1

Networks of Sectarianism: Experimental Evidence on Access to Services in Baghdad

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Abstract

The relationship between ethnic fractionalization and lower availability of public goods and services is now treated as an empirical regularity. Using a pool of over 300 participants from paired Sunni and Shia neighborhoods in the highly sectarian context of contemporary Iraq, we conduct a novel small-world network experiment in which participants are randomly assigned to obtain information about local government services in Sunni- or Shia-dominated target areas. We trace how participants draw on their social networks and show that segregated social networks and different patterns of network search result in differential levels of access to services between groups. Contrary to expectations, we find that the politically dominant majority Shia group is substantially less able to access public services than the minority Sunni group. They pursue an inefficient network search strategy that relies on lower-quality contacts, and are less able to leverage their social ties into costly assistance. The minority group appears to have developed better strategies for obtaining resources to which it would otherwise be denied access.

Key Words: ethnic diversity, public goods, network search, small world, sect, Iraq

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1 Introduction

In August 2015, while Iraqi forces were mired in a protracted fight against the Islamic State, tens of thousands of Iraqis took to the streets of Baghdad to protest against electricity blackouts. Carrying coffins draped in black shrouds inscribed with the words "electricity, water, services" and holding signs proclaiming their "death by sectarianism," Iraqis protested against the under-provision of public goods and services and the sectarian divisions between majority Shia and minority Sunnis that are seen as driving them. These rallies, which lasted six weeks and spread across eight Iraqi provinces, were also supported by the chief Shia religious authority in Iraq, Grand Ayatollah Sistani, who called for an end to the sectarian politics that have crippled Iraqi institutions since the US invasion and have brought public services to a halt. These calls, which were echoed as recently as 26 February 2016 at a massive Baghdad rally organized by prominent Shia Iraqi militia leader Moktada al-Sadr, reflect an empirical regularity in political economy: that fewer public goods and services are available to members of ethnically divided societies. Though segregated social networks are presumed to be a major driver behind this underprovision, their precise role remains largely under-theorized.

Much existing work has looked at how divisions such as ethnicity impact the availability of public goods. Research on this phenomenon at higher levels of aggregation, e.g. among local governments, is complicated by practical and ethical difficulties in randomizing the provision of public goods and services. However, from the perspective of a citizen, the supply of these resources is only one part of the story. Our study helps fill this gap by showing that even when faced with the same task in the exact same local government office, members of different groups have significantly different abilities to access public goods and services, and that these gaps are in large part driven by the network strategies used to gain access. Specifically, we conducted a small world experiment in which participants were asked to draw on their social networks to obtain information about a local government service. After randomly assigning participants to in- or out-group neighborhoods as a way to measure the extent of access discrepancies due to sect, we also tracked their search behavior to understand the network dynamics driving such

discrepancies.

We draw on the case of Iraq where the prominent societal cleavage is sect, and where Sunnis and Shiites control different official and unofficial resources. This network segregation implies that individuals of different sects have very different levels of access to services. While important and relevant, Iraq is also not exceptional. Sectarianism has become a salient identity divide in an array of strategically important areas of the Muslim world—such as Syria, Yemen, Pakistan, Lebanon, and Bahrain—and can arguably even capture majority-minority dynamics in ethnically divided societies more broadly. The intent is to use the case of Iraq to answer the broader social scientific question of how divided networks affect access to services and what the strategies are that people use to navigate a segregated society.

We find, contrary to our initial expectations, that the politically dominant majority Shia group is substantially less able to access public services than the minority Sunni group. Shia underperformance is still evident after controlling for a host of demographic characteristics in a variety of ways, including in the Shia target neighborhood where they should enjoy an in-group advantage. Using data from the search process, we present evidence that this gap is driven by two sets of mechanisms: (1) relative to the minority Sunni group, Shia participants pursue an inefficient network search strategy that relies on lower-quality contacts, and (2) Shia are less able to leverage their social ties into costly assistance from their contacts. One explanation that is consistent with these results is that minority groups evolve better strategies for obtaining resources to which they would otherwise be denied access.[1]

2 Literature and Hypotheses

The lower levels of public goods in more fractionalized societies has been established in contexts across the developed and developing world and as such has been called one of the most robust findings in political economy (Alesina, Baqir, and Easterly 1999; Banerjee et al. 2005; Miguel and Gugerty 2005; Habyarimana et al. 2007; among others). Many have also looked at underlying mechanisms, including

[1]It is worth noting that Ba'athist rule most likely predates the political memory of our participants, who were typically 9 years old when the regime fell. Thus, this alternative explanation would require that political knowledge be passed down through a sort of group memory effect, or through their parents.

divergent preferences (such as Alesina, Baqir, and Easterly 1999) and the role of shared language, customs and norms, including social networks (termed "technologies of communication" by Habyarimana et al. 2007). These results help explain why certain societies provide fewer public goods and services as a matter of policy. However, the mere availability of these resources is not sufficient for in- and out-group citizens to receive actual benefits. Our experiment examines whether citizens are able to access these services in a divided society and how they draw on their social networks to do so. Our results shed light on citizens' expectations of access, which likely plays an important role in societal support for providing these public goods. We are, however, not able to examine the dynamic interplay between these factors and how they influence future public goods provision.

Our focus on social networks is consistent with an increased interest in their general role in development—be it in how social networks affect the diffusion of micro-finance (Banerjee et al. 2013) or how they may affect the successful integration of winners of housing lotteries (Barnhardt, Field and Pande 2015). Our focus is specific to the context of public services, where we aim to assess whether differential access is due to differential use of within-group ties, lack of cross-group social ties, or whether cross-group ties exist but cannot be effectively leveraged for assistance. Existing works have theorized the societal and economic implications of a network's structure and how people navigate them (Zuckerman 2003; Kleinberg 2000; and Granovetter 2005; among others). A rich literature on the "small world" phenomenon shows that seemingly distant members of society, such as a common citizen and the gatekeeper of a public service, are often connected by a small number (typically given as "six degrees") of intermediate contacts. Perhaps more surprising than the mere existence of these short paths, however, is the fact that across a variety of settings, individuals are often able to find these short paths even without knowing the global social network structure (Milgram 1967; Dodds et al. 2003). This well-established result highlights the important role of a search strategy, or the heuristics that people use to identify social resources—for example, reaching out to intermediate contacts based on geographic location or occupation (Killworth and Bernard 1978). However, a common critique of small-world experiments (Schnettler 2009) is that they tend to only examine successful searches—e.g. letter-forwarding chains that even-

tually reach the intended recipient–which limits the inferences that can be drawn (Geddes 1990). Our study collects data on search behavior for both successful and failed attempts to access public services, which helps identify search strategies that are associated with success. Here, we are interested in whether certain groups are more likely to approach high-quality contacts.

A second, closely related question is how, after identifying a contact, the searcher is able to secure costly assistance such as information or an introduction to yet another contact. A substantial literature on the sociology of job searches suggests a tension between the use of weak and strong ties: While strong ties facilitate the exchange of favors (for example Bian 1997), they are also associated with tight-knit, homogeneous groups in which members have similar knowledge and gains to trade are thus limited. In contrast, weak ties are more likely to "bridge" the searcher to distant parts of the network where fresh information is more readily available (Granovetter 1973).

Though these literatures raise interesting questions about the ways in which different groups may attempt to access public goods, they offer little in the way of clear theories about how people will navigate divided social networks. This is precisely the gap our study aims to cover. There are, however, some suggestive hypotheses that are readily derived from existing works and which we used to identify what behaviors to look for and what measures to collect. Specifically, we anticipated the following outcomes:

> **H1**: People belonging to the group in power are more likely to have better access to public goods and services.

The hypotheses below examine the network-related measures that may drive the differential mechanisms for success and failure.

> **H2**: People will more readily turn to in-group ties than out-group ties for information or assistance. This is consistent with the role of strong ties in the literature that allows for higher levels of trust and reputational gains, as well as higher levels of enforcement and compliance.

H3: There will be higher levels of success among those who can effectively reach across groups when necessary. This draws from findings on "the strength of weak ties" and the role these contacts play in bridging disparate groups.

H4: We expect people to seek out contacts not merely based on their sectarian affiliation, but also using other heuristics to identify better-informed individuals. For instance, we expect people to reach out to older or more educated contacts, as these are more likely to have information about accessing public services.

3 Experimental Design

3.1 Intervention

The intent of our study is to draw inferences from actual behavior in a realistic task, rather than online behavior or stylized behavioral games as much of the existing literature. After carrying out qualitative fieldwork to identify a meaningful task in the Baghdad context that would allow us to measure access to public services, we settled on the act of obtaining a residency certificate from local council authorities. Such a certificate is required not only for access to services such as connecting a residence to electricity/water or enrolling a child at a local school, but also for job applications, voter registration, and moving, among other things.

In Baghdad—as in other areas where bureaucracies are less professionalized and political knowledge is low—citizens draw heavily on their social networks to access public services. Inefficiencies in service provision and overall sectarian politics largely prevent people from simply showing up at local government offices to request services. Customarily, a citizen would first identify and establish contact with a gatekeeper who can help in such a task, and then initiate an in-person meeting to proceed with securing the service. Though we want to understand how people navigate sect-dominated bureaucracies to ac-

cess services, we did not want to pose an actual burden to local councils in Baghdad with unnecessary requests for residency certificates. Participants were instead only asked to find the address of the local council and the name and phone number of a gatekeeper—an official in that council that could provide the service in an assigned Shia or Sunni neighborhood.[2] The experiment thus mimics the initial process an Iraqi would have to go through to obtain such government services.

These local councils are neighborhood level councils that were founded by the Coalition Provisional Authority (Order 71) in 2004 to "achieve greater efficiency and economies of scale in coordinating the provision of public services, and to facilitate unified and coordinated administration of cities." Their tasks include issuing local identity documents and monitoring provision of services such as water, electricity, trash collection and sewage. The average size of a council is 5–6 members, with each member representing a specific neighborhood block (with an average of 25,000 residents per block). Their members, however, are appointed rather than elected and have largely been the same since their initial appointment in 2004. Though they were in principle meant to represent both sects, initial appointees were overwhelmingly Shia, not only as a reflection of the demographic realities of Baghdad but also in large part due to the requirement that members have no past affiliation with the Baath party.[3] The leadership of these councils has also been Shia-dominated as it is council members that select the council head and deputy head. Shia over-representation is not particular to local councils: more broadly, the Shia-majority composition of the current government is reflected across a wide range of government bodies.

3.2 Sample Selection

Our participants are a sample of 317 young men who were recruited from well-frequented cafes in two socioeconomically comparable neighborhoods in Baghdad, described below. While this is a convenience sample, we argue it is an important one as it captures the first generation of post-invasion young adults in the Iraqi capital. Due to local gender norms that largely preclude women from socializing publicly with men, we focused our sample on male participants only. Men tend to be the head of households and polit-

[2]To validate answers, we compared the information provided by participants against a government-provided list of location and council members in the target office.

[3]This suggests that they can be Shia-dominated even in neighborhoods that may have a majority of Sunni residents.

ical decision makers in Iraqi society and as such constitute an interesting and meaningful population to study. We used identical recruitment strategies in both neighborhoods, recruiting participants from similarly sized cafes with comparable prices for narghile, a favorite pastime of Baghdadi men. Recruitment took place after local working hours, when men go out to cafes close to their homes to socialize.

Each participant received a T-shirt as compensation for participating, as well as up to the equivalent of US$50 dollars in phone credit if they completed the task. This is a non-negligible amount of money that greatly facilitated recruitment—a laborer in Baghdad makes anywhere between $7-$30 a day depending on the level of skill, and a civil servant receives an average monthly salary of $500.

After we described the task at hand to participants and they consented to taking part, we asked them to come to a school in each of the two recruiting neighborhoods where the study took place. Each participant completed a short survey before the start of the study and was also asked to write down the phone numbers of potential contacts he might need for assistance with the task at hand. We then took away the participants' personal phones and gave each one a study phone so as to ensure they all had as much phone credit as needed for calls/text messages and no access to internet data.[4] Each participant was then assigned to a separate classroom, and once all participants were in their rooms, an enumerator notified them one-by-one of the Baghdad neighborhood to which he had been assigned. Participants had up to 2 hours to complete the task.

3.3 Participating Neighborhoods

Because of the sensitive political situation in Baghdad, one cannot openly ask people their sectarian affiliation. We therefore recruited from two neighborhoods with distinct sectarian identities as a way to sort participants from both sects. The two participating neighborhoods are across from each other on Baghdad's Tigris river: Shia-majority Kadhimiya, on the west bank of the river and Sunni-majority Adhamiya on the east (figure 1). The neighborhoods are connected by a bridge called "the Imams' bridge," aptly named as it connects two monumental mosques in these neighborhoods: Imam Kadhim's shrine, named

[4]The information on council locations and council member names and phone numbers is not available on the internet.

after the 7th imam in the Twelver Shia tradition (in Kadhimiya); and Abu Hanifa's mosque, named after the founder of one of the four schools of Sunni Muslim thought (in Adhamiya). Because of the different religious tradition of these two mosques, the two neighborhoods are almost exclusively homes for people of the respective sects. Apart from the distinct sectarian tradition, the two neighborhoods compare well on a range of socioeconomic characteristics such as population size, illiteracy levels, and labor participation, as well as access to water and sanitation (see Table 1).[5]

In addition to relying on the neighborhood of recruitment for identifying sect, we further validated people's sect through their name, as Sunni and Shia tend to have distinct names (identified through first name, father's name, grandfather's name and tribal name). As expected, among those with identifiably sectarian names, over 98% of participants were of the dominant sect of the recruitment neighborhood. We also checked to see how many participants were local residents of the respective neighborhoods. Sunni participants are more likely to be local than Shia participants, which is consistent with the differential mobility patterns of the two groups reported below. Reported results hold when adjusting for participants' home location and we also conduct robustness tests in which we subset to local residents only.

We considered it too easy a task to assign participants to get information for a residency permit in their own neighborhood. Instead, we identified two distinct target neighborhoods, one majority Shia and another majority Sunni, the neighborhoods of Zayouna and Ghazaliya respectively (figure 2). Asking participants to secure a residency certificate in a neighborhood other than their own would approximate the experience of an incoming resident trying to secure a residency certificate at his new neighborhood. Unlike Kadhimiya and Adhamiya, we do not have the same type of neighborhood level data for Zayouna and Ghazaliya. These two neighborhoods are known to be majority Shia and Sunni respectively, and were selected because they are roughly equidistant from the recruitment neighborhoods (a 20–25 minute drive). Similar distance from the recruitment neighborhoods was an important factor to ensure that

[5]There is limited systematic data on the neighborhood level in Baghdad. Though we collected what was available from an array of local and international organizations, local data was available only for a subset of Baghdad's neighborhoods.

participants were not more familiar with one neighborhood over the other due to proximity.[6] Based on qualitative accounts, these neighborhoods also compare well on the type of residents (professionals such as teachers, lawyers and doctors) and on real estate prices as provided by local agents (at an average of US$1900 a square meter in both neighborhoods). Despite representing neighborhoods with very different sectarian compositions, for the political reasons discussed above, both have a 5-member local council with three Shia members (including the council head and deputy head) and two Sunni members (see Table 2).

4 Data

We had a total of 317 participants, of which 153 were recruited in Kadhimiya and 164 in Adhamiya. Half from each group were in turn randomly assigned to either the Shia target neighborhood (Zayouna) or the Sunni target neighborhood (Ghazaliya).

4.1 Measurement

We carried out a short pre-experiment socio-demographic survey where we asked participants about their age, education levels, employment, daily contacts and weekly mobility around Baghdad.[7] The participants were then asked to keep a log of all the calls they made while trying to complete the task. There they noted who they were calling; how they knew this person; age, education and occupation of the contact; what type of information they were hoping to secure; how long the call lasted; and if they got the help they were hoping for. The study phones we used were smartphones that allowed us to also back up the numbers called and messages sent. This was a way for us to compare the participants' logs against the actual calls, i.e. self-reported data against actual behavioral data. Despite a handful of isolated reports of participants across the two recruitment areas altering self-reported numbers or deleting call logs,the data appear to be largely consistent: 87% of self-reported phone numbers appeared in the call logs, and approximate self-reported call durations generally track the exact figures recorded in call logs.

[6] Self-reported familiarity during the debrief confirms that participants were equally familiar with both targets.

[7] We were not able to directly ask questions about their sect or political affiliation and civic engagement as this is considered sensitive information in the Baghdad context.

After completing their calls, participants filled out a debrief survey responding to questions on prior experience securing a residency certificate; their levels of religiosity; and offering a qualitative description on how they decided whom to contact to try to secure the requisite information for the task at hand.

4.2 Participant Characteristics

Participants compare well in terms of age, years of education, marital status and prior experience securing a residency permit (figure 3). But Sunni and Shia are not just labels–these are distinct populations with differences that come across in both demographic and behavioral measures, and there is no reason to expect balance across these groups. Looking at employment, it is clear that Sunni participants are notably more likely to be enrolled as students, whereas Shia participants are more likely to be employed in the manual, private and public sectors (figure 4). Sunni and Shia also differ in terms of years of residency in Baghdad. Specifically, we see that the Sunnis have more new arrivals to the city as recent as in the past year (with 17% of the sample in the past five years), who are likely to have been displaced from the conflict against the Islamic State in Mosul and the Sunni triangle (figure 5). Going beyond socio-economic measures, we see that Sunnis and Shia also differ in religious behavior. Though participants from both groups reported similar levels of mosque attendance and Friday prayer, Shia participants were considerably more likely to read the Quran and listen to recorded sermons outside mosque (figure 6).

There are also notable differences in the pattern of mobility between the two groups: we find that Sunni participants are more insular on a variety of measures. When asked about the neighborhoods they visit in their daily lives (for, e.g. work, study, entertainment, socializing), relative to Sunni participants, Shia reported visiting a significantly wider range of neighborhoods, at a greater average distance from home, with higher frequency (figures 7 and 8). When asked to name people with whom they interacted in their daily life, Sunni participants also reported a lower number of contacts, and these contacts tended to live significantly closer to the participant's home.

5 Results

We first report results by levels of success on the task by participant sect (Sunni or Shia) and by target assignment (co-sect or cross-sect). We then unpack two sets of mechanisms driving success. First, we examine participants' search strategies, or the type of contacts that they approach. Specifically, we look at whether participants reach out across sectarian lines, as well as whether they move horizontally within their network (i.e., contact peers) or vertically (reach out to older, more educated people). Then, we evaluate the effectiveness of their strategies, or the extent to which they are able to secure assistance from these contacts. We examine several dimensions of effectiveness: the amount of contact engagement (rate of contact pick-up, number of calls, call duration); whether contacts subsequently participate in the search process by drawing on their own ties; and whether contacts ultimately provide accurate information. We also reference qualitative results, where participants were encouraged to reflect upon the factors that influenced who they decided to reach out to and why.

5.1 Success in Access

Overall, 39% of participants were able to get correct information on the general vicinity of the assigned neighborhood council office, including 17% who found the exact location. For the next, more challenging step, identifying someone who could help secure a residency permit, 17% were able to secure a name. Only 2% (three participants from each sect) found the most difficult piece of information, a correct personal phone number.

Looking at these purely experimental differences in success between randomly assigned targets, we find that both Sunni and Shia participants were significantly more successful in the Sunni target, both at locating the council address and identifying a gatekeeper (by an average of 20–30 percentage points depending on outcome, at p-values of 0.01 or below for both groups).[8] This suggests that despite our efforts to find similar target neighborhoods—and despite participants reporting similar levels of familiarity

[8]Nonparametric p-values calculated by block-bootstrapped rank sum (council address) and difference-in-means (gatekeeper name) test statistics. Parametric models with ordered probit (address) and logistic regression (name) yield essentially identical results.

with both neighborhoods—the Sunni target office was simply easier. This could be due to an array of idiosyncratic factors and it is not something at which we can get through the setup of our experimental study.

In our raw results, we also found unexpected patterns of heterogeneity in success: Shia participants performed drastically worse than Sunni participants in both target neighborhoods, including the Shia target in which Shia participants should have enjoyed a co-sect advantage. This contradicted our initial hypothesis that Shia, as members of the dominant group, would have greater access to services across the board. The disparity was particularly puzzling in light of the other Sunni handicaps discussed above, such as a larger proportion of internally displaced persons, greater insularity, and the fact that councils are led by Shia appointees even in Sunni neighborhoods.[9]

To rule out the possibility that the higher rate of Shia failure is driven by observable demographic differences between Sunni and Shia participants, we adjust for these differences by regression, matching, and reweighting by entropy balancing (Hainmueller 2012).[10] Regression results show that in fact, demographic characteristics only weakly predict access. The only significant predictor of success, whether substantively or statistically, is a university education: Relative to high-school educated participants, college-educated participants are roughly 25 percentage points more likely to find information about both council addresses and gatekeepers. Given the role of Iraqi universities as a place where people form broader social networks and interact with those from the other sect, this difference in performance is unsurprising. In contrast, factors such as living closer to the target, marital status, employment sta-

[9]Given this variation between councils, to hold the difficulty of the task fixed, we would need to randomize over a larger set of Sunni and Shia target neighborhoods, rather than one of each as in our experiment. This is not something that our current experiment can explain. What we can get at is the differences, if any, in the way the two groups utilize their networks to get at the requisite information and this is our focus.

[10]In regression models, we adjust for the following demographic characteristics: age (linear and quadratic), time residing in Baghdad (linear and quadratic), religiosity (1st principal component of six measures), marital status, educational attainment and current enrollment status, and work sector and current employment status. We also adjust for the time of day at which participants start the experiment, as well as the distance of the assigned target from their home neighborhood. Matching of Sunni participants to Shia participants is done one-to-one with replacement by exact-matching on the assigned target and "local" status (living in the recruitment neighborhood); then minimizing the standardized Euclidean distance on age, student enrollment status, whether the participant was university-educated, time in Baghdad, and start time. Reweighting is done such that Sunni and Shia participants who are assigned to a particular target are identical on mean age, time in Baghdad, school enrollment status, university education, start time, and distance from their home neighborhood to the assigned target.

tus, age, length of residency in Baghdad, or religiosity are not significantly associated with success, and point estimates on the differences associated with typical changes in these covariates[11] are associated with increased success of at most 10 percentage points (and usually much less).

In these models, the difference between Sunni and Shia success on locating the council address loses significance, but the sign of the difference generally remains the same–Shia perform worse (Table 3). However, we find substantial gap on the most difficult task, identifying a gatekeeper. Here, success is more heavily dependent on personal relationships (as gatekeepers' names are less readily available and verifiable than the council location). Overall, Shia are roughly 10 percentage points less likely to succeed (Table 4). The gap is not merely driven by the Sunni target neighborhood—if this were the case, the difference could be explained by an inability to work across sect lines. Rather, if anything, the Shia performance gap is more robust in the neighborhood that is dominated by fellow Shia.

5.2 Network Search Strategy

To explain these differences in access, we explore the underlying network search dynamics of the two groups further. In this section, we discuss the heuristics by which participants choose contacts to approach for assistance. To offer readily interpretable results in terms of magnitude, we present each outcome for the median player using the covariate adjusted model (generally the most conservative model, except as noted) and varying sect or target assignment.

As expected, we find that participants rely heavily on geographic cues when deciding whom to call. Shia typically socialize with people that live an average of one kilometer from their home neighborhood, and less-mobile Sunnis socialize almost exclusively with neighbors in their daily lives. Both groups turn further afield when searching their network: The average contact shifts away from home (Table 5) and toward the assigned target (Table 6) by about one kilometer, and these results are highly robust and statistically significant. This behavior is consistent with a large literature on letter-forwarding experiments[12]

[11] One standard deviation for continuous predictors, or a unit change for binary predictors.

[12] Letter-forwarding tasks are the canonical small-world experiment, and several variants exist. In the most basic version, participants are given the name, location, and occupation of a target individual to who they are not directly connected. They then send a letter to an intermediate contact, who forwards the letter to yet another intermediate contact, until the letter ultimately reaches the designated recipient.

(Killworth and Bernard, 1978), but because both Sunni and Shia employ similar geographic strategies, it does not help explain Shia underperformance.

Next, we highlight two weaker results. First, in terms of education, Sunni participants typically reach upwards to contacts that have completed high school and may be better informed or embedded in a broader set of social ties to draw upon. Shia participants behave similarly when assigned to the Shia target, but when assigned to the Sunni target they tend to approach significantly lower-educated contacts. However, this result is not robust to alternative specifications (Table 7). Second, during their daily lives, about one-tenth of contacts mentioned by Sunni and Shia participants' have names that identifiably belong to the other sect—an unsurprisingly small proportion in this heavily sectarian context. When assigned to the co-sect target, where participants have little reason to reach across sect lines, we observe almost identical patterns. When assigned to the cross-sect target, on the other hand, both groups of participants seek out a significantly larger proportion of cross-sect search contacts, demonstrating that such relationships exist but that people usually choose not to draw on them (Table 8). Sunnis participants are highly responsive in this regard, increasing their Shia contacts by 25 percentage points when assigned to the Shia target, versus a corresponding cross-sect shift of only 10 percentage points for Shia participants. Differential responsiveness may be partly attributed to structural factors,[13] but when taken together with the education gap, we interpret these results as suggestive evidence that Shia may have a shallow pool of social ties in the cross-sect target neighborhood and as a result are forced to seek assistance from suboptimal contacts.

Coming into the experiment, a long tradition of sociological research on job searches raised questions about whether we should expect participants to draw on stronger or weaker social ties. A priori, there are countervailing theoretical arguments: Drawing on more dispersed, weaker ties allows a searcher to explore a wider and more varied space, but stronger ties are more likely to provide costly assistance. Using two proxies of tie strength—the participant's length of friendship with the contact and whether

[13] In particular, Shia are better-represented on both target councils, and the Sunni target neighborhood has a larger Shia minority (estimated to be 40%, relative to the 20% Sunni minority in the Shia target neighborhood). These factors may mean that Shia participants simply have less need to reach out across sect lines.

the contact was a family member—we find empirical support for an effect in both directions. Relative to daily life, we find that participants reach out to more recent friends (Table 9). Participants typically socialize with friends they have known for nine years, but search through friends they have known for six (differences across participant sect are not significant). For family contacts, however, we observe the opposite effect: Both Sunni and Shia draw more on family ties when searching, relative to daily life (Table 10). This shift was particularly large and robust among Sunni participants, for whom nearly 30% of search contacts were family members (an increase of 16 percentage points over reported family contacts in daily life). For Shia participants, who similarly drew on family members more during search (14%, increase of 8 percentage points), results are also significant in the regression model but are less robust. In addition, we find that Shia rely significantly less on family than otherwise identical Sunni participants, both in daily life and in search. We argue that the reluctance of young Shia to reach out to family members is related to the well-established finding that Shia society is more heavily hierarchical; this is bolstered by the fact that Shia participants' contacts are, on average, more than 3.5 years younger than those of an otherwise identical Sunni participant (Table 11).[14] Additional evidence, discussed below, suggests that the resulting inefficiencies in information flow are likely to be a handicap for Shia search.

These differences in search strategy are not explained by different levels of effort. Both Sunnis and Shia spend roughly half an hour on the task and turn to an average of two contacts for the search, irrespective of whether they were assigned to a co-sect or cross-sect neighborhood.[15] Sunni participants make an average of 3 outbound calls irrespective of whether they are assigned to a co-sect or cross-sect area, and Shia also make 3 calls in the cross-sect area but 5 calls in the co-sect area. This could reflect a higher number of relevant individuals to contact, but in any case, indicates that the apparent lower quality of Shia contacts is not merely an artifact of lower effort.

We also collected qualitative information about the participants search process at the end of the

[14]Contacts of a typical Shia participant remain younger, by 2 years, than an otherwise identical Sunni participant even after controlling for whether the contact is a family member, but the difference becomes statistically insignificant.

[15]The small number of search contacts may suggest that participants expect their contacts to search further on their behalf, as discussed below. Shia also report roughly twice the number of contacts in their daily lives. Note that the number of daily contacts is a purely self-reported answer, while the number of contacts for the search is both self-reported in the contact log, and behaviorally validated via the smartphone log.

study when we asked participants to reflect on the primary factors that motivated their search strategies. While both groups mentioned turning to people who they considered to be well-connected, Sunnis were (1) nearly 40 percentage points more likely to mention the importance of trust as driving their search strategy and (2) roughly 15 percentage points more likely to mention selecting contacts based on how knowledgeable they were perceived to be, which they often described explicitly by referencing education or the epithet "resident of Baghdad," a local term roughly corresponding to "born and bred" and more sophisticated than people who are new arrivals from the periphery. In contrast, Shia participants were more likely to complain about the lack of local contacts as a hindrance in completing the task.

5.3 Search Effectiveness

While participants have complete agency over the type of contacts they choose to approach, or their search strategy, the assistance that they subsequently receive depends to a greater extent on variables beyond their control. For one, a contact may not have access to the desired information. Even when a contact knows or is able to procure the correct answer, the provision of accurate answers may be somewhat costly for a range of reasons, including the cognitive load of recalling an obscure piece of information; the opportunity costs of giving up potentially valuable knowledge; or, if the information is not immediately available, the effort and social capital expended through referral and indirect search. Perceived benefits depend on norms of reciprocity between participant and contact, including the expectation of repeated interaction; reputational benefits, which depend primarily on the number of shared friends; and any intrinsic value that the contact assigns to being helpful. For the most part, these factors are outside of the short-term control of an individual searching for service-related information, meaning that we can use various measures of the assistance received as proxies for the effectiveness of their chosen search strategy.

Anecdotal evidence, collected in an open-ended debrief interview, suggests that many participants reach out to contacts who help broaden their search, as opposed to merely providing information. This can take one of two forms: (1) a referral, in which the initial contact introduces the participant to a

third party;[16] or (2) indirect search, in which the contact searches their own local social network on the participant's behalf.

To quantify indirect search, we turn to the phone call history, which records the start and end times of all calls to a particular number. Logistically speaking, an indirect search unfolds as follows: The participant calls a contact, asks for assistance, and the phone call is terminated. The contact then makes a number of unobserved phone calls to obtain the access information. Finally, the answer is transmitted to the participant in a follow-up call or text message. We proxy for indirect search with a binary indicator for "recontact," or whether any follow-up call or text message occurred after some waiting period from the end of the first call. (This waiting period excludes, e.g., an immediate call back after losing reception. Results are reported for a waiting period of one minute but are substantively and statistically similar for alternative thresholds of up to five minutes.) This measure is a necessary condition for most indirect search, with some exceptions.[17] Under this definition, roughly 13% of friends approached by a typical participant had recontact. Among family members approached by Sunni participants, however, the recontact rate was a robust and statistically significant 10 percentage points higher (Table 13)—a considerable boost, considering that recontact is the single largest predictor of whether a contact was described as having provided useful information (Table 17). In contrast, Shia family members are not insignificantly more likely to recontact; if anything, they are slightly less likely to have done so. Thus, the family strategy appears to be a successful one for Sunni participants but not Shia, which is likely related to the fact that Sunni are more likely to draw on family contacts and Shia are not.

Next, we examine the extent to which participants receive and trust accurate answers from their contacts. As a first cut, we consider the proportion of submitted answers that are incorrect. While some participants may write down vague answers or answers about which they are uncertain, we argue that the

[16] In the self-reported contact log, we attempted to collect data on the former: Participants were instructed to record, for every person approached, whether the contact was their own acquaintance or whether the contact was introduced by another "referrer." In addition, they were asked about their relationship with the referrer and the relationship between the referrer and the contact. Unfortunately, these questions appear to have been confusing for many participants—only eight referrals were reported, a far lower number than suggested by the qualitative interview.

[17] In one case described during a debrief, a participant's father posed the access question to a group of nearby friends, then reported the answer to his son.

open-ended nature of the task makes it less likely for participants to simply guess wildly about council addresses or gatekeepers—thus, the mere act of writing something down conveys a minimum level of faith in the information provided by contacts. Among participants who wrote down an answer, even after adjusting for demographic differences, we find that as the difficulty of the question increases, Shia increasingly provide incorrect answers at a higher rate than Sunni. On the location of the council office, where answers are public knowledge and are more easily verifiable, Sunni and Shia have nearly identical error rates in both target neighborhoods. When asked to identify a gatekeeper in the easier Sunni neighborhood, Shia have an error rate which is 14 percentage points higher but statistically indistinguishable from that of Sunni participants; in the more difficult Shia neighborhood, this gap is 17 percentage points higher and significant at p = 0.02, even though Shia participants enjoy a co-sect advantage (Table 14). To confirm that these differences are not due to peculiarities about this measure of confidence (e.g., if Shia were more likely to guess at answers, leading to higher error rates), we use two additional proxies based on open-ended debrief questions. First, without any prompting, some participants asserted that their answer was correct at some point in the debrief process. Second, in another set of debrief questions, we asked participants what they found to be easy or difficult. While we initially intended this as a more general question about the search process, some participants indicated that they found the name question, the address question, or both to be "easy." We hand-code these statements[18] and find that among the 79 participants who provided an answer and claimed that the name was "correct," Shia were more likely to in fact be wrong (p = 0.16) and that the same pattern holds among the 48 respondents who claimed the name was "easy" (p = 0.09, n = 48).

The final measure of effectiveness, which we discuss last due to various measurement issues, is whether a contact was reported to provide useful assistance. This measure was also hand-coded from the self-reported contact log, in which participants were asked the paired pre- and post-contact questions, "How do you expect this person to help you?" and "What exact assistance did they offer you?" When participants indicated that a contact gave them either the council address or gatekeeper name, and the

[18] We offer two typical cases that were coded as indicators of "claimed correct." One participant wrote, "My friend provided me the right answer." Another went further, indicating "I got the exact location."

participant in fact later wrote down an answer to either question, we coded the contact as having provided an answer. As previously discussed, recontact is the single most important factor, being associated with roughly a 25-percentage-point increase in reported assistance. We also confirm that geography is indeed a good heuristic for selecting contacts: Relative to contacts who lived the median distance from the assigned target (9 kilometers, or the same distance as the median participant), those who lived one standard deviation closer (5 kilometers from the target) were a significant 9 percentage points more likely to be reported as providing assistance. Finally, among Sunni participants, a 35-year-old contact was significantly more likely to provide assistance than the median 25-year-old contact (by 13 percentage points), but among Shia participants, older contacts were if anything slightly less likely to be of assistance. This further reinforces the notion that Shia hierarchy presents an impediment to information flow, and indirectly to Shia access to public services (Table 16). To confirm that these results are not driven by reporting biases (e.g., a heightened tendency among one group to acknowledge assistance), we re-analyze with participant fixed effects and find results that are substantive and significantly identical, with the sole exception being that the coefficient on recontact becomes more noisily estimated among Sunni participants but remains consistent in sign and general magnitude. Results are also similar, with a slight weakening in statistical significance, when we only consider "validated" assistance by discarding reports of assistance from participants who did not receive at least partial credit on any question (Table 17).

6 Discussion and Conclusions

We find no support for our original hypothesis, that participants belonging to the group in power—the Shia—will have better access. On the contrary, the minority group—the Sunnis—do better in identifying both easier information, the location of the local council, and harder information, the name of the local council member, irrespective of target assignment (be it co-sect or cross-sect). While some of these differences are driven by demographic differences between the two groups, particularly the greater number of Sunnis who are college-educated, the overall underperformance of Shia participants remains

substantively and statistically significant even after adjusting for demographics in a variety of ways.

Ultimately, the Sunnis seem to pursue what should be a dominant strategy: They move vertically in their network, contacting older, more knowledgeable, and trusted people, to try to secure the requisite information. This is not surprising behavior. The paradox is that the Shia, the majority group and the group in power, do not pursue what one would expect to be the most promising strategy. Instead, Shia systematically employ a suboptimal "horizontal" strategy of approaching lower-quality peers that are younger and less well-educated. Sunnis also more readily reach across sectarian lines, contacting out-group individuals when assigned to the cross-sect neighborhood. In their qualitative responses they would emphasize the role of trust and strong ties as well as the contacts level of education.

In terms of effectiveness, Shia secure less assistance from their contacts than Sunnis, even after holding contact-level attributes fixed. In particular, the family members of Shia participants are less willing to expend social capital by searching on their behalf, and Shia participants are less able to obtain assistance from older contacts. Ultimately, Shia are too trusting in the low-quality information that they receive from their contacts.

Using mediation analysis (Imai, Keele, and Yamamoto 2010), we find that the "strategy" and "effectiveness" classes of mechanisms are respectively more important in the Sunni and Shia targets with each accounting for roughly one-third of the gap in performance; the remaining direct contribution is likely due either to unobserved differences between Sunni and Shia or model misspecification.

We argue that there are two interrelated factors that are driving these results. First, the Shia are more hierarchical as a group, a statement long established in anthropological, historical and other recent work in political science (Patel, forthcoming). Hierarchical social ties in people pose an asymmetry in access to information, with people from the bottom not being able to tap into informational resources from more senior people. As such, younger Shia men are reluctant to contact older people for assistance and instead turn to co-sect peers. Second, they seem to be more insular as a group, as they are less likely to reach across group even when assigned to a cross-sect area. This doesn't necessarily mean that Shia have fewer cross-sect contacts. It could very well be because all local councils are Shia dominated councils,

and as such it is always a dominant strategy for a Shia to reach out to Shia contacts.[19] There is suggestive evidence, however, that points to the direction of lack of cross-sect ties amongst the Shia. We see for instance that the people they reach to when assigned to a cross-sect target are considerably less educated than the people they contact in the co-sect assignment. In addition, we see that those Shia who do reach cross-sect are more likely to get successful answers. Both these results are more suggestive of a lack of cross-sect ties rather than a choice not to contact them.

The insularity of the Shia, which may be driven by the comfort that comes with being the politically dominant majority group, may lead them to place too much trust in the information they obtain from these co-sect peers–information that ultimately proves of lower quality than that secured by their Sunni counterparts. This is reinforced in the patterns of false responses. This is a story of the dark side of social capital, also found in recent experimental findings by Levine et al. (2014), which suggest that ethnically homogeneous markets are more prone to suffer from financial bubbles than diverse ones as participants in the former are less likely to question the quality of information received.

Our findings are consistent with several possible explanations. First, it could be that as a minority under threat, the Sunnis have needed to work harder to get access to services offered by a Shia-dominated government and as such have evolved strategies to accomplish this more efficiently. Secondly, it could be some sort of legacy effect from the Saddam years, in that the Sunnis know how to work the system because they have the past experience of being the group in power. This would suggest deeply rooted behaviors of Sunnis knowing how to get things done. Relatedly, Sunni parents are likely to be better educated than the respective Shia parents, which may offer an advantage. Finally, research on network search demonstrates that networks can become difficult to navigate when individuals are too widely connected (Kleinberg, 2000). This counterintuitive result stems from the fact that when social ties are purely local (e.g., in a grid network where every individual is only connected to immediate neighbors), searchers can use their knowledge of the general structure of the network to find optimal paths connecting

[19]We cannot conclusively evaluate whether Shia are less likely to reach cross sect than Sunni (which they are by almost 20 percentage points) because they don't have cross-sect friends or because it just makes sense to ask Shia people for Shia council members. We would need to have a neighborhood with a Sunni dominated council in our experiment to be able to get at that and such a neighborhood does not exist.

them to a particular target, but an exceedingly large number of steps are required. At the other extreme, when social ties are widely dispersed, or essentially random, every individual may be connected to a target by a very small number of steps, but searchers are unable to identify these short paths because the network contains little structure to exploit—individuals are unable to identify the right direction in which to take a first step, because they have little information about where the friends of their friends are located. Baghdadi Shia, with their relatively high mobility and reputation for gregariousness, may fall into the latter category of overly dispersed and difficult-to-search social networks.

Our data does not allow us to conclusively identify one channel, especially as they could all be at play, but does offer some additional information on underlying mechanisms. We also cannot rule out the possibility that our cross-group comparisons are confounded by unobserved differences. For example, though we control for participant education or occupation in our analysis, we do not have data on parents education or occupation. We can therefore not rule out that this could be driving part of the effect.

A Figures

Figure 1: Recruitment neighborhoods. Shia Kadhimiya in blue, Sunni Adhamiya in red.

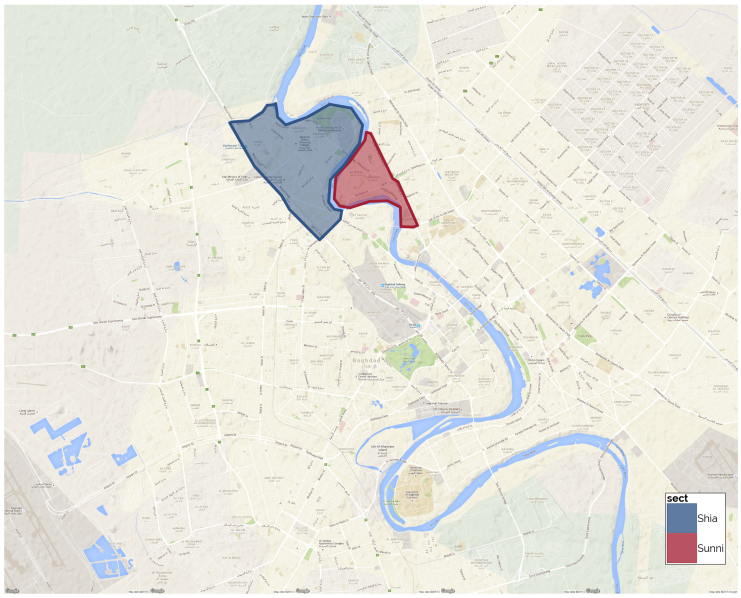


Figure 2: Target areas, with triangle denoting council office location. Shia Zayouna in blue, Sunni Ghazaliya in red.

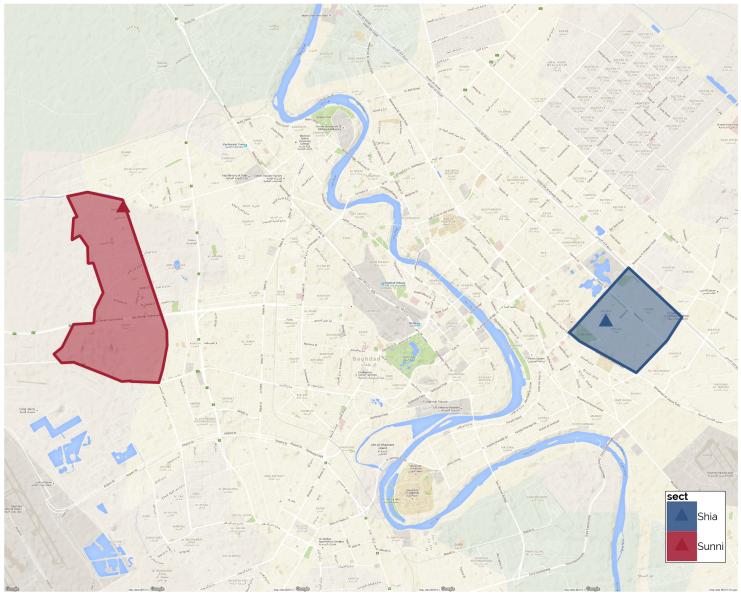


Figure 3: Balance between Sunni and Shia participants on basic demographics.

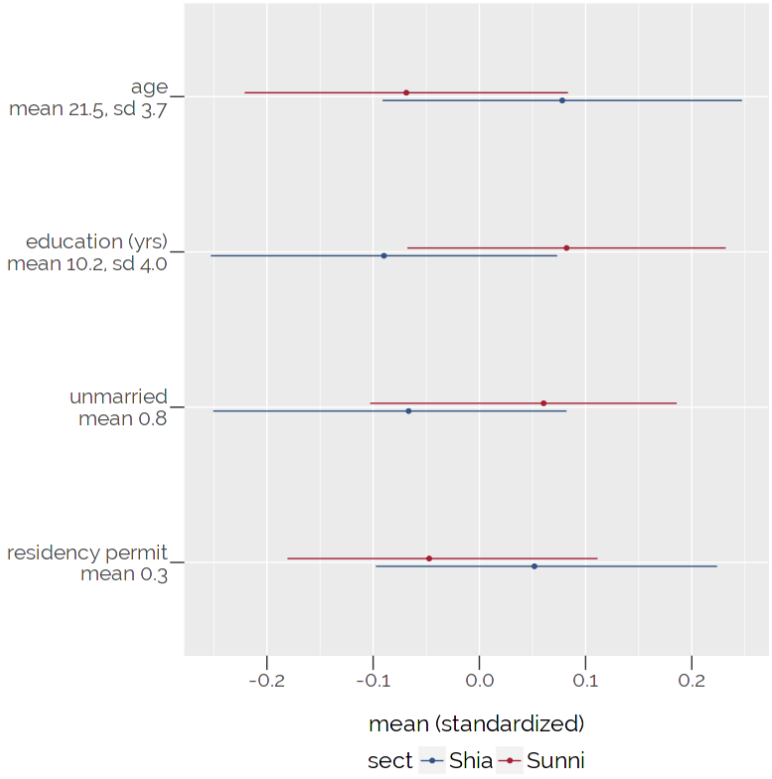


Figure 4: Work sector of Sunni and Shia participants.

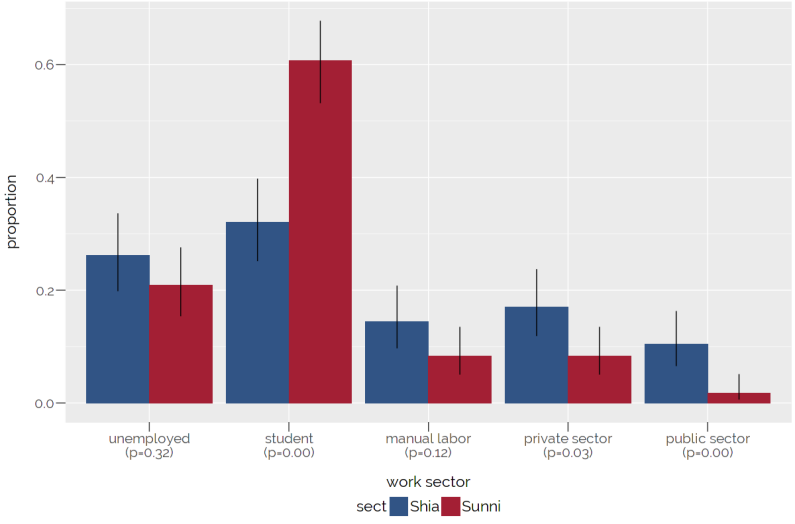


Figure 5: Length of residency in Baghdad for Sunni and Shia participants. The large number of recent Sunni arrivals are likely to be internally displaced persons from conflict against the Islamic State.

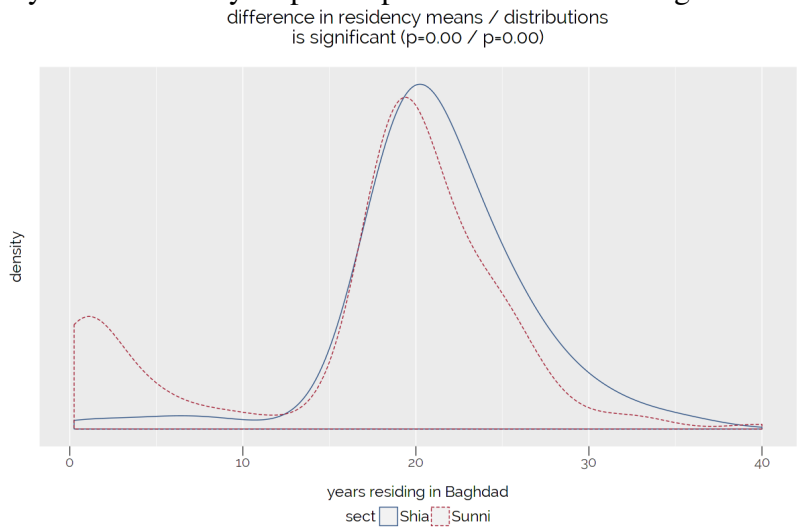


Figure 6: Frequency of religious activities for Sunni and Shia participants. Respondents chose from several categories of activity frequency (e.g., "at least once a week"), which were coded into approximate times per month.

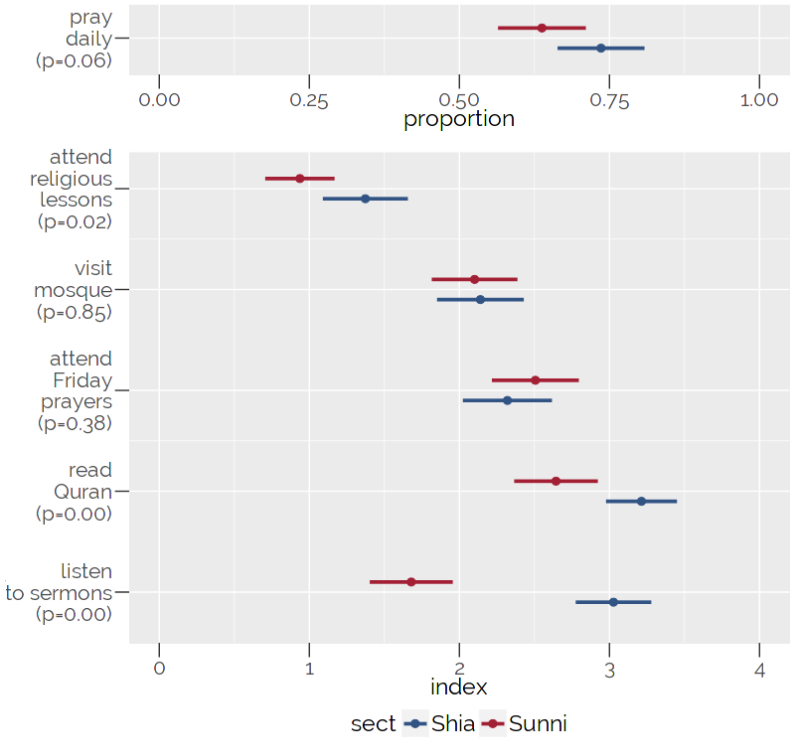


Figure 7: Ellipses represent the estimated weekly range of motion for local Shia participants (top panel) and Sunni participants (bottom panel). Results are based on fitting a two-dimensional Gaussian to the centroids of neighborhoods that participants report visiting, weighted by the days per week spent there. Sunnis tend to spend time in just two neighborhoods, Adhamiya and the area directly south of it. Shia participants visit a wide range of neighborhoods all over Baghdad.

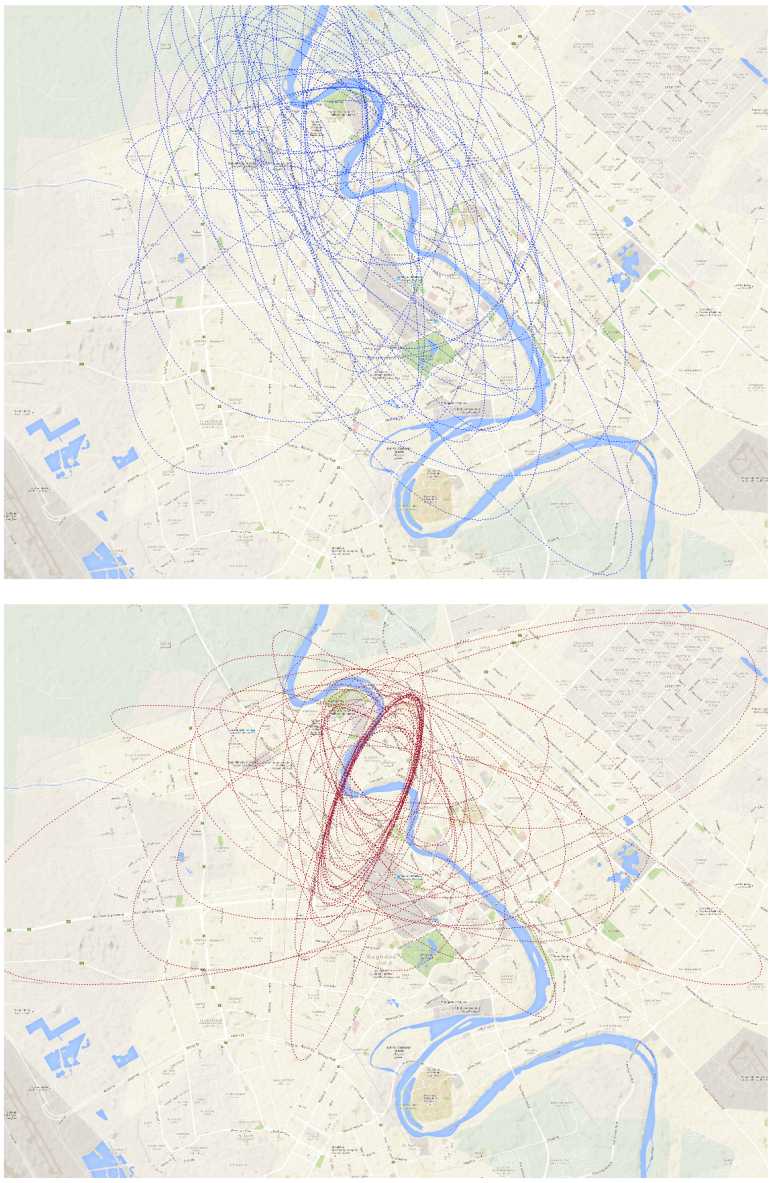
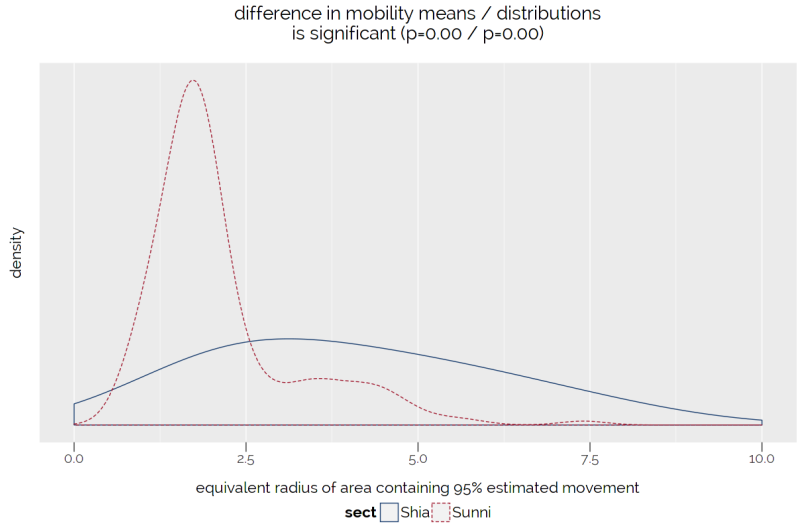


Figure 8: Density and hypothesis testing with a unidimensional summary of the distance from home that Sunni and Shia participants are likely to visit. Mobility summary statistic for each individual is calculated by taking the area of their range-of-motion ellipse (figure 7) and finding the radius of an equivalent circle.



B Tables

Table 1: Recruitment neighborhoods

	Kadhimiya	Adhamiya	Baghdad typical (sd)
Population	842k	833k	800k (500k)
Illiteracy	7.0%	8.5%	10% (5pp)
Labor participation	85%	83%	83% (5pp)
Post-2006 IDPs	14%	12%	41% (9pp)
Water/sewer	100%	100%	90% (15pp)

Table 2: Assigned target neighborhoods

	Ghazaliya	Zayouna
Sect	˜60% Sunni	˜80% Shia
Residents	professionals	professionals
Real estate	US$\$1900/\mathrm{m}^2$	US$\$1900/\mathrm{m}^2$
Distance from Adhamiya/Kadhimiya	˜15 km	˜15 km
	20–25 minute drive	20–25 minute drive
Local council	5 members (3 Shia, 2 Sunni)	5 members (3 Shia, 2 Sunni)

Table 3: Relative success in locating the assigned council office address

	Dependent variable: council address found			
	binary ($\geq$ partial)	ordered (none $<$ partial $<$ full)		
	OLS	*ordered probit*		
	raw	matched	reweighted	adjusted
	(1)	(2)	(3)	(4)
Shia participant in Shia target	-0.305***	-0.593	-0.612	-0.875**
(vs Shia participant in Sunni target)	(0.072)	(0.995)	(0.518)	(0.279)
Sunni participant in Shia target	-0.305***	-0.409	-0.591**	-0.572**
(vs Sunni participant in Sunni target)	(0.074)	(0.337)	(0.201)	(0.213)
Sunni participant in Sunni target	0.199**	0.354	0.381	-0.032
(vs Shia participant in Sunni target)	(0.080)	(0.684)	(0.291)	(0.292)
Sunni participant in Shia target	0.199**	0.538	0.402	0.270
(vs Shia participant in Shia target)	(0.067)	(0.827)	(0.430)	(0.318)
Experimental variables		matched	reweighted	adjusted
Demographic characteristics (main)		matched	reweighted	adjusted
Demographic characteristics (secondary)				adjusted
Observations	317	162	279	268

Note: cluster-robust standard errors by communities of players with shared contacts

*p<0.1; **p<0.05; ***p<0.01

Table 4: Relative success in identifying a head, member, or employee from the assigned council

	Dependent variable: gatekeeper found (binary)			
	OLS raw	*OLS* matched	*OLS* reweighted	*logit* adjusted
	(1)	(2)	(3)	(4)
Shia participant in Shia target	-0.158***	-0.323*	-0.446**	-3.943***
(vs Shia participant in Sunni target)	(0.046)	(0.176)	(0.174)	(0.971)
Sunni participant in Shia target	-0.244***	-0.242**	-0.265***	-2.133***
(vs Sunni participant in Sunni target)	(0.067)	(0.074)	(0.063)	(0.617)
Sunni participant in Sunni target	0.207**	0.042	-0.048	0.783
(vs Shia participant in Sunni target)	(0.071)	(0.186)	(0.182)	(0.756)
Sunni participant in Shia target	0.121**	0.123**	0.134***	2.593**
(vs Shia participant in Shia target)	(0.040)	(0.047)	(0.035)	(1.101)
Experimental variables		matched	reweighted	adjusted
Demographic characteristics (main)		matched	reweighted	adjusted
Demographic characteristics (secondary)				adjusted
Observations	317	162	279	268

Note: cluster-robust standard errors by communities of players with shared contacts

*p<0.1; **p<0.05; ***p<0.01

Table 5:

	Dependent variable: distance from participant's home to contact's home			
	OLS	*OLS*	*OLS*	*censored regression*
	raw	matched	fixed effects	adjusted
	(1)	(2)	(3)	(4)
Shia search contacts	1.419***	2.688***	1.517***	3.507***
(vs Shia daily contacts)	(0.408)	(0.461)	(0.325)	(0.839)
Sunni search contacts	2.342***	2.503***	2.150***	7.977***
(vs Sunni daily contacts)	(0.379)	(0.187)	(0.379)	(1.258)
Sunni daily contacts	-2.126***	-0.229		-6.666***
(vs Shia daily contacts)	(0.397)	(0.214)		(1.528)
Sunni search contacts	-1.203**	-0.414		-2.196
(vs Shia search contacts)	(0.490)	(0.485)		(1.361)
Experimental variables		matched	fixed effects	adjusted
Demographic characteristics (main)		matched	fixed effects	adjusted
Demographic characteristics (secondary)			fixed effects	adjusted
Observations	1,169	1,169	1,159	1,023

Note: cluster-robust standard errors by participant for all except participant fixed-effects model

*p<0.1; **p<0.05; ***p<0.01

Table 6:

	Dependent variable: distance from contact's home to assigned target			
	OLS raw	*OLS* matched	*OLS* fixed effects	*OLS* adjusted
	(1)	(2)	(3)	(4)
Shia search contacts (vs Shia daily contacts)	-0.864** (0.361)	-1.682*** (0.223)	-0.961*** (0.270)	-0.946** (0.312)
Sunni search contacts (vs Sunni daily contacts)	-0.849** (0.286)	-1.032*** (0.142)	-1.134*** (0.315)	-1.126*** (0.303)
Sunni daily contacts (vs Shia daily contacts)	-1.624*** (0.432)	-1.775*** (0.320)		-0.225 (0.328)
Sunni search contacts (vs Shia search contacts)	-1.609*** (0.412)	-1.126*** (0.290)		-0.406 (0.469)
Experimental variables		matched	fixed effects	adjusted
Demographic characteristics (main)		matched	fixed effects	adjusted
Demographic characteristics (secondary)			fixed effects	adjusted
Observations	1,185	1,185	1,177	1,023

Note: cluster-robust standard errors by participant for all except participant fixed-effects model

*p<0.1; **p<0.05; ***p<0.01

Table 7:

	Dependent variable: contact education		
	ordered probit		
	raw	matched	adjusted
	(1)	(2)	(3)
Shia participant in cross-sect target	-0.167	0.683	-0.464**
(vs Shia participant in co-sect target)	(0.164)	(0.715)	(0.207)
Sunni participant in cross-sect target	-0.107	-0.086	-0.090
(vs Sunni participant in co-sect target)	(0.171)	(0.316)	(0.182)
Sunni participant in co-sect target	0.307*	0.444	0.147
(vs Shia participant in co-sect target)	(0.172)	(0.343)	(0.209)
Sunni participant in cross-sect target	0.367**	-0.325	0.521**
(vs Shia participant in cross-sect target)	(0.164)	(0.734)	(0.260)
Experimental variables		matched	adjusted
Demographic characteristics (main)		matched	adjusted
Demographic characteristics (secondary)			adjusted
Observations	472	468	407

Note: cluster-robust standard errors by participant *p<0.1; **p<0.05; ***p<0.01

Table 8:

	Dependent variable: contact is cross-sect		
	OLS raw	*OLS* matched	*logit* adjusted
	(1)	(2)	(3)
Shia participant in cross-sect target	0.143**	0.072	1.412*
(vs Shia participant in co-sect target)	(0.054)	(0.055)	(0.757)
Sunni participant in cross-sect target	0.279**	0.223**	1.536**
(vs Sunni participant in co-sect target)	(0.097)	(0.100)	(0.521)
Sunni participant in co-sect target	0.111**	0.146**	1.334*
(vs Shia participant in co-sect target)	(0.047)	(0.046)	(0.774)
Sunni participant in cross-sect target	0.247**	0.297**	1.458**
(vs Shia participant in cross-sect target)	(0.101)	(0.105)	(0.647)
Experimental variables		matched	adjusted
Demographic characteristics (main)		matched	adjusted
Demographic characteristics (secondary)			adjusted
Observations	391	192	338

Note: cluster-robust standard errors by participant *p<0.1; **p<0.05; ***p<0.01

Table 9:

	Dependent variable: length of relationship with contact, excluding family (years)			
	OLS raw	*OLS* matched	*OLS* fixed effects	*OLS* adjusted
	(1)	(2)	(3)	(4)
Shia search contacts (vs Shia daily contacts)	-3.245*** (0.640)	-3.512*** (0.827)	-2.926*** (0.491)	-3.244*** (0.671)
Sunni search contacts (vs Sunni daily contacts)	-1.569** (0.501)	-1.727*** (0.247)	-1.412* (0.562)	-1.687** (0.538)
Sunni daily contacts (vs Shia daily contacts)	-2.217*** (0.643)	-1.611* (0.978)		-1.205 (0.839)
Sunni search contacts (vs Shia search contacts)	-0.540 (0.647)	0.174 (0.505)		0.352 (0.797)
Experimental variables		matched	fixed effects	adjusted
Demographic characteristics (main)		matched	fixed effects	adjusted
Demographic characteristics (secondary)			fixed effects	adjusted
Observations	1,037	1,037	1,023	896

Note: cluster-robust standard errors by participant for all except participant fixed-effects model

*p<0.1; **p<0.05; ***p<0.01

Table 10:

	Dependent variable: contact is family (binary)			
	OLS raw	*OLS* matched	*OLS* fixed effects	*logit* adjusted
	(1)	(2)	(3)	(4)
Shia search contacts (vs Shia daily contacts)	0.109*** (0.030)	-0.090** (0.044)	0.129*** (0.026)	0.939** (0.341)
Sunni search contacts (vs Sunni daily contacts)	0.118** (0.037)	0.130*** (0.019)	0.169*** (0.031)	0.963*** (0.263)
Sunni daily contacts (vs Shia daily contacts)	0.071** (0.028)	-0.007 (0.043)		0.927** (0.406)
Sunni search contacts (vs Shia search contacts)	0.080** (0.041)	0.212*** (0.023)		0.951** (0.308)
Experimental variables		matched	fixed effects	adjusted
Demographic characteristics (main)		matched	fixed effects	adjusted
Demographic characteristics (secondary)			fixed effects	adjusted
Observations	1,392	1,392	1,375	1,190

Note: cluster-robust standard errors by participant for all except participant fixed-effects model

*p<0.1; **p<0.05; ***p<0.01

Table 11:

	Dependent variable: contact age		
	OLS raw	*OLS* matched	*OLS* adjusted
	(1)	(2)	(3)
Shia participant in cross-sect target (vs Shia participant in co-sect target)	2.123 (1.316)	3.888 (2.574)	1.257 (1.547)
Sunni participant in cross-sect target (vs Sunni participant in co-sect target)	-1.973 (1.497)	-1.449 (1.651)	-1.447 (1.532)
Sunni participant in co-sect target (vs Shia participant in co-sect target)	3.873** (1.503)	4.506** (1.991)	4.972** (1.831)
Sunni participant in cross-sect target (vs Shia participant in cross-sect target)	-0.223 (1.310)	-0.831 (2.321)	2.268 (1.780)
Experimental variables		matched	adjusted
Demographic characteristics (main)		matched	adjusted
Demographic characteristics (secondary)			adjusted
Observations	488	264	422

Note: cluster-robust standard errors by participant *p<0.1; **p<0.05; ***p<0.01

Table 12:

	Dependent variable: distance from contact's home to target (km)		
	OLS raw	*OLS* matched	*OLS* adjusted
	(1)	(2)	(3)
Shia participant in cross-sect target	-0.149	-3.498**	-0.226
(vs Shia participant in co-sect target)	(0.681)	(1.339)	(0.715)
Sunni participant in cross-sect target	0.906*	0.580	0.247
(vs Sunni participant in co-sect target)	(0.521)	(0.566)	(0.603)
Sunni participant in co-sect target	-2.106***	-3.210***	-0.578
(vs Shia participant in co-sect target)	(0.540)	(0.688)	(0.735)
Sunni participant in cross-sect target	-1.051	0.867	-0.105
(vs Shia participant in cross-sect target)	(0.666)	(1.281)	(0.790)
Experimental variables		matched	adjusted
Demographic characteristics (main)		matched	adjusted
Demographic characteristics (secondary)			adjusted
Observations	456	237	394

Note: cluster-robust standard errors by participant *p<0.1; **p<0.05; ***p<0.01

Table 13:

	Dependent variable: participant had repeat call/text with contact with more than 1-minute gap			
	OLS raw	*OLS* matched	*OLS* fixed effects	*logit* adjusted
	(1)	(2)	(3)	(4)
Shia participant calling family (vs Shia participant calling friend)	0.069 (0.082)	0.019 (0.094)	-0.099 (0.137)	-0.099 (0.601)
Sunni participant calling family (vs Sunni participant calling friend)	0.128* (0.065)	0.103** (0.039)	0.198* (0.102)	0.845** (0.388)
Sunni participant calling family (vs Shia participant calling family)	0.039 (0.100)	0.035 (0.103)	-0.302 (0.524)	0.865 (0.663)
Sunni participant calling friend (vs Shia participant calling friend)	-0.020 (0.045)	-0.049 (0.039)	-0.599 (0.506)	-0.079 (0.380)
Experimental variables		matched	fixed effects	adjusted
Demographic characteristics (main)		matched	fixed effects	adjusted
Demographic characteristics (secondary)			fixed effects	adjusted
Observations	453	453	215	353

Note: cluster-robust standard errors by participant for all except participant fixed-effects model

*p<0.1; **p<0.05; ***p<0.01

Table 14: Logit-scale differences in proportion incorrect, among participants who provided an answer.

	Dependent variable: answer incorrect	
	logit	*logit*
	Address	Gatekeeper
	(1)	(2)
Shia participant in Sunni target	-1.802**	-3.793**
(vs Shia participant in Shia target)	(0.731)	(1.166)
Sunni participant in Sunni target	-1.787***	-1.674**
(vs Sunni participant in Shia target)	(0.536)	(0.732)
Sunni participant in Sunni target	-0.052	-0.546
(vs Shia participant in Sunni target)	(0.810)	(0.826)
Sunni participant in Shia target	-0.067	-2.664**
(vs Shia participant in Shia target)	(0.711)	(1.056)
Experimental variables	adjusted	adjusted
Demographic characteristics (main)	adjusted	adjusted
Demographic characteristics (secondary)	adjusted	adjusted
Observations	181	146

Note: results among participants with completed answer. *p<0.1; **p<0.05; ***p<0.01
Cluster-robust standard errors by communities of players with shared contacts.

Table 15:

		Sunni participants		Shia participants		χ^2 test
Dependent variable	Confidence measure	Prop. correct	Count	Prop. correct	Count	p-value
council address	completed answer	0.65	125	0.55	82	0.20
council address	described as easy	0.71	51	0.73	44	1.00
council address	claimed answer correct	0.71	73	0.68	37	0.86
gatekeeper name	completed answer	0.42	100	0.21	68	0.01
gatekeeper name	described as easy	0.58	33	0.27	15	0.09
gatekeeper name	claimed answer correct	0.49	55	0.29	24	0.16

Table 16:

	Dependent variable: participant reported assistance from contact			
	OLS raw	*OLS* matched	*OLS* fixed effects	*OLS* adjusted
	(1)	(2)	(3)	(4)
Participant calling contact 5km from target (vs 9km from target)	0.106***	0.228***	0.144***	0.092**
	(0.030)	(0.030)	(0.037)	(0.045)
Participant calling university-educated contact (vs high-school educated contact)	-0.047	0.108*	-0.063	0.068
	(0.073)	(0.057)	(0.077)	(0.101)
Shia participant calling cross-sect contact (vs co-sect contact)	-0.060	0.176*	-0.059	0.121
	(0.081)	(0.094)	(0.103)	(0.120)
Sunni participant calling cross-sect contact (vs co-sect contact)	0.036	0.024	0.004	0.014
	(0.096)	(0.059)	(0.112)	(0.186)
Shia participant calling 35-year-old contact (vs 25-year-old contact)	0.021	-0.065*	0.011	-0.013
	(0.035)	(0.039)	(0.041)	(0.043)
Sunni participant calling 35-year-old contact (vs 25-year-old contact)	0.082**	0.109***	0.095**	0.133**
	(0.041)	(0.023)	(0.042)	(0.064)
Shia participant receiving call-back (vs no recontact)	0.311***	0.307***	0.376***	0.234**
	(0.076)	(0.089)	(0.089)	(0.091)
Sunni participant receiving call-back (vs no recontact)	0.159	0.113*	0.182	0.269*
	(0.114)	(0.059)	(0.116)	(0.162)
Experimental variables		matched	fixed effects	adjusted
Demographic characteristics (main)		matched	fixed effects	adjusted
Demographic characteristics (secondary)			fixed effects	adjusted
Observations	284	284	249	284

Note: cluster-robust standard errors by participant for all except participant fixed-effects model

*p<0.1; **p<0.05; ***p<0.01

Table 17:

	Dependent variable: participant reported assistance from contact and participant had at least partially correct answer			
	OLS raw	*OLS* matched	*OLS* fixed effects	*OLS* adjusted
	(1)	(2)	(3)	(4)
Participant calling contact 5km from target (vs 9km from target)	0.116***	0.189***	0.145***	0.072*
	(0.030)	(0.032)	(0.039)	(0.038)
Participant calling university-educated contact (vs high-school educated contact)	-0.002	0.037	-0.022	0.030
	(0.057)	(0.045)	(0.062)	(0.084)
Shia participant calling cross-sect contact (vs co-sect contact)	-0.039	0.329**	-0.050	0.100
	(0.068)	(0.107)	(0.089)	(0.100)
Sunni participant calling cross-sect contact (vs co-sect contact)	0.020	0.008	-0.001	0.002
	(0.094)	(0.056)	(0.108)	(0.155)
Shia participant calling 35-year-old contact (vs 25-year-old contact)	0.014	-0.077*	-0.008	-0.004
	(0.026)	(0.040)	(0.029)	(0.036)
Sunni participant calling 35-year-old contact (vs 25-year-old contact)	0.026	0.049**	0.038	0.120**
	(0.034)	(0.018)	(0.037)	(0.054)
Shia participant receiving call-back (vs no recontact)	0.242***	0.281***	0.290***	0.154**
	(0.063)	(0.085)	(0.078)	(0.076)
Sunni participant receiving call-back (vs no recontact)	0.085	0.044	0.104	0.168
	(0.109)	(0.054)	(0.115)	(0.135)
Experimental variables		matched	fixed effects	adjusted
Demographic characteristics (main)		matched	fixed effects	adjusted
Demographic characteristics (secondary)			fixed effects	adjusted
Observations	284	284	249	284

Note: cluster-robust standard errors by participant for all except participant fixed-effects model

*p<0.1; **p<0.05; ***p<0.01