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Mapping Inequalities in Local Political Representation: Evidence from Ohio School Boards

Brendan Bartanen
Jason A. Grissom
Ela Joshi
Vanderbilt University

Marc Meredith
University of Pennsylvania

Elected representatives' place of residence can reveal information about their socioeconomic status, their likely social networks, and potential biases in the constituencies they represent. Using data on home addresses we collected from local elections offices, we investigate the geographic distribution of school board candidates', including winners', places of residence across two election cycles for 610 school districts in Ohio. We employ geographic information systems (GIS) to identify census block group and school enrollment zones associated with each candidate's residence. We document differences among block groups and schools with more and less school board representation, including a robust association between the relative affluence of a neighborhood and the likelihood of school board members residing in that area. We find that more citizens from affluent areas run for school board, and because a large proportion of school board elections feature minimal competition, these higher propensities to run explain disparities in representation.

Keywords: *school boards, inequality, geographic information systems, governance, representation*

In the United States, school boards serve a number of essential functions for the school systems that they oversee, including setting policy priorities, hiring and monitoring district administrators, and making budget allocation decisions (Kirst & Wirt, 2009). An accumulating body of research suggests that the identities of school board members can affect their decisions and enactment of the role. For example, electing board members of color correlates with increased hiring of administrators and teachers of color (e.g., Meier, Juenke, Wrinkle, & Polinard, 2005; Meier & Rutherford, 2014). Boards with larger numbers of Democrats enact policies that decrease school segregation (Macartney & Singleton, 2018), while ideologically mixed boards exhibit greater interpersonal conflict, with potential consequences for their decision-making effectiveness (Grissom, 2010, 2014).

Given that school board members shape policy outcomes, we know surprisingly little about who serves on school boards (Hess & Meeks, 2010; Land, 2002). This study focuses on a particularly salient characteristic of school board members: where they live within the school district. Home location can reveal a good deal of information about a board member that is both politically and policy relevant. First, one's neighborhood of residence signals socioeconomic privilege, which can provide electoral advantages and affect board voting behavior (Barreto, Cohen-Marks, & Woods, 2009; Gerber, 1998; Sheffield & Goering, 1978; Shields & Goidel, 1997; Stratmann, 2005). Board members who come from wealthier neighborhoods, for example, may have access to greater financial and social resources and may live in neighborhoods with a greater voter turnout, which may increase the probability that they are elected (Barreto et al., 2009).

Second, in most school systems, residency establishes which particular schools students are "zoned for," that is, which elementary, middle, and high schools any children living in that home would be eligible to attend. If school board members are the parents of public school children they may have particular interest in policy decisions, such as those affecting resource allocation or personnel decisions, that impact their "home" schools. Even if they do not have children attending the school, they may give disproportionate policy attention to their zoned schools because school policy decisions can be capitalized into housing values (Black, 1999) or because they are likely to have a denser social network of parents and other community members in the enrollment zone who may exert pressure on their decisions on the board that affect the school. In short, the location of board members' residences may constitute a form of bias in decisions impacting individual schools. Research on elected officeholders in other political institutions indeed indicates that elected officials tend to orient their work

toward meeting the needs of particular constituencies (Ansolabehere, Gerber, & Snyder, 2002; Elis, Malhotra, & Meredith, 2009).

In this study, we investigate the geographic distribution of school board members within their school districts using a unique data set we constructed for the state of Ohio. In particular, we collected information on the home addresses of both winning and losing school board candidates over two biennial election cycles (2009 and 2011) for 610 school districts. We employ geographic information systems (GIS) to place school board members in their respective US Census block groups (which proxy for neighborhood), as well as match them to their zoned public schools using school enrollment zone shape files from the National Center of Educational Statistics (NCES) School Attendance Boundary Survey (SABS).

We ask two main research questions. First, what are the differences in sociodemographic and other characteristics of census block groups and school enrollment zones that include school board members and those that do not? And second, to what extent are these patterns driven by candidate entry—that is, the likelihood that a given block group or school enrollment zone houses a school board candidate—versus electoral advantages evidenced by increased likelihood that the candidate wins, conditional on entry? We answer these questions using a district fixed effects approach that makes comparisons between the characteristics of neighborhoods and school enrollment zones within the same school districts.

Geography and School Board Representation

The goals of this study are firstly to investigate the residential locations of school board members and secondarily to separate the role that candidate entry and electoral performance play in determining which areas are overrepresented and underrepresented on school boards. This analysis is motivated by previous research showing both how geography shapes elections and how geography influences decisions once in office.

Location and Elections

Location of residence likely is correlated with both the probability of entering a political race and the probability of winning, in general and for school board candidates in particular. Residential segregation by such factors as income and race/ethnicity is a defining characteristic of US cities and school districts (e.g., Bischoff, 2008; Clark, 1986). Given the expense of political campaigns, even for some local offices (e.g., Frasco, 2007; Holbrook & Weinschenk, 2014; Weinschenk, 2014), we anticipate that residents of wealthy neighborhoods are more likely to enter school board races, both because they themselves are more likely to be wealthy and because they are more likely to participate in social networks with other wealthy individuals who can provide them with electoral resources (Canon, 1990; Fox & Lawless, 2005). In a national survey, 63% of school board members reported that they and their friends and family supplied more than half of the funds for their most recent campaign (Hess & Leal, 2005). In their study of citizen political ambition, Fox and Lawless (2005) found that wealthy individuals were more likely to aspire to high-level political offices, for which school boards were seen as the most common entry point. A study by Stratmann (2005) examining the relationship between filing fees and candidate entry found that fewer candidates run in elections in the presence of filing fees and that incumbents face more competition when filing fees are lower, bolstering the idea that less access to personal resources is a significant consideration in the decision to run for office. Other markers of socioeconomic status, such as higher education level, are also associated with candidate entry into politics (Deckman, 2007).

The same factors that link candidate location and likelihood of entry—location proxies for candidate wealth and resources available through the candidate's social network—may make electoral success more probable, conditional on entry. Spending in school board elections is an important predictor of vote share (Arrington & Ingalls, 1984), so access to campaign funds in the form of personal resources or those in one's network presumably increases the likelihood of winning. School board elections are often marked by low turnout,[1] and voters in low-turnout elections are wealthier, on average (Kogan et al., 2018). Measures of voter socioeconomic status, including wealth, education level, and race, are important predictors of which candidates they vote for in local elections (Hajnal & Trounstine, 2014). Higher rates of participation in school board elections in more affluent areas may suggest an additional source of advantage for candidates from wealthier neighborhoods, given the importance of social channels in vote choice in school board and other local elections (Allen & Plank, 2005; Garn & Copeland, 2014). Relatedly, higher-income voters are more likely to be personally acquainted with candidates for local office (Oliver & Ha, 2007).

Given higher likelihoods of both entering and winning school board races, it is unsurprising that surveys find that school board members have much higher incomes than the average citizen. Hess and Meeks's (2010) survey of board members nationally found that more than 90% of board members reported household incomes above the national median, with nearly half of board members reporting annual incomes of $100,000 or more. In considering whether candidate entry or winning is more likely to contribute to this skew toward wealthier representatives, we note that studies of school board elections typically find that 40–60% of board members run unopposed (e.g., Berry & Howell, 2007; Grissom, 2010), and nationally 44% of board members

describe their most recent election as a "very easy" win (Hess & Meeks, 2010).

Location and Decision-Making

Location also likely is predictive of board members' behavior. The questions of whose interests get represented in politics and how are among the most fundamental areas of study for political scientists (Pitkin, 1967). Not all citizens' interests are represented equally in the political process. A variety of factors can influence which voices and preferences are advantaged, including electoral structure, the demographics of who votes, and partisanship (Griffin & Newman, 2005; Kohfeld & Sprague, 1995, 2002; Meier et al., 2005; Trounstine & Valdini, 2008; Webber, 2010). Numerous studies have concluded that the policy preferences of wealthy citizens in particular are given greater weight in political decision-making (Bartels, 2016; Gilens, 2005).

This latter finding may well connect to research on representation that considers the role of geography. This work generally finds that geographic units with representation or more representation receive policy benefits, relative to units with less representation. For example, states given greater representation by decennial reapportionment receive disproportionate federal outlays (Elis et al., 2009). Similarly, Ansolabehere et al. (2002) found that counties with more legislative seats per person received greater per-capita funds from the state government, and counties that lost legislative seats over time received a smaller share. Outside of the US, Fiva and Halse (2016) demonstrate that having a representative from a local area can provide that area with fiscal benefits even in the absence of specific electoral incentives to do so. Thus, if wealthy locales have greater representation in government—because, for example, wealthier locations are more likely to be home to lawmakers—this representation may steer policy benefits toward wealthier citizens.

Research on school board representation has not explicitly considered the role of board member wealth for representative behaviors, focusing instead largely on issues of members' race/ethnicity and its substantive implications (e.g., Fraga & Elis, 2009; Meier & England, 1984; Meier & Juenke, 2005; Meier & Rutherford, 2016; Meier et al., 2005). Yet there is reason to believe that board members' wealth may impact the decisions they make. Wealthy representatives are more likely to hold policy positions that favor the wealthy (Carnes, 2012). Moreover, in part due to the aforementioned residential segregation, wealthy elected officials are embedded in social networks with other wealthy individuals, who may exert informal influence on their policy decisions (Gilens & Page, 2014; Hacker & Pierson, 2011).

School board members' place of residence may also affect the personal incentives that they face in participating in board decision-making. Location of a board member's home typically determines which public schools children in the home are eligible to attend. Board members who are parents of school-aged children thus have a particular interest in policy decisions concerning specific elementary, middle, and high schools in the district, which may include decisions about how resources are allocated to them (Mountford, 2004).[2] Even for board members without children attending their zoned public schools, incentives exist to make policy decisions favorable to those schools. Multiple studies have documented that school quality is capitalized into housing prices (e.g., Black, 1999; Haurin & Brasington, 1996; Kane, Riegg, & Staiger, 2006), meaning that investments in schools associated with their home's catchment area may pay off by increasing housing values for the board member and their neighborhood peers.

In summary, existing research suggests that citizens' residential location may predict their likelihood of entering a school board race and of electoral success, which may, in turn, predict their behavior while in office. The next section turns to testing the first part of this chain, drawing on original data to test whether place characteristics associated with citizens' homes explain school board candidate entry and probability of election to the board.

Data

This study uses a unique dataset we collected on all candidates for local school boards in Ohio's 610 school districts in the 2009 and 2011 elections. Ohio holds school board elections only in odd-numbered years, with roughly half the seats on each board up for four-year terms in each election year,[3] so the 2009 and 2011 elections allowed us to observe elections for every local school board seat in the state. Most Ohio districts have five-member school boards chosen in at-large elections (Ohio Revised Code Title 33: Ohio Boards of Education, 1996). School districts in the largest cities, such as Cincinnati and Columbus, have seven-member boards.

Our data collection effort involved obtaining candidate lists and election results from every school board in Ohio for the two election years. We collected this information via telephone and email requests to local election offices. We specifically asked for candidates' home addresses from their filings to run for school board if they were not included on candidate lists. In 2009, for example, we directly collected addresses for 76% of candidates. When these addresses were not available, we searched for a candidate's voter registration record in the Ohio voter file. The voter file contains addresses, which we used to supplement our initial collection from the candidate lists. In total, we have addresses for 96% of 2009 candidates. In 2011, we were able to collect addresses for 95% of candidates.

A total of 2,437 and 2,049 candidates ran in 2009 and 2011, respectively. Overall, 67% of candidates were elected, with roughly one-quarter running unopposed. In 2009, 46% of candidates were incumbents; these candidates had

substantially higher win rates (85%) than non-incumbents (54%).[4]

Linking Candidates to Neighborhoods and Schools

Using each candidate's home address, we employed GIS mapping to match them to various geographic units. As a first step, we used an Ohio address locator to batch geocode each candidate; in cases where an address could not be matched, we individually geocoded it using Google Maps.

After geocoding each candidate, we used shape files from the US Census Bureau to match candidates to the census block group where their residence was located. The mean block group contains 848 adults;[5] we take these block groups to be the candidates' neighborhoods. Next, we used shape files from the NCES SABS, and GPS coordinates from the NCES School Universe Survey, to match candidates to their "zoned" neighborhood elementary, middle, and high schools.

While SABS contains zoning boundaries for most school districts in Ohio, many of the districts (particularly the largest urban districts) have undefined school boundaries and/or open enrollment policies that do not allow us to match the school board candidates in these districts to a neighborhood school. Rather than dropping these candidates and schools from the analysis, we used a two-step matching process. First, we matched candidates to the closest school based on the distance from the candidate's home address to the GPS coordinates of the school. Next, we checked whether the matched school is from the correct district; particularly in school districts with irregular zoning shapes, the school closest to a candidate's residence can be from a neighboring district. For candidates matched to a school outside of their district, we matched them to their assigned school according to SABS zoning boundaries. If a candidate was unable to be matched to a school in their district using distance or zoning boundaries, they were dropped from the analysis for the given school level. Not including candidates without addresses, this process successfully matched 93.8%, 77.5%, and 93.0% of candidates at the elementary, middle, and high school level. Importantly, our findings are essentially unchanged when we match using only distance or using only the SABS shapefiles.

Table 1 shows descriptive statistics for census block groups and elementary/middle schools. We do not analyze high schools because almost every high school has at least one school board winner (92%), as most Ohio school districts have only a single high school.[6] Additionally, we drop from the analysis block groups and schools in the Cleveland Metropolitan School District, which has a mayor-appointed school board and thus no elections. Panel A shows that, of the roughly 8,700 block groups, 24% have at least one school board winner, while 30% have at least one candidate. The average proportion of winners (i.e., the number of winners in the block group divided by the number of seats on the school board) is .07, with a standard deviation of .14. The average proportion of candidates is almost identical, with a mean of .07 and a standard deviation of .13. Perhaps unsurprisingly, the proportion of winners and candidates are highly correlated ($r = .90$). Turning to panel B, 61% of schools have at least one school board winner living within their enrollment zone, and 66% have one or more candidates. The higher levels of average representation relative to block groups reflects the lower number of schools, which cover a larger geographic area and more residents, particularly in more sparsely populated districts.

Census Block Demographic Information

Demographic information for individual census block groups is available via the American Community Survey (ACS), which is conducted yearly by the United States Census Bureau. For smaller geographic units, such as census block groups and tracts, the ACS uses five-year estimates to increase precision. This study uses the 2007–2011 five-year estimates for median household income, median house value, percentage of Black residents, median age, and percentage of adults (25 and over) with a bachelor's degree.

Table 1, Panel A shows summary statistics for census block groups in Ohio. The mean block group's median household income is $51,000, with a median housing value of $133,000; large standard deviations for both variables indicate substantial variation in block group wealth across the state. Twenty-three percent of the average block group's population holds at least a bachelor's degree. The average block group's median age is 39.7 years, and 17% of the population are school-aged (5–17 years old) children. Twelve percent of the average block group is Black, and 3% is Hispanic.

We supplemented the demographic data from ACS with measures of partisanship and political participation using the Ohio voter registry. Specifically, we geocoded the full population of registered voters in Ohio using addresses from the voter file. Next, we calculated the proportion of registered voters in the block group who voted in the 2008 primary, a measure of political participation or engagement. For the typical block group, this fraction is 38%. For primary voters, we could also observe their presumed party affiliation, measured by which primary (Democratic or Republican) they voted in. Aggregating to the block group level, we created a rough proxy for partisanship by dividing the number of Democrat (Republican) voters by the total number of primary voters.[7] These measures indicate that 65% of 2008 primary voters in the mean block group are Democrats, and 35% are Republicans.[8]

School Demographic and Performance Information

School demographic information was gathered from the School Universe Survey (2010) in the Common Core of

TABLE 1
Descriptive Statistics

	Mean	*SD*	Min	Max	*N*	Hypothesized Direction of Association with Representation
Panel A: Census Block Groups						
At least one winner	0.24				8724	
At least one candidate	0.30				8724	
Proportion of winners	0.07	0.14	0.00	1.00	8724	
Proportion of candidates	0.07	0.13	0.00	1.00	8724	
Median household income (1,000s)	51	26	0	250	8724	+
Median house value (1,000s)	133	75	0	1000	8724	+
Median age	39.7	8.5	11	83	8724	+
Proportion of school-aged children	0.17	0.07	0.00	0.56	8724	+
Hispanic residents (prop)	0.03	0.06	0.00	0.63	8724	−
Black residents (prop)	0.12	0.23	0.00	1.00	8724	−
Adults with bachelor's degree (prop)	0.23	0.18	0.00	1.00	8724	+
Party affiliation is Democrat (prop)	0.65	0.17	0.00	1.00	8692	unclear
Party affiliation is Republican (prop)	0.35	0.17	0.00	1.00	8692	unclear
Voted in '08 primary (prop)	0.38	0.16	0.00	1.00	8692	+
Population age 25+ (100s)	8.48	4.38	0.11	49.63	8724	+
Panel B: Elementary/Middle Schools						
At least one winner	0.61				2233	
At least one candidate	0.66				2233	
Proportion of winners	0.42	0.43	0.00	1.00	2233	
Proportion of candidates	0.42	0.42	0.00	1.00	2233	
Performance index (*SD*)	0.06	0.93	−4.69	1.82	2233	+
Hispanic students (prop)	0.03	0.05	0.00	0.53	2232	−
Black students (prop)	0.12	0.22	0.00	1.00	2232	−
Free/reduced price lunch students (prop)	0.44	0.28	0.00	1.00	2232	−
Enrollment size (100s)	4.38	1.94	0.52	27.10	2233	unclear

Notes: Census block group demographics from 2011 American Community Survey. American Community Survey top-codes median household income and median house value at $250,000 and $1,000,000, respectively. Adults with BA includes only those aged 25+. School-aged children are those aged 5–17. Party affiliation only includes residents who voted in 2008 primary. Primary voting includes only registered voters. School performance index from Ohio Department of Education. Schools demographics from Common Core of Data.

Data (CCD), collected by the NCES. The variables included in this analysis are the percentage of Black students, the percentage of Hispanic students, and the percentage of students qualifying for free/reduced price lunch (FRPL), a proxy for district poverty. We supplemented these files with publicly available data from the Ohio Department of Education. The Ohio data files contain additional demographic information, such as the proportion of gifted students, in addition to detailed performance measures for all public schools. All schools received a "performance index" score which measures performance on the Ohio Achievement Assessments and Ohio Graduate Tests for Grades 3–8 and Grade 10. The performance index is calculated as a weighted average of the percentage of students scoring at different performance levels (below basic, basic, proficient, accelerated, advanced) on the statewide exams. Thus, it is an overall achievement measure and does not account for year-to-year growth or students' prior achievement levels; the correlation between the index and FRPL is –.67, suggesting a close connection with school affluence. We standardize this index within each school level (elementary, middle, high). Finally, we exclude from the analysis charter schools and schools that did not receive a performance rating from the Ohio Department of Education.

Panel B of Table 1 shows descriptive statistics for the analytic sample of elementary and middle schools. Forty-four percent of students in the typical school of 438 students are eligible for free/reduced price lunches. The typical school is 22% Black and 3% Hispanic.

Methods

Our primary interest is in descriptive differences between census block groups and schools with and without school

board representation. Specifically, we are interested in the extent to which block groups and schools that have representation are more advantaged than those without representation. We estimate the following model:

$$Representation_{ij} = \beta_0 + \beta_1 X_{ij} + \gamma Pop_{ij} + \mu_j + \varepsilon_{ij} \quad (1)$$

where the representation of block group/school *i* in district *j* is a function of average demographic characteristics *X*, log population size, and a school district fixed effect μ_j. We operationalize representation in two ways. First, we simply construct a binary indicator that takes a value of 1 if a block group/school has at least one school board winner (i.e., a candidate who was elected to the school board) and 0 otherwise. Second, we calculate the *proportion* of winners from a given block group/school, which allows us to differentiate block groups/schools with multiple winners. For instance, in a block group with three winners on a five-person school board, *Representation* would be .6. In all models we pool across both 2009 and 2011, which gives us the full set of school board members.[9]

We control for log population size (population aged 25+ for block groups and student enrollment for schools) to account for the likelihood that larger block groups/schools are mechanically more likely to contain a resident that is running for school board.[10] District fixed effects are also critical because block groups/schools have very different likelihoods of having school board representation depending on the district in which they are located. In small districts, for instance, there may only be a handful of block groups and schools, which makes representation much more likely for the average block group/school in that district. In large districts that have hundreds of block groups and dozens of schools, the probability that a given block group/school has representation is very low, all else equal. Including district fixed effects restricts the comparison of block groups/schools with representation to block groups/schools *in the same district* that do not have representation. In all models, we cluster standard errors at the school district level.

We also investigate whether the associations between demographic characteristics of block groups/schools and school board representation are explained by differential rates of candidate entry versus differential rates of winning. Here, we simply add to equation 1 controls for the number of school board candidates in the block group/school. To the extent that demographic differences among block groups/schools are explained by candidate entry, we would expect estimates of β_1 to attenuate relative to the models that do not control for entry. Alternatively, we estimate equation 1 replacing *Representation* with *Candidacy* (a binary indicator for whether the block group or school contains a school board candidate) to examine whether the estimated coefficients are comparable between these models. Similar results would suggest that the observed patterns are a function of candidate entry, rather than differential likelihood of winning an election.

Results

Descriptive Analysis

We begin by showing (adjusted) descriptive differences between block groups and schools in Figures 1 and 2.[11] Figure 1 shows that block groups that have at least one school board winner tend to be more affluent than block groups with no winners. For instance, the average block group with at least one winner has a median household income of $55,700, compared to $49,400 for the average block group without a winner. This difference is substantial, at roughly one-quarter of a standard deviation. Similarly, block groups with representation have median home values $15,000 more than block groups without representation (.20 SD), and more adults with bachelor's degrees (25.7% vs. 21.9%). We also find that block groups with a school board member have lower percentages of Black/Hispanic residents, though this difference is fairly small in magnitude (15.3% vs. 13.9%).

Figure 2 shows differences between schools with and without school board representation. Overall, differences between schools are smaller in magnitude than differences between census block groups. This is likely because school enrollment zones are larger geographic units than block groups. Additionally, our measures of affluence are more precise for block groups (e.g., median income) than for schools (percentage of students eligible for FRPL). Nevertheless, Figure 3 shows that schools with school board representation have lower percentages of FRPL students (46.8% vs. 42.6%). They also have higher average levels of student achievement relative to the rest of the state (.11 *SD* vs. –.01 *SD*). We find only small differences in the percentages of Black and Hispanic students at the school.

While Figures 1 and 2 demonstrate that block groups and schools that have school board representation tend to be more advantaged in terms of demographics, we are also interested in the extent to which this average relationship may vary by geography—for instance, in urban/suburban versus rural districts. In Figures 3 through 6, we show the same descriptive differences from Figure 1 but for each of Ohio's 610 school districts. These maps show which areas contribute to the descriptive patterns from Figure 1. Figure 3 shows that many of the school districts with the largest disparities—in terms of the median income difference between block groups with and without school board representation—are located close to Ohio's major cities (i.e., in urban and suburban areas). By contrast, Ohio's rural school districts tend to have smaller income disparities.[12] For instance, the median income difference between block groups with and without at least one school board member is $4,500 in

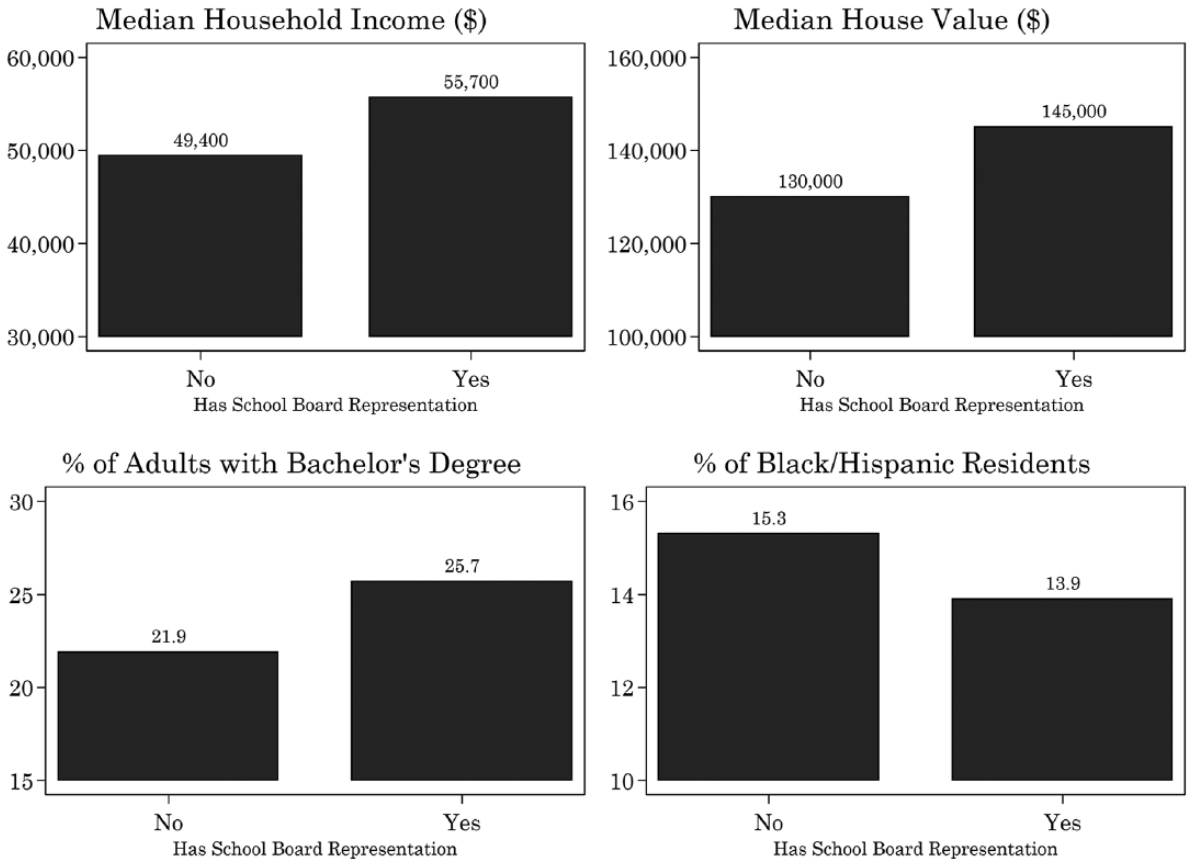

FIGURE 1. *Census block group demographics by school board representation.*
Notes: Plots are model-based predictions that control for school district fixed effects and block group population size. All differences are statistically significant at the .01 level.

rural districts, compared to $8,100 and $8,500 in urban and suburban districts (see online Supplemental Table S1). The urban/rural pattern is even starker for housing values. For instance, the difference in block groups with and without representation is $11,000 in rural districts, compared to roughly $23,000 in urban districts and $20,000 in suburban districts. As shown in Figure 4, almost all of the districts in or adjacent to major cities have substantial disparities in median home values between neighborhoods with and without school board representation.

Figure 5 shows district-level disparities in bachelor's degree attainment. Here, the disparity by representation in urban areas (7.2 percentage point difference) is more than 2.5 times greater than in rural areas (2.7 percentage point difference). Similarly, Figure 6 demonstrates that disparities in the percentage of Black/Hispanic residents between block groups with and without a school board member are almost completely confined to school districts in urban and suburban areas, which makes sense given that rural block groups are 95% White, on average. In other words, there is no variation in race/ethnicity among block groups in rural districts, which leads to small differences between block groups by representation.

In sum, we find that although disparities exist throughout the state in terms of block groups with and without school board representation (particularly for income and home values), these gaps tend to be larger in urban and suburban school districts. Next, we move to estimating versions of equation 1 that predict school board representation as a function of block group/school demographics. Table 2 shows the block group results for four measures: any winners, proportion of winners, any candidates, and proportion of candidates. Each cell shows the estimated coefficient from a separate regression, where the representation outcome (listed in the column header) is regressed on the demographic characteristic (listed in the row), log population size, and district fixed effects. Note that these models do not account for the possibility that the various demographic characteristics are intercorrelated (e.g., household income and house values). In terms of direction and significance, the estimated coefficients are consistent across each outcome.

As in Figure 1, Table 2 shows that block groups with higher median incomes and house values are more likely to have school board representation. For instance, a one log-point increase in median income (which is roughly

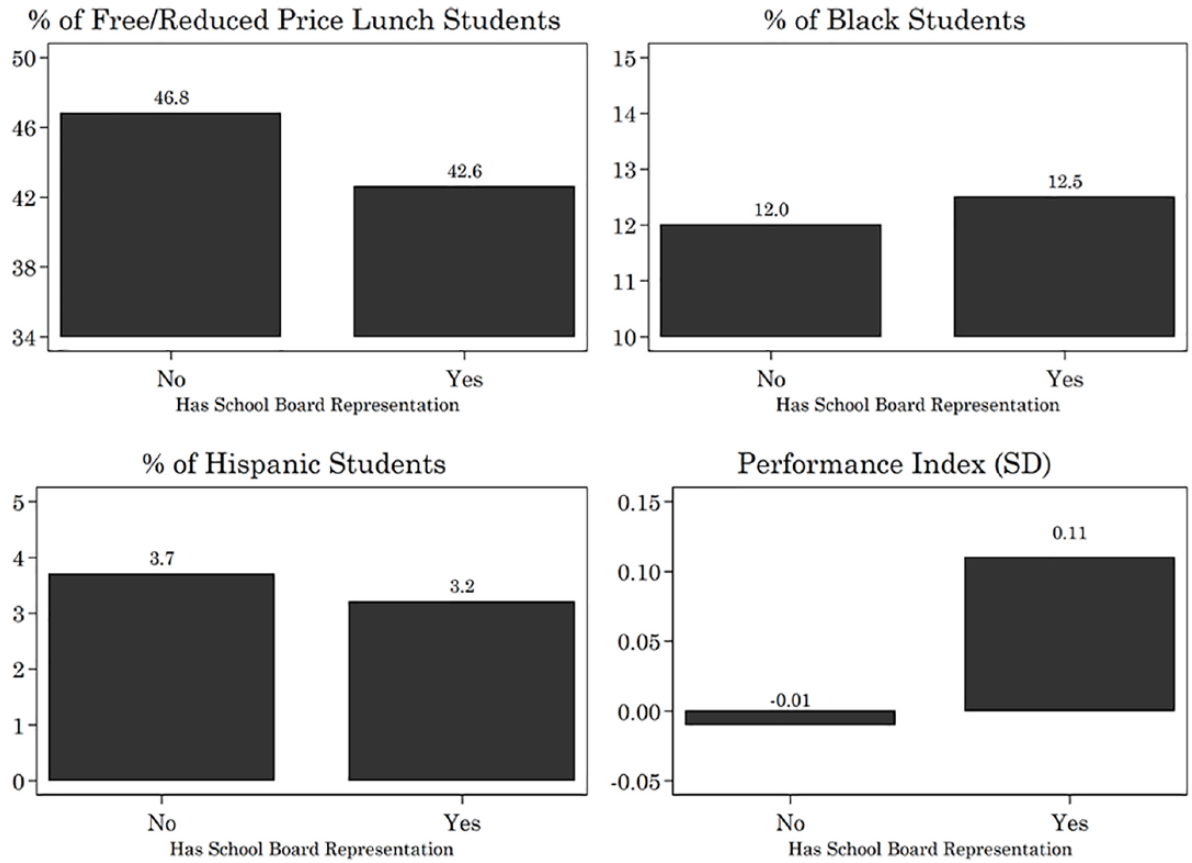

FIGURE 2. *Elementary/middle school demographics by school board representation.*
Notes: Plots are model-based predictions that control for school district fixed effects, school enrollment size, and school level. Differences for % FRPL and performance index are significant at the .01 level. The difference for % Hispanic is significant at the .10 level. The difference for % Black is not statistically significant at conventional levels. FRPL = free/reduced price lunch.

equal to moving from the 50th to 95th percentile in income) is associated with a 13 percentage point increase in the probability of having at least one school board winner and a 3.9 percentage point increase in the proportion of total winners. Similarly, median house value, median age, and the percent of adults with a bachelor's degree are positively correlated with school board representation. Proportion of Black and Hispanic residents are both negatively correlated with the likelihood of representation.

Table 2 also shows that partisanship and political participation are strong predictors of school board representation. A 10 percentage point increase in primary voting (i.e., the percentage of registered voters who voted in the 2008 primary) is associated with a 5.3 percentage point increase in the probability of having a school board winner. In terms of partisanship, Democrat-leaning block groups are less likely to have school board winners and candidates; a 10 percentage point increase in Democrat voters is associated with a 4.8 percentage point decrease in the probability of having a school board winner.

Table 3 shows these adjusted correlations for elementary and middle schools. We examine four demographic measures: school performance index (i.e., average student achievement levels) and the percentages of Hispanic, Black, and FRPL students. As with Table 2, these regressions control only for school size (log enrollment) and district fixed effects.

Across all four measures of representation, there is a consistent relationship between student achievement and representation. For example, a one standard deviation increase in the school performance index predicts a 7 percentage point increase in the probability of having a school board winner and a 5.1 percentage point increase in the share of winners. The estimated coefficients for candidacy are only slightly smaller in magnitude. The estimated coefficients for percent Hispanic are negative in each model but only significant for predicting one or more winners. Additionally, we find no correlation between the percentage of Black students and school board representation in Table 3. Finally, we find a consistent negative relationship between the percentage of students in poverty (as measured by FRPL status) and the likelihood of school board representation in the school. Moving from a school with 25% FRPL students to 75% FRPL students, for example, is associated with a 9.5 percentage point decrease in the share of school board winners in the district.

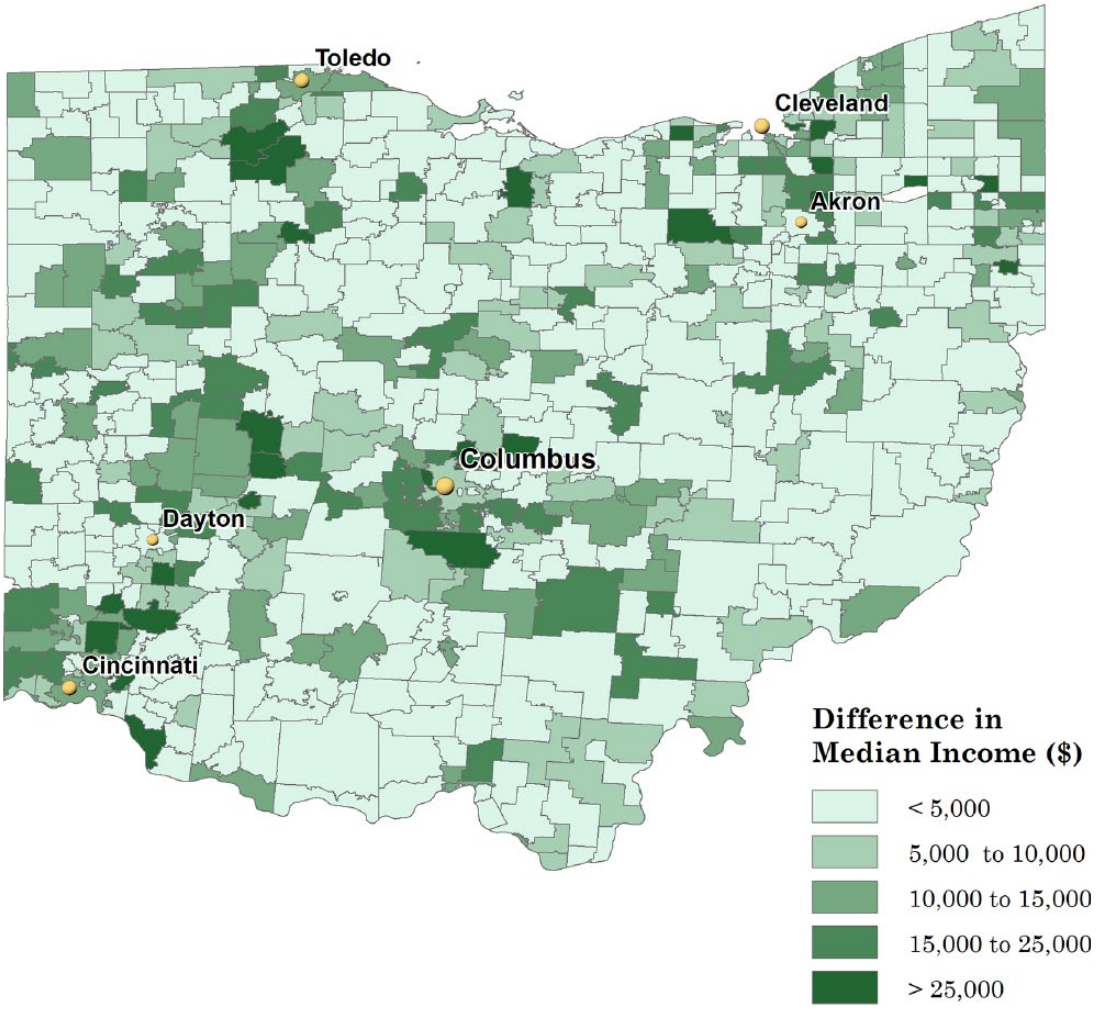

FIGURE 3. *Within-district income differences between block groups with and without school board representation.*
Notes: Map shows unified school districts by the mean difference in median household income between census block groups that have one or more school board winners and block groups with no winners. Specifically, we regress median household income on district fixed effects and district-specific indicators for having one or more school board winners, with controls for log population size. The estimated coefficient for each district is denoted by color. Cleveland Municipal School District is missing because the school board is not publicly elected.

Multivariate Analysis

We supplement our analysis of descriptive patterns by estimating models of school board representation in a multivariate framework. Table 4 shows the results of modeling the proportion of school board winners from a given census block group across the two elections as a function of block group characteristics. All models control for the population size of the block group, which is a consistent positive predictor of representation. Similar to the previous tables, the results for a binary measure of representation (i.e., any winners) were very similar to the results using the proportional outcome. For the sake of simplicity, we henceforth focus on the results for the proportion of winners, a more precise measure of representation.

Model 1 includes median income and housing values. Both predict representation. A one log-point increase in median housing values increases the proportion of winners from the block group by about .26; a one log-point increase in median income is associated with an increase of roughly the same size. In other words, as before, wealthier/higher-income block groups have greater representation on their local school boards than their neighbors in the same district. Model 2 replaces those measures with demographic variables: median age, percent school-aged children, percent Hispanic residents, percent Black residents, and the percent of the residents in the block group who hold a bachelor's degree or higher. Older, more educated block groups have greater representation, as do those with greater shares of

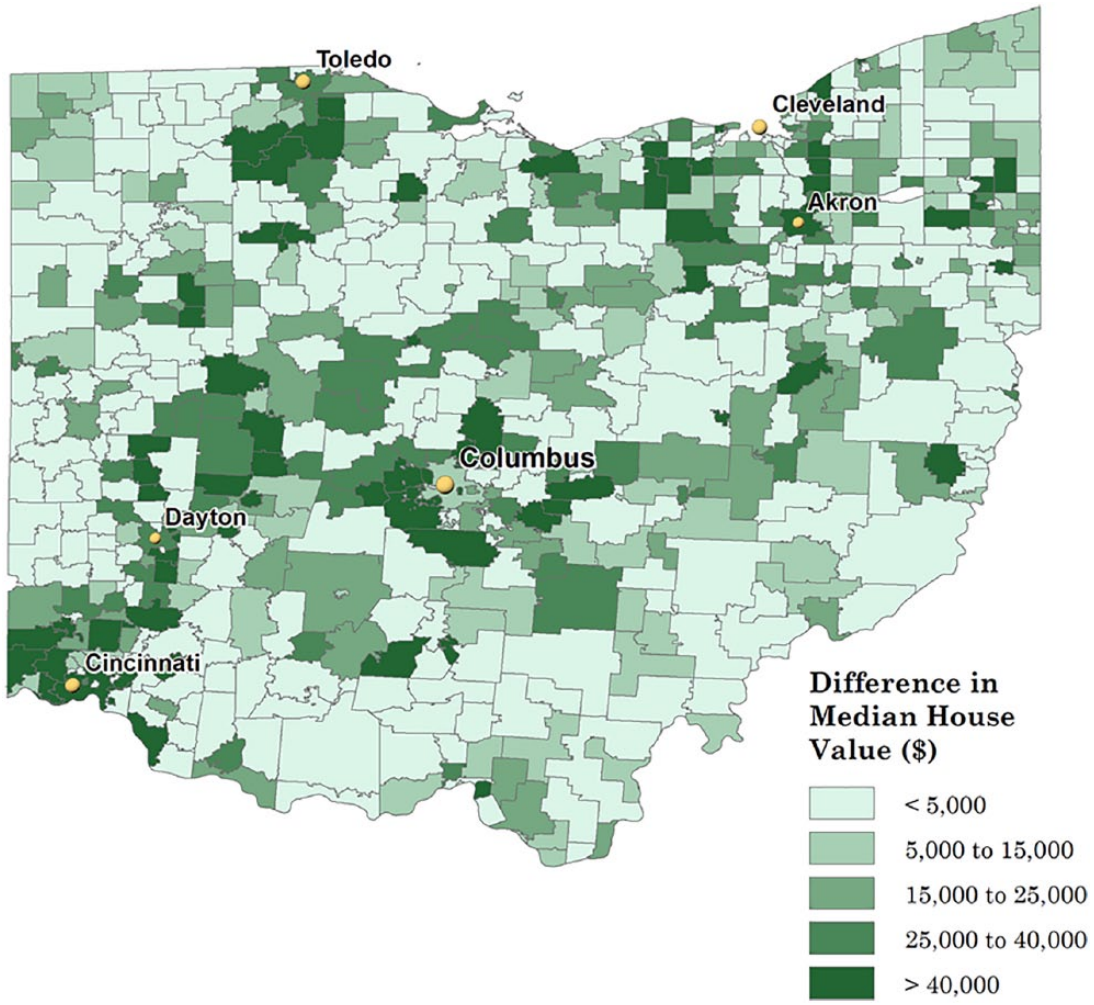

FIGURE 4. *Within-district house value differences between block groups with and without school board representation.*
Notes: Map shows unified school districts by the mean difference in median house value between census block groups that have one or more school board winners and block groups with no winners. Specifically, we regress median house value on district fixed effects and district-specific indicators for having one or more school board winners, with controls for log population size. The estimated coefficient for each district is denoted by color. Cleveland Municipal School District is missing because the school board is not publicly elected.

school-aged children. Conditional on these values, neither a higher proportion of Black residents nor of Hispanic residents is associated with greater representation. In Model 3, we focus instead on the political variables. As before, a higher proportion of primary voters is associated with greater representation. In contrast, having a higher percentage of Democrats (relative to other block groups in the district) is associated with less representation.

Model 4 conditions on the wealth/income, demographic, and political measures simultaneously. As before, median house value and median income are predictors of school board representation, though the coefficients are less than one-half as large once we condition on other sociodemographic measures, such as neighborhood race and education, both of which predict representation in this model as well. Of particular note, the coefficient on the percentage of Black residents in the neighborhood is approximately four times as large in model 4 as in model 2, suggesting that lower wealth in block groups with larger Black populations explains the descriptive finding of lower representation in those neighborhoods. Percent Democrat, fraction of primary voters, and percent school-aged children in a block group also remain associated with school board representation.[13]

Model 5 controls for candidate entry, which we capture by including as a covariate the proportion of total candidates in the school district that reside in a given block group. We find that, conditional on candidate entry, each of the other coefficients becomes close to zero. While both percent Hispanic and percent bachelor's degree are statistically significant, the magnitudes are not substantively meaningful. By contrast, the coefficient for proportion of candidates

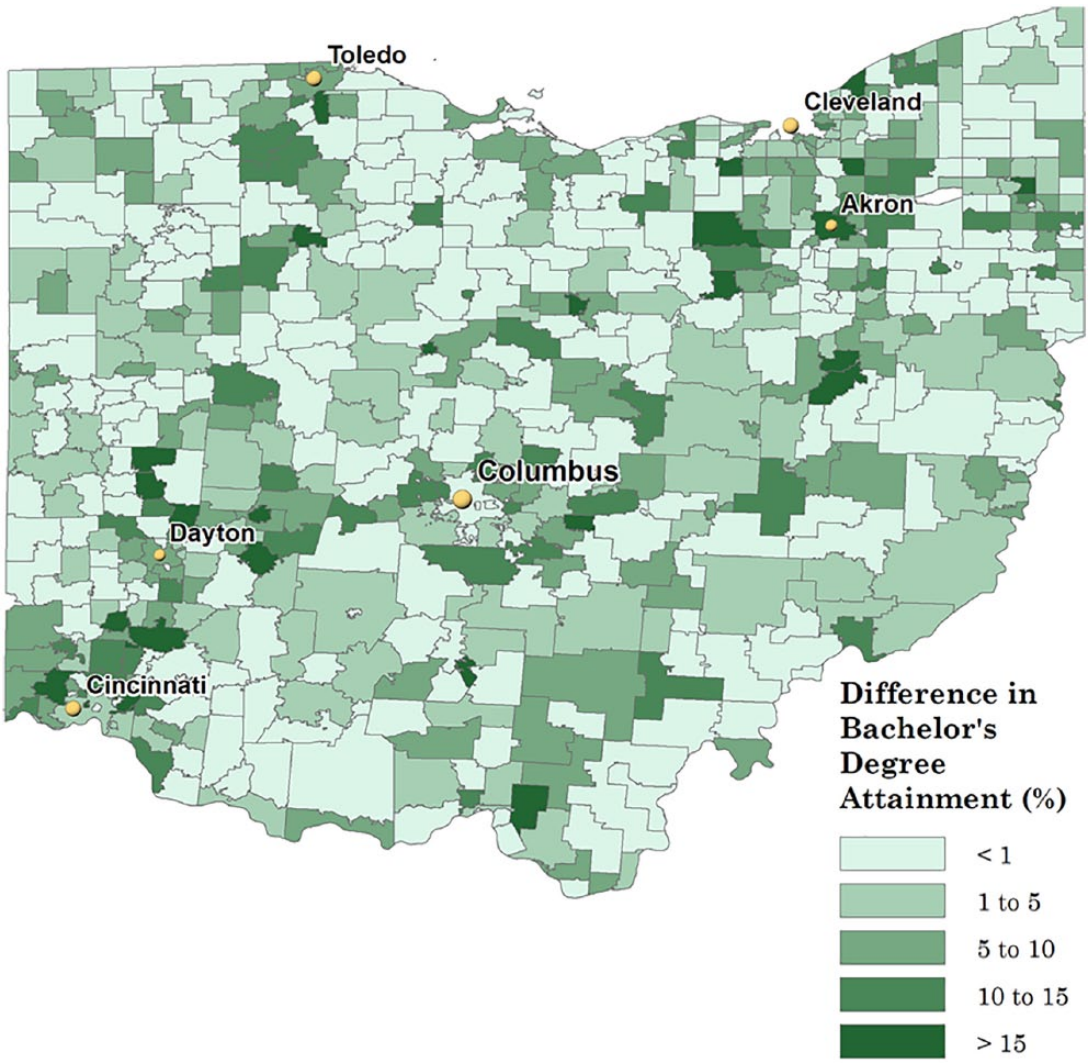

FIGURE 5. *Within-district education differences between block groups with and without school board representation.*
Notes: Map shows unified school districts by the mean difference bachelor's degree attainment between census block groups that have one or more school board winners and block groups with no winners. Specifically, we regress the proportion of adults aged 25+ with a bachelor's degree on district fixed effects and district-specific indicators for having one or more school board winners, with controls for log population size. The estimated coefficient for each district is denoted by color. Cleveland Municipal School District is missing because the school board is not publicly elected.

is very close to 1, which effectively means that the relationships between block group demographics and school board representation are explained completely by candidates' decisions to enter school board races, rather than any differential likelihood of winning associated with these characteristics.

Table 5 shows the multivariate results for elementary/middle schools. Each model controls for the log of enrollment size and an indicator for middle schools. Model 1 shows the positive relationship between performance index and the proportion of school board winners, which was documented in Table 2. Model 2 includes each of the student demographic measures. Among them, percent FRPL has the strongest relationship with school board representation; each percentage point increase in FRPL predicts a .2 percentage point decrease in the proportion of school board winners. Model 3 includes both the performance index and student demographics. Both performance index and student poverty remain significant predictors of school board representation, though the coefficients are attenuated slightly. However, once conditioning on the performance index, the relationship between the percentage of Black students and school board representation increases in magnitude and is now statistically significant at the .01 level. This pattern is similar to the block group results in Table 4, where controlling for income measures increased the magnitude of the

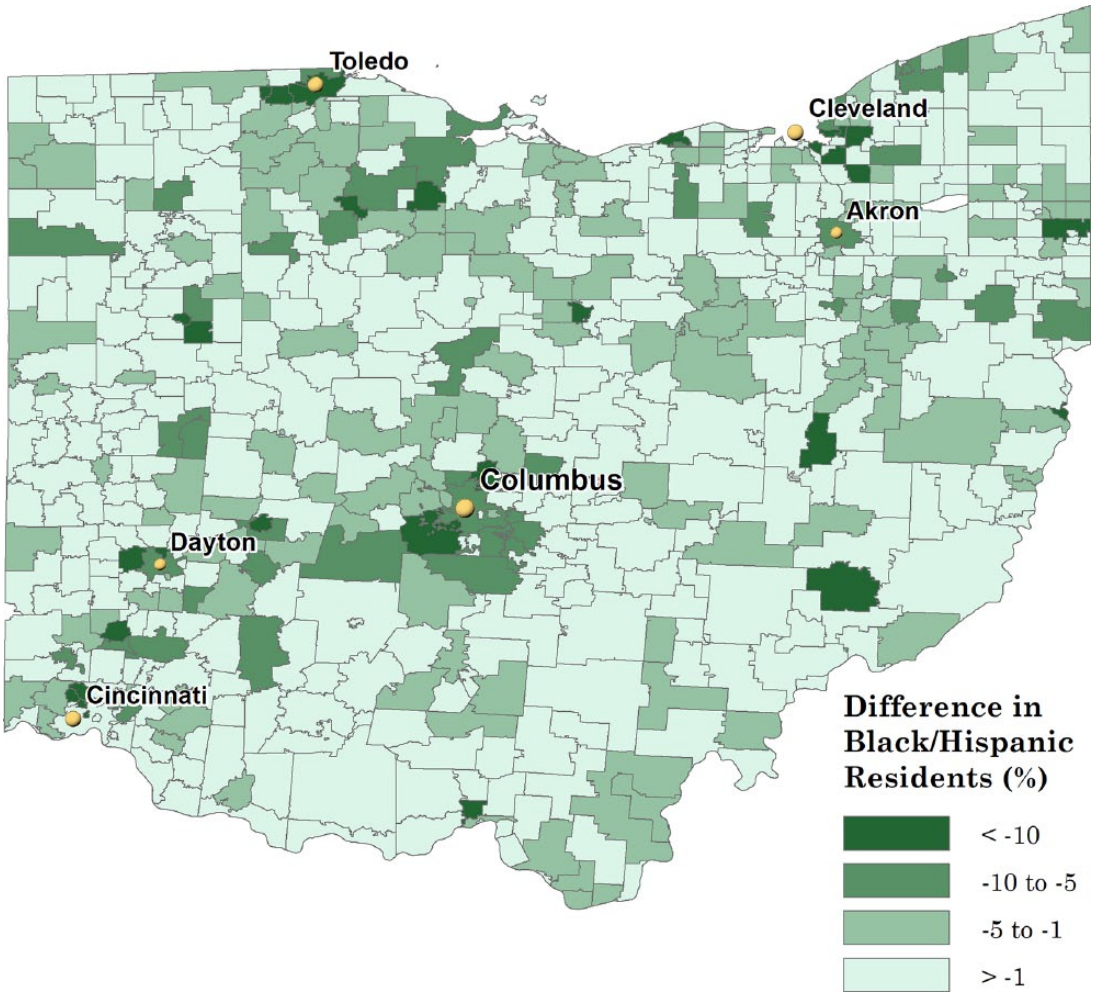

FIGURE 6. *Within-district race/ethnicity differences between block groups with and without school board representation.*
Notes: Map shows unified school districts by the mean difference in Black/Hispanic residents between census block groups that have one or more school board winners and block groups with no winners. Specifically, we regress the percentage of Black/Hispanic residents on district fixed effects and district-specific indicators for having one or more school board winners, with controls for log population size. The estimated coefficient for each district is denoted by color. Cleveland Municipal School District is missing because the school board is not publicly elected.

relationship between percent Black and school board representation.

Model 4 controls for candidate entry, again with the proportion of total candidates from a given school. The results are identical to those for block groups. Controlling for candidate entry drives the estimated coefficients for the other measures to near zero. The one-to-one relationship between proportion of candidates and proportion of winners demonstrates that differences in school board representation are driven completely by the tendency for more affluent schools to serve enrollment zones containing more candidates who run for office.

In Table 6, we examine the extent to which incumbency may influence the patterns of disparity in school board representation. Specifically, a large body of research demonstrates the importance of incumbency for winning elections (e.g., Ansolabehere & Snyder, 2002; Ansolabehere, Snyder & Stewart, 2000). One mechanism through which more advantaged neighborhoods have greater school board representation is that, historically, candidates from these neighborhoods were more likely to win school board elections, and that the incumbency advantage effectively reproduces these historical disparities. One caveat to these results is that we only observe incumbency status for 2009, though we have no reason to believe there would be systematic differences in the patterns between 2009 and 2011. Roughly half of school board candidates in 2009 were incumbents and 85% were elected, compared to 54% among non-incumbent candidates.

The first two models in Table 6 simply replicate our main findings from Table 4 using school board representation from the 2009 election only. These results are, as expected, virtually identical to our results that use both elections.

TABLE 2
School Board Representation and Census Block Group Characteristics

	(1)	(2)	(3)	(4)
	Any Winners	Proportion of Winners	Any Candidates	Proportion of Candidates
Median income (log)	0.1323***	0.0394***	0.1566***	0.0354***
	(0.0227)	(0.0074)	(0.0243)	(0.0066)
Median house value (log)	0.1165***	0.0340***	0.1333***	0.0300***
	(0.0226)	(0.0071)	(0.0240)	(0.0065)
Median age	0.0019***	0.0007***	0.0022***	0.0005***
	(0.0006)	(0.0002)	(0.0006)	(0.0002)
Percent school-aged children	0.0009	0.0003	0.0016**	0.0003**
	(0.0006)	(0.0002)	(0.0006)	(0.0002)
Percent Hispanic	−0.0024***	−0.0006***	−0.0027***	−0.0006***
	(0.0006)	(0.0002)	(0.0007)	(0.0002)
Percent Black	−0.0006**	−0.0002**	−0.0008***	−0.0001**
	(0.0002)	(0.0001)	(0.0003)	(0.0001)
Percent bachelor's degree	0.0033***	0.0010***	0.0039***	0.0009***
	(0.0008)	(0.0003)	(0.0008)	(0.0002)
Percent Democrat	−0.0048***	−0.0014***	−0.0052***	−0.0012***
	(0.0009)	(0.0003)	(0.0010)	(0.0003)
Percent primary voter	0.0053***	0.0016***	0.0064***	0.0015***
	(0.0011)	(0.0004)	(0.0012)	(0.0003)

Notes: Each cell is a separate regression. Standard errors are clustered by school district. Each model includes school district fixed effects and log population size (aged 25+) of block group. Proportion of winners is defined as the number of winners in the block group divided by the number of observed winners in the school district.
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

TABLE 3
School Board Representation and School Characteristics

	(1)	(2)	(3)	(4)
	Any Winners	Proportion of Winners	Any Candidates	Proportion of Candidates
Performance index (std)	0.0706**	0.0508***	0.0682**	0.0463***
	(0.0322)	(0.0179)	(0.0297)	(0.0172)
Percent Hispanic	−0.0074**	−0.0028	−0.0042	−0.0019
	(0.0038)	(0.0024)	(0.0035)	(0.0022)
Percent Black	0.0008	0.0001	0.0000	0.0000
	(0.0008)	(0.0004)	(0.0008)	(0.0004)
Percent FRPL	−0.0026***	−0.0019***	−0.0027***	−0.0018***
	(0.0007)	(0.0005)	(0.0007)	(0.0005)

Notes: Each cell is a separate regression. Standard errors are clustered by school district. Models include school district fixed effects and log school enrollment size. Proportion of winners is defined as the number of winners in the school divided by the number of observed winners in the school district. FRPL = free/reduced price lunch.
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

Model 3 disaggregates the proportion of candidates from the block group into the proportion of incumbent candidates and the proportion of non-incumbent candidates. Unsurprisingly, the relationship between representation and candidacy is stronger for incumbents than non-incumbents. Importantly, however, accounting for incumbency status has essentially no bearing on our main conclusion that neighborhood disparities by school board representation are driven by candidate entry rather than differential likelihood of winning.[14,15]

Discussion and Conclusions

Which neighborhoods are represented on local school boards? In a novel application of GIS, we map residences of

TABLE 4
Predicting School Board Representation by Census Block Group

	DV = Proportion of Winners				
	(1)	(2)	(3)	(4)	(5)
Population age 25+ (log)	0.0458***	0.0449***	0.0419***	0.0440***	−0.0004
	(0.0055)	(0.0061)	(0.0066)	(0.0055)	(0.0020)
Median house value (log)	0.0259***			0.0109**	0.0014
	(0.0055)			(0.0043)	(0.0022)
Median income (log)	0.0246***			0.0089*	0.0001
	(0.0054)			(0.0049)	(0.0001)
Median age		0.0009***		0.0003	0.0000
		(0.0002)		(0.0002)	(0.0001)
Percent school-aged children		0.0010***		0.0006**	0.0000
		(0.0002)		(0.0002)	(0.0001)
Percent Hispanic		−0.0001		0.0002	0.0001***
		(0.0002)		(0.0002)	(0.0000)
Percent Black		0.0001		0.0004***	0.0001
		(0.0001)		(0.0001)	(0.0001)
Percent bachelor's degree		0.0011***		0.0005***	−0.0003***
		(0.0002)		(0.0002)	(0.0001)
Percent Democrat			−0.0011***	−0.0010***	−0.0001
			(0.0002)	(0.0002)	(0.0001)
Percent primary voter			0.0012***	0.0008**	−0.0005
			(0.0003)	(0.0003)	(0.0017)
Proportion of candidates					0.9921***
					(0.0097)
N	8594	8724	8692	8565	8565
R^2	0.304	0.303	0.303	0.309	0.824

Notes: Standard errors clustered by school district. Models include school district fixed effects. Proportion of winners (candidates) is defined as the number of winners (candidates) in the block group divided by the number of observed winners (candidates) in the school district. DV = dependent variable.
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

candidates in Ohio school board races and link them to local voting data and place characteristics. Our analysis shows clearly that school board members are more likely to come from wealthier, Whiter, and better educated neighborhoods than other neighborhoods in the same school district. Given the association between neighborhood boundaries and school enrollment zones, these patterns mean that school board members are more likely to live in the enrollment zones of schools with fewer low-income students and where achievement levels are much higher. Moreover, the association between socioeconomic status and representation is almost exclusively driven by the greater propensity of citizens from more affluent areas to run for the board. Perhaps surprisingly, given the presumed advantages of money and wealthier social networks, especially in low-salience elections, we find little evidence that they are more likely to win, conditional on entering a school board race.

Place appears to have other implications for representation as well. For example, school board members are more likely to come from ostensibly more Republican neighborhoods, and presumably are more likely to be Republican themselves. The association between partisanship and election is partly explained by the fact that Republican neighborhoods are wealthier, and populated with residents who are more likely to run. These connections suggest a set of potential explanations for the "Republican advantage" that other studies have documented in nonpartisan elections like the school board races in Ohio (Cassel, 1986; Hawley, 1973). A question for future work is whether such representation differences by party affect the kinds of policies that Ohio school boards choose.

This study makes a unique contribution to the literatures on school boards and elected representation. Little empirical research documents the characteristics of successful candidates for local public office, including local school boards. Scholars have noted that the field's inattention to school boards and school board politics sits in stark contrast to the major role that boards play in local educational decision-making (Land, 2002). Our findings regarding school board member characteristics gleaned from non-educational

TABLE 5
Predicting School Board Representation by Elementary/Middle School

	DV = Proportion of Winners			
	(1)	(2)	(3)	(4)
Enrollment size (log)	0.2192***	0.2309***	0.2256***	−0.0052
	(0.0304)	(0.0290)	(0.0299)	(0.0054)
Middle school	0.2051***	0.1783***	0.1939***	−0.0010
	(0.0178)	(0.0163)	(0.0177)	(0.0029)
Performance index (std)	0.0508***		0.0481**	0.0053
	(0.0179)		(0.0197)	(0.0042)
Percent Hispanic		−0.0009	−0.0004	−0.0007
		(0.0023)	(0.0020)	(0.0006)
Percent Black		0.0010**	0.0019***	0.0003
		(0.0005)	(0.0006)	(0.0002)
Percent FRPL		−0.0021***	−0.0017***	−0.0001
		(0.0005)	(0.0005)	(0.0001)
Proportion of candidates				1.0009***
				(0.0065)
N	2233	2232	2232	2232
R^2	0.645	0.647	0.649	0.973

Notes: Standard errors clustered by school district. Models include school district fixed effects. Proportion of winners (candidates) is defined as the number of winners (candidates) in the school divided by the number of observed winners (candidates) in the school district. FRPL = free/reduced price lunch; DV = dependent variable.
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

administrative data, such as voter records and US Census information, complement prior descriptions of board members from survey data (e.g., Hess & Meeks, 2010).

Our results raise concerns about whose voices are at the table and whose interests are represented in local school decision-making. Local board members are elected systematically from more advantaged neighborhoods. To the degree that this descriptive representation translates into how policies are made and how resources are distributed, these geographic patterns may represent a further source of advantage for more affluent communities. Researchers have argued that residential segregation by race and class drive inequalities across schools (e.g., Orfield, 2013); our results suggest some potential political mechanisms that deserve further attention linking neighborhood segregation with policy decisions.

Our findings regarding candidate entry point toward one implication for advocates of ensuring broader representation on school boards. Associations between neighborhood characteristics and representation come nearly completely from which citizens decide to run. To some extent, the requirements for running for a school board in Ohio may contribute to the scarcity of candidates running from lower-income neighborhoods with higher concentrations of citizens of color. Requirements include, for example, US citizenship, being registered to vote in the school district, payment of a filing fee, and signatures from other voters in the district on a petition to run (Ohio Revised Code Title 33: Ohio Boards of Education, 2010; Ohio School Boards Association, 2017). Lower rates of citizenship, higher residential mobility, and less access to monetary and other resources in lower-income communities may present entry barriers.[16] Beyond the statutory requirements to run, campaigns require resources that lower-income individuals are less likely to have. Moreover, block groups with larger proportions of Black and Hispanic residents are less likely to have candidates run, though this negative association dissipates when other factors, such as wealth and education, are taken into account. A growing body of literature explores at length the challenges experienced by candidates of color, such as racial identity, citizenship status, and culture, which may influence decisions to run for office, and what level of office to run for (Juenke, 2014; Marschall, Ruhil, & Shah, 2010; Reny & Shah, 2018; Shah, 2013); neighborhood wealth and the access to the political process it provides may also be factors. In addition to targeted recruitment of candidates from underserved areas, removing barriers to candidate entry and building sources of support for candidates who may have less access to financial resources may help ensure that school board members are more representative of the populations they serve.

Limitations of our study include concerns about generalizability. We focus only on two potentially unrepresentative school board election years—years in the midst of the Great Recession

TABLE 6
Incumbency and Census Block Group Representation

	DV = Proportion of Winners		
	(1)	(2)	(3)
Population age 25+ (log)	0.0454***	0.0021	0.0003
	(0.0064)	(0.0021)	(0.0024)
Median house value (log)	0.0123**	0.0009	0.0002
	(0.0054)	(0.0024)	(0.0031)
Median income (log)	0.0067	0.0037	0.0064*
	(0.0064)	(0.0027)	(0.0034)
Median age	0.0002	0.0000	−0.0001
	(0.0003)	(0.0001)	(0.0001)
Percent school-aged children	0.0005	−0.0001	−0.0001
	(0.0003)	(0.0001)	(0.0002)
Percent Hispanic	0.0003	0.0000	0.0001
	(0.0003)	(0.0001)	(0.0002)
Percent Black	0.0005***	0.0001***	0.0001**
	(0.0001)	(0.0001)	(0.0001)
Percent bachelor's degree	0.0005***	0.0001	−0.0000
	(0.0002)	(0.0001)	(0.0001)
Percent Democrat	−0.0010***	−0.0002	−0.0002
	(0.0003)	(0.0001)	(0.0002)
Percent primary voter	0.0011***	−0.0001	0.0002
	(0.0004)	(0.0001)	(0.0002)
Proportion of candidates		0.9824***	
		(0.0081)	
Proportion of non-incumbent candidates			0.3997***
			(0.0169)
Proportion of incumbent candidates			0.5642***
			(0.0171)
N	8529	8529	8529
R^2	0.216	0.822	0.760

Standard errors clustered by school district. Models include school district fixed effects. Proportion of winners (candidates) is defined as the number of winners (candidates) in the school divided by the number of observed winners (candidates) in the school district.
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

in which individuals from less wealthy communities may have had access to even fewer resources for participating in the political process—in a single state. While Ohio is similar to many states in its socioeconomic and racial/ethnic distribution across urban and suburban areas, states naturally differ in population characteristics and election structures. Future research should consider similar data from other states, including those with partisan school board elections, such as Pennsylvania, and states with widespread use of single-member districts, which may show different patterns. Future work might also consider other potential factors that may explain which neighborhoods gain school board representation, such as degree of private school enrollment, for which we do not have data. Also, while we were meticulous in matching school board candidates to enrollment zones, those linkages are prone to some error from the files used to create them and from insufficient data about local enrollment processes (e.g., presence of school choice) that may violate our assumptions about the association between a residence and a school. Although we verified the robustness of our results to some degree by, for example, matching homes to their closest elementary or middle school and obtaining similar results, we urge some caution in interpretation. Finally, because we rely on available data on census block groups, we may obscure variation in local neighborhoods and their political dynamics that may become more apparent with finer-grained data. Exploring this variation, as well as changes in representation as neighborhoods change over time, would be useful avenues for future work.

Lastly, our results help illuminate political dynamics that may constitute an important source of advantage for schools educating a larger number of high-socioeconomic status students. Given that descriptive disparities in school board representation exist, further research is needed to determine the substantive consequences of those disparities. While previous research suggests that descriptive representation, in and of itself, is important, the implications of inequality in school board representation are unclear. To the extent that school boards have major influence over policy, hiring, and outlays, there may be important consequences for underserved schools and students who are less likely to have representation. Because this study looks at just a single election for each board seat, we are unable to determine these effects. Collecting data from multiple consecutive elections would allow for a more comprehensive analysis by determining whether changes in representation have implications for students, schools, and communities.

Notes

1. Odd-year, off-cycle elections like the school board elections in Ohio that are the subject of our empirical analysis are particularly low-turnout (Kogan, Lavertu, & Peskowitz, 2018).

2. Thirty-six percent of board members report that they have at least one child attending school in the district for which they serve on the board (Hess & Meeks, 2010).

3. The typical five-member board alternates between elections for three seats in one year, then the other two seats two years later.

4. Incumbency status is not included on Ohio school board ballots, so we used the Ohio Municipal, Township, and School Board Roster from 2008-2009 to identify which of the candidates who ran in 2009 were incumbents. We were not able to create a similar incumbency status variable for the 2011 election.

5. More specifically, the average block group contains 848 adults aged 25 or older.

6. Specifically, only 5% of school districts have more than one high school. By contrast, 42% of districts have multiple elementary schools and 22% have multiple middle schools. However, most of these single-school districts are in rural areas with few residents. The percentage of Ohio residents in a school district with multiple elementary, middle, and high schools is 73%, 48%, and 25%, respectively.

7. When calculating this proportion, we do not include a small number (~2%) of primary voters who had neither Democrat nor Republican affiliation.

8. These fractions likely depart from the average partisanship of the underlying voting population because they are calculated from primary participation in 2008, a presidential election year. By the time of the March Ohio primary, the Republican nomination was essentially no longer in doubt, which likely depressed turnout in the Republican primary. In contrast, the race for the Democratic nomination was still competitive, increasing turnout. Similarly, turnout in the 2008 primary may not represent political participation in other elections.

9. We found no substantive differences when estimating separate models for 2009 and 2011 or creating separate indicators for 2009 versus 2011 representation.

10. Our results across all models are almost identical when using a linear control for population size instead of the logged value.

11. Specifically, we predict the given demographic as a function of having a school board winner (binary indicator), log population size, and district fixed effects.

12. In online Supplemental Table S1, we explicitly confirm that the disparities shown by Figures 3 through 6 are significantly greater in urban/suburban areas. Specifically, we estimate a model that predicts a given block group demographic variable as a function of having one or more school board winners and interactions with that variable and school district locale type (from CCD), controlling for log population size and including district fixed effects. In each case, the interactions are statistically significant with the expected sign (larger disparities in urban/suburban districts).

13. We also considered charter school presence. According to CCD data, there were 361 charter schools in Ohio in 2009–2010. These charters are almost all in urban areas, and 86% of districts have no charters in their boundaries. We effectively account for differences in charter school concentration between districts through the inclusion of district fixed effects. However, we also plotted these 361 charter schools using their coordinates from CCD and constructed a variable for whether there was a charter school in the block group. When included as a predictor of representation, the coefficient on this variable was close to zero (and not statistically significant) in all specifications.

14. Online Supplemental Table S4 runs a parallel analysis for elementary/middle schools and finds the same results.

15. As additional evidence, we show in online Supplemental Table S5 that block groups with incumbents versus non-incumbents look fairly similar, particularly in terms of median income and house value.

16. In addition, conflict of interest requirements prohibit employees of the school district from running for the school board. To the extent that lower-income neighborhoods are home to larger numbers of school district staff, this requirement may also contribute to the correlation we observe.

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Authors

BRENDAN BARTANEN is a doctoral candidate in the Department of Leadership, Policy, and Organizations at Vanderbilt University's Peabody College. His research interests include educator labor markets, principal quality, and evaluation systems.

JASON A. GRISSOM is associate professor of public policy and education at Vanderbilt University's Peabody College and faculty director of the Tennessee Education Research Alliance. His research interests include school leadership, educator labor markets, and K–12 politics and governance.

ELA JOSHI is a doctoral student in the Department of Leadership, Policy, and Organizations at Vanderbilt University's Peabody College. Her research interests include supports for historically marginalized student populations, school leadership, and organizational dynamics in schools.

MARC MEREDITH is associate professor of political science at the University of Pennsylvania. He studies American politics, with a focus on political behavior and political economy.