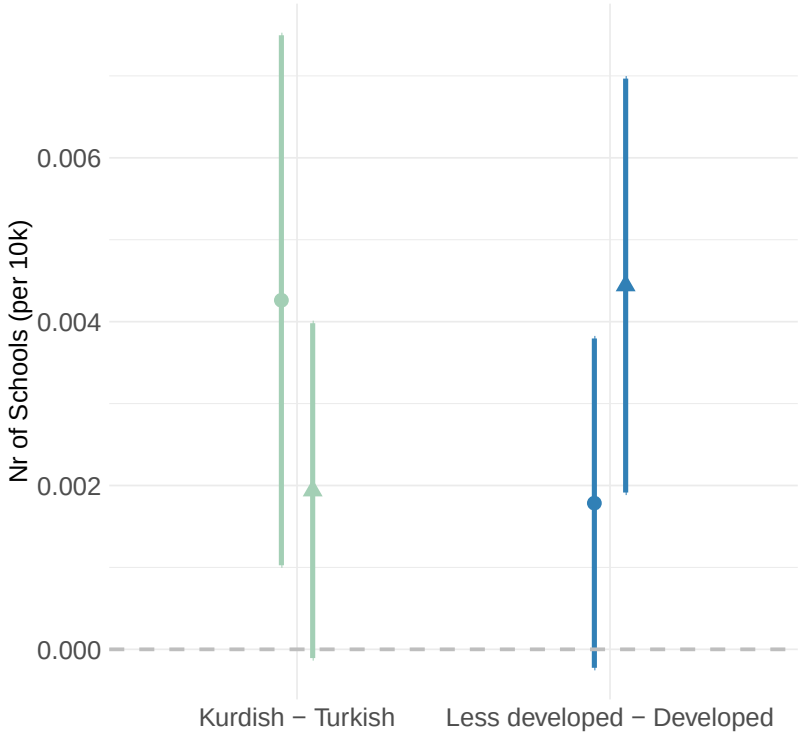
	Dependent variable:			
	Affiliated schools (per 10k)			
	Full Sample	Matched	Full Sample	Matched
	(1)	(2)	(3)	(4)
Affilated assoc. (binary)	0.094***	0.060***	0.095***	0.061***
	(0.018)	(0.023)	(0.018)	(0.023)
Public service infrastructure	0.004***	0.011*	0.002*	0.008**
	(0.001)	(0.007)	(0.001)	(0.004)
Affilated endowment (binary)	0.007	−0.014	0.008	−0.012
	(0.023)	(0.024)	(0.023)	(0.024)
Public service infra. x Development	−0.003**	−0.003		
	(0.001)	(0.006)		
Public service infra. x Kurdish			0.002	−0.007
			(0.002)	(0.009)
Controls	No	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Observations	1,912	662	1,912	662
R^2	0.262	0.727	0.261	0.727

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

can find a negative effect of state capacity. Results are presented in Table 3.5 and Figure 3-9. When the state capacity variable is interacted with the development dummy, the interaction term turns out to be statistically significant but negative in the full sample (Column 1 of Table 3.5) and statistically insignificant in the matched sample (Column 2 of Table 3.5) and does not alter the coefficient on the main effect (See Appendix Table B9 for the full results.). In other words, even in the least developed regions of Turkey, low state capacity does not lead to higher levels of Gulenist service provision.

In places where the Kurdish political movement is strong, traditional elites such as tribal leaders as well as non-state actors affiliated with the Kurdish movement might

Figure 3-9: Public Service Infrastructure and Islamist Service Provision.



Note: Errorbars reflect estimated effects and 95% confidence intervals.

pose a rival to the Gulen Movement. To see whether it is harder for Gulenist service provision to respond to low state capacity in these localities, we identify the provinces where the Kurdish Party (HDP, or *Halkların Demokratik Partisi* - Peoples' Democratic Party) wins at least one-quarter of votes, based on the 2015 general elections data. We code these provinces as provinces where the Kurdish movement and affiliated organizations are an alternative and strong non-state actor. If their presence in these regions conditions the effect of state capacity on Gulenist service provision, then we should find a negative, and perhaps significant, effect in other provinces. Nonetheless, when the state capacity variable is interacted with the Kurdish movement dummy, the main estimate, the effect of state capacity on Gulenist service provision, is still positive, both in the full sample and in the matched sample (Columns 3 and 4 of Table 3.5), contrary to what the low state capacity hypothesis suggests. Overall, these findings further reinforce

our argument that the ability of an Islamist movement such as the Gulen Movement to provide social services is limited by its access to resources rather than just by external opportunities and structural variables related to low state capacity.

3.7 Discussion

Our analysis has examined the factors that enable Islamist service provision by taking a close look at original data on the Gulen Movement in Turkey. The information uncovered in the aftermath of the July 2016 failed coup attempt in Turkey shows that the Gulen Movement's control over social services, though notable, showed significant subnational variation. We find strong evidence that this variation is a function of the associational involvement of Islamist local business elites. We also find that historical social organizations such as *halkevleri* have shaped the geographic distribution of contemporary business networks.

To see whether available qualitative evidence validates our empirical findings, we draw on existing sources on the Gulen Movement that enable us to track the causal relationship between business associations and Gulenist service provision more closely. To this end, we examined the bulk of available qualitative writings on the movement that predated the July 2016 coup to see what references, if any, they made to the mechanisms and channels behind the movement's service provision. The international literature largely casts the growth and organizational aspects of the movement in a positive light and underplay concerns of religious fundamentalism or any potential aspirations for a political takeover. The Turkish literature, on the other hand, is more polarized with works either in strong support or staunchly ideologically opposed to the movement. Irrespective of the writers' positive or negative predisposition towards the Gulen Movement, these qualitative works make clear and extensive references to the central role of business associations and business people on the movement's service-related activities.

The Gulen Movement expanded against a backdrop of free market liberalism and supported a free market economy as a way to produce wealth (Hendrick 2013). As such, it created a space for capitalism to co-exist with religious piety, where businessmen could be observant while also profiting from a liberal economic system. Some have gone as far as to compare the role of the Gulen Movement in mobilizing pious businessmen to the role Protestantism played in entrepreneurship in the Christian world (Piricky 1999). Thus, the new class of businessmen and entrepreneurs that emerged with Turkey's economic liberalization in the 1980s found appeal in the movement's encouragement of private initiative with a sense of social responsibility, specifically around education.

The Gulen Movement used pre-existing religious conversation circles, known as *sohbet*, as a mobilization tool to connect business-minded religious people. Through *sohbet*, the movement brought together business people from related sectors, thereby allowing trade and other business transactions to take place. *Sohbet* meetings did not only help local business elites to establish business relationships but also provided them with a support network: "Gulen Movement actors collect, invest, and produce value via a network of mutually cooperative enterprises that subsidize startups by relying on 'friendship networks' for needed resources. Once a school, company, or institution is self-sustaining, donation funds are no longer required, and market forces can take over"(Hendrick 2013, p. 145). In return, they were expected to donate money for the cause, a sort of premium for benefiting from the movement's networks. As Gulen himself states in his biography, bringing business people together was a particularly effective way of amplifying the movement's resources because this way, "business people were incentivizing each other." (Gülen and Erdoğan 1995, p. 130).

During *sohbet* gatherings, participants discussed a wide range of topics including, but not limited to, religious issues, economics, or trade. The nature of collective decision making that informed the function of *sohbet* was known as *istişare* and required that people take responsibility to carry out the prescribed projects, allowing these religious

circles to operate horizontally without rigid hierarchies (Ebaugh and Koc 2007, p. 549). The following quote offers some examples on how recruitment and engagement took place through *sohbet* and specifically through business associations: "For example, in 1985 an imam came to a local mosque and asked the businessmen there for help to open a school for children in the city. After he left, the men gathered together twice each week to discuss the matter. The group made a commitment to assist with the building of the school. Some gave money, others solicited pledges of financial support from other businessmen in the city, and others provided goods and services such as concrete, desks, and even volunteer labor. Within a short time, Samanyolu College opened its doors to the first high school class." (Ebaugh 2010, p. 53).

Business associations provided an institutionalized environment to sustain such meetings and, due to their formal and visible status, enabled prospective members that want to expand their local, or even global, business networks. Through membership, associations facilitated the tracking of member contributions, financial or other. Thus, the more institutionalized Gulen-affiliated business associations grew, the easier it was for the movement's administrators to collect funds intended towards welfare and service provision. As described by a merchant member of the movement, "being in the same type of business means that we have a strong basis for coming together and understanding one another. We also network and refer customers among us. Then we have a basis for discussing projects that need doing in our community and how we can help with these projects." The rest of the quote demonstrates that serving their own community further motivated local business elites to contribute to the welfare provision process: "We also see the results of our efforts which encourage us to be even more generous." (Ebaugh 2010, p. 49).

The movement was well aware of the importance of schools to reach people and spread its ideas (Altınoğlu 1999; Ergil 2013). In addition to schools, the movement also provided accommodations and dormitories for students. Dormitories functioned

as centers to communicate the religious lessons and teachings of Fethullah Gulen (Agai 2007). These investments required material resources and connections through local networks. As such, the resources of local business elites mobilized through local circles and associations played a crucial role. This is how a onetime president of the Gulenist business confederation TUSKON described this dynamic: "The schools don't belong to *Hocaefendi* [a courtesy title given to Fethullah Gulen by members], they belong to Turkish entrepreneurs. Dormitories belong to people that live in those districts. The rent contract, buildings, restoration, painting are done by businessmen, who then join their administration. The owner of these places are the people."[13] Students who were beneficiaries of these services would then continue the movement's work. As described by Ebaugh (2010, p. 29): "Armed with a good education, [the students within the local business-supported schools] became merchants, businessmen and professionals in their communities and began to join together to provide financial support to keep the boarding houses and consequently other service projects going."

3.8 Conclusion and Limitations

Non-state groups providing social services to gain increased political power are seen as undermining democracy and impeding overall public welfare. Existing works in Muslim contexts have focused on the distributional strategies of service provision among Islamist movements, i.e., when they *want* to provide public goods and services, leaving the question of when they *can* distribute them largely unanswered. In addition, scholarly accounts on Islamist religious groups and social service provision generally emphasize organizations that are defined by sect and compete in the electoral arena, restricting that literature's scope to groups contained by a particular geography.

In this paper, we empirically focus on the Gulen Movement in Turkey, a membership-

[13] Ayşegul Akyarlı Guven and Kerim Karakaya, "Tuskon: 'Sizi Sileriz' Tehdidi Aldık." Wall Street Journal, February 28, 2014. https://www.wsj.com/articles/tuskon-sizi-sileriz-tehdidi-aldk-1393596182.

based religious organization that, at least nominally, emphasized charity motivations to gain increased capacity for service delivery. Such movements become integrated into government structures and the bureaucracy by recruiting members rather than by running in elections. This case allowed us to shift the focus from electoral mobilization to alternate enabling factors, revealing that the dominance of Islamist groups in social services also depends on their access to resources (specifically through associational mobilization by local business elites), as well as on pre-existing institutional legacies of state-based associations. Furthermore, we find that low state capacity and public service supply did not lead to more Islamist service provision in this case. We confirm our results by examining regional variations, focusing on the differences between places with strong Kurdish non-state actors and others, as well as on the differences between developed and less developed regions in Turkey.

Two potential limitations of our work relate to measurement and generality. Our measure of Gulenist service provision relies on government decrees of schools, dorms, tutoring centers, and civil servants in various sectors purged in the aftermath of the 2016 failed coup attempt. Although the information on whether an institution is Gulenist is relatively clear and largely uncontested in the case of schools, dorms, and tutoring centers, government purges may still include bureaucrats that were not conclusively affiliated with the movement. As it is not our place or intent to adjudicate individual membership, we cannot presume the full accuracy of affiliation of the individuals on these lists. Therefore, we present results for civil servants as additional evidence to that of purged and closed institutions. We are nevertheless confident in the veracity of our findings because there is no reason to expect that the accuracy of these lists correlates with our independent variable, business associations, for which the data comes from the official confederation website. Furthermore, if purging lists also include non-Gulenist institutions, this would most likely bias our estimates downwards as they would inflate the numbers in places with stronger leftist or Kurdish presence than Gulenist presence.

In future studies, and where the data is available, the role of business actors in service provision can be further studied by looking at underlying networks among individuals involved in business associations and service provision.

With regard to external validity, we recognize that a tradition particular to the Turkish state may have enabled the creation of an associational culture through institutions such as *halkevleri* and the spread of grievances among Islamist business elites that may not be easily found elsewhere. Yet, the literature provides us with abundant evidence that the impact of historical institutions on associational involvement is not limited to a single country or to 20th-century institutions established by modern nation-states: earlier political (Putnam *et al.* 1994) and colonial institutions (Noh 2018) can shape levels of associational involvement today. Our paper suggests that to the extent that local business elites are organized around associations, the amount of resources that Islamist movements can mobilize at the local level will increase. As such, our findings have important implications for Islamist political movements that emphasize local service provision such as Hezbollah, the Muslim Brotherhood, or Hamas, regardless of whether they pursue electoral victories, member recruitment, or territorial expansion. Scholars of religion and politics can also consider whether and how these findings can shed light on non-Muslim religious movements insofar as they emphasize service provision to win the hearts and minds of local constituents.

Chapter 4

Members of the Same Club?: Subnational Variations in Electoral Returns to Public Goods

Abstract

Theories of democratic governance assume that citizens reward or punish politicians for their performance in providing public services. This study expands the existing debate by shifting the focus to subnational heterogeneities in electoral returns to government performance. I introduce a theory suggesting that electoral returns to local public goods will increase with their excludability, i.e., the degree to which they are used only by the local population, because due to their excludability, the local population will see them as 'club goods' and as a signal of favoritism. However, this perception of favoritism and club good effect is less likely to be seen when political, ethnic, or religious cleavages between the government and the local electorate exist. Using a comprehensive panel dataset that contains information on all public education and health investments in Turkey since the 1990s and geocoded mobile call data that shows residents' mobility patterns, this study finds that electoral returns to health and education investments are higher when public goods have a club good nature. However, excludability does not translate to higher reciprocity in secular districts, where a perception of favoritism is less likely to develop due to the cleavages with the Islamist incumbent party, AKP. By revealing that electoral returns to government investments are conditional on characteristics of community structure and composition of beneficiaries, this paper advances the literatures on local public services and electoral accountability.

4.1 Introduction

Elections are key to holding politicians accountable and rewarding or punishing them for their performance (Barro 1973; Fearon 1999; Ferejohn 1986; Key 1966). An extensive literature of democratic governance supports the view that electoral accountability has a positive influence on government performance (Besley and Burgess 2002; Lake and Baum 2001; Stasavage 2005). But to what extent do citizens really reward politicians for the services they provide?[1] What local characteristics condition electoral returns to goods and services provided by the state? This paper intends to answer these questions with a focus on health and education services, two key service areas with direct implications on social welfare.

Recent scholarship on the question of whether public goods provision, in line with retrospective voting theories, increases incumbent support has found mixed results (Harding 2015; Harding and Stasavage 2014; Kadt and Lieberman 2020). This paper expands upon existing research by arguing that electoral returns to public goods are not uniform across a country; rather, they are contingent on political geography and the ethnic or religious composition of the local electorate. Drawing on insights from instrumental voting theories (Chandra 2007b), I introduce an argument proposing that electoral returns to local public goods will increase with their *excludability*, i.e., the degree to which they are used only by the local population, because when public goods are excludable, the local population will see them as 'club goods' and as a signal of favoritism. However, this club good effect, i.e., the perception of favoritism and higher electoral returns among the local electorate, is less likely to be seen in districts in which there are political, ethnic, or religious cleavages between the incumbent government and local electorate, as in these districts a perception of favoritism is less likely to develop.

[1] In this paper, the term incumbent government refers to the central government in unitary systems and federal government in countries with a decentralized system. Also, the terms "public investments," "public services," and "public goods" will be used interchangeably to refer to the goods provided by the central government at the local level.

I test this argument using a comprehensive panel dataset that contains information on all infrastructural education and health investments made by the central government in Turkey since the 1990s and a difference-in-differences specification. The study focuses on the health and education sectors, the two most salient public services provided by the central government in the Turkish context. To measure the excludability of a district where a given public health or education investment is made, I draw on geocoded mobile call detail records (CDRs) and compute the percentage of visitors in a district over a year. These CDRs contain information on over 108,000,000 mobile phone calls between roughly 2,700,000 randomly sampled individual users and show the geolocation of each call (through the geolocation of antennas). Using the information in these records, I determine each user's home antenna and their mobility, and thereby, the percentage of users in a given district who are visitors. This continuous mobility measure, i.e., the share of residents among all visitors in a district, serves as a proxy for the excludability of local public investments in the district, where a high resident percentage indicates high excludability.

The findings show that electoral returns to public goods increase with the excludability of investments. However, this increase is lower, or sometimes statistically insignificant, in secular districts, where residents are unlikely to view local public investments made by the Islamist incumbent party, AKP, as a signal of favoritism. Looking at the marginal effects, health investments, when compared to education investments, have a particularly substantive impact on the vote share of the incumbent party if they are excludable. The study also assesses the robustness of the findings and potential alternative explanations as to why there might be higher electoral returns in districts with high excludability, such as better access to public services, preexisting supply of public goods, targeting, visibility, and partisanship. Using individual-level survey data, I provide suggestive evidence that accessibility to public services does not differ between high- and low-excludability areas. Second, if the supply of public goods is relatively

low in certain types of districts such as rural ones (Bates 1981), which may simultaneously have high excludability, citizens in those districts may be more in need and may reward the incumbent more for a given amount of public investment. Nevertheless, I do not find supportive evidence for this relationship between preexisting supply and electoral returns. Nor do partisanship or visibility appear to have a significant effect on the electoral returns to these public investments. In addition, I examine whether there is any potential reverse causality and targeting to districts where the incumbent government can better mobilize voters but find no evidence for that. Finally, I also examine the trends of within-district changes in Islamic or incumbent vote shares between high- and low-investment, as well as high- and low-excludability districts, with a focus on the pretreatment period, pre-2002, the year in which the current incumbent party, Erdogan's AKP, came to power. I find no evidence for the violation of the parallel trends assumption.

A crucial theoretical contribution of this study is that electoral accountability is not a uniform feature of democratic politics, but rather it is conditioned by the composition of its beneficiaries, which is itself shaped by the political geography, the ethnic composition, and the religious composition of the district. By revealing the systematic relationships between these factors and electoral rewards, this study reveals an alternative source of heterogeneity in citizens' evaluations on government performance in addition to informational asymmetries (Ferraz and Finan 2008), personal partisan biases (Bartels 2002; Evans and Pickup 2010), and personal ethnic biases (Adida *et al.* 2017; Carlson 2015). The findings of this study are especially important for understanding null findings in cases in which conditioning factors may mask electoral rewarding. To my knowledge, this is also the first study that focuses on systematic subnational heterogeneities in electoral returns to local public services. By focusing on the question of *in which settings* citizens reward local public services instead of *whether*, it extends the existing literature on service delivery and electoral accountability (Harding 2015; Harding and Stasavage

2014; Kadt and Lieberman 2020). The findings also suggest that electoral districts where public goods have a club good nature, such as rural areas, may reward the incumbent more for local public investments. Thus, building upon existing studies of distributive politics, this study confirms that electorates may respond to incumbents' geographical targeting (Magaloni *et al.* 2007), but extends this view by showing that voters do not reward the investments made by incumbents in all local contexts. Conditional on the level of information of incumbent governments about this heterogeneity in electoral returns, their political monopoly over public resources can provide them with a considerable advantage when it comes to preserving its power (Medina and Stokes 2007).

The next section surveys the literature and theory on public goods provision and electoral behavior. The following sections discuss the empirical strategy, data, results, and robustness checks, respectively. Next, I provide additional analyses on alternative explanations. I conclude with a brief discussion of the findings.

4.2 Background and Theory

The relationship between elections and public services is an extensively studied area. Seeing electoral competition as a mechanism "to hold incumbents accountable to the public" or "make policies [...] responsive to public wishes" (Ferejohn 1986), virtually all of these accounts arrive at the conclusion that electoral competition increases incumbent performance in public services. These accounts cover a wide range of contexts and empirical approaches, from studies of the role of democracy in the emergence of welfare state (Lindert 2004), to cross-country correlations between democracy and service provision (Gerring *et al.* 2012; Lake and Baum 2001). Studies centered on the developing world also point out the positive consequences of democracy and electoral competition with respect to public services (Besley and Burgess 2002; Brown 1999; Huber *et al.* 2008; Stasavage 2005), although some argue that democracy is not a necessary condition for

positive social welfare outcomes (Haggard *et al.* 2008). Overall, scholars highlight the positive effects of perceived electoral pressure on development and service provision.

The question of whether voters indeed reward incumbents for public services is of fundamental importance for democracy to generate the political accountability mechanisms that underpin public services and developmental outcomes. Classical treatments suggest that voters will respond to incumbents by evaluating their past performance and policies (Ferejohn 1986; Fiorina 1981; Key 1966). A number of studies lend support to this argument, showing that incumbents' economic performance and performance in disaster relief increase electoral outcomes (Bechtel and Hainmueller 2011; Cole *et al.* 2009; Healy and Malhotra 2013).

Surprisingly few studies assess whether government performance at the local level, particularly in service provision, which is crucial for citizens' welfare, translates to electoral returns (Harding 2015; Harding and Stasavage 2014; Kadt and Lieberman 2020). Exploiting the reduction in school fees in Kenya, Harding and Stasavage (2014) find that citizens indeed shape their voting behavior based on politicians' performance with the condition that they know who they should hold accountable. In a similar vein, using a macro-level empirical analysis, Harding (2015) reports that road provision positively affects the incumbent party's vote share in contemporary Ghana. Survey data investigating this relationship at the individual level also finds evidence for a relation between perceptions of service provision and vote intentions (Dowding and John 2008). Studies that question the premises of retrospective voting and investigate the conditions under which it operates mostly focus on sociotrophic factors, legislative performance, disaster relief, or corruption. These studies demonstrate that informational asymmetries (Ferraz and Finan 2008; Lupia *et al.* 1998), including those causing attributability problems (Duch and Stevenson 2008); cognitive fallacies (Achen and Bartels 2004; Huber *et al.* 2012); personal partisan biases (Bartels 2002; Evans and Pickup 2010; Healy *et al.* 2014); and ethnic biases (Adida *et al.* 2017; Carlson 2015) prevent voters from making correct

assessments of past performance. Some scholars even find a negative relationship between improvements in service provision and support for incumbent parties (Kadt and Lieberman 2020).[2]

This study argues that there is no reason to expect uniformity in electoral returns to public good investments, even if informational and cognitive barriers and biases are kept constant, because voting behavior is a function of not only outcomes but also perceptions of favoritism and expectations of future benefits. The argument in this study draws on instrumental ethnic voting theories in two respects (Carlson 2015; Chandra 2007a; Conroy-Krutz 2012; Ichino and Nathan 2013): in assuming that severe information constraints force voters to use their cues to decide on whom to vote for, and that voters' choices will depend on how much they believe a certain party will favor them based on these cues.

The focus of instrumental voting theories is on ethnic cues. Theories of instrumental ethnic voting contend that voters prefer ethnic voting because they tend to see coethnicity as a cue instrumental in maximizing benefits (Chandra 2007a,b). Therefore, when voters presume that a party or politician delivers benefits primarily to in-group members, they vote for the party or politician from their own ethnic group (Chandra 2007a; Ferree 2010). Using ethnicity as a cue is efficient for both sides because it is a cheap source of political information, without which it is challenging to secure such a mutual relationship. However, the instrumental ethnic voting literature assumes that, while ethnic identity is a costless source of information and gives a signal of favoritism to voters, "costless data about non-ethnic identities are not typically available." (Chandra 2007b, p.37).

Just as ethnicity can be used as costless data by voters, I argue that *local public investments made by an incumbent party are another source of costless data that can signal favoritism from the party to the local population*. This reasoning is simple: when a party makes an

[2]For a comprehensive review of retrospective voting and electoral accountability theories, see Healy *et al.* (2014) and Ashworth (2012).

investment at the local level, voters in places with high excludability are likely to believe that elected officials allocate these services to constituencies they favor, particularly in countries and contexts where incumbent parties and politicians can use discretion to allocate services at the disposal of the state (Chandra 2007b, p.44). This increase in perceived favoritism in the allocation of services increases the likelihood of the local constituency (where the investments are made and services are allocated) to vote for the incumbent, in expectation of future benefits. However, in order for these locally allocated goods and services to be perceived as a favor to their community, they need to have high excludability, i.e., used mostly or only by the local population. This is simply because if an investment or service is made for a wider population by nature, such as an airport, or due to the location, such as a hospital in downtown Ankara or Boston, there is no reason for the population residing there to develop any perception of favoritism, as it is obvious that the incumbent party or politician does not see the local population as the only or primary beneficiary of the service. On the other hand, if public goods are only or mostly utilized by local residents, it is very likely that the local electorate will believe that the party favors them. Due to the perceived favoritism from the incumbent party, voters are incentivized to vote for the incumbent, leading to higher electoral returns to local public services in electoral districts with high excludability. This argument leads to the following hypothesis:

Hypothesis 1: Electoral returns to local public goods increase with the excludability of the electoral district.

While my argument draws on existing instrumental voting theories in their emphasis on perceived favoritism and voters' need for costless data to understand whether an incumbent party favors them, it does not contradict it. As Chandra states, "ethnicity serves as a cue of favoritism in information-poor environments," and this is first and foremost due to "the impossibility of selective allocation of public services" (Chandra 2007b, p.95). An implication of this view is that when selective targeting is possible

due to the nature of the public service or location, improvements or investments in public services can act as direct signals of favoritism. On the other hand, because other information about the identities of parties and politicians, including but not limited to ethnicity, also influence the perceptions of favoritism of local populations (Carlson 2015), voters are less likely to develop this perception in electoral districts where there are ethnic, religious, or other identity-related cleavages between the incumbent government and local electorate. Therefore, the conditioning effect of excludability on vote share is less likely to be seen if the local population bears a different group identity than the incumbent party, leading to my second hypothesis.

Hypothesis 2: Excludability is less likely to increase electoral returns when there are ethnic, religious, or other identity-related cleavages between the incumbent government and local electorate.

4.3 Setting

Turkey provides a suitable testing ground for examining the impact of local public good provision on incumbent support: The use of a multi-member district electoral system in Turkey makes it hard for the incumbent government to choose where to target public goods for electoral gains and alleviates reverse causality concerns. In addition, due to its centralized governance structure and the provision of education and health services by the central government, performance in these two most important public services can directly be credited to the central government.[3] Third, because the two key welfare services, education and health care, are provided by the central government and its

[3]Turkey is subdivided into 81 provinces, each of which corresponds to one multi-member district. Below these 81 provinces sit around 970 districts. Province and district governorships involve the directorates of ministries, such as the Ministry of Health and the Ministry of Education, and are headed by province governors and district governors, who, like other local bureaucrats, are regularly appointed by the central government on the basis of organizational rules and formula. Each district governorship can thus be described as a micro model of the central government. Whereas local bureaucrats must fulfill the orders of the central government, it is illegal for them to affiliate with any political party. The public services of the central government are channeled through this strict hierarchy.

local administrators, Turkey is a setting in which the central government's performance matters most for the short-term as well as the long-term welfare of citizens. Therefore, similarly to other centralized countries (Scheiner 2005), national election results are very much shaped by Ankara's performance in providing local public goods and services.

While municipalities, which geographically sit below or at the same level as districts, also provide some local public services, the duties and responsibilities of municipal organizations are restricted to urban areas and limited to basic infrastructural services, such as water, sewage, solid waste management, and transportation. Local representatives of the central government are located in each district, meaning that the central government technically does not even need organizational support from elected municipal mayors to provide key public services. One concern in regard to attributability might be that municipalities from the incumbent party attract more public investments due to their partisan relations with the central government. For example, if mayors and the central government trade blocs of votes for pork-barrel goods, citizens may not know whom to reward or blame for an expansion or contraction of public services. In addition to the robustness checks in Section 4.7.2 that rule out this concern, the fact that Turkey has a proportional representation (PR) closed list system is of particular importance in respect to this issue: For municipal mayors, the only elected politicians at the local level in Turkey, ties with the party headquarters in Ankara are much more crucial than their individual ties with citizens. This institutional context contrasts with open-list systems in which local politicians seek to maximize pork-barrel goods to establish strong ties with citizens (Ames 1994). The centralized character of Turkey's governance structure also conditions the nature of the relationship between municipalities and Ankara. Since the central government has a virtual monopoly over public resources (Medina and Stokes 2007), trading votes with the local mayor does not help much the central government to stay in power (Scheiner 2005). The fact that the main local services that ensure voters' economic security and social well-being are provided by the central government reduces

the potential bargaining power of municipal mayors. In brief, in a centralized closed list system, municipal mayors have fewer incentives and less power to manipulate key public services.

While Turkey's political institutions make it an ideal case to test the hypotheses that are germane to issues of public good provision and incumbent support, Turkey is also an interesting case because of its political dynamics. The surprising dominance of a party established in 2002, the Justice and Development Party (AKP), in a PR system that had not witnessed a single-party government since the 50s[4] provides an invaluable laboratory environment for explaining the electoral performance of AKP. The fact that AKP has endured its majority despite the absence of preexisting partisan attachments or a complete control over the bureaucratic machine points to changes in voters' individual conditions. In line with this expectation, public opinion results emphasize the importance of public services in AKP's electoral success. The majority (41%) of AKP's constituency thinks that satisfaction with public services is the primary reason that people vote for AKP (KONDA, 2014).

Statistics concerning local public investments demonstrate that, as expected from the party's program and rhetoric, public service provision was indeed high on AKP's agenda from the very first days of its single-party government. This resulted in an enormous rise in the amount of public good investments (Figure 4-3) and citizens' satisfaction with public services (Figure 4-1). The enormous emphasis on public service in AKP's discourses and its organizational capacity linked with Islamist grassroots affiliations (Meyersson 2014) has further reinforced the party's reputation in public goods provision. Even the corruption scandals in 2013 did not alter public opinion. Although surveys fielded showed that 4.6% of AKP voters would no longer vote for AKP (IPSOS, 2014), the 2014 presidential election demonstrated that AKP's constituency did not erode at all. These political dynamics make Turkey a salient case for testing the relationship between

[4]Since the Democrat Party's victory in Turkey in the 1950s, no other party had won three subsequent elections and the majority of the parliament.

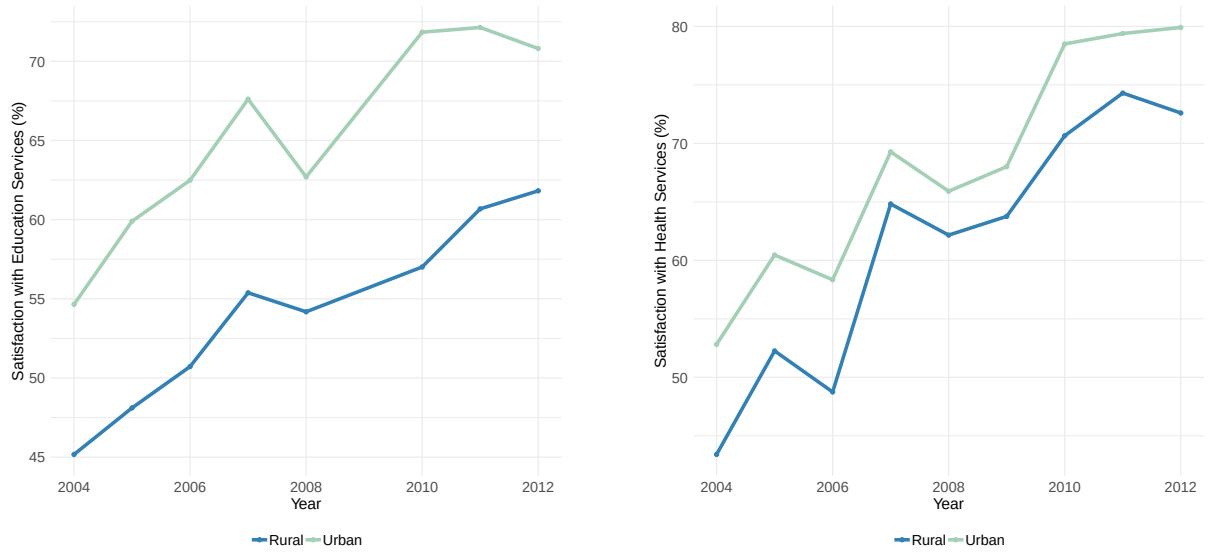


Figure 4-1: Satisfaction with Public Education and Health Services over Time

public services and electoral outcomes.

4.4 Research Design

4.4.1 Empirical Strategy

This paper uses a triple differences design, which can also be considered a difference-in-difference (DID) design with an interaction term, that looks at the effect of public good investments with different levels of excludability on electoral behavior in order to minimize potential unobserved heterogeneity among districts in a certain time period, or among time periods in a certain district. Unlike the typical DID designs, the group or treatment dummy is replaced by a continuous variable—the amount of public good investments by year t—and interacted with a second level of treatment—the excludability measure. Intuitively, the model differences out dissimilarities between high-excludability and low-excludability districts of Turkey that received public education and health investments of different amounts.

Although AKP, the incumbent party of Turkey, was founded in 2001 as a new party,

it won all the elections between 2002 and 2015 as a single party government. 2007 was an important turning point for the party, because unlike the elections in 2002, in 2007 and subsequent elections, AKP competed as the incumbent government. In other words, while in the 2002 general elections, AKP competed as a new party with no preexisting government experience and partisan ties, in and after the 2007 elections, its performance in public services (and other areas) was voted as well. Because all public good investments in the post-2002 period were made by, and can be attributed to, the single government headed by AKP, I define 2002 as the pretreatment (pre-incumbency) election and the 2007, 2011, and 2015 elections as the posttreatment (post-incumbency) elections. Using the amount of public good investments between 2002 and the election year as the continuous treatment variable, and interacting it with the continuous excludability measure, I construct the following triple differences model with multiple treatment periods:

$$y_{it} = \delta_i + \eta_t + \beta Inv_{it} + \psi Inv_{it} \times Club_i + \gamma x'_{it} + \epsilon_{it} \tag{4.1}$$

Here, y_{it} is the vote share of AKP vote share in district i in election t. Inv_{it} is the number of all the public education or health investments in district i made from 2002 until election t. In the alternative model where a binary treatment is used instead, Inv_{it} shows whether AKP made *any* investment to district i by election t. The investment variable is interacted with a cross-sectional variable, $Club_i$. The interaction enables us to see how the effect of investments varies at different levels of excludability. The parameter of interest is ψ, the coefficient on the interaction term. δ_i is a district-level fixed effect, and η_t is a period fixed effect to control for common trends. x'_i is a set of time-varying district-level characteristics. Finally, ϵ_{it} is an idiosyncratic error term. This model accounts for time-invariant district characteristics that might influence AKP vote share, such as the ethnic composition or religiosity of a district. Finally, I cluster standard errors by district.

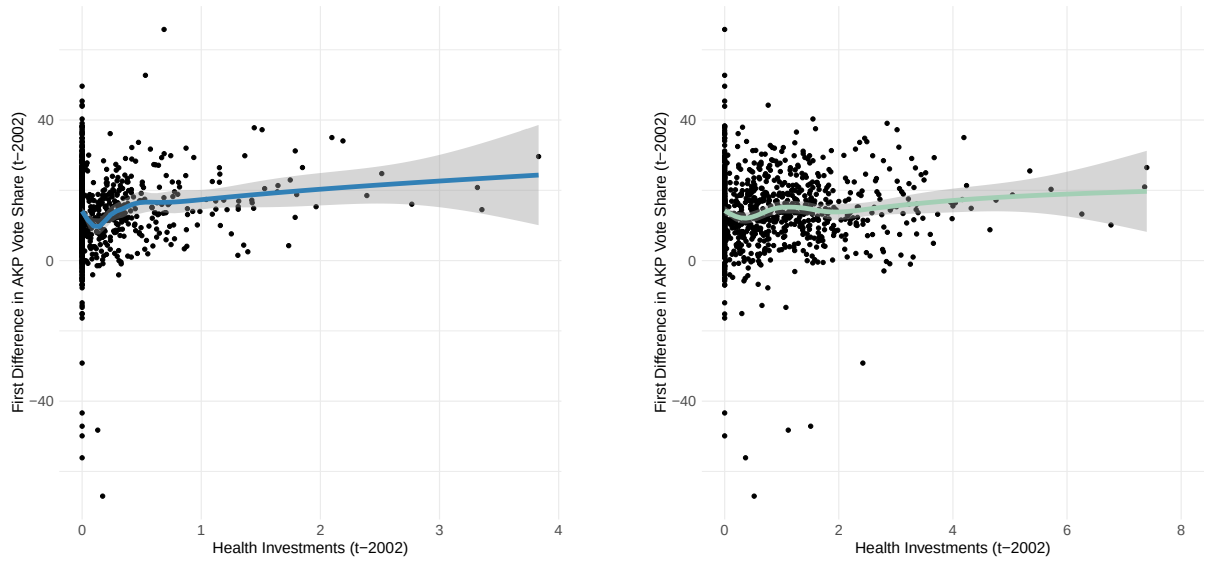


Figure 4-2: First Differences in Education and Health Investments and Vote Share

The reason that all investments between 2002 and election t are pooled is the cyclical pattern of public good investments and the fact that even if a district i does not receive any investments in election term t, its investments in election term $t-1$ continue to bring electoral returns in election term t. Therefore, including only the investments in a single election period would lead to omitted variable bias.

If excludability shapes electoral returns, as stated in Hypothesis 1, I expect a one unit increase in $Club_i$ to result in an increase in y_{it}, implying a positive ψ coefficient. In other words, if public goods have a heterogeneous impact on party vote share and bring higher electoral returns in districts with higher excludability, the sign of the putative relationship between the interaction term and dependent variable should be positive. The model also imposes a linear relationship between the treatment and dependent variables. Nevertheless, an initial look at the relationship between investments and the first difference of the dependent variable raises confidence in this specification (Figure 4-2). In addition, since the error term is probably systematically correlated within unit, the analysis needs to take into account the clustering among standard errors. Because of this, the standard errors are clustered by district.

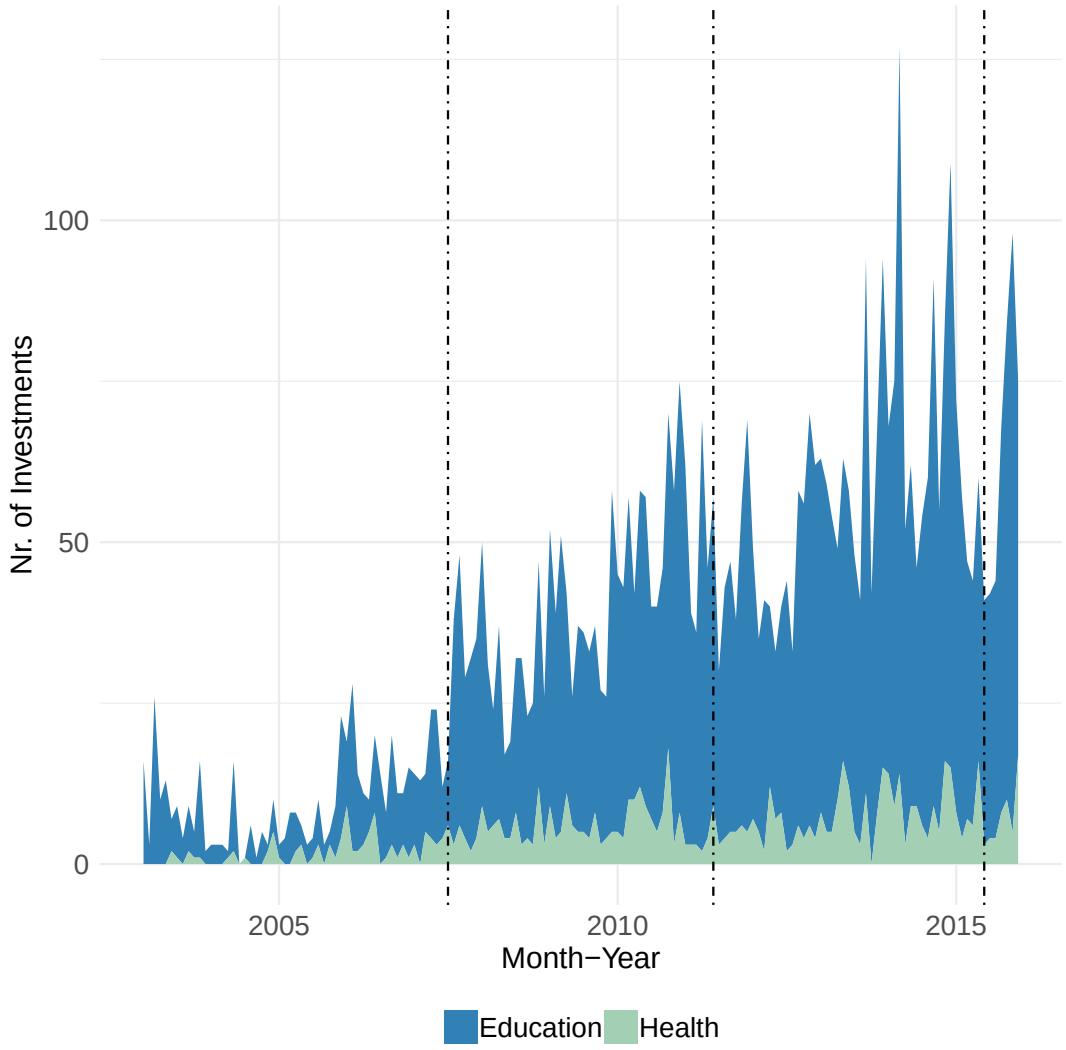


Figure 4-3: Monthly Trend of Public Good Investments

4.4.2 Identification Issues

The identification strategy of the empirical design relies on the interaction effect, $(Inv_{it} \times Club_i)$, being exogenous with respect to the party's vote share. There are two main challenges to making such an assumption. First, if there are district characteristics that influence the location of investments or their excludability and also shape the change in the party's vote share simultaneously, then this would violate the exogeneity assumption. Second, high-investment or high-excludability areas might be on a different trend in terms of their AKP vote shares prior to 2002.

Table 4.1: Pre- and Post- Election Investment Flows

type	Pre-2007	Post-2007	Pre-2011	Post-2011	Pre-2015	Post-2015
Education	12.33	27.50	47.08	37.67	56.33	60.50
Health	2.83	5.17	6.08	5.75	8.25	8.00

Note: The monthly average of the number of investments made in the 6 months preceding or following the elections.

To address the first challenge, I include time-varying variables for several district characteristics that might correlate with the amount of investments and also directly impact the increase in AKP vote share. These variables are represented by the term $x_i't$ in equation (1). I address the second challenge by examining whether districts with different levels of investments or excludability were trending differently in terms of their Islamic vote shares prior to 2002 (see Section 4.6.3).

Besides these additional checks and controls, the exogeneity of public good investments to previous trends in vote shares is plausible for several reasons. First of all, it is simply hard for a party to determine a priori where electoral rewarding will be more and target investments accordingly. Second, Turkey uses a multi-member district electoral system, and conventional core-swing hypotheses cannot be applied to explain distributive politics in Turkey, making it hard for the incumbent governments to choose where to invest more. Third, given the large scale of investments used in the analysis, education and health buildings; the limited amount of resources; and uncertainties about the timing of the completion of projects due to complex and long-term planning processes, constructing new education and health buildings is not the most efficient and feasible way of voter-targeting for politicians.[5] Finally, if AKP targeted the investments to districts that are more likely to increase their votes, we would expect to observe an electoral cycle in the investment amounts. Nevertheless, a look at the monthly trend of investments (Figure 4-3) and comparison between pre- and post-election (i.e., the year preceding and following the elections) amounts at the national level do not indicate any specific relation to the timing of elections (Table 4.1).

[5]Interview conducted by the author, Ministry of Development, 01/17/2015.

4.5 Data

4.5.1 Unit of Analysis

The main unit of analysis for this empirical study is districts. Districts are the most micro-level unit in Turkey that allow for the mapping of general elections and public good investment data onto administrative boundaries. Districts mostly matter only for administrative matters in the Turkish context, and they are nested within larger multi-member electoral districts, i.e., provinces. Districts present wide variations in terms of their demographic, economic, and social indicators (Table 4.2), and their population varies roughly from 2,500 to 850,000.[6] Despite this significant variation, districts are all subject to the same administrative structure headed by the central government. The earliest year included in the main data is 2002. Although the district boundaries in Turkey have experienced a few changes since 2002, leading to an increase in the number of districts from 923 to 957 in 2008 and then to 970 in 2012, they have for the most part remained the same. In the few cases where boundaries were redistricted, redistricting was mostly done to divide several large-population districts into smaller units. I reconstructed the panel by assigning values of each parent district to its child districts (or vice versa, if needed).

4.5.2 Measuring Local Public Goods

Given the broad definition of public goods, it is possible to include various types of public services in an analysis that looks at the impact of public good provision on electoral outcomes. This paper focuses on two key public services, education and health, as one of the two independent variables of interest, although it incorporates other types of public goods into the analysis as time-varying covariates. By focusing on two public

[6]Due to some very large districts in Istanbul and Ankara, the distribution of district populations is very skewed, which is why I log-transform the population variable.

goods that are most crucial for the majority of the population[7] and that have always been provided by Turkey's central government, the project seeks to circumvent potential problems that might result from attributability, i.e., citizens being unaware of whether a service comes from the central or local government (Harding 2015; Przeworski *et al.* 1999). I measure local public good investments made by the state by newly constructed education and health buildings in a district. Instead of focusing on the existing supply of public goods, I focus on new investments to make sure that the provision of goods can be directly attributed to the actions of the incumbent government. Another advantage of this measure is that a new health and education building is a very strong treatment recognizable by the whole district population, contrary to other indicators such as staff or inventory records. My measure is the total number of investments; the intensity of the treatment is important because with each new investment, the incumbent sends a new signal and assumingly strengthens the perception of favoritism of the local population. Yet, I also check the robustness of the findings by using an alternative measure for investments, a binary variable that shows whether the district received any education or health investment during the AKP incumbency.

Data on public goods come from the Building Permits Statistics of Turkey. Because each building must obtain an occupancy permit after the construction is completed and before it opens, occupancy permits provide information about when a health or education infrastructure project is completed and put into service. The dataset covers information for each year and province for the period of 1992. The information that the dataset provides includes the number of occupancy permits, the type of investor, and the purpose of the building. Table 4.2 lists summary statistics on public education and health investments between 2002, the year AKP came to power, and 2015, demonstrating that the distributions of public good investments, particularly in the areas of health

[7]To be certain, other public goods, such as piped water, sewage, and roads, are also crucial for citizens' wellbeing, but in the Turkish context, access to these services shows variation only in rural areas (villages), which host only a small minority of district populations in the Turkish context.

and education, are not uniform. It is also possible to observe a few extreme amounts of investment due to exceptionally large-scale projects.

Table 4.2: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
AKP vote share	3,769	45.308	17.775	1.228	94.196
Population (log)	3,769	10.430	1.236	7.418	13.828
Avg. nightlights density	3,769	5.031	11.184	0.000	138.556
Literacy rate (%)	3,767	88.945	7.383	39.621	99.585
Agricultural land (pc)	3,769	8.316	10.175	0.000	93.308
Education inv.	3,769	1.877	4.789	0	70
Health inv.	3,769	0.312	0.872	0	11
Resident share (%)	3,718	25.942	13.196	0.000	85.628

4.5.3 Measuring Excludability

To measure the excludability of public goods, I compute the percentage of visitors in a district over a year using geocoded and timestamped mobile call detail records (CDRs), which contain information on over 108,000,000 mobile phone calls between roughly 2,700,000 randomly sampled individual users (each individual is recorded for a two-week period, after which a new sample is drawn) and show the geolocation of each call (through the geolocation of antennas). Using the information on each user's mobility, I first compute the home antenna of each individual: I compute the top modal antenna by calculating the most commonly used antenna in all incoming and outgoing calls outside of business hours over a day, and then record the frequency with which each antenna appears as the mode for the user. The location of the top modal antenna is assigned as the home location of the user. After gathering information on users' home locations, I look at the information of all the users that are found in a given district throughout a day and then compute what percent of those users are visitors to that location and what percent are residents. The average resident share of all antennas over a year constitutes

my district-level measure. This continuous mobility measure is used as a proxy for the excludability of local public investments in the district, where a low visitor share (high resident share) indicates high excludability.

4.5.4 Control Variables

The empirical model will include several other public good investments as time-varying covariates. These other investments—commercial, religious, recreational, sports, etc.—probably serve only a group of people and are not critical to the population's well-being by nature, and it is less clear for voters who provides them. However, the variation in the other public good investments made by the central government and local administrators might correlate both with education and health investments and with the electoral outcomes in general elections. Therefore, excluding other types of public good investments may lead to omitted variable bias (Kramon and Posner 2013). I only include buildings that are constructed by the central government and adjust the total number of buildings by population.

To control for other potential confounding variables, I collected data on three additional time-varying district-level characteristics that may correlate with both the amount of investments made and AKP vote share: rurality, economic development level, and education level. I measure rurality by the per capita amount of agricultural land in the district. To account for the possible impact of short-term changes in economic development, and given that there is no systematic data on per capita income or other economic indicators at the district level, I construct a measure using NOAA satellite images and night light luminosity: the average night light density in the district.[8] Finally, I use literacy rate to control for the district's education level. Table 4.2 presents summary statistics for the entire set of control variables.

[8]Specifically, I used the Average Visible, Stable Lights, and Cloud Free Coverages from the DMSP-OLS Nighttime Lights Time Series.

The ethnic and religious composition of the district may also be important determinants of investments and electoral performance, but the DID models by construction account for such unit-level time-invariant characteristics. Thus, the model accounts for the size of the Kurdish population—the major ethnic minority group in Turkey—and the Alevi population—the major religious minority group in Turkey. In a similar vein, religiosity, i.e., to what extent a district is secular or Islamist, is an important determinant of electoral behavior in Turkey, particularly due to AKP's Islamist background.

4.5.5 Dependent Variable

The empirical model uses Turkey's electoral panel data to measure the outcome of interest: the incumbent party's vote share before and after the incumbency. AKP has been the incumbent party in Turkey since 2002, one year after the party was established and came to power. Therefore, the dependent variable is simply the percentage of AKP votes over all valid votes for each district. The period covered in the analysis includes four general elections (2002, 2007, 2011, 2015), so the main empirical specification of this paper, a multi-period triple differences model, uses data from four elections.

4.6 Results

4.6.1 Main Results

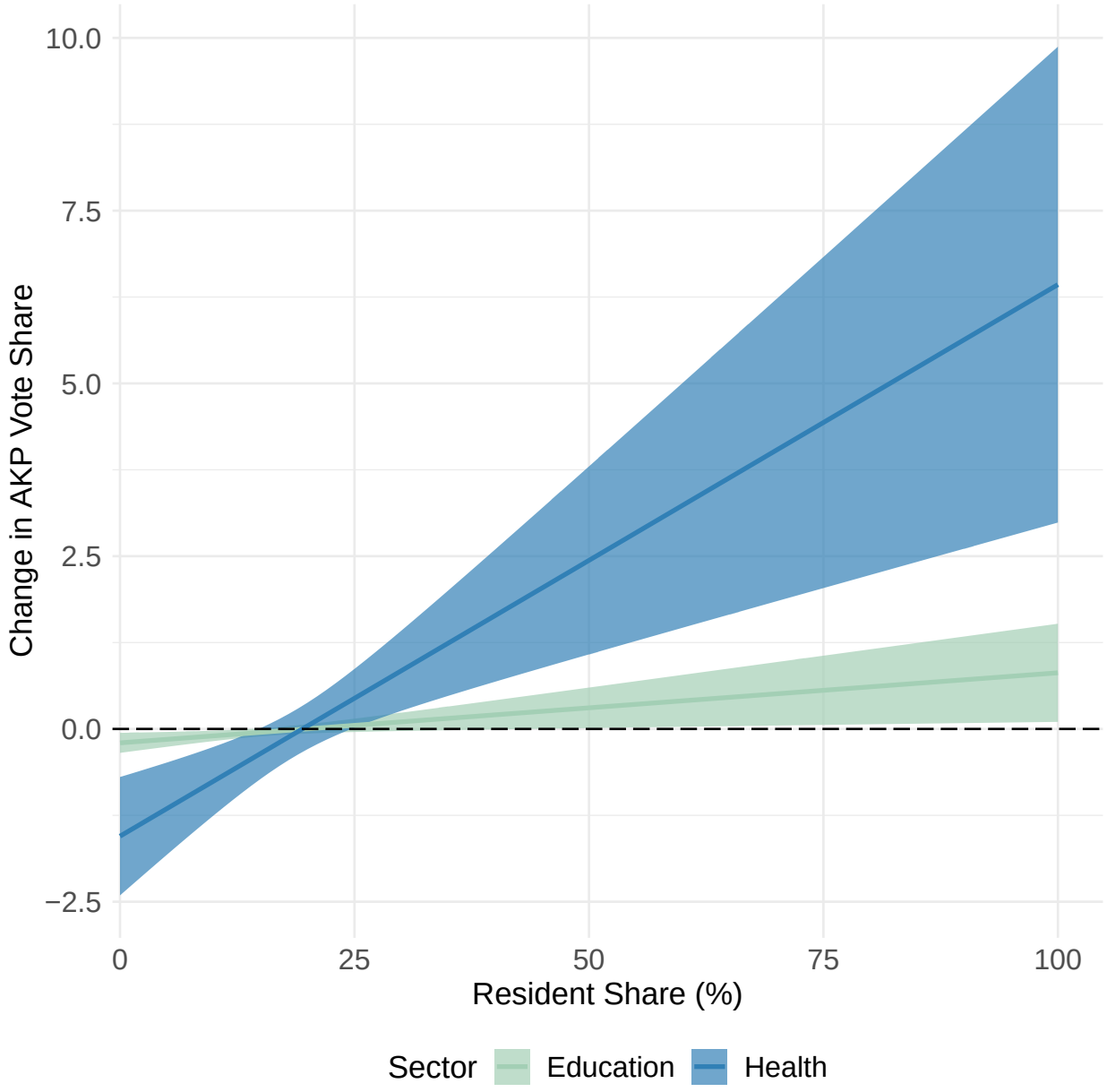
Table 4.3 presents the coefficients and associated standard errors from the specification in equation (1). The standard errors are clustered by district for arbitrary serial correlation and heteroskedasticity. The coefficient on the interaction term shows whether electoral returns to public good investments increase with excludability. The interaction term relates the investment variable to the excludability measure, which is defined as the percentage of residents found in a district over an average day, or in short, the resident

share, relying on mobile call data for a given population. This measure exploits the fact that the excludability of public goods and amenities is higher in districts with high resident shares. Columns 1–3 report the effect of education investments on party vote share at different levels of excludability, while Columns 4–6 report the same effect for health investments. Columns 1 and 4 report the estimates from the models without the time-varying covariates. Columns 2 and 5 add the time-varying covariates—rurality rate, average night time luminosity, literacy rate, and population (log)—to the model. Finally, Columns 3 and 6 simultaneously control for the effect of all types of investments (health, education, commercial, religious, recreational, sports, etc.) to avoid any potential omitted variable bias. Figure 4-4 maps out the marginal effect of education and health investments on vote share across different levels of excludability based on Models 3 and 6 in Table 4.3. The confidence intervals are presented at 95% levels using clustered robust standard errors.

I find that the coefficient of the interaction term, indicated as $(Inv_{it} \times Club_i)$ in equation (1), is statistically significant and consistently positive for both education and health investments, suggesting that education and health investments have a more positive effect on vote share in districts with high excludability compared to districts with low excludability. The coefficient on the interaction term, i.e., the conditioning effect of excludability, is much smaller in education investments (0.01) than in health investments (0.085), leading to a small marginal effect for education investments even at high values of excludability. Specifically, health investments have a statistically significant and positive effect on AKP votes in districts where resident share is above 25%. Moving from the 25th percentile to the 75th percentile of the resident share leads to an increase of 2.3 percentage points in AKP vote share per investment. This increase corresponds to a 5 percent increase compared to the mean value of AKP vote share. The effect is much lower in education investments, where moving from the 25th percentile to the 75th percentile of the resident share leads to an increase of 0.27 percentage points, or a

0.6 percent of the mean-level AKP vote share.

Figure 4-4: Marginal Effect of Health and Education Investments (one unit per 10k) on Vote Share



Overall, these findings support the excludability hypothesis. In line with theoretical expectations, the effect of health and education investments is more positive in districts with high excludability. While the marginal effect of health investments on vote share is statistically insignificant in districts with low excludability, it is significant and positive

in the 75% of the districts with the highest excludability rates. In the case of education investments, the marginal effect of each investment exceeds the significance threshold in 56% of the districts with the highest excludability rates. These results imply that neglecting the excludability dimension of public goods can mask the degree to which public good investments translate to electoral returns.

Table 4.3: Excludability and Electoral Returns of Public Good Investments

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv.×Resident share (%)	0.010**	0.010**	0.010**			
	(0.004)	(0.004)	(0.004)			
Education inv.	−0.256***	−0.262***	−0.201***			
	(0.078)	(0.079)	(0.074)			
Other inv. (excl. educ)			−0.011**			
			(0.005)			
Health inv.×Resident share (%)				0.092***	0.085***	0.080***
				(0.022)	(0.022)	(0.022)
Health inv.				−1.983***	−1.834***	−1.552***
				(0.427)	(0.439)	(0.437)
Other inv. (excl. health)						−0.012**
						(0.005)
Population (log)		−2.818***	−2.667***		−2.819***	−2.567***
		(0.888)	(0.869)		(0.891)	(0.861)
Avg. nightlights density		−0.140***	−0.139***		−0.133***	−0.137***
		(0.033)	(0.034)		(0.033)	(0.034)
Literacy rate (%)		−0.204**	−0.213**		−0.196**	−0.211**
		(0.083)	(0.083)		(0.083)	(0.084)
Agricultural land (pc)		−0.010	−0.009		−0.006	−0.005
		(0.038)	(0.038)		(0.038)	(0.038)
Observations	3,718	3,718	3,718	3,718	3,718	3,718
R^2	0.003	0.022	0.024	0.005	0.023	0.026

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

4.6.2 Heterogeneous Impact

While initial public good investments by a party can act as a cue for how much the incumbent favors the constituency, such perceptions of favoritism are less likely to arise among some constituency groups. In contexts where there are identity-based cleavages between the government and the local constituency, it is unlikely that the local population will develop any feelings of reciprocity toward the government. In Muslim contexts, the most salient cleavage is oftentimes between religious and secular groups. Therefore, how much the party and district population align along the secularism–religiosity dimension can influence voters' assessment of how much a party will favor them.

Given that the incumbent party in Turkey, AKP, represents the Islamist ideology, perceptions of favoritism are more likely to develop in religious communities and less likely to do so in secular communities. To see if this hypothesis holds, I now test whether the conditioning effect of excludability holds up in secular districts when the sample is divided into religious and secular regions. I split the sample into two groups by the median level of religiosity. Splitting the sample by religiosity is also a stringent test, as restricting the analysis to districts within similar religiosity levels can help to control for a variety of omitted attributes that may not have been adequately captured in the pooled sample. I reestimate the specification in equation (1) on the two subsamples and present the coefficients of the interaction term ($Inv_{it} \times Club_i$) in Table 4.4. As Hypothesis 2 states, I expect the conditioning effect of excludability in secular constituencies to be substantively and/or statistically less significant than in religious constituencies.

I use three alternative measures for religiosity, and thus, three subsampling strategies. The first measure is simply the number of mosques in the district per capita. For the second and third measures, I rely on Livny's datasets (Livny 2020) compiled from the monthly surveys conducted by KONDA. KONDA has included questions on religiosity and veil-practices in its monthly barometer, a nationally representative face-to-face survey, since March 2010. The barometers include data on religiosity and veil practices for

a total of 117,815 respondents in 4264 neighborhoods and villages in 570 districts across all of Turkey's geographical regions (Livny 2015). Because the relevant questions used in the KONDA barometer were the same throughout all the barometers, it is possible to combine 45 surveys into a single dataset. Specifically, the second religiosity measure I use is the percentage of respondents in a given district who self-identify themselves as "pious" or "devout". The third one shows the percentage of respondents in the district who/whose wives wear a "headscarf", "turban", or "jilbab".

Table 4.4 presents the findings. In every three columns, the first column represents a subsample divided by the number of mosques, the second column by the percentage of respondents who self-identify themselves as religious, and the third column, by the percentage of respondents who wear a cover (if male, whose wives wears a cover). As shown in the table, when the analysis is restricted to a comparison within the two subsamples, the conditioning effect of excludability is either weaker in size or statistically insignificant in secular districts. The size of the coefficient on the interaction term between excludability and education investments rises from 0.01, the estimate in the pooled sample, to 0.012–0.018 in religious districts, and the estimate is statistically significant ($p < 0.05$). The effect is statistically insignificant in secular districts. The coefficient on the interaction term between excludability and health investments almost doubles in religious districts, compared to the estimate in the pooled sample, and is consistently significant ($p < 0.01$). In secular districts, the estimate is either statistically insignificant or relatively much lower in size when compared to religious districts, depending on the choice of religiosity measure. Concisely, it is mostly or only in religious districts that excludability increases the electoral returns of education and health investments. Overall, the results are consistent with Hypothesis 2 and suggest that the club good effect is less likely to hold in secular districts, where the absence of a group identity marker makes it less likely that the local constituency will develop perceptions of favoritism toward the Islamist incumbent, AKP.

Table 4.4: Heterogeneity in Electoral Returns of Public Good Investments, by Religiosity

	Dependent variable:											
	AKP vote share											
	Education Investments						Health Investments					
	Islamist			Secular			Islamist			Secular		
Religiosity Measure	Mosque	SI	Cover	Mosque	SI	Cover	Mosque	SI	Cover	Mosque	SI	Cover
Education inv.×Resident share (%)	0.012**	0.014**	0.015**	0.004	0.007	0.008						
	(0.005)	(0.006)	(0.007)	(0.008)	(0.007)	(0.006)						
Education inv.	−0.364***	−0.376**	−0.369**	−0.036	−0.165	−0.188*						
	(0.099)	(0.147)	(0.148)	(0.141)	(0.113)	(0.101)						
Health inv.×Resident share (%)							0.090***	0.111***	0.125***	0.065**	0.073**	0.072**
							(0.031)	(0.035)	(0.037)	(0.028)	(0.032)	(0.030)
Health inv.							−1.979***	−2.304***	−2.620***	−1.304**	−1.598***	−1.579***
							(0.636)	(0.837)	(0.887)	(0.578)	(0.591)	(0.571)
Agricultural land (pc)	−0.035	−0.014	0.033	0.058	0.092	0.047	−0.026	−0.018	0.019	0.048	0.093	0.057
	(0.042)	(0.087)	(0.073)	(0.081)	(0.087)	(0.124)	(0.043)	(0.088)	(0.074)	(0.081)	(0.087)	(0.122)
Literacy rate (%)	−0.087	−0.204	−0.129	−0.288**	−0.171	−0.250	−0.055	−0.184	−0.107	−0.300***	−0.170	−0.250
	(0.104)	(0.168)	(0.143)	(0.115)	(0.186)	(0.242)	(0.105)	(0.169)	(0.144)	(0.115)	(0.186)	(0.242)
Population (log)	−2.968**	−0.896	−1.324	−2.420*	−1.676	−0.621	−3.397***	−1.162	−1.712	−2.142	−1.534	−0.513
	(1.267)	(1.107)	(1.358)	(1.354)	(1.587)	(1.050)	(1.302)	(1.160)	(1.377)	(1.305)	(1.590)	(1.039)
Avg. nightlights density	−0.060	−0.137***	−0.166	−0.187***	−0.048*	−0.054***	−0.043	−0.130***	−0.166	−0.193***	−0.041	−0.049**
	(0.063)	(0.038)	(0.131)	(0.033)	(0.027)	(0.021)	(0.057)	(0.038)	(0.130)	(0.034)	(0.026)	(0.020)
Observations	1,855	1,131	1,141	1,863	1,120	1,110	1,855	1,131	1,141	1,863	1,120	1,110
R^2	0.024	0.016	0.012	0.029	0.014	0.017	0.019	0.017	0.015	0.031	0.018	0.020

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

4.6.3 Pre-2002 Trends

The identification strategy relies on the assumption that districts with different levels of investments and excludability were trending similarly in terms of the outcome variable of interest in the period before and including 2002. Because AKP was founded in 2001, their vote share is not available for years prior to 2002. Therefore, for the pre-2002 period, I compare the trends of the vote shares of preceding Islamist parties. Several insights emerge from this exercise. First, as Figure 4-5 shows, there are no systematic differences in Islamist vote share between high- and low-investment districts prior to the incumbency. Noticeably, in line with the suggestions of recent studies, the treatment and control groups are not only similar in trends but also in levels (the average Islamist vote shares of the two groups are almost equal), increasing the plausibility of this assumption (Kahn-Lang and Lang 2019). Second, pre-2002 Islamist vote shares in high-excludability and low-excludability districts also follow a parallel trend (Figure 4-6). Similarly to high and low investment districts, these two groups not only follow parallel trends, but also start and end election terms at almost the same level of Islamist vote share.

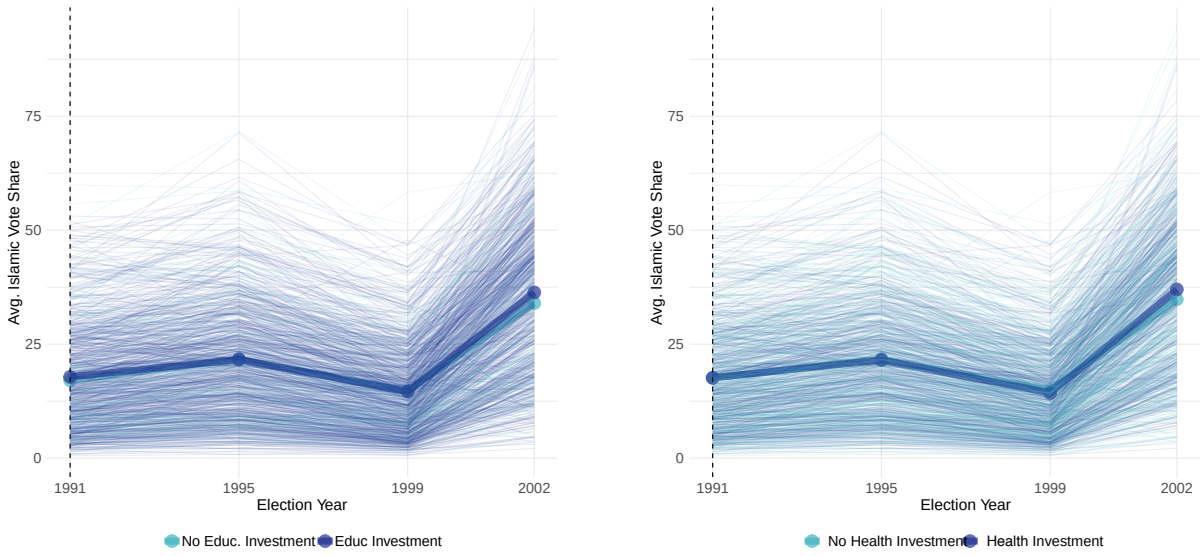


Figure 4-5: Pre-2002 Islamic Vote Shares in High- and Low-Investment Districts

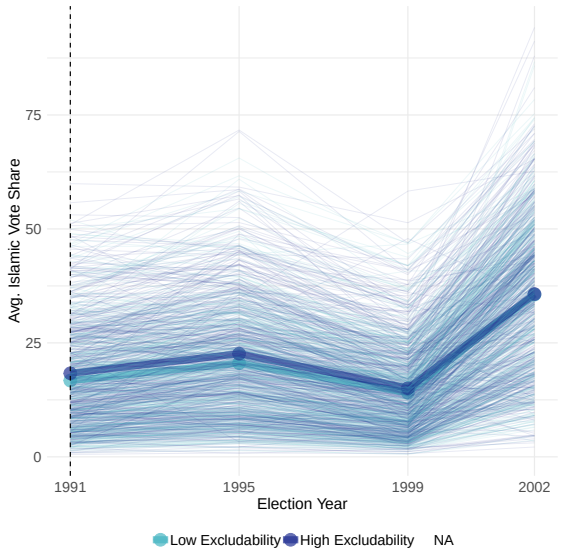


Figure 4-6: Pre-2002 Islamic Vote Shares in High- and Low-Excludability (Left) and High- an Low-Religiosity Districts

Pre-AKP differences in incumbent vote share. Despite there being no systematic differences in Islamic vote share between high and low investment or excludability districts prior to 2002, it could still be the case that high-investment or high-excludability districts were different along other dimensions that mattered for Islamist vote share (than low-investment and low-excludability districts). Particularly important might be the vote shares of previous incumbent parties. To compare the trends in different subsamples, I code parties that served in coalition governments between 1991 and 2002, and compute the total incumbent vote shares for each election term.[9] The results are reported in Appendix Figures C1 and C2. I find that high investment and low investment districts do not only follow similar trends of incumbent vote share; their percentage of incumbent vote share is also almost equal. Similarly, there is no difference between the trends and vote share levels of high-excludability and low-excludability districts. The results are reassuring in that high-investment or high-excludability districts did not trend differently in terms of Islamist or incumbent vote share.

[9]For instance, for 2002, the incumbent vote share is calculated as the vote share of parties in the coalition government preceding the AKP government.

4.7 Alternative Explanations and Robustness Checks

4.7.1 Robustness

My results stand up to a battery of robustness tests. First, parsing the samples into high and low religiosity districts and restricting the analysis to districts within fairly similar religiosity levels can assist in controlling a variety of omitted variables that our analysis may not have adequately captured. Second, I check whether the findings are consistent when a matched sample instead of the full sample is used, where high-investment and low-investment (Diamond and Sekhon 2013) districtsare matched with one another. I match the districts on the full list of pretreatment covariates, including population, literacy rate, average nightlights density, and rurality. Columns 1–6 of Appendix Table C4 show that the coefficient on the excludability-investment interaction remains virtually unchanged when high-investment units are matched with low-investment units.

The findings are subject to another strict test, whereby I successively drop districts at the top and bottom 2.5 percent of excludability. Dropping districts at the bottom or top percentiles preserves my findings (Appendix Table C5). Results get even stronger in terms of effect size. Next, I drop the top 5 percent of observations that received the highest amount of investments. This yields a very similar set of findings as in the full sample (Appendix Table C6). Finally, I use an alternative measure for education and health investments—a binary variable that takes 1 if AKP has made any investment to the district, and 0 otherwise. The results in Appendix Table C7 show that my results are not sensitive to the use of an alternative specification for investments. Overall, these robustness tests provide reassuring evidence of the empirical patterns highlighted in our baseline results.

4.7.2 Alternative Explanations

Lower Access to Health Care

In this section, I assess a variety of alternative explanations. First, I examine the potential that the findings are a result of a mechanism such that more visitors (low excludability) mean a lower effective amount of money for services per capita for those living in the district. Specifically, because the public good will be used by a wider population in a low-excludability district than in a high-excludability district, residents living in the low-excludability district may benefit less from the same amount of public good investments compared to residents in a high-excludability districts, leading to an overall decrease in the satisfaction and access to health services. To explore this alternative mechanism, I use a simple multilinear regression model that tests whether district-level excludability is associated with the i) *level of satisfaction* with and ii) *higher access* to healthcare services, relying on individual-level survey data. If high excludability results in a higher effective amount of money per capita spent for public services for the residents of a district, I should find higher satisfaction and higher access to healthcare in districts with high excludability, controlling for the per capita amount of health services in the district.

The individual-level data comes from a nationally representative survey administered by KONDA in October, 2016. A total of 2532 face-to-face interviews were conducted in 146 neighborhoods and villages across 113 districts in 30 provinces.[10] I measure general satisfaction with healthcare services by a discrete variable that shows how much the respondent agrees with the following statement on a scale of 1 to 6: *"Generally, I am satisfied with the healthcare services I receive."* I measure access to healthcare services by how much the respondent agrees with the following statement on a scale of 1 to 6:*"Doctors spend sufficient time with patients."*

For the main independent variable measure, I use the district-level excludability mea-

[10]See the Appendix for the details.

sure, the percentage of residents found in a district over an average day for a given population, as in the main analysis. I control for the supply of public services by adding the per capita number of public health buildings in the district to the model. Other district-level controls include the literacy rate, rurality, population (log), and average nightlights density of the district. Individual-level control variables include the age, gender, education level, religiosity, and ethnicity of the respondent. I add an additional control variable about whether the respondent supports AKP or not to account fot potential partisan biases in the opinions and answers of respondents. For a full set of descriptive statistics and the list of survey questions, see Appendix Tables C1 and C2. To account for potential correlations within districts, standard errors are clustered at the district level.

Table 4.5 presents the findings from this analysis. In Columns 1 and 2, the outcome variable is the general satisfaction of respondents with health services, while in Columns 3 and 4, it is access to health care. Contradicting the materialistic explanation, even after controlling for the per capita number of health buildings in the district, the coefficient on excludability indicates a statistically insignificant relationship between excludability and satisfaction with health services (Column 1). The relationship between excludability and access to health services (Column 3) is also statistically insignificant. In an alternative model in which the excludability measure is interacted with health investments, the coefficients on the interaction term or excludability variable are also statistically indistinguishable from zero. These findings offer suggestive evidence that it is not a lower effective amount of money per capita spent for services that drives the results in low-excludability districts .

Need Hypothesis

The second test questions the possibility that inhabitants in certain districts value a given amount of public investment more compared to inhabitants in other districts simply because they are needier. For instance, if districts with high excludability are more likely to

Table 4.5: Satisfaction with and Access to Health Services, by Excludability

	Dependent variable:			
	Satisfaction		Access	
	(1)	(2)	(3)	(4)
Health inf. ×Resident share (%)		−0.011		−0.009
		(0.023)		(0.024)
Health inf. (Total)	−0.028	0.172	−0.014	0.141
	(0.065)	(0.413)	(0.407)	(0.407)
Resident share (%)	−0.003	0.009	−0.010	−0.001
	(0.012)	(0.024)	(0.023)	(0.023)
Agricultural land (pc)	0.021	0.022	0.015	0.016
	(0.015)	(0.017)	(0.017)	(0.017)
Literacy rate (%)	0.026	0.027	0.012	0.013
	(0.022)	(0.022)	(0.038)	(0.038)
Population (log)	0.202**	0.191**	0.087	0.079
	(0.089)	(0.077)	(0.101)	(0.101)
Avg. nightlights density	−0.002	−0.002	−0.004	−0.004
	(0.002)	(0.002)	(0.002)	(0.002)
Female	−0.160**	−0.156**	−0.078	−0.075
	(0.063)	(0.062)	(0.083)	(0.083)
Age	−0.0001	0.0001	0.007**	0.007**
	(0.002)	(0.002)	(0.003)	(0.003)
Education	−0.058*	−0.053*	−0.083**	−0.079**
	(0.032)	(0.029)	(0.034)	(0.034)
Religious	0.224***	0.226***	0.233***	0.235***
	(0.056)	(0.055)	(0.057)	(0.057)
Kurdish	−0.648***	−0.642***	−0.397**	−0.392**
	(0.145)	(0.145)	(0.172)	(0.172)
Supports AKP	0.557***	0.554***	0.420***	0.418***
	(0.065)	(0.066)	(0.082)	(0.082)
Constant	−0.914	−1.081	1.038	0.908
	(2.336)	(2.481)	(3.728)	(3.728)
Controls	Yes	Yes	Yes	Yes
Observations	2,271	2,271	2,266	2,266
R^2	0.104	0.105	0.063	0.064
Residual Std. Error	1.473 (df = 2258)	1.473 (df = 2257)	1.739 (df = 2253)	1.739 (df = 2252)

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Table 4.6: Preexisting Supply of Public Service Infrastructure and Electoral Returns to Future Investments

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv.×Resident share (%)	0.012***	0.012***	0.011***			
	(0.004)	(0.004)	(0.004)			
Education inv. × Preexisting ESI (pc)	0.017***	0.015**	0.014**			
	(0.006)	(0.006)	(0.006)			
Education inv.	−0.366***	−0.359***	−0.293***			
	(0.089)	(0.089)	(0.088)			
Other inv. (excl. educ)			−0.011**			
			(0.005)			
Health inv.				−2.634***	−2.407***	−2.095***
				(0.489)	(0.502)	(0.503)
Health inv.×Resident share (%)				0.086***	0.081***	0.076***
				(0.021)	(0.022)	(0.021)
Health inv. × Preexisting HSI (pc)				0.905***	0.774***	0.710***
				(0.237)	(0.238)	(0.240)
Other inv. (excl. health)						−0.011**
						(0.005)
Population (log)		−2.829***	−2.678***		−2.692***	−2.463***
		(0.877)	(0.858)		(0.891)	(0.861)
Avg. nightlights density		−0.137***	−0.136***		−0.133***	−0.136***
		(0.033)	(0.034)		(0.033)	(0.034)
Literacy rate (%)		−0.203**	−0.212**		−0.194**	−0.208**
		(0.083)	(0.084)		(0.083)	(0.084)
Agricultural land (pc)		−0.011	−0.010		−0.006	−0.005
		(0.038)	(0.038)		(0.038)	(0.038)
Observations	3,714	3,714	3,714	3,714	3,714	3,714
R^2	0.004	0.023	0.024	0.008	0.025	0.027

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

be in rural and remote places, differences between the electoral returns of low- and high-excludability districts may simply result from the possibility that in high-excludability districts, the supply of public services is lower and people are more in need. Or put differently, if citizens' utility driven from public goods is increasing with a diminishing marginal utility (Cornes and Sandler 1996), the incumbent may earn higher electoral

returns at lower levels of supply. If this is the case, high need may cause voters in high-excludability districts to reward the incumbent more for the same amount of investment compared to voters in low-excludability districts.

To investigate this question, I test whether the preexisting supply of health and education services condition the effect of excludability on AKP vote share. I measure the district-level supply of public goods by the total number of public health and education buildings per ten thousand persons with data from the building census conducted in 2000. The building census provides detailed information on the purpose and owners of buildings throughout Turkey. Due to changes in district boundaries over time, I assigned the census values of parent districts to child districts.

Models in Table 4.6 are the same as the model in equation (1) with the exception of an additional interaction term that interacts the investment variable with the preexisting supply variable. If a low initial supply of public goods is what derives the significant findings in the original analysis, one should expect the significance of the estimates in Table 4.3 to disappear in this new model. Nevertheless, the estimates in Table 4.6 show virtually no change in the statistical or substantive significance of the interaction effect $(Inv_{it} \times Club_i)$. There is only a slight upward change in the effect size for education investments and a slight downward change in the effect size for health investments. Perhaps more importantly, the coefficient on the interaction term between investments and preexisting supply has a positive sign and is statistically significant, suggesting that electoral returns to public health and education investments are, if anything, higher in districts with higher preexisting supply of public service infrastructure. This finding infers that the interactive effect of excludability is not driven by the initial supply of public goods, ruling out the need hypothesis.

Table 4.7: Reverse Causality Check

	Dependent variable:	
	Educ inv.	Health inv.
	(1)	(2)
Educ inv. $(t-1)$	-0.519^{***}	-0.029^{***}
	(0.042)	(0.009)
Health inv. $(t-1)$	0.210	-0.387^{***}
	(0.159)	(0.027)
Other inv. $(t-1)$	0.005^{***}	-0.0002
	(0.001)	(0.0002)
AKP vote share	-0.009	-0.0005
	(0.005)	(0.002)
Population (log)	0.472	0.315^{**}
	(0.441)	(0.123)
Avg. nightlights density	0.074^{***}	0.009^{**}
	(0.019)	(0.004)
Literacy rate (%)	0.015	0.017^{***}
	(0.024)	(0.006)
Agricultural land (pc)	0.030^{***}	-0.0003
	(0.011)	(0.003)
Observations	2,845	2,845
R^2	0.276	0.177

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Targeted Distribution

In a third test, I examine the likelihood that investments are targeted towards districts that support the incumbent more. As discussed in Section 4.4.2, in an electoral system with multi-member districts, tactical distribution strategies are not as clear-cut as in majoritarian systems. AKP must have some constituency base in each of these multi-member electoral districts (which correspond to provinces in Turkey) and preserve this base in order to continue its majority in the government. As such, targeting local public investments only to certain districts is not an advantageous electoral strategy as in countries with single-member districts Magaloni *et al.* (2007). The monthly trends of investments shown in Section 4.4.2, which do not follow any electoral cycles, also appear to make this concern void. In addition, there is a priori no reason to expect that AKP can predict districts that would bring higher electoral returns. Yet, I also explore whether there is any targeting using a panel data regression.

The two columns of Table 4.7 present the findings for education and health investments, respectively. In the estimation model, the investments made during the election term t are regressed on the vote share of AKP in the previous election term, $t-1$. The investments made during the election term $t-1$ are also added as a covariate. I do not find any statistically significant relationship between AKP vote share in the previous election and the amount of public good investments. The findings underline another crucial point: districts that receive investments during a given term are less likely to receive investments the following term. Put differently, an investment made in the election term $t-1$ decreases the likelihood of receiving investments in the election term t for both health and education investments. This finding, which might also be interpreted as a regression toward the mean, overlaps with the assumption that investments do not consistently and strategically flow to the same districts, but follow a cyclical pattern.

Another strategy that the incumbent government may use is targeting municipalities headed by AKP mayors so that mayors can mobilize the local constituency and bring

more electoral returns to public good investments. As discussed in Section 4.3, in the centralized, closed-list system of Turkey, this type of pork-barrel politics is less likely to take place than in decentralized countries with an open-list system. Yet, to ascertain that the party identity of municipalities, the only elected local authorities in Turkey, does not condition public investment flows, it is worth examining this alternative explanation. A regression discontinuity (RD) design is ideal for such an analysis because it can be used in cases where the treatment assignment, whether AKP won the municipality or not, is determined on the basis of a cutoff score, the AKP win-loss margin. The forcing variable in this design is the winning or losing margin of AKP relative to the rival party with the highest vote share. The cutoff is zero because the treatment is assigned solely to the units for which the win margin is above zero. The municipalities that fall below the cutoff have a non-AKP mayor. The outcome variable in the analysis is education and health investments at the municipal level. Since the estimation strategy rests on the analysis of the units right below or above the cutoff point, the bandwidth that determines the scope of the analysis is of crucial importance. I use Imbens and Kalyanaraman's algorithm (Imbens and Kalyanaraman 2012) to determine the optimal bandwidth.[11] The overwhelming majority of elected local governments are thus very small in size, and therefore not many of them received public good investments from AKP. As such, the outcome variable of the majority of observations is simply zero.

The data used for the RD design covers these municipalities, and the estimation is done for three local elections, the 2004, 2009, and 2014 elections. The optimal bandwidth determined through Imbens and Kalyanaraman's algorithm is 0.077 for health investments and 0.11 for education investments, which is reasonable considering that the former has a mean and standard deviation lower than the latter (see Table 4.2). In addition to the treatment variable, the forcing variable, and the interaction term between

[11]Municipalities geographically sit below or at the same level as districts. Within district boundaries, the centers are served by district (*ilçe*) municipalities, and settlements with more than 2000 inhabitants are served by township (*belde*) municipalities. For the time period analyzed in this study, there were around 920 district and 2000 township municipalities in Turkey.

those two, the model also includes the turnout rate and the population over the age of 18 (log) (based on the number of all voters in the district) as control variables.

If district and town municipalities within a district that are governed by AKP attract more public good investments, one should observe a systematic and positive relationship between the party of the municipal mayor, i.e., the binary treatment variable, and the public good investments made subsequent to local elections. Nevertheless, an analysis of the municipal level observations that are above and below the qualifying threshold necessary to win the local election detects no treatment effect (Figure 4-7). Alternative estimates with variations in the bandwidths do not alter the significance of estimates either. Overall, the RD design lends evidence to the claim that whether a municipality is won or lost by AKP does not affect the subsequent flow of public good investments.

Visibility and Partisan Biases

Other alternative explanations might be that the visibility of the service provision infrastructure in a district or its partisan attachments might correlate with the excludability variable.

The higher visibility of public investments in certain districts does not necessarily contradict the mechanism proposed in this study, as it presumably furnishes voters with the information necessary to develop perceptions of favoritism and reciprocity. Yet, an examination of the differential impact of excludability within secular districts demonstrates that a simple visibility story fails to explain the impact of public investments on AKP vote share. If the visibility of public goods in districts with high excludability were what created the heterogeneity in the effect of public goods, one would observe the same heterogeneity in overwhelmingly secular districts as well. On the other hand, a finding such that excludability does not have a conditioning effect in secular districts would overlap with the theoretical mechanisms suggested in this paper because identity plays a crucial role in determining whether the local population can develop any feelings

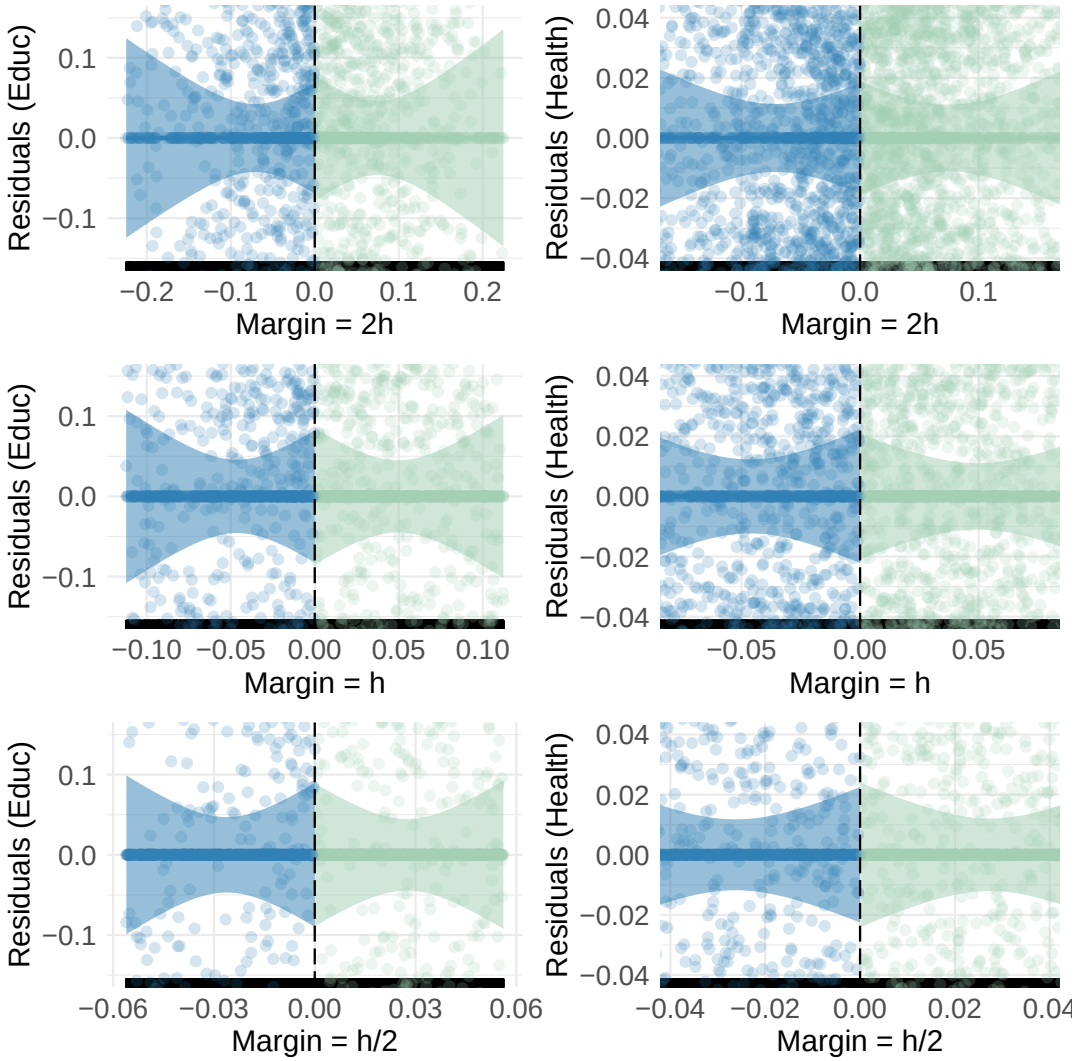


Figure 4-7: AKP Mayors and Public Education and Health Investments. Local average treatment effect shown at the threshold.

of reciprocity toward the incumbent party. As shown in Section 4.6.2, the conditioning effect of excludability is much weaker, and in some cases even insignificant, in secular districts.

Finally, existing literature on partisan biases in retrospective voting (Bartels 2002; Evans and Pickup 2010) suggests that personal partisan biases may inform voters' evaluations. If partisan attachments to AKP are stronger in high-excludability districts, my results may be driven by partisan attachments instead of excludability. Nevertheless, when I interact the investment variable with a binary variable that takes a value of 1 for

districts where AKP's vote share (2002) is above the median level, and 0 otherwise, the interaction term turns out to be insignificant for health investments, and negative and statistically significant for education investments (see Appendix Table C8). This means that education investments, if anything, were rewarded less in AKP strongholds, while electoral returns to health investments do not show any heterogeneity between AKP strongholds and other districts. These additional analyses demonstrate that visibility or partisan biases are unlikely to derive the main results in this study.

4.8 Discussion

The study's findings lend robust and systematic evidence to the empirical relation between local public services provided by a party and its vote share, documenting that the positive effect of the former on the latter is higher in districts where public goods become club goods. It also presents evidence that several alternative explanations fail to explain the outcome here.

Yet, the empirical findings also point out new questions that need to be further explored regarding the electoral returns of public goods. The models presented in this paper suggested that returns to education investments are in general lower and therefore show less heterogeneity across different levels of excludability and religiosity. Several reasons may underpin such a differential effect across the two investment types. First, in reference to the literature on egocentric voting (Krause 1997), it can be argued that unlike health services, payoffs to education are not immediately observable over one's life cycle. This disparity in the characters of these two services might reduce the extent to which citizens value and reward education investments. A second reason might pertain to citizens' expectations from the government. In Turkey, the primacy of public education services in the government's agenda dates back to its founding as a secular republic, as it was seen as a fundamental step toward nation-building and modernization (Mey-

ersson 2014). Given Turkey's long history of public education services and the fact that citizens have rarely opted for private education, it is likely that citizens see additional investments in education as a duty of the government rather than as a performance outcome to be rewarded. A third reason regarding the difference in electoral returns could simply be the gap between the numbers of beneficiaries. Whereas virtually the whole population benefits from health services, education services appeal only to voters with school-age children. Admittedly, for a complete explanation regarding the difference in electoral returns of these two key services, further research needs to be done.

To my knowledge, literature on electoral accountability has thus far not provided systematic evidence on the question of how the local social context can condition electoral returns to local public services. Using an original panel dataset that brings together detailed information on education and health investments, human mobility, and electoral outcomes in Turkey, this study demonstrates that the effect of investments is highly dependent on the composition of beneficiaries at the local level. While improving service provision infrastructure has a positive effect on incumbent vote share, this positive effect is limited to districts with high excludability and decreases in districts in which the local population does not align with the incumbent along the religious (and putatively, ethnic) dimension. The findings from this study also contributes to the literature of retrospective voting. By revealing that the relationship between local government performance and vote share is more complex than what canonical models suggest, the findings demonstrate that putting more emphasis on the local context and the identity of beneficiaries may clarify puzzling electoral outcomes The findings also have implications for scholarship on distributive politics because they underscore that geographical targeting, especially targeting of resources by incumbent parties to more rural or in-group populations, may bring higher electoral returns to the incumbent.

Appendix A

Supplemental Information for Paper 1

A.1 Balance by Bandwidth

Table A1

	2 km		2.5 km		3 km		
Variable	β	(se)	β	(se)	β	(se)	SD
Minority village	0.000	0.000	0.001	0.001	0.001	0.001	0.290
Distance to City 50k+ (km)	0.192***	0.216	0.229***	0.050	0.045***	0.044	30.294
Distance to City 100k+ (km)	0.000	0.000	0.000	0.000	0.000	0.000	91.191
Distance to City 500k+ (km)	0.000	0.000	0.000	0.000	0.000	0.000	91.191
Distance to Highway (km)	-0.066	-0.034	-0.049	0.042	0.045	0.046	141.873
Elevation (m)	9.890***	9.075	8.853***	1.232	1.072***	0.948	562.748
AKP Vote Share	0.268***	0.258	0.232***	0.065	0.058***	0.054	26.997

All models include a linear polynomial in longitude and latitude, segment fixed effects, district fixed effects, and village-level controls (except the control variable for which the balance is calculated). In columns 1 to 3, the sample includes observations which are located between 2 and 3 kilometers of the district boundary. *p<0.1; **p<0.05; ***p<0.01.

A.2 Data

Table A2: Variables and Data Sources

Variable	**Measure**	**Data Source**
Social Proximity (β)	Geodesic Distance	Google Maps Places, Distance Matrix APIs
Heterogeneity	Social fragmentation rate	Antenna-level mobile call traffic (CDRs)
	Alevi (minority) village	Manually coded from ethnographic inventories
Bureaucratic Efficiency	Access to cell phone information (%)	Scraped from official webpages
	Various measures of water infrastructure (Binary)	Scraped from official webpages
Village Controls (γ)	Distance to closest highway	Spatial vector data
	Distance to closest urban areas (+50k)	Spatial vector data
	Distance to closest urban areas (+100k)	Spatial vector data
	Distance to closest urban areas (+500k)	Spatial vector data
	Elevation	Spatial vector data
	Alevi (minority) village	Manually coded from ethnographic inventories
District Controls (δ)	Average night lights density	Satellite images
	Public education investments	Building census
	Public health investments	Building census
	Literacy rate	Official statistics
	Incumbent vote share	Official statistics
	Conservativeness (female/male illiteracy rate)	Official statistics
	Rurality rate (rural/total population)	Official statistics

A.3 Notes on Heterogeneity by Network Structure

Network measure. For the left graph of Figure A1, the average shortest path is 3/2 for C and 17/6 for A. Specifically, the social proximity of the node C is calculated as $\frac{2+1+1+2+2+1}{6} = 3/2$, and then, $\frac{1}{3/2} = 2/3$. Likewise, the social proximity of the node A is calculated as the inverse of $\frac{1+2+3+3+4+4}{6} = 17/6$, or $\frac{1}{17/6} = 6/17$. The social fragmentation score of the whole network is the average of individual scores from A to F, as scaled by the theoretical maximum of a 7-node graph so that the measure is not dependent on the number of nodes. The final measure is adjusted such that it takes a value between 0 and 1, where higher values indicate higher social fragmentation.

Figure A1: A graph with low (left) and high (right) social fragmentation

Equation. I use the following specification to estimate the models in Table A3 and in Figure 2-13. The continuous village-level treatment variable $Distance_{vsp}$ is interacted with the province-level social fragmentation score $SocialFrag_p$. $SocialFrag_p$ is a discrete measure on a scale of 0 to 9 that relies on the quantile values of the social fragmentation score, where 0 indicates the 10% of the provinces with the lowest scores. As it is calculated based on antenna-level social proximity measures, higher values show lower social fragmentation.

$$\begin{aligned} y_{vsp} = \beta_1 Distance_{vsp} + \beta_2 Distance_{vsp} \times SocialFrag_p \\ + f(Location_{vsp}) + \gamma Z_{vsp} + \delta X_{dp} + \eta_p + \theta_s + \epsilon_{vsp} \end{aligned} \tag{A.1}$$

Table A3: Change in Bureaucratic Efficiency at District Borders, Heterogeneity by Network Structure

Bandwidth:	2 km	2.5 km	3 km
	Panel A: Personal Cell Phone Information		
Distance (km)	-0.014^{***} (0.003)	-0.013^{***} (0.003)	-0.012^{***} (0.002)
Distance (km) × SFI	0.002^{***} (0.001)	0.002^{***} (0.0005)	0.002^{***} (0.0004)
Observations	6,693	8,591	10,281
R^2	0.491	0.457	0.438
	Panel B: Water Supply Network		
Distance (km)	-0.004^{*} (0.002)	-0.004^{*} (0.002)	-0.004^{**} (0.002)
Distance (km) × SFI	0.001 (0.0004)	0.0003 (0.0004)	0.0004 (0.0003)
Observations	6,693	8,591	10,281
R^2	0.456	0.435	0.419
	Panel C: Drinking Water		
Distance (km)	-0.009^{**} (0.004)	-0.005 (0.004)	-0.004 (0.003)
Distance (km) × SFI	0.0005 (0.001)	0.0002 (0.001)	0.0002 (0.0004)
Observations	2,146	2,750	3,312
R^2	0.522	0.481	0.446
	Panel D: Water Quality Control		
Distance (km)	-0.010^{***} (0.002)	-0.009^{***} (0.002)	-0.010^{***} (0.002)
Distance (km) × SFI	0.001^{**} (0.0004)	0.001^{*} (0.0004)	0.001^{**} (0.0004)
Observations	6,693	8,591	10,281
R^2	0.550	0.528	0.516
Segment fixed effects	Yes	Yes	Yes
Province fixed effects	Yes	Yes	Yes
Village controls	Yes	Yes	Yes
District controls	Yes	Yes	Yes

Note: Standard errors clustered at the segment level. *p<0.1; **p<0.05; ***p<0.01

A.4 Change in Bureaucratic Efficiency in Minority Villages by Bandwidth

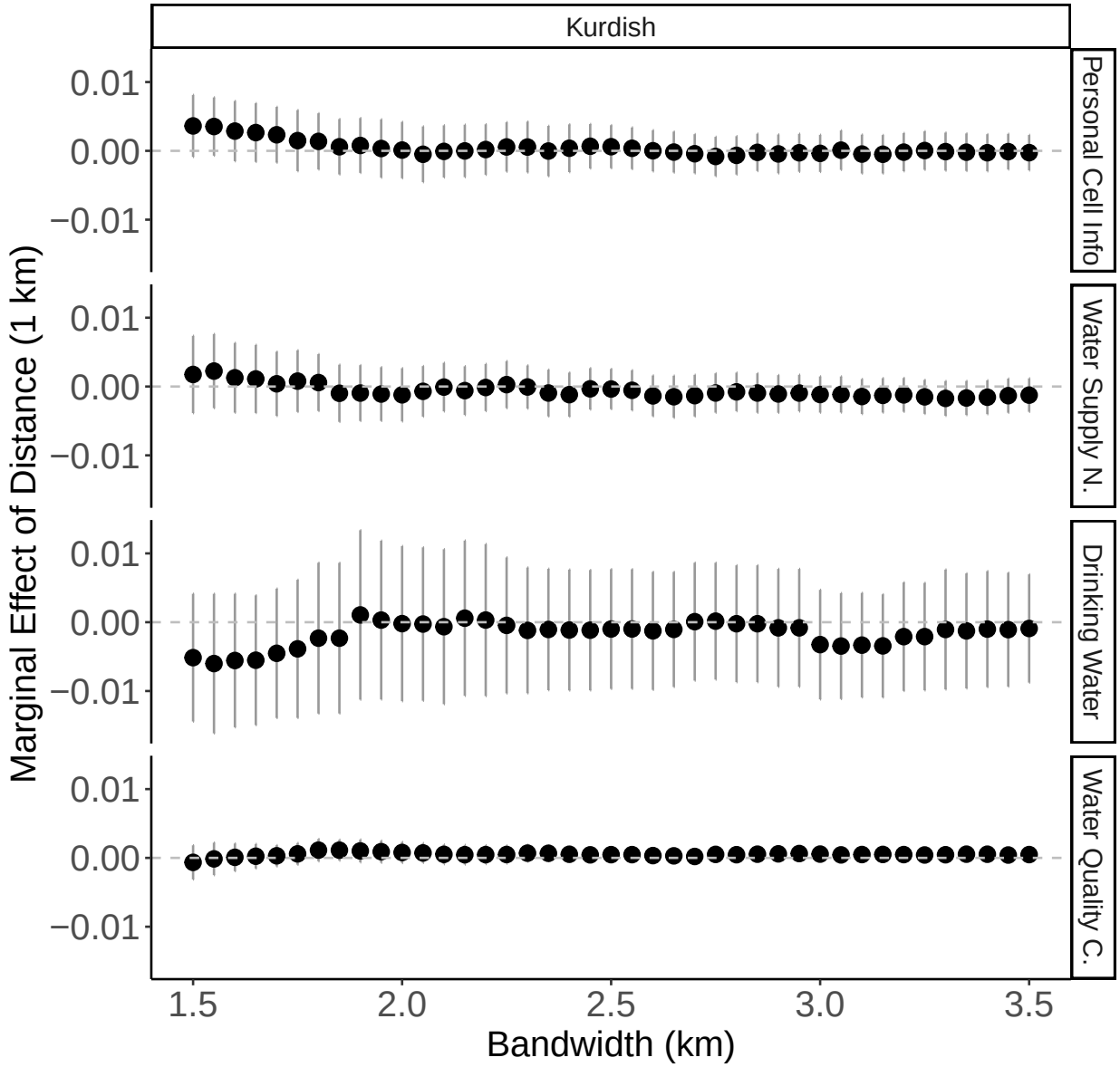


Figure A2: Main Estimates for Kurdish Villages by Different Bandwidth Choices

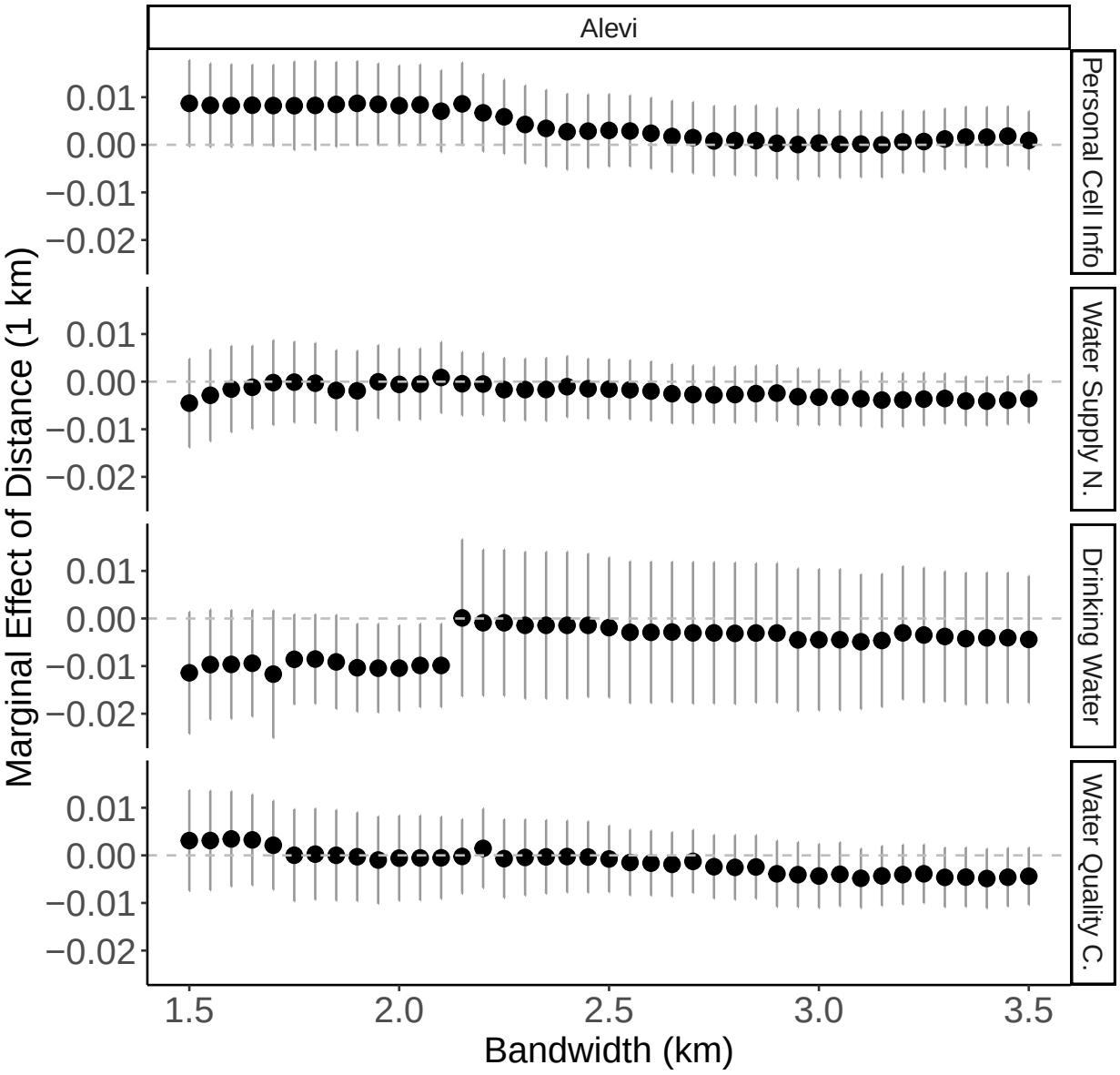


Figure A3: Main Estimates for Alevi Villages by Different Bandwidth Choices

A.5 Other Notes on Data

To see if geographic distance, the main independent variable, affects the missingness of values for the drinking water infrastructure and electricity indicators, I estimate a local linear regression. The dependent variable measures take 0 if the data point is missing, and 0 otherwise, and the treatment is distance in kilometers. I use a bandwidth of 2.5 kilometers. As Table A4 shows, geographic distance does not affect the pattern of missingness.

Table A4: Geographic Distance and Missing Values in Dependent Variable Indicators

	Dependent variable:	
	(1)	(2)
Distance (km)	−0.0004 (0.001)	0.0002 (0.001)
Longitude	0.062 (0.048)	0.046 (0.041)
Latitude	0.047 (0.062)	0.035 (0.054)
Segment fixed effects	Yes	Yes
District fixed effects	Yes	Yes
Village controls	No	No
Observations	8,632	8,632
R^2	0.796	0.868

Note: Standard errors clustered at the segment level. *p<0.1; **p<0.05; ***p<0.01

Appendix B

Supplemental Information for Paper 2

Table B1: Summary Statistics, 2SLS Design

Statistic	N	Mean	St. Dev.	Median	Min	Max
Affilated endowment (binary)	970	0.086	0.280	0	0	1
Endowments (per 10k)	970	0.818	0.890	0.525	0.000	7.266
Associations (per 10k)	970	13.882	8.048	12.786	0.000	82.071
Public service infrastructure	969	7.894	6.926	6.046	0.127	83.094
Conservativeness(F/M Literacy)	970	14.067	200.046	4.785	0.005	4,437.389
Literacy rate	970	93.287	4.400	94.433	75.453	99.573
Nightlight density	970	3.336	12.119	0.503	0.007	138.556
AKP vote share	970	33.238	15.896	33.464	1.703	94.196
Nationalist vote share	970	9.581	5.851	8.648	0.000	49.529
Islamist vote share	970	12.039	9.375	9.831	0.187	66.178
Rural population (%)	970	47.755	24.590	51.677	0.000	99.619
Population (log)	970	10.421	1.302	10.294	7.418	13.725
Provincial center	970	0.191	0.393	0	0	1
Pr. schools (per 10k)	970	0.394	0.868	0	0	12
Pr. dorms (per 10k)	970	0.815	0.908	0.586	0.000	6.974
Tutoring centers (per 10k)	970	0.366	0.616	0	0	6
Halkevleri	970	0.410	0.596	0	0	6
Affilated assoc. (binary)	970	0.184	0.387	0	0	1
Affilated assoc. (count)	970	0.201	0.465	0	0	5
Affilated schools (per 10k)	970	0.067	0.156	0	0	2
Affilated dorms (per 10k)	970	0.120	0.272	0	0	3
Affilated tutoring c. (per 10k)	970	0.026	0.073	0	0	1
Affilated schools (%)	970	7.448	17.545	0	0	100
Affilated dorms (%)	970	12.266	19.775	0	0	100
Affilated tutoring c. (%)	970	3.288	11.940	0	0	100
Affilated educ. staff (per 10k)	970	3.991	2.948	3.463	0.000	23.722
Affilated health staff (per 10k)	970	0.869	1.247	0.6	0	16
Affilated relig. staff (per 10k)	970	0.508	0.858	0.2	0	10

Table B2: *Halkevleri*, Associational Mobilization, and Islamic Voteshare, OLS Design

	Dependent variable:		
	Associations (per 10k)	Islamic vote share (%)	AKP vote share (%)
	(1)	(2)	(3)
Halkevi	1.339***	−0.551	0.233
	(0.459)	(0.394)	(0.539)
Affilated assoc. (binary)	0.955**	−0.370	1.367
	(0.442)	(0.602)	(0.905)
Affilated endowment (binary)	1.055*	1.242	0.080
	(0.554)	(0.929)	(1.101)
Endowments (per 10k)	1.490**	0.512	−0.644
	(0.582)	(0.346)	(0.702)
Associations (per 10k)		0.053	0.021
		(0.040)	(0.061)
Public service infrastructure	0.102**	−0.026	−0.076
	(0.052)	(0.029)	(0.054)
Conservativeness(F/M Literacy)	0.001**	−0.002***	0.003***
	(0.0005)	(0.0004)	(0.0002)
Literacy rate	0.127	0.029	−0.030
	(0.137)	(0.102)	(0.218)
Nightlight density	0.021	−0.016	0.002
	(0.025)	(0.015)	(0.021)
Vote share	0.010	0.328***	
	(0.029)	(0.030)	
Nationalist vote share	−0.002	0.059	−0.406***
	(0.041)	(0.067)	(0.095)
Islamist vote share	0.048		0.650***
	(0.031)		(0.076)
Rural population (	(0.016)	(0.017)	(0.027)
Population (log)	−1.163***	0.511	0.530
	(0.389)	(0.416)	(0.788)
Provincial center	2.716***	1.255*	0.752
	(0.671)	(0.759)	(1.052)
Pr. schools (per 10k)	−0.445*	0.059	−0.221
	(0.238)	(0.196)	(0.543)
Pr. dorms (per 10k)	0.737	−0.039	1.381**
	(0.540)	(0.329)	(0.569)
Tutoring centers (per 10k)	2.164***	−0.009	−3.113***
	(0.437)	(0.414)	(0.887)
Constant	5.765	−8.003	35.331*
	(12.941)	(9.788)	(20.881)
Controls	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
Observations	969	969	969
R^2	0.553	0.636	0.749

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Table B3: Islamist Business Associations and Education Institutions, 2SLS Design

	Number (per 10k)			Percentage		
	Schools	Dorms	Tutoring c.	Schools	Dorms	Tutoring c.
Affilated assoc. (binary)	50.366***	41.275***	8.371	0.206***	0.795***	0.059
	(11.268)	(14.106)	(6.672)	(0.078)	(0.304)	(0.044)
Affilated endowment (binary)	−6.850*	−3.427	−1.679	−0.029	−0.085	0.001
	(3.985)	(4.098)	(1.106)	(0.024)	(0.060)	(0.009)
Endowments (per 10k)	−3.567***	−4.600***	−1.389*	−0.026**	−0.081**	−0.008*
	(1.247)	(1.547)	(0.712)	(0.010)	(0.035)	(0.004)
Associations (per 10k)	−0.007	−0.006	−0.025	0.0004	−0.002	0.0001
	(0.065)	(0.103)	(0.046)	(0.0004)	(0.002)	(0.0003)
Public service infrastructure	0.117	0.079	−0.054	0.002*	0.004*	−0.0004
	(0.073)	(0.120)	(0.043)	(0.001)	(0.002)	(0.0003)
Conservativeness(F/M Literacy)	−0.002	−0.005***	0.0004	0.00000	−0.0001**	0.00000
	(0.001)	(0.002)	(0.001)	(0.00001)	(0.00004)	(0.00001)
Literacy rate	−0.033	0.175	0.077	0.002	0.009**	0.0005
	(0.126)	(0.224)	(0.093)	(0.001)	(0.004)	(0.001)
Nightlight density	−0.048	0.088	0.010	−0.001**	0.002	−0.00001
	(0.066)	(0.098)	(0.030)	(0.0004)	(0.002)	(0.0003)
AKP vote share	−0.002	−0.007	0.077**	−0.0001	0.001	0.0004**
	(0.045)	(0.070)	(0.032)	(0.0003)	(0.001)	(0.0002)
Nationalist vote share	−0.135	−0.093	−0.065	−0.0003	−0.002	−0.00000
	(0.141)	(0.160)	(0.076)	(0.001)	(0.003)	(0.001)
Islamist vote share	−0.008	−0.119	−0.128***	0.0004	−0.002	−0.001***
	(0.055)	(0.114)	(0.046)	(0.0004)	(0.002)	(0.0003)
Rural population (	(0.048)	(0.044)	(0.021)	(0.0004)	(0.001)	(0.0001)
Population (log)	−3.852*	−2.510	−0.778	−0.018	−0.127**	−0.007
	(2.100)	(2.926)	(1.226)	(0.018)	(0.062)	(0.007)
Provincial center	−4.570	−9.374**	0.350	0.006	−0.098	0.008
	(3.021)	(4.251)	(2.026)	(0.023)	(0.061)	(0.011)
Pr. schools (per 10k)				0.071***		
				(0.023)		
Pr. dorms (per 10k)					0.041***	
					(0.015)	
Tutoring centers (per 10k)						0.020***
						(0.008)
Constant	50.603**	25.322	5.319	0.094	0.429	0.047
	(24.177)	(32.359)	(11.447)	(0.241)	(0.523)	(0.070)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
First Stage F statistic	30.56	30.56	30.56	29.89	30.07	29.21
Observations	969	969	969	969	969	969

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Table B4: Islamist Business Associations and Islamist Education Institutions, 2SLS Design with Alternative IV Measure

	Number (per 10k)			Percentage		
	Schools	Dorms	Tutoring c.	Schools	Dorms	Tutoring c.
Affilated assoc. (number)	53.448***	43.801***	8.883	0.219***	0.848***	0.063
	(14.148)	(15.804)	(7.190)	(0.084)	(0.323)	(0.047)
Affilated endowment (binary)	−9.869	−5.901	−2.181	−0.041	−0.132	−0.003
	(6.037)	(5.144)	(1.452)	(0.030)	(0.088)	(0.010)
Endowments (per 10k)	−7.214**	−7.589***	−1.995*	−0.041**	−0.139***	−0.012*
	(2.816)	(2.766)	(1.126)	(0.017)	(0.051)	(0.006)
Associations (per 10k)	−0.083	−0.069	−0.038	0.0001	−0.003	0.00001
	(0.073)	(0.101)	(0.050)	(0.0005)	(0.002)	(0.0003)
Public service infrastructure	0.158*	0.113	−0.047	0.002**	0.005**	−0.0004
	(0.085)	(0.129)	(0.047)	(0.001)	(0.003)	(0.0003)
Conservativeness(F/M Literacy)	−0.002	−0.005***	0.0003	0.00000	−0.0001**	0.00000
	(0.001)	(0.002)	(0.001)	(0.00001)	(0.00005)	(0.00001)
Literacy rate	−0.007	0.197	0.082	0.002*	0.010**	0.001
	(0.133)	(0.230)	(0.094)	(0.001)	(0.004)	(0.001)
Nightlight density	−0.095	0.050	0.002	−0.001***	0.002	−0.0001
	(0.088)	(0.107)	(0.027)	(0.0004)	(0.002)	(0.0003)
AKP vote share	0.007	0.001	0.079**	−0.0001	0.001	0.0004**
	(0.055)	(0.079)	(0.033)	(0.0004)	(0.001)	(0.0002)
Nationalist vote share	−0.165	−0.118	−0.070	−0.0004	−0.002	−0.00004
	(0.141)	(0.160)	(0.078)	(0.001)	(0.003)	(0.001)
Islamist vote share	−0.014	−0.124	−0.129***	0.0004	−0.002	−0.001***
	(0.075)	(0.121)	(0.047)	(0.0005)	(0.002)	(0.0003)
Rural population (	(0.060)	(0.053)	(0.021)	(0.0005)	(0.001)	(0.0001)
Population (log)	−6.953**	−5.050	−1.293	−0.031	−0.177**	−0.010
	(3.483)	(3.836)	(1.606)	(0.024)	(0.076)	(0.009)
Provincial center	−3.735	−8.690*	0.488	0.009	−0.085	0.009
	(3.412)	(4.737)	(1.957)	(0.022)	(0.069)	(0.010)
Pr. schools (per 10k)				0.072***		
				(0.023)		
Pr. dorms (per 10k)					0.036**	
					(0.015)	
Tutoring centers (per 10k)						0.018**
						(0.009)
Constant	84.406**	53.024	10.937	0.233	0.965	0.078
	(41.490)	(44.800)	(15.211)	(0.314)	(0.699)	(0.088)
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
First Stage F statistic	18.67	18.67	18.67	18.24	18.21	17.45
Observations	969	969	969	969	969	969

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Table B5: Islamist Business Associations and Islamist Bureaucrats, 2SLS Design

	Number of Affiliated Officials (per 10k)		
	Education	Health	Religious
Affilated assoc. (binary)	8.111***	2.933***	2.416**
	(3.050)	(0.794)	(1.200)
Affilated endowment (binary)	−0.614	0.099	−0.217
	(0.603)	(0.214)	(0.207)
Endowments (per 10k)	−1.160***	−0.166	−0.096
	(0.301)	(0.175)	(0.126)
Associations (per 10k)	−0.006	−0.003	0.001
	(0.023)	(0.005)	(0.004)
Public service infrastructure	0.045**	0.005	0.004
	(0.021)	(0.008)	(0.007)
Conservativeness(F/M Literacy)	0.001	0.0001	−0.0001
	(0.001)	(0.0001)	(0.0003)
Literacy rate	0.109**	−0.017	0.022
	(0.047)	(0.015)	(0.015)
Nightlight density	−0.007	−0.005	0.003
	(0.014)	(0.006)	(0.007)
AKP vote share	0.052***	0.001	−0.002
	(0.012)	(0.006)	(0.003)
Nationalist vote share	−0.004	−0.016	−0.013
	(0.027)	(0.013)	(0.009)
Islamist vote share	−0.005	−0.004	−0.004
	(0.016)	(0.007)	(0.006)
Rural population (	(0.010)	(0.004)	(0.004)
Population (log)	−1.237**	−0.528***	−0.479**
	(0.589)	(0.203)	(0.224)
Provincial center	−0.287	0.232	−0.155
	(0.535)	(0.250)	(0.180)
Constant	4.350	7.784**	3.034**
	(5.101)	(3.313)	(1.543)
Controls	Yes	Yes	Yes
Province FE	Yes	Yes	Yes
First Stage F statistic	18.67	18.67	18.67
Observations	969	969	969

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Table B6: Summary Statistics, Panel Design

Statistic	N	Mean	St. Dev.	Median	Min	Max
Public service infrastructure	1,912	5.328	4.616	4.121	0.000	42.331
Less Developed	1,932	0.817	0.387	1	0	1
Kurdish	1,932	0.148	0.355	0	0	1
Affilated assoc. (binary)	1,932	0.110	0.313	0	0	1
Affilated endowment (binary)	1,932	0.069	0.254	0	0	1
Endowments (per 10k)	1,932	0.444	0.606	0.3	0	7
Islamist vote share	1,932	22.453	19.945	14.995	0.104	81.443
Population (log)	1,932	10.833	1.055	10.715	7.616	15.163
Literacy rate	1,932	81.887	14.080	84.884	6.145	99.981
Conservativeness(F/M Literacy)	1,932	6.315	100.871	3.789	0.005	4,437.389
Affilated schools (per 10k)	1,932	0.047	0.141	0	0	2

Table B7: Islamist Business Associations, Public Service Infrastructure, and Service Provision, Panel Design Results

	Dependent variable:							
	Affiliated schools (per 10k)							
	Including AKP Period				Excluding AKP Period			
	Full Sample		Matched		Full Sample		Matched	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affilated assoc. (binary)	0.105***	0.107***	0.072**	0.074**	0.095***	0.095***	0.062***	0.061***
	(0.031)	(0.032)	(0.034)	(0.034)	(0.018)	(0.018)	(0.022)	(0.023)
Public service infrastructure		0.001		0.011***		0.002**		0.008**
		(0.001)		(0.004)		(0.001)		(0.004)
Affilated endowment (binary)	0.016	0.013	−0.005	−0.015	0.009	0.008	−0.008	−0.013
	(0.023)	(0.023)	(0.025)	(0.026)	(0.023)	(0.023)	(0.023)	(0.024)
Islamist vote share	−0.0001	−0.0001	−0.002	−0.002	−0.0003	−0.0003	−0.002**	−0.002**
	(0.0004)	(0.0004)	(0.001)	(0.002)	(0.0003)	(0.0003)	(0.001)	(0.001)
Population (log)	0.065***	0.071***	0.078**	0.120***	0.143***	0.154***	0.134***	0.171***
	(0.015)	(0.016)	(0.039)	(0.037)	(0.021)	(0.023)	(0.034)	(0.043)
Literacy rate	0.001	0.001	0.003	0.002	−0.002***	−0.002***	−0.001	−0.001
	(0.001)	(0.001)	(0.003)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)
Conservativeness(F/M Literacy)	0.0002	−0.0004	−0.012	−0.016	0.00001***	0.00001***	0.00000	0.00000
	(0.012)	(0.013)	(0.039)	(0.041)	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Endowments (per 10k)	−0.003	−0.003	0.006	0.010	−0.007	−0.009	−0.010	−0.005
	(0.015)	(0.015)	(0.025)	(0.026)	(0.008)	(0.008)	(0.020)	(0.021)
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,288	1,268	446	439	1,932	1,912	669	662
R^2	0.123	0.127	0.612	0.625	0.260	0.261	0.724	0.727

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Table B8: Islamist Business Associations, Public Service Infrastructure, and Service Provision, Lagged Dependent (Placebo) Model Results

	Dependent variable:							
	Affiliated schools (per 10k), Lagged							
	Full Sample		Matched		Full Sample		Matched	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Affilated assoc. (binary)	0.042	0.038	0.006	0.001	0.042	0.038	0.006	0.001
	(0.026)	(0.026)	(0.027)	(0.027)	(0.026)	(0.026)	(0.027)	(0.027)
Public service infra. (per 10k)		−0.001		−0.010**		−0.001		−0.010**
		(0.001)		(0.005)		(0.001)		(0.005)
Affilated endowment (binary)	0.031	0.034	0.012	0.021	0.031	0.034	0.012	0.021
	(0.024)	(0.024)	(0.026)	(0.024)	(0.024)	(0.024)	(0.026)	(0.024)
Islamist vote share (%)	−0.0005	−0.0004	−0.004**	−0.004**	−0.0005	−0.0004	−0.004**	−0.004**
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)
Population (log)	0.203***	0.190***	0.179***	0.139***	0.203***	0.190***	0.179***	0.139***
	(0.035)	(0.034)	(0.051)	(0.048)	(0.035)	(0.034)	(0.051)	(0.048)
Literacy rate	0.0001	0.0001	0.0004	0.001	0.0001	0.0001	0.0004	0.001
	(0.0003)	(0.0003)	(0.001)	(0.001)	(0.0003)	(0.0003)	(0.001)	(0.001)
Conservativeness(F/M Literacy)	0.024***	0.022***	0.029	0.030	0.024***	0.022***	0.029	0.030
	(0.008)	(0.008)	(0.020)	(0.020)	(0.008)	(0.008)	(0.020)	(0.020)
Endowments (per 10k)	0.016*	0.015	0.011	0.006	0.016*	0.015	0.011	0.006
	(0.009)	(0.009)	(0.011)	(0.013)	(0.009)	(0.009)	(0.011)	(0.013)
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,288	1,268	444	438	1,288	1,268	444	438
R^2	0.164	0.155	0.853	0.858	0.164	0.155	0.853	0.858

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Figure B1: Balance in Background Control Variables

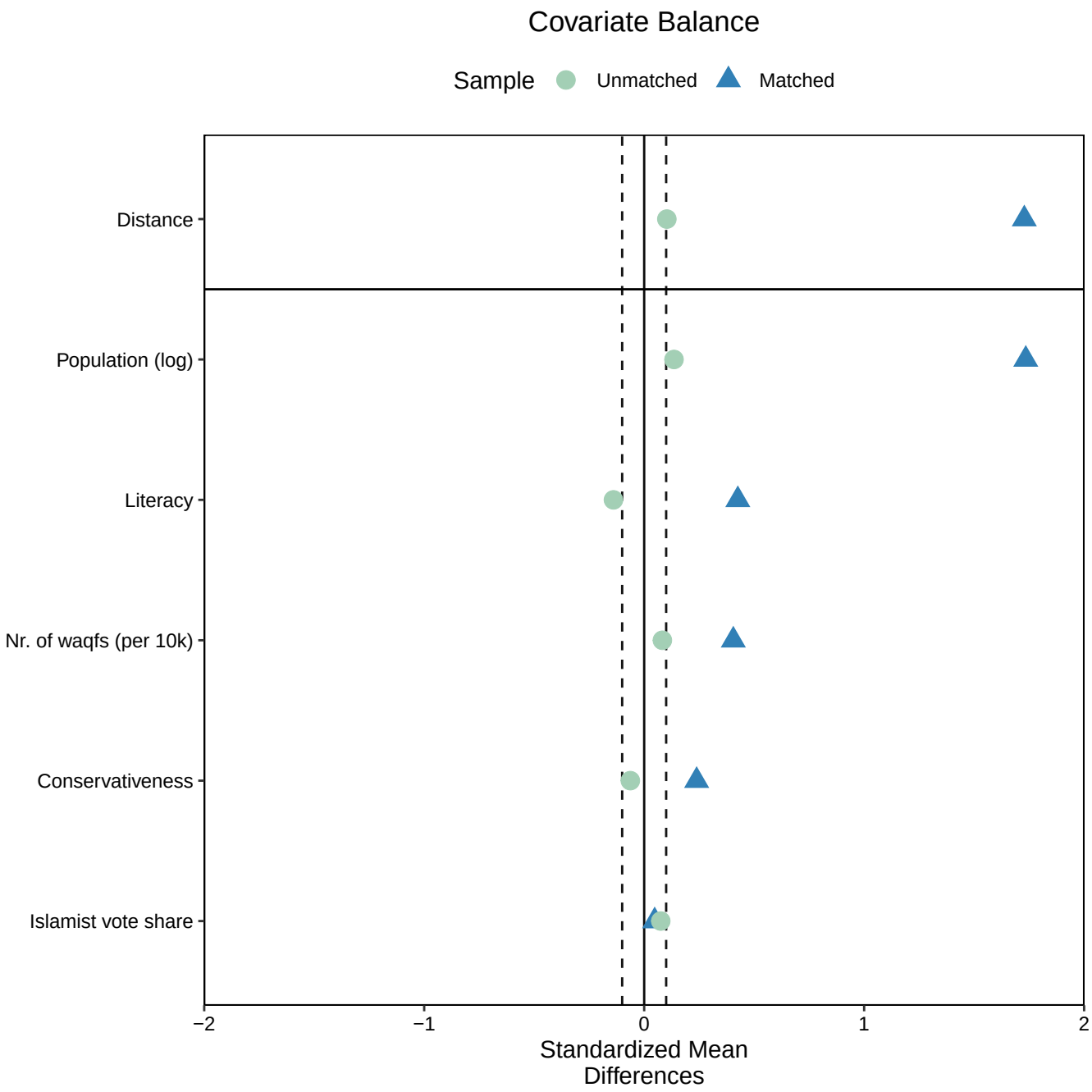


Table B9: Public Service Infrastructure and Service Provision by Regional Characteristics

	Dependent variable:			
	Affiliated schools (per 10k)			
	Full Sample	Matched	Full Sample	Matched
	(1)	(2)	(3)	(4)
Affilated assoc. (binary)	0.094***	0.060***	0.095***	0.061***
	(0.018)	(0.023)	(0.018)	(0.023)
Public service infrastructure	0.004***	0.011*	0.002*	0.008**
	(0.001)	(0.007)	(0.001)	(0.004)
Affilated endowment (binary)	0.007	−0.014	0.008	−0.012
	(0.023)	(0.024)	(0.023)	(0.024)
Islamist vote share	−0.0002	−0.002**	−0.0002	−0.002**
	(0.0003)	(0.001)	(0.0003)	(0.001)
Population (log)	0.157***	0.171***	0.155***	0.171***
	(0.023)	(0.043)	(0.023)	(0.043)
Literacy rate	−0.002***	−0.001	−0.002***	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Conservativeness(F/M Literacy)	0.00001***	0.00000	0.00001***	0.00000
	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Endowments (per 10k)	−0.010	−0.006	−0.010	−0.005
	(0.008)	(0.021)	(0.008)	(0.021)
Public service infra. x Development	−0.003**	−0.003		
	(0.001)	(0.006)		
Public service infra. x Kurdish			0.002	−0.007
			(0.002)	(0.009)
Year FE	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Observations	1,912	662	1,912	662
R^2	0.262	0.727	0.261	0.727

Note: Standard errors clustered by province. *p<0.1; **p<0.05; ***p<0.01

Appendix C

Supplemental Information for Paper 3

C.1 Pre-2002 Trends of Incumbent Vote Share

Figure C1: Pre-2002 Incumbent Vote Shares in High- and Low-Investment Districts

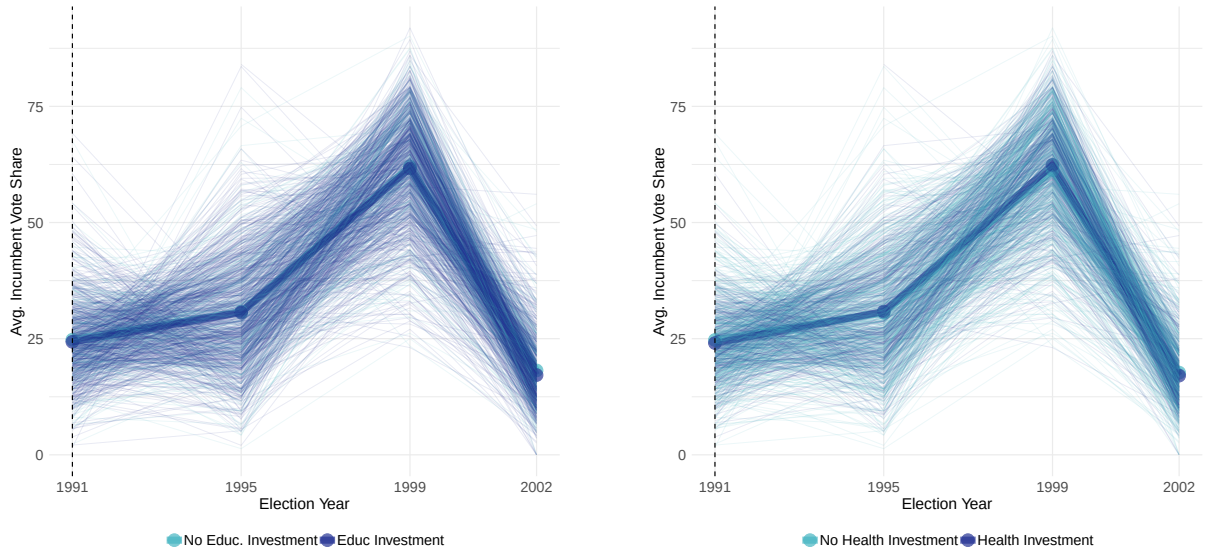
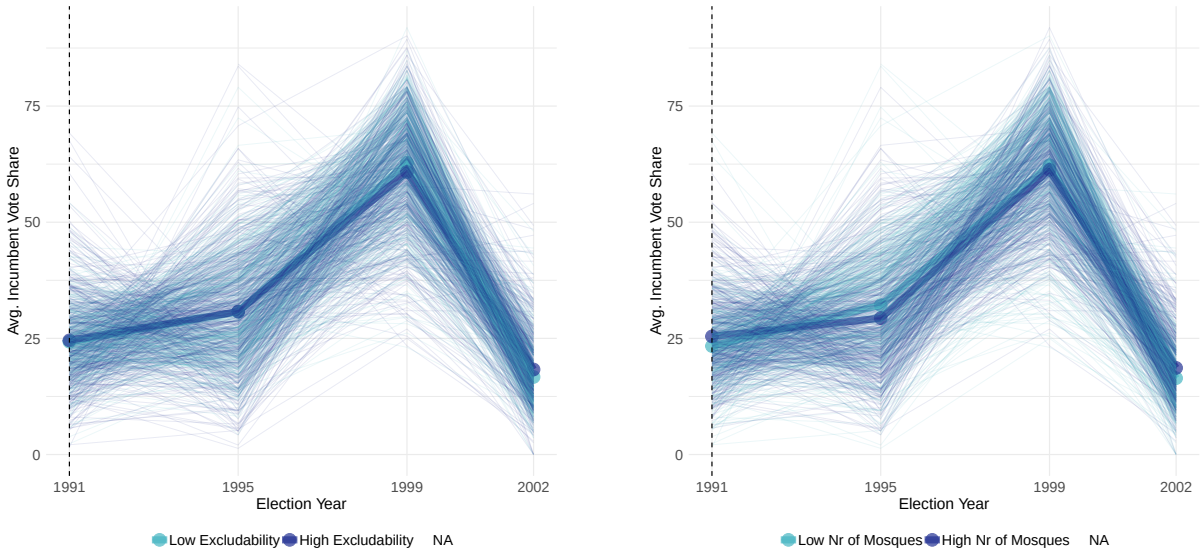


Figure C2: First Differences in Education Investments and Vote Share



C.2 Survey Details

Sampling was based on both neighborhood/village population and educational attainment, as defined by the Address Based Population System, as well the outcome of general elections. Further, age and gender quotas were applied to the 18 surveys conducted within each neighborhood/village.

Table C1: Summary Statistics for the Survey Analysis

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Satisfaction	2,504	4.498	1.554	1.000	4.000	6.000	6.000
Access	2,502	3.771	1.801	1.000	2.000	5.000	6.000
Improvement	2,421	2.644	0.659	1.000	2.000	3.000	3.000
Health inf. (Total)	1,886	0.731	0.639	0.000	0.338	0.914	4.064
Resident share (%)	2,532	20.202	5.567	7.885	16.110	22.889	40.932
Agricultural land (pc)	2,532	2.675	5.433	0.000	0.046	2.954	39.318
Literacy rate (%)	2,532	4.143	3.014	0.803	2.347	4.879	18.306
Population (log)	2,532	12.222	1.048	9.378	11.509	13.043	13.725
Female	2,513	0.483	0.500	0.000	0.000	1.000	1.000
Age	2,526	41.708	15.802	16.000	29.000	53.000	90.000
Education	2,520	3.983	1.432	1.000	3.000	5.000	7.000
Religious	2,496	2.832	0.685	1.000	2.000	3.000	4.000
Kurdish	2,483	0.134	0.341	0.000	0.000	0.000	1.000
Supports AKP	2,386	0.431	0.495	0.000	0.000	1.000	1.000

Table C2: List of Survey Questions

Question Code	Question Text
ID	id
MK	Neighborhood code
Kirkent	Residence code
Bolge	Survey location
IlAdi	Province
IlceAdi	District
MahalleAdi	Neighborhood/village
Question1	01 Gender
Question2	02 Age (Open-ended)
Question2.2	02 Aged (Grouped)
Question3	03 Education level
Question3.1	03 Education level (Grouped)

Table C2: List of Survey Questions

Question Code	Question Text
Question4	04 Number of household members
Question4.1	04 Number of household members
Question5	05 Marital status
Question6	06 Where did you grow up?
Question7	07 Life style group
Question8	08 Employment status
Question9	09 If there were an election today, which party would you have voted for?
Questions11-21	11-21 Questions about the practice and eating habits of the household and respondent
Question22	22 Which sources do you use to get information about health?
Question23	23 Questions about the health conditions of the household members and the respondent
Question24.1	24.1 In the last year, how often have you been to a hospital/ clinic/family health center for your own? (Open-ended)
Question24.2	24.2 In the last year, how often have you been to a hospital/ clinic/family health center for your own? (Grouped)
Question25	25 Have you been to any dietitian/healer/bonesetter/psychologist/psychiatrist/alternative medicine center in the last one year for any health problem?
Question26	26 Has there been a case where you couldn't get the examination or treatment you need in the last one year? If yes, why?
Question27	27 In which cases do you usually visit a doctor (When you have a concern/feel sick/have a severe pain/or cannot get better on your own)?
Question28	28 Which health institution do you visit most frequently?
Question29	29 Why this particular institution? (Grouped)
Question30	30 How long does it take to go to the nearest health center?(Open-ended)
Question31	31 Is there any household member in need for care? Elderly/disabled/sick/noone.
Question32	32.1 Generally, I am satisfied with the health condition.
Question32.2	32.2 Generally, I am satisfied with the healthcare services I receive.
Question32.3	32.3 I wouldn't feel comfortable a doctor from the opposite sex examining me.
Question32.4	32.4 Syrians affected the health of people in Turkey negatively by bringing new diseases with them.
Question32.5	32.5 Schools should teach sexual health education.

Table C2: List of Survey Questions

Question Code	Question Text
Question33.1	33.1 Doctors make sufficient explanation to their patients about their health conditions.
Question33.2	33.2 Doctors allocate sufficient time to their patients.
Question33.3	33.3 Doctors treat all patients the same way.
Question33.4	33.4 Doctors discriminate people based on sex/class/language spoken or accent/political view/sexual orientation/ethnicity/education/profession/no discrimination.
Question33.5	33.5 Nurses discriminate people based on sex/class/language spoken or accent/political view/sexual orientation/ethnicity/education/profession/general appearance/where the patient lives/no discrimination.
Question35	35 If a doctor or nurse discriminated you, have you done anything about this?
Question36	36 In your opinion, have healthcare services got better or worse in the AKP period?
Question39	39 Do you expect any economic crisis in Turkey in the coming months?
Question40	40 Which party did you vote for in November 1 elections?
Question42	42 Which TV news do you follow?
Question43	43 Which social security institution are you affiliated with?
Question44	44 Does this household own any cars?
Question45	45 Covering
Question46	46 Ethnicity
Question47	47 Religion/sect
Question48	48 Religiosity
Question49	49 Monthly household income (Open-ended)
Question49.1	49 Monthly household income (Grouped)
Question52	52 Time of the survey
Question53	53 House type
kisibasigelir	Per capita income
gelirdilimleri	Economic classes

C.3 Additional Results for Robustness Checks

Figure C3: Marginal Effect of Health and Education Investments (one unit per 10k) on Vote Share

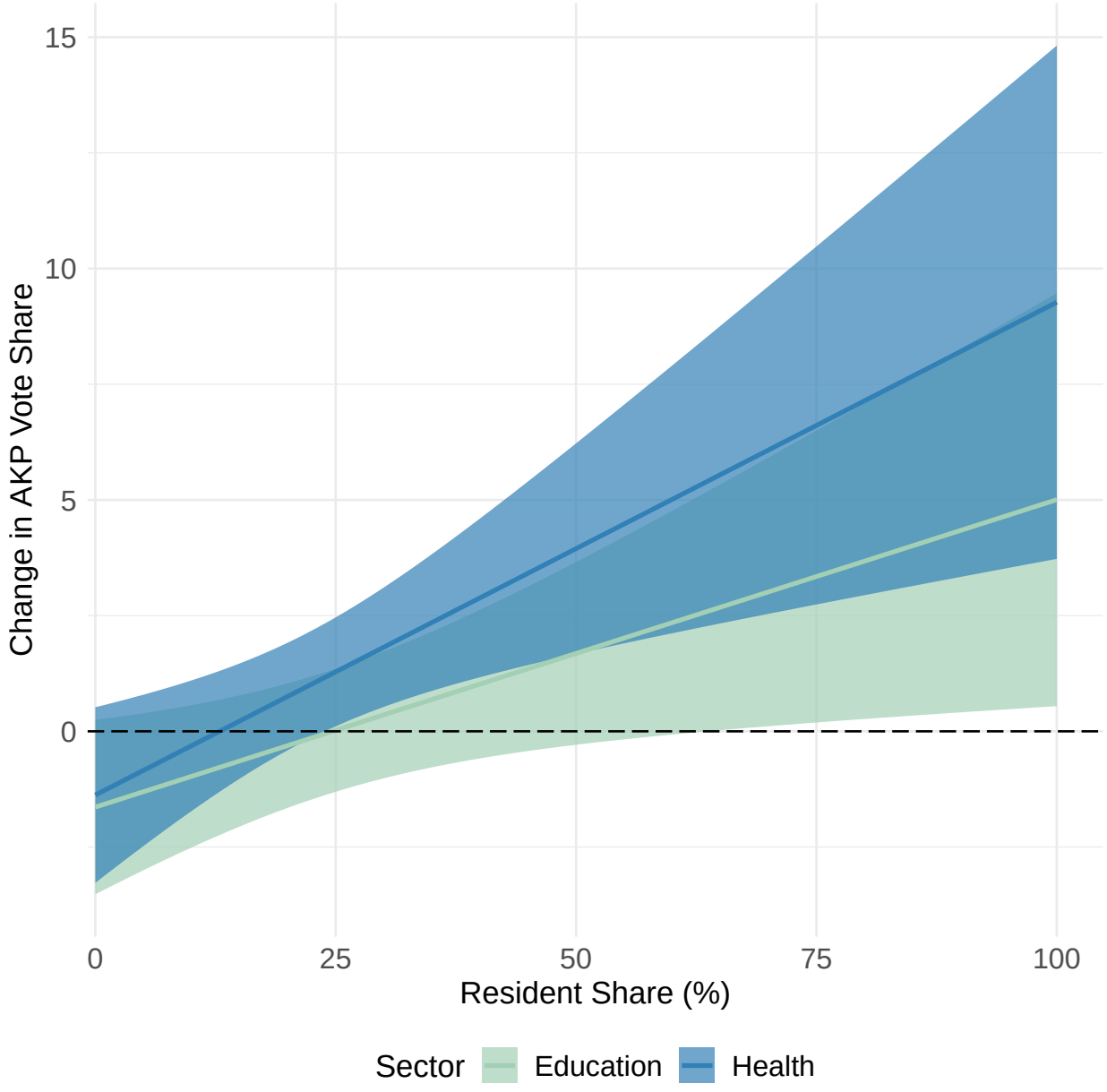


Table C3: Excludability and Electoral Returns of Public Good Investments, Main Results

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv.	−0.256***	−0.262***	−0.201***			
	(0.078)	(0.079)	(0.074)			
Other inv. (excl. educ)			−0.011**			
			(0.005)			
Population (log)		−2.818***	−2.667***		−2.819***	−2.567***
		(0.888)	(0.869)		(0.891)	(0.861)
Avg. nightlights density		−0.140***	−0.139***		−0.133***	−0.137***
		(0.033)	(0.034)		(0.033)	(0.034)
Literacy rate (%)		−0.204**	−0.213**		−0.196**	−0.211**
		(0.083)	(0.083)		(0.083)	(0.084)
Agricultural land (pc)		−0.010	−0.009		−0.006	−0.005
		(0.038)	(0.038)		(0.038)	(0.038)
Education inv.×Resident share (%)	0.010**	0.010**	0.010**			
	(0.004)	(0.004)	(0.004)			
Health inv.				−1.983***	−1.834***	−1.552***
				(0.427)	(0.439)	(0.437)
Other inv. (excl. health)						−0.012**
						(0.005)
Health inv.×Resident share (%)				0.092***	0.085***	0.080***
				(0.022)	(0.022)	(0.022)
Observations	3,718	3,718	3,718	3,718	3,718	3,718
R^2	0.003	0.022	0.024	0.005	0.023	0.026

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Table C4: Excludability and Electoral Returns of Public Good Investments, Matched Sample (Genetic)

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv.	−0.262***	−0.240***	−0.175**			
	(0.080)	(0.078)	(0.073)			
Other inv. (excl. educ)			−0.011**			
			(0.006)			
Population (log)		−2.793***	−2.638***		−3.179***	−2.882***
		(0.890)	(0.867)		(1.126)	(1.067)
Avg. nightlights density		−0.111***	−0.109***		−0.083***	−0.087***
		(0.032)	(0.032)		(0.031)	(0.033)
Literacy rate (%)		−0.109	−0.119		−0.046	−0.065
		(0.085)	(0.086)		(0.135)	(0.136)
Agricultural land (pc)		0.012	0.014		−0.013	−0.011
		(0.040)	(0.040)		(0.048)	(0.048)
Education inv.×Resident share (%)	0.009**	0.008*	0.008*			
	(0.004)	(0.004)	(0.004)			
Health inv.				−2.036***	−1.672***	−1.402***
				(0.441)	(0.459)	(0.453)
Other inv. (excl. health)						−0.012**
						(0.006)
Health inv.×Resident share (%)				0.086***	0.074***	0.069***
				(0.022)	(0.023)	(0.022)
Observations	3,284	3,284	3,284	2,264	2,264	2,264
R^2	0.005	0.018	0.021	0.010	0.023	0.027

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Table C5: Excludability and Electoral Returns of Public Good Investments, Trimmed by Excludability

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv.	−0.249***	−0.266***	−0.202***			
	(0.082)	(0.082)	(0.077)			
Other inv. (excl. educ)			−0.011**			
			(0.005)			
Population (log)		−2.641***	−2.483***		−2.606***	−2.345***
		(0.902)	(0.880)		(0.904)	(0.871)
Avg. nightlights density		−0.138***	−0.136***		−0.131***	−0.135***
		(0.033)	(0.033)		(0.032)	(0.034)
Literacy rate (%)		−0.223***	−0.232***		−0.214**	−0.230***
		(0.084)	(0.085)		(0.084)	(0.085)
Agricultural land (pc)		−0.007	−0.005		−0.002	−0.001
		(0.042)	(0.042)		(0.042)	(0.042)
Education inv.×Resident share (%)	0.010**	0.011**	0.010**			
	(0.005)	(0.005)	(0.005)			
Health inv.				−2.132***	−2.029***	−1.730***
				(0.441)	(0.455)	(0.452)
Other inv. (excl. health)						−0.012**
						(0.005)
Health inv.×Resident share (%)				0.101***	0.095***	0.089***
				(0.022)	(0.023)	(0.022)
Observations	3,520	3,520	3,520	3,520	3,520	3,520
R^2	0.003	0.022	0.024	0.006	0.025	0.027

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Table C6: Excludability and Electoral Returns of Public Good Investments, Trimmed by Investments

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv.	−0.545***	−0.521***	−0.431***			
	(0.145)	(0.149)	(0.135)			
Other inv. (excl. educ)			−0.013*			
			(0.007)			
Population (log)		−2.450***	−2.287**		−2.926***	−2.639***
		(0.906)	(0.890)		(0.934)	(0.903)
Avg. nightlights density		−0.143***	−0.139***		−0.133***	−0.135***
		(0.036)	(0.036)		(0.034)	(0.035)
Literacy rate (%)		−0.220***	−0.228***		−0.200**	−0.214**
		(0.084)	(0.084)		(0.084)	(0.084)
Agricultural land (pc)		−0.010	−0.008		−0.008	−0.007
		(0.038)	(0.038)		(0.038)	(0.038)
Education inv.×Resident share (%)	0.019***	0.019***	0.018***			
	(0.006)	(0.006)	(0.006)			
Health inv.				−2.517***	−2.284***	−1.996***
				(0.582)	(0.600)	(0.586)
Other inv. (excl. health)						−0.013*
						(0.007)
Health inv.×Resident share (%)				0.114***	0.105***	0.099***
				(0.026)	(0.026)	(0.026)
Observations	3,660	3,660	3,660	3,663	3,663	3,663
R^2	0.005	0.024	0.026	0.006	0.024	0.027

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Table C7: Excludability and Electoral Returns of Public Good Investments, Binary IV Measure

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv. (dummy)	-3.143^{***}	-2.624^{***}	-1.638^{*}			
	(0.791)	(0.813)	(0.961)			
Other inv. (excl. educ)dummy			-0.762^{*}			
			(0.445)			
Population (log)		-2.562^{***}	-2.507^{***}		-2.887^{***}	-2.755^{***}
		(0.891)	(0.892)		(0.894)	(0.894)
Avg. nightlights density		-0.122^{***}	-0.122^{***}		-0.132^{***}	-0.130^{***}
		(0.032)	(0.032)		(0.033)	(0.032)
Literacy rate (%)		-0.202^{**}	-0.208^{**}		-0.191^{**}	-0.199^{**}
		(0.082)	(0.082)		(0.083)	(0.083)
Agricultural land (pc)		-0.006	-0.007		-0.005	-0.007
		(0.037)	(0.037)		(0.038)	(0.038)
Education inv. (dummy)×Resident share (%)	0.077^{***}	0.068^{**}	0.066^{**}			
	(0.028)	(0.029)	(0.029)			
Health inv. (dummy)				-2.856^{***}	-2.442^{***}	-1.377
				(0.870)	(0.884)	(0.968)
Other inv. (excl. health)dummy						-0.987^{**}
						(0.438)
Health inv. (dummy)×Resident share (%)				0.121^{***}	0.106^{***}	0.106^{***}
				(0.035)	(0.035)	(0.035)
Observations	3,718	3,718	3,718	3,718	3,718	3,718
R^2	0.007	0.023	0.025	0.004	0.022	0.024

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Table C8: Excludability and Electoral Returns of Public Good Investments, by Partisan (AKP) Support

	Dependent variable:					
	AKP vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Education inv.	−0.031	−0.033	0.016			
	(0.033)	(0.034)	(0.039)			
Other inv. (excl. educ)			−0.011**			
			(0.005)			
Population (log)		−2.859***	−2.691***		−3.094***	−2.777***
		(0.856)	(0.837)		(0.884)	(0.850)
Avg. nightlights density		−0.141***	−0.139***		−0.132***	−0.136***
		(0.033)	(0.034)		(0.032)	(0.033)
Literacy rate (%)		−0.197**	−0.206**		−0.184**	−0.201**
		(0.083)	(0.084)		(0.083)	(0.084)
Agricultural land (pc)		−0.008	−0.007		−0.008	−0.007
		(0.038)	(0.038)		(0.038)	(0.038)
Education inv.×Core Dist.	−0.078**	−0.082**	−0.067*			
	(0.040)	(0.040)	(0.039)			
Health inv.				−0.245	−0.147	0.014
				(0.246)	(0.250)	(0.253)
Other inv. (excl. health)						−0.013***
						(0.005)
Health inv.×Core Dist.				−0.020	−0.102	−0.030
				(0.276)	(0.278)	(0.271)
Observations	3,769	3,767	3,767	3,769	3,767	3,767
R^2	0.002	0.021	0.023	0.001	0.019	0.023

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

C.4 Regression Discontinuity Design

Table C9: Discontinuity in Public Health and Education Investments Made to Municipalities

	Dependent variable:					
	Education inv. $(t+1)$			Health inv. $(t+1)$		
	(1)	(2)	(3)	(4)	(5)	(6)
Forcing	0.538	1.298	8.633	0.223	0.584	2.157*
	(0.632)	(1.659)	(6.673)	(0.184)	(0.464)	(1.237)
AKP Mayor	−0.054	−0.069	−0.304	−0.025	−0.013	−0.099**
	(0.083)	(0.109)	(0.204)	(0.021)	(0.029)	(0.047)
Turnout	0.017***	0.011*	0.021**	0.001	0.0001	0.001
	(0.004)	(0.006)	(0.010)	(0.001)	(0.002)	(0.002)
Population +18 (log)	0.747***	0.606***	0.713***	0.119***	0.091***	0.132**
	(0.099)	(0.120)	(0.192)	(0.031)	(0.031)	(0.061)
Forcing ×AKP Mayor	−0.784	−1.844	−7.064	−0.241	−1.155*	−1.632
	(1.008)	(2.213)	(7.748)	(0.257)	(0.592)	(1.709)
Observations	6,147	4,715	2,872	6,147	4,715	2,872
R^2	0.080	0.070	0.087	0.029	0.033	0.034

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

Table C10: Discontinuity in Public Health and Education Investments Made to Municipalities, with Quadratic Terms

	Dependent variable:					
	Education inv. $(t+1)$			Health inv. $(t+1)$		
	(1)	(2)	(3)	(4)	(5)	(6)
Forcing	3.532	6.314	−16.565	0.957	0.960	−3.827***
	(2.553)	(6.845)	(17.519)	(0.705)	(1.779)	(1.237)
AKP Mayor	−0.181	−0.196	−0.116	−0.034	−0.060	−0.073
	(0.121)	(0.167)	(0.297)	(0.031)	(0.045)	(0.047)
Forcing^2	16.104	48.358	−460.599	3.959	3.549	−109.500
	(12.950)	(64.421)	(283.673)	(3.570)	(15.429)	
Turnout	0.017***	0.011*	0.022**	0.001	0.0001	0.001
	(0.004)	(0.006)	(0.010)	(0.001)	(0.002)	(0.002)
Population +18 (log)	0.749***	0.603***	0.720***	0.119***	0.092***	0.135**
	(0.100)	(0.119)	(0.193)	(0.031)	(0.031)	(0.061)
AKP Mayor × Forcing	−2.240	−4.294	22.664	−1.338	0.867	7.365***
	(3.741)	(8.568)	(22.000)	(0.968)	(2.346)	(1.709)
AKP Mayor × Forcing^2	−24.381	−72.540	380.148	−1.989	−26.200	56.085
	(18.262)	(79.037)	(397.349)	(4.958)	(20.020)	
Observations	6,147	4,715	2,872	6,147	4,715	2,872
R^2	0.081	0.070	0.089	0.029	0.035	0.036

Note: Standard errors clustered by district.*p<0.1; **p<0.05; ***p<0.01

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