

Intergroup Behavioral Strategies as Contextually Determined: Experimental Evidence from Israel

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Why are the negative effects of social diversity more pronounced in some places than in others? What are the mechanisms underlying the relationship between diversity and discriminatory behaviors, and why do they vary in prevalence and strength across locations? Experimental research has made advances in examining these questions by testing for differences in behavior when interacting with individuals from different groups. At the same time, research in American and comparative politics has demonstrated that attitudes toward other groups are a function of context. Uniting these two lines of research, we argue that discriminatory behaviors should be strongly conditioned by the ways in which groups are organized in space, allowing us to make predictions about the relationship between diversity, segregation, and intergroup behavior. We examine this claim in the context of intra-Jewish cleavage in Israel, using original data compiled through multisite lab-in-the-field experiments and survey responses collected across 20 locations.

The sociopolitical implications of diversity have long been a prominent research topic in the social sciences. According to one dominant school of research, social diversity across and within countries is positively correlated with between-group discriminatory attitudes and behaviors (Forbes 1997), poor governance (Easterly and Levine 1997), reduced social capital (Putnam 2007), inefficient resource distribution (Habyarimana et al. 2007), lack of democratic consensus (Couzin et al. 2011), and violent conflict (Lim, Metzler, and Bar-Yam 2007; Vanhanen 1999). At the same time, another body of scholarship argues that the relationship between diversity and political outcomes is contingent on a variety of contextual factors (Portes and Vickstrom 2011). Why and under what conditions then are the negative effects of diversity more pronounced in some places than in others?

Innovative research has examined the mechanisms underlying this relationship from both theoretical and empirical perspectives (Alesina, Baqir, and Easterly 1999; Habyarimana et al. 2007, 2009; Lieberman and McClendon 2013). These investigations often focus on behavioral strategies

that are posited to be a function of individual-level variables related to the identity of opposing players, such as ethnic, racial, or religious identity. However, long-standing evidence from the United States (e.g., Green, Strolovitch, and Wong 1998) and, increasingly, other countries (e.g., Kasara 2013) suggests that the relationship between diversity and intergroup behavioral strategies and attitudes should vary not only by the identity of the opposing players but also by local context.

What is it about the local context that may affect intergroup behavior? We propose a theoretical framework for understanding the mechanisms linking diversity and discriminatory behaviors and for predicting how their prevalence and strength vary systematically across geographic units. We argue that intergroup behaviors and attitudes can be considered as part of a class of phenomena that are partially shaped by the ways in which groups are organized in space. More specifically, we argue that the interaction between diversity and residential segregation plays an important role in determining intergroup behavioral strategies.

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Using original experimental and survey data from Israel, we demonstrate that behavioral strategies toward out-groups are partially a function of the residential environment. If context indeed shapes behavior in this way, then there is a need to reconsider the scope conditions of previous experimental studies of intergroup behavioral strategies and to systematically theorize and empirically examine the determinants and degree of such contextual variation.

The empirical section of our article is based on large-scale multisite lab-in-the-field research conducted in 20 locations across Israel, focusing on the religious tensions within the Jewish population. This research design combines two—usually distinct—research strategies: survey data that bring the advantage of contextual variation and laboratory studies that precisely measure individual behavioral strategies. This allows for a rigorous measurement of intergroup behaviors and their contextual variation. The deep social cleavages, along with the availability of locations with significant contextual variation within a relatively small geographical area, make Israel particularly well-suited for studying the relationship between context and intergroup behavior.

We make theoretical, methodological, and substantive contributions. Theoretically, we establish a theory of geographical context and intergroup discriminatory behaviors. We extend previous scholarship to model contextual variation in the mechanisms through which the correlation between diversity and intergroup relations operates. We demonstrate that individual behavioral strategies are not only a function of the players but also of the context in which the game is played. We thus suggest that the class of mechanisms contributing to the relationship between diversity and negative social outcomes is broader than shown in previous research. Methodologically, we demonstrate the value of systematically drawing behavioral inferences from multiple locations and provide novel methods for controlling for self-selection when contextual variables are included in a theoretical model. Substantively, we provide some of the first systematic evidence for the dramatic cleavage within the Jewish population in the geopolitically important country of Israel.

THE NEGATIVE OUTCOMES OF SOCIAL DIVERSITY

Theoretical and empirical research on the negative effects of demographic diversity has flourished in recent years, as has a literature that qualifies the scope of this relationship (Gerring et al. 2015; Portes and Vickstrom 2011). The discussion revolves around the correlations between demographic heterogeneity and a bundle of negative outcomes, such as lower generalized trust (Alesina and La Ferrara 2002), poor distribution of public goods (Miguel and Gugerty 2005), and low economic development (Collier 2000). We

collectively refer to these variables as “socially inefficient outcomes.” These correlations are argued to hold not only cross-nationally but also across subnational units, such as cities in the United States (Costa and Kahn 2003). Furthermore, the relationship between diversity and socially inefficient outcomes is generally described as causal: the implicit counterfactual claim in these studies is that given otherwise identical areas, the area with a more homogeneous population should have greater social efficiency.

We explore a religious-cultural cleavage, and we argue that our findings are generalizable to other salient social identities and conflicts between politically relevant groups (Posner 2004a). In discussing the populations in this study, we therefore adopt the general terminology of “in-group” and “out-group.” While many studies on social diversity concentrate on ethnicity, others focus on other types of identity such as language, race, religion, lineage origin, or regional identities. These and other social identities may, under certain conditions, become politically relevant and stimulate conflict. For instance, Tsai (2007) shows that in Chinese villages divided between several lineage groups public provision is lower compared to those localities where all residents share the same lineage group. And, shifting the focus to religious heterogeneity, Freier, Geys, and Holm (2013) demonstrate that the inflow of non-Catholic Germans into Catholic Bavarian communities following German unification has led to decreased redistribution in these localities. We expand this body of research through the analysis of tensions within the Jewish society in Israel.

Mechanisms linking diversity and social inefficiency

Experimental research has pointed to three categories of mechanisms that may explain the relationship between diversity and social inefficiencies: preferences, strategy selection, and technology (Habyarimana et al. 2009). We expect each of these mechanisms to vary in its prevalence and strength by contextual factors, as explained below.

Other-regarding preferences are related to the psychological utility derived from the welfare of another person. This mechanism posits that individuals derive more utility from the welfare of an in-group member than an out-group member, making actions undertaken to benefit the in-group more common. This mechanism may thus help explain a greater willingness for public goods provision within homogeneous societies and may lead to increased discrimination toward out-group members.

Strategy selection consists of several submechanisms, which involve individuals choosing different strategies when interacting with in-group and out-group members. In the

framework of this mechanism, behaviors are conditioned by willingness to cooperate and beliefs about whether other individuals are willing to cooperate. In the language of collective action, this involves the greater tendency for in-group members than out-group members to arrive at a cooperative equilibrium in a public goods game, leading to less efficient outcomes when the game is played between in-group and out-group members. From this mechanism follows a distinction between a high-trust society, in which individuals tend to cooperate and increase the overall resources for public provision, and a low-trust society, with lower investment in public goods.

Finally, within the technology category there are many submechanisms, the most relevant for our study being “efficacy.” Efficacy is the degree to which it is easier for in-group members to work together, perhaps because of shared language or customs. This mechanism examines whether greater public goods provision in homogeneous societies is due to advantages from and preference for in-group members working with other in-group members compared to working with out-group members.¹

All of these mechanisms posit that individual behavior will vary as a function of the identity of other players, that is, whether they are members of an in-group or an out-group. When behavior systematically favors in-group members—that is, when individuals care more about the welfare of in-group than out-group members, when they prefer to work with in-group members rather than out-group members, or when they cooperate more with in-group members—we call this “in-group bias.”²

The political geography of intergroup behavior: Theory and hypotheses

Existing scholarship has greatly advanced our understanding of the mechanisms linking diversity and social inefficiency by examining variation in individual behavior when facing in-group and out-group members. But do intergroup behaviors vary across different social contexts—and if so, how and why? The literature on intergroup attitudes and context provides reason to expect such variation.

1. The description in this section is largely adapted from Habyarimana et al. (2009), who also discuss and test “findability” and “commonality of tastes.”

2. Note that in doing so, we are making no claims about the individual rationality of bias; for example, it may be individually rational to work with an in-group member rather than an out-group member due to a shared technology, such as language. In using the term “in-group bias” to describe this behavior, we are adopting language commonly used in the psychology literature (see, e.g., Brewer 1999).

Some scholars focus on types of diversity, distinguishing between economic and cultural differences (Baldwin and Huber 2010) or between groups with different degrees of political relevance (Posner 2004a). Others stress the role of political-institutional arrangements, suggesting that the effect of diversity varies between democratic and nondemocratic regimes (Collier 2000) or between small and large states (Posner 2004b). Other contextual variables have been proposed as important moderators of behavior; for example, disparities in social status (Blumer 1958) and income (Gay 2006) between groups and the impact of the leader’s identity (Franck and Rainer 2012).

We focus on two broad, geographically based contextual variables: out-group size and residential segregation. These are attractive variables from which to build a general theory because they are universally applicable: segregation and group proportions are variables applicable to any society. They are also increasingly measurable in a variety of contexts due to improvements in geographic information systems.

The literature on intergroup attitudes and behaviors provides clear guidelines regarding these two contextual factors. First, there is a general agreement that an increase in the relative proportion of a minority out-group in a locality is associated with worse intergroup relations, all else being equal (Forbes 1997).³ Aggregate levels of a local out-group are shown to be correlated with behaviors and attitudes—including overt and implicit racial attitudes (Oliver and Mendelberg 2000), policy positions (Hopkins 2010), civic participation (Campbell 2006), voter turnout (Key 1949), and candidate support (Giles and Buckner 1993). From this theoretical perspective, individual attitudes are modeled not only as a function of the identity of opposing players but also as a function of the context in which the game is played. Scholars have suggested a number of possible reasons for this, including the out-group becoming large enough to be politically (Spence and McClerking 2010) or economically (Bobo 1983) threatening, to stimulate stereotypes (Enos 2015), or to serve as a tool of demagoguery for elites (Posner 2004b).

However, it has also been argued that the relationship is quadratic (Blalock 1967; Enos 2010; Huffman and Cohen 2004; Stephens-Davidowitz 2014; Taylor 1998). At low levels of the out-group population, as the out-group becomes larger it becomes more of a threat and induces more bias. However,

3. Scholars of social diversity often focus on ethnic fractionalization, rather than on the proportion of a single out-group. (See, e.g., Posner (2004a.) While ethnic fractionalization is likely the best measure for capturing the relationship between diversity and social inefficiency on the aggregate level, when focusing on individual behavior, most literature posits that individuals react to proportions of other out-groups (but see Putnam 2007).

at the higher end, the relationship may actually be negative. As an out-group becomes a large majority of the population, minority members living in that area may feel particularly at ease with it.

From this discussion we derive hypothesis 1 and hypothesis 2:

H1. For large majority groups, increases in the out-group proportion are related to increases in in-group bias.

H2. For small minority groups, increases in the out-group proportion are related to decreases in in-group bias.

Recent scholarship has also begun to focus on the effects of spatial residential segregation, independent of group size, as a variable that directly affects intergroup relations, in both the United States (Allport 1954; Ananat and Washington 2009; Baybeck 2006; Enos 2011a; Enos and Celaya 2015; Uslaner 2012) and other contexts (Alesina and Zhuravskaya 2008; Kasara 2012; Semyonov and Glikman 2009). The prediction in this literature is that the spatial segregation of groups (measured as residential segregation) increases intergroup tensions.⁴

A range of mechanisms has been proposed to explain this relationship, including a lack of interaction with the out-group leading to reduced trust (Kasara 2012; Uslaner 2012). More contact leading to improved intergroup relations is consistent with classic theories in social psychology (Allport 1954). Other scholars have proposed that segregation serves as a heuristic for intergroup difference that leads to stereotyping (Enos 2011b; Enos and Celaya 2015). In addition to these psychological channels, segregation can affect intergroup relations through several other mechanisms. For example, segregated groups have greater potential for acquiring differentiated tastes (Massey and Denton 1993), which may also limit positive intergroup interactions.⁵ And segregation may also increase the efficacy of working with in-group members through rational nonpsychological mechanisms such as facilitating shared customs, language, and habits. From this discussion we derive hypothesis 3:

H3. For all groups, increases in segregation are related to increases in in-group bias.

We test for the presence of in-group bias in the operation of these three relevant mechanisms (in-group bias in other-regarding behavior, cooperation, and task efficacy) in a series of games and questions gathered across geographic areas with varying levels of segregation and sizes of out-group populations. In modeling these relationships, we interact segregation and out-group proportion to account for the manner in which each variable conditions the other; for example, segregation is likely of little consequence if the out-group is a very small but will become more important as the out-group grows (Enos 2010). After testing these hypotheses, we examine whether the relationship between segregation, diversity, and behavior is likely causal, as argued in the literature.

THE INTRA-JEWISH CLEAVAGE IN ISRAEL

Israel's social and geographic characteristics make it well suited for studying the effects of residential patterns on intergroup attitudes and behaviors. Due to the country's small size, within a relatively small area there are cities with large variation in their demographic composition and degree of segregation.

We focus on the intra-Jewish religious cleavage. In Israel, the Jewish religious dimension is a continuum, with traditional and orthodox Jews situated in between the secular and ultra-orthodox (UO) poles (Ben-Porat et al. 2008), with somewhat blurred and flexible boundaries around some of these categories. Recent developments, however, have consolidated the cultural-political dividing lines that separate the UO from the rest of the secular, traditional, and religious (STR) groups.

In Hebrew, the UO are called "Haredim," meaning "those in awe of the divine power." The UO are distinguishable from secular or other religious Jewish groups by their strict adherence to a traditional interpretation of the sacred texts, which shapes their lifestyle. They tend to live in segregated communities, attend an independent education system, wear distinctive clothing, and pay special attention to issues of modesty and separation between men and women; and some prefer Yiddish to Hebrew (Rubin 2012). Some of their beliefs and lifestyle, including their distinctive style of dress, have their origins in late eighteenth and early nineteenth century Eastern Europe (Berman 2000), making them a highly visible minority.

Most importantly for us, the UO is clearly a "politically relevant group," defined as a subgroup of the population that is a source of social identification and has direct im-

4. Of course, segregation creates homogeneous communities and may therefore seem to have immediate positive consequences on social efficiency. However, it also consolidates social cleavages. Thus, "while separation of ethnic groups may have some short-term benefits, it may have devastating long-run costs" (Alesina et al. 1999, 1275).

5. Scholars have also investigated whether political elites can unify groups by a shared sense of belonging and common identity (Singh 2011). Another consequence of spatial separation is that it may make it more difficult for elites to create this shared identity.

impact on important political outcomes (Posner 2004a). We should therefore expect that theories regarding the effects of diversity and the mechanisms underlying diversity and social inefficiency should also be applicable to the intra-Jewish cleavage in Israel. The UO are represented in the Knesset (the Israeli parliament) by a number of parties that have gained influence over time (Sandler and Kampinsky 2009). Because they have governed with both the Right and the Left, the UO parties are well positioned to serve as the kingmakers of Israeli politics. In the last 30 years, the UO parties raised demands for material resources. These public funds allow the existence of a UO society largely focused on religious study and many times also exempt from military service and regular employment (Doron and Kook 1999).

Some of the UO's unique customs and beliefs are communal by nature and are thus easier to preserve within bounded geographical spaces. Examples include the demarcation of areas where observant Jews can carry objects of the Sabbath and the strict adherence to modest dress, especially among women (Cahaner 2012). These communal aspects of UO culture and organizations (e.g., UO-education institutions) may drive the UO toward greater residential segregation. In mixed neighborhoods, for instance, immodest dress by secular residents would be a source of friction and concern. That being said, demographic pressures, especially since the 1990s, have led the UO to spread geographically also beyond their historical geographical concentrations and into previously non-UO locations (Cahaner 2009).

These changes in residential patterns constitute a major source of intergroup tensions. According to one observer (Efron 2003, 99), "The most primal fear of many secular Israelis is that Haredim [UO] are taking over our cities." A clear example is the city of Bet Shemesh. In the municipal elections of 2014, "almost all the non-ultra-orthodox [secular, religious, and traditional residents]" united against the UO candidate (Hasson and Ettinger 2014). An incident in Bet Shemesh in which UO men accused a young girl of immodest dress also gained national coverage shortly before the time of our data collection. At this point "it became evident [to Bet Shemesh residents] that the cleavage which separates their town runs between UO and those who are not UO." Therefore, in describing the diverse coalition of secular, religious, and traditional city residents, "it seems that the most accurate definition would be by negation—the non-UO" (Hasson and Ettinger 2014). Similar dynamics have been at work in Jerusalem, where a broad coalition of religious, traditional, and secular Jews have worked together in recent mayoral elections (Hasson and Weitz 2013). In a more recent incident in Safed, traditional

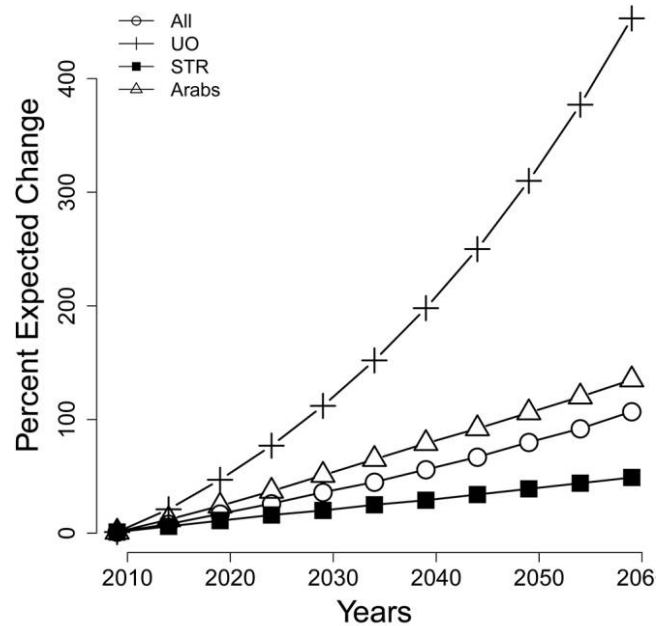


Figure 1. Projected rate of population change. Figure generated from the authors' calculations based on Israeli Central Bureau of Statistics data.

and secular Jews joined forces in opposition to UO demands regarding the operation of a local sport facility (Ashkenazi 2014).

Demographic change also features prominently in discussions of intergroup relations in Israel. The Israeli population in 2009 was estimated at 7.5 million citizens. Around 75% of the population is Jewish; the rest is mostly Muslim Arabs.⁶ In 2009, the UO population was estimated at around 750,000 people, approximately 14% of the Jewish population. The UO are rapidly growing due to high rates of procreation. Figure 1 presents projections for demographic changes in 2009–59. The UO, along with Arabs, are growing more quickly than the majority group of STR Jews. This pattern of population shift fits with a condition associated with increased intergroup conflict (Hopkins 2010; Newman 2012).

RESEARCH SITES AND EXPERIMENTAL FRAMEWORK

Previous research examining intergroup attitudes and behavioral strategies has tended to rely on surveys, laboratory, or lab-in-the-field designs. Lab-in-the-field designs have the advantage of moving beyond students in Western universities, or other such convenience samples, as subject pools. These designs also approximate a more natural environment for the respondents and thus increase the external validity of the experimental results (Grossman 2011). This

6. Data from Israel's Central Bureau of Statistics (CBS). This count does not include Arabs living in the Palestinian territories.

type of experiment also implicitly assumes that behavioral strategies vary across contexts, suggesting that lab-in-the-field experiments in a single area may have limited external validity. And while surveys can be more easily deployed across multiple locations, it is often more difficult to manipulate conditions and precisely measure behavioral responses in a survey environment than in a laboratory.

We employ a lab-in-the-field design across multiple, carefully selected, locations. Previous studies that used experimental games cross-nationally show that the answers one finds can depend on where one looks (Henrich et al. 2001; Koopmans and Veit 2013). A comparative setting with clear expectations for how and why behaviors should vary across sites is the next logical step in experimental research (Grossman and Baldassarri 2012). Such a multisite experimental design thus marries the comparative advantages of survey research (through close attention to contextual variations) and laboratory research (by measuring nuanced changes in respondents' behavior).

Measurements of social diversity and segregation

Prior to beginning our research, we examined survey data on intergroup relations in Israel and found spatial variation in responses that was consistent with our hypotheses. We display these results in the appendix, available online. We then designed and piloted our experiments on Israelis living in the United States. We also used a Web-based survey to pilot our questions about residency on a convenience sample of several dozen Israelis in Israel.

Our locations include 16 cities across Israel and four Quarters in Jerusalem, which were selected based on variation in degrees of diversity and residential segregation. The appendix provides descriptive statistics on the key features of these locations. Using data from the Israeli census of 2008, we construct measures of both demographic diversity and segregation of UO and STR Jews. Diversity is measured by the percent of out-group members in the location. Segregation scores are based on residential locations and were computed using the dissimilarity index, a standard measure of residential segregation in the literature (Massey and Denton 1988). We describe this measure in more detail in the appendix.

We measure segregation and the proportion of the out-group at the city level or at the Quarter level in Jerusalem. Measurement of UO population is based on the share of Jewish men at the age of 15 or older who are enrolled in UO religious schools (yeshivas), which is a commonly used measure in Israel.⁷

7. This method of measurement is used by the Israel Central Bureau of Statistics. The ranking of localities by their UO population is similar to

Sampling method

Fieldwork in Israel was conducted during late July and early August 2013 by a local professional survey firm, which has a unique expertise in working with the UO sector. We personally supervised approximately 20% of the fieldwork.

Our sample consists of 456 individuals spread across 20 locations, with an average of 23 respondents in each location. The number of respondents in each location ranges from 21 to 27 (see appendix). Quotas for gender and age were used to ensure a balanced sample. We limited participation to Hebrew speakers. In mixed cities and neighborhoods, the sample consists of approximately half UO and half STR, regardless of the distribution of the population. This means that in each location, the minority group is overrepresented, which allows for sufficient statistical power. Thus the UO share of our sample is larger than its share of the population.

Participants in each location were selected based on a random walk strategy. Field-workers followed a strict protocol: walking from door to door, they presented the research as dealing with "Israeli society" in the broadest terms and explained that compensation will depend on participants' decisions in a series of decision-making games, with a guaranteed minimum of 20 new Israeli Shekels (NIS; about \$6; see more details in the appendix). Participation took around 40 minutes and was conducted in participants' homes, during which respondents worked independently on a laptop we provided. The response rate for those invited to participate was approximately 17%, which compares favorably to survey response rates in the United States (Schoeni et al. 2013).⁸ Because we oversample the UO population, who tend to be poorer and less educated than typical Israeli Jews, our sample is overrepresented on these dimensions.

We took the diversity of religious identities in Israel seriously in shaping the research instrument and when analyzing the results, as discussed below. Our sample contains Israeli Jews across the full spectrum of religious adherence. Because we were aware of the ambiguities in religious identity, we measured it in several ways, using both self-reported identity and classifications provided by the field-workers. In the results reported here, we use classifications provided by the field-workers, but the results using other classifications

that achieved by other measurements such as voting for UO parties, another approach used by the Bureau of Statistics (see the appendix). As with any large-scale population measure, there is likely some error; however, what is important for our purposes is the relative ranking of the locations of UO population, and we have no reason to believe this will be inaccurate.

8. In sum, 1,015 individuals immediately refused to participate, which included children who are not allowed to bring in strangers. And 1,225 individuals refused to participate after learning about the research topic.

are similar and our conclusions would be unchanged. In unreported results, we also divided the sample into UO and subjects who consider themselves as secular (as opposed to all STR respondents), which also yields consistent results.

This method of data collection provides us with three main advantages. First, whereas random sampling is standard in collecting survey data, it is rarely used in experiments. And by bringing the laboratory to participants, rather than the other way around, we were able to access a broader and more representative sample of the population. Second, since we are interested in the effects of local residential patterns on attitudes and perceptions, it was important that participation takes place within the natural environment where individuals live and interact with others. Lastly, field-workers were instructed to record the exact location of the interview, allowing us to match participants with geo-coded data.

Key tests

Our subjects engaged in a series of games and survey questions to test the mechanisms of diversity and social inefficiency. We designed our tests to resemble those of Habyarimana et al. (2007).⁹ These tests took the following form (for more details, see the appendix):

1. To assess differences in “other-regarding preferences,” we had respondents play a dictator game. Respondents were allocated 20 NIS and allowed to allocate as much as they wanted between two other players or keep any amount for themselves. The other players were always either a UO and a secular Jew, a UO and an Arab, or a secular Jew and an Arab. The secular player represents the STR group. Each subject played three rounds, with each combination presented in random order. We call the difference between in-group and out-group allocations the “other-regarding bias.”
2. To assess “strategy selection,” we had respondents play a public goods game separately against both the in-group and out-group. This game examines differences in behaviors, depending on expected behaviors of other members of society. The public goods game was designed as a prisoner’s dilemma in which subjects were given 20 NIS and allowed to cooperate by sharing all of it or to defect by keeping

the 20 NIS. Only after they played were respondents informed of the opposing player’s decision. Payoffs were multiplied in the standard format of a Prisoner’s Dilemma: the sum of money in the public pot was multiplied by 1.5 and then equally divided between the two participants. Subjects played three rounds, facing a UO, secular, or Arab in each, in random order. We refer to the difference in proportion of cooperation between in-group and out-group players as “strategy-selection bias.”

3. To assess perceived efficacy from working with the in-group, respondents were asked to choose a partner for a complex task. In this game, next to a photo of a large Lego box, respondents were asked the following question: “Imagine you were given a complicated Lego set similar to the one shown above, complete with instructions. If you had a limited time to complete it and you could choose a partner out of the people below, which one would you choose to work with?” Respondents were given the option of choosing a UO, secular, or Arab. We call the difference between the proportion of in-group and out-group members selected for the task “efficacy bias.”

Before each game, players were given detailed instructions. Different opposing players were shown in the dictator and public good games to avoid any spill-over effects between the two tests. One of the two previous players was shown as a possible partner for the Lego task. The group membership of the other player was not explicitly identified; only a photo and the player’s first name were displayed. The difference between Arab and Jewish names and the unique dress of the UO were intended to serve as clear identifiers. It was also mentioned that all of the opposing players reside in Jerusalem, where Arabs, UO, and secular Jews all live. After the games, we asked respondents to judge the group membership of the opposing players: over 94% of respondents correctly identified the UO player. For simplicity, in subsequent analysis, we restrict our sample to respondents who made this correct identification. Our results are unchanged by including all respondents.

Subjects were paid the winnings from a randomly determined round from one of their games. To recruit players as opponents for economic games, we contacted residents of Jerusalem (Arab, secular, and UO men between the ages of 20 and 30). We collected their demographics and a photo and recorded their decision in a public goods game.¹⁰ No

9. Note, however, that it was not our intention to exactly replicate the design of Habyarimana et al. (2007). Our intention was to design tests that accurately tested behavioral manifestations of the mechanisms identified in the literature in such a way so as to make testing across different contexts practical.

10. In using opposing players who were not physically present during the experiment, our design is similar to that of Whitt and Wilson (2007),

deception was used in this research. Detailed descriptions of our instruments are provided in the appendix.

RESULTS

We begin by exploring the nationwide results of our four tests and then examine how responses vary contextually. We then show that the relationship between behavior and context is likely not driven primarily by self-selection.

Presence of mechanisms nationwide

We display the nationwide levels for bias in other-regarding preferences, strategy selection, and efficacy in table 1. In the appendix, we display the full distribution of play in the public goods game.

The difference between giving to the in-group and out-group in the dictator game shows a strong “other-regarding bias” (row 1). The mean difference is 2.91 NIS. The null hypothesis of no in-group bias can be confidently rejected ($t = 7.69$).¹¹

Cooperation in the public goods game (row 2) was much more likely with the in-group (70.1%) than the out-group (54.5%). These differences allow us to easily reject a null hypothesis of no in-group bias in cooperation ($t = 5.98$). These differences indicate strongly different strategy selection depending on the identity of the other player.

In the selection of partner for a complicated task, we also see a strong in-group bias (row 3). In our sample, 65.8% of respondents indicated they would prefer to complete the task with their in-group member, a bias of over 33 percentage points. These differences also allow us to easily reject a null hypothesis of no in-group bias ($t = 7.05$).¹²

In summary, nationwide we find support for all three categories of mechanism linking diversity to inefficient social outcomes: preferences, technology, and strategy selection. Within the preferences category, we find evidence for other-regarding behavior. Within the technology category, we find evidence for the efficacy submechanism. Our basic result

which demonstrated that the ethnicity of an opposing player affected play in a dictator game, even when that player was not present.

11. The median in-group bias was 0, which reflects that a large portion of players gave no money to either player, choosing rather to keep it for themselves. On the other hand, over 10% of players awarded all 20 NIS to their in-group member. A distribution with a median or modal contribution of 0 is common in the literature, including in Israel (Fershtman and Gneezy 2001; Whitt and Wilson 2007).

12. Respondents were given three alternatives: a secular Jew, a UO, or an Arab. The results above present a test between choosing an in-group member and either out-group member. However, this is potentially a conservative test because if players were choosing randomly between all three players, we would expect the in-group member to be chosen one-third of the time. A *T*-test against this alternative hypothesis yields $t = 13.82$.

Table 1. Nationwide Behavioral Strategies

	Mean	T-statistic	P-value
Other-regarding bias	2.91	7.69	.00
Strategy selection bias	.16	5.98	.00
Efficacy bias	.33	7.05	.00

Note. Mean responses for other-regarding bias, strategy selection bias, and efficacy bias. Other-regarding bias is measured in differences in NIS; other variables are percentage point differences between in-group and out-group. *P*-values calculated using two-tailed tests. *N* = 429.

differs slightly from previous findings, such as those of Habyarimana et al. (2007) in Uganda. And consistent with scholars such as Lieberman and McClendon (2013), this suggests that there may be cross-national variations in the operation of these mechanisms. Of course, differences in experimental design can lead to different outcomes, and some cross-national variation in behavior is to be expected. Instead, our focus is to demonstrate that there is strong systematic variation within a single country, suggesting that the operation of these mechanisms are subject to the same forces observed in the literature on contextual determinants of intergroup relations.

Contextual influences on behavioral strategies

Based on the literature on the contextual determinants of intergroup attitudes and behaviors, we have argued that individual behavioral strategies are not only a function of the out-group status of other players but also of the context in which the games are played. We can assess our hypotheses predicting contextual variation in the operation of the mechanisms by regressing in-group biases on the interaction of local area segregation and out-group proportion. As dependent variables, we use the results of the main experiments: other-regarding bias, strategy selection bias, and efficacy bias. In linear regression models, we estimate models with only contextual variables and models including individual- and contextual-level covariates. We cluster the standard errors at the locality level.¹³

We regress these variables separately for UO and STR subjects because the range of homogeneity is significantly different across the two groups. The UO, the minority within the

13. Covariates included are gender (a dummy variable for male), age, categorical variables for ethnicity (mixed, other, Sephardic, and Ashkenazi), political ideology (measured on a 7-point scale), income as a categorical variable for high, low, and average (this is a standard format in Israeli surveys), college graduate (dummy) immigrant to Israel (dummy), the percent Arab at the city level, and a dummy variable for Jerusalem (to control for the four Quarters of Jerusalem being part of the larger metropolitan area).

Table 2. Regressions of In-Group Bias on Contextual Variables

	Strategy Selection Bias		Other-Regarding Bias		Efficacy Bias	
	UO (1)	STR (2)	UO (3)	STR (4)	UO (5)	STR (6)
Segregation	4.06* (1.36)	-.54 (.28)	31.03 (32.39)	-12.62* (5.78)	3.74 (2.89)	-.14 (.33)
Out-group proportion	1.87* (.58)	-1.54* (.50)	4.92 (16.64)	-41.26* (7.98)	1.63 (1.29)	-1.59* (.56)
Segregation × out-group proportion	-4.99* (1.65)	2.66* (1.32)	-31.39 (37.78)	94.17* (23.13)	-4.14 (3.34)	2.88* (1.20)
Intercept	-1.41* (.48)	.61* (.13)	-6.70 (13.95)	10.69 (5.58)	-1.28 (1.02)	.95* (.24)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes
N	200	189	200	189	193	183
R ²	.11	.06	.09	.09	.17	.08
Adj. R ²	.04	-.02	.02	.02	.10	-.00

Note. Regression of strategy selection bias (columns 1 and 2), other-regarding bias (columns 3 and 4), and efficacy bias (columns 5 and 6) for UO (columns 1, 3, and 5) and STR (columns 2, 4, and 6) on contextual-level variables with the following control variables: gender, age, ethnicity, political ideology, income, college graduate, immigrant to Israel, the percent Arab at the city level, and whether the player lives in Jerusalem. Clustered standard errors in parentheses.

* Indicates significance at $p < .05$. Strategy selection bias in the public goods games is decision to cooperate with in-group member and not out-group member in the public goods game (0–1 range). Other-regarding bias is the amount in NIS contributed to in-group members minus the amount contributed to out-group members (0–20 range). Efficacy bias is the tendency to choose the in-group member over the out-group member in the Lego task (0–1 range).

Jewish population, rarely live in cities where the out-group is not a majority. This leads to a nuance in the expected results: as stated in hypotheses 1 and 2, the relationship between out-group size should be curvilinear. For the UO, for whom the out-group usually makes up over 80% of the local population, an increase in the out-group should be related to a decrease in bias. For the STR, for whom the out-group usually makes up under 20% of the population, an increase in the out-group should be related to an increase in bias.

OLS regression coefficients are reported in table 2, using *strategy selection bias* (columns 1 and 2), *other-regarding bias* (columns 3 and 4), and *efficacy bias* (columns 5 and 6) as dependent variables. Columns 1, 3, and 5 are for UO players, while columns 2, 4, and 6 are for STR. Our main variables of interest are *segregation*, *out-group proportion*, and the interaction of the two. Coefficient estimates on the control variables are omitted to save space. All coefficient estimates and regressions not including any control variables are reported in the appendix.¹⁴

For both the UO and STR, respondents are very responsive to changes in context, with large coefficients on *segre-*

gation, *out-group proportion*, and *segregation × out-group proportion*. This is especially true, however, for the STR, for whom the variables are large and achieve robust levels of statistical significance for all dependent variables. Notice that the coefficient estimates have the same sign for all dependent variables within each group, but recall that UO and STR are operating on opposite ends of the distribution of *out-group proportion*, which results in different signs on the coefficients between groups, even though the behavior of individuals in both groups follows the theoretical prediction. These results indicate that in-group bias varies strongly with context. It is worth noting that in six regressions, the coefficient estimates are in the expected direction in all six and reach conventional levels of statistical significance ($p < .05$) in four. We take this as strong evidence in support of all three hypotheses offered earlier. Failing to achieve a p -value of less than .05 in some tests is not unexpected given our sample size and the number of tests we perform, even if the true relationship between the variables of interest is not zero.¹⁵

To demonstrate the relationship between context and behavior, we display the predicted values of in-group bias in

14. Notably, the size of the local Arab population does not have a strong or systematic relationship to the amount of inter-Jewish discrimination.

15. In the appendix, we report results using alternative standard error estimates to account for the small number of clusters. Because we are making multiple comparisons, we also performed the test recommended

figure 2 for *other-regarding bias* (left column), *strategy selection bias* (middle column), and *efficacy bias* (right column), generated from the estimates in the regressions table 2. In these figures, the predicted amount of in-group bias is shown while holding demographic patterns at Jerusalem levels and moving between the levels of segregation found in Tel Aviv (.28) and Jerusalem (.63) for STR and UO, top and second rows, respectively; and while moving between the proportions of UO in Tel Aviv (.01) and in Jerusalem (.27) for STR and UO, third and bottom rows, respectively. All predicted values are generated by holding the other variables at their mean or modal values.¹⁶

Tel Aviv and Jerusalem are the two largest cities in Israel and have very different patterns of diversity and segregation, making this demonstration substantively important. The solid lines represent the mean values of these predictions. As predicted, greater segregation (top and second rows) results in greater in-group bias, especially when it comes to other-regarding behavior. Also as predicted, out-group proportion follows a curvilinear pattern, with lower levels of the out-group (third row), seen among the STR population, leading to more in-group bias. As out-group proportion reaches higher levels (bottom row), in-group bias decreases.

The results neatly fit our theoretical expectations and confirm hypotheses 1, 2, and 3. They also demonstrate the acute sensitivity of in-group bias to context. For example with *other-regarding bias* among STR, moving across the range of segregation for STR increases in-group bias by over 180% (2.4 NIS to 6.7 NIS). Moving across the range of out-group proportion increases the in-group bias by almost 350% (1.8 NIS to 8.2 NIS). Similarly, estimates of the effects for the UO are an over 60% increase when segregation increases (4.4 to 7.1 NIS) and an over 60% decrease when out-group proportion increases (8.4 to 3.2 NIS). These results highlight the importance of considering spatial structure, such as segregation, in addition to aspatial measures of diversity, such as out-group proportion, because the effect of segregation is consistently as strong, if not stronger, than the effect of out-group proportion.

by Benjamini and Hochberg (1995) to control for false discoveries. Using a false discovery rate of .10, maintains the statistical significance of all estimates with $p < .05$ in table 2. In the appendix, we also tested for the sensitivity of our results to the inclusion of any single locality by iteratively re-estimating the models reported in table 2 with a locality excluded in each iteration. We found that the results are not unduly sensitive to the exclusion of any locality.

16. The simulations predict values for a 40-year-old nonimmigrant, male Ashkenazi with an ideology of 5 (on the 7-point scale, higher numbers being farther to the right), low income, a college education, and about 6% of his community being non-Jewish.

Variation in mechanisms across locations

These findings have implications for our understanding of the mechanisms underlying the effects of social diversity. Much previous scholarship has explored these mechanisms by testing for the presence of discriminatory behavior in different types of game or decision task in single locations. We have demonstrated that these behaviors vary systematically with context. In this section, we demonstrate how different conclusions would be reached by locating a study in different locations, even within the same country. This point has important implications for research design: because behavior is a function of context as well as of the players, scholars may observe the operation of different mechanisms depending on the location chosen for research.

Figure 3 illustrates this point, showing four locations where we conducted our experiments: two cities (Kiryat Gat and Bnei Brak) and two Quarters in Jerusalem (Quarter 11—Kiryat Yovel and its surroundings—and Quarter 8—Jerusalem Center and its surroundings). Pairs of these locations have similar levels of UO population—4%, 62%, 6%, and 49%, respectively (as a percent of the Jewish population)—but different levels of segregation—.50, .33, .33, and .53, respectively.¹⁷

For each location, we display three quantities of interest: (1) *other-regarding bias* (standardized on a 0–1 scale) (R), (2) *efficacy bias* (E), and (3) *strategy selection bias* (S). For each measure, positive values mean greater levels of the in-group bias. For each quantity, we display the mean result and the 95% confidence interval. In each location, we have only a small sample, so this discussion is for the purposes of demonstration, rather than inference.¹⁸

According to our theory, we should expect more in-group bias in more segregated areas. This prediction is largely supported in these locations: Kiryat Gat and Jerusalem Quarter 11 have similar population proportions, but Kiryat Gat is more segregated. If we had chosen to locate our laboratory in Kiryat Gat, rather than in Jerusalem Quarter 11, we might conclude that all three of the proposed mechanisms were operating; yet if we had located our laboratory in Jerusalem Quarter 11, we might conclude that only one or two of the mechanisms were operating—and at weaker levels than in Kiryat Gat. Similarly, Jerusalem Quarter 8 and Bnei Brak have similar population proportions, but Jerusalem Quarter 8 is much more segregated. Consistent with our

17. Bnei Brak is a city in the Tel Aviv metropolitan area. In Israel, it is often considered a strongly UO location, but official statistics reveal that the population is more religiously mixed than may be popularly perceived.

18. In the appendix, we reproduce this figure for all locations in which we collected data.

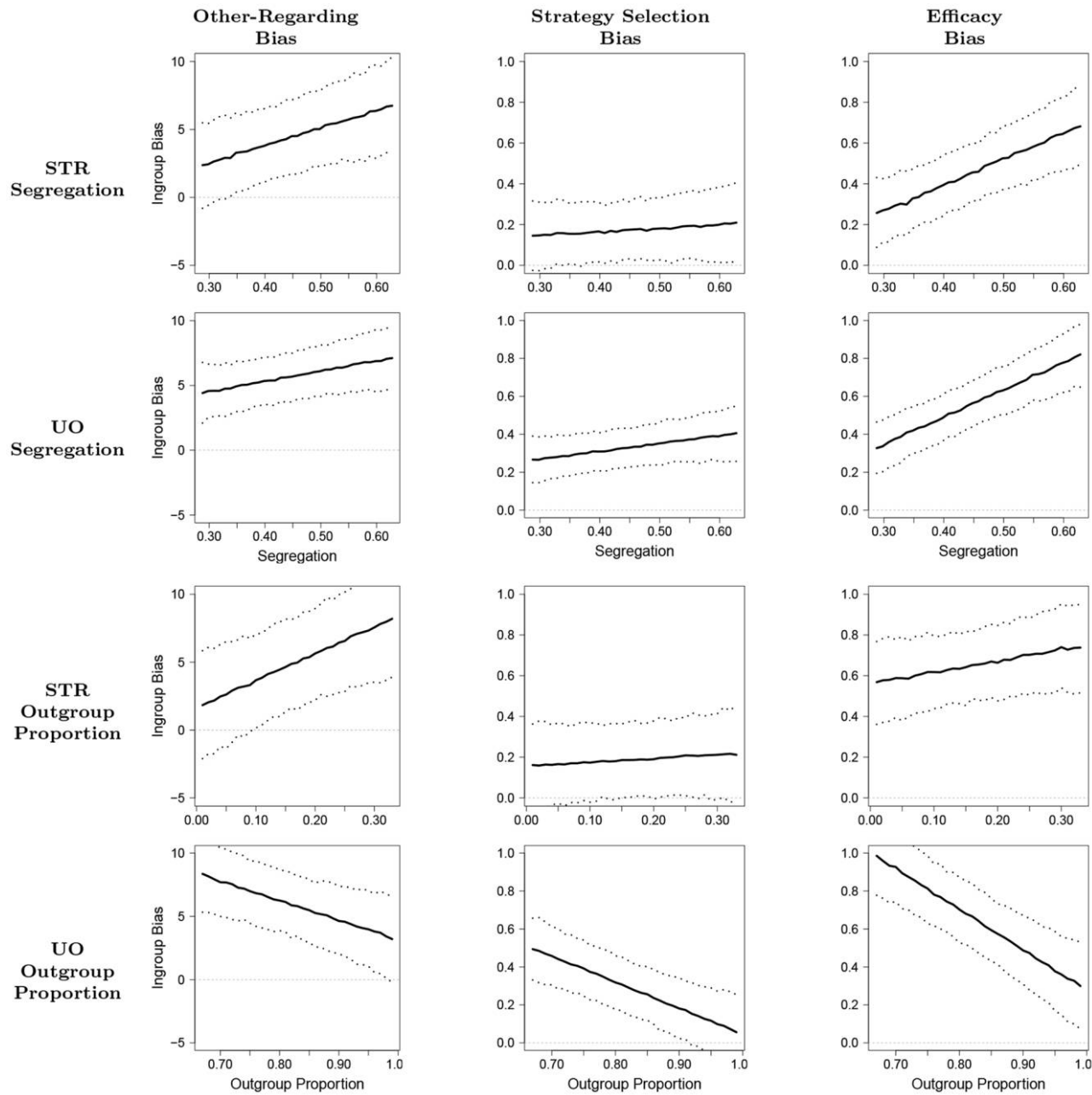


Figure 2. Predicted *other-regarding bias*, *strategy selection bias*, and *efficacy bias* by levels of segregation and out-group proportion. Predicted level of other-regarding bias in NIS (left column), strategy selection bias (middle column), and efficacy bias (right column) with varying levels of segregation and homogeneity for STR (top and third rows) and UO (second and bottom rows). All other variables held at mean or modal values. Dotted lines represent 90% confidence intervals. Other-regarding bias is measured in NIS, strategy selection in percentage points of additional cooperation for the in-group, and efficacy bias in percentage-point difference in selection of in-group over out-group for the task.

expectation, all of the mechanisms proposed in the literature can be found strongly operating in Jerusalem Quarter 8. On the other hand, if we had chosen to study the less segregated city of Bnei Brak, we might conclude that only one of the mechanisms is operating. In summary, depending on the location in which a researcher chose to explore the relationship between diversity and social inefficiency, a phenomenon observed on a global scale, a researcher might

arrive at substantially different conclusions about the underlying mechanism.

Can researchers be expected to test for differences in behavior across every location in a country or even a reasonable random sample? In most cases, the answer is likely to be no. How then can research on individual mechanisms underlying global phenomena be informative? Our answer, which we discuss further in the conclusion, is that by

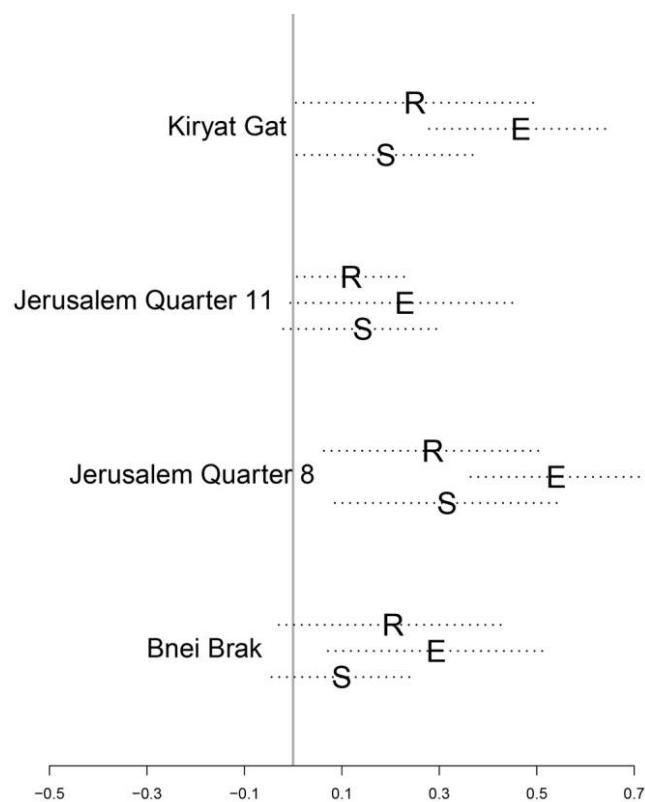


Figure 3. Levels of differences in *other-regarding bias*, *efficacy bias*, and *strategy selection bias* in selected locations. For each location, we display four quantities of interest: (1) standardized differences in *other-regarding bias* (R), (2) *efficacy bias* (E), and (3) *strategy selection bias* (S). The horizontal bars show the 95% confidence intervals. Color version of figure available online.

drawing on theories of contextual variation in behavior, we can form expectations that will inform both case selection and interpretation of results.

Is the relationship between context and behavior causal?

So far, we have provided evidence that the operation of the mechanisms linking diversity and discriminatory behaviors varies strongly with context. Whether or not the relationship is causal is not directly relevant to our central argument. Based on the prior literature, we have theoretical reason to believe that context causes behavioral change, but it is also possible that these variables are spuriously related or that the causal relationship is reversed, with people with certain behavioral tendencies selecting into certain areas.

There are two possible interpretations of our findings, which can be seen as “strong” and “weak” theories of geographic context (this is similar to an argument about occupations and attitudes by Kitschelt and Rehm 2014). A strong theory of context would suggest that residential patterns actively nurture and generate patterns of intergroup attitudes. This interpretation stresses the causal role of diversity

and segregation in shaping social relations. Of course, in the study contextual effects, causal relationships can be acutely difficult to establish (Sampson 2008) owing to the inability to randomize context, but the literature on context does include experimental (Enos 2014) and quasi-experimental (Enos 2015) designs that demonstrate a causal link between context and attitudes and behavior.

A weaker version would suggest that individuals have different degrees of latent and active predispositions that push them to select into specific locations (Farley et al. 1978). Individuals with strong anti-out-group bias may select into the most segregated areas in order to avoid the out-group, thereby reversing the causal interpretation of the relationship between attitudes and segregation. In this scenario, diversity and segregation may mostly reinforce and strengthen preexisting inclinations. Note that this interpretation does not render context irrelevant; instead, it stresses the role of public policies such as housing subsidies, since governments have some control over the availability of segregated communities into which individuals can self-select.

When estimating the effect of context on in-group preference, we controlled for individual-level variables that might also drive the relationship and found that the estimates are robust to the inclusion of these controls, so we have some confidence that the relationship is not spurious. However, we also collected a data set that has been designed specifically to test for the effects of selection in a manner not usually possible with survey data, allowing us to examine whether the causal relationship is reversed because of selection. We collected a rich set of variables that allow us to directly measure the means and attitudes that lead to selection into segregated and homogeneous localities. We do not doubt that selection is responsible for some of the relationship between context and behavior, but we also believe that context can have a direct effect on behavior.¹⁹

In order to systematically examine the influence of selection, we subset our data using questions that were specifically designed to test for this influence. Our subjects were subset based on their ability to relocate and on expressed and revealed preference for selection away from the out-group. Using these subsets we can then test for whether our conclusions are contingent on whether or not the subject has selected to live near the out-group. We created subsets of the data using the following criteria:

19. Using open-ended responses to the survey, we can understand the prevalence of this type of selection. Open-ended responses indicated that, while minimal, some selection based on intergroup attitudes or preferences for the in-group does exist. We give more detail about these responses in the appendix.

1. Individuals with reduced ability to change location:

- (a) Low-income individuals.
- (b) Those who report that they have little freedom to choose where they would like to live.

2. Individuals who express attitudes that make them unlikely to select into segregated areas:

- (a) Those who explicitly report they would not want to live in a segregated community.
- (b) Those who are unsatisfied with where they currently live (reducing the potential that they have selected into their preferred neighborhood).
- (c) Those who do not report the religion of others as a factor in their choice of city or neighborhood.

We also asked our subjects to construct their hypothetical ideal neighborhood by choosing the residents of each of 10 houses neighboring their own.²⁰ Respondents could choose from UO, secular, or Arab families (see an example in the appendix), with the explicit instruction that their choices of neighbors would not affect other qualities of the neighborhood. We subset to individuals that did not construct exclusively homogeneous neighborhoods. Finally, we collected data that precisely geocodes the prior and current residences of our subjects. We subset on those who have not relocated to a more heavily in-group neighborhood.²¹ Conditional on the means to move, this is a measure of revealed preference for moving to a homogeneous area.

Each of these constructed groups consists of individuals for whom the potential of selection bias is greatly reduced. With each group, we reanalyze the data using the same model reported in table 2 and find substantively the same results and remarkably similar coefficient estimates, indicating that our findings are likely not driven by individuals selecting into highly segregated areas. In figure 4, we display the coefficients on the contextual variables from these regressions, which are generated by estimates from the same model reported in table 2, columns 3 and 4, except using the subsets described above. Coefficients are displayed for out-group

proportion (circle), segregation (square), and the interaction of the two (triangle) for STR subjects (panel A) and UO subjects (panel B). The coefficients for the full sample are displayed at the top of the graph with vertical lines at these points, so variation in the effect when subsetting can be seen in the distance of the points from these vertical lines.

The results for all subsets are consistent with the results for the full sample. For example, looking at panel B of figure 4, the coefficient estimates for the entire sample are represented by the top group of shapes. The estimates for subjects whose ideal neighborhood are not homogeneous are represented by the second group of shapes from the top. The close vertical alignment of the two squares tells us that coefficient estimates on segregation are very similar, while the vertical alignment on the circles tells us that the estimates on out-group proportion are similar, and the vertical alignment on the triangles tells us that the interaction coefficients are similar. The same comparisons can be made for all other subsets. In the appendix, we report the full coefficient tables for the regression of all behavioral measures on each these subsets.

CONCLUSION

In this article, we demonstrated that the mechanisms connecting diversity with discriminatory behaviors vary systematically with levels of segregation and demographic diversity. We have provided evidence that segregation and a high proportion of the out-group in a population is associated with in-group bias in other-regarding behavior, strategy selection, and efficacy. We have also demonstrated that the diversity/social inefficiency relationship is likely causal.

Implications for research design

By demonstrating how the strength of the relationship between diversity and social inefficiency varies with context and that the relationship may be causal, our findings can serve as a guide for designing future research on the mechanisms connecting these two phenomena. By articulating a model linking context to behavior, scholars can better understand where their findings are likely to fit in the distribution of behaviors within or across countries. This point is relevant for the more general study of political behavior: behavior is context-dependent and researchers should therefore be aware that their inferences may vary significantly based on the levels of segregation and out-group proportion in a given research location.

When scholars only test a single location, it is difficult to know how representative of the country it is. By establishing an expected relationship between behavior and two variables that could be measured in any locality—segrega-

20. We use a modified version of the test first implemented by Farley et al. (1978).

21. Neighborhood is defined as a Statistical Area; see the appendix for details on this geographic unit.

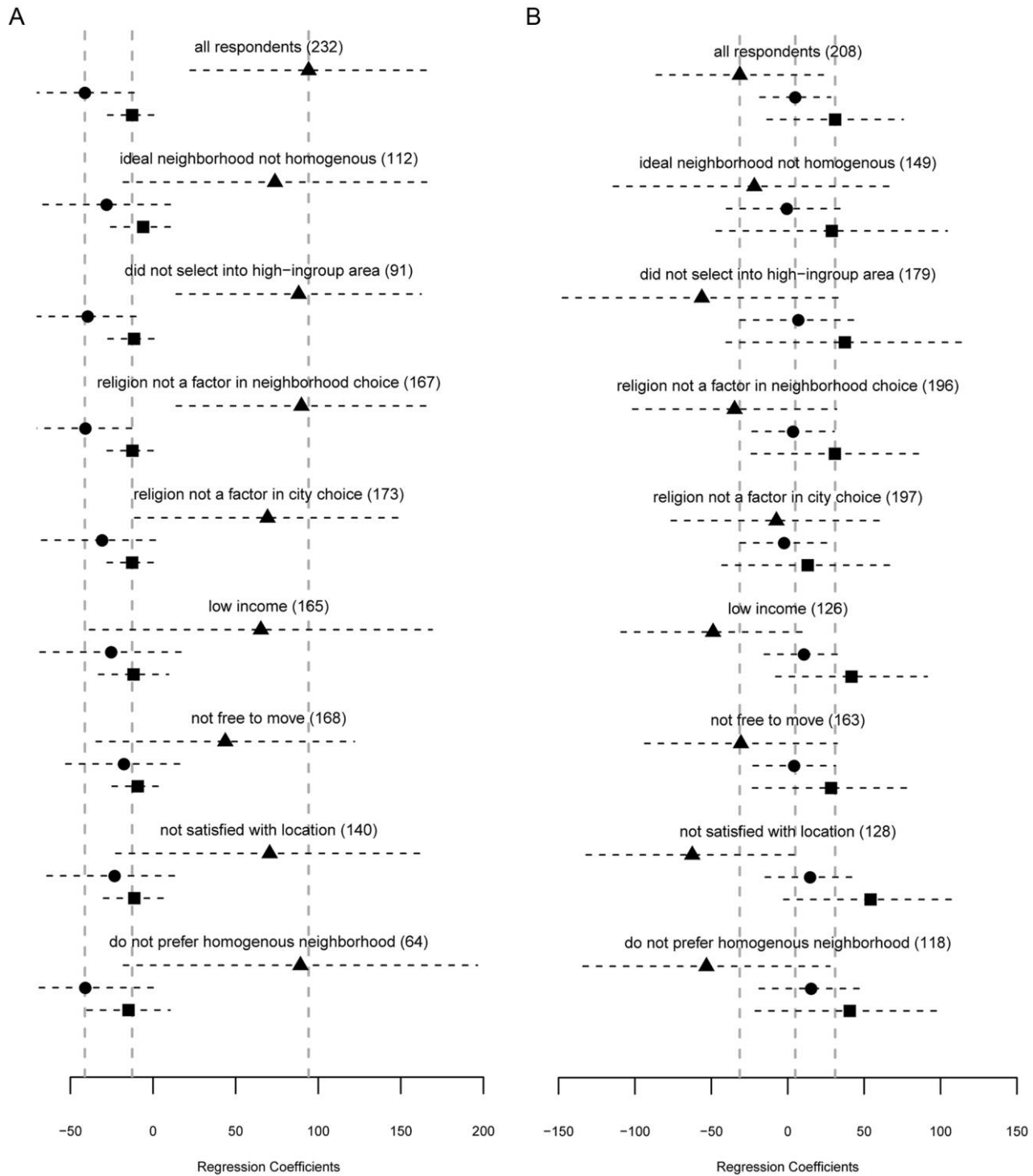


Figure 4. Regression of contextual variables on *other-regarding bias*, subsetting to control for selection. Regression coefficients generated for out-group proportion (circle), segregation (square), and the interaction of the two (triangle) from regression of *other-regarding bias* on contextual- and individual-level variables for STR subjects (a) and UO subjects (b), for subgroups listed above the coefficient points. Dotted horizontal lines indicate 95% confidence intervals. The *N* in each subset is listed in parentheses next to the description of the subset. Dotted vertical lines represent the coefficient estimates from the regression with all respondents.

tion and diversity—we offer scholars a tool for benchmarking their findings. For example, was the research conducted in an area with low segregation? If so, the findings probably reflect the low end of intergroup animosity and

estimates of levels of discriminatory behavior should be considered as downwardly biased if imputed to the entire country. The opposite would be true of research conducted in highly segregated areas.

Of course, the ideal research design would draw a representative sample of individuals from a representative sample of localities. This is only rarely possible, which is why scholars such as Habyarimana et al. (2007) carefully selected locations believed to be adequate microcosms of the entire country. However, our findings demonstrate that a scholar must consider multiple dimensions when selecting locations. If researchers choose locations such as a developing country's capital city, in which intergroup residential mixing is probably higher than the rest of the country due to migration from rural areas, the inferences drawn from such locations may understate the average behavioral manifestations of in-group bias.

Implications for diversity and social inefficiency

One implication of our findings about the relationship between context and individual discriminatory behaviors is that countries will vary in how well they meet the prediction that diversity causes social inefficiency depending on the concentration of power in certain geographic areas. Countries that concentrate power in the hands of populations particularly subject to geographic out-group pressure may have particularly inefficient provision of public goods. A prime example is the United States, when anti-black white Southerners gained disproportional power in the national government and leveraged it to restrict social spending agendas that they saw as benefiting African Americans. These actors—according to classic theories in political science (Key 1949) and consistent with our findings here—had strong anti-black prejudice because of the high presence of blacks in their localities.

An important practical implication of our study is that housing policies have social implications. Governments play a role in organizing their citizens in space, from the design of programs for public housing to subsidies that encourage groups to reside in specific neighborhoods or cities. In Israel, governmental agencies have debated whether to encourage greater integration between the secular and UO or to concentrate the UO in their own segregated communities. In the United States, there are different opinions about whether programs of public housing should bring low- and middle-income families closer together. The choices are difficult and can involve a trade-off between short-term benefits and long-term inefficiencies (Alesina et al. 1999). These questions have normative implications, and they deal with different visions of a liberal plural society; however, our research provides empirical evidence that should inform policy makers and the public discussion of these issues.

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