School Boards and the Democratic Promise

by

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For the public servants who collect, maintain, and disseminate all the data necessary to understand American society.

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If you are going through hell, keep going.

— Winston Churchill (1940)

I came to graduate school hoping to continue pursuing a question that weighed on my mind since high school – why are school boards elected? In college, I began by studying the differences between policy makers' perception of school district governance and its reality. In graduate school, I wanted to understand if school districts behaved democratically. And, after a long journey, I believe I have been able to provide a foundation from which to study this question. It has been a great pleasure to follow this line of thinking across more than a decade of study and to be satisfied with the destination.

That journey of inquiry would not have been possible without the love, support, reassurance, and guidance of so many people. For intellectual inspiration I can thank Jeff Seward for encouraging me to pursue this work through graduate school and helping me find my way to UW-Madison. There, thanks to John Witte, I was able to become part of the education research community at the Wisconsin Center for Education Research through the Interdisciplinary Training Program in Education Sciences. This introduced me to a diverse set of theories, methods, and viewpoints from which to understand education policy in America.

In political science I was encouraged to pursue my own course of study, despite the relative disinterest in school board elections in the wider discipline. The faculty were always receptive to questions about how theories of political science might apply at this level of study, and I was lucky to spend time among scholars who emphasized proper measurement, robust analysis, and constructive criticism.

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but he engaged with the subject of school boards with his trademark passion and enthusiasm. He introduced me to a number of scholars I could share ideas with and get feedback from. This outside expertise and enthusiastic support was critical when I made the decision to start work full-time at the Wisconsin Department of Public Instruction while just beginning to write my dissertation proposal. Much could be said about this decision, but the important part is that John assured me as I made it that he would support me however I needed in order to graduate; he was true to his word and here I am.

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I want to make special mention of my dissertation committee here. It is an honor to have the time and expertise of five scholars focused on your work. I delivered them a hefty tome on Wisconsin school board elections, and they provided invaluable guidance. David Canon helped me to think more clearly about what my data were actually measuring and how I could better form these measures. Julie Underwood pointed me in the direction of some important prior scholarship on school boards in the education administration literature. Jee-Seon Kim taught me most of what I know about mixed-effect modeling and answered my inquiries on how to share the results. Kathy Cramer helped me think about the framing of my results and encouraged me to think of the broader picture in describing what I've found. And, John Witte gave my many verbose drafts his expert attention and encouragement.

Writing a dissertation is difficult, but doing so while also working full-time as a research analyst for a large government agency is very demanding. Without the support, understanding, and patience of friends and family it would not have been possible. My parents, who encouraged me to pursue intellectual challenge from an early age, were a source of constant support and encouragement – even when the destination seemed out of reach. My many friends who were understanding when I passed up a happy hour or a barbecue to stay inside and write also deserve a big thanks – it'll be nice to rejoin you soon.

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SCHOOL BOARDS AND THE DEMOCRATIC PROMISE

Jared E. Knowles

Under the supervision of Professor John Witte
At the University of Wisconsin-Madison

In the United States there are over 13,000 independent school districts governed by school boards consisting of three to nine elected representatives from their community. They decide on curriculum, school construction and closures, staff compensation and for spending hundreds of billions of dollars annually. This dissertation seeks to explore the degree of democratic control communities exercise over school boards through elections. The perception is that voters and candidates do not participate in school board elections. This perception runs counter to the democratic promise of school boards as local offices. School board membership, often by design, is among the easiest office for a potential candidate to secure in terms of votes needed to win, campaign costs, and lack of political party gatekeepers.

I look at four aspects of school board elections to assess whether or not school boards do fulfill their promise of democratic control over local schools. First, what community conditions are related to the emergence of school board candidates? Next, what factors determine changes in the level of voter turnout for school board elections? Third, do voters and candidates change their behavior in response to exogenous political forces? Fourth, does incumbent defeat lead to measurable changes in school district outcomes?

To examine this I construct a new dataset around a panel of election records from over 300 Wisconsin school districts spanning the 2002-2012 elections. I combine these election results with administrative records on the demographics, finances, community partisanship, policy decisions,

and academic performance of school districts to explore the relationship between these conditions and election behavior through multilevel modeling. Wisconsin is selected because of the introduction of a reform that gave boards unanticipated freedom in setting employee compensation and work rules, which provides an exogenous shock to the information available to board members, voters, and potential candidates about the preferences of their community for public education and the role of school boards.

Despite the greater accessibility of school board office, on average, participation by both candidates and voters in board elections remains low and responded only weakly to a large external policy shock.

John Witte

1 SCHOOL BOARDS AND THE DEMOCRATIC PROMISE

> *When, among the happiest people in the world, bands of peasants are seen regulating affairs of State under an oak, and always acting wisely, can we help scorning the ingenious methods of other nations, which make themselves illustrious and wretched with so much art and mystery?*
>
> — Jean-Jacques Rousseau (1762)

1.1 Introduction

Locally elected school boards represent the American institution that comes perhaps closest to the Rousseauian ideal of local self-governance. After all, local school boards are in place to ensure that the schools in each community reflect the values of the people. Rousseau's ideal is lofty though – do school boards meet this high bar? Are school boards composed of self-regulating individuals, and should they be the envy of democratic institutions? This dissertation looks at school boards and asks how close to the democratic ideal they come.

Today there are over 14,000 school districts in the United States governing American public schools. Over 13,000 are run independently of any other governmental entity's authority by locally appointed or elected officials.[1] These local officials make policy decisions, often in sparsely attended evening meetings, that affect everything from local property tax rates, to graduation requirements, to the location and type of schools to operate. In a majority of communities they are the single largest employer. Together, the mean and women of these boards are responsible for annual expenditures roughly

[1]Data from several sources including: (US Department of Commerce, 1995; Hess, 2002; Hess and Meeks, 2011)

equivalent to the budget of the US Department of Defense.[2] Their decisions ripple through nearly every American community annually and have wide reaching implications for everything from property values to economic development and most directly, for the quality of education provided to the children within each community. In short, school boards make decisions that matter–especially for the nearly 50 million students that attend the schools governed by such boards.[3]

Yet, most citizens would be forgiven for wondering: what are school boards? Technically, school boards are locally elected (or appointed) special purpose governments charged with managing public schools. They typically have five to nine members that are locally elected in at large, non-partisan, rarely contested elections (Hess, 2002). Boards are charged with managing the school district, raising revenue through local taxes, and setting the policy direction of local schools. Most boards hire a professional manager – a district superintendent of schools – to handle the administration of the district and to advise the board on relevant questions of policy. This relationship between the board and the superintendent is a critical feature of local education governance. They are the most common form of a local special-purpose government in the United States.

For political scientists, school boards present a tremendous opportunity to explore a number of puzzles of American democracy. School boards are just one example of the tens of thousands of local governments that affect communities across America. Boards can shed light on the implications of different electoral rules on representativeness in a way that cannot be explored in House districts where single-member districts are virtually set in stone (Meier et al., 1986; Meier and Junke, 2005; Wills, 2003). Political scientists can evaluate the efficiency of centralizing control of a policy area

[2]Data comes from the Common Core of Data on school district finances. School districts reported revenue over $550 billion in fiscal year 2007, while the respective Department of Defense budget for 2007 was just over $500 billion.

[3]2011 data from NCES. http://nces.ed.gov/fastfacts/display.asp?id=372

under a strong executive like a mayor in lieu of a special government body like a school board–a common governance reform for public schools (Hess, 2008; Wong and Shen, 2005). By examining school boards, political scientists can even evaluate things like the response style of politicians with much larger sample sizes and more variation than can be found in any legislative body in the country (Zeigler and Jennings, 1971). Furthermore, school boards are the last stop of the web of overlapping funding, authority, and regulations in education policy–providing an opportunity to evaluate the way these federal, state, and local entanglements play out under a variety of conditions (Manna, 2006). Yet, school boards are rarely used as a unit of analysis for such subjects, despite the staggering number of school boards and elected school board members, and the variety therein in the United States today. A search of JSTOR's political science section for articles with the term "school governance" over the last decade (2000-2010) results in five articles on American school boards, and forty-five articles on international school governance. That an overwhelming majority of school boards are elected, and that as a group elected school board officials make up one of the largest groups of elected officials in the American democratic system, makes this dearth of research all the more problematic.

In this chapter I introduce the puzzle of school boards – why does their democratic promise feel so unfulfilled? After that, I review the literature on the politics of school board with particular attention paid to the main theoretical traditions that have grappled with the perceived under-participation in the governance of local schools. I then provide an alternative theoretical framing that serves as a guide for this examination of school board democracy. Then, I introduce the research questions that guide this study. I finish with a discussion of the methodological approach taken to answering these questions and its limitations.

1.2 The Puzzle

The intent of this organizational arrangement is that by putting locally elected officials in charge, school boards will be more responsive to their communities. Indeed, in most jurisdictions, school board may pose one of the lowest barriers of entry to candidates for winning elected office. School board elections are won with a few hundred or a few thousand votes, campaigns are inexpensive or non-existent, and it is unnecessary to secure a party nomination in most cases. Yet, largely, school board elections are very low turnout and predominantly uncontested affairs (Hess, 2002). The promise of low barrier local elections giving citizens a meaningful and powerful voice in the governance of the schools in their community appears to go largely untapped. This promise of local input through local representatives accountable to their fellow school district residents and independent of city or county politics is what I refer to as the "democratic promise of school boards." Although there is wide room for exploration of democratic activity at the local school board level, this dissertation will focus on elections, and how, if ever, school board elections fulfill this promise.

This study investigates the politics of school board elections within a large sample of school districts over an extended period of time in order to provide a fuller picture of the democratic nature of these local elections (Nicholson-Crotty and Meier, 2002). In addition to this, however, it the added benefit that this study leverages a natural experiment arising from an unforeseen and unprecedented shift in the power given to school boards to investigate these questions causally. The political upheaval in the state of Wisconsin from 2010-2012 created a policy shock in which the granting of greater power to school boards, and lessening of power to employees in the form of restrictions on collective bargaining, was among one of the most discussed and polarized political issues in the state. By comparing the behavior of candidates, board members, boards, and voters before and after this policy shock it is possible to evaluate the causal impact of state level

policy on the politics of school boards.

1.3 Theoretical Underpinnings

The question of the democratic nature of school boards has been central to the academic debate about school governance and politics for decades. On one hand, school boards embody ideal democratic local control – giving local leaders the power to govern schools through the consent of community members. In practice, however, most school board elections have notoriously low turnout, with low levels of incumbent defeat, and few contested seats. School board members face little challenge, and school boards are increasingly constrained in their policy making ability by state and federal law (Manna, 2006). A literature has developed around this dilemma, but largely exists outside of the traditional political science literature surrounding elections, democracy, and public policy.

Educational Governance Theory

Three major schools of thought, drawing on larger theories of democratic representation and urban politics, emerged in the 1970's – dissatisfaction theory, continuous participation theory, and decision-output theory. A fourth theory–public choice theory–emerged in the late 80s as spatial models of voters and legislators began to gain prominence in the political science literature.

Dissatisfaction theory is the first theory to emerge in this period and traces its roots back to Key (1955)'s concept of critical elections. It describes an electoral system with relative stability and little involuntary incumbent turnover punctuated by periods of extreme citizen dissatisfaction, contentious elections, and incumbent defeats (Iannaccone and Lutz, 1970; Lutz and Iannaccone, 1978a). Figure 1.1 displays the sequence of events in

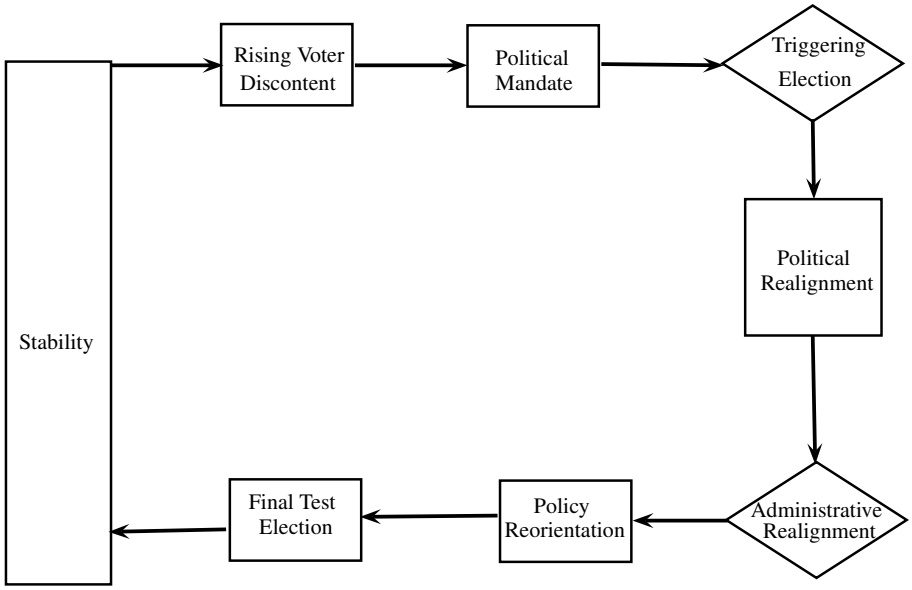
the model.[4] After a flurry of empirical tests in the 1980's, this theory faded. It has recently been revived by new work distinguishing between political and apolitical sources of board turnover. Alsbury (2003) finds that if one ignores non-political cases of turnover–such as voluntary retirements, poor health, or a family move out of the district–then dissatisfaction theory can generate useful predictions. Alsbury (2003) most recently used dissatisfaction theory to predict superintendent turnover. Alsbury (2008) makes the case that, in order to evaluate how responsive school board elections are to democratic forces, it is necessary to conduct a study of many districts over several electoral cycles. Additionally, other studies fail to find meaningful elections with incumbent defeat because they lack a qualitative component–such as candidate interviews–to distinguish political turnover from from apolitical turnover (Alsbury, 2003). The empirical findings of dissatisfaction theory can be stated as: school boards have great democratic potential and this potential is exercised by citizens and candidates alike when the policies of the boards and the preferences of the community become sufficiently misaligned.

Dissatisfaction theory's limitation is that it provides very little insight into the motives of board members, superintendents, and voters (Rada, 1988). Changing school board policy requires an inactive electorate to activate, challengers to run to replace incumbents in favor of the status quo, and a majority of board members to be defeated or change their positions in response to voter activity–prospectively and retrospectively–and ultimately a change in the school district superintendent or her policy preferences. Unfortunately, dissatisfaction theory only explains aggregate behaviors and outcomes–turnover of school board members that leads to turnover of superintendents. It does not explain the motives of candidates to run for school board or of voters to vote for challengers, other than to say they do so out of dissatisfaction with the direction of the district. Thus, the

[4]This diagram was adapted from (Wu, 1995)

political motives of board members, voters, and candidates are only weakly described by such a theory.

Figure 1.1: Dissatisfaction Theory



Continuous Participation Theory, dissatisfaction theory's greatest critique, does attempt to explain the motives of candidates, voters, and district administration. It argues that policy and political turnover in local districts is largely illusory (Zeigler et al., 1974). Any changes in the makeup of the school board or the school board policies represent a true change in the preferences of the five to ten percent of the electorate who are constantly involved in educational policy at the local level. Spikes of participation may occur, but they are the direct result of the actions of this small public and the decisions that result from such periods of greater participation are in line with the views of the public that has been engaged all along.

Recent studies on the capture of educational policy making at the local level by teachers unions can trace its roots to this line of work (Moe,

2011; Chubb and Moe, 1990; Anzia, 2011). These works argue that teachers' unions function as a local elite in educational policy making driving everything from school board candidate emergence, to voter turnout, to selection and replacement of district superintendents. Thus, when voter participation spikes or challenger candidates emerge it is not a reflection of broad dissatisfaction within the community, but of a concentrated effort to activate the electorate on behalf of the interests of the local elite. This line of argument has roots in the social science debate about power–particularly Dahl (1961)'s critique that power is not as elite concentrated as others like Mills (1956) and Hunter (1953) posited, and the reply of Bachrach and Baratz (1962) that power is also about agenda setting and not just the outcomes of major decisions. However, since the studies developing this theory have only been cross-sectional single point in time studies, it has been impossible to disentangle the persistence of the local elite–a critical factor in evaluating whether school board politics are pluralist or elite dominated (Rada, 1988).

Neither dissatisfaction theory nor continuous participation theory dispute the empirical pattern of low interest school board elections punctuated by occasional political conflict. Instead, the theories differ in their interpretation of this pattern and the evidence supporting the underlying mechanisms that give rise to such a pattern. They also differ in the normative claim about whether school board elections are democratic or institutionalize special interests. The next theory, **Decision-Output Theory**, is in the same vein. It argues that educational policy at the local level is largely undemocratic. However, policy is undemocratic not because of capture of the system by a single interest group, but rather because the electoral inputs available to citizens allow them only to determine who makes public policy and how much local tax revenue to raise in support of schools (Wirt and Kirst, 1989). Citizens are not able to truly determine education policy in these circumstances, but merely determine the constraints within which

educational policy makers must operate. In fact, it is the unelected district superintendent that dominates policy making due to informational advantages and professional training. This reduces the issue dimensions in a school board election to a single fiscal dimension–to raise tax levies and make new capital investments–but does not empower citizens to decide the substantive content of the community's students. The citizens, thus unempowered, respond rationally by not participating in school board elections either as candidates or as voters.

Finally, **Public Choice Theory** is the late arrival to the study of school governance. Dissatisfaction theory is criticized as not going far enough in explaining the behavior of both candidates choosing to run, voters choosing to vote, and board members choosing which policies to adopt (Rada, 1988, 1987; Rada and Carlson, 1985). Applying a spatial model of voter and candidate preferences it is possible to generate testable hypotheses not only about policy change due to incumbent defeat, but about voter turnout and challenger emergence (Wu, 1995). Such models have been effective in improving understanding of political activity at the state and federal levels of government – particularly legislative activity (Krehbiel, 1988, 1991; Ferejohn, 1986).

The first such contributions comes from Rada (1988), who identifies two types of school board members – power and prestige candidates. Power candidates seek positions on the school board to change district policy and make decisions. Prestige candidates seek position to fulfill civic duty or to gain notoriety within the community. Additionally, all board members incur costs to information necessary for policy making that can be lessened by a district administrator, but power and prestige board members have differing preferences for relying on the administrator for information. Applying this single dimension – power or prestige – to board members generates a number of expectations about the emergence of different types of candidates, electoral challenges, and policy changes within a community.

Rada (1988)'s original theory has been extended and expanded upon since it was first posited (Rada and Carlson, 1985; Rada, 1987; Wu, 1995). Figure 1.2 is the representation used by Wu (1995) to depict the the most formalized and expanded version of the model. In Wu (1995)'s model, school board members and voters play the multi-stage game depicted in Figure 1.2. In the first stage the each school board member chooses how to vote on a policy–reduced to a single dimension in the model–with either a liberal or conservative stance. Board members decide their vote based on their policy preferences, their perceptions of the preferences of voters, and their expected utility from retaining a seat on the board. Voters do not observe any given board member's vote, but only the ultimate outcome–a liberal or conservative policy and the strength of the majority in support of the policy. This reflects the low information it is assumed that most voters have regarding school board candidates. Voters then decide whether or not to vote based on the their expected payoff from a policy they prefer minus the cost of voting. Voters than choose whether or not to vote for the incumbent. In the model the policy preferences of the incumbent do not factor into this decision–only the voter's orientation toward the final decision of the board. Thus, if the voter and the board are in agreement the incumbent will win. If the board and the voter have different preferences the incumbent will lose, even if she is one of the minority of board members on the side of the voter. The game then repeats in the next electoral cycle.

Wu (1995)'s model is simplified from a true school board in that there is only one issue dimension, three board members, and a supply of quality challengers is assumed. However, it represents a step forward from dissatisfaction theory because it moves beyond the more general notion of "voter dissatisfaction" with the incumbent board toward a specific analysis of the strength and directions of policy preferences held both by board members and by the voters. It also reflects the fact that board policy can change merely from the threat of turnover for board members with good information

about community preferences and a strong desire to remain board members. Dissatisfaction theory does not provide predictions about policy changes designed to pre-empt any electoral turnover of board members.

Unfortunately, this latest line of scholarship remains theoretical, with no test of Wu (1995)'s spatial model for school board elections. In fact, no study of school board elections has attempted to incorporate variables such as voter turnout, campaign spending, or public policy preferences–despite evidence that public preferences have normative and empirical consequences (Pittman, 2011). The impacts of turnout and community preferences have been explored in the other common school district election–the school bond or referenda–though the linkage to school board members has not yet been made (Lutz and McGehee, 1994; Lutz and Foerch, 1990).

Figure 1.2: The Strategic Game Sequence from Wu 1995

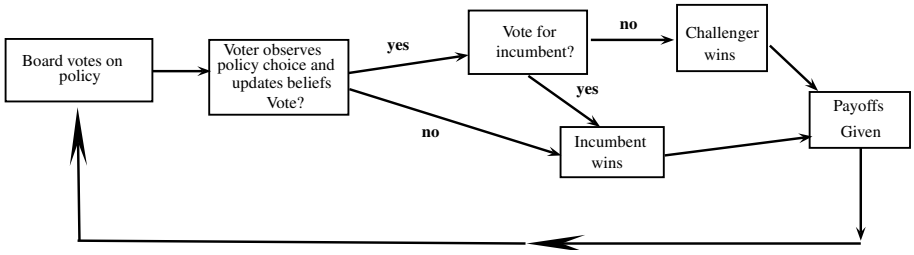


Table 1.1 summarizes the theories of school board politics. The next sections turn to the empirical work that supports and critiques these theories.

Tying Back to Political Science

All four of the above theories have roots in the political science literature, though few political scientists have taken up empirical work to evaluate the applicability of these theories to local special purpose governments. While this may seem of limited utility to the broader discipline beyond substantive

Table 1.1: Summarizing Major Theories

Theory	**Description**	**Key Citations**
Dissatisfaction	Long periods of equilibria in board elections punctuated by short periods of high turnover and high participation	Iannaccone and Lutz (1970); Lutz and Iannaccone (1978a)
Continuous Participation (Competition)	The small percentage of voters who continuously participate in board elections have their preferences accurately reflected. Any spikes in participation are in line with the wishes of these groups.	Zeigler et al. (1974)
Decision-Output (Responsiveness)	Undemocratic nature of school boards stems from the limited policy scope that board elections control, namely the public can only vote on local tax revenue and the policy makers on the board, who are constrained by federal and state policy.	Wirt and Kirst (1989)
Public Choice Theory	Challenges to incumbents arise based on policy choices of board members, voter preferences, and the expected payoffs associated with policy change.	Rada (1988, 1987); Wu (1995)

interest in such governments, the study of special purpose governments like school districts presents a tremendous opportunity for political scientists to gain more leverage on key puzzles within the discipline.

First, understanding school boards provides an opportunity to evaluate what democratic policy making looks like across a wide spectrum of levels of participation. While some variation exists in Congressional districts, school boards provide a much wider spectrum while playing an influential and often contentious role in the lives of citizens. Additionally, boards are a fascinating test of candidate emergence. Entry to school board office is relatively inexpensive and completely free of party gatekeepers–unlike

legislative office. Where do candidates for office come from? Why do they serve? What motivates their decisions when partisan cues are unavailable? Is candidacy elite driven or individually motivated?

Responsiveness to constituent preferences is seen as a critical to assessing the democratic nature of school boards. The literature here is mixed and unfortunately not empirically strong. This work began with Dye (1967), a study of 67 major urban districts which found no statistically significant difference in educational outcomes whether boards were appointed or elected. The question of whether elected boards were more accurately reflecting the preferences of the public was assessed by surveying the public and observing policy outcomes between school boards and the public (Jennings and Zeigler, 1971; Zeigler and Tucker, 1978). Surprisingly, school board members were found to be as responsive as other legislative bodies, despite their much narrower policy focus and nearness to constituents. This was due in part to the large percentage of unanimous decisions made by boards, around 90%, which gave little official record of minority viewpoints. Additionally, at-large elected officials have less incentive to respond to individual constituent concerns, and lack of specialization on boards means that board members have little room to act independently of fellow board members. Unfortunately the generalizability of these findings is unknown due to the understandably small sample of eleven districts, and the age of the study. More recently Berkman and Plutzer leveraged national public opinion polling and US Census data on school district expenditures to correlate the responsiveness of school boards to estimates of local preferences for per pupil expenditures across nearly 8,000 US school districts (Berkman and Plutzer, 2005) By this measure appointed school boards were found to be more responsive than their elected counterparts. This work, however, relies on imputed estimates of local preferences for spending and does not address the concern that appointed school boards may be the function of some political forces that also shape public preferences for school spending among many others.

1.4 Empirical Work

In the last forty years there have been numerous studies of school boards. However, these studies have tended to be isolated from one another and not part of a cohesive research literature–many of them not tied to any of the major theories discussed above. The most comprehensive and widely cited review of the literature summarizes it as:

> ...rife with conclusions and recommendations based on personal experience, observations, and opinions. School board experts frequently rely on anecdotal evidence, rather than data from carefully designed research studies, to support their conclusions (Land, 2002, p.265)

Despite these stated deficiencies, a scattering of excellent studies exist across disciplines that fall into the theoretical traditions outlined in Table 1.1. To move forward, the literature needs to focus on components of the questions that school boards raise so that a research literature can be constructed that builds on prior work and informs theory (Meier, 2002). That existing work is outlined here and can be loosely organized into surveys of school board members, questions of board politics, and board and superintendent relationships.

Surveys of School Board Members

Although school board membership is perhaps the most commonly held elected office in America, little is known about who holds these offices nationwide or how members are selected. Previously,the Census Bureau was required under Title 13, United States Code Section 161 to take a census of all governmental bodies in the country at 5 year intervals. This began in 1957, with the census aimed at reporting on government organization, public employment, and government finance (U.S. Census Bureau, 2012). The report on Popularly Elected Officials includes information on the number of

elected officials per governing board or form of government, demographics of these elected officials, compensation, and their location (US Department of Commerce, 1995). Unfortunately, after 1992 the Census of Governments no longer reported on elected officials directly due to budget cuts. This left scholars without any systematic data on who serves on school boards, how many school board members are active in the US, or how school boards are organized across the country.

Partially in response to this the National School Boards Association (NSBA) commissioned a nationwide survey of school board members to fill the gap (Hess, 2002).[5] Almost ten years later a second survey was taken to follow up (Hess and Meeks, 2011). In addition to these national efforts, several smaller surveys of school board members have been conducted to address the needs of a particular topic (see Grissom, 2010; Speer, 1998; Alsbury, 2003; Hofman, 1995). The utility of such surveys has been criticized because they rely on member self-reports and are only a single snapshot in time (Tallerico, 1991). Any sense of temporal variation is derived from asking respondents to recollect past events such as elections, retirements, or board strife. Other critics believe the literature should focus on alternative research methods that provide additional information–such as in-depth interviews and observations (Danzberger et al., 1987). Such criticism is likely premature as school board surveys are still a new and developing area of research (Land, 2002). And, since these criticisms, a number of excellent surveys have been conducted that have greatly increased our knowledge about many aspects of school board service–including who serves on school boards and how boards operate. Table 1.2 summarizes the major surveys in the field and their key findings about the political nature of school boards.

[5]Another early survey came from Public Agenda (Farkas et al., 2001).

Table 1.2: Key Findings of School Board Surveys

Survey	**Findings**	**Sample**
Hess (2002)	• Over 90% of boards are elected • Board elections unlikely to be competitive • Mean board tenure is 6.7 years • Boards self identify as moderate or conservative, only 1 in 5 self-identify as liberal	National
Grissom (2010)	• Board conflict on decisions more common in urban and rural districts • Conflict more common on large boards, boards with single-member district elections, and boards in active interest group environments • Ideological diversity increases conflict, racial diversity correlates with lower conflict • Professionalization leads to less division	California
Hess and Meeks (2011)	• 73.9% of board members spent less than $1,000 to be elected, 87% spent less than $5,000 • 44% described their last election as "very easy" • Boards and superintendents agree on district priorities, disagree on how to evaluate performance of superintendents	National
Speer (1998)	• Superintendents and boards that have good relations are correlated with high student achievement	National

Table 1.2: Key Findings of School Board Surveys

Survey	**Findings**	**Sample**
Alsbury (2003)	• Some evidence that politically driven board turnover leads to district administrator turnover • Community values, citizen participation in elections, board values, and district policy are major variables and difficult to quantify even with survey methods	Washington
Grissom (2007)	• 58% of board members are employed full time outside of board service • Business and commerce (23%), followed by education (17%) are the most common board member occupations • Boards are fiscally conservative (50%) or moderate (41%) • Boards are divided on social issues, 30% conservative and 30% liberal, 40% moderate • Board members self-identify as 44% Republican and 44% Democrat • 66% of members anticipate running for re-election • Only 17% anticipate running for a higher office–typically city council in an urban area	California

Politics of School Boards

While the descriptive studies have asked a few questions about the political aspect of school boards–chiefly about self-reported views of seat competitiveness and desire to seek re-election–little can be learned from such snapshots about the causes of electoral competition and the outcomes of incumbent success or defeat. Despite the staggering number of school board elections held annually in the United States, little systematic analysis of board elections has been conducted due to the significant challenge in

collecting official records of election results at the school district or county level. The fact that the overwhelming majority of school board elections are non-partisan affairs about specific local issues also contributes–making it hard to identify unifying issues that board races focus on.

Despite the dearth of readily accessible data and obvious ideological identifiers like party affiliation, some quality scholarship has emerged applying the four theoretical frameworks in Table 1.1 to school boards. These studies can be grouped by which facet of school board political activity they focus on – the electoral system, the outcome of board elections, board policy making, or political relations of boards with other governmental bodies.

Electoral Rules

There are two types of studies that look at the way school board elections are structured. First, there are studies of how boards are selected–including studies of appointment, elections, and the implications of at-large electoral districts compared to sub-district elections. Single-member districts–predominantly in large urban centers–are correlated with increased racial diversity of school boards to align more closely with the communities they serve (Leal et al., 2004; Wills, 2003). This is important because surveys have demonstrated boards are often much less diverse than the communities they serve (Hess, 2002; Hess and Meeks, 2011). Other work has explored how different election rules can influence the equality of school board representation across dimensions such as race, gender, and community values (Barr, 2000; Wills, 2003). The differences between appointed and elected boards have been studied in a limited fashion–leveraging a policy shift in Virginia to elected school boards in the mid 1990s to show how community interest groups shifted their behavior in response to newly elected board members seeking to identify their constituencies (Feuerstein, 2002, 1996).

Election Outcomes

Another important strand of work focuses on the election outcomes themselves. The evidence from this work in support of dissatisfaction theory is mixed. Table 1.3 summarizes the findings across these studies. In general, there is some evidence that dissatisfaction, either as board defeat or candidacy, leads to superintendent turnover. However, there is not any sense of the frequency of such defeat.

Alsbury (2003)'s study revived interest in dissatisfaction theory by finding that once the difference between political and apolitical turnover was taken into account, then school board change increased the probability of a subsequent turnover of the superintendent within four years. However, the study's methods did not allow strong causal claims to be made about defeat leading to superintendent turnover, or conclusions to be drawn about the meaning of superintendent turnover in a district. The qualitative component of the study uncovered a number of intervening variables that need to be accounted for–including the supply of candidates.

Table 1.3: Replications of Dissatisfaction Theory

State	**Time Period**	**Conclusion**	**Citation**
Washington	1990s	Support	Alsbury (2003)
Washington	1980s	Support	Maguire (1989)
Oklahoma	1970s-1980s	Reject	Schoenefeld (1986)
Ohio	1970s	Unclear	Hunt (1980); Lutz and Wang (1987)
New Mexico	1960s	Mild Support	LeDoux and Burlingame (1973)

Policy making

The policy making and political activities of boards remain largely unexplored areas as well. Policy preferences and political goals at other levels of government – such as preferences for state and federal government

activity–by school boards have received some attention (Strobel, 1991), but from snapshot studies it can only be concluded that boards have mixed feelings about the role of federal, state, and municipal policymakers in schools (Terzopolos, 1996). Manna (2006) indicates that such variation is expected, and not of tremendous interest, but instead it is the conditions under which the feelings of local policymakers toward state and federal policy changes that is of interest–as such change provides policy opportunities. It is known that boards respond differentially to policy making at the state (Nowakowski and First, 1989) and federal (Seifert, 2009) levels. Unfortunately, no hypotheses about the preferences of boards over state and federal policies have been tested in these studies because the policies tested were broad reform packages covering many issues along multiple dimensions in education policy.

Interest Groups

The role of interest groups and elites in school board politics has also only received a cursory look (Beckwith, 1994). Hess and Leal (2005) have done limited work on the role of interest groups in school board elections demonstrating that teacher unions, parent groups, business interests, religious, racial, and ethnic organizations all influenced school board elections through canvassing, campaign contributions or both. This is purely descriptive work based on self-reports by surveying school board members serving in office. By surveying winners and losers from school board campaigns Moe (2005) found significant influence of teacher unions over the outcome of elections (see also: Chubb and Moe, 1990; Moe, 2011). Challenger emergence itself has been explored only in a very narrow scope looking at challengers emerging along a single issue dimension–Christian social values–as well as how these challengers are externally supported (Deckman, 1999, 2004). Unfortunately these conclusions are not generalizable to whether and when other interest groups encourage and support candidates for school board. This lack of scholarship is surprising because Feuerstein (1996) found that

when school boards in Virginia moved from being appointed to elected local interest groups viewed elected boards as a new window of influence on school decisions (see also Feuerstein, 2002).

Board and Superintendent Relationships

It is nearly impossible to talk about the role of school boards in setting school policy without talking about the relationship between the board and the superintendent. A large portion of the school board literature remains focused on the question of the optimal relationship between board members and the district administrator (see DeKoninck, 2009; Casey, 2007; Cataldo, 2011; Hess, 1994; McCann, 2011; Schreck, 2010; Workman, 2003; Grissom, 2010; Jennings and Zeigler, 1971; Feuerstein and Dietrich, 2003). Most of these studies have sought to identify the ideal role of school board members as viewed by superintendents as in McCann (2011); Schreck (2010), or the ideal role of a superintendent as viewed by board members as in Cataldo (2011); DeKoninck (2009), or the dynamic between administration and the board Hess (1994); Workman (2003).

Unfortunately, there is no application of basic theories of the role of an executive to the relationship between boards and superintendents, though Hess (1994) classified the relationships between boards, superintendents, and the community for Wisconsin school districts. Despite trust between the superintendent and the board being identified as a critical component of functional local governance (see McCann, 2011; Schreck, 2010; Cataldo, 2011; DeKoninck, 2009), spatial models have received only a brief mention in reference to the relationship between the board and superintendent. Rada (1987) noted that gathering information for policy action is costly to school board members if conducted independently, and thus in most cases on most policy issues, board members are dependent on the superintendent. Qualitative work in New Jersey has indicated that a breakdown of trust and mismanagement of the budget are key factors in school boards choosing to

buy out a superintendent contract–both activities that tie directly to the informational dependency of the board on the superintendent (Magistro, 1988).

In essence, the literature has not seriously considered whether to view the district administrator as an executive interacting with a legislative body or as a trusted advisor guiding an executive council. Classifications of board and superintendent relationships have tended to focus on style as in Hess (1994) and not on the functional relationship as it relates to policy making. A focus on this relationship is critical to understanding the politics of school districts.

1.5 Democratic Potential and Actualized Democracy

The literature on school boards has either focused on empirical studies of basic phenomena like the result of incumbent defeat, or theoretical examinations of a much larger sequence of events over multiple election cycles. Both of these approaches have provided vital contributions to the understanding of the politics of school boards. However, given the challenges in collecting information about school board elections, expecting a single study to test the whole interconnected web of interactions between voters, candidates, district administrators, and interest groups is currently unrealistic. One study is not sufficient to measure the universe of behaviors that compose democratic activity at the local level.

Instead, I propose an intermediate theoretical framing of democratic behavior focused on assessing the democratic nature school board elections. Focusing on elections as a start grounds this study in the democratic activity that has captured the imagination of most previous scholars of school boards. My theoretical framing is not only focused on a narrower breadth of activity, but also necessarily less nuanced than the rich tradition of democratic theory

in the discipline. It is provided as a service to the reader as a way to organize the evidence that follows into an assessment of whether school boards are democratic.

I organize school board election activity along two dimensions – potential and actualized democratic behavior. Democratic potential is described by the formal, legal, and informal barriers to candidate and voter participation in school board elections. Actualized democracy is the enthusiasm with which this potential is utilized in the form of elections being contested, voters voting, and policy changing. School boards, from the studies above, appear to have great democratic potential given the low barrier to campaigning and winning a seat and the sheer number of seats available. However, despite low formal, legal, and financial barriers to entry citizens may feel relatively little potential for payoff by serving on the board. If board policy making is heavily constrained and dominated by a strong professionalized administrative class, then board service has little potential to change resource allocations or outputs of local schools. The case for actualized democratic behavior is also nuanced. While the dominant view is that school board elections are sleepy local affairs with little to no interest for the majority of residents, board elections occasionally do see outbursts of candidate and voter participation, sometimes to spectacular degrees. It is the why, when, and how that this great democratic potential is converted to actualized democratic actions that is the central puzzle of school board elections. To decide how democratic school board elections are, both the ease with which citizens can exercise control over their local schools and the frequency with which they choose to do so must be understood.

1.6 Study Design

Data

This study starts at the beginning with school board elections. In order to observe the conversion of democratic potential to democratic behavior, the literature suggests that school districts must be observed over a longer period of time. To that end I have collected election records from nearly 75% of Wisconsin school districts over a period of ten years spanning 2002-2012. The trade off of focusing this study on a single state is that in so doing, I am able to pair the election results with a wealth of information about school districts themselves including demographic, political, financial, and educational attributes of the school district, its students, and its residents. These data enable me to examine the ebb and flow of democratic activity in school districts big and small across multiple election cycles. Chapter 2 will describe these data and the collection process in great detail.

Research Questions

The chapters that follow are organized around each examining a particular aspect of the democratic behavior in school board elections.

1. What do school board elections look like? How do they compare to local, state, and national elections?
2. Do residents of school districts have a choice among candidates? Do challengers emerge and contest elections, and if so, when?
3. Do citizens turn out to vote for school board? If so, when, and in response to what influences?
4. Are the results of school board elections responsive to the preferences of the community, or do they represent the will of a politically active minority with a particular agenda?
5. Do the results of board elections matter? Does school district policy change in response to changes in representation?

The Wisconsin Case

While there may be concern that focusing on one state is too constraining to be generalizable or theoretically interesting, the unique leverage directly on the above questions in the Wisconsin case will be demonstrated below. In areas like school board elections where little theory development has occurred, Nicholson-Crotty and Meier (2002) argue that the literature may best be served by the more in-depth and comprehensive study of a smaller system that a single-state study like that proposed here can provide.

Wisconsin provides an excellent laboratory for exploring these three issues because of the high salience of education issues in a newly polarized political climate. In a sense, Wisconsin could be considered as measuring a sort of upper bound of school board political activity given the degree to which the politics of education has become polarized and sensationalized during the period of this study. The election of Scott Walker as Governor of Wisconsin in November 2010 brought sweeping and unexpected changes to education policy in the state of Wisconsin. Among the major changes that are relevant for this study:

1. Limitations on the collective bargaining rights of public employee unions including teachers' unions.[6] This includes the elimination of bargaining over the gross wage scale and the restriction on any bargaining over compensation to an annual increase no greater than the increase in the Consumer Price Index (CPI).

2. A dramatic reduction in state aid to school districts for general education revenues in the 2011-2013 Biennial Budget known as 2011 Wisconsin Act 32.[7]

[6]This in the form of the "budget repair bill" known formally as 2011 Wisconsin Act 10 passed on March, 11 2011.

[7]The cut was the second largest single-year reduction in per pupil spending in 2010-11 across 46 states studied according to a report from the Center for Budget Policy and Priorities.

3. Restrictions on district revenue raising including a reduction in the revenue limit per pupil, elimination of certain expenditures from inclusion in the revenue limit, and a reduction in state categorical aid programs by 10%[8]

4. A reduction in the levy rate for local property taxes in most school districts statewide, a 1% decrease in the school tax share of property taxes, and a statewide reduction of $228 million in property tax rates.[9]

This has led to:

1. Recall elections against six sitting state senators in the summer of 2011.

2. An unprecedented level of public political activity including weeks of protests in February and March 2011 and an eventual successful petition drive to force a recall election in 2012

3. The politicization of the relationship of teachers to management, and of education expenditures and school district budgets

4. Recall elections against state senators, the lieutenant governor, and the governor on June 5^{th} of 2012

These changes and this upheaval were both more or less unanticipated by voters, school boards, teachers' unions, and other strategic actors due to the little attention paid to either the budget allocation for schools or the rollback of public employee bargaining rights in the 2010 gubernatorial campaign in Wisconsin.[10] Additionally, the reforms enacted by Governor Walker give school boards unprecedented new freedom to radically rethink district policy, organization, and employee compensation–thus removing a substantial constraint on the potential policy preferences of school boards.

[8]The Wisconsin Department of Public Instruction has a strong summary of the 2011-13 budget's impact on school finance available online.

[9]More information available here: http://www.reforms.wi.gov/section.asp?linkid=1779&locid=185

[10]This last point is somewhat disputed by some political observers and Scott Walker himself, but the consensus has been that this was not the case according to the Milwaukee Journal Sentinel.

This provides an opportunity for both a rigorous test of hypotheses about influence of state politics on local elections due to the exogenous nature of the policy shock, and an opportunity to explore the shift in interest group power as school boards were given unprecedented freedom in drafting employee contracts.

Figure 1.3 shows the interaction between regularly scheduled spring elections, special elections, and the major events enumerated above. This timeline shows that the school board elections in both 2011 and 2012 (Spring elections) had the potential to be influenced by the political turmoil at the state level. However, it is clear that the 2012 election has had more policy shock treatment, as the 2011 spring election occurred in the midst of historic protests and before the outcome of the state budget vote was known. Next, more detail will be provided about the expected relationship between these state level political events and local election results.

Figure 1.3: Wisconsin Politics 2011-2013 Timeline

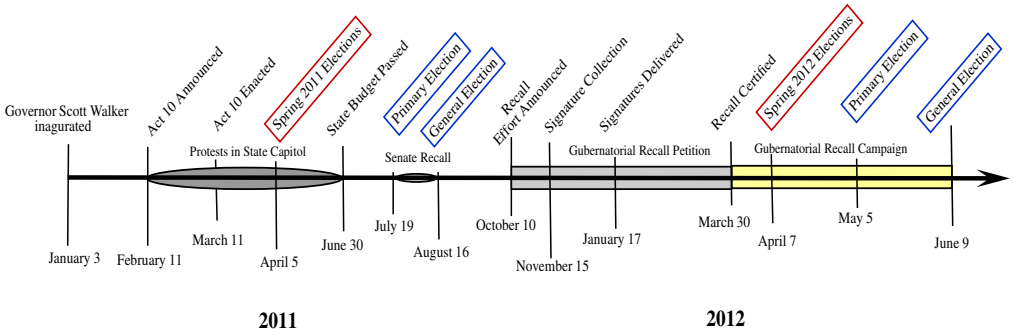
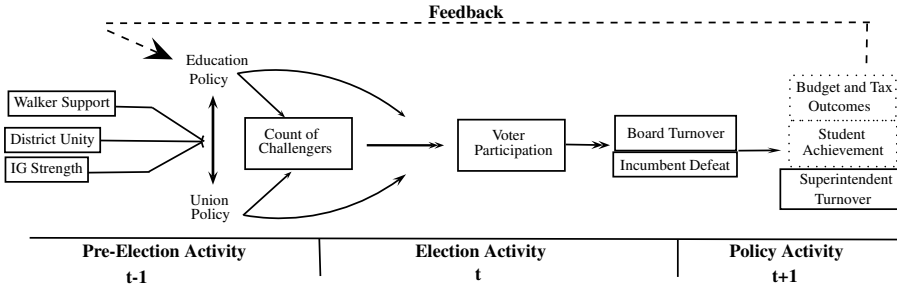


Figure 1.4 provides an overview of how these questions might fit together. In the pre-election period school boards make policies, interest groups organize, and voters form strong preferences about their approval of the Governor's education reforms.[11] In this period we expect board policy to be influenced by their perceptions of the strength of interest groups, district consensus supporting the Governor's reforms, and overall support for the Governor. Local level policy concerns much as in Wu (1995), in turn, then influence both emergence of challengers and voter participation.

Figure 1.4: A Theoretical Model of School Board Policy Shock



Methodology

This dissertation uses a large data set of school board elections in Wisconsin to measure various aspects of democratic activity. This quantitative

[11] Strong here denotes only that the preferences are strong relative to voter preferences for school board candidates–a fairly weak assumption.

analysis leverages multiple measures of key variables, longitudinal observations of school districts, and exogenous variation in school board powers to answer questions about observed democratic behavior. I employ an array of regression based strategies to model the data and attempt to isolate the effect of key variables among the noise from mismeasurement and unobservable characteristics.

This quantitative approach has the advantage of allowing a broad observation of school board elections across many communities over repeated election cycles. The main drawback of such an approach is much local variation is left unexplained. Prior research has shown that the issues shaping local elections are often issues unlikely to show up in broader measures of the community or government structure and output (Oliver et al., 2012). However, this broad overview can provide a first step toward identifying which theories of democratic behavior do apply to school districts, and where new theories of elections may need to be developed to better understand local special jurisdiction democracies.

Organization

In the next chapter, I start with a description of the data collection, the school districts in the sample, and the patterns of school board election activity in Wisconsin from 2002-2012. This descriptive chapter is provided to compare Wisconsin school districts with the national and state samples previously in the literature as well as to compare school board elections with other types of elections.

Chapter 3 examines contestation in school board elections. This chapter leverages the panel nature of the data to investigate the power of fiscal, political, policy, and demographic characteristics to explain when school board elections are contested. I test a number of theories of candidate emergence and use multiple measures of contestation at the school board level to understand what factors might impact the likelihood a school board

race is contested.

Chapter 4 analyzes patterns of voter turnout. I evaluate how well board election turnout is predicted by lagged turnout, demographic factors, competitiveness of seats, and interest group activity. In addition to turnout, I also explore how well these factors explain voter rolloff, or the gap between votes cast for the top ticket spring race and the school board race. This additional measure is included as a way to measure interest in school board elections specifically, independent of voters who are motivated more by top ticket races.

Chapter 5 leverages the Act 10 policy shock to investigate if voter and candidate behavior is responsive to changes in the power held by school boards and information available about school board members and their policy preferences. If boards are responsive, then in some cases this provision of information should lead to increased participation by candidates and voters in an effort to bring the board in line with the preferences of the community. I look for evidence that this occurs, and I also investigate potential mediating factors that may amplify or attenuate the impact of this policy change.

Finally, Chapter 6 asks – do board elections matter? I look specifically at the relationship of the strength of challenge to board members and board member defeat with policy outcomes at the school district level. I focus on student achievement scores and superintendent turnover as two policy outcomes previously analyzed in the literature (Alsbury, 2008; Schoenefeld, 1986). If board elections do not have consequences for important policy outcomes, then school district residents can be forgiven for not participating and the democratic potential of local elections may be largely illusory.

1.7 Contribution of Findings

This dissertation contributes to the understanding of American politics in several ways. First, and foremost, it provides much needed focus on one of the most common democratic institutions in the American political system–school boards.

Second, it tests theories of voter turnout and candidate participation in diverse contexts far from the traditional venues of state and federal legislative offices. Do traditional political science theories generalize to other elected offices, or are they confined to explaining the unique conditions of state and federal legislative and executive races? Do the traditional theories of school board politics explain the response of local political entities to policy change at the state or federal level?

Understanding the correlates of board policy changes along specific issue dimensions–employee compensation plans and responses to deep budget cuts–is an important step toward further understanding of the role of school districts in making and carrying out education policy in relation to state and federal policy. It also allows researchers to start exploring the role of stability in leadership on a diverse array of school district outcomes ranging from reform attempts, to employee satisfaction, to ultimately student outcomes.

2 DESCRIBING WISCONSIN SCHOOL BOARD ELECTIONS

2.1 The Wisconsin Case

This chapter describes school board elections in Wisconsin from 2002-2012. Wisconsin has many attributes that make it representative of the Midwest, if not the country. Its is located in the Midwest and ranks 23rd among U.S. states in terms of total area, 20th in terms of population size with 5.7 million residents, and has 424 school districts.[1] Wisconsin has become a crucial swing state exhibiting a close split between Republican and Democratic voters in presidential politics.

One differentiating factor for Wisconsin is that like many other states in the Midwest it grants much of the authority in school district decision making to local school boards – a so-called "local control" state. This is also why Wisconsin, in contrast to Southern states, has such a large number of school districts serving relatively small populations over relatively small areas. Prior studies of school boards like those of Alsbury (2003); Berry and Howell (2005) have taken place in states with larger school districts and more centralized state control. Thus, Wisconsin serves as a good exemplar for other "local control" jurisdictions where school boards have more authority relative to the state government.

Another advantage of selecting Wisconsin is the comparative advantage I have had in gathering the necessary data to study a substantial proportion of the school board races within the state.[2] With close relationships to policymakers in my role as a research analyst at the state education department I have been able to collect a diverse set of data on Wisconsin school districts. A final advantage is the ability to test theories of the linkage

[1] All facts from US Census.

[2] For details on this, see the Appendix A.

between school board and state level politics thanks to the dramatic shock to education policy that accompanied the election of Wisconsin Governor Scott Walker in 2010. Taken together, these advantages mean that the in-depth study of school board elections across the entire K-12 educational system in Wisconsin can provide a new perspective on theories of candidate emergence in local elections, voter turnout in non-partisan off-cycle local races, and federalist linkages between state and local governments. Such an in-depth study of a single system can, then, build a foundation on which to advance the study of local governance more broadly (Nicholson-Crotty and Meier, 2002).

In this chapter I address the unique case of Wisconsin by providing a descriptive overview of the legal, demographic, and historical landscape for school board races within the state. I start by describing the ways in which the laws governing school board races vary from more familiar legislative races. Next, I describe the data I have collected on school board election results in detail and provide descriptive statistics of the frequency of incumbency challenges and open races, voter turnout, and the socio-demographic diversity of the constituencies served by Wisconsin school boards. This overview serves as the groundwork for the three subsequent chapters which examine how well theories of political engagement explain candidate emergence and voter turnout in school board elections, as well as any subsequent policy shifts.

2.2 Wisconsin Election Law

This project is a comprehensive study of the patterns in school board elections across an entire state over multiple years. Before examining the patterns that emerge both within and between school districts, it is important to first describe the data available on school board elections and the legal procedure under which elections are conducted. This helps lay

the groundwork for the democratic potential of school boards by explaining what the legal barriers are for candidates and voters to participate in school board election. Wisconsin, like many other Midwest states, is a local control state. This means that Wisconsin school districts have revenue authority independent of municipalities and counties, and are governed by a non-partisan elected board independent of other local government bodies. The independence of Wisconsin school districts is established in the state constitution and through state law (WI Const. art. X, §3 and Wis. Stat 120.10).

This independence gives Wisconsin school districts comparatively considerable power and authority. Importantly, school boards administer their own elections and retain their own election records. This represents a serious barrier to studies of school board elections due to the burden associated with collecting and organizing school board election results from over 420 independent administrative entities. This is why previous studies of school boards have tended to focus on candidates, random samples of school boards, or on states with county-wide school boards such as North Carolina and Georgia (Alsbury, 2003; Berry, 2005; Berry and Howell, 2005).

A benefit of the independence of Wisconsin school boards is the opportunity for study their organizational diversity presents compared to other states. While Wisconsin school board elections are held consistently on the same dates across the state, during the spring non-partisan election cycle, the size and distribution of board seats is largely locally determined. The spring primary election is the third Tuesday in February, and the spring general election is the first Tuesday in April (Wis. Stat §120.06). Wisconsin school boards must have between 3 and 9 members with some exceptions made for boards of 11 members (Wis. Stat §120.01). Board member terms are not consistent across school boards, though 3 year terms are the most common with limited exceptions for terms of 1 or 2 years (Wis. Stat §120.06 (3)). Board members are elected by a plurality and must be residents of the

district to be eligible for office (Wis. Stat §120.06 (2) (a)). All candidate verification, ballot preparation, and election announcement is the responsibility of the school district clerk, in practice a job often managed by district administrators (Wis. Stat §120.06 (8)). Primary elections occur if there are more than twice as many candidates as there are members to be elected (Wis. Stat §120.06 (7) (b)).

School boards also have flexibility to apportion their seats in different ways ranging from a board of 3-9 members each representing the entire district, to a board of 3-11 members each representing either a specific region of the school district or the entire district. Figure 2.1 shows the sizes of school boards in Wisconsin over the time period being studied. This is calculated using a database of school board members provided by the Wisconsin Association of School Boards (WASB). [3] The only restriction on the way seats are allocated is that the plan is proposed with a petition by a threshold of voters and passed by the board at an annual meeting or through an election (Wis. Stat §120.02 (2)).

Table 2.1: Wisconsin Election Dates

Election	**Date**
Spring Primary	Third Tuesday in February
Spring General	First Tuesday in April
Fall Primary	Second Tuesday in August
Fall General	First Tuesday in November

My study distinguishes itself from previous studies with its use of official election results provided directly by school boards to determine the results of the elections. In Wisconsin, school districts are the official holder of all school district election results. This means that official school board election records are maintained solely by school districts themselves and gathering

[3]There was one anomaly with this data where school board seats were under reported in the 2007 data due to a reporting error. As a result, I have added one to number of seats for all school districts in the 2007 data.

school board election results in Wisconsin requires requesting records from individual school districts.[4] This challenge is a key barrier to the study of school board elections; though school boards are required by law to retain these records, the record keeping is often incomplete, unclear, or confusing (Wis. Stat §120.06 (8) (g)). [5] In order to gather these records, a request was e-mailed to the school district administrator in each of Wisconsin's 424 school districts in January of 2013. Three follow up waves were conducted throughout 2013, and at the end of the collection period, 311 districts responded with records. The official and preferred records of the election requested included the Statement of the Board of Canvass and the Certificate of the Board of Canvass. These two documents are legally mandated for each school board election and certify the winner for each school board seat, as well as the votes cast for each candidate. When these were unavailable, a less official record such as a tally sheet from the election or a vote count spreadsheet was requested. Full details on the data collection process can be found in Appendix A. These records were then transcribed a database for analysis.

The median district provided 11 years of records.[6] Figure 2.2 shows the number of districts providing records in each year. Overall, records were provided on 4,116 school board races involving 5,854 unique candidates in the state. For each election the votes received by each candidate was recorded, as well as whether the candidate won, was an incumbent, was a repeat candidate in the school district, or was a minor candidate – receiving fewer than 20 total votes. For each race, whether the candidate was running for district wide or regional seat was also recorded.

[4]See Appendix A and the Appendix B for details on the request process.

[5]A few enterprising county clerks have collected school board election results and made them available online, however, these can be incomplete by only including the precincts that are within the county. They also are not official. (personal communication with Gottwald, 2012).

[6]While each district was requested to provide the maximum amount of records legally required to be retained, ten years, many districts were unable to locate complete records going this far back.

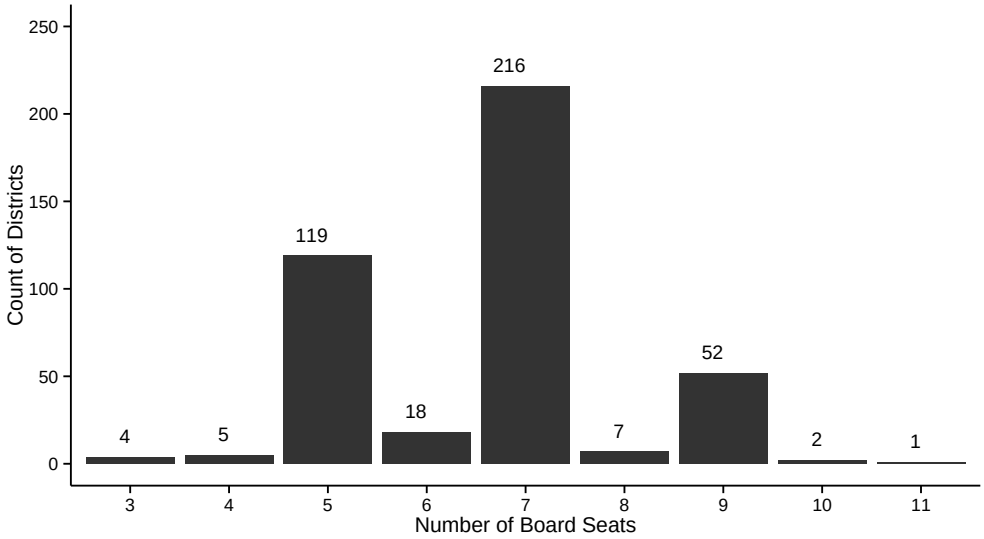


Figure 2.1: Number of Seats Per District in 2012

Using the names, vote totals, and winners from each school board election allows for the construction of measures of the number of candidates in each election cycle, the number of contested seats, the level of voter participation, and other metrics of electoral activity at the school board level. Importantly, because the data were collected for several years in each district, time-variant trends can be explored.

The good news is that the most crucial period of the sample, from 2007 to 2012, is the period with the most complete set of records. The mean district provided records on 13.2 school board races. Figure 2.3 shows the number of races provided by each school district, with the median highlighted by a red vertical line. 283 districts had a race in each year between 2007 and 2012, while 28 did not.[7] I distinguish these cases from others by verifying the absence of a ballot for school board, as opposed to the absence of records.

[7]In some cases a district like Milwaukee may only hold board elections on an every other year cycle.

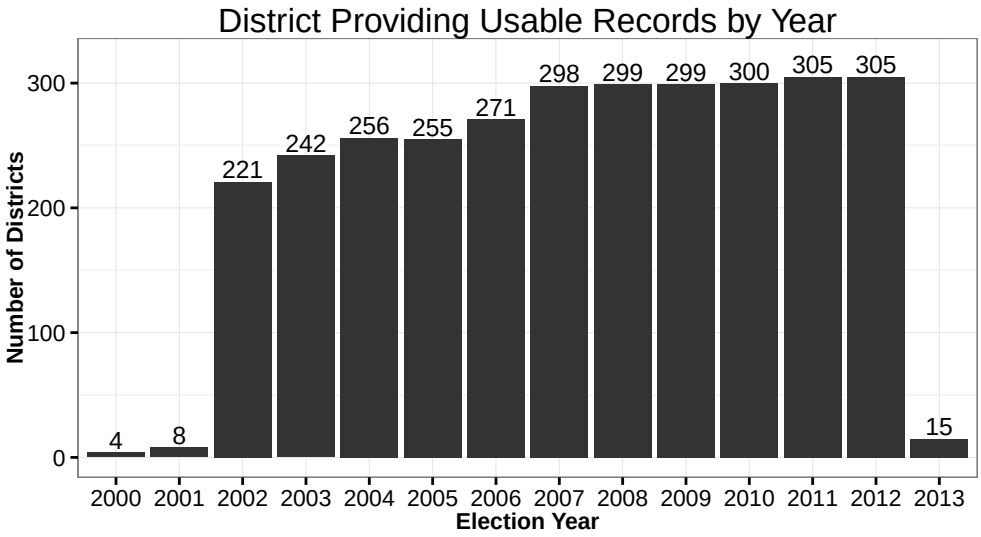


Figure 2.2: Number of Districts Providing Records by Year

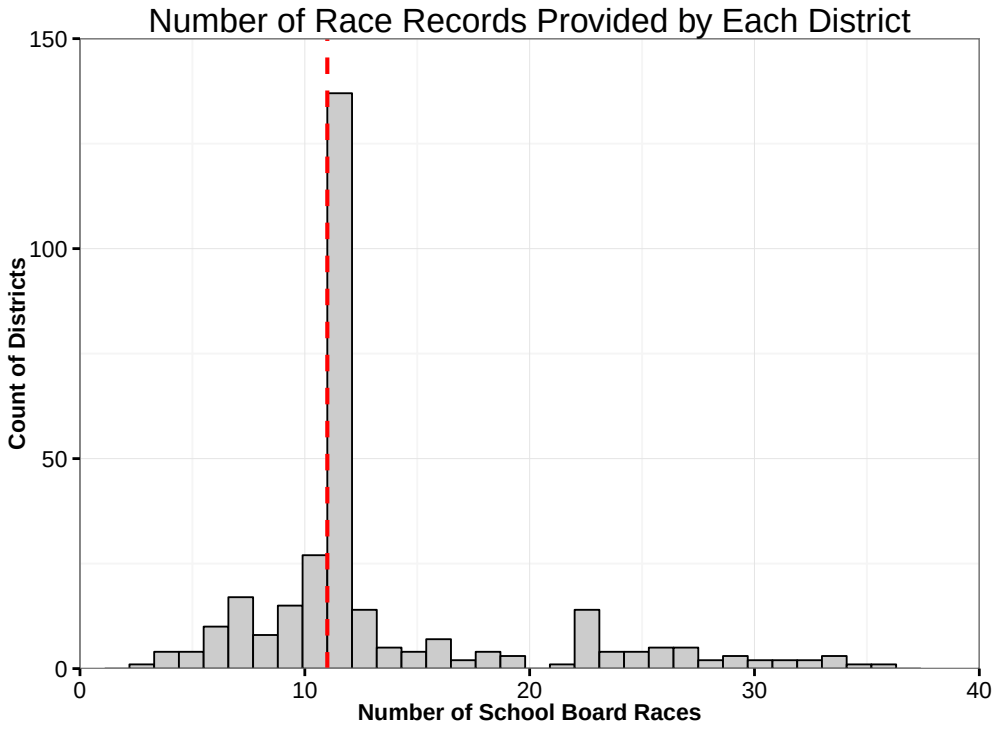


Figure 2.3: Number of Races Provided by Districts. Red line indicates the median.

2.3 School District Demographics

The authority given to school districts in Wisconsin to determine their own electoral rules and structure make Wisconsin a useful case in exploring the variation in school board electoral participation across contexts. In addition to the legal variation in electoral rules across school districts, Wisconsin school districts also vary widely in size, wealth, tax rates, and demographics. In order to explore this diversity and to demonstrate the representativeness of the school districts that responded to the request for records, I now explore several aspects of Wisconsin school districts.

Comparing the Sample to the Population

	Sample (mean)	Sample (SD)	Out of Sample (mean)	Out of Sample (SD)
Total Population	13,702	22,577	7,719	8,301
Membership	2,073	3,159	1,188	1,234
% FRL	34.91	15.15	37.72	16.85
Millrate	9.50	2.08	9.29	2.63
% Republican	58.0	10.0	57.0	10.0
% Bachelor+	16.0	7.0	15.0	7.0
% White Pop.	94.0	8.0	95.0	5.0
Avg Teach. Sal. ($)	51,620	6,215	49,969	6,609
Avg Teach. Fringe ($)	26,547	3,402	26,265	3,198
Median Income ($)	33,284	8,280	32,444	8,132
% Owner Occupied	67	13	66	15
Acct. Balance per Member	4,519	2,865	6,057	3,836
Teacher-Pupil Ratio	14.22	1.91	13.47	2.22
Property Wealth per Member ($100k)	10.37	22.13	13.54	20.38

Table 2.2: Comparing school districts that provided board election results to those that are not included in the study. Data from the 2010-2011 school year. Table excludes Milwaukee.

As shown in Table 2.2, there is little difference between districts in and out of the sample for the year 2011 on a range of measures of school district characteristics. The groups have similar levels of student economic disadvantage as measured by eligibility for free and reduced price lunch and

similar proportions of minority students in their schools. Their communities have similar levels of income, owner occupied housing, and levels of education. Teacher salary and fringe benefit rates are also nearly identical, as is the teacher-pupil ratio.[8] The districts also look similar on their partisanship in presidential and gubernatorial elections.

The biggest discrepancy is that sample districts tend to be larger on average than out-of-sample districts in terms of student membership. This is no surprise as the largest Wisconsin school districts publish their election results online, making them among the easiest to obtain. This makes my coverage of the largest Wisconsin school districts perfect, while my coverage of the smallest Wisconsin school districts is lower. The sample districts tend to have slightly smaller account balances or district savings accounts on a per pupil basis which is likely related to their larger size. Finally, sample districts tend to have less property value per member, or taxable assets to raise revenue from, owing to the slightly higher populations of sample districts and the inclusion of all urban areas.[9] All of these differences, however, are within one standard deviation of the mean from one another and do not represent a significant deviation either statistically or substantively.

Exploring the Biggest and Smallest Jurisdictions

Wisconsin, like other states with independent school districts, has a great diversity in school district size and demographics. To illustrate the wide array of communities that school boards in Wisconsin represent, I present Tables 2.3 and 2.4 describing the five smallest and five largest school districts in Wisconsin and how they compare on the variables from Table 2.2. Table 2.3 shows that the smallest school districts in Wisconsin have fewer than

[8] 2011 was selected as an exemplar year, but the pattern holds for all available years from 2007-2012, which comprise the focus of this study.

[9] Property value is measured by equalized property value, known as EQV, which is used in the state school funding formula to determine state equalization aid for school districts.

100 students and fewer than 1,000 residents. Smaller districts also tend to be much higher percentage Republican, less low-income, whiter, and have less disparity between the average teacher salary and the median income in the community. Contrast this with Table 2.4 where the student population is 200 to 300 times larger than the smallest districts, the electorate is much more Democratic, student poverty is higher, and teacher salaries and median incomes are more divergent.

	WASHINGTON	NORWAY J7	HERMAN #22	GENEVA J4	LINN J4
Total Population	707	677	511	673	364
Membership	71	86	88	101	107
% FRL	33.33	24.10	41.18	0.00	50.82
Millrate	3.73	8.39	8.03	3.03	3.72
% Republican	60.2	74.5	85.2	67.9	68.1
% Bachelor+	22.2	15.4	7.7	27.6	20.9
% White Pop.	98.4	97.8	97.2	92.5	96.5
Avg Teach. Sal. ($)	50,959	39,289	52,582	50,767	45,573
Avg Teach. Fringe ($)	28,925	24,551	26,202	28,826	24,193
Median Income ($)	28,500	44,410	34,050	31,860	32,930
% Owner Occupied	42	91	75	62	51
Acct. Balance per Member	7,783	11,864	1,642	9,851	15,398
Teacher-Pupil Ratio	7.30	9.80	13.80	14.90	9.90
Property Wealth per Member ($100k)	44.95	19.78	16.01	91.31	78.45

Table 2.3: Some attributes of Wisconsin's 5 smallest school districts. Data from the 2010-2011 school year.

The larger districts shown in Table 2.4 are representative of the kind of local governments that political scientists have typically studied – large urban centers. This study will include such districts, but also include over 290 smaller jurisdictions which are more representative of the vast majority of school board offices and school board elections across the country (Hess, 2002).

	MADISON METROPOLITAN	KENOSHA	RACINE	GREEN BAY AREA	APPLETON AREA
Total Population	233,901	123,252	139,079	136,231	93,049
Membership	25,347	22,934	21,595	20,516	14,371
% FRL	48.74	47.82	59.43	57.62	37.53
Millrate	11.06	10.60	8.41	9.67	9.09
% Republican	22.4	46.7	49.3	51.1	52.2
% Bachelor+	27.3	16.6	15.2	17.1	22.8
% White Pop.	77.8	79.9	73.0	80.1	88.1
Avg Teach. Sal. ($)	52,193	58,506	53,664	54,406	60,250
Avg Teach. Fringe ($)	22,960	32,238	28,057	27,672	29,821
Median Income ($)	33,070	29,400	29,720	28,520	31,860
% Owner Occupied	46	57	63	58	64
Acct. Balance per Member	2,377	1,947	1,420	2,734	1,484
Teacher-Pupil Ratio	13.80	15.20	15.10	14.70	16.70
Property Wealth per Member ($100k)	9.16	4.17	4.52	4.14	5.04

Table 2.4: Some attributes of Wisconsin's 5 largest school districts. Data from the 2010-2011 school year.

General Elections, Primaries, and Special Elections

General elections for school board members follow the schedule described in Section 2.2. However, for this project, I requested records for *all* elections for school board office including school board member primaries and special elections. School board primaries occur when the number of candidates exceeds twice the number of seats open in a race.[10] Special elections occur either if a vacancy occurs in a specific window in a first class city, or if a candidate is recalled under Wis. Stat §9.10 (1) (a) which states that a petition for recall must be signed by electors equal in number to at least 25% of the votes cast for the office of President of the United States at the last election within the same jurisdiction.[11]

In general, school board elections have fewer primary and special elections than their legislative counterparts. This leads to the biggest question in the school board literature from Chapter 1. For the entire data set from 2002-2012 there are 3,937 general election races, 173 primary election races, and 6 special elections. Table 2.5 shows the number of races of each type for the period between 2002 and 2012. In all, 102 districts reported a primary election. Only 5, districts reported a special election during this period, and 311 reported a general election race.

Since Wisconsin school boards are non-partisan offices, a primary is not a symbol of an ideological challenge to an incumbent or a battle to win the

[10]In Wisconsin first class cities, only Milwaukee is a first class city during the period of study, a primary must be held whenever there are more than two candidates for a race. Wis. Stat §8.11 (2m)

[11]A special election is also required to fill a vacancy for board of school directors in the Milwaukee Public School system (MPS) [Wis. Stat §8.50 (intro.)]. A special election is not required to fill a vacancy for any other school district - instead vacancies are filled by appointment of the remaining members Wis. Stat §17.26 (1). It is unclear if this would hold for school districts because the determination to hold the election is made by school district election official, who may determine that a reliable count of votes cast is not available and thus may defer to a formula specified in statute to determine the number of petitioners required to initiate a recall. Wis. Stat §9.10 (1) (c) to (d). Cited in a Staff Brief by the Joint Legislative Council Special Committee on Election Law Review, October 2004 `http://libcd.law.wisc.edu/~wilc/sb/sb_2004_07.pdf`

	General	Primary	Special
2002	275	12	2
2003	315	21	0
2004	326	17	0
2005	320	20	1
2006	356	12	2
2007	395	15	0
2008	370	13	0
2009	387	14	1
2010	385	16	0
2011	385	12	0
2012	389	21	0

Table 2.5: Number of general, primary, and special school board elections 2002-2012.

votes of strict partisans. Instead, a primary is a signal of a substantial level of candidate activity for a school board race.

Only a single recall election occurred during the 2007 to 2012 period. This was a recall election held on December 29^{th}, 2009 in the Crivitz school district which was triggered after a petition against school board member David Kwiatkowski. Mr. Kwiatkowski resigned his seat that November in the face of the recall petition, but the recall election was still held. This special election raised several important issues that are indicative of the challenge surrounding the study of local elections. First, it was unclear how Wisconsin's recall statutes apply in the case of school boards. The recall statute allows for a recall based on the number of petitioners equal to at least 25% of the vote cast for the office of Governor at the last gubernatorial election held within the same jurisdiction.[12] As discussed above, Wisconsin does not have official records on the number of votes cast for each office by school district jurisdiction and in this case the threshold was calculated by the district administrator to be 668 - which is roughly the average number

[12] http://gab.wi.gov/sites/default/files/publication/64/recall_of_local_elected_officials_manual_2009_06_p_13139.pdf

of voters who voted for school board. An additional difficulty was the overlap between many officials involved in the recall process in this small jurisdiction had overlapping responsibilities and allegations of conflicts of interest arose as a result – leading to appeals to the Wisconsin Governmental Accountability Board.[13]

Contestation: Frequency and Context

The biggest question in the school board literature seems to be – are school board elections contested, and if so, when? While Chapter 3 will explore when candidates emerge for school board elections, this section will provide a descriptive look at how often elections are contested, and how this varies compared to other elected bodies.

Unlike studies of congressional or state legislative races, where the barriers to appearing on the ballot are generally understood. Using the framework of democratic potential, I describe the low legal and political barriers to school board service. To appear on the ballot in the spring election a candidate may not begin circulating nomination papers prior to December 1 in the previous year. The nomination papers must be filed no later than 5 p.m. on the first Tuesday in January preceding the election. (Wis. Stat §8.10 and 8.15). The number of signatures by electors varies in statute, depending on the proximity of the school district to cities. In Milwaukee Public Schools candidates must obtain between 400 to 800 signatures within the jurisdiction they are running to represent (either across the school district, or a specific region of the district). If the school district contains any territory that lies within a second class city, a candidate must obtain between 100 and 200 signatures. School districts that have no territory that lies within a first or second class city are free to determine whether or not require

[13]For a full account of this particular case, see the Peshtigo Times article online `http://www.peshtigotimes.net/?id=12617`

nomination papers (Wis. Stat §120.06 (a)).[14] The statutes specify that these remaining districts can choose to require nomination papers from candidates, but may only require between 20 and 100 signatures of electors [Wis. Stat §8.10 (3) and 8.15 (6)]. In jurisdictions that do not require elector signatures, candidates must file a declaration of candidacy to register for the election with the election clerk in the school district. After meeting these requirements the candidate will appear on the spring ballot as a candidate for school board. Outside of first and second class cities, running for school board presents very few barriers to entry for potential candidates. Even within first and second class cities, candidates face lower formal barriers than candidates for legislative or executive office. Coupled with the low cost of school board campaigns, most often less than $1,000, the campaign presents very little impediment toward serving on a school board (Hess and Meeks, 2011). If we observe low levels of candidate participation in school board races, then, we must look to explanations other than difficulty in nomination or campaign costs.

To explore candidate participation, I consider the pool of school board races between 2002 and 2012 for which records were successfully obtained. Of the 4,116, I focus on the 3,937 general elections. Of these general election races, 2,867 feature two or more candidates who both were on the ballot and garnered more than 20 votes.[15] However, it is important to note that in many school districts voters select more than one candidate for each seat and elect the top N vote recipients to the board. A better measure of contestation is to see how many races featured more candidates than

[14]Milwaukee is the only first class city that meets all requirements in Wis. Stat §62.05 (I). There are currently sixteen second class cities in Wisconsin, and two more which qualify but have not switched status yet. The second class cities are Madison, Green Bay, Kenosha, Racine, Appleton, Waukesha, Oshkosh, Eau Claire, Janesville, West Allis, La Crosse, Sheboygan, Wauwatosa, Fond du Lac, Brookfield, and Superior.

[15]It is not uncommon in school board races for a write-in candidate to garner well over 20 votes. Thus, candidates not appearing on the ballot but receiving over 20 votes are included in the dataset where their names were reported by the jurisdictions. Candidates under 20 votes are collapsed into a category of scatter votes.

winners - 1,861 races featured this, or 47.3% of all races.

Next, I look at how often incumbents stand for election and how often they are defeated. In order to code incumbency, two data sources were used. First, if a candidate appeared in consecutive races and was coded as a winner in the prior race, they are coded as an incumbent. However, for races from the beginning of the dataset, incumbency was coded using a master roster of known school board members provided by the Wisconsin Department of Public Instruction to the author.[16] This collection indicates name, school district, and year of service for school board members in Wisconsin. Candidates appearing on the ballot in the early years of a school district's election records were cross referenced against this list to infer their incumbency status.[17]

Actualized democracy requires voters to have candidates to choose among. In order to assess this I first identify the number of races where there are more candidates on the ballot than winners. This is a nominal measure of the level of choice that voters are presented with. 47.3% of races feature at least one more candidate than the number of winners. However, while this represents the number of candidates appearing on the ballot, it does not provide an indication of the seriousness of the challenge. Merely having multiple candidates is not the same as having a contested election. Political scientists focus on serious candidates and quality challengers. Measuring challenger quality in elections is difficult, but particularly difficult in non-partisan off-cycle elections like school boards where measures of features of individual candidates are difficult to gather or compare across jurisdictions (Oliver et al., 2012). In lieu of a better measure, I restrict the sample only to candidates that garner at least 20 votes – which represents 1.34% of the total votes cast in the median school board race – other studies have used cutoffs of 3% or even 5%. This represents arguably a conservative cutoff,

[16]This collection is not required or official, but is maintained by the DPI in partnership with the Wisconsin Association of School Boards.

[17]Details about this procedure can be found in the Appendix B

because in some cases a write-in candidate may garner 20 votes and in larger jurisdictions 20 votes are easier to come by than in smaller jurisdictions. Once I filter out all cases where a candidate received fewer than 20 votes, the level of contestation is 46.8% of general election races.[18]

Another important type of contestation is how often incumbents are challenged. Incumbent defeat is important to normative conceptions of the functioning of democracy. In general elections, 82.9% of all races featured at least one incumbent. However, a more important figure is identifying how many races featured at least one challenger against an incumbent. 47.7% of races featured incumbents facing challengers that received more than 20 votes.[19]

Table 2.6 shows the patterns of contestation in Wisconsin elections for the period from 2002-2012 for the approximately 400 races in each year. Two trends that appear are the decrease in uncontested incumbents running and contested open seats. Instead, there has been an increase in races featuring an open and uncontested seat. Chapter 3 will investigate this.

In comparison to these school board races, legislative races at both the state and federal level have much higher rates of contestation. In 2012, 10 out of 435 (2.3%) U.S. House races were uncontested, and none of the 33 U.S. Senate races were uncontested. While these races are considerably more attractive to candidates due to the career and financial opportunities they represent, they are also more difficult to qualify for and labor intensive to compete in. State legislative races also exhibit high levels of contestation. Taking Wisconsin as an example, in 2012 only 26 of 99 seats (26.3%) in the Wisconsin Assembly were uncontested, and only 8 out of 33 seats (24.2%) in the Wisconsin Senate were uncontested in 2012 and 2010 combined.[20]

[18]In Wisconsin school board races candidates may appear on the ballot but not garner even 20 votes. Other times, local election records did not distinguish between candidates who declared officially and any candidate who received votes.

[19]Some evidence to support the selection of 20 votes is that very few candidates that appeared on the ballot received fewer than 20 votes – even in the smallest jurisdictions.

[20]All results provided by Ballotpedia.

	Incumbent Contested	Incumbent Uncontested	Open Contested	Open Uncontested
2002	41.1%	9.82%	8.36%	40.7%
2003	44.4%	7.3%	8.57%	39.7%
2004	45.7%	7.98%	6.75%	39.6%
2005	43.4%	8.12%	10.6%	37.8%
2006	39.3%	7.87%	7.58%	45.2%
2007	38.2%	9.87%	9.87%	42%
2008	31.6%	11.1%	8.65%	48.6%
2009	34.9%	9.82%	8.01%	47.3%
2010	41.3%	7.79%	4.94%	46%
2011	39.5%	9.09%	6.23%	45.2%
2012	38.8%	8.74%	7.71%	44.7%

Table 2.6: Races featuring a challenge to an incumbent 2002-2012.

Another comparison would be to compare contestation of partisan primaries in legislative districts. Partisan primaries are more apt because partisan general elections tend to include a partisan challenger. Primary races are more comparable to school board races where ideological differences are not the main concern. In the 2014 U.S. House midterm primaries, only 314 of the 795 possible major party primaries (39.5%) were contested.[21] This figure is on par with the level of contestation seen in school board elections in Table 2.6.

The similar levels of contestation between partisan primaries and school board races serves as an interesting background to explore why boards are contested so rarely. The barrier to entry in a school board race is quite low when compared to a partisan primary for a major party. However, relative to legislative office, candidates have seemingly many fewer reasons to run for school board – a narrow issue portfolio, low media exposure, and little to no money or fame (Hess, 2002; Hess and Meeks, 2011). Despite this, both a primary race and a school board race are characterized by smaller

[21]Ballotpedia. `http://ballotpedia.org/National_contested_primary_average_during_the_2014_U.S._congressional_elections`

electorates, lower information available to voters, and an off-cycle election seat. Actualized democracy appears to fall short of the democratic potential, but perhaps not as far short as detractors of school boards may believe.

Close Races

In Table 2.6 I show that school board elections are contested more often than the literature from Chapter 1 would lead one to believe. However, Table 2.6 represents an overestimate of contestation by using a generous definition of a contest – the presence of a nominal challenge. As with other studies of electoral competitiveness, it is important to consider not just the presence of alternative candidates, but of serious challenges. Ideally, this would mean developing a priori judgments of the fitness of individual candidates for office and polling information on the preferences of voters ahead of the campaign. Such measures as unavailable in the current study. Instead, I turn to measures of the margin of victory as a proxy for pre-election voter preferences.

Chapter 3 will explore this measurement in further depth, but here I pause to review some possible measures of electoral margin in cases of non-partisan multi-member districts. For an analysis of the intensity of competitiveness in school board races, I turn my attention to races where voters have a choice. I restrict the sample to the 47.3% of contested general election races that feature multiple candidates on the ballot who garner more than 20 votes. Figure 2.4 shows the distribution of school board races by the number of winners and the number of candidates. From this figure it is clear that a plurality of races feature 1 or 2 winners and only 1 or 2 candidates, however, the method for calculating vote margin has to be robust to a wide array of combinations of candidates receiving votes and number of winners for the seat. Table 2.7 describes the ways of dealing with this in calculating the margin of victory in school board races.

In the comparative politics literature, competitiveness if often described

Table 2.7: Methods of Calculating Vote Margin

Name	**Description**	**Formula**	**Citation**
Vote Margin	Minimum votes needed for a losing candidate to win	$min(votes_{winner}) - max(votes_{loser})$	Riker and Ordeshook (1968); Downs (1957a); Cox (1988)
Hare Quota Difference	Average distance of winners from minimum winning vote count	$\sum \frac{votes_{iw}}{votes_{total}} - \frac{1}{n_{candidates}} n_{winners}$	Jesse (1999)
Psuedo Two Candidate Races	Combine candidates and challengers into plurality races	No formula	Niemi et al. (1991)
Blais-Lago Quotient	Adjustment of vote margin to normalize across district types	$100 \times \frac{\frac{VoteMargin}{TotalVotes}}{Seats}$	Blais and Lago (2009)

as the vote differential between the last winner and the first loser. That is, the number of votes necessary to change the proportion of seats awarded to parties in the district (Blais and Lago, 2009). Wisconsin school board seats are non-partisan so instead I focus on the number of votes between the last winner and the first loser – the number of votes necessary to change who is on the board. This method also focuses on the rational choice perspective that voters evaluate electoral closeness by the pure number of votes separating candidates – the probability of their vote changing the outcome (Riker and Ordeshook, 1968; Downs, 1957a).

The vote margin metric has two disadvantages. First, it only measures the competitiveness of the most competitive part of a multimember district. The rest of the seats in such a district may be very lopsided. In cases where party membership of the candidates is known this can still be meaningful since if the competitive division is between two candidates from different

parties, the substantive representation of the district will change and voters may realize a shift in district ideology toward their own ideal point by casting votes. In non-partisan elections like those of school boards, it is difficult to know *a priori* if an ideological difference exists between the last winner and first loser in a seat, and thus whether a narrow victory is meaningful. A second problem with the vote margin metric is more practical. Vote margin functions well when comparing districts in which the number of voters is relatively similar, such as U.S. House seats. However, in cases where the voting population can vary by two orders of magnitude or more, using the raw vote margin can prove distorting (Cox, 1988).

To adjust for this there are three methods. The first is to measure the mean distance of all winning candidates from the minimum necessary to secure a seat, also known as the Hare Quota.[22] This measure better captures the competitiveness of the entire race because multiple candidate races where some of the victors win in blowouts will be less competitive than if they were measured solely on the closest single match up within their district. This method also has the benefit of being more normalized across disparate electorate sizes by differencing out the required plurality from the measure, thereby adjusting for differential electorate size.

The second option is to construct psuedo races of two candidates each from within the multi-member districts. This is the approach taken by Niemi et al. (1991) to evaluate the competitiveness of multimember districts in US state legislative elections. This is an elegant approach because it appears to best reflect the decision process of individual voters – voters who split their ticket between parties are likely doing so based on their evaluation of an individual candidate. This approach was possible because of the partisan nature of these seats, allowing logical contests to be simulated from the

[22]The Hare Quota is simply the quotient $\frac{TotalVotes}{Seats}$ For simplicity I use the Hare Quota, but other measures that are similar include the Droop Quota and the Hagenbach-Bischoff Quota. While Wisconsin school board elections do not use the Hare Quota formally to determine representation, because voters may vote once for each seat, it properly represents the plurality necessary to win a seat on boards across the state.

multimember results pitting Democrats against Republicans. No formal partisan or ideological categorization is available in school board races to make this approach possible, though it could be argued that local elections are best characterized as incumbents versus challengers. The incumbent challenger divide will not work for two reasons. First, not all races feature an incumbent and a challenger as we have seen above. In cases where seats are open or only one challenger and three incumbents are running, it is difficult to see how to apply the psuedo-district model. Second, challenger and incumbent status is not clear to voters on the ballot – not all ballots indicate incumbent status and voters are likely often unaware of which candidates are up for re-election. In this low-information environment then, the simulated district approach does not appear to accurately model the decision of individual voters.

The final method is the Blais-Lago quotient. This metric has the advantage of better adjusting the vote margin calculation for both the size of the electorate and the size of the election slate, thus making meaningful comparisons across diverse districts possible. While this method still focuses on the most competitive seat in the district, it better enables comparisons across districts. The authors describe the measure as: "the minimal number of additional votes required under existing rules, for any party to win one additional seat" (Blais and Lago, 2009). A downside of the Blais-Lago quotient is that in non-partisan elections it must be interpreted with caution as the last winner and first loser may have little to no ideological divide. That is, for voters, switching the last winner with the first loser would not meaningfully affect policy, and thus the competition was not between these two candidates and must either be with a third candidate further down the vote tabulation, or no competition exists at all because all candidates broadly represent the same interests. While this makes the ideological consequences of changing winners unclear, it still represents the best way to comparatively measure the closeness of the election outcome across districts with differing

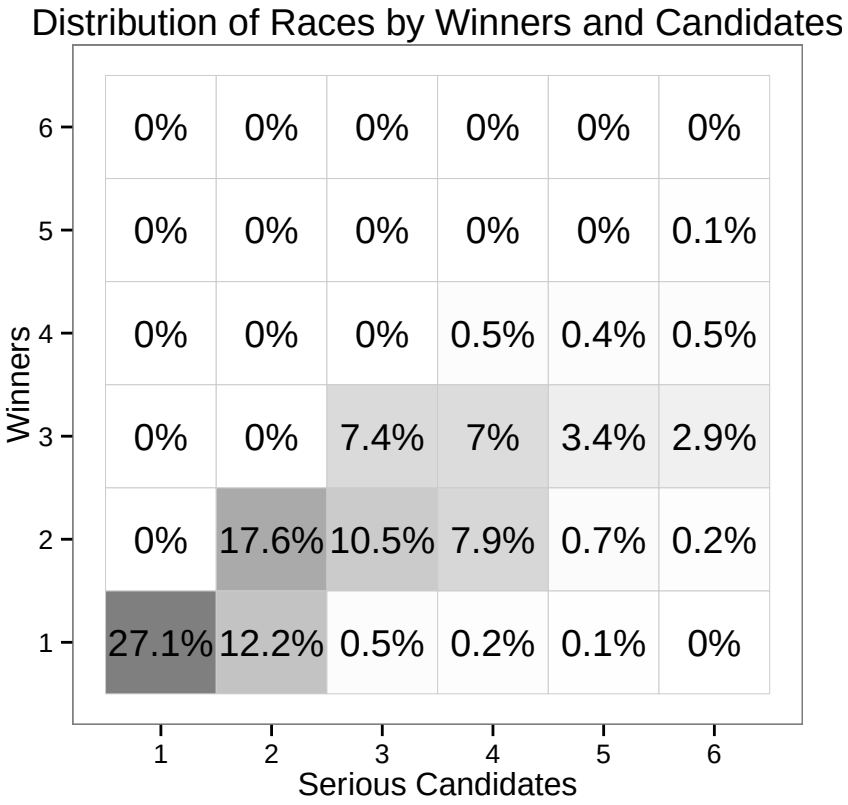


Figure 2.4: Distribution of School Board Races by Candidates and Winners.

seats. Thus, the Blais-Lago Quotient can be interpreted as the minimum number of votes necessary to adjust the outcome divided by the number of voters.

Figures 2.5 and 2.6 show the distribution of the Blais-Lago Quotient and the Hare Quota distance for contested school board races respectively. They show that school board races, when they are contested, tend to be fairly competitive. Blais and Lago (2009) find that national legislative districts in four countries had average quotients ranging from 16.77 in Portugal to 26.88 in Spain. All Wisconsin school board elections in the study have a

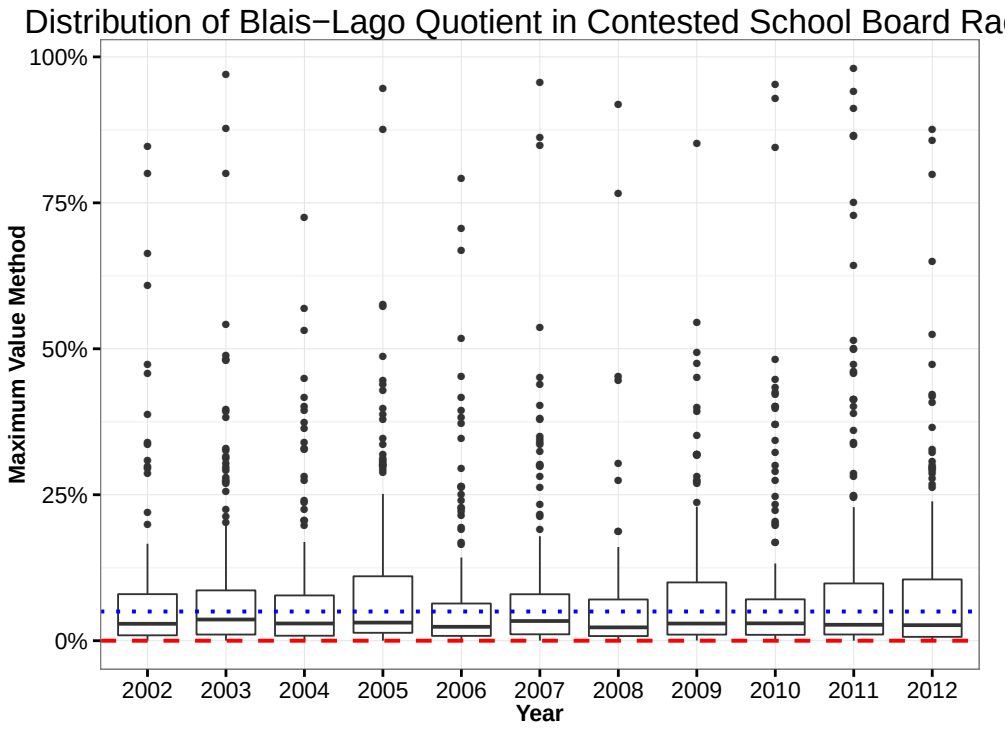


Figure 2.5: Win margin in contested school board elections as measured by the Blais-Lago Quotient.

quotient of 36.07. However, the 47.3% of races that were contested featured a quotient of 8.58. This is substantially more competitive, and Figure 2.6 shows why this might be the case. The interquartile range of the Hare Quota distance for contested school board races is roughly 25 to 200 in a given year. This means that the average winner in these school board race was between 25 and 200 voters shifting their ballots away from losing their seat. School board races are so competitive on these measures, in part, because of the low number of total votes cast.

The Blais-Lago quotient is the best measure of competitiveness. Not only does it generalize across the diverse election types in Wisconsin, but it also captures intuitively the concept of democratic potential – many school

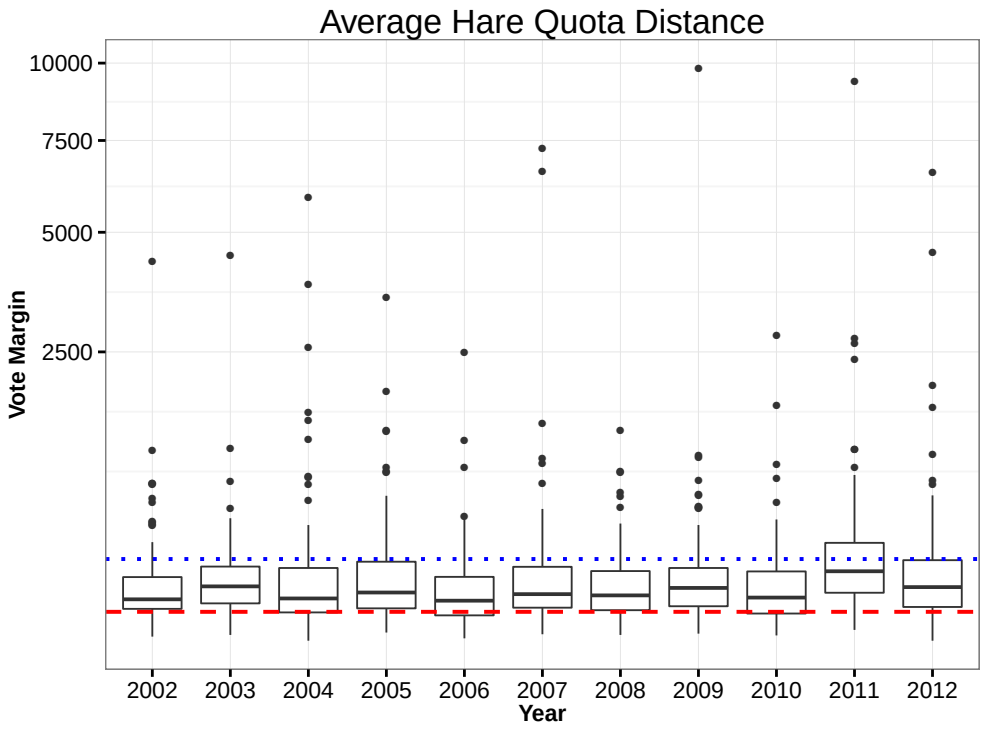


Figure 2.6: Win margin in contested school board elections as measured by the Hare Quota distance.

board races require candidates to convince only a handful of voters to change their minds.

Incumbent Defeat

As we saw in Chapter 1, incumbent defeat is an important concept in the school board literature (Alsbury, 2003; Grissom, 2010). Incumbent defeat has been shown to be difficult to measure in the school board election literature due to a lack of available records; most prior studies have relied instead on surveys of current and former school board members. Using self-reports and lists of current and past members of school board members does not provide a reliable way to distinguish between political and apolitical forms of turnover (Alsbury, 2003). Using incumbent electoral defeat is not a perfect measure, because it does not capture cases where an incumbent finds it not worth it to run for office or does not seek reelection for political reasons. However, it does allow me to identify political turnover consistently across jurisdictions across a decade of elections – a first in the literature.

Figure 2.7 shows the percentage of districts with school board races each year where an incumbent was defeated. This shows a consistent pattern of regular incumbent defeat on school boards, suggesting the incumbency advantage in school boards is much weaker than in other elections. Oliver and Ha (2007) shows evidence from suburban mayoral elections that voters defeat incumbents based on a retrospective evaluation of their stewardship of the community, likability, and issue agreement. Unlike national election voters, however, Oliver and Ha (2007) shows that local election voters are much more engaged in and informed about local issues. This, coupled with the low-cost of entry into a school board campaign, may explain why incumbent defeat is more frequent. This will be explored further in Chapter 3.

Voter Turnout

The spring elections in Wisconsin are decidedly low turnout affairs. Since 2000 Wisconsin has had a voting age population between 4 and 4.35 million.

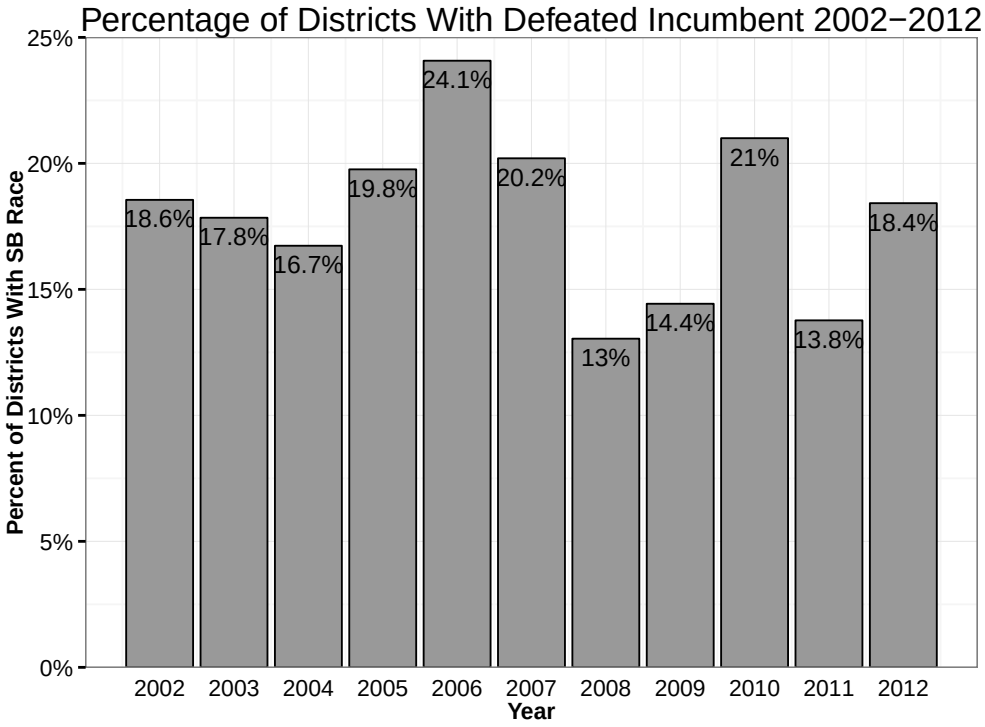


Figure 2.7: Incumbent Defeat by Year by District

However, in this time period the spring election has seen around 800,000 votes cast. 2011 saw a record breaking peak of 1.5 million.[23] Teixeira (1992) suggests a rule of thumb that off-cycle partisan elections have a fifteen percentage point drop from the presidential election and non-partisan local elections experience a further fifteen point drop. This would mean Wisconsin should see 55% turnout in gubernatorial races and 40% turnout in local elections. Numbers on typical school board election turnout are not available in the literature, so it is difficult to assess the degree Wisconsin's off-cycle races differ from other races nationally. Perhaps this is due tot eh difficulty

[23]Statistics from a Wisconsin Government Accountability Board report, available online: `http://gab.wi.gov/sites/default/files/page/non_partisan_turnout_2000_2013_pdf_15069.pdf`

in assessing turnout in special jurisdiction elections. However, turnout has typically been around 18% in Wisconsin spring elections. Unsurprisingly then, school board elections are also low turnout affairs. By comparison, in the November partisan general election voter turnout is around 70% in the last three presidential elections, and around 48% in the last three gubernatorial elections.[24]

In this section I will describe the approaches to estimating turnout in Wisconsin school board elections and the comparison of school board turnout to other electoral participation. A first concern with estimating turnout is finding the proper denominator. For the analysis here I elect to use Voting Age Population (VAP) as the measure for the denominator of the voter turnout calculation instead of registered or eligible voters. VAP is the only measure available both at a unit smaller than a school district and at the statewide level that can allow for consistent comparisons between the two over the entire period of study. Unfortunately, the state of Wisconsin does not maintain county, municipality, or ward level registered voter or eligible voter counts historically.

To determine the VAP of the school district in Wisconsin, I employ the finest resolution estimate of voting age population available – VAP estimates by minor civil division (MCD) produced by the Wisconsin Department of Administration. [25] However, MCDs are not perfectly coterminous with school districts – school districts are contiguous only at the ward level where VAP estimates are not available. In order to estimate the proportion of

[24]Statistics from a Wisconsin Government Accountability Board report, available online: `http://gab.wi.gov/sites/default/files/page/partisan_voter_turnout_statistics_1948_2012_pdf_20396.pdf`

[25]Minor civil division is a term used by the US Census Bureau to denote the primary governmental and/or administrative divisions within a county. In Wisconsin these include cities, towns, villages and unincorporated areas. Statistics available online: `http://gab.wi.gov/elections-voting/results`. Statistics for Wisconsin Minor Civil Divisions are maintained by the Department of Administration Demographic Services Center: `http://www.doa.state.wi.us/section_detail.asp?linkcatid=11&linkid=64&locid=9`

each MCD's VAP that belongs to a given school district, I use property tax records provided by the Wisconsin Department of Revenue (DOR). These records annually report for each school district every MCD that is located entirely or partially within the boundaries of the school district, as well as the share of property wealth (as measured by equalized values, or EQV), for that MCD that the school district is authorized to levy tax for. For each year, the share of every MCD's EQV that was allocated to each school district was calculated. I use this share to prorate the population of each MCD both for the purposes of calculating the voting age population, and for calculating votes cast for and against candidates in statewide elections. An additional adjustment is made to interpolate the VAP for school districts to correct for adjustments in the creation and destruction of MCDs year to year which can influence the VAP estimates for a school district.[26]

I verify how accurate this estimation procedure is by comparing the official number of votes cast and voter turnout statewide to the statewide estimates derived by rebuilding voter data at the district level.

Year	Official Total Votes	Offical VAP	Offical Turnout	Estimated Total Votes	Estimated VAP	Estimated Turnout
2002	1,785,710	4,060,973	44%	1,770,028	4,060,924	43.6%
2004	3,016,288	4,118,621	72.9%	2,961,919	4,079,302	71.9%
2006	2,166,671	4,260,038	50.9%	2,159,033	4,241,864	50.3%
2008	2,996,869	4,330,695	69.2%	2,981,638	4,321,981	68.7%
2010	2,171,331	4,372,347	49.7%	2,152,344	4,370,268	49.2%
2012	3,071,434	4,378,741	70.1%	3,053,558	4,375,320	69.7%

Table 2.8: Comparing estimates of voter turnout derived from MCD estimates to official GAB turnout records.

As shown in Table 2.8, the estimation procedure accurately reproduces the statewide official turnout estimates. Thus the procedure used generates

[26] A sensitivity check was done to determine if weighting by residential property values instead of all property value changed the estimates, but it did not. For more details see Appendix A

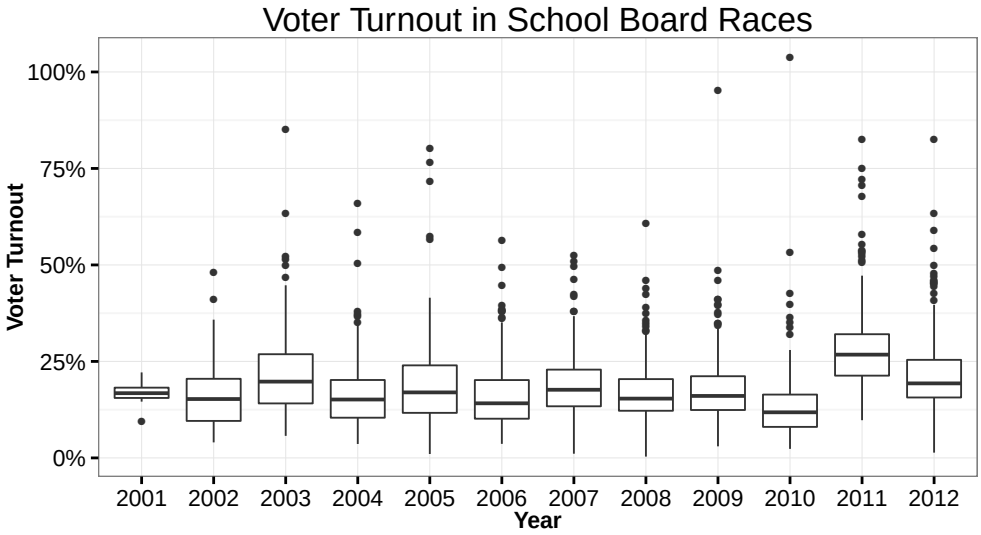


Figure 2.8: Turnout for district wide school board races.

reasonable estimates of the VAP at the school district level.[27] This takes care of the denominator of the turnout equation.

The numerator, the number of voters casting votes for school board, presents a second set of challenges. I begin by collecting election returns from as many school districts as possible in Wisconsin.[28] However, unlike a top ticket race such as a presidential or gubernatorial race, the election rules vary across school district jurisdictions. In some districts, voters may have multiple votes to cast in the election and in each race – eliminating the ability to judge voter turnout based on the number of votes cast. In other districts, only a subsection of the electorate may be eligible to vote for a school district office due to apportionment within the district.

There is one set of cases for which estimating voter turnout is easy - the case where a school board seat is chosen district wide. As shown in Table 2.9, this is the vast majority of Wisconsin school districts. To determine if

[27]Doing this verification at the county level would provide another robustness check.
[28]For details on the collection procedure see Appendix A

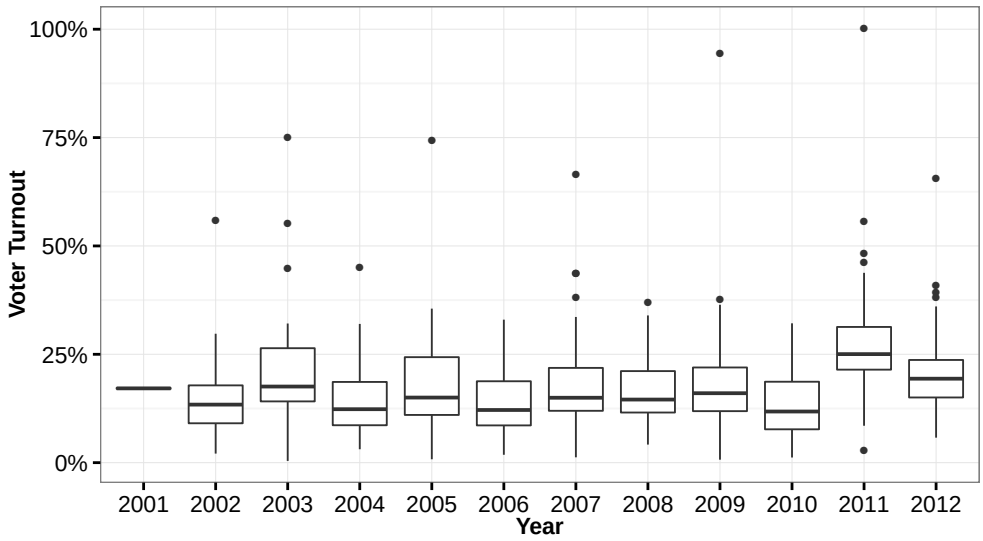


Figure 2.9: Turnout for non-district wide school board races.

a seat was apportioned or district wide, I coded the seats for labels such as “Area", “District", “Region", or “Village" as opposed to “At-Large". In these district wide races, the number of voters is simply the number of votes cast divided by the number of seats elected. As district wide is the default in state law, in the absence of evidence, I assume the race is district wide. Figure 2.8 shows that district wide school board races feature an average turnout below 25%.

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Districtwide Races	203	223	212	228	254	250	257	254	263	266
Districts with Districtwide	200	215	205	224	248	244	249	249	255	257
All Board Races	336	343	341	370	410	383	402	401	397	410
Total Districts	242	256	255	271	298	299	299	300	305	305
Districts without Districtwide	42	41	50	47	50	55	50	51	50	48
Non-districwide Races	133	120	129	142	156	133	145	147	134	144

Table 2.9: Comparing sample size for district wide vs. apportioned school board races.

Estimating turnout in the roughly 50 districts annually, as shown in Table 2.9, which do not have a district wide school board race is a different matter. Figure 2.9 shows the pattern for non-district wide races appears very similar under the estimation method of collapsing all races in a district into one race and dividing the votes counted by the number of winners. This still represents an underestimate, as districts with apportioned seats do not always elect all seats within district in the same election cycle. However, the underestimate represents the best possible estimate and can be partially controlled for in subsequent analyses by including indicator variables for boards with elections that are not district wide.

Putting these two together, we can estimate overall voter turnout in school board races by school district, over time. First, I take the maximum number of voters in a district wide race, where available. If no such race is present in a given district in a given year, I then use the adjusted district wide turnout based on the apportioned seats available. If both races are present, only a district wide race is used.

Figure 2.10 shows the final estimate of the distribution of school board voter turnout among reporting districts across the years of data available. Both the median and the distribution of turnout by school district remains consistent from 2002-2010. However, 2011 and 2012 exhibit a sharp spike upward in voter turnout. These elections represent the first two spring elections after the passage of Act 10 and the election of Governor Scott Walker.

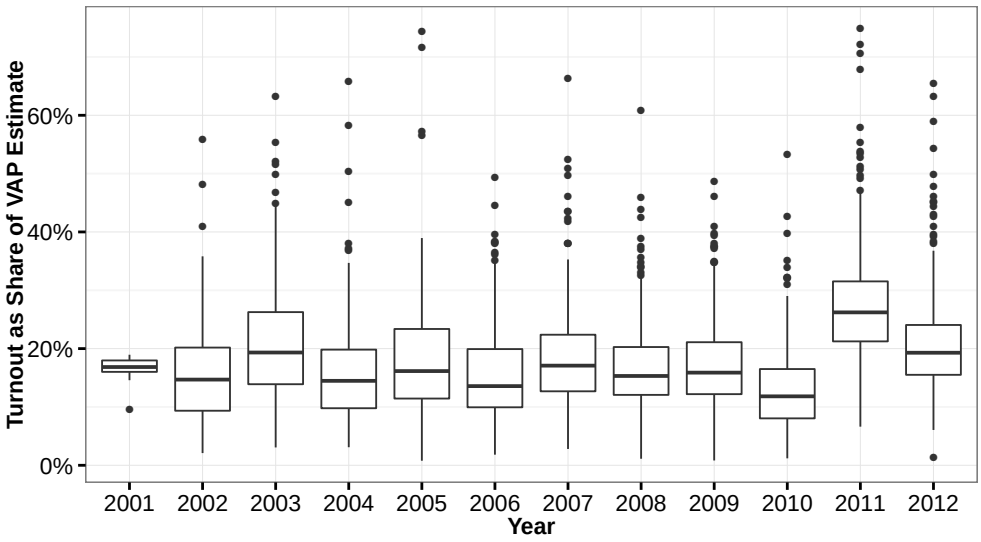


Figure 2.10: Turnout for school board races by school district.

Rolloff

School board races are far down the ballot from other races that are occurring during the spring non-partisan elections cycle in Wisconsin and the spring of 2011 was marked by a highly contested statewide race for the Supreme Court. The election was seen as a referendum on the recent passage of Act 10 and Governor Scott Walker's first year in office and was characterized by unprecedented turnout. The influence of the strength or weakness of the top ticket race confounds our understanding of voter turnout in school board elections. One way to approach this is to consider studying the dropoff in votes cast from the statewide top of the ticket race to the school board races further down the ballot – a phenomenon known as voter rolloff (Wattenberg et al., 2000). For the 2007-2012 period, I estimate the top ticket turnout in each school district. Importantly, in this period, several different office types were the top ticket due to the pattern of statewide office terms in Wisconsin. These consist of primarily state supreme court races, but as there seven justices elected to ten-year terms, the state supreme court does not have an election every spring:

- 2007 - State Supreme Court Race
- 2008 - State Supreme Court Race and presidential primary
- 2009 - State Superintendent of Public Instruction
- 2010 - None. Wisconsin Appeals Courts (3 of 4)
- 2011 - State Supreme Court Race
- 2012 - Presidential Preference Primary

If top ticket races drive voter turnout, then examining the degree to which school board turnout leads or lags top ticket races may provide some insight into the political activity in school board races independent of such races. Voter rolloff after the top ticket arises for a number of reasons including ballot design, lack of information, and the complexity of choices facing the voter in a given election (Wattenberg et al., 2000). In the non-partisan

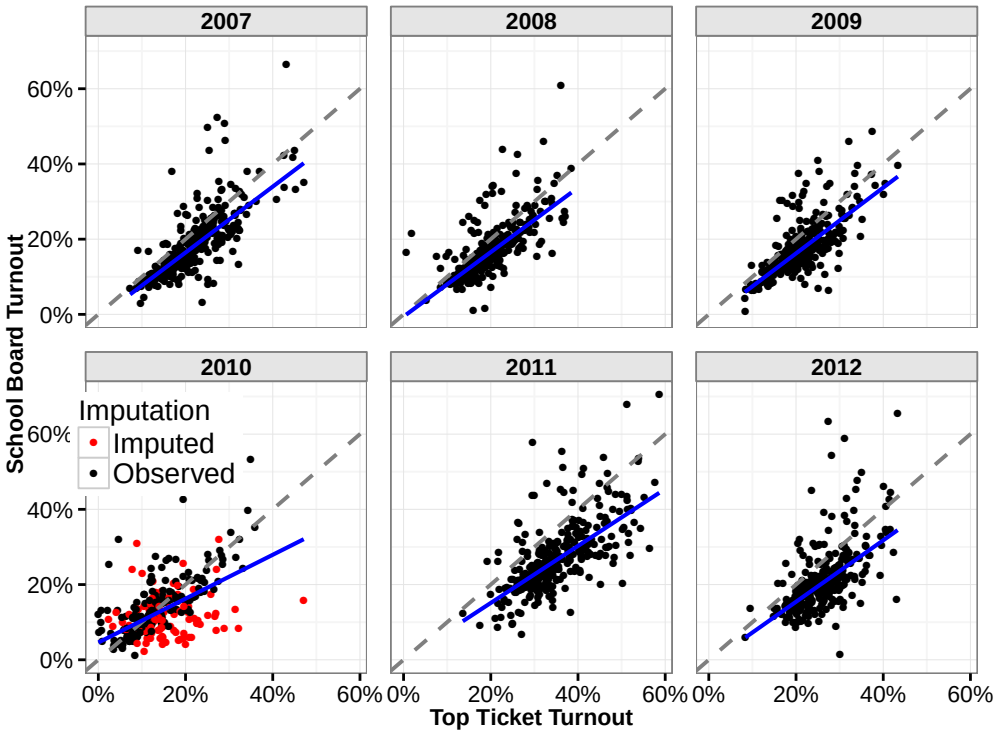


Figure 2.11: Comparing School Board and Spring Top Ticket Turnout

context of judicial elections, there is evidence that rolloff is lessened in competitive races where information is increased (Streb et al., 2009).

To estimate rolloff, I apply the same method described in Section 2.3 to estimate school district level voter turnout in top ticket races. This method poses a few different complications when applied to the spring election. First, spring election records provided by the Wisconsin GAB use inconsistent reporting units depending on the top ticket of the race. This means that first the reporting units must be aggregated into MCDs correctly, before MCDs can be assigned to school districts. Second, in the spring of 2010 there was no statewide top ticket – instead 66.5% of jurisdictions had a top ticket race of Wisconsin Appeals Court judges. The other jurisdictions

had only local elections on the ballot. To avoid losing these observations, I impute the 2010 estimated turnout as if the top ticket was a state supreme court race or election for state superintendent.[29] I expect the majority of Wisconsin districts to exhibit rolloff in school board elections relative to these top ticket races.

Figure 2.11 shows the relationship between top ticket turnout and school board turnout. Imputed cases are shown in red to make them distinct. The dashed line represents a 1:1 relationship between turnout for the top ticket on the X axis and turnout for the school board race(s) on the Y axis. The solid line represents the line of best fit, which has a slope and intercept less than the dashed line in all years except for in the 2010 year where the top ticket turnout was estimated. Interestingly, rolloff is fairly small in all years, except for in 2011 where top ticket turnout was substantially elevated.

This relationship will be explored further in subsequent chapters. Table 2.10 shows the annual trends in Wisconsin from 2007 through 2012 for districts where school board races received more or fewer votes than the top ticket candidate. Overvote occurs more than we might expect. However, school districts are very small jurisdictions and across all of them in a given year, it is not impossible to believe that voters may be interested in local candidates, but relatively uninterested in the non-partisan statewide race at the top of the ticket.

Some caveats include that school districts where there is no district wide seat elected may have multiple jurisdictions counting in their turnout numbers. Of the 309 elections where this occurs, only 14.2% of these elections were in jurisdictions where the school board seat was not district wide. This over vote is also fairly consistent across the years.

[29]Imputation was done using model averaging of three separate k-nearest-neighbor models using votes cast in other spring elections as the primary predictors.

Year	Impute?	Districts Over-voting	Districts Undervot-ing	Avg.SB Turnout	Avg.Top Turnout	% Dis-tricts Under-vote	% Dis-tricts Overvote
2007	Observed	41	254	18.7%	21.9%	86.1%	13.9%
2008	Observed	47	249	17%	19.7%	84.1%	15.9%
2009	Observed	43	254	17.5%	20.8%	85.5%	14.5%
2010	Imputed	26	69	11.5%	15.9%	72.6%	27.4%
2010	Observed	84	117	14.1%	13.5%	58.2%	41.8%
2011	Observed	27	272	27.5%	35.3%	91%	9.03%
2012	Observed	41	261	21.2%	25.9%	86.4%	13.6%

Table 2.10: Overvote and Undervote in Spring Elections.

2.4 Conclusion

Wisconsin is a valuable case for the study of school board elections. The statewide nature of this data collection allows for the exploration of the level of contestation and turnout in school board elections across a variety of contexts and within the same state political system.

School boards, despite their lower ballot entry and campaign costs, are contested less than half the time. School board seats are less prestigious, carry little financial benefit for members, and often require late evening meetings – making them less attractive to potential candidates. School boards are also not shown to be a stepping stone to further political office, reducing their attractiveness to potential political candidates. Despite this, the democratic potential for school boards remain high – school board may be the most obtainable elected office in the U.S. democracy today.

Chapter 3 will seek to explore further the predictors of candidates emerging for office by exploring what local and state level factors may explain the emergence of a challenger to a school board election. Theory suggests that events like failed school bond referenda, turnover in district leadership, or fiscal pressure may drive local challenges. Theory also suggests that changing the powers of the school board, partisan identification of school board candidates, or political polarization may drive school board challenges to emerge statewide. Evidence of these state and local factors will be evaluated to test whether theories of candidate emergence apply to school boards.

With voters, the democratic potential is much lower. Voters vote less in school board elections as well. In Wisconsin school board elections are held during the non-partisan spring elections, which have much lower turnout than partisan fall elections. In general, school board voter turnout hovers around 20% in school districts, but has plenty of variability. Voter turnout should be depressed in school board elections because of both their non-partisan nature and their lower probability of being contested. School board

voters also face an information deficit with much less information about the policy positions of candidates, incumbents, or the school district as a whole.

Chapter 4 will further explore the puzzle of low school board turnout. I test multiple theories of school board turnout in the new domain of local school board elections and evaluate how well they explain variability within and between school board elections.

Chapter 5 will evaluate the effect of statewide policy shocks like the passage of Act 10 and budget cuts. This will represent the fullest test of dissatisfaction theory to date and the first time exogenous policy shocks are leveraged to explore the causal relationship between changes in policy and voter turnout.

In Chapter 6 I take up a final question of whether or not the results of school board elections matter. I investigate if contestation for school board seats or incumbent defeat have impacts on school district policy. I look for impact of school board elections on student outcomes, district leadership, and district finances.

3 WHY RUN FOR SCHOOL BOARD?

3.1 Introduction

By all accounts being a school board member is a thankless job. School board meetings frequently occur in the evening to allow parents and community members to participate, and very few school board members are compensated for their work (Grissom, 2007; Hess, 2002). Contrary to popular conceptions, the role of the school board as a stepping stone to future elected office is overstated (Hess, 2002; Hess and Meeks, 2011). In fact, the dissatisfaction incumbents have with the position has been a confounding factor in the literature; in comparison to state or national offices, non-political turnover due to retirement from the seat is the most common form of exit (Alsbury, 2003).

More so than other political offices, the elected school board begs the question: why run? Political scientists have grappled with this question across contexts for decades, and a number of explanations have been put forth. This chapter will review these theories and evaluate their explanatory power for school boards. With a unique data set that includes the political histories of over 300 Wisconsin school districts from 2002-2012 I will investigate empirical support for these theories. In particular, the panel nature of the data set allows me to test competing claims about the role that salient policy and political factors play in the emergence of candidates for school boards. Finally, this chapter will consider the importance of candidate emergence in a full model of school district political activity outlined in Figure 1.4.

3.2 Theories of Candidate Emergence

I organize the political science literature around candidate emergence into three broad schools of thought.

- Strategic Candidates
- Political Individuals
- Policy Preferences

In addition to these broad theoretical treatments of candidacy, I review the sparse literature that has focused explicitly on local elections such as municipal, county, and school board elections. Before beginning, it is important to consider the features of local elections and offices that might set them apart from state and national legislative office.

Strategic Timing of Candidate Entry

Simply put, the strategic view of candidate entry argues that candidates emerge for office when they perceive victory to be most likely (Schlesinger, 1966). This includes avoiding running against incumbents or choosing to run against incumbents when they are weak or when redistricting has altered the political conditions in the district (Black, 1972). However, candidates are not merely strategic within their individual race, but are also sensitive to macro-level partisan trends. Jacobson and Kernell (1983)'s strategic timing theory argues that high-quality challengers emerge when favorable electoral conditions emerge for their party. For U.S. House election, strategic timing has been found to increase the likelihood of a win and increases the vote-share of such candidates (Jacobson, 1989). This foundational finding matches well with the evidence that national legislative contests do appear to become more heated with higher quality challengers emerging when incumbents appear weak, districts are redrawn, or national trends appear in the favor of the challenger's party.

The strategic timing theory has tended to ignore that political amateurs also behave in this manner (Canon, 1993, 1990). By only defining a high-quality challenger as a prior office holder, the strategic timing and rational entry models have misrepresented the decision calculus made by candidates

when deciding to run for office. Lazarus (2008) enters into this debate by explicitly testing the differences between amateurs and high quality candidates, while also focusing on the differences between the decision to challenge in a primary and in a general election. This study finds that the correlates of candidate entry are different for experienced challengers and political amateurs. Unfortunately, the problem of how to operationalize experience for challengers looms large in this literature, and even larger when seeking to generalize the strategic candidate model to lower levels of government, where candidates are likely to be beginning their political career. Certainly, defining candidate quality as holding prior office creates a very different and much smaller group of candidates than in higher level state and federal offices.[1]

Though strategic timing has empirical support from U.S. Congressional elections, important questions remain about how to operationalize some of the key concepts of the model when applying it outside of these offices. How do we think of candidate quality for local offices such as mayor (think Michael Bloomberg) or school board? Does strategic timing operate in an implicitly non-partisan environment (urban areas with a single party in control) or explicitly non-partisan offices such as most American school boards? Local political jurisdictions thus present an important extension of the empirical testing of this model.

Political Individuals

For some political scientists, strategic timing stops short of explaining the behavior of candidates and leaves out the important question of why a candidate will seeks office in the first place. The factors that lead someone to run, whether due to personal experience, social status, exposure to

[1]Candidate quality may look entirely different at the local level where long community ties, a local business, or a family history may play more important roles at the more personal level of politics practiced here (Oliver et al., 2012).

political communities, or status in a historically politically marginalized group profoundly shape the supply of candidates for office (Fox and Lawless, 2005). Furthermore, limiting the definition of high quality challengers to those with prior experience running for or holding office excludes high quality amateurs such as celebrities and the wealthy (Canon, 1993, 1990; Fowler, 1996). By explaining the initial choice to run for office, or political ambition, we paint a richer picture of the pool from which candidates for office will be drawn. For local elections, it is important to consider the traits associated with being a political candidate, as it can help operationalize the size of the pool of potential candidates in a community – a key aspect of its democratic potential.

This personal motivation tradition was founded by Lasswell (1948)'s theory of a "political person" who sought political power. The first studies to operationalize what features make up such a "political person" focused on personality and individual attributes (Barber, 1965; Fishel, 1971), a line of research that laid dormant for some time after the emergence of the rational model. A more quantitative return to the study of such political ambition emerged with Fox and Lawless (2005)'s study of political psychology directed at explaining the "nascent" aspects of political ambition through predictive features of candidates themselves.

This work builds on the seemingly unremarkable foundation that political candidates are likely to possess more time, money, and civic skills to devote to running for office (Verba et al., 1995). But, in fact, only a small subset of individuals with time, money, and resources run for political office - for example, university professors are surprisingly absent from the ballot. This requires further investigation as to what differentiates those with resources who choose to run for office from those who do not. Family and childhood socialization can account for the desire to acquire these resources and devote them to office - sometimes very early on in life (Prewitt, 1970; Beck and Jennings, 1982). Fox and Lawless (2005) attempt to test this and a number of

additional explanations such as measures of individual self-efficacy, stage in life, ambition, demographics, and opportunity both perceived and partisan. The authors find that these factors substantially "winnow" the pool of potential candidates with time, money, and resources to pursue office into a much smaller group of actual candidates - whose entry into an election the rational model attempts to explain.

The present study does not have the ability to delve into the ambition and psychology of candidates for school board elections, though quality descriptive work has been done exploring the political and personal backgrounds of school board members as reviewed in Chapter 1 (Hess, 2002; Hess and Meeks, 2011; Grissom, 2007). The important contribution of this work is that helps to define attributes that correlate with the supply of candidates. In large jurisdictions the supply can be safely assumed to be saturated, but in a community of a few thousand adults eligible for office, it can not. Understanding the traits of the "political person" can help operationalize measures that control for the size of the potential candidate pool in comparing across jurisdictions. Furthermore, work on lower levels of government may uncover other important linkages and help inform how such local institutions can be shaped in such a way as to foster the development of quality candidates. The pool of candidates in small restricted jurisdictions is an important constraint on the democratic potential of those communities and forms a key trade off with the more personal campaigning possible in such situations.

Policy Change

Though high-profile candidates sometimes run with explicit policy goals in mind, it has yet to be assessed if candidates for local office are motivated by explicit policy goals with any level of regularity. While the desire to set policy may seem like an intuitive and perhaps obvious explanation for candidates running for office, its explanatory power relative to other

measures of opportunity, socialization, and candidate self-assessment is quite small (Fox and Lawless, 2005). Deckman (2006) suggests that with school board candidates there may be a strong policy orientation, and that in some cases this policy orientation may be explicitly developed by well-organized interest groups (Deckman, 1999). Deckman's study of the organization of the Christian right to locate, train, and fund candidates for school board provides evidence that strong policy motivation and organized interest groups can spur candidates to run. Evaluating competing explanations about the motivations of school board candidates in a more rigorous way may help shed light on the motivations of the larger pool of candidates.

Local and Special Purpose Governments

Another reason to explore candidate emergence in different jurisdictions is that different types of elected office are likely to attract different types of candidates. A priori there are many reasons to believe that local elections in general, and school board elections in particular, are qualitatively different than state or federal office in America. The most critical of these with relation to the above theories is that in most cases school board is a non-partisan office (Oliver, 2012). Partisanship is a foundational aspect of the strategic candidate framework and to a lesser degree necessarily motivates the goals of policy-oriented office seekers. Without party lines and with a less divisive set of issues to distinguish and motivate candidates, it may be hard for individuals to exercise a strategic or a policy oriented candidacy.

Moe (2005) has found evidence that school board elections can be characterized by issues defined by teacher unions - which can serve the role of a large external organizers of voters, donors, and nominator of candidates (Moe, 2011).[2] However, there are studies in the literature where the applicability of the strategic emergence and personal and psychological

[2]Though see Adams (2008) for important counter evidence about the role of large organized interests in the financing of school board campaigns.

factors have been tested empirically, most notably in city council elections (Adams, 2008; Prewitt, 1970; Bledsoe, 1993). Krebs (1999) finds evidence of strategic candidate emergence in ward level elections. However, school board members differ yet from these local candidates due to their role as political actors within the limited policy sphere of public education and the power of property tax levies.[3]

Political science has a rich history of studying the applicability of theories of candidate participation to local governmental organizations more broadly. Local governments can be thought of as being either general (municipal or county wide general service agencies) or special (school, fire, or water districts, etc.) purpose (Foster, 1997). Oliver (2012) identifies a framework for understanding the variability in electoral participation across local governmental units around the concepts of size, scope, and bias. In this framework, the amount and type of political contestation for local offices is shaped by the relative size of the governmental unit, the scope of that unit's policy making, and the specificity or universality of the benefits and services provided by that unit to the population. Thus, in order to understand the likelihood of new candidates to run for office, we must account for the size of the population from which candidates may be drawn, the variation in the level of services the governmental unit provides, and the degree to which those services are distributed evenly within the community. Chapter 2 demonstrates that Wisconsin school districts have variation in Oliver's categories of size and bias, but almost all school districts are equal in the scope of their policy making as they are proscribed in state law.

An important overarching distinction is that most of the previous literature on local elections and school boards treats the individual race between candidates as the atomic unit. This study does not do so for a number of reasons. First, school board races are less frequently head to head contests for a single seat than other common forms of local government such as city

[3]Though in practice the power to set property tax levels is often constrained by both state law and practical concerns (Berry, 2009).

council, mayoral, or county board seats. Second, theory suggests that voters have very little information about individual school board members and are much more likely to make any voting decisions about the board as a whole by evaluating district wide conditions instead of features of individual board members (Oliver, 2012).

3.3 Data

I now turn my attention to my investigation of the factors that influence the emergence of candidates in school board elections. In this study, two approaches will be taken to allow for a more explicit test of the theories outlined above.

Wisconsin Data

This paper utilizes a unique data set of school board election results in the state of Wisconsin from 2002-2012.[4] While previous studies of school board elections have focused on nationally representative samples (and been plagued by non-response for smaller districts which constitute the majority of school board members), or statewide samples for a snapshot in time, this data follows in the tradition of Alsbury (2003) by constructing a panel of school board elections within a single state. In addition to collecting the results of all school board general elections for which records could be obtained throughout this time period, this study also includes the results from any primary elections that were held as well. The longitudinal look is used in order to allow for possibility of observing the periodic eruption of voter and candidate activity expected by dissatisfaction theory (Iannaccone and Lutz, 1970; Lutz and Iannaccone, 1978a).

This database on the electoral outcomes of each school board is accompanied by a broad range of attributes about the school districts they oversee.

[4]For more details on the collection method, see the Appendix A.

In addition to the unique data set on school board election results described in Chapter 2, there exists a large array of publicly available data about the performance, finances, and demographics of the public school districts in the state. These data are useful in understanding the impact of local factors on school board election conditions. Importantly, we can use these data to identify if the sample of school districts responding to the records request is representative of the school districts in the state. From Table 2.2 we saw that the school districts providing records did not differ significantly in any key variable from those who did not provide records on observable characteristics.

Data Structure and Grouping

School districts as jurisdictions can have multiple election races per election cycle with multiple winners per race. Unlike in studies of legislative elections, then, the electoral district is not unique to a single race each year. Instead, a school district may feature two or three distinct races for school board each year, with each race electing multiple winners.[5]

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Districts	221	242	256	255	271	298	299	299	300	305	305
Races	289	336	343	341	370	410	383	402	401	397	410

Table 3.1: Frequency of multiple races within a district by year.

Table 3.1 shows that there are a bout 100 more races than districts in each year. Due to the relatively few unique variables I have at the level of the school district race, I aggregate multiple races per district into a single district-year observation. This aggregation is done by summing the number of candidates, winners, votes, and incumbents across races and including a binary indicator if any of the races was a district wide race. I also include

[5]See Appendix A for details about the coding of races.

the maximum value of the coding for the presence of a contested race. This approach is similar to the approach of Berry (2009) as a solution to handle the case where jurisdictional overlap is difficult to determine.

Dependent Variables

Previous research has focused on incumbent challenges or candidate self-reports of contestation in their most recent elections (Alsbury, 2003; Hess, 2002). By collecting election results I observe the level of contestation in school board elections directly for the first time. This allows me to construct multiple measures of contestation, the presence of multiple choices for voters on the ballot. Choice among candidates is a key component of the democratic potential of a jurisdiction, and one criticism leveled against school boards and other local offices is that they are undemocratic due to a lack of choice for voters.

I conceptualize the degree of candidate emergence for school boards as qualitatively three distinct levels. The first, and lowest level, is whether any candidates other than incumbents appear on the ballot. In lieu of partisanship, local elections are often conceived of as races between incumbents and challengers (Oliver and Ha, 2007; Oliver et al., 2012). I refer to this variable as "incumbent lockout", when incumbents are the only candidates, and I focus on predictors for when it does not occur. However, merely having non-incumbents on the ballot does not mean voters have a full choice, as non-incumbents often run unopposed so the second level of competitiveness is the presence of more candidates than seats on the ballot. Finally, the ultimate measure of competitiveness is whether or not any incumbents are defeated or at risk of defeat. I investigate the ability of political theory to explain each of these three levels of competitiveness to understand if school district election competitiveness at any level is predicted by theory.

	No Serious Challengers	Serious Challengers
Non-Incumbents Run	582	1,656
Only Incumbents	776	23

Table 3.2: Frequency of Incumbency and Contestation Across School Board Races.

Table 3.2 shows the relationship between incumbency and challengers across all school district elections in the sample. The modal elections consists of either contested open seats or uncontested races with only incumbents. Measuring candidate emergence and contestation in multi-member seats is not as straightforward as in single member districts.[6] Taking Table 3.2 into account, I frame contestation in school boards as a three step process. First, voters have to have a choice of a candidate that is not an incumbent. If all the candidates are incumbents, then voters cannot reasonably be said to have a choice and it can be assumed that the school board seat is not sufficiently attractive to potential candidates. Next, voters have to have a choice between more candidates than there are open seats. Finally, the ultimate measure of contestation is that an incumbent is successfully defeated. Table 3.3 shows that in races in which at least one of the candidates is not an incumbent incumbent defeat is rare.

	Incumbents All Win	Incumbent Defeated
No Serious Challengers	470	0
Serious Challengers	977	521

Table 3.3: Frequency of Incumbency Defeat and Contestation in School Districts.

This three step approach means that I model three separate dependent variables and explore the way the explanatory variables discussed above explain or do not explain the variation in these three degrees of contestation.

Year	Districts	SB Races	Non-Incumb.	Incumb. Only
2002	221	289	67.8%	32.2%
2003	242	336	71.4%	28.6%
2004	256	343	71.4%	28.6%
2005	255	341	70.1%	29.9%
2006	271	370	67%	33%
2007	298	410	68.5%	31.5%
2008	299	383	62.9%	37.1%
2009	299	402	62.4%	37.6%
2010	300	401	63.8%	36.2%
2011	305	397	65.5%	34.5%
2012	305	410	63.2%	36.8%

Table 3.4: Frequency of races with and without non-incumbents.

Non-incumbents

A first condition of contestation is that someone other than incumbents run for office. The least competitive of all elections is that in which voters not only have no choice, but they have no choice and all candidates are incumbents – the status quo is maintained by default. Nearly 33.5%, or between 100 and 150 races, of races each year feature all incumbents.

Who Counts as a Candidate?

The definition of a candidate is inherently subjective. Previous work in the literature has excluded candidates who receive fewer than 5% of the overall vote, while other studies have focused exclusively on contested incumbent held seats in open jurisdictions (Krebs, 1998; Oliver, 2012). Due

[6]In school board races in Wisconsin there is rarely a seriously contested race with all incumbents. This is due to the relative infrequency with which school board seats are changed or redrawn. In addition, even if the race is between two incumbents, the research literature around school boards suggests that the strongest signal most voters have about candidate policy goals is incumbency status. Thus, voters are unlikely able to parse the policy differences between two incumbents. For voters, choosing between two incumbents is not likely to present much of a true choice.

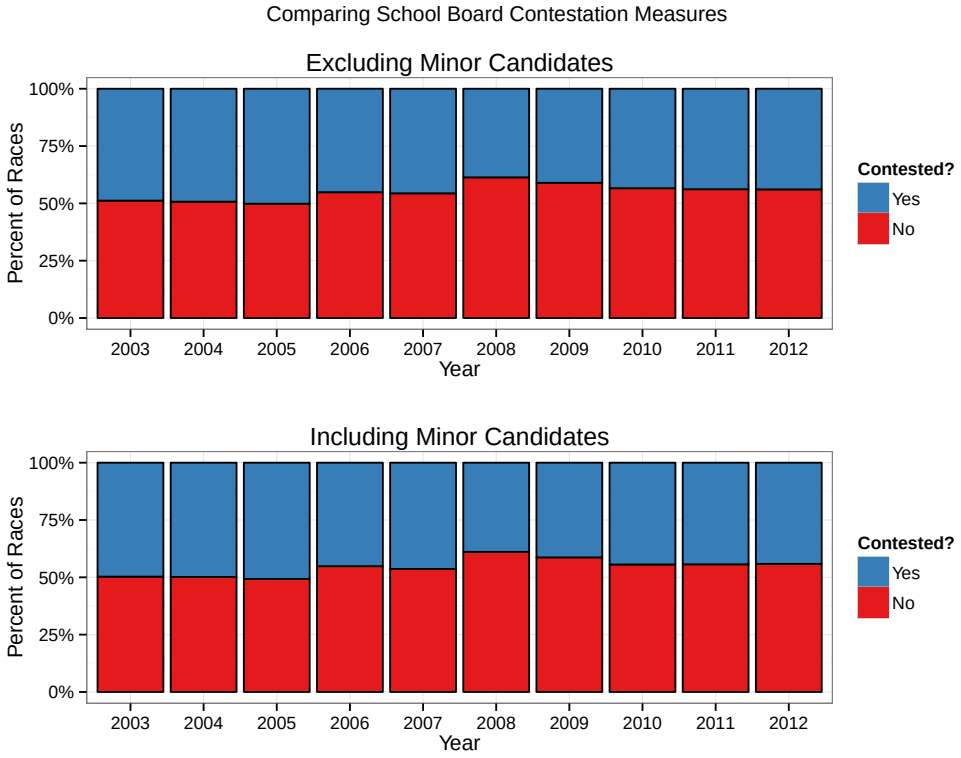


Figure 3.1: Annual share of contested school board elections under two different measures of candidate contestation.

to the diversity of school board electoral organization, school district size, and the relatively low number of votes necessary to secure a victory, I define minor candidates as those candidates who receive fewer than 20 votes on the ballot and I exclude all such candidates from measures of contestation. This is a liberal enough interpretation of candidate seriousness to include write-in challenges and has the potential to bias results by inflating the number of contested races. However, with the median winning candidate needing only 728 votes to secure victory, 20 votes seems sizable enough to exert influence on the race overall.

Figure 3.1 depicts the pattern of school board candidate emergence over time including and excluding these candidates. Contested elections

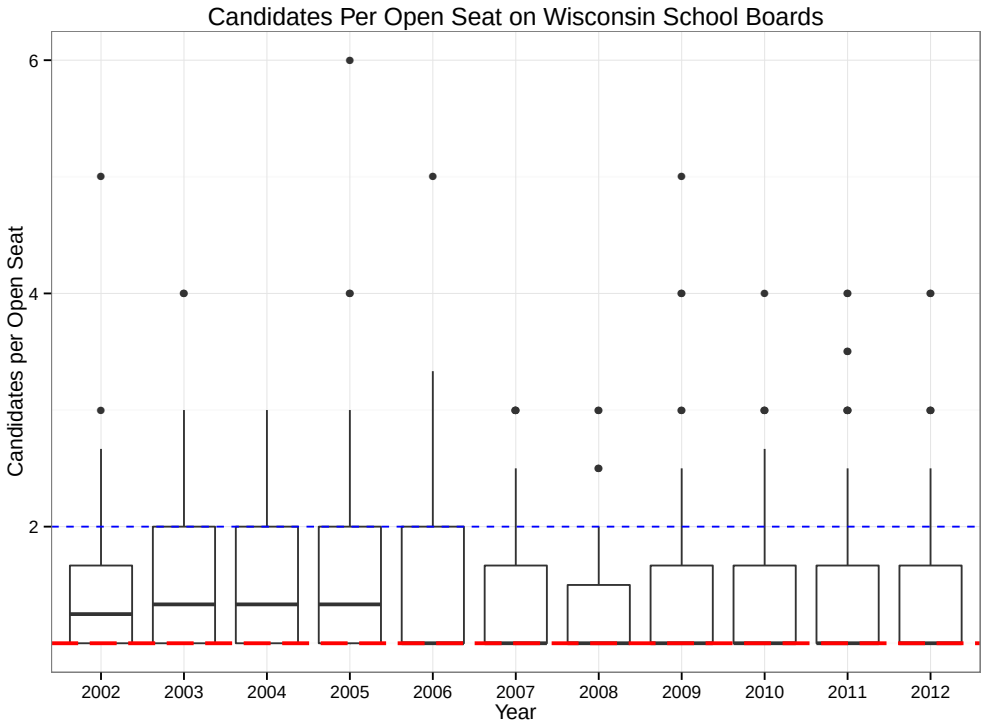


Figure 3.2: Serious candidates per available seat by school year in Wisconsin school districts over time.

are in blue and uncontested races are in salmon. A slight trend toward fewer contested races is evident in both panels. The top panel, excluding minor candidates, changes the share of elections that are contested each year slightly, but does not change the overall pattern across years.

Another way we might measure the level of candidate emergence in school board races would be to look at the number of candidates per seat. This measure would differentiate between districts with wide spread contestation and those with simply a single contested seat. As Figure 3.2 demonstrates, the level of contestation per available seat does not change much across the years with the median race having 1 candidate per seat, and the majority of races having between 1 and 2 candidates per seat. This means, for

example, that a typical pattern of competition in a Wisconsin school board election features four candidates vying for three available seats, or one and a third candidates per seat. This measure does not appear to capture much information beyond a binary indicator for the presence of more than one candidate per race.

District Competitiveness

Incumbent defeat is a good measure of strong candidates emerging, but it is overly conservative because a challenger losing by a single vote is counted the same as a race where a challenger gains only a few dozen votes. Political scientists have developed a standardized way to assess the competitiveness of an electoral competition when races are for varying number of seats with varying numbers of candidates. This method was introduced in Chapter 2.[7]

The preferred method from the literature is the Blais-Lago metric described in Table 2.7. This metric has the advantage of better adjusting the vote margin calculation for both the size of the electorate and the size of the election slate, thus making meaningful comparisons across diverse districts possible. While this method still focuses on the most competitive seat in the district, it better enables comparisons across districts. It represents a standardized metric for the number of votes needed to change the outcome of a multi-member or single member seat's election. I further standardize this measure so that a higher number, 100, represents the most competitive election, and zero represents the least competitive election.[8]

Figure 3.3 shows the distribution of Blais-Lago Quotient for school districts for each year of the sample. The top panel shows this including races where no challenge is observed. The bottom panel adjust this and depicts only the 55.9% of seats where voters have a choice. As I noted in Section 2.3, school board races that are contested are generally much closer

[7]See Table 2.7 for a review of other possible measures.

[8]This transformation is done by subtracting 100 and taking the absolute value. For each school district, I report the most competitive seat in the district.

than the contested multi-member districts for national legislatures that the Blais-Lago Quotient was first developed to evaluate (Blais and Lago, 2009). Although incumbent defeat may be uncommon, races that can be decided by a handful of voters are not as uncommon.

Incumbent Defeat

Traditionally, the school board literature has focused on the frequency of incumbent defeat. Incumbent defeat is a good measure of the democratic functioning of the school district as a government because it reflects the ability of voters to exercise a preference for change and to "throw the bums out". Incumbent defeat is at the heart of the dissatisfaction theory of school board participation (Iannaccone and Lutz, 1970). Previous research has found that apolitical forms of board member turnover often swamp political forms of turnover and skew results (Alsbury, 2003). These studies used surveys of former board members and asked whether their reason for no longer serving was political or apolitical – allowing the observation of candidates who chose not to run due to political pressure or a perception of a strong emerging challenger. This is a limitation of the current study is identifying seat vacancies due to retirement or plausible threat where a candidate does not mount a campaign. This is less troubling in the school board case because the cost of campaigning is so low that presumably a challenged incumbent would still stand for election. Moreso, direct observation allows me to directly observe electoral for the first time, something which previously has only been analyzed through candidate self-report. This alternative form of measurement is a way to triangulate the findings of previous work.

Figure 3.4 shows the rate of incumbent defeat in Wisconsin. The year with the greatest share of races featuring an incumbent that had incumbent defeat featured a defeat rate of 22.8%. As we saw in Chapter 2 this rate of incumbent defeat is lower than other forms of office, but it is not as low as might be expected. Oliver (2012)'s study of the suburban voter found 10 out

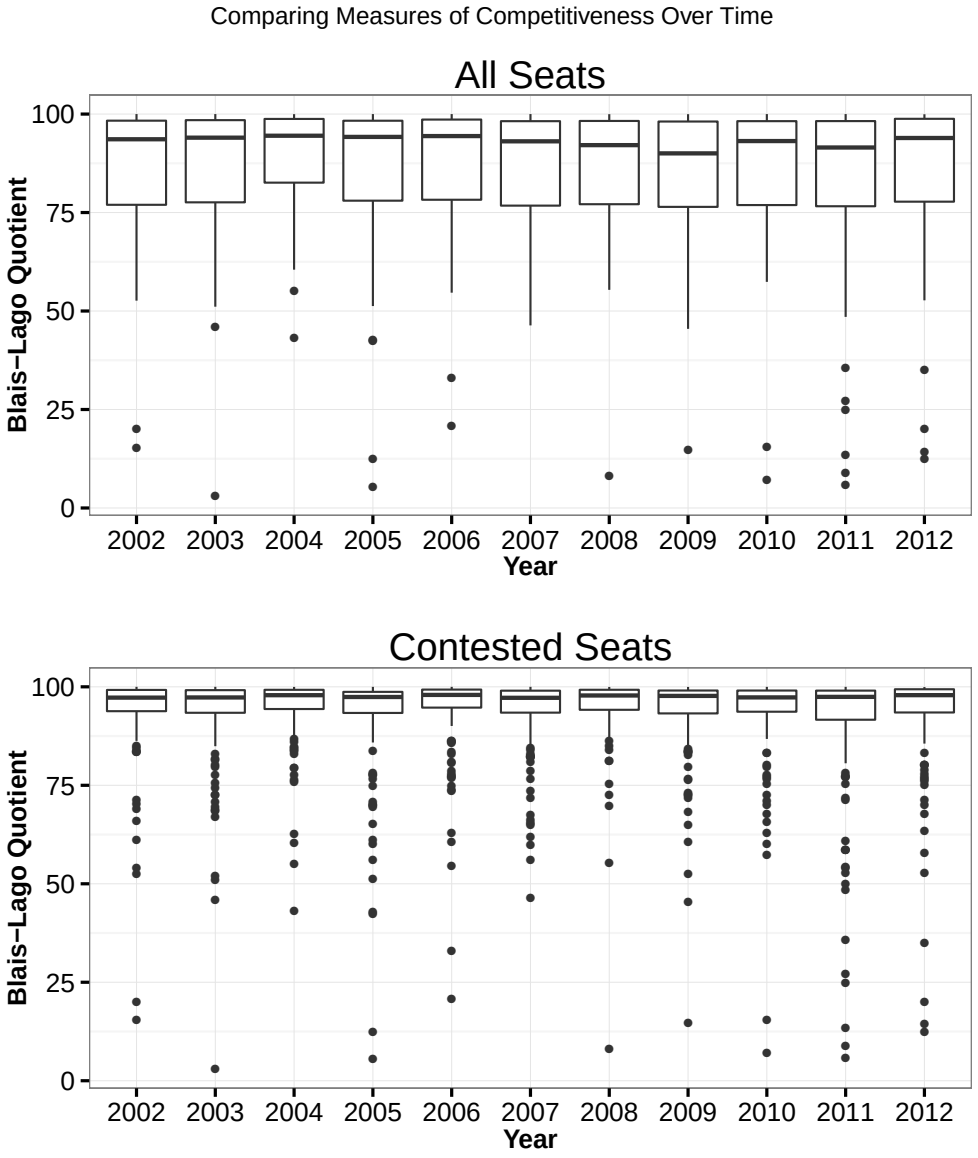


Figure 3.3: Annual competitiveness of most competitive seat in each school district as measured by the Blais-Lago quotient.

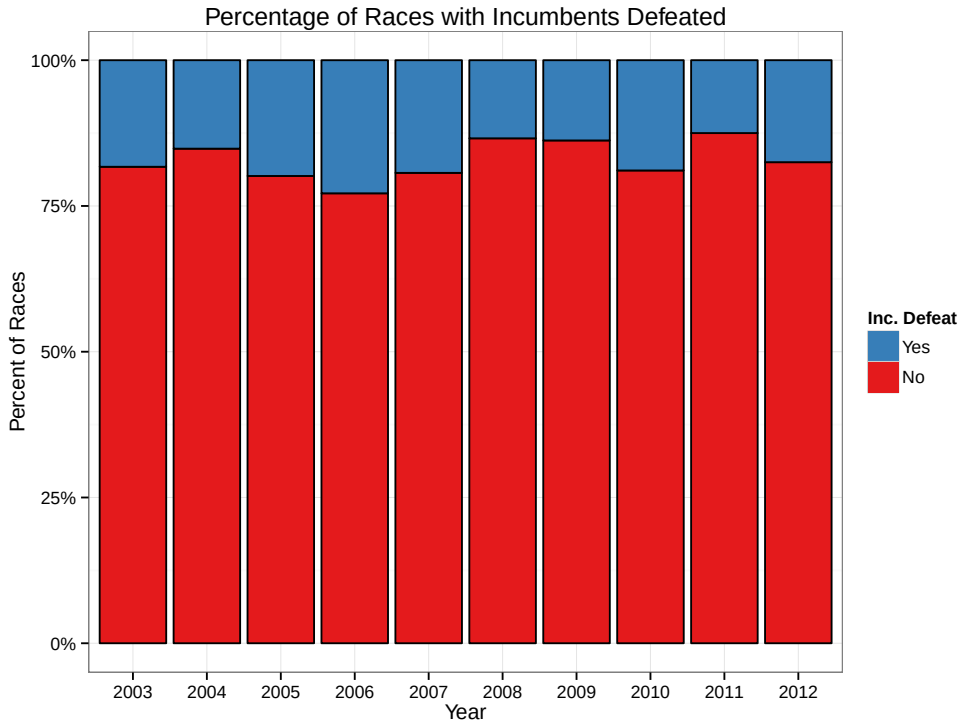


Figure 3.4: Annual share of Wisconsin school board elections featuring an incumbent with a defeated incumbent 2002-2012.

of 11 mayoral incumbents securing re-election and 47 out of 56 city council incumbents winning re-election. This result is encouraging and it suggests the potential to explore theories for why voters may prefer challengers over incumbents. Next I turn my attention to the selection of variables to explain the variability in these dependent variables.

Independent Variables

Demographics

Both Oliver (2012) and Iannaccone and Lutz (1970) find community demographics, and importantly their change, critical in understanding electoral variation both between school boards and within them across time. The first of these variables I consider is the voting age population (VAP) of the school district. VAP represents the pool of voters and also of potential candidates for school board in a community. I expect this variable to be positively related to contestation of school board elections both because of the larger pool of available candidates, but also the larger scope of influence in larger school districts – which is more attractive to potential candidates (Oliver, 2012). In addition to size, the homogeneity of the community is an important indicator of the level of electoral participation. I consider two types of homogeneity – racial and generational. First, I include a measure of the percentage of the adult population in the school district that is white. While Wisconsin is an overwhelmingly white state, I expect racial homogeneity to be negatively associated with more school board contestation – there will be less competition for resources neighborhood to neighborhood in the community. Additionally, prior research has shown that voter (and property tax payer) age is associated with support for local schools. The greater the percentage of elderly in the school district, the more participation I expect to see (Berkman and Plutzer, 2005). Additionally, given the results of surveys that indicate school board members are more likely to be white and elderly, I expect that the increase in these variables is an increase in supply of potential candidates, and thus should be positively related to board contestation. Previous research has shown that school board candidates are disproportionately drawn from white, upper middle class, retired populations (Hess, 2002; Hess and Meeks, 2011; Grissom, 2007).

The last two demographic variables are measures of wealth and income.

A key feature of school boards is their ability to independently set property taxes. Following Berry (2009) and others, I include a measure of the percentage of housing occupied by owners as a measure of both the permanency of the community (following Oliver (2012)) and the salience of property tax rates – an important issue for single jurisdiction governments like school boards (Berry, 2009). Homeowners are more directly aware of property tax rates, longer term residents of the community, and thus expected to be more sensitive to changes in the property tax rate that is under control of school boards. As an additional control, I include a measure of median household income, but as other studies of Wisconsin school districts have noted, this does not exhibit much variation within Wisconsin as it does in other jurisdictions (Amiel et al., 2014).

Fiscal

Next, I consider variables measuring the scope of the school district relative to other local governments. Berry (2009) finds stacking of local governments with overlapping taxing jurisdictions divides the attention of voters; I consider whether overlapping fiscal authority might divide the attention of potential candidates and make school boards less attractive. The first variable I consider is what share of its total revenue a school district raises from property taxes. While the intricacies of the Wisconsin school funding formula are beyond the scope of this study, the result of this formula is that there is much variation in the share of district revenues that are raised by local property owners. I expect the greater the share of revenue from property taxes, the more likely candidates are to participate because there is greater fiscal power with higher tax rates. However, the share of revenue derived from property tax may not be particularly salient to the voting population, especially not those without school aged children.

Due to this, I test an alternate measure which is the share of total property tax revenue that is levied by school districts. This variable should

also be positively related to candidacy – as property tax revenue directed to schools increases as a share of all property tax revenue, individuals should be more motivated to pursue a seat on the school board (Berry, 2009; Oliver, 2012). Another indicator of the fiscal health of a school district is the available savings, or fund balance, of the school district. I normalize this variable to be a per pupil measure of dollars available in savings to the school district. I expect this variable to be negatively related to candidacy with districts that have more savings having less contestation as a result of lower overall fiscal pressure. A final measure of fiscal health is the level of per pupil spending in the school district. I expect higher spending districts to have higher levels of candidate contestation because of increased accountability pressure from the public.

It would be fair to argue that these measures seem unlikely to be salient to the voting public. However, voters in these off-cycle non-partisan races are very different than voters in the general election with evidence suggesting they are much more highly informed on local matters, longer term residents of the community, and very engaged in local affairs year round (Oliver, 2012). This suggests that key information about the fiscal health of the community is likely to be familiar to the spring electorate.

Political

Next, I look to explore the influence of political factors in the emergence of challenges to incumbents. First, I include a variable to control for the different structure of school board elections each year by controlling for the number of races in each school district. This variable should be positively related with more incumbency challenge as it represents more opportunities for a challenge to emerge when multiple races exist. I also test for advantage of incumbency by including a measure of the share of candidates who are incumbents. I expect this variable to be negatively related to challenge as incumbents should deter challengers.

Next, I explore the impact of both turnout and partisanship in general elections on local elections. I am interested in the role partisan divisions among voters in the school district may play in the off-cycle non-partisan school board election cycle. I include two potential measures of partisanship. First I measure the average two party vote share for Democrats across the immediately previous Gubernatorial and Presidential fall elections. I expect this variable to be unrelated to challengers emerging for school board – Republican and Democrat leaning communities should exhibit similar levels of local contestation. Next, I test the partisan polarization of the community by measuring the distance from an even vote share between Republican and Democratic communities by taking the absolute value of the difference between the Democratic vote share and the expected vote share in a perfectly polarized community of 0.5. The greater this difference, the less likely I believe candidate emergence will be due to the homogeneous nature of voter preferences in the community.

A criticism of of special district elections, like school boards, is their susceptibility to capture by organized interests – which in the case of school boards is most likely teachers' unions. Thus, as a final measure, I follow the work of Moe (2011); Anzia (2011) and explore the influence of teachers' unions in elections. Teachers' unions represent the strongest interest group in school board politics. The greater the share of the teaching staff in the voting population, the less likely I expect candidates to emerge. A strong interest group presence in the community should ensure the the board reflects interest group preferences and depress the need for electoral competition.

Policy

A final set of total variables is policy related concerns. These variables explore the idea that candidates may emerge in response to underlying policy changes in the district. Policy concerns allow me to test whether or not

voters in school board races are retrospective. A challenge with retrospective voting is the irregular timing of school board seat opening relative to other offices. Whereas the state and federal legislatures are elected on a regular cycle, school board seats are more like senate seats – they come up for election at different times in different jurisdictions, and thus they may be influenced by distinct policy evaluations from voters depending on the year they are up for election.

First, I assess the impact that a change in superintendent has on school board challengers. Because theory suggests that board turnover often precedes superintendent turnover, I posit that a new superintendent should signal a decrease in candidate challenges to board members as the citizen dissatisfaction that sparked the turnover has been relieved Rada (1988, 1987). I test for a new superintendent either in the prior year or two years prior.

Next, I include measures of school district funding referenda. Wisconsin has two common types of school referenda measures – bond and override referenda. Bond referenda are familiar across the United States as authority for a school district to raise taxes to cover the payments on a loan for the costs of infrastructure construction such as a new or renovated school building. Override referenda are specific to school funding formulas like Wisconsin and Massachusetts, where schools must operate under a revenue limit unless given explicit authority via an election to exceed that limit with additional property tax revenue.[9] Attempting a bond or override referenda is one of the more high profile actions a school board can take – asking the public to vote for an increase of property tax rates in return for improved quality of educational services. As such, I expect failed referenda to precede challenges to school board, and I expect merely offering a referenda to also

[9]Wisconsin school funding is governed by a state funding formula with a revenue limit for school districts. Wisconsin's revenue limit sets a cap on district spending in certain categories, more information can be found here: `http://sfs.dpi.wi.gov/sfs_revlim` Wisconsin also has a state equalization aid formula, more information can be found here: `http://sfs.dpi.wi.gov/sfs_equalaid`

be related to increased challenges.

Three other policy indicators are relevant to board challenge. The first is the percentage of school age children in non-public schools. I expect as this percentage increases, competition for school boards will decrease due to a reduced interest among more affluent or more religiously conservative families attending private schools in shaping the policy of the local school board. I also look at measures of student performance to test whether districts with higher or lower performance are more likely to have candidates emerge. School districts with lower performing students should, all else equal, have more candidates emerge as citizen dissatisfaction with board and district performance should be higher. Finally, I include a measure of the share of district salaries spent on administrators. All else equal, I expect more administrative school districts to have fewer board challenges. This expectation comes from the education administration literature which suggests that school board conflict comes from administration and boards not having a shared vision (DeKoninck, 2009).

Finally, I seek to control for autocorrelation in board contestation. If board elections are competitive consecutively because of sustained community dissatisfaction or the goal of seeking a majority of seats, then I expect lagged measures of contestation to be positively related to contestation in the current period. There is little evidence in the literature to suggest whether it is likely that sustained competition will emerge in school board elections, so I expect this variable to be unrelated in the models that follow.

These expectations are summarized in Table 3.5.

Table 3.5: Available Variables and Expected Signs

Variable	**Expected Sign**	**Short name**
Demographics		
Voting Age Population (VAP)	+	VAP
% white VAP	+	per_white
% Over 65	+	per65O
Median Household Income	+	median_income
% Bachelor Degree Over age 25	+	PerBachelorOrAbove
Public School Pupils	+	PublicPupils
% Owner Occupied Housing	+	OOH_share
Fiscal		
Property Tax Share of District Revenue	+	PROPERTYTAX_REV_SHARE
District Fund Balance Per Pupil	-	balance_member
Per Pupil Expenditure	+	TCEC_MEMBER; TDC_MEMBER, TEC_MEMBER
School District Share of Property Tax	+	millrateShare
Equalized Property Value Per Pupil	+	eqv_member
Political		
Number of Board Races	+	nraces
Share of Candidates Who are Incumbents	-	incumShare
Turnout in Fall Elections	+	fallTurnout
Partisanship in Fall Election	None	fallTwoPartyShareDem
Partisan Division in Previous Fall	+	partyDivision
Teacher Share of Voters	-	teachShareofVoters
Policy		
New Superintendent	-	NEW_SUP
Math and Reading Performance	-	MATH_PROFADV_PER READ_PROFADV_PER
Debt Referenda Attempt and Failure	+	debtFail; debtQues
Override Referenda Attempt and Failure	+	overrideQues; overrideFail
Cumulative Bond Attempts	+	cumulAttp
Administrator Share of Salary	-	ADMIN_SHARE
Percentage of Pupils in Non-public schools	-	NonPublicPupilPer
Serious Contestation in Prior election	None	contestSerLag

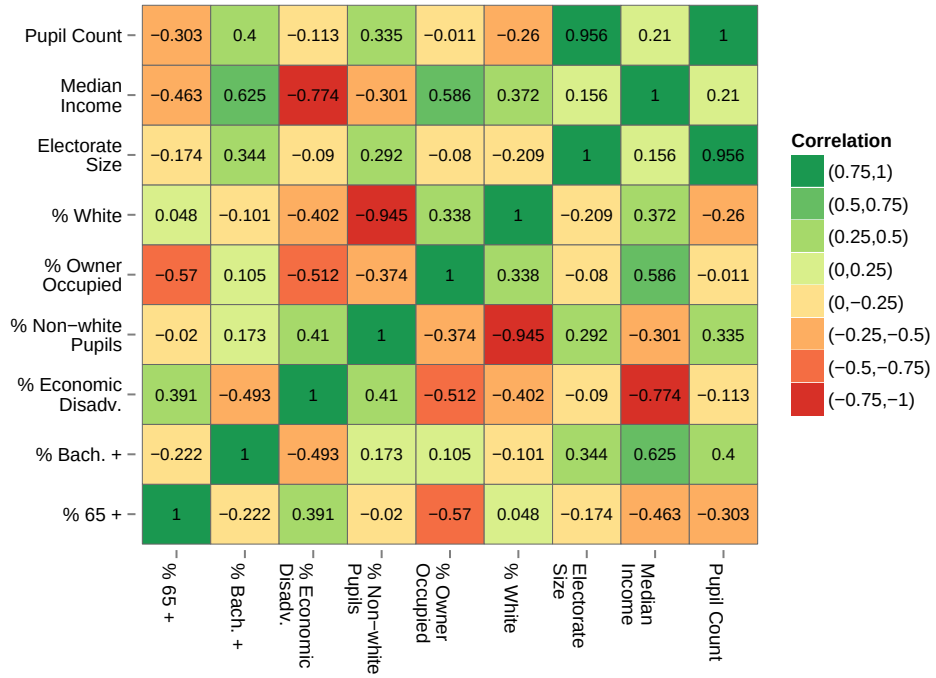


Figure 3.5: Correlations of Demographic Variables

Variable Selection

It is not feasible to test all of the variables in Table 3.5 simultaneously due to the presence of high correlation among some of these key indicators. In this section, I investigate the correlation among these variables and describe the process of reducing the list of factors in Table 3.5 to a manageable subset for inclusion in statistical models that can evaluate their impact.

In Figure 3.5 I depict the correlations between key demographic variables with dark red and green representing the highest negative and positive correlations respectively.[10] The most problematic correlations are between

[10]These figures represent the correlation matrix for the complete pooled data set across years and school districts. Correlations for individual years follow similar patterns, but are not shown. The Pearson correlation coefficient is reported.

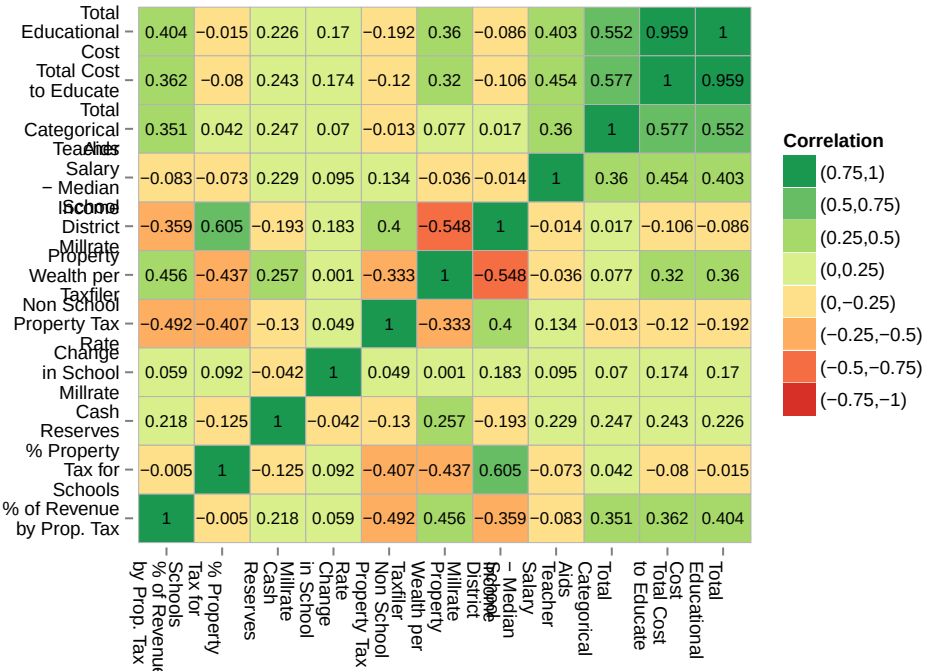


Figure 3.6: Correlations of Fiscal Variables

the median household income and percentage of pupils in the school district eligible for free and reduced price lunch. The other large correlation is between the number of pupils in the district and the VAP. Household median income is also strongly correlated with the proportion of the population with a BA or above and with the proportion of owner-occupied housing. As a result, I drop median income in favor of these two variables in the models below.

Figure 3.6 shows the correlations among the fiscal measures for school districts. Here there are fewer extremely high correlations. The largest correlations belong to two pairs of four variables. Understandably, our two measures of equalized district costs, total district cost (TDC) per member and total complete educational cost (TCEC) per member, are very highly

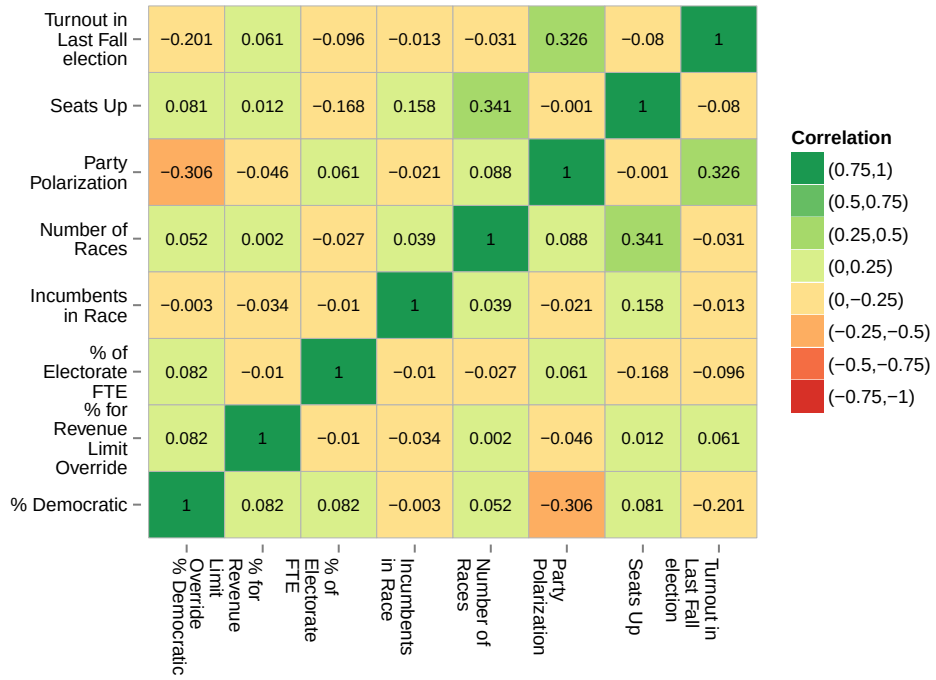


Figure 3.7: Correlations of Political Variables

correlated with the only differences being relative spending on transportation and food services. In the models below, I use TCEC. The next set of high correlations have to do with property tax rates and population. The share of the millrate within the school district attributable to school district taxation is highly correlated with the tax rate set by the school district. Additionally, the amount of property value per tax filer in the community is highly correlated with the millrate in a negative direction. In most cases, I include only the millrate.

The political variables in Figure 3.7 are largely free of high correlations. The strongest relationships are between partisan division and the share of the two party vote – an expected correlation. Higher fall turnout is also correlated with partisan division.

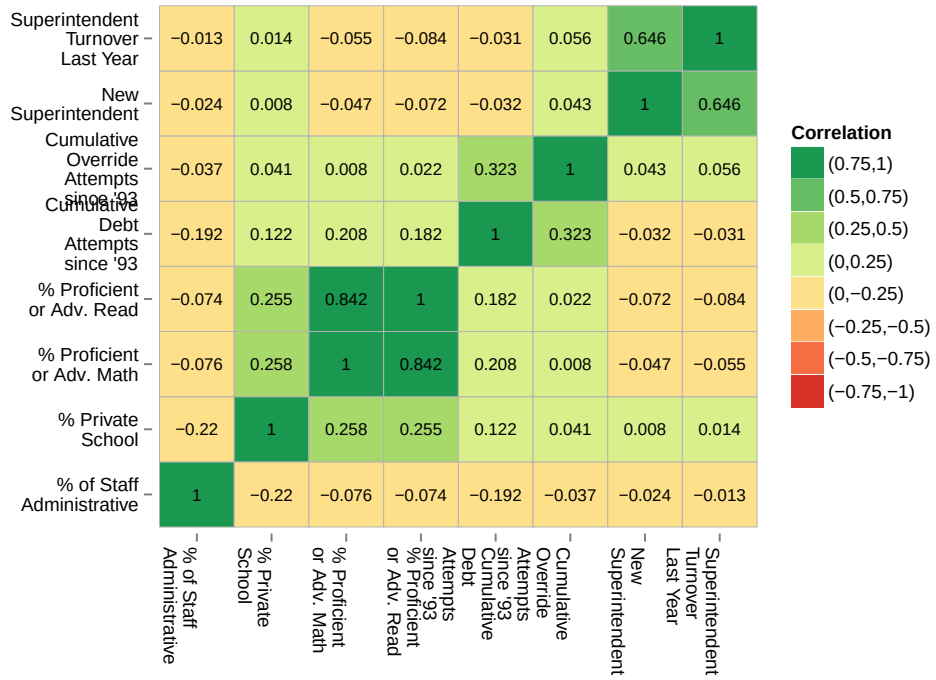


Figure 3.8: Correlations of Policy Variables

The story is the same for policy measures in Figure 3.8. The only large correlations are between reading and math state standardized assessment proficiency rates, a measure of academic performance of the district. Superintendent turnover in year t-1 and year t is also highly correlated. Otherwise, there are no concerns about these measures.

3.4 Methods

For each of my measures of contestation, I fit four separate models looking at the impact of demographic, fiscal, political, and policy characteristics of school districts on the probability of a contested school board race. All models contain the demographic variables. I then fit a full model which

includes variables from all of the models. This approach allows me to evaluate the relative power of these differing factors in explaining the competitiveness of board elections. To assess the probability of a contested election in a school district in a given election cycle, I start with a model of candidate emergence:

$$(1) \qquad \underset{CE_t}{\Pr} = \alpha + \beta X + \epsilon$$

$\Pr_{CE_t}$ represents the probability that a school board seat is contested in an election in year t as measured by one of the three flavors of contestation discussed above: non-incumbents running, contested seats, and finally incumbent defeat. The X represent a vector of measures of conditions in the school district leading up to the time candidates choose to run for office, the period between the previous election and the current election. Estimating β provides a way to test for the importance of each of the conditions in the school districts.[11]

The first way to estimate $\Pr_{CE_t}$ is by estimating a logistic regression. Logistic regression allows for the estimation of a binomial outcome using linear predictors. In this case, the linear predictors will be composed of the variables discussed above in Table 3.5. I estimate the logistic regression using the maximum likelihood estimator available in the generalized linear model, `glm`, functions in R (R Core Team, 2013).

However, this logistic regression is not correctly specified as it ignores the dependence between observations inherent in the Wisconsin data. Each school district is observed between two and ten times, meaning that the assumption of independent and identically distributed random variables is violated. To correct for this, I employ sandwich estimators of the variance-

[11] I use the logistic transformation for binomial outcomes, though for simplicity I do not represent the model this way here.

covariance matrix to extract robust standard errors for these models, which will correct for the clustering of school districts between the observations and avoid overly optimistic standard errors for the β coefficients. I estimate the robust standard errors using the `lmtest` and `sandwich` packages for R (Zeileis, 2004, 2006; Zeileis and Hothorn, 2002).

This approach still makes assumptions about the structure of the data that are unrealistic. Most importantly, this approach compares each school district year to all other school district years in the data set and ignores any explicit interdependence on prior years within the same district. This fails to take advantage of the repeated measures available for each school district due to the panel nature of the data set and reduces the importance of large changes in X values within a district that are still relatively small when compared across all districts.

There are a number of approaches available to estimating longitudinal and panel data. One way to adjust for this is to estimate fixed effects for school districts. While this approach is common in other studies of local government in political science, I prefer the alternative approach of multi-level modeling. The choice between these two approaches is as much theoretical as it is econometric, and as a result I run my analyses with both approaches.[12] However, I prefer the multi-level approach because the panel here is not balanced, the observations within districts are not evenly spaced due to the fact that districts may not have open seats on their board each year. Furthermore, my data does not include all Wisconsin school districts, but instead a large sample of districts. This makes the ability to model the variation between districts of interest to understand the range of plausible district variation across the broader population of school districts.

The multilevel modeling approach, also known as hierarchical linear modeling (HLM), is flexible for cases with unbalanced repeated measures

[12]The Hausman test can be used to formally test the specification of random or fixed effects and the results of this test for all models is included in the Methodological Appendix 3.7 (Hausman, 1978).

and allows the analyst to disentangle the effects of time specific variables from the overall variability among individual units, e.g. school districts (Snijders and Bosker, 1999; Raudenbush and Bryk, 2002). One way to depict this approach is in the equation:

$$\begin{aligned} \Pr_{CE_{ij}} &= \alpha_i + \beta X_{ij} + \gamma_j + \epsilon_{ij} \\ \gamma_j &= \alpha_j + \epsilon_j \end{aligned}$$

In this model I use `i` for the specific elections nested within the school districts, `j`. The γ_j terms represent independent intercepts for each school districts, modeled as being drawn from a normal distribution. X_{ij} is a vector of time variant school district characteristics, some of which may be lagged.

This method does not account for the time structure of the data, as no explicit parameterization of time is included. As I have no reason to believe that time linearly relates to the probability of an election being contested, this is appropriate. However, I do want to control for secular effects of election year variability that reaches across districts. One approach would be to include fixed effects for years in the X vector. However, the multilevel approach is flexible enough to allow for a third group – years, to be included in the model. The model below includes a third grouping level for years.

$$\begin{aligned} \Pr_{CE_{ijt}} &= \alpha_i + \beta X_{ijt} + \gamma_j + \lambda_t + \epsilon_{ijt} \\ \gamma_j &= \alpha_j + \epsilon_j \\ \lambda_t &= \alpha_t + \epsilon_t \end{aligned}$$

This approach allows year parameters to be estimated independently without assuming a functional form for the relationship between the proba-

bility of candidate emergence and time. This is beneficial as there does not appear to be a linear time trend in Figure 3.4 or Figure 3.1. It also results in estimates the β coefficients that are conditional on the group specific variances captured in the γ and λ vectors. This allows me to take advantage of the repeated measure structure of the data and avoid overconfidence in estimates resulting from comparisons within and across groups. The models are fit after grand-centering and rescaling all variables by their standard deviations in order to avoid convergence issues following the guidance of Gelman and Hill (2006). [13] For the mixed model approach, I also fit the four models – demographic, fiscal, political, and policy.

Model Comparison

Next, I need a way to compare the models to evaluate the variables that best explain the emergence of candidates. Model comparison is difficult, especially in the case of binomial regression where more traditional measures like R^2 are not available. Furthermore, model-based measures like psuedo-R^2, AIC, and BIC are sample dependent and not valid across varying dependent variables. Additionally, there is no intuitive way to empirically judge whether or not models are "good enough" in explaining the dependent variable. To address this, I adopt predictive measures of accuracy – the ability of models to correctly predict observations as either a contested or uncontested election.

Since my observations are unbalanced, with many more uncontested than contested elections, I need a measure of correct classification that is robust to class imbalance. This allows me to avoid spurious confidence in my models due to the fact that simply predicting most races as uncontested would yield a high percentage of correct classifications. For this, I use the

[13] I modify the optimizer settings when necessary to ensure all models converge, estimating the models using the `lme4` package in R (Bates et al., 2014; R Core Team, 2013).

receiver operator characteristic, or ROC, which provides a measure of the trade off between detection (true positive identification) and false alarm rates (false positive identification) across different values of the cutoff of the probability estimate from a model (Hanley and McNeil, 1982; Zwieg and Campbell, 1993). Of particular value is the area-under-the-curve which summarizes the accuracy of the model across all values of the probability cutoff.

A disadvantage of this approach is that the area under the curve metric is relatively unfamiliar in the political science literature making it difficult to draw comparisons to similar studies in the field. However, a strong advantage of this approach is that it allows for valid comparisons within the current study that are easily understood on the sample at hand. I will demonstrate the rate at which each of the models accurately predicts the emergence of candidates for school board seats, which allows the reader to easily assess the relative value of the different models for this data.

3.5 Results

I present results across four dependent variables for each of the four models. I begin by discussing the results for each dependent variable separately. In the text, I report the results for of the mixed-effect models and I leave the results of the fixed effect models for the appendix 3.7. I prefer the mixed-effect models for reasons stated above, and because they represent a closer estimation of the impact of the variables of interest by eliminating the variance attributable to unobservable time-invariant characteristics of school districts.

Next, I explore some substantive interpretations of the findings in the models. I do this by producing simulated observations and showing the prediction across the range of the variable of interest. This allows me to explore the marginal effect of changes in a predictor in the probability space

of the predicted values of the model. This is more intuitive than discussing the coefficient values or interpreting effect sizes.

Finally, I close by comparing the four groups of models to one another in an effort to understand which variables jointly explain the dependent variables best. In this section, I also compare the models to null models consisting merely of year and group factors. Thus, I explore how much additional classification power the school district annual attributes provide in explaining the likelihood candidates emerge or incumbents are defeated in a school board race.

Dissatisfaction

Presence of Non-incumbents

Table 3.6: Mixed Models of Incumbent Lockout in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.971^{**}	1.009^{*}	1.065^{**}	0.980^{**}	1.160^{**}
	(0.375)	(0.403)	(0.377)	(0.378)	(0.413)
Electorate Size	0.827^{***}	0.433^{*}	0.845^{***}	0.827^{***}	0.307
	(0.142)	(0.209)	(0.162)	(0.174)	(0.261)
% Over 65	0.183	0.126	0.219	0.191	0.183
	(0.143)	(0.154)	(0.162)	(0.149)	(0.176)
% Bachelor +	−0.154	−0.002	−0.098	−0.123	0.024
	(0.114)	(0.169)	(0.164)	(0.117)	(0.203)
% White	−0.159	−0.168	−0.104	−0.204	−0.225
	(0.126)	(0.137)	(0.150)	(0.128)	(0.163)
% Owner Occupied	0.190	0.130	0.150	$0.252^{\dagger}$	0.154
	(0.144)	(0.153)	(0.156)	(0.152)	(0.184)
Exurb	0.105	0.133	0.231	0.128	0.174
	(0.362)	(0.384)	(0.369)	(0.362)	(0.394)
Rural	0.102	0.037	0.194	0.095	0.048
	(0.350)	(0.371)	(0.357)	(0.352)	(0.382)
Contest. Lag	0.468^{***}	0.496^{***}	0.468^{***}	0.464^{***}	0.486^{***}
	(0.094)	(0.097)	(0.094)	(0.095)	(0.098)
Rev. Lim. Attpt.		0.653^{*}			$0.576^{\dagger}$
		(0.290)			(0.294)
Rev. Lim. Pass		−0.288			−0.295

Table 3.6: Mixed Models of Incumbent Lockout in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
		(0.345)			(0.346)
Bond Attpt.		−0.014			0.008
		(0.284)			(0.287)
Bond Pass		−0.007			−0.012
		(0.349)			(0.349)
% Polarized		−0.079			−0.082
		(0.106)			(0.108)
% Teach. Voters		−0.049			−0.108
		(0.158)			(0.175)
Fall Turnout		0.007			0.015
		(0.171)			(0.182)
Number Seats		1.055***			1.064***
		(0.111)			(0.111)
% Tax for Schl.			0.045		−0.003
			(0.106)		(0.115)
% Rev. Prop. Tax			−0.117		−0.002
			(0.169)		(0.197)
Cost per Pupil			0.308†		0.206
			(0.186)		(0.202)
Bal. per Pupil			−0.264†		−0.350*
			(0.138)		(0.146)
Millrate Δ			0.026		0.021
			(0.102)		(0.105)
% Salary Admin.				−0.013	−0.080
				(0.124)	(0.130)
New Sup.				0.168	0.163
				(0.133)	(0.136)
% Priv. School				−0.102	−0.079
				(0.117)	(0.129)
Cumul. Bond Att.				−0.101	−0.041
				(0.125)	(0.135)
Cumul. Ref Att.				0.271*	0.158
				(0.126)	(0.139)
N	2727	2727	2727	2727	2727
AIC	3029.546	2938.902	3033.456	3032.160	2948.712
N Groups	310	310	310	310	310
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.478	0.515	0.459	0.46	0.5

† significant at $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

All continuous variables mean centered and divided by 2 standard deviations

The models in Table 3.6 are disappointing overall. Not only are most variables not statistically significant, many of them are not of the correct sign.[14] The most consistent result is that the measure of the size of the community, voting age population, is positively related to a greater probability of non-incumbents participating in a race. The other variables that seek to control for the pool of candidates, however, are not statistically significant and some run counter to evidence from surveys showing board members are more highly educated, older, and less likely to be minorities. Thus, we would expect a greater share of these groups in the community to be positively related to more non-incumbents.

More disappointingly, the substantive variables provide relatively few detectable effects. The only variables that are statistically significant are the presence of a referenda attempt to exceed the revenue limit, a control for the number of seats open in the race, and the dollars per pupil in the district's savings account. These variables are all in the correct sign with a referenda attempt increasing the likelihood that non-incumbents will participate in the race, more seats open leading to more non-incumbents, and a larger fund balance being associated with decreased challenger participation in the election.[15]

In all the models, quite a bit of variation is explained by variability between districts as captured by the district effects. The district intercepts vary about as much as moving one standard deviation in the voting age population, suggesting that much of the variation in determining if any non-incumbents are running is up to district factors that are not measured here.

[14]The demographic variables fair poorly, although they are generally in the correct direction.

[15]Observations are dropped from these models if they have no lagged observation of the dependent variable.

Non-Incumbents and More Candidates than Seats

Table 3.7 shows the results for estimates of whether voters face a ballot with more challengers than seats and at least one non-incumbent on the ballot. This presents a better measure of what voters might think of as contestation because it is measuring the presence of an actual choice on the ballot for voters. These models are better supported by the variables I selected to test than the models predicting non-incumbents running - a positive sign. [16]

First, larger districts correctly are associated with more contestation, confirming the predictions about the importance of size posited by Oliver et al. (2012). Another demographic variable shows that the greater the population over 65 in a community, the more likely voters will have a choice for school board election. This matches with the expectation that this represents a greater pool of potential candidates. The percentage of adults with a bachelor degree is inconsistently negative, suggesting that communities with greater levels of education in their population are less likely to experience school board choice. This is counter to our expectation but may reflect that these communities have greater consensus about the value and nature of locally provided education.

Unsurprisingly, the measure for the number of incumbents is strongly negatively related to the the likelihood the race will be contested, suggesting that like incumbents in other elections, incumbents in school board races may also deter challengers. However, some policy decisions of school boards do appear to significantly affect the presence of new candidates for board - notably the decision to offer and the passage of an override referendum, the millrate for the district, and the community's history of recent bond referenda attempts. Attempting an override referendum in the prior year

[16] These models do not consider races where a candidate with few votes is included in the ballot. However, the results here are robust to coding all districts with even a nominal challenge as contested races.

increases the likelihood of a challenge, but if an override referendum is successful, then this effect is negated. This suggests that the decision to offer an override referendum is politically perilous for school board members – if they misjudge the community and the referendum fails, they increase their chance for a contested election.

Even more support for fiscally minded voters emerges with a positive relationship between districts with higher tax rates. Board races are more contentious when taxation rates rise.

Table 3.7: Mixed Models of Contestation in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.880^{*}	0.379	0.941^{*}	1.063^{*}	0.580
	(0.416)	(0.431)	(0.421)	(0.423)	(0.447)
Electorate Size	1.065^{***}	1.571^{***}	0.847^{***}	0.941^{***}	1.187^{***}
	(0.169)	(0.237)	(0.193)	(0.204)	(0.295)
% Over 65	0.150	$0.301^{\dagger}$	0.444^{*}	0.292	0.579^{**}
	(0.171)	(0.177)	(0.196)	(0.180)	(0.203)
% Bachelor +	-0.350^{**}	−0.314	0.009	-0.333^{*}	−0.020
	(0.135)	(0.193)	(0.202)	(0.139)	(0.239)
% White	0.077	0.146	−0.061	0.045	−0.020
	(0.130)	(0.135)	(0.167)	(0.132)	(0.169)
% Owner Occupied	0.075	0.109	−0.128	0.184	0.070
	(0.171)	(0.171)	(0.186)	(0.180)	(0.209)
Exurb	−0.090	0.245	−0.273	−0.257	−0.119
	(0.397)	(0.407)	(0.407)	(0.401)	(0.421)
Rural	0.193	0.512	−0.023	0.011	0.107
	(0.388)	(0.395)	(0.397)	(0.393)	(0.412)
Lag. Contest.	0.226^{*}	$0.214^{\dagger}$	$0.212^{\dagger}$	0.229^{*}	$0.200^{\dagger}$
	(0.111)	(0.112)	(0.111)	(0.111)	(0.113)
% Incumbents		$-0.308^{\dagger}$			-0.321^{*}
		(0.160)			(0.161)
Override Attpt.		0.252			0.262
		(0.284)			(0.290)
Override Pass		−0.023			0.004
		(0.350)			(0.352)
Debt Ques.		0.540			0.561
		(0.346)			(0.355)
Debt Pass		−0.260			−0.306
		(0.425)			(0.430)
% Polarized		0.096			0.135
		(0.117)			(0.119)

Table 3.7: Mixed Models of Contestation in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
% Teach. Voters		0.547^{**}			$0.409^{\dagger}$
		(0.191)			(0.213)
Fall Turnout		−0.133			−0.263
		(0.201)			(0.216)
Number Seats		-0.335^{**}			-0.290^{*}
		(0.112)			(0.114)
% Tax for Schl.			0.315^{*}		0.269^{*}
			(0.132)		(0.136)
% Revenue Prop. Tax			$-0.394^{\dagger}$		−0.168
			(0.208)		(0.233)
Cost per Pupil			−0.369		−0.389
			(0.231)		(0.240)
Balance per Pupil			−0.066		0.007
			(0.170)		(0.172)
Millrate Δ			−0.030		−0.022
			(0.118)		(0.119)
% Salary - Admin.				−0.141	−0.097
				(0.150)	(0.152)
New Sup.				−0.106	−0.099
				(0.147)	(0.148)
% Priv. School				$-0.259^{\dagger}$	−0.168
				(0.140)	(0.148)
Cumul. Bond Att.				$0.289^{\dagger}$	0.186
				(0.153)	(0.157)
Cumul. Override Att.				−0.041	−0.045
				(0.137)	(0.146)
N	2010	2010	2010	2010	2010
AIC	2247.656	2237.377	2245.796	2249.367	2245.032
N Groups	310	310	310	310	310
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.569	0.527	0.562	0.556	0.529

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

All continuous variables rescaled to center 0 and divided by 2 standard deviations.

Competitiveness

A continuous measure of competitiveness is preferable to a binary cutoff because it allows us to measure the feature of interest – the intensity of the

divide among candidates. Here, I find more evidence of fiscally motivated voters as before. While the demographic results are largely the same, so too are the results surrounding fiscal variables. It is encouraging to see that the structural variables are in the correct direction as well – more incumbents result in less competitive elections and more seats result in less competitive elections as well. School districts with relatively more scope, that is, districts which capture a larger share of the property tax millrate in their community have more competitive elections. Within districts this suggests that as the millrate increases, the competitiveness increases – though the change in millrate variable itself is not statistically significant.

The more often the district has attempted to override revenue limits is, counter intuitively, less associated with competitive elections. This perhaps represents a community that has reached consensus about supporting public schools and as such, has less electoral competition. Districts with higher per pupil expenditures are also marked by less competitive elections. Without measures of board member preferences there are at least two equally plausible explanations for this result. First, these communities may have higher costs because of a policy consensus around more public support for education and thus higher per pupil expenditures. That is, elections are not competitive because there is already a community consensus that is reflected in current board policy. Thus, candidates do not run or challenges are not spirited because all candidates broadly support the same policy. Alternatively, it may be that these communities are less competitive because no challengers ever emerge in the first place.

Table 3.8: Linear Mixed Models of Blais-Lago Quotient of Competitiveness in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.101	0.006	0.128	0.122	0.015
	(0.099)	(0.074)	(0.098)	(0.101)	(0.074)
Electorate Size	0.183^{***}	0.250^{***}	0.107^{*}	0.215^{***}	0.245^{***}
	(0.045)	(0.042)	(0.048)	(0.052)	(0.051)
% Over 65	-0.003	0.002	$0.086^{\dagger}$	0.024	0.059
	(0.045)	(0.033)	(0.049)	(0.046)	(0.036)

Table 3.8: Linear Mixed Models of Blais-Lago Quotient of Competitiveness in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
% Bachelor +	-0.079^{*}	-0.121^{**}	0.007	$-0.073^{\dagger}$	−0.038
	(0.036)	(0.035)	(0.048)	(0.036)	(0.042)
% White	0.032	−0.012	−0.027	0.026	−0.036
	(0.038)	(0.028)	(0.042)	(0.039)	(0.031)
% Owner Occupied	0.019	0.038	−0.037	0.046	0.012
	(0.046)	(0.033)	(0.048)	(0.048)	(0.038)
Exurb	−0.103	−0.015	$-0.174^{\dagger}$	−0.115	−0.063
	(0.102)	(0.072)	(0.101)	(0.103)	(0.072)
Rural	−0.063	0.040	−0.146	−0.077	−0.016
	(0.099)	(0.070)	(0.099)	(0.100)	(0.071)
Contest. Lag	−0.000	−0.006	−0.002	−0.001	−0.006
	(0.018)	(0.017)	(0.018)	(0.018)	(0.017)
% Incumbents		-0.282^{***}			-0.283^{***}
		(0.016)			(0.016)
% Yes Rev. Limit		$0.026^{\dagger}$			0.038^{*}
		(0.016)			(0.016)
% Polarized		−0.011			−0.006
		(0.018)			(0.018)
% Teach. Voters		0.042			0.019
		(0.033)			(0.036)
Fall Turnout		0.028			0.014
		(0.035)			(0.037)
Number Seats		-0.373^{***}			-0.368^{***}
		(0.021)			(0.021)
% Tax for Schl.			0.097^{**}		0.082^{**}
			(0.032)		(0.024)
% Revenue Prop. Tax			$-0.086^{\dagger}$		$-0.082^{\dagger}$
			(0.050)		(0.041)
Cost per Pupil			-0.148^{**}		-0.104^{*}
			(0.047)		(0.040)
Balance per Pupil			−0.028		0.039
			(0.033)		(0.028)
Millrate Δ			0.021		0.018
			(0.019)		(0.017)
% Salary - Admin.				0.023	$0.050^{\dagger}$
				(0.029)	(0.025)
New Sup.				0.010	0.001
				(0.023)	(0.022)
% Priv. School				$-0.070^{\dagger}$	−0.035
				(0.037)	(0.027)
Cumul. Bond Att.				0.034	−0.006

Table 3.8: Linear Mixed Models of Blais-Lago Quotient of Competitiveness in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
				(0.037)	(0.027)
Cumul. Override Att.				−0.042	−0.045†
				(0.033)	(0.025)
N	2727	2727	2727	2727	2727
AIC	3492.442	3018.501	3490.907	3511.649	3037.717
N Groups	310	310	310	310	310
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.27	0.161	0.262	0.269	0.153
Sigma	0.4152	0.392	0.4146	0.4152	0.3913

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$
All continuous variables rescaled to center 0 and divided by 2 standard deviations.

Incumbent Defeat

Table 3.9 shows the results for incumbent defeat. These results are less promising than those in Table 3.7 for candidates emerging. Again, population size is strongly positively related with more incumbent defeats. However, other demographic variables do not seem to be predictive of incumbents being defeated. In fact, incumbent defeat proves very difficult to predict. Outside of the percentage of incumbents on the ballot – a control to account for the varying opportunity for incumbent defeat election to election.

Table 3.9: Mixed Models of Incumbent Defeat in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	−1.095***	−0.965**	−1.024**	−1.109***	−0.950**
	(0.327)	(0.343)	(0.333)	(0.332)	(0.356)
Electorate Size	0.351*	0.229	0.344*	0.235	0.146
	(0.146)	(0.207)	(0.169)	(0.182)	(0.255)
% Over 65	0.077	0.002	0.047	0.028	−0.026
	(0.157)	(0.164)	(0.176)	(0.163)	(0.184)
% Bachelor +	−0.305*	−0.326†	−0.419*	−0.337**	−0.422†
	(0.129)	(0.188)	(0.189)	(0.131)	(0.226)
% White	−0.038	−0.120	−0.081	−0.026	−0.132
	(0.120)	(0.130)	(0.155)	(0.121)	(0.159)
% Owner Occupied	−0.001	0.020	0.053	−0.082	−0.055

Table 3.9: Mixed Models of Incumbent Defeat in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
	(0.161)	(0.166)	(0.178)	(0.169)	(0.199)
Exurb	0.329	0.276	0.339	0.321	0.286
	(0.291)	(0.301)	(0.302)	(0.293)	(0.311)
Rural	0.166	0.135	0.179	0.153	0.140
	(0.283)	(0.291)	(0.291)	(0.286)	(0.303)
% Incumbents		0.605^{**}			0.617^{**}
		(0.200)			(0.201)
% Yes Rev. Limit		$0.194^{\dagger}$			$0.206^{\dagger}$
		(0.101)			(0.105)
% Polarized		−0.037			−0.051
		(0.110)			(0.111)
% Teach. Voters		−0.197			−0.156
		(0.185)			(0.205)
Fall Turnout		0.037			0.069
		(0.193)			(0.209)
Number Seats		−0.059			−0.051
		(0.104)			(0.105)
% Tax for Schl.			−0.042		0.025
			(0.125)		(0.134)
% Revenue Prop. Tax			0.174		0.072
			(0.195)		(0.219)
Cost per Pupil			0.064		0.059
			(0.226)		(0.241)
Balance per Pupil			−0.163		−0.157
			(0.147)		(0.149)
Millrate Δ			−0.080		−0.071
			(0.124)		(0.124)
% Salary - Admin.				−0.025	−0.033
				(0.150)	(0.152)
New Sup.				0.104	0.107
				(0.142)	(0.143)
% Private School				$0.220^{\dagger}$	0.211
				(0.133)	(0.139)
Cumul. Bond Att.				0.031	0.044
				(0.125)	(0.128)
Cumul. Override Att.				0.017	−0.053
				(0.112)	(0.120)
N	1968	1968	1968	1968	1968
AIC	2282.128	2279.538	2289.955	2288.807	2294.558
N Groups	309	309	309	309	309
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)

Table 3.9: Mixed Models of Incumbent Defeat in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Group:distid Var.	0.26	0.259	0.257	0.24	0.238

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

All continuous variables rescaled to center 0 and divided by 2 standard deviations.

Substantive Effects

The results of the above models are disappointing. The data do not provide much evidence of many of the theoretical expectations despite an ample sample size. Figure 3.9 depicts a summary of the coefficients across all models from the tables above along with the confidence intervals. Very few effects are statistically significant across the models, and the magnitudes of these effects all appear quite small.[17]

This section seeks to explore the effects that do matter from Figure 3.9 to illustrate the magnitude of the effects that have been identified and explore the findings of the models. Given the high number of observations available in this data set, there is likely sufficient power to detect effects that are substantively quite small yet remain statistically significant. In order to better understand this, I use simulations to illustrate the substantive impact of several of the key variables identified in the models above on school board contestation and illustrate them here.

Main Effects

The tables above provide the coefficients and standard errors for the models, but logistic regression coefficients can be difficult to interpret – especially on data that has been rescaled. In order to better demonstrate the impact of key variables, I provide simulations from the models above that show the impact on the probability of contestation conditional on changes in those variables.

In Figure 3.10 I provide a series of simulation results for three variables. Each numbered panel represents a simulated case. Each column of panels represents a combination of a predictor and a dependent variable, in this

[17]The confidence intervals are not those reported by the estimate, but are constructed from simulations of the posterior for the mixed level models and represents the median estimate plus or minus two standard deviations of the simulated values of the parameter across 1,000 simulations. These are standardized coefficients.

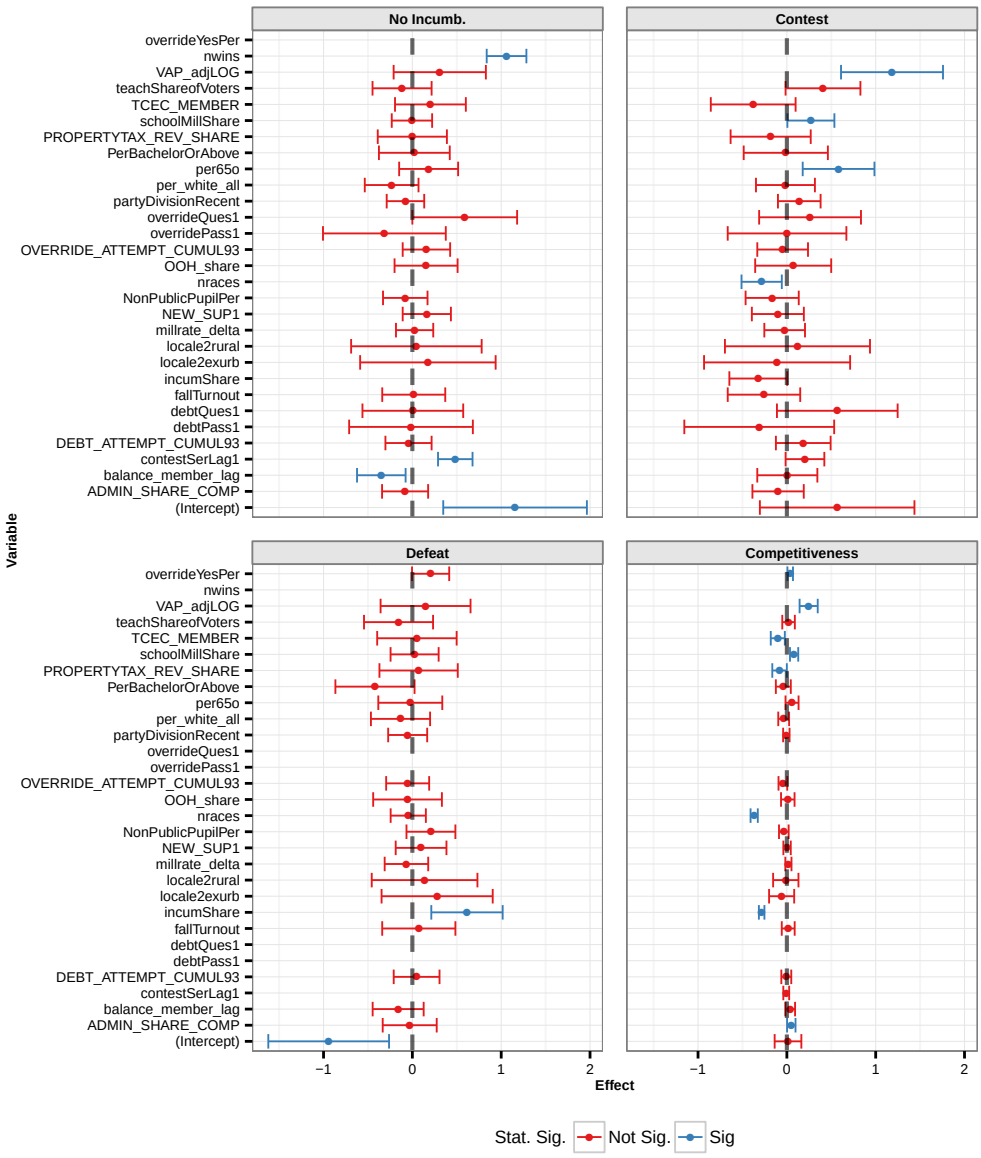


Figure 3.9: Coefficient Plot of Coefficients for Full Models

case from left to right, the probability of a contested seat by millrate share, the probability of a contested seat by electorate size, and the Blais-Lago quotient by cost. Each plot contains two dotted lines which represent the 25^{th} and 75^{th} percentiles of the value of the dependent variable as fit by the model. These lines are reference frames for examining the third solid line which represents the simulated value of the dependent variable for each observation as the independent variable changes across its full range. The movement of this line in relation to the dotted lines helps depict how much variability can be explained by increasing or decreasing the variable on the x-axis. Finally, uncertainty about the predicted value at each value of the x-axis is represented by the gray shadow around the solid line. The x-axis also contains a "rug-plot" for reference, which shows the density of observed values of the x-variable.

Taken together, each panel shows the behavior of variables in the models on specific observations and allows us to answer the question – how would contestation change if the x-variable increased or decreased?

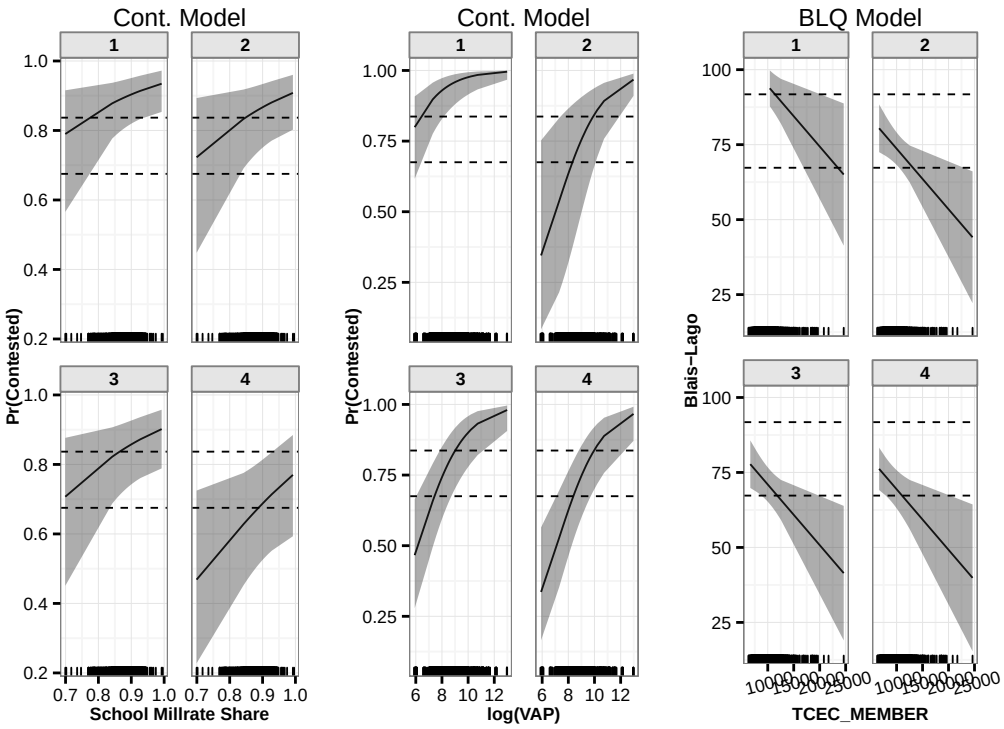


Figure 3.10: Simulated Effect of Key Variables on Contestation Levels Across Models

District Variation

By far the most variation is explained by effects across districts. These effects represent the sum of unobserved characteristics that do not vary within districts over time. In this section, I employ a similar graphical technique as in the previous section to depict the magnitude of the impact that year and district effects have in the models for the outcome variables.

Figure 3.11 simulates the variance in the predicted probabilities of each outcome across school districts. As in Figure 3.10, each panel represents a single case. Within that panel, the predicted probability for that case is estimated if that case had been observed in each district, ordered by the impact each district has on the outcome. Thus, the line in each panel be interpreted as, all else constant, how much would the outcome change if the same observation was modified by each district intercept estimate. The horizontal dashed lines in each panel represent the interquartile-range (IQR) of the fitted values from the models to give a sense of the variability in the predicted probabilities across cases. In other words, each panel shows the magnitude of moving from the district that has the least impact on the outcome to the district that has the most. While this is not a realistic counter factual in the sense that it is not possible to hold all else constant while moving across districts, it does help graphically depict the amount of variability that exists across districts that is captured by the district-level intercepts estimated in each of the models.

The first set of plots on the left represent the variability in incumbent defeat probabilities that are explained by school districts. Given how little each case changes across districts (the slope of the line formed by these probabilities), it appears that there is very little substantive variation between districts. The next two panels, contestation and incumbent lockout, have much steeper slopes, suggesting that the variability between the highest and lowest district effect is equivalent to more than the the distance between the first and third quartiles in predicted probabilities. The final panel shows

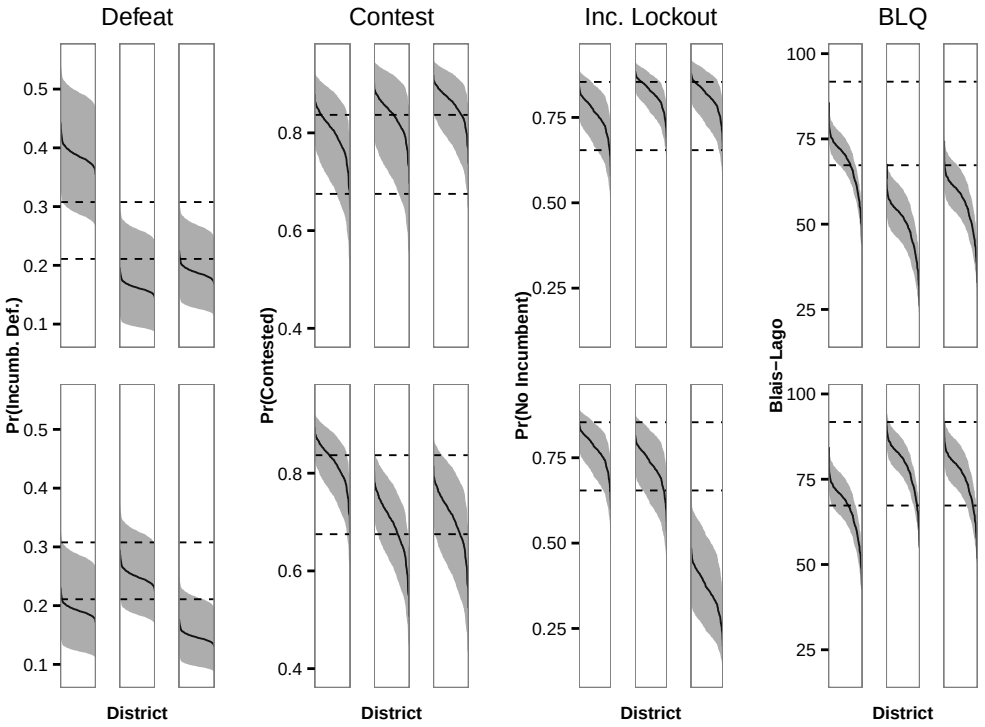


Figure 3.11: Substantive Impact of District Intercepts

the impact on the Blais-Lago quotient which appears to be in some cases equivalent to a substantial portion of the interquartile range of the predicted probabilities.

In general, it seems that between-district variation is much larger than the substantive impact of independent variables. While some of the variables in Figure 3.10 had substantial variation, the estimates were noisier in these cases. A similar graphic is included in the Appendix depicting the estimates of the year effects.

Comparisons

After exploring these effects, the question stands – which set of variables best explain the pattern of contested elections and candidate emergence in Wisconsin. Testing for the impact of individual variables is difficult because of the likelihood of colinearity leading to overly pessimistic estimates of the impact of variables on the outcome. Measures of goodness of fit provide a sense of the variation in the data explained by the whole model, but are poor choices for cross-model comparison and are on a scale that is hard to interpret. In the case of the main variables of interest here – binomial measures of contestation – it is easier to report the rate of correct classification for predictions from the model compared to observed data. I graphically depict the results of these classification based model fit metrics now.

In Figure 3.12 each model is represented in an individual panel. The x-axis represents the false-alarm rate, or uncontested elections that would be classified as contested elections. The y-axis represents the true contested elections that would be correctly classified. The closer the line is to the top left, the closer the model is to achieving perfect prediction. The dashed diagonal line represents random chance and is included for reference in each panel. The ROC curves along these dimensions for the predictions produced by each model are represented by individual curves for each dependent variable. A null model consisting of year fixed effects and random intercepts for each school district is represented in each panel by the dashed gray curves. A clear pattern emerges. First, incumbent defeat is much more difficult to predict than either the presence of all incumbents, or a serious challenger – these two curves are substantially higher than the green curve representing incumbent defeat in all panels. Second, each of the models appears to do equally well at classifying districts for each of the dependent variables – the pattern is the same panel to panel. This is likely due to a final observation, which is that the null model is nearly identical to the models which include predictors.

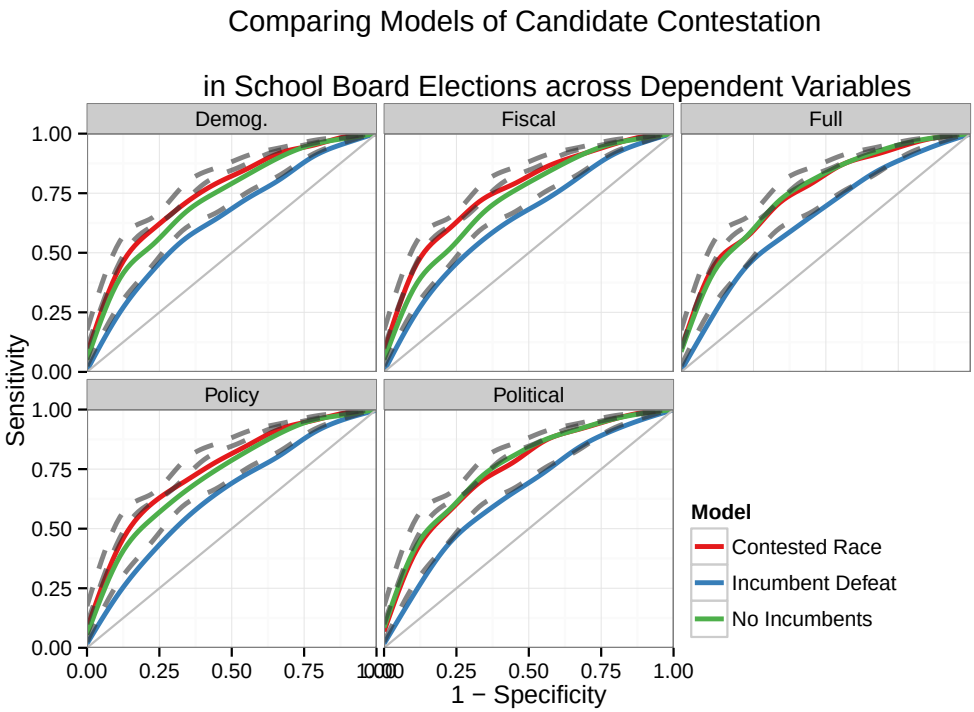


Figure 3.12: ROC Curves for Models of Election Contestation in Wisconsin School Boards by Model Type. The diagonal line represents a model equal to random chance, the top left corner represents the best prediction performance. The dashed line represents a null model with only group-specific intercepts, but no predictors.

This is further explored in Figure 3.13 where the same ROC curves are reorganized into each of the three dependent variables, with each model being represented by a colored line and the null model again in gray. This makes it clear that a simple random intercept model with fixed year effects has the same explanatory power as the other models that include election level predictors. This suggests that the bulk of the variation in school board contestation is the result of individual district patterns and year to year fluctuations in political participation. These results also serve as a caution

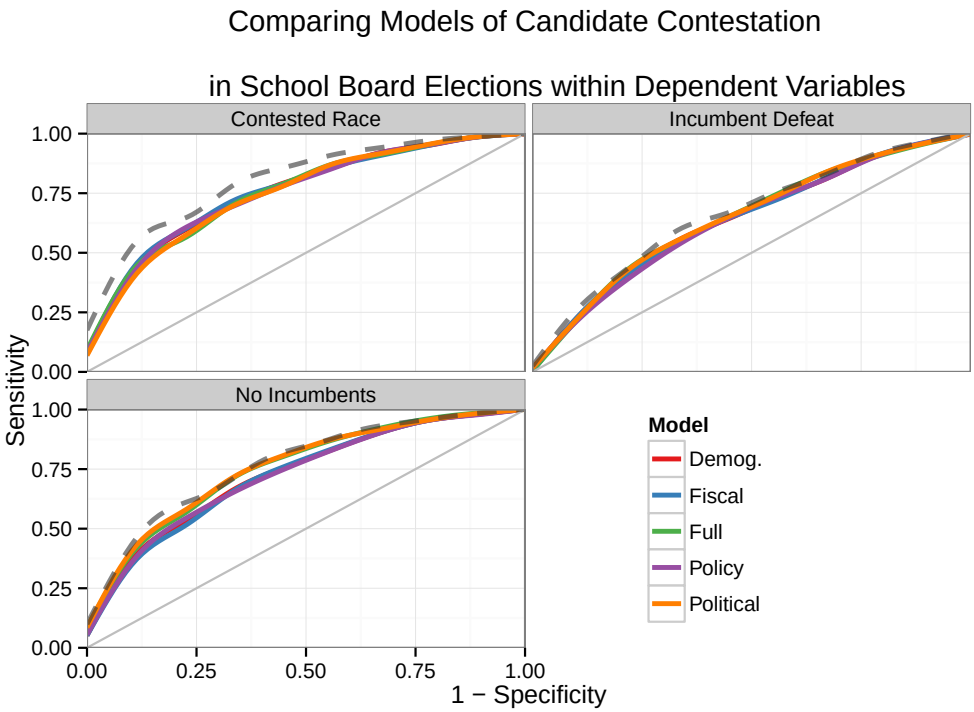


Figure 3.13: ROC Curves for Models of Election Contestation in Wisconsin School Boards by DV. The diagonal line represents a model equal to random chance, the top left corner represents the best prediction performance. The dashed line represents a null model with only group-specific intercepts, but no predictors.

about overinterpreting the coefficients above – while some of them may be statistically significant, they provide very little additional predictive power beyond the unobservable district and year effects modeled by the hierarchical parameters in the model.

3.6 Discussion

The study shows that the decision to contest school board elections, and thus for new candidates to emerge, is not well explained by observable attributes of the school districts themselves. Across an array of attributes such as the demographic makeup of the district, the fiscal health of the district, the local politics of school district finances, and the policy decisions of the school boards themselves – very little of the variation in school board contestation was explained. The biggest factor in school board election contestation from the data in Wisconsin was the unobserved variance between districts themselves as demonstrated by the simulations plotted in Figure 3.11.

This finding is important for three reasons. First, by eliminating a number of possible between-district explanations, these findings provide evidence that the determinants of running for school board are localized and idiosyncratic as opposed to based on responses to policy, fiscal, or political pressures. The fact that unobservable school district effects explain the biggest share of the variance in candidate emergence and competitiveness, and that other factors explain very little provides strong evidence for this. This fits with other studies of local non-partisan elections – particularly those held off-cycle – where an engaged subset of the general election electorate votes based on primarily local issues (Oliver et al., 2012). This suggests that future study of school board elections needs to take a deeper look at the issues at play in individual districts by studying the preferences of likely voters and the positions of potential candidates, a la the suburban voter studies of Oliver et al. (2012).

Second, the Wisconsin evidence suggests that the competitiveness of board elections across this period in the state has not changed. There is no detectable uptick or decrease in competition across any of the measures of competition. This is a theme I will return to in Chapter 5, but it is clear from the evidence here that whatever the implications are for the level of

competitiveness shown in school board elections in Wisconsin, it is stable.

Third, board elections appear to operate on a non-partisan issue domain. Predictors of the partisanship of the community or the partisan division of the community in recent elections had no detectable effect on the contestation of school board elections. Education is an issue that confounds ideology for both parties, but the lack of evidence of partisanship mattering for board contestation has important consequences for future studies.

Taken together, when returning to the question that guides this chapter – why run for school board – the answer appears to be idiosyncratic to the conditions within the school district as a community. While it is certainly true that the size of the population is importantly related to higher levels of contestation across almost all measures, there are few other relevant factors that seem predictive of the frequency of challenges for school board seats. School board candidates do not seem to emerge in response at all to the measures of policy pressure collected for this study such as shifts in compensation, changes in the district superintendent, or the academic performance of the school district. However, candidates do seem to be responsive to fiscal factors. Consistently, some measure of fiscal policy is predictive across the models, whether it is the share of the millrate devoted to the school district, the passage of an override or debt referenda, or the cumulative effect of school district referenda since the imposition of revenue limits. Despite these variables being statistically significant, they explained relatively little of the variation in candidate contestation and proved to be poor predictors of contestation.

So, why run for school board? In the majority of school boards across Wisconsin the answer appears to be in response to some local issue or because of the nature of the community itself. Potential board members may be activated by fiscal conditions, if at all, but predominantly appear to respond to unobservable conditions in the community in which they serve. Chapter 5 will seek to more formally test the causality of candidate activation.

Normatively, arguments can be constructed for or against these findings being healthy for democracy. Critics of special jurisdictions such as school boards are quick to point out their ease of capture by special interests due to the very low levels of interest exhibited by voters and candidates in serving these organizations (Moe, 2011; Berry, 2009). It is undoubtedly true that low-levels of participation are observed here, but my, admittedly weaker, tests of teacher-union capture found no observable effects on board policy. More work remains to be done to understand the motivations of candidates and school board voters, but this study suggests that such work needs to go beyond administrative collections of school district attributes and delve into specific features of the individual candidates and voters in the districts they serve.

In defense of the findings here, school board elections – when contested – appear to be more competitive than legislative counterparts (Blais and Lago, 2009). Attempting to explain this competition led to few observable results, which suggests further study is needed to understand what issues or policy concerns lead to competitive elections. Without a deeper understanding than can be given by the statewide measures used in this study, it is clear that any community divisions that may drive board competition will continue to go undetected.

For adherents of dissatisfaction theory, this study has eliminated some easily observable antecedents of voter dissatisfaction, but has certainly not eliminated the likely possibility that voter dissatisfaction with boards is more closely related to specific policy decisions. In fact, consistent evidence was found that the highest profile board decisions, offering a referenda for school funding, was related to competition for board seats. This suggests that other high profile decisions not captured here, such as a change in the curriculum or the modification of graduation requirements, may also be more than sufficient to activate voters and be part of the large variation between districts observed in the models above. Without political party

gatekeepers or consistently polarized issues, a potential candidate may find the barriers to seeking office remarkably low in Wisconsin – representing great democratic potential. From the community side though, it is clear that the smaller size of school board electorates greatly reduces the pool of likely candidates with time, resources, and interests. This suggests a need to consider how to expand the demographic pools from which school board members are drawn to convert democratic potential into actualized democracy.

The next chapters will explore the motivations of voters to help further understand this puzzle. Then I will turn my attention to using exogenous variation to test the causal impact of changes to the balance of power between school boards and employees in collective bargaining on voter and candidate activity in board elections. Finally, I will turn my attention toward investigating if board turnover leads to any detectable changes in school district policies in an effort to answer the question – if an incumbent loses in a school board election that is marked by low turnout, does anything happen?

3.7 Technical Appendix

All analyses were done using R (R Core Team, 2013). Source code and data available online.

Pooled GLM Model Results

Not printed.

Table 3.10: Models of Incumbent Lockout in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.883^{*}	0.839^{*}	0.975^{*}	0.887^{*}	0.965^{*}
	(0.386)	(0.395)	(0.397)	(0.392)	(0.411)
Electorate Size	0.744^{***}	0.741^{***}	0.801^{***}	0.754^{***}	0.707^{**}
	(0.115)	(0.182)	(0.150)	(0.150)	(0.243)

Table 3.10: Models of Incumbent Lockout in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
% Over 65	0.172	0.164	0.186	0.169	0.189
	(0.135)	(0.146)	(0.150)	(0.147)	(0.166)
% Bachelor +	−0.126	−0.081	−0.085	−0.097	−0.007
	(0.093)	(0.145)	(0.151)	(0.102)	(0.186)
% White	−0.156†	−0.161†	−0.069	−0.198*	−0.142
	(0.087)	(0.095)	(0.126)	(0.089)	(0.132)
% Owner Occupied	0.182	0.184	0.148	0.232†	0.188
	(0.123)	(0.126)	(0.141)	(0.134)	(0.163)
Exurb	0.081	0.087	0.236	0.116	0.178
	(0.379)	(0.386)	(0.397)	(0.387)	(0.409)
Rural	0.059	0.047	0.172	0.065	0.098
	(0.362)	(0.369)	(0.382)	(0.371)	(0.395)
Contest. Lag	0.589***	0.597***	0.582***	0.579***	0.579***
	(0.101)	(0.102)	(0.100)	(0.102)	(0.102)
Rev. Lim. Attpt.		0.681**			0.594*
		(0.251)			(0.255)
Rev. Lim. Pass		−0.292			−0.302
		(0.302)			(0.301)
Bond Attpt.		−0.027			0.028
		(0.271)			(0.275)
Bond Pass		−0.040			−0.052
		(0.332)			(0.336)
% Polarized		−0.046			−0.044
		(0.105)			(0.106)
% Teach. Voters		0.031			−0.070
		(0.156)			(0.171)
Fall Turnout		−0.029			−0.010
		(0.173)			(0.180)
Number Seats		0.058			0.036
		(0.103)			(0.104)
% Tax for Schl.			0.057		0.051
			(0.110)		(0.117)
% Rev. Prop. Tax			−0.121		−0.124
			(0.163)		(0.181)
Cost per Pupil			0.363*		0.289
			(0.184)		(0.191)
Bal. per Pupil			−0.229		−0.219
			(0.140)		(0.142)
Millrate Δ			0.027		0.036
			(0.110)		(0.111)
% Salary Admin.				−0.004	−0.021
				(0.108)	(0.111)

Table 3.10: Models of Incumbent Lockout in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
New Sup.				0.177	0.177
				(0.134)	(0.135)
% Priv. School				−0.076	−0.094
				(0.113)	(0.123)
Cumul. Bond Att.				−0.113	−0.087
				(0.105)	(0.114)
Cumul. Ref Att.				0.271*	0.131
				(0.122)	(0.123)
N	2727	2727	2727	2727	2727
AIC	3041.500	3045.638	3043.228	3042.211	3054.366
BIC	3467.089	3660.377	3587.037	3586.019	3905.544
$\log L$	−1448.750	−1418.819	−1429.614	−1429.105	−1383.183

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$
All continuous variables mean centered and divided by 2 standard deviations
Year fixed effect coefficients excluded

Table 3.11: Models of Contestation in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.700†	0.370	0.748†	0.885*	0.525
	(0.375)	(0.390)	(0.386)	(0.389)	(0.409)
Electorate Size	0.951***	1.470***	0.761***	0.843***	1.130***
	(0.152)	(0.208)	(0.179)	(0.173)	(0.251)
% Over 65	0.094	0.247	0.352*	0.222	0.514**
	(0.154)	(0.163)	(0.176)	(0.169)	(0.189)
% Bachelor +	−0.320**	−0.311†	0.004	−0.310*	−0.024
	(0.112)	(0.180)	(0.187)	(0.122)	(0.238)
% White	0.083	0.175	−0.037	0.056	0.006
	(0.118)	(0.107)	(0.151)	(0.111)	(0.147)
% Owner Occupied	0.035	0.053	−0.145	0.130	0.007
	(0.157)	(0.156)	(0.175)	(0.163)	(0.195)
Exurb	−0.095	0.112	−0.265	−0.255	−0.231
	(0.370)	(0.384)	(0.388)	(0.385)	(0.405)
Rural	0.180	0.377	−0.014	0.005	0.007
	(0.356)	(0.363)	(0.372)	(0.375)	(0.387)
Lag. Contest.	0.404***	0.391***	0.382***	0.395***	0.368**
	(0.115)	(0.116)	(0.115)	(0.115)	(0.117)
% Incumbents		−0.251			−0.265†
		(0.157)			(0.157)
Override Attpt.		0.220			0.263
		(0.280)			(0.283)
Override Pass		−0.019			−0.004

Table 3.11: Models of Contestation in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
		(0.353)			(0.359)
Debt Ques.		0.500†			0.511†
		(0.282)			(0.290)
Debt Pass		−0.246			−0.300
		(0.363)			(0.367)
% Polarized		0.073			0.118
		(0.109)			(0.108)
% Teach. Voters		0.522**			0.402*
		(0.165)			(0.178)
Fall Turnout		−0.106			−0.230
		(0.204)			(0.217)
Number Seats		−0.267*			−0.278*
		(0.111)			(0.111)
% Tax for Schl.			0.266*		0.239*
			(0.121)		(0.119)
% Revenue Prop. Tax			−0.354†		−0.172
			(0.202)		(0.214)
Cost per Pupil			−0.345		−0.434†
			(0.241)		(0.255)
Balance per Pupil			−0.031		0.046
			(0.160)		(0.162)
Millrate Δ			−0.032		−0.030
			(0.114)		(0.115)
% Salary - Admin.				−0.106	−0.051
				(0.157)	(0.157)
New Sup.				−0.097	−0.091
				(0.139)	(0.141)
% Priv. School				−0.218†	−0.140
				(0.118)	(0.129)
Cumul. Bond Att.				0.290*	0.199
				(0.146)	(0.146)
Cumul. Override Att.				−0.053	−0.067
				(0.114)	(0.115)
N	2010	2010	2010	2010	2010
AIC	2259.518	2250.768	2256.726	2259.843	2254.829
BIC	2663.142	2856.204	2772.468	2775.585	3084.501
$\log L$	−1057.759	−1017.384	−1036.363	−1037.922	−979.415

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

All continuous variables rescaled to center 0 and divided by 2 standard deviations.

Table 3.12: Linear Models of Blais-Lago Quotient of Competitiveness in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.062	−0.034	0.074	0.077	−0.028
	(0.065)	(0.056)	(0.066)	(0.070)	(0.054)
Electorate Size	0.164***	0.258***	0.075†	0.197***	0.247***
	(0.036)	(0.038)	(0.045)	(0.051)	(0.046)
% Over 65	0.012	0.012	0.103*	0.036	0.060†
	(0.045)	(0.034)	(0.051)	(0.046)	(0.036)
% Bachelor +	−0.080*	−0.125***	0.023	−0.072*	−0.040
	(0.033)	(0.035)	(0.056)	(0.033)	(0.044)
% White	0.023	−0.015	−0.049	0.020	−0.036
	(0.035)	(0.030)	(0.043)	(0.035)	(0.038)
% Owner Occupied	0.033	0.048	−0.030	0.056	0.022
	(0.042)	(0.035)	(0.043)	(0.044)	(0.032)
Exurb	−0.104	0.006	−0.195*	−0.119	−0.046
	(0.075)	(0.054)	(0.078)	(0.078)	(0.052)
Rural	−0.073	0.064	−0.170**	−0.082	0.008
	(0.061)	(0.046)	(0.063)	(0.064)	(0.044)
Contest. Lag	0.094***	0.031†	0.087***	0.092***	0.028
	(0.023)	(0.018)	(0.023)	(0.024)	(0.018)
% Incumbents		−0.277***			−0.281***
		(0.022)			(0.022)
% Yes Rev. Limit		0.013			0.031†
		(0.018)			(0.018)
% Polarized		−0.012			−0.002
		(0.020)			(0.019)
% Teach. Voters		0.052			0.025
		(0.035)			(0.036)
Fall Turnout		0.026			0.013
		(0.040)			(0.041)
Number Seats		−0.431***			−0.421***
		(0.031)			(0.032)
% Tax for Schl.			0.087*		0.070**
			(0.036)		(0.026)
% Revenue Prop. Tax			−0.089		−0.084†
			(0.064)		(0.045)
Cost per Pupil			−0.209***		−0.109*
			(0.056)		(0.051)
Balance per Pupil			0.012		0.061*
			(0.040)		(0.027)
Millrate Δ			0.022		0.015
			(0.020)		(0.017)
% Salary - Admin.				0.018	0.047

Table 3.12: Linear Models of Blais-Lago Quotient of Competitiveness in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
				(0.040)	(0.030)
New Sup.				0.004	−0.002
				(0.025)	(0.022)
% Priv. School				−0.060†	−0.032
				(0.032)	(0.024)
Cumul. Bond Att.				0.026	−0.007
				(0.045)	(0.026)
Cumul. Override Att.				−0.056	−0.034†
				(0.036)	(0.020)
N	2727	2727	2727	2727	2727
R^2	0.052	0.307	0.074	0.057	0.321
adj. R^2	0.046	0.301	0.066	0.049	0.313
Resid. sd	0.492	0.421	0.487	0.491	0.418

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$
All continuous variables rescaled to center 0 and divided by 2 standard deviations.

Table 3.13: Logit Models of Incumbent Defeat in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	−1.396***	−1.299**	−1.359***	−1.399***	−1.265**
	(0.389)	(0.396)	(0.400)	(0.391)	(0.415)
Electorate Size	0.341*	0.272	0.333†	0.261	0.190
	(0.170)	(0.238)	(0.201)	(0.187)	(0.276)
% Over 65	0.013	−0.054	0.038	−0.013	−0.039
	(0.170)	(0.180)	(0.185)	(0.172)	(0.196)
% Bachelor +	−0.328*	−0.329†	−0.345†	−0.356*	−0.359
	(0.143)	(0.198)	(0.187)	(0.146)	(0.231)
% White	0.043	−0.023	0.018	0.044	−0.040
	(0.103)	(0.116)	(0.152)	(0.101)	(0.153)
% Owner Occupied	−0.054	−0.032	−0.051	−0.105	−0.123
	(0.179)	(0.182)	(0.204)	(0.182)	(0.220)
Exurb	0.267	0.254	0.265	0.258	0.227
	(0.314)	(0.320)	(0.329)	(0.320)	(0.334)
Rural	0.151	0.155	0.136	0.133	0.112
	(0.326)	(0.336)	(0.338)	(0.331)	(0.353)
Contest. Lag	0.078	0.094	0.077	0.083	0.098
	(0.115)	(0.117)	(0.115)	(0.115)	(0.118)
% Incumbents		0.510*			0.521*
		(0.218)			(0.219)
% Yes Rev. Limit		0.213*			0.233*
		(0.100)			(0.105)

Table 3.13: Logit Models of Incumbent Defeat in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
% Polarized		−0.077			−0.085
		(0.108)			(0.110)
% Teach. Voters		−0.115			−0.124
		(0.189)			(0.210)
Fall Turnout		0.022			0.052
		(0.188)			(0.203)
Number Seats		−0.033			−0.022
		(0.123)			(0.124)
% Tax for Schl.			0.060		0.115
			(0.128)		(0.132)
% Revenue Prop. Tax			0.025		−0.036
			(0.206)		(0.232)
Cost per Pupil			0.028		0.020
			(0.219)		(0.233)
Balance per Pupil			−0.100		−0.100
			(0.155)		(0.162)
Millrate Δ			−0.094		−0.087
			(0.112)		(0.113)
% Salary - Admin.				0.019	0.021
				(0.163)	(0.164)
New Sup.				0.063	0.073
				(0.155)	(0.157)
% Private School				0.169	0.191
				(0.132)	(0.139)
Cumul. Bond Att.				0.059	0.057
				(0.122)	(0.129)
Cumul. Override Att.				0.003	−0.067
				(0.130)	(0.144)
N	1770	1770	1770	1770	1770
AIC	2042.748	2043.397	2051.614	2050.890	2059.627
BIC	2437.217	2569.356	2555.658	2554.934	2804.735
$\log L$	−949.374	−925.699	−933.807	−933.445	−893.813

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

All continuous variables rescaled to center 0 and divided by 2 standard deviations.

Dissatisfaction Factor Model

Table 3.14: Models of Dissatisfaction Factor in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.041	−0.038	0.058	0.064	0.004

Table 3.14: Models of Dissatisfaction Factor in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
	(0.066)	(0.068)	(0.068)	(0.068)	(0.071)
Electorate Size	0.182***	0.268***	0.170***	0.187***	0.252***
	(0.027)	(0.036)	(0.032)	(0.032)	(0.046)
% Over 65	0.032	0.055†	0.065*	0.051	0.083*
	(0.029)	(0.031)	(0.032)	(0.032)	(0.035)
% Bachelor +	−0.059**	−0.036	−0.011	−0.056**	−0.005
	(0.020)	(0.031)	(0.034)	(0.021)	(0.041)
% White	−0.005	0.002	−0.001	−0.016	−0.007
	(0.020)	(0.019)	(0.025)	(0.020)	(0.024)
% Owner Occupied	0.022	0.028	−0.008	0.043	0.033
	(0.029)	(0.029)	(0.033)	(0.031)	(0.037)
Exurb	0.034	0.098	0.044	0.030	0.099
	(0.065)	(0.064)	(0.068)	(0.065)	(0.068)
Rural	0.021	0.084	0.019	0.008	0.069
	(0.062)	(0.063)	(0.066)	(0.064)	(0.067)
Dissat. Lag	0.175***	0.164***	0.170***	0.172***	0.159***
	(0.023)	(0.023)	(0.022)	(0.022)	(0.023)
Rev. Lim. Attpt.		0.054			0.040
		(0.047)			(0.048)
Rev. Lim. Pass		−0.051			−0.056
		(0.058)			(0.058)
Bond Attpt.		0.092†			0.092†
		(0.050)			(0.050)
Bond Pass		−0.156*			−0.155*
		(0.063)			(0.063)
% Polarized		−0.021			−0.020
		(0.018)			(0.018)
% Teach. Voters		0.096**			0.071*
		(0.031)			(0.034)
Fall Turnout		−0.027			−0.039
		(0.037)			(0.041)
Number Seats		−0.079***			−0.081***
		(0.019)			(0.019)
% Tax for Schl.			0.045*		0.034
			(0.022)		(0.022)
% Rev. Prop. Tax			−0.071†		−0.035
			(0.036)		(0.039)
Cost per Pupil			0.028		0.028
			(0.041)		(0.040)
Bal. per Pupil			−0.042		−0.033
			(0.027)		(0.026)
Millrate Δ			−0.025		−0.026

Table 3.14: Models of Dissatisfaction Factor in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
			(0.024)		(0.024)
% Salary Admin.				0.020	0.028
				(0.033)	(0.032)
New Sup.				0.033	0.036
				(0.027)	(0.027)
% Private School				$-0.036^{\dagger}$	-0.026
				(0.021)	(0.022)
Cumul. Bond Att.				0.030	0.021
				(0.023)	(0.022)
Cumul. Ref Att.				0.021	0.025
				(0.022)	(0.021)
N	2727	2727	2727	2727	2727
R^2	0.076	0.089	0.081	0.079	0.094
adj. R^2	0.070	0.081	0.073	0.071	0.083
Resid. sd	0.482	0.479	0.481	0.482	0.479

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$
All continuous variables mean centered and divided by 2 standard deviations
Year fixed effect coefficients excluded

Table 3.15: Mixed Models of Dissatisfaction Factor in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Intercept	0.044	-0.008	0.065	0.068	0.036
	(0.071)	(0.073)	(0.072)	(0.072)	(0.076)
Electorate Size	0.192^{***}	0.261^{***}	0.170^{***}	0.198^{***}	0.230^{***}
	(0.031)	(0.043)	(0.035)	(0.037)	(0.053)
% Over 65	0.036	$0.057^{\dagger}$	0.078^{*}	0.056	0.100^{*}
	(0.032)	(0.033)	(0.036)	(0.034)	(0.038)
% Bachelor +	-0.064^{*}	-0.041	-0.009	-0.060^{*}	-0.002
	(0.026)	(0.036)	(0.038)	(0.027)	(0.044)
% White	-0.006	0.008	-0.011	-0.016	-0.017
	(0.027)	(0.027)	(0.032)	(0.027)	(0.033)
% Owner Occupied	0.022	0.024	-0.012	0.044	0.020
	(0.033)	(0.033)	(0.036)	(0.035)	(0.040)
Exurb	0.035	0.075	0.039	0.030	0.061
	(0.069)	(0.070)	(0.071)	(0.070)	(0.073)
Rural	0.016	0.053	0.008	0.003	0.023
	(0.067)	(0.068)	(0.069)	(0.068)	(0.071)
Dissat. Lag	0.101^{***}	0.098^{***}	0.096^{***}	0.100^{***}	0.092^{***}
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Rev. Lim. Attpt.		0.058			0.053

Table 3.15: Mixed Models of Dissatisfaction Factor in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
		(0.045)			(0.046)
Rev. Lim. Pass		−0.055			−0.058
		(0.056)			(0.056)
Bond Attpt.		0.099†			0.099†
		(0.050)			(0.051)
Bond Pass		−0.153*			−0.155*
		(0.061)			(0.061)
% Polarized		−0.021			−0.020
		(0.021)			(0.021)
% Teach. Voters		0.090*			0.066†
		(0.034)			(0.038)
Fall Turnout		−0.024			−0.034
		(0.038)			(0.040)
Number Seats		−0.006			−0.006
		(0.020)			(0.020)
% Tax for Schl.			0.050†		0.042
			(0.025)		(0.025)
% Rev. Prop. Tax			−0.074†		−0.036
			(0.039)		(0.043)
Cost per Pupil			0.014		−0.002
			(0.042)		(0.044)
Bal. per Pupil			−0.057†		−0.054†
			(0.029)		(0.029)
Millrate Δ			−0.028		−0.028
			(0.021)		(0.021)
% Salary Admin.				0.018	0.025
				(0.027)	(0.027)
New Sup.				0.029	0.032
				(0.026)	(0.026)
% Private School				−0.040	−0.026
				(0.027)	(0.028)
Cumul. Bond Att.				0.031	0.024
				(0.027)	(0.029)
Cumul. Ref Att.				0.019	0.014
				(0.026)	(0.027)
N	2727	2727	2727	2727	2727
AIC	3807.116	3827.809	3820.036	3828.071	3866.346
N Groups	310	310	310	310	310
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.133	0.131	0.134	0.132	0.133

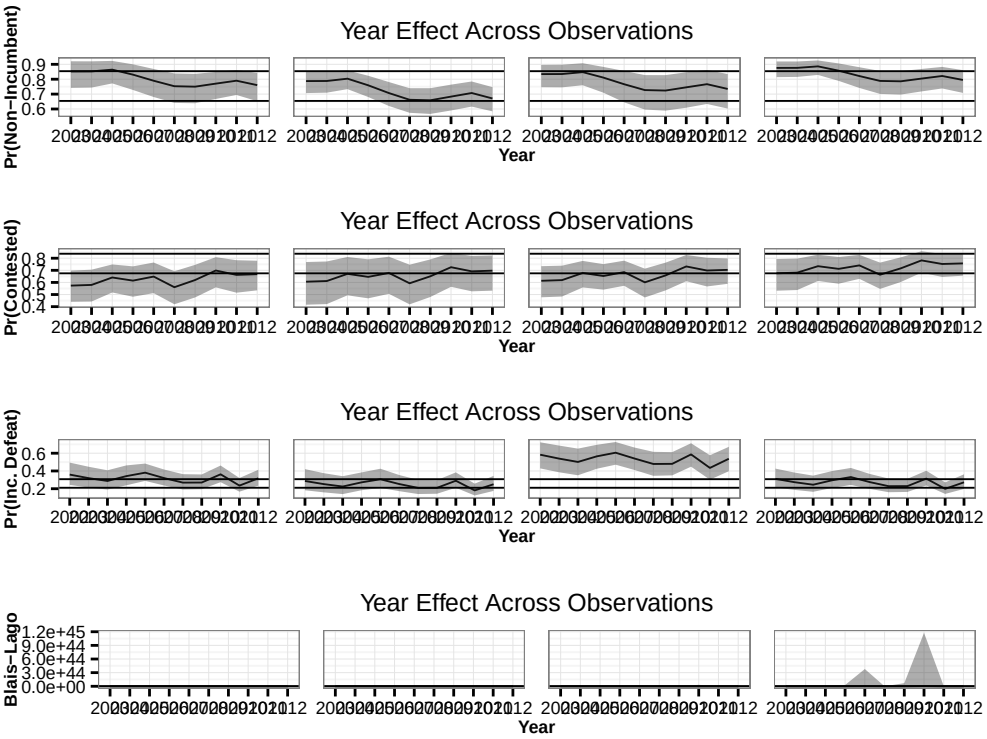


Figure 3.14: Substantive Effect on Contestation for Years

Table 3.15: Mixed Models of Dissatisfaction Factor in School Board Elections

	Demog.	Politic	Fiscal	Policy	Full
Sigma	0.4651	0.4646	0.4642	0.4652	0.4638

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$
All continuous variables mean centered and divided by 2 standard deviations

Year Effects Across Models

Across year effects. There is no consistent pattern between years and the year to year variation is a fraction of the IQR of the fitted values for all models - represented by the horizontal lines in each panel.

Model Specification Tests

Model	Dependent Variable	Hausman P Value	Chi-Square	Degrees of Freedom
Demog	Non-Incumbent	1.000	0.000	18.0
Fiscal	Non-Incumbent	1.000	0.000	23.0
Policy	Non-Incumbent	1.000	0.000	23.0
Politic	Non-Incumbent	1.000	0.000	25.0
Full	Non-Incumbent	1.000	0.000	35.0
Demog	Contestation	0.000	89.609	18.0
Fiscal	Contestation	0.000	89.385	23.0
Policy	Contestation	0.000	90.893	23.0
Politic	Contestation	0.000	91.163	26.0
Full	Contestation	0.000	95.887	36.0
Demog	Defeat	0.118	24.037	17.0
Fiscal	Defeat	0.290	25.151	22.0
Policy	Defeat	0.052	33.761	22.0
Politic	Defeat	0.332	25.367	23.0
Full	Defeat	0.376	34.930	33.0

Table 3.16: Hausman Specification Test Results for All Models

4 WHY VOTE FOR SCHOOL BOARD?

4.1 Introduction

In most American communities, each year voters are asked who they would like to lead the direction of their local schools. Elected school board members, despite managing only public schools, have many responsibilities including the setting of property tax rates, selection of curriculum, and negotiating compensation with employees. In making their decision, voters have precious little information to go on given the low level of campaign activity and the lack of involvement by parties. Even worse, voters may have little way to retrospectively rate the performance of the school board. Even if they have children in school, the information costs of evaluating school board performance remain high. Given these difficulties, it is no surprise that turnout is low.

Indeed, ever since Downs (1957b) political scientists have been asking the question: why vote in any election? Despite the fact that in general school boards are in charge of levying a substantial share of many citizens' tax bill through property taxes, when school board elections are held off-cycle turnout and voter interest in them appears to be remarkably low (Grissom, 2007; Hess, 2002). This despite the fact that the community stake in quality education is large, not just for parents of the students, but for the social, economic, and political impacts that school quality can have on a community.

Voter turnout even in national on-cycle elections in the US remains lower than many other democracies (Blais, 2006). There is an extensive literature seeking to explain patterns in turnout between years and within years between social groups (Carpini et al., 2004; Anderson, 2007; Galston, 2001; Lewis-Beck and Stegmaier, 2000). The specific puzzle of voter turnout in school board elections has even spawned its own set of theories with empirical tests (Alsbury, 2003; Wu, 1995; Rada, 1987). Despite this rich

ground, much work remains to be done to adequately test the mechanisms at play in predicting turnout in off-cycle, local, non-partisan elections like school board elections. Furthermore, theories of participation in on-cycle and higher profile elections benefit from examining the limits of their generalizability.

School boards provide an excellent ground on which to test theories of democratic participation. Unlike national elections or even state elections, school boards in Wisconsin exhibit a much greater range of electorate sizes and community characteristics. This allows the testing of Downsian hypotheses across the bottom range of democracy sizes and paints a fuller picture of how turnout operates on the small scale. Another advantage is that school board boundaries are not endogenous to the political power struggle. School board boundaries are not, in the Wisconsin case, politically drawn, but instead are historical artificats of locally determined boundary setting. School boards come with some peculiarities which make them less interesting to political scientists. Most importantly, school board elections are non-partisan. Non-partisanship makes judging candidate differences, voter preferences, and ideology difficult on a large scale. Finally, the general lack of interest in school boards makes them unlike larger scale elections. However, it does make school boards an important window into understanding local non-partisan off-cycle elections more broadly.

In this chapter I seek to explore voter turnout in school board elections through the lenses of the major theories of voter turnout. I begin by reviewing these theories. Then, I move into a discussion of school boards and the contribution a study of school boards can bring to the understanding of these theories. Next, I discuss the panel data set of school board results that I have collected, which is unique in its length and breadth, and the methods with which I will test these competing theories on the data. Finally, I conclude with an assessment of the performance of each of the theories and the foundations for future work.

4.2 Why Vote?

Setting aside important though largely settled issues of access to the polls, enfranchisement laws, administrative and cognitive barriers to casting a ballot, and freedom from intimidation – all thankfully of minimal concern in American school board elections – there remains a wealth of intricate and interrelated factors which shape a voter's decision to cast a ballot. I broadly group this literature into three major strands and include the theories that have sprung up uniquely around school boards as a fourth category:

- Rational Choice
- Group Mobilization
- Habits and Socialization
- Dissatisfaction Theory

The turnout literature asks two fundamental questions – why does anyone vote in the first place, and why do some people vote sometimes, and others do not? My aim is not to fully summarize this rich theoretical ground, but to reframe these debates in light of the particular challenge of school board elections. [1] This chapter will attempt to answer these questions with off-cycle school board elections in Wisconsin.

Rational Choice

Downs (1957b)'s elegant statement of the problem of voting as a question of why anyone would vote when their vote has such a small probability of influencing the outcome presented political scientists with a challenge of understanding why people do vote. In the formal statement of the problem as given by Downs:

[1] Other researchers studying subnational municipal or provincial elections have found support for these theories of turnout (Hajnal and Lewis, 2003; Hajnal et al., 2002).

$$R = PB - C > 0$$

R is the net expected utility of voting, P is the probability of influencing the election, B is the difference in the expected utility of the policies of the two candidates, and C refers to the cost of voting. Voters should not vote unless their expected benefit from having their preferred candidate elected multiplied by the chance of their vote being the decisive vote exceeds the costs of voting. A first attempt to answer the empirical observation that many more voters vote than should be expected under this model came from Riker and Ordeshook (1968)'s further refinement of the problem:

$$R = PB - C + D > 0$$

The addition of the D term is intended to capture the benefit of self-expression associated with voting – either self-expression of candidate preference, or self-expression of the utility of voting. However, this D term merely shifted the debate - the probability of benefit from an individual vote still remained zero, so voters would only vote when $D > C$; that is, when the benefit of self-expression was greater than the cost of voting (Fiorina and Ferejohn, 1974; Feddersen, 2004).[2] While the D term did not solve the puzzle posed by Downs (1957b), it did touch off a decades long research project to uncover why the D term varies among voters, and the functional form of this benefit of self-expression (see: Kan and Yang, 2001; Dowding, 2005; Feddersen, 2004; Schuessler, 2000).

In the rational choice case the argument is that if everyone pursues the optimal strategy of not voting, then the value of PB increase. This sets off a strategic game among voters where the value of P is determined by the

[2]Dowding (2005) places an interesting wrinkle on this by questioning why voters care about being the decisive vote when politicians so often seek large victories to ensure a safe seat or to earn a mandate. This seems less germane to the present case - school board members and the community are unlikely to interpret a substantial victory as a mandate.

strategies selected by all other voters in the electorate (Palfrey and Rosenthal, 1983, 1985; Ledyard, 1984). While I will not attempt to summarize this theoretically rich debate here (see instead: Feddersen, 2004; Geys, 2006), I do want to highlight that most empirical tests of these voter turnout theories have focused on large-scale electorates such as state or national elections. There exists a class of voter turnout theories that predict very different behaviors for differently sized electorates. As shown in Chapter 2 school board elections are typically comprised of small electorates where P is much higher than other elections.[3] It remains to be seen if B is indeed higher in such cases, as we shall see the policy preferences of candidates for board are not always easily discovered by voters. Yet, rational choice and social mobilization theories of turnout expect that in smaller electorates the collective behavior of the electorate or social group could spur turnout to be higher.

In order for positive turnout to emerge from such a game, voters are expected to have certainty about the costs of voting and the preferences of other voters – an unrealistic assumption in large electorates that hurts the case for such an approach (Mueller, 2003; Aldrich, 1993). This is a special case of the rational choice model, often called the pivotal-voter model, and it has been explicitly tested in small-scale elections and found that while it predicts overall turnout sufficiently, it does not give an accurate reflection of the margins of victory (Coate et al., 2008). Other scholars find size to be an important factor in local elections, but do not tie this to a particular theory of voter turnout (Frandsen, 2002). Interestingly, some studies of local elections have found that voters in these elections – though fewer – are much more informed and engaged than non-voters (Oliver et al., 2012).[4]

[3] P can be estimated using the Blais-Lago calculation for the competitiveness of elections under various configurations of open seats and number of winners (Blais and Lago, 2009).

[4] The size question is a curious one, because at its extreme it would predict that lower-level elections should thus exhibit higher turnout than national elections - a phenomenon described by Horiuchi (2001) as the"turnout-twist." Evidence of this in Wisconsin will be

The causal relationship between electorate size and voter knowledge is not clear, but there is some suggestion that the electorate in these non-partisan local races has a stronger estimate of the expected benefit of their candidate winning than non-voters. More importantly, Oliver (2012) finds in local municipal elections that more important than knowledge or perception of preferences is personal contact with candidates themselves. School boards are a fascinating lens through which we can explore the Downsian hypothesis and its extensions. The low level of information about school board candidates, their positions on issues, their likely vote share in an election, and the voters' own feelings on issues facing the school board make this environment dramatically different than the presidential election. What's more, the likelihood that the vote of any single voter matters in a school district is orders of magnitude larger than for state wide or nationwide office.

Group Mobilization

Social networks and group organization might also help explain voter turnout. The coordinating role they play may be more critical in small electorates. Geys (2006, p. 23) states the key of the group-based models:

> First, groups are likely to have larger benefits than individuals from political participation. The reason is that politicians may provide groups with extra benefits â<U+0080><U+0093> in terms of policies that come closer to the groupâ<U+0080><U+0099>s optimum â<U+0080><U+0093> to win the support of the group (Lapp, 1999). Second, as the political influence of a social group can be assumed to be proportional to its size (Schram and Winden, 1991), the group as a whole is more likely to have a non-negligible impact on the election outcome.

explored later.

The group approach appears to more accurately reflect the modern political environment and campaign strategy of mobilization and targeted messaging to voters (Lapp, 1999). The theory is more nuanced because it allows for the case where the optimal strategy for a group is to abstain from voting (Geys, 2006; Fowler, 2005). Crucially, such group-based mobilization relies on the group being able to enforce the voting norm within the group. This enforcement has been shown to depend on factors that seem especially of interest in small-scale local elections. Grossman and Helpman (2001, p.25) identify three such factors: the frequency of interactions within the group, the risk of social isolation resulting from deviating from the group's behavior, and the ability of group members to monitor one another. These factors are essential to preventing free riding (see Olson, 1965). Schram and Winden (1991) identify opinion leaders within these groups as a key transmitter of this social pressure. These leaders have incentives to increase turnout such as increasing their influence with elected officials, and voters wanting to build credibility with these leaders find that turning out to vote is important. In the case of school board elections such local effects might be amplified in communities with strong local organizations where monitoring costs are low.[5]

The social group hypothesis has some support from studies of school board elections. Anzia (2011) finds that off-cycle elections confer greater benefits to organized interest groups than larger on-cycle elections. Teacher unions have a greater advantage in low turnout low information off-cycle elections and therefore can use this advantage to influence school board members to provide higher salaries than among boards elected with a broader on-cycle electorate. This falls in line with the work of Moe (2011, 2005) that organized interest groups like teacher unions play an outsized role in off-cycle low turnout school board elections. This hypothesis will be explored below.

[5]Morton (1991) finds that there is an equilibrium with positive turnout if at least one leader has a strict preference for a single candidate.

Voter Socialization

Other scholars have found that the D term can be endogenous within individuals from election to election (Plutzer, 2002).[6] Experimental evidence has found that "voting and abstention, in other words, are habit forming" (Gerber et al., 2003, p.540) This is related to the group mobilization arguments above because social groups may well be the mechanism by which the habit is formed (Kanazawa, 2000). Particularly in groups that interact frequently or small communities with low monitoring costs, social rewards may be found for voting and sanctions may be made for those who abstain (Fowler, 2005). Then, citizens who are rewarded for their vote (via the election of their preferred candidate) or punished for their abstention (through the election of a less-preferred candidate) acquire an increased preference for voting. Conversely, if their voting is punished or their abstention is rewarded, they lose some of their preference for voting. This has been considered in other cases by political scientists as well (Carpini et al., 2004).[7]

In school boards there is evidence that such socialization has occurred in the case of conservative Christians (Deckman, 1999), unionized teachers (Wiebe, 1981; Moe, 2011, chapter 5), and suggestions about the role institutions may play in deepening or weakening such socialization among ethnic minorities (Leal et al., 2004). Evidence of socialization is occurring might be found by observing "stickiness" in voter turnout in school board elections year to year, independent of other factors and stronger in smaller communities. Dunn Jr. (1981) called this the social conditioning model of school board turnout and found it held explanatory power in California school board election voter registration rates, but not rates of voter turnout.

[6]Though the type of motivation based on personal contact with the candidates would not necessarily be endogenous.

[7]Other scholars have found that not just the depth and frequency of interactions with voters matters, but also the nature of those interactions, the ideological composition of those groups, and socio-economic status (Mutz, 2002; Cramer-Walsh et al., 2004; Leighley and Nagler, 1992).

If members of the community vote at a higher average level after a high turnout election, this may provide evidence that the influx of turnout in the prior election has influenced the current election.

Dissatisfaction Theory

In Chapter 1, I introduced dissatisfaction theory as the dominant theoretical paradigm for understanding school board elections. This theory traces its roots back to Key (1955)'s concept of critical elections and Dahl (1963)'s conception of pluralism. It describes an electoral system with relative stability and little involuntary incumbent turnover punctuated by periods of citizen dissatisfaction, contentious elections, and incumbent defeats (Iannaccone and Lutz, 1970; Lutz and Iannaccone, 1978a). Missing from empirical tests of dissatisfaction theory to date are indicators of voter participation. Implied throughout the dissatisfaction theory literature is that incumbent defeat is accompanied by an upwelling in citizen dissatisfaction and presumably voter participation in the election. Incumbents are defeated because new voters enter the game. Yet, until now, voter turnout in school board elections has not been used to test dissatisfaction theory explicitly, though it has received limited attention in understanding other phenomena of local education politics (Dunn Jr., 1981; Wiebe, 1981; Moe, 2011, 2005).[8]

While some rational choice models have been adapted to the school board contest, there exist no large scale studies of voter turnout in school board elections that have empirically tested these theories (Wu, 1995; Rada, 1987; Rada and Carlson, 1985). Instead, studies have focused predominantly on candidates for school board, why they run, and if their races are competitive

[8]Taxpayers also have another option for expressing their dissatisfaction, which is to move jurisdictions (Minkoff and Lyons, 2012). In Wisconsin, yet another option of expressing dissatisfaction with the school board is available to parents - open-enrolling out of the school district. Both of these forms of dissatisfaction are decidedly higher cost than voting in a school board election, though their benefit is more immediate and selective.

(Alsbury, 2003; Hess, 2002; Hess and Meeks, 2011; Moe, 2011). Yet, it might be argued, that such studies are jumping the gun. The conventional wisdom about school board elections is that they are minor affairs, settled on obscure issues, and conducted among large public apathy. If boards have competitive elections that lead to consequential decisions like superintendent turnover as expected by dissatisfaction theory (Iannaccone and Lutz, 1970), what does it matter if those hotly contested electoral defeats of incumbents came at the hand of 10% of the electorate? Democratic potential is high, with voters needing a small coalition to defeat any given candidate, but the actualization remains low because of the low stakes. In other words, the overwhelming majority has indeed cast a vote, one of indifference.

By leaving out the question of turnout, dissatisfaction theory has left out an important strategic actor in the act of expressing dissatisfaction with the direction of the schools – the voter (Wu, 1995). The current study rectifies this by providing a descriptive analysis of voter turnout over an extended number of election cycles at hundreds of school districts within Wisconsin simultaneously. Naturally it is not expected to find school board races to be high turnout affairs year in and year out. But, if dissatisfaction theory is to be saved from criticism that it ignores voters in favor of focusing on board-superintendent relationships, some cases of heightened turnout must be identified. The current study is fruitful ground for examining voter turnout trends in school board elections as well as exploring possible opportunities for voters to express dissatisfaction with academic, fiscal, or the policy performance of the local school district.

Conclusion

Notably missing from this summary is the influence that candidates and campaigns have on voter turnout. While there is some evidence that education messages used by candidates and campaign expenditures in local elections can play in mobilizing voters (Sides and Karch, 2008; Holbrook

and Weinschenk, 2013), the impact of these in school board elections is likely marginal. In the most recent survey of school board members, over two-thirds of board members report their last election as being "easy" or "somewhat easy", and in small districts this percentage is even higher (Hess and Meeks, 2011).[9]

4.3 School Boards and Voter Turnout

The current project adds importantly to the puzzle of voter turnout in two important ways. First, it creates test conditions for competing theories of voter turnout in one of the most common election types in America – non-partisan school board elections. Second, it provides an important update to the prior literature on school board election participation by explicitly measuring voter turnout in school board elections and investigating several hypothesized drivers of voter participation in such elections (Alsbury, 2003; Wu, 1995; Rada, 1987).

Voter Turnout in School Board Elections

Several competing conceptions of voter turnout can be explored at the local level through the lens of turnout in school board elections. Table 4.1 lists the evidence in school board turnout that would be consistent with the dominant theories of voter turnout discussed above.

I now turn to the data that I bring to bear in investigating these theories.

[9]Moreover, it is hard to know how much mobilization or advertising candidates can do when nearly 75% of survey respondents report spending less than $1,000 on their last campaign, and in small districts over 95% of candidates reported spending less than $1,000 on their campaign.(Hess and Meeks, 2011)

Table 4.1: Theories of Turnout and Expected Evidence

Theory	**Citation**	**Expected Finding**
Habit-forming voters	Plutzer (2002)	High autocorrelation in turnout
Rational voters	Mueller (2003); Aldrich (1993)	Smaller electorate has higher turnout
Social group led voting	Fowler (2005)	Union membership as share of electorate drives up turnout
Pivotal-voter	Downs (1957b)	Small electorate and close election drives turnout up
Social group led voting	Fowler (2005)	Polarized communities have higher turnout

4.4 Data

This study tests competing theories of voter turnout on a dataset representing school board elections in the state of Wisconsin from 2002-2012. The data come from 310 of Wisconsin's 424 school districts and are described in detail in Chapter 2 and Appendix A.

Dependent Variables

I start by describing the two unique dependent variables used in this chapter. The first is a straightforward estimate of the voter turnout in Wisconsin spring school board elections. The next variable represents the distance between turnout for the top ticket spring race and the school board race. This variable is an attempt to separate out the influence of statewide races in the spring elections on any measurement of the effect of key variables on school board election participation.

Spring Turnout

As I demonstrated in Chapter 2, the spring elections in Wisconsin are low turnout. One reason prior studies may not have chosen to focus on school board turnout is the lack of availability of data or election records to construct an accurate measure of turnout.[10] Estimating school board election turnout is not straightforward because it requires both a reliable assessment of the votes cast in the election and a reliable estimate of the voting age population in the school district. Due to the fact that school districts have diverse electoral structure and no requirements on election reporting to a central authority, it is often difficult to ascertain the number of voters within the school district. In order to combat this I use the number of votes cast divided by the number of winners for each race within a school district. I then aggregate the races when there is no district wide race, and when a district wide race is present, I use the maximum turnout in that race.

For the denominator I use the voting age population (VAP) as a measure of the number of eligible voters in the district boundaries – this measure is the only measure reliably calculated on a regular basis at the level of detail necessary to produce school district specific estimates. To determine the voting age population (VAP) of the school district in Wisconsin, I employ the finest resolution estimate of voting age population available – VAP estimates by minor civil division (MCD) conducted by the Wisconsin Department of Administration described in Chapter 2 Section 2.3.[11] With this method, I am able to estimate the voter turnout for each school district

[10]Indeed, this is a problem for election officials even within Wisconsin. When a school board recall was initiated it was unclear how to determine the number of signatures necessary to hold an election due to confusion about how to determine the threshold of 25% of the prior presidential vote within the boundaries of the school district.

[11]Available online: `http://gab.wi.gov/elections-voting/results`. Statistics for Wisconsin Minor Civil Divisions are maintained by the Department of Administration Demographic Services Center: `http://www.doa.state.wi.us/section_detail.asp?linkcatid=11&linkid=64&locid=9`

in Wisconsin school board elections as well as on presidential, gubernatorial, and non-partisan spring elections.

Voter Rolloff

Another dependent variable to look at is school board vote independent of turnout higher up the ticket known as the undervote or rolloff (Wattenberg et al., 2000). As voters move down the ballot, many of them simply stop voting and turn in an incomplete ballot, a decision based on the increasing discomfort of voters with making decisions on races for which they have little to no interest and/or information. As I showed in Section 2.3, rolloff varies year to year in districts providing hope that some of this variation can be explained by theories of voter turnout. This variable provides an alternative measure of voter engagement with school board elections by measuring what share of the total spring electorate is disengaged with school board elections. A disadvantage of this study period in Wisconsin is that turnout rose in 2011 due to the heightened interest in the state supreme court election between David Prosser and Joanne Kloppenburg. This makes it difficult to attribute heightened school board voter turnout year to year to school boards when the turnout for the top ticket race changes year to year and can do dramatically.

To construct this measure for the 2007-2012 period, I estimate the top ticket turnout in each school district. Importantly, in this period, several different office types were the top ticket due to the pattern of statewide office terms in Wisconsin. These consist of primarily state supreme court races, but as there seven justices elected to ten-year terms, the state supreme court does not have an election every spring:

- 2007 - State Supreme Court Race
- 2008 - State Supreme Court Race and presidential primary
- 2009 - State Superintendent of Public Instruction
- 2010 - None. Wisconsin Appeals Courts (3 of 4)

- 2011 - State Supreme Court Race
- 2012 - Presidential Preference Primary

If top ticket races drive voter turnout, then examining the degree to which school board turnout leads or lags top ticket races may provide some insight into the political activity in school board races independent of such races. Voter rolloff after the top ticket arises for a number of reasons including ballot design, lack of information, and the complexity of choices facing the voter in a given election (Wattenberg et al., 2000). In the non-partisan context of judicial elections, there is evidence that rolloff is lessened in competitive races where information is increased (Streb et al., 2009).[12]

The estimated difference in school board turnout to top ticket turnout can be one way to measure the political interest of voters in school boards in particular. A disadvantage of this measure is that school board is not the only down-ticket race and rolloff does not measure voter interest as many voters do not abstain despite not interest or knowledge of the school board race.

Key Independent Variables

I describe the key variables for the theories in Table 4.1 and how I operationalize them with Wisconsin data. I start with the models based on electorate size and explore if at the small electorate sizes common in school board elections there is evidence that voters are more likely to turnout than in larger school board races. I use VAP as an estimate of the actual electorate size in school board elections. This is a conservative measure given that the actual spring electorate can be as small as 15% of the voting age population.[13]

[12]For further details on how rolloff was calculated and the imputation methods used for estimating rolloff in districts without a top ticket race, see Section 2.3 in Chapter 2

[13]If is is assumed that voters adjust the electorate size equally across jurisdictions when making their assessment of the perceived utility of voting, then this is not a factor.

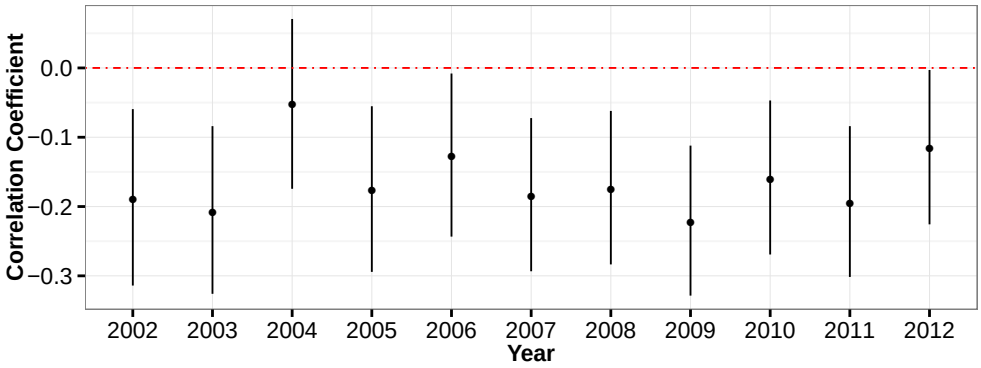


Figure 4.1: Correlation coefficient between school district voting age population and school board election turnout. Each line represents the 95 percent confidence interval.

Figure 4.1 shows that there is a consistent negative relationship between electorate size and school board election turnout across the years of data available in Wisconsin. As population increases, Wisconsin school board elections have lower turnout with a correlation of -0.153. This correlation is consistent across years with the exceptions of 2004 and 2012. This fits with the predictions of rational choice approaches which state that in a small electorate a voter can expect their vote to matter more in the outcome and thus increase the potential benefits associated with voting (Mueller, 2003; Aldrich, 1993; Downs, 1957b). However, this does not represent a full test of this theory, as voters are also voting up ticket in statewide non-partisan races such as Supreme Court and State Superintendent, and school board turnout is also driven by these races.[14]

Having competitive races is critical in driving voter turnout, as voters have very little reason to vote if they are not presented with a meaningful

If there is evidence that voters in different jurisdictions have more information about the likely electorate size in a school board election, and this varies across jurisdictions, then this becomes more problematic.

[14]They may not though because up ticket races have a statewide electorate and little chance for influence by individual voters.

choice. Measuring competitiveness in conjunction with turnout is a difficult methodological task, but often some measure of the final election margin is used as a proxy for the pre-election competitiveness of the race anticipated by voters. Following the argument of Cox (1988), I avoid using the percentage margin of victory due to the fact that it shares a denominator with the dependent variable, voter turnout. Instead, I use the Blais-Lago quotient used in Chapters 2 and 3.[15]

Figure 4.2 shows all the races for which records are available with the competitiveness measures on the x-axis and the turnout in the corresponding school board turnout on the y-axis. There is a very slight positive effect of more competitive (higher value on the X-axis) races on voter turnout.[16] How informed voters are about the competitiveness of their school board races prior to the election is unclear. There are many reasons to believe voters have little to no pre-election information about the closeness of their board races – due to a lack of polling information and the low-level campaigning common in school board races (Hess, 2002; Hess and Leal, 2005; Hess and Meeks, 2011). However, the electorate in Wisconsin school board elections is very different than the fall partisan electorate, and evidence from other jurisdictions suggests such off-cycle local voters are much more engaged, informed, and politically active than general election voters (Oliver, 2012). This remains an empirical question.

Figure 4.3 explores how habit forming turnout may be in spring elections in school districts (Plutzer, 2002). Using a two-year lag of turnout, Figure 4.3 shows a consistently high positive correlation between lagged and current turnout, averaging 0.366.[17] Turnout is also correlated with turnout in fall

[15]For simplicity I have rescaled this measure so that 100 represents a race decided by a single vote, and 0 represents races that are uncontested.

[16]This figure excludes races with turnout greater than 95% which are likely due to extremely low numbers of voters or recording error. Clumping occurs at 75% and 88% due to the most common configurations of the number of candidates and number of winners in school board races.

[17]For a single year lag, the corresponding correlation is 0.307 and the year to year

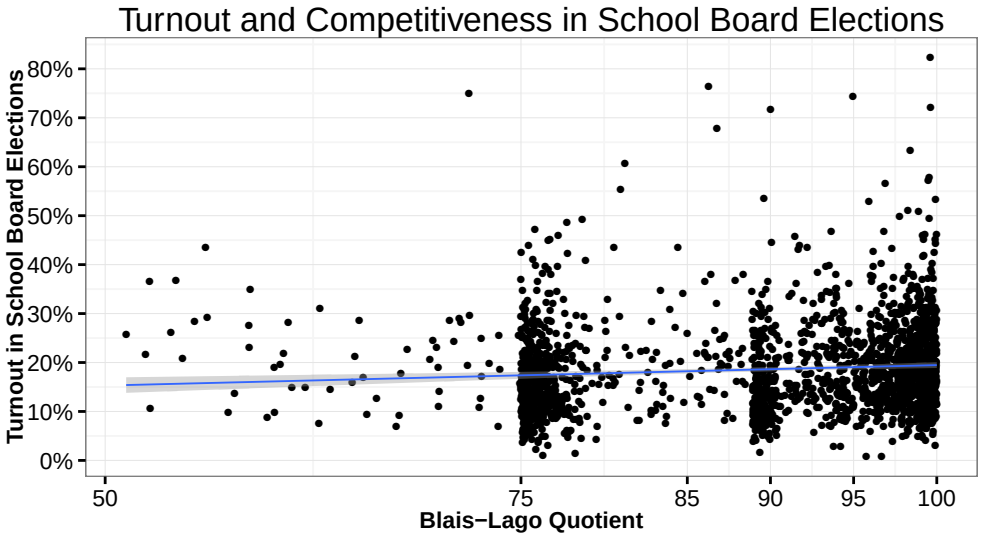


Figure 4.2: Blais-Lago quotient and turnout are slightly positively correlated. Each dot represents a district-year observation, with more competitive elections indicated by higher Blais-Lago quotients.

elections as well. I construct a measure of fall turnout using the average turnout in the two most recent fall general elections (Gubernatorial and Presidential), which correlates positively with school board turnout at 0.176.

With a reduced electorate, school board elections are an interesting case to study the role substantial interest groups can play in an election. Fowler (2005) provides the premise that cohesive social groups can increase turnout by activating their members to vote. Moe (2011) suggests that unionized teachers are just one such group and provides evidence of school board elections being influenced substantially by such groups. To evaluate this, I construct a measure of the potential strength of the teachers' union by using the number of teachers employed by the district divided by either the voting age population or the turnout in the prior school board election.[18] Figure 4.4

pattern is largely similar.

[18]To avoid issues with cyclical school board elections and endogeneity I use twice

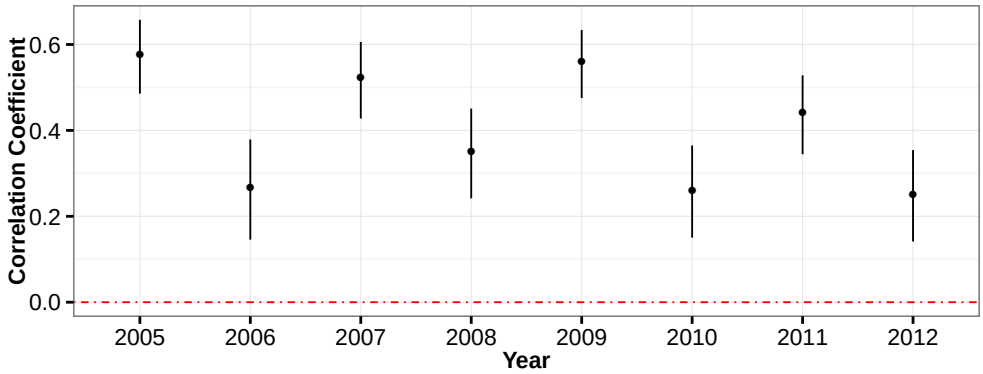


Figure 4.3: Correlation coefficient between twice lagged turnout and turnout across years. Correlation is depicted with 95 percent confidence interval.

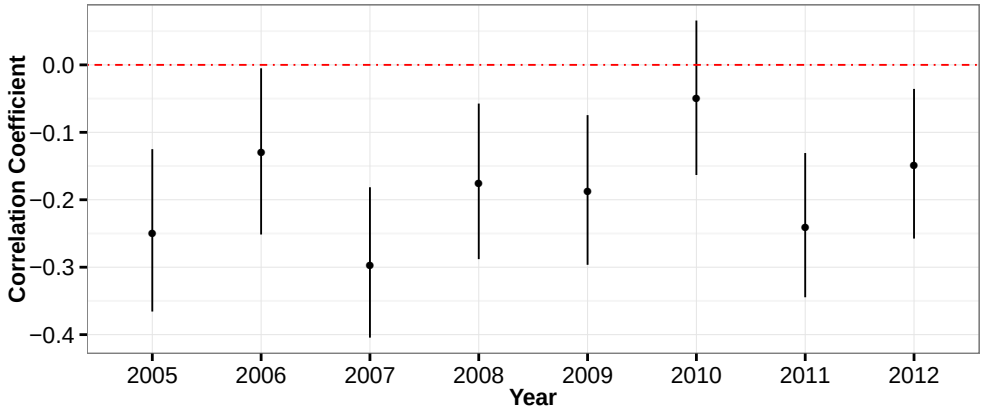


Figure 4.4: Correlation between school board turnout and teacher share of voters in prior school board election. Correlation coefficient with 95 percent confidence interval.

shows the turnout in the school board election compared to the percentage of teachers in the prior school board election. This comparison illustrates how large of a voting block a cohesive teacher union might estimate they possess based on the number of votes cast in previous elections.[19] The relationship shown in Figure 4.4 is not what theory would expect. Here a higher teacher share of the prior school board turnout is associated with depressed turnout rates, instead of elevated turnout. The average correlation across years is -0.166. I will pursue this finding further with statistical models, but it is worth noting that there may be limits on the impact social groups can have on driving up turnout before they capture the electorate and thus reduce competitiveness and turnout. In fact, Moe (2011) would argue this represents the ideal condition for a union, freeing their members from the need to be politically active and influencing the school board through the candidate recruitment and nomination process instead.

Figure 4.5 takes a different approach to this problem by looking at the information voters may have about their community – the level of partisan polarization. Using the average Democratic share of the two-party vote from the prior Gubernatorial and Presidential election combined, I explore the variation in school board election turnout explained by far away the two party vote share is from an even 50/50 split. Theory would suggest that the more divided a community is on partisan issues, the greater the impetus to vote (Fowler, 2005). Figure 4.5 shows the annual correlation between higher partisan unity and turnout. In most years there is almost no relationship, but in 2011 and 2012 there appears to be an uptick in school board turnout associated with more strongly partisan school districts. The correlation is 0.138 across all years but significantly stronger in 2011 and 2012.

Taken alone, these figures do not suggest that any of the theories in

lagged turnout.

[19]This data comes from the DPI PI-1202 Fall Staffing Report. Another measure, the share of VAP that is made of licensed teachers is also used below, but has largely the same pattern.

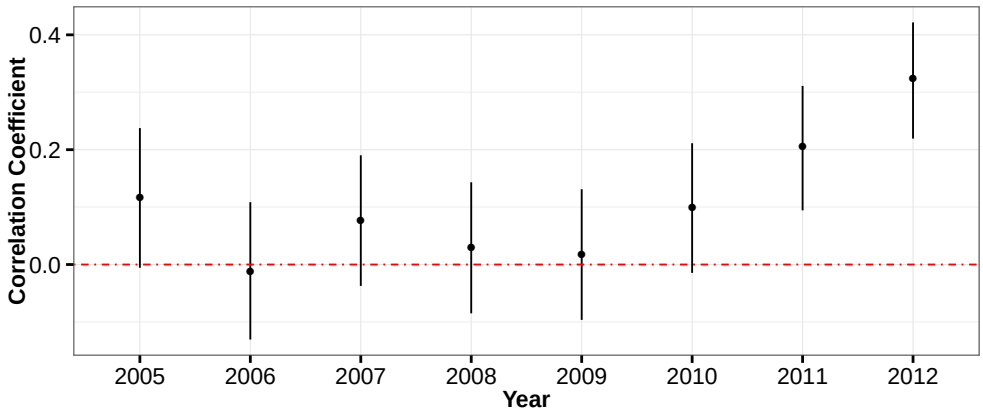


Figure 4.5: Correlation coefficient between fall general election partisanship and

Table 4.1 are confirmed or denied, but it does help illustrate the diversity of school board elections in Wisconsin and the need for statistical models to help separate out competing explanations that may themselves be highly correlated or confound one another.

Control Variables

In addition to the variables of interest shown above, it is necessary to include some common demographic control variables. Political scientists have long established the strong relationship between certain demographic characteristics and voter turnout in partisan elections. In order to understand the effect of other variables on turnout, it is desirable to remove as many other explanations as possible given the availability of data. Fortunately, using US census data, an abundance of data is available on the population of Wisconsin school districts.

Figure 4.6 uses a correlation matrix to examine the relationships between these dependent variables and the outcome for all complete observations in the data. The pairwise correlation of the variables is printed in each cell

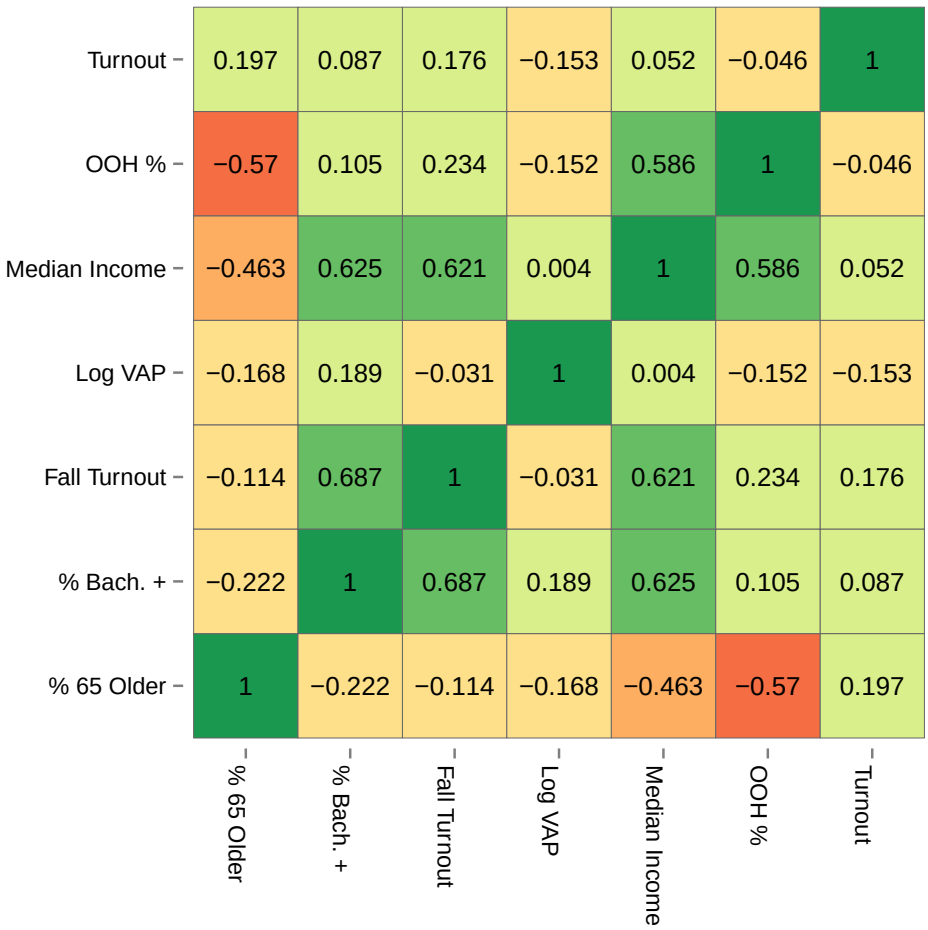


Figure 4.6: Correlation Plot of Demographic Variables and Turnout across Sample. Cells are shaded in proportion to the magnitude and direction of the bivariate correlation across all observations in the sample.

which represents the bivariate correlation. Additionally, the cells are shaded to distinguish the direction and strength of the correlation.

From this figure it is clear that turnout is only weakly positively correlated with these demographic controls, except district size and share of the population over 65 years of age which have the strongest correlations. There are also strong relationships between these individual demographic categories, with particularly strong relationships between education, age, and income, as well as a strong negative between age and owner occupied housing and age and education level.

It is important to note that all of these variables are much more highly correlated with fall turnout than with spring turnout. This provides some evidence that the school board electorate is different than the general election electorate – as shown by Oliver (2012).

4.5 Methods

This paper has two main methodological approaches to evaluating theories of voter turnout in school board elections. The first follows on several empirical studies of theories of voter turnout to compare the power of various theories of voter turnout to one another (Larcinese, 2009; Lapp, 1999; Kan and Yang, 2001; Coate et al., 2008). The second approach investigates more narrowly the gap between voters voting at the top of the spring election ticket, and votes for school board. While overall spring election turnout may be driven by the presence of a partisan primary or a non-partisan statewide election, the gap between votes cast in that election and the school board election narrowing should be attributed to increased interest by voters in school board elections.

Estimation Equations

Each model is fit twice, once with turnout as the dependent variable and once for rolloff. For each variable I use multiple specifications to test the robustness of the relationship to varying assumptions. I start with a specification that pools observations across years and districts and estimates the impact of the key independent variable and a few key demographic control variables described in Section 4.4. These equations look like:

$$(1) \qquad VP_{it} = \alpha + \beta X_t + \psi Z_{it} + \epsilon_t$$

Here VP_{it} is voter turnout in a school district i for the spring election t. α is the intercept and X_{it} represents a vector of covariates including the control variables described above for school district i in year t. All models control for competition, demographic covariates, district size, and whether or not turnout was measured by a district wide race.[20] I include the term Z_{it} to represent the variable of interest in each model. The Z_{it} vector includes different variables across the different models including lagged turnout, district size, race competitiveness, and social group membership in the school district.

The size of the electorate is important in many theories of voter turnout. Dahl and Tufte (1973) hypothesized that the motivation to participate would be higher in small electorates, and there has been some evidence to support this (Frandsen, 2002). Thus, in all models size is included in the X_{it} vector and in some models it is included as an interaction to test for differential impacts of key variables across the size of the electorate.

The pivotal-voter model is a subset of the rational voter model. I use a

[20]The district wide variable is a dummy variable to control for the measurement error associated with school districts where there was no district wide race to estimate voter turnout in board elections from.

similar method as Coate et al. (2008) to test whether turnout is higher in elections that are closer and if this effect is greater in smaller electorates. Thus I include in the Z_{it} vector a measure of the margin of victory. I also include an interaction effect to explore whether or not voters are more likely to turn out for close races in small electorates, where their probability of deciding the election, is greatest. This interaction model is represented in equation 2.

$$(2) \qquad VP_t = \alpha + \beta X_t + \psi Z_t x \lambda S_t + \epsilon_t$$

Finally, following Fowler (2005), I investigate the impact that social group membership may have on voting by this time including a measure of the size of the social group in the community in the Z_t vector. I explore a separate model for each type of social group – the partisanship of the school district in partisan statewide elections, or the share of the total electorate that is teachers. There has been little work explicitly testing the influence of political parties in non-partisan school board races, but some evidence that the share of teachers in the electorate is an important driver of turnout and policy change in school board elections (Moe, 2011, 2005; Chubb and Moe, 1990).

Model Specifications

The equations represented above are stylized representations of simple OLS models that treat each district-year as an independently distributed observation. In reality, the data is more complex and requires some additional model features to appropriately estimate the impact of key variables on turnout. I outline two separate methods.

The first method is a simple extension of the pooled linear regression

model that includes fixed effects for years and for school districts. This eliminates time-invariant unobservable district characteristics as well as election specific unobservable characteristics between districts. However, the standard errors from these models are overly optimistic because each school district is observed between two and ten times and the assumption of independent and identically distributed random variables is violated. To correct for this, I adjust the standard errors by using the Huber-White estimator of the covariance matrix.[21] This will correct for the clustering of school districts between the observations and avoid overly optimistic standard errors for the β coefficients (White, 1982, 1980; Huber, 1967).

Results from these models are placed in Appendix 4.8. However, there are many reasons to doubt the validity of the fixed effect specification. First, the district fixed effects are overly conservative as many of the key underlining predictors are not highly variable year to year within districts and number of observations per district varies. The district estimates themselves are problematic, the model is likely underpowered to fit them properly and they are likely too sensitive to outliers and therefore overfit. There are two approaches to adjusting for this – penalized estimation or partial pooling approach using a mixed effect model. The partial pooling approach is also known as a mixed effect or hierarchical linear model (HLM).[22] I employ the same specification as the fixed effect model before, but now model the district effects as random effects in order to avoid overfit.

The formal econometric results suggest that the random effects of the multilevel model are appropriate.[23] The choice between these two approaches is as much theoretical as it is econometric, and as a result I run my analyses with both approaches. It is also useful because this approach is flexible

[21] I do this with the `robcov` function implemented in Harrell Jr. (2014)'s `rms` R package.

[22] Partial pooling models can be fit in R using the `lme4` package (Bates et al., 2014; Gelman and Hill, 2006).

[23] The Hausman test can be used to formally test the specification of random or fixed effects and the results of this test for all models is included in the Methodological Appendix 4.8 (Hausman, 1978).

for cases with unbalanced repeated measures and allows the analyst to disentangle the effects of time specific variables from the overall variability among individual units, e.g. school districts (Snijders and Bosker, 1999; Raudenbush and Bryk, 2002). Furthermore, my data does not include all Wisconsin school districts, but instead a large sample of districts. This makes the ability to model the variation between districts of interest to understand the range of plausible district variation across the broader population of school districts – an attractive feature of the mixed model approach.

The equation below depicts the multilevel framework:

$$VP_{ij} = \alpha + \gamma_j + \beta X_{ij} + \lambda Z_{ij} + \epsilon_{ij}$$
$$\gamma_j = \alpha_j + \epsilon_j$$

The only difference between this approach the linear models with equations above is the presence of a unique intercept for each school district j. Here the γ_j terms represent independent intercepts for each school district as predicted by α_j, a unique intercept for each school district. X_{ij} is a vector of time variant school district characteristics such as prior turnout. In the mixed-effect framework the γ_j are assumed to be drawn from a normal distribution. The equation above is flexible to the inclusion of the other predictors identified.

This method does not account for the time structure of the data, as no explicit parameterization of time is included. As I have no reason to believe that time linearly related to voter turnout, this is appropriate. However, I do want to control for secular effects of election year variability that reaches across districts. One approach would be to include fixed effects for years in the X vector. However, the multilevel approach is flexible enough to allow for a third group – years, to be included in the model. The model below includes a third grouping level for years.

$$
\begin{aligned}
VP_t &= \alpha + \gamma_j + \psi t + \beta X_{ijt} + \lambda Z_{ijt} + \epsilon_{ijt} \\
\gamma_{jt} &= \alpha_j + \epsilon_j \\
\psi t &= \alpha_t + \epsilon_t
\end{aligned}
$$

This approach allows year parameters to be estimated independently without assuming a functional form for the relationship between voter turnout and time allowing for the model to reflect secular effects of specific elections in the data.

The proper model of the random effects is important. Using the `RLRsim` package in R, I test the specification of the random effects using an exact likelihood ratio test and an exact restricted likelihood ratio test Scheipl et al. (2008). The first test is used to examine whether the random effects are the appropriate specification. The restricted likelihood ratio test is used to compare two nested models with different random effect specifications to determine the appropriate specification. In this case, a model with random effects for district and year was compared against a model with random effects only for district. The results of these tests for all of the models is included in the Appendix 4.8.

Computation

Due to the suspicion of measurement issues in the key estimate of turnout, I use the approach taken by Berry (2009) on administrative data and exclude all observations that fall outside of five standard deviations of the normal values for the dependent variable. There are 11 cases where the value of the dependent variable is more than five standard deviations above the group average. This is less than half of 1% of the observations and is unlikely to be influential. Such deviations are likely due to measurement error either in the VAP denominator or in the aggregation of district board election vote counts

themselves. I also use two control variables to adjust for measurement error – the first is a dummy variable indicating whether turnout for the top ticket spring race has been imputed and the second is an indicator of whether or not there are overlapping district wide and apportioned school board seats which may confound the estimate of the number of voters.

Additionally, I grand-center and rescale all of my continuous variables in order to speed model convergence and avoid computational problems associated with widely varying scales in the underlying data. The coefficients reported in the tables below then can be interpreted as the effect on the dependent variable in standard deviation terms of moving the predictor variable two standard deviations. This standardized regression approach is recommended in multilevel modeling, particularly in cases with underlying predictors with scales that vary by orders of magnitude like in the present case (Gelman and Hill, 2006).

4.6 Results

I now review the results for models for each theory – habit forming voters, rational voters, pivotal voters, and social group motivated voters. I first look at evidence for these theories in each of these models for an effect on turnout in the spring school board races. Then I apply these same models to the rolloff of voters in the spring election. Finally, I conclude by interpreting the substantive effect of these characteristics on school board election turnout.

Habit Forming Voters

The results in Table 4.2 show, as expected, voter turnout is heavily autocorrelated in school board elections. The higher the prior school board election turnout, the higher the turnout in the current school board election. The effect is largely the same even when controlling for fall turnout and the

competitiveness of the races. Additionally, as expected, larger districts have lower turnout. Other variables are also as expected with more affluent, older, and more educated communities showing higher voter turnout in school board elections. These effects are reduced once controlling for fall turnout due to the strong relationship between them and fall turnout previously noted.[24]

An additional benefit of the random effect specification is that it allows me to measure the variation between years and between districts. As Table 4.2 shows, there is substantial between district and between year variation in turnout for spring non-partisan school board elections. This suggests that time-invariant unobservable characteristics about school districts and cross-state election year specific characteristics explain much of the turnout in local school board elections.

Rational Voters

My second empirical question is to examine the relationship between electorate size and turnout, and electorate size, margin of victory and turnout.

The key coefficient in Table 4.3 is the measure of competitiveness and its interaction with electorate size. I use the continuous measure of the Blais-Lago quotient to represent how competitive the races are, with a higher values corresponding to more competitive races. The control variables are the same from those in Table 4.2. As expected, uncontested races have lower turnout than contested races. Also, as the share of all candidates in the race who are incumbents increases, not unsurprisingly, turnout decreases. However, the expectation that the relationship between competitiveness and

[24]These relationships are different in fixed effect models. The inclusion of district fixed effects results in the lagged parameter being close to zero because the this estimates only the within-district effect of lagged turnout on turnout, which has much less variance than the between district variance on turnout and lagged turnout. It remains statistically significant.

Table 4.2: Partial Pooling Model of Lagged Turnout

	No Fall Turnout	Fall Turnout
Intercept	-0.007	-0.051
	(0.062)	(0.064)
Lagged Turnout (2)	0.076^{***}	0.068^{***}
	(0.017)	(0.017)
Electorate Size	-0.297^{***}	-0.318^{***}
	(0.027)	(0.027)
% White	-0.022	0.009
	(0.031)	(0.030)
% Over 65	0.168^{***}	0.177^{***}
	(0.032)	(0.031)
% Bach. +	0.140^{***}	0.055
	(0.035)	(0.039)
% Owner Occupied	-0.013	-0.002
	(0.035)	(0.034)
Median Income	0.110^{*}	0.056
	(0.045)	(0.045)
District-wide	0.121^{**}	0.121^{**}
	(0.043)	(0.042)
Competitiveness	0.082^{***}	0.078^{***}
	(0.016)	(0.016)
Fall Turnout		0.152^{***}
		(0.034)
Electorate Size^2		0.161^{***}
		(0.032)
N	2398	2398
AIC	1900.537	1863.227
N Groups	310|10	310|10
Group Names	*distid*|*year*	*distid*|*year*
Group:distid Effs.	(*Intercept*)	(*Intercept*)
Group:year Effs.	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.168	0.161
Group:year Var.	0.19	0.194
Sigma	0.3308	0.329

All variables grand-mean scaled and centered.
† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

district size would have an effect on turnout is not confirmed here - the interaction term is not statistically significant although it is in the right direction.[25]

[25]The fixed effect models are largely the same.

Table 4.3: Partial Pooling Models of Competitiveness

	No Interaction	Interaction
Intercept	−0.038	−0.038
	(0.072)	(0.072)
Electorate Size	−0.388***	−0.389***
	(0.030)	(0.030)
Electorate Size^2	0.175***	0.170***
	(0.036)	(0.036)
% White	0.016	0.016
	(0.035)	(0.035)
% Over 65	0.226***	0.225***
	(0.036)	(0.036)
% Bach. +	0.161***	0.161***
	(0.039)	(0.039)
% OOH	0.011	0.010
	(0.039)	(0.039)
ln(MedianIncome)	0.111*	0.113*
	(0.049)	(0.049)
District-wide	0.135**	0.139**
	(0.047)	(0.047)
Incumbent Share	−0.107***	−0.107***
	(0.016)	(0.016)
Blais-Lago	0.053**	0.057**
	(0.018)	(0.019)
VAP x Blais-Lago		0.037
		(0.040)
N	2398	2398
AIC	2280.421	2284.167
N Groups	310|10	310|10
Group Names	*distid*|*year*	*distid*|*year*
Group:distid Effs.	(*Intercept*)	(*Intercept*)
Group:year Effs.	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.195	0.195
Group:year Var.	0.219	0.22
Sigma	0.3542	0.3542

Model includes both year and district random effects modeled as intercepts.
† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Social Groups

To test the argument that voter turnout may be influenced by interest group strength, I combine features from the previous models in an attempt to find evidence of such an effect.

Teachers' Unions

Table 4.4 provides some evidence to support that teacher's unions may have an effect on turnout. The key variables here are the teacher share of voters and its interaction with the share of incumbents in the race. I expect teachers' unions to be more active and exert more influence on turnout when there are more non-incumbents in the race. The main effects of the share of voters who are teachers is negative and significant but small. The interaction term is negative, which suggests that as fewer incumbents are in the race and unions are stronger, turnout is suppressed. However, this effect is not statistically significant.

Judging statistical significance of interaction predictors, however, is notoriously difficult – particularly in mixed-effect models. I return to demonstrating the effect of these variables later using simulation methods to show their substantive impact on voter turnout as predicted by the model. Other variables follow their expected signs, although some like competitiveness have a smaller effect than in prior models.[26]

This result is counter to the theoretical expectations described above where more union membership would drive turnout up as a greater share of the population would have a stronger interest in school board outcomes. However, this is in line with the observed bivariate correlation between teacher share and turnout. In fact, the effect is understandable. If voters

[26]The models reported here use teacher share of the number of voters in the school board election two years prior. This is used to avoid endogeneity and to better reflect the strategic interaction between school board vote turnout and district size. Using the teacher share of VAP results in the same sign, but statistically insignificant effects.

believe the school board election to be captured by a large interest group, they have less of an incentive to vote. The threat of controlling the spring electorate for an interest group is enough to deter unorganized voters from participating. This type of behavior is the type of behavior that worries critics of special purpose governments like school districts (Foster, 1997; Burns, 1994; Berry, 2009).

Table 4.4: Partial Pooling Model of Staff Influence

	Main Effect	Interaction
Intercept	−0.039	−0.040
	(0.072)	(0.072)
Teacher % SB Vote	−0.046*	−0.047*
	(0.018)	(0.019)
Competitiveness	0.052**	0.052**
	(0.018)	(0.018)
Electorate Size	−0.395***	−0.394***
	(0.029)	(0.029)
Electorate Size^2	0.177***	0.178***
	(0.035)	(0.035)
% White	0.009	0.007
	(0.034)	(0.034)
% Over 65	0.213***	0.213***
	(0.035)	(0.035)
% Bach. +	0.157***	0.155***
	(0.038)	(0.038)
% Owner Occupied	0.012	0.011
	(0.038)	(0.038)
Median Income	0.109*	0.112*
	(0.048)	(0.048)
District-wide	0.135**	0.135**
	(0.046)	(0.046)
Incumbent Share	−0.108***	−0.108***
	(0.016)	(0.016)
Teacher % of SB X Inc Share		−0.016
		(0.032)
N	2398	2398
AIC	2281.134	2285.925
N Groups	310|10	310|10
Group Names	*distid|year*	*distid|year*
Group:distid Effs.	(*Intercept*)	(*Intercept*)
Group:year Effs.	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.184	0.184
Group:year Var.	0.218	0.218
Sigma	0.3557	0.3558

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Partisanship

Table 4.5 provides no evidence to support a partisan dimension in school board turnout. While other variables hold their relationship from the tables above, the new variables for partisanship and party divide in the electorate are not statistically significant and their interaction with the size of the community is also not significant. If parties played an important role in the vote in spring elections than either the interaction between the party division or the proportion Democrats and the population of the district should be statistically significant and positive. The lack of a relationship provides evidence that parties do not influence school board turnout as a social group in a meaningful way. This seems clear, boards are not proving grounds for candidates for higher office and as they are non-partisan the party leadership has little incentive to prioritize them. [27]

[27]There is no evidence in the fixed effect models either.

Table 4.5: Partial Pooling Model of Partisanship

	Division	Democrat
Intercept	−0.052	−0.061
	(0.064)	(0.065)
Fall Party Divide	0.012	
	(0.026)	
Fall Turnout	0.173***	0.173***
	(0.036)	(0.037)
Competitiveness	0.067***	0.067***
	(0.017)	(0.017)
Electorate Size	−0.381***	−0.387***
	(0.031)	(0.031)
Electorate Size^2	0.184***	0.209***
	(0.036)	(0.043)
% White	0.001	0.003
	(0.035)	(0.036)
% Over 65	0.211***	0.207***
	(0.035)	(0.036)
% Bach. +	0.025	0.024
	(0.042)	(0.043)
% Owner Occupied	−0.015	−0.021
	(0.038)	(0.038)
Median Income	0.094†	0.095†
	(0.048)	(0.050)
District-wide	0.120*	0.117*
	(0.044)	(0.044)
Incumbent Share	−0.109***	−0.109***
	(0.015)	(0.015)
Party Division x Elec. Size	−0.016	
	(0.038)	
Fall 2 Party Dem.		−0.015
		(0.030)
2 Party Dem^2		0.015
		(0.038)
2 Party Dem x Elec. Size		−0.052
		(0.048)
N	3013	3013
AIC	2895.231	2898.158
N Groups	310|11	310|11
Group Names	*distid*|*year*	*distid*|*year*
Group:distid Effs.	(*Intercept*)	(*Intercept*)
Group:year Effs.	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.201	0.202
Group:year Var.	0.206	0.206
Sigma	0.3579	0.3578

Model includes both year and district random effects modeled as intercepts.
† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

School Board Vote Rolloff

In this section I explore whether any of the models above explain the difference between top ticket turnout and school board turnout. As much as rolloff coincides with political relevance of the school board race to the electorate, the relationships observed above should also be observed in the measure of rolloff – with decreased rolloff taking the place of increased turnout.

For rolloff data my data are restricted to the spring elections from 2007-2012. To calculate rolloff, I take the difference in the turnout for the top ticket in the spring election and the turnout for the highest turnout school board election in the school district. The greater this number, the greater the share of voters who failed to complete their ballots. The median district has 3.62% percentage point difference in their turnout, meaning that if the turnout in the school board election was 1,810, then the turnout for the top ticket race would be 1,876. Thus ballot fatigue is not that uncommon and matches findings in other elections (Streb et al., 2009; Wattenberg et al., 2000).

Table 4.6 shows the results of the first three types of models investigated above for turnout. Note that here the sign is flipped – the smaller the dependent variable, the more turnout for school board in relation to the top ticket turnout in the spring election. Prior turnout continues to matter in the lagged model, the higher the prior turnout the less the gap between top ticket and school board races in the present spring election. In the measures of the closeness of seats the less competitive a race is the greater the gap between the top ticket and the board race – but this effect is only significant in interaction with district size. In small communities this relationship does not matter.

Table 4.7 shows the models for interest group influence on school board rolloff and provides the most interesting results. The results for the control variables are largely the same as in Table 4.6, but here the rolloff results are

Table 4.6: Partial Pooling Model of School Board Rolloff

	Lag	Close Race
Intercept	0.417***	0.428***
	(0.093)	(0.099)
Turnout Lag (2)	−0.071**	
	(0.023)	
Fall Turnout	0.111*	0.091†
	(0.051)	(0.053)
Electorate Size	0.310***	0.344***
	(0.038)	(0.038)
Electorate Size^2	−0.148**	−0.145**
	(0.044)	(0.046)
% White	0.036	0.037
	(0.044)	(0.046)
% Over 65	0.025	0.017
	(0.044)	(0.046)
% Bach. +	0.047	0.054
	(0.057)	(0.059)
% Owner Occupied	0.131*	0.137*
	(0.049)	(0.051)
ln(MedianIncome)	−0.142*	−0.153*
	(0.065)	(0.068)
District-wide	−0.027	−0.043
	(0.058)	(0.059)
Incumbent Share	0.029	0.027
	(0.020)	(0.020)
Imputed	−0.405***	−0.410***
	(0.048)	(0.048)
Competitiveness	−0.011	−0.025
	(0.022)	(0.023)
Competitiveness X Elec. Size		−0.147**
		(0.048)
N	1701	1701
AIC	1779.930	1808.641
N Groups	310|6	310|6
Group Names	*distid|year*	*distid|year*
Group:distid Effs.	(*Intercept*)	(*Intercept*)
Group:year Effs.	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.239	0.254
Group:year Var.	0.192	0.21
Sigma	0.3591	0.3573

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

different than the results for total turnout. In all three cases I find evidence of group influence in the completion of spring ballots. In the case of partisan division, this effect is only present in larger communities – as communities and division get larger, the turnout gap for school board races widens.

In the case of teachers, as teachers make up a greater share of the electorate fewer spring election voters who go to the polls bother to cast a vote for school board – paralleling the finding from above for overall turnout. Community size exacerbates this effect – in larger communities this effect is stronger.

There is also evidence in Table 4.7 that Democratic party strength is related with fewer voters completing the school board vote. Partisan division increases rolloff, but is strongly interacted with district size – as communities get larger and party division is stronger, rolloff grows.

Also of interest is the near insignificance of all demographic controls on spring election rolloff. In both Table 4.6 and Table 4.7 the only consistent demographic indicators are indicators of wealth. This aligns with prior work by Oliver (2012) indicating that local election voters are more likely to be long-time residents who own property in the community.

Table 4.7: Partial Pooling Model of School Board Rolloff

	Teach. Infl.	Teach. Infl. 2	Party Infl.	Party Divide
Intercept	0.44***	0.43***	0.42***	0.44***
	(0.10)	(0.10)	(0.10)	(0.10)
Teacher Share Elec.	0.16*			
	(0.06)			
Fall Turnout	0.09†	0.09†	0.13*	0.08
	(0.05)	(0.05)	(0.05)	(0.05)
Competitiveness	−0.01	−0.01	−0.01	−0.00
	(0.02)	(0.02)	(0.02)	(0.02)
Electorate Size	0.42***	0.34***	0.33***	0.32***
	(0.06)	(0.04)	(0.04)	(0.04)
Electorate Size^2	−0.12†	−0.18***	−0.12*	−0.19***
	(0.06)	(0.05)	(0.05)	(0.05)
% White	0.06	0.05	0.05	0.05
	(0.05)	(0.05)	(0.05)	(0.05)
% Over 65	0.03	0.01	0.03	0.01
	(0.05)	(0.05)	(0.05)	(0.05)
% Bach. +	0.06	0.06	−0.00	0.06
	(0.06)	(0.06)	(0.06)	(0.06)
% Owner Occupied	0.11*	0.14*	0.13*	0.14**
	(0.05)	(0.05)	(0.05)	(0.05)
Median Income	−0.13†	−0.16*	−0.07	−0.17*
	(0.07)	(0.07)	(0.07)	(0.07)
District-wide	−0.02	−0.03	−0.02	−0.04
	(0.06)	(0.06)	(0.06)	(0.06)
Incumbent Share	0.03	0.03	0.03	0.03†
	(0.02)	(0.02)	(0.02)	(0.02)
Imputed	−0.41***	−0.41***	−0.42***	−0.42***
	(0.05)	(0.05)	(0.05)	(0.05)
Teacher Share x Elec. Size	0.17*			
	(0.08)			
Teach. Share of SB		0.02		
		(0.02)		
Teach. Share SB x Elec. Size		0.07†		
		(0.04)		
Fall Dem.			0.14***	
			(0.04)	
Fall Dem. X Elec. Size			−0.07	
			(0.06)	
Fall Partisan				0.07†
				(0.03)
Fall Partisan x Elec. Size				0.16**
				(0.05)
N	1701	1701	1701	1701
AIC	1813.13	1820.13	1808.33	1808.23
N Groups	310|6	310|6	310|6	310|6
Group Names	*distid|year*	*distid|year*	*distid|year*	*distid|year*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:year Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.25	0.26	0.25	0.25
Group:year Var.	0.21	0.21	0.22	0.21
Sigma	0.3582	0.3578	0.3578	0.3577

† significant at $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Model Fit

After reviewing the generally favorable results above, it is important to evaluate how well the models actually fit the data at hand. Assessing model fit in a mixed model framework is not as straightforward as with a standard OLS regression. Instead of a more sample-dependent model fit statistics like the Akaike's An Information Criterion, I prefer an estimate of the predictive power of the model for the observations in the sample. To assess this, I use a bootstrapped estimate of the Root Mean Squared Error (RMSE) to demonstrate how close the predicted values are to the fitted values across models across many resamples. [28]

Figure 4.7 shows the results for turnout models in the top panel and rolloff models in the bottom panel. The height of the bar represents the RMSE standardized to represent the percentage of a standard deviation the average observation is mispredicted. A lower figure is better. The red error bar represents the bootstrapped RMSE plus or minus two standard deviations of all of the resampled RMSE values. The values are right around 0.6 for all of models suggesting that the average predicted value is 0.6 standard deviations from the observed value. For example, turnout has a standard deviation of 10% points. This means that if the observed value for turnout was 27%, then the average predicted value would deviate from 27% plus or minus 0.6 times the standard deviation, or 6%.

Overall the rolloff models perform better than the turnout models, but none of the models are significantly better fitting than any of the others within each dependent variable. This suggests two things. First, the demographic variables and the year and district effects are doing most of the work in explaining the dependent variables. Any additional variance explained by the theoretically interesting variables has marginal impact on accurately predicting the dependent variable. Second, there is significant

[28] To do this, I predict turnout on 150 bootstrap resamples of the data and estimate the RMSE for predictions from the original model across each of these resamples.

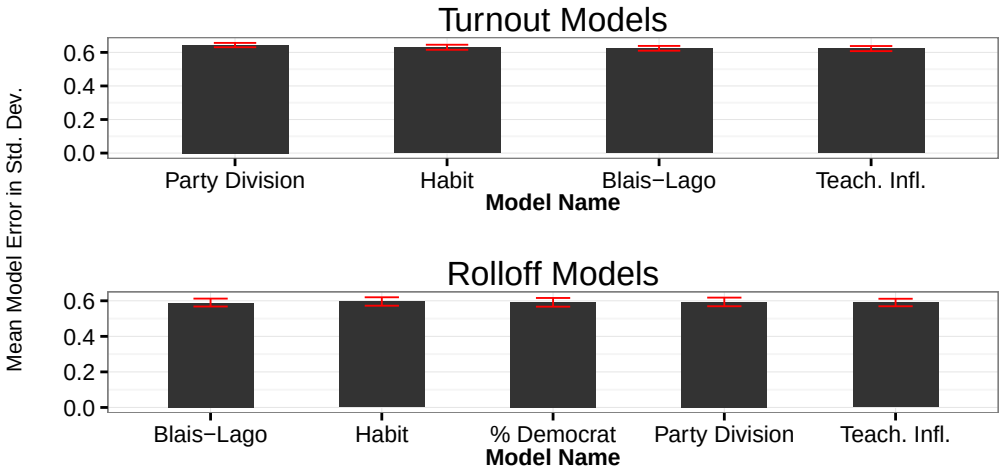


Figure 4.7: Figures show the bootstrapped root mean square error (RMSE) of competing models across 150 bootstrapped replications along with a confidence interval. A lower RMSE corresponds to a more accurate prediction and better explanation of the dependent variable.

unexplained variance in turnout that is not covered by any of the measures in any of the models or in the district or election specific intercepts. There is room for future work to improve these models through identifying measures to improve the prediction.

Substantive Effects

After finding evidence in favor of voters behaving as theory might expect, I now turn my attention to exploring the magnitude of these effects. Table 4.8 summarizes the substantive findings for all variables across both turnout and rolloff. Each row in the table shows the net impact on turnout and rolloff changing a key predictor associated with one of the theories of voter turnout.

In general, the impacts are modest. District size and prior district turnout have the largest substantive impacts on both rolloff and turnout.

Competitiveness has a notably smaller impact, requiring a large shift in competitiveness to provide a measurable increase in turnout. In a median sized district, the increase in voter turnout attributable to this increase in competitiveness would result in an additional 25 voters – enough to sway the outcome of a race in fewer than 10% of the observed spring election cycles. Net of these effects, the effects of interest groups and political parties are quite low. School board turnout is suppressed by a larger share of the number of voters being represented by teachers in the school district. This effect is smaller in smaller communities. There appears to be an influence of teachers on rolloff as well – but only when measured as a share of the voting age population. These effects are quite modest with turnout averaging around 18% a 0.25% point increase in turnout in the median size district equates to just 13 additional voters.

There is no evidence of a role of political parties in school board spring election turnout, but there is evidence off an effect on rolloff. A one standard deviation increase in partisan division represents a 25% increase in rolloff for a typical district. However, in the median district this represents 50 fewer school board election voters – well below the median victory margin in the closest race in each district, approximately 290 votes.

In the rest of this section, I conduct simulations to show the change in the dependent variable holding all else constant and manipulating an independent variable of interest. I then plot the result to give a visual representation of the findings of the models above. While this type of simulation does not represent the interrelated nature of the independent variables in the models above, it does allow me to demonstrate the maximum possible effect predicted by the models described above – assuming the independent variable is changing while all other variables remain constant.[29]

In addition to demonstrating the effect of the key variables of interest, I use simulations to illustrate the election and school district specific effects to

[29]Simulations are conducted using a modification of the `sim` function in the `arm` package for R.

provide a sense of the scale of year to year and district to district variation captured in the models. This simulation technique presents caterpillar plots of the estimated values of the impact the unobservable characteristics of these grouping variables have on turnout and rolloff.

Table 4.8: Summary of substantive model results. Large districts are in the middle of top VAP quartile; small districts at midpoint of bottom quartile.

Theory	**Variable**	**Turnout Effect**	**Rolloff Effect**
Habit-forming voters	Lagged turnout	10 point lagged turnout ↑= 0.8 point turnout ↑	5% ↑ lagged turnout = ↓ 0.25 point rolloff
Rational Voters	VAP	4.5 point turnout ↑ for VAP ↓ from 6,000 to 2,100	2.9 point rolloff ↓ for VAP ↓ from 6,000 to 2,100
Rational Voters	Blais-Lago	1 SD ↑ in BL = ↑ turnout 0.5 points	None.
Pivotal Voter	VAP x Blais-Lago	• Large district: 0.35 point turnout ↑ when ↑ 0.5 SD of Blais-Lago • Small district: 0.18 point turnout ↑ when ↑ 0.5 SD of Blais-Lago	• Large district: 0.41 point rolloff ↓ when BL ↑ 0.5 SD • Small district: 0.26 point rolloff ↑ when BL ↑ 0.5 SD
Social Group	Teacher % of SB	• Large district: 0.25 point turnout ↓ when ↑ 0.5 SD of teacher share • Small district: 0.18% point turnout ↓ when ↑ 0.5 SD of teacher share	None.
Social Group	Teacher % of VAP	None.	• Large district: 0.88 point rolloff ↑ when ↑ 0.5 SD of teacher share • Small district: 0.2 point rolloff ↑ when ↑ 0.5 SD of teacher share
Social Group	Party Divide	None.	• Large district: 1 point ↑ rolloff as party division ↑ 6.6% points • Small district: 0.15 point ↓ for rolloff as party division ↑ 6.6% points
Social Group	Dem. Share	None.	• Large district: 0.29 point ↑ rolloff as Dem. share ↑ 5% point • Small district: 0.6 point ↑ rolloff as Dem. share ↑ 5% point

Turnout Models

Figure 4.8 shows the simulated effect of four variables on turnout. These plots show four randomly sampled observations (represented by a different colored line) with the independent variable on the x-axis and the predicted school board turnout on the y-axis. Along the x-axis is a rug-plot showing the relative density of observations at each range of the x-variable to demonstrate where the model is extrapolating with less data. The two dashed horizontal lines shown represent the inter-quartile range of the predicted values. This is presented to provide a reference for how powerful the effect of the independent variable – as shown by the slope of the line – is relative to the overall variability in turnout.

In Figure 4.8 the modest effects in Table 4.8 are illustrated. The negative effect for the teacher share of voters on turnout in the top right panel show the modest impact interest groups may play in school board votes. The positive effect of competitiveness on turnout is depicted in the bottom left. On the other diagonal there is an expected relationship between prior turnout and current turnout as positive and fairly strong. Partisan division has no measurable effect on turnout.

Taken together with the results in Table 4.8 it seems clear that net of election cycle and district long-term trends, as well as demographic characteristics of the communities, school board election turnout is relatively unmoved by these factors.

One possible reason these simulated results show such modest effects is that a large degree of variance in turnout is explained by individual school district unobservable characteristics captured as random intercepts in the mixed model framework. All of the models specified included random intercepts for both school districts and election cycles as a way to control for unobservable characteristics of each district and secular change in turnout from spring election to spring election. Figure 4.9 demonstrates the variabil-

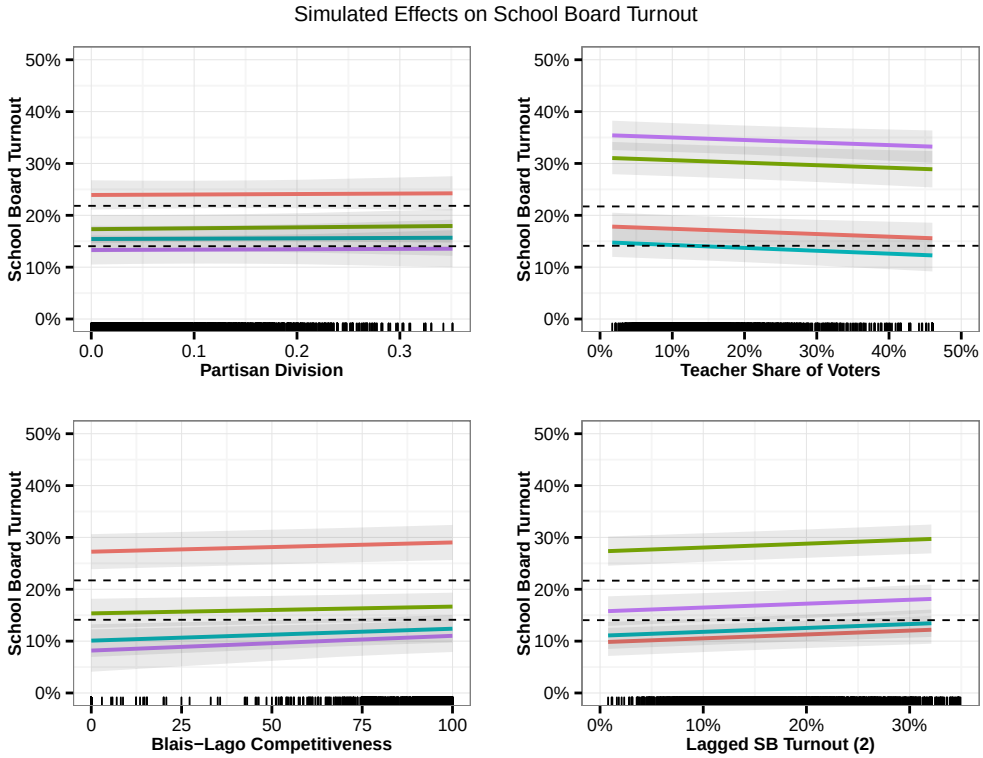


Figure 4.8: Effect of four variables on school board turnout. Each panel represents the results from a different model for a different explanatory variable. Each line in each panel represents a randomly selected school district. The line represents the change in the expected turnout for that case as the value of the explanatory value is increased across the distribution.

ity in the district intercepts from one of the models.[30] This figure represents the change in turnout for a randomly selected school district election as it is moved from the lowest through the highest school district intercept. Thus, it represents how much turnout would change in a school district election if it were modified by the effect of each other school district in the state. This figure arranges the estimate of the individual intercept for in each district,

[30]This figure is derived from the partisanship model in particular, but the school district intercepts are remarkably stable across all of the model specifications and this figure can be interpreted as representative of all of these models.

and its corresponding 90% confidence interval, from lowest to highest to depict the variability in district intercepts. The horizontal dashed lines represent the middle two quartiles of fitted school board election turnout from the model. The vertical lines mark the top most and bottom most decile of school district effects.[31]

The results in 4.9 show that moving from the bottom decile to the top decile in district effect results in an increase of nearly 10% points in school board turnout. This effect is quite large in comparison with the effects shown in Figure 4.8, suggesting that community factors unmeasured in this study explain a large part of the variance in turnout between school districts. This effect exists even with the inclusion of strong demographic and historical controls like school district size and historical school board turnout.

[31]Extracting the parameter estimates from random effect models is not straightforward and there are many ways to estimate the resulting confidence intervals. Here I use the simulation method proposed by Gelman and Hill (2006) and implemented in the excellent `arm` package (Gelman and Su, 2014).

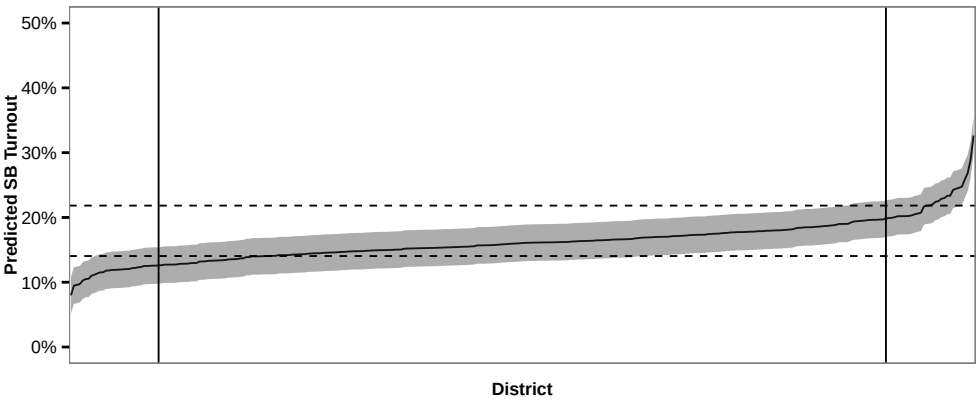


Figure 4.9: Simulated effect of district effects on turnout. As a case moves from the lowest turnout effect to the highest turnout effect, the effect of the district on turnout is represented by the line with a 90 percent confidence interval represented by the gray ribbon. This figure shows the results for the partisan divide model, but all models reported in the text show a similar distribution. The horizontal bars represent the interquartile range of the dependent variable, and the vertical bars represent the 20th and 80th percentile of school district effects.

Rolloff

Here I depict the evidence that influences on voter rolloff appear more pronounced than influences on turnout and are strongly interacted with community size.

Figure 4.10 depicts the simulated impact of increasing teacher share of the voting age population on voter rolloff. Each panel represents a quartile of the VAP distribution and each line in each panel represents a single district being simulated. The line represents the change in voter rolloff for that district as the teacher share of the VAP is increased from its minimum of 0.8% to its maximum of 5%. As before, the dashed horizontal lines represent the median two quartiles of the distribution of the rolloff variable.

Two patterns emerge immediately from this figure. First, teacher share of the population has a consistent positive impact on rolloff across districts of all sizes. Second, the interaction effect is quite strong. As districts get larger, the impact of teachers grows stronger and in the second and third quartile, the impact of moving from 2% to 3% teachers in the VAP can increase voter rolloff in school board elections enough to move between quartiles. Though this effect is quite striking it is important to remember that these are simulations and have their limitations – the simulation in the final panel, for the largest districts, depicts the very unlikely scenario in which the most populated Wisconsin school districts have a population consisting of 5% teachers employed in public schools. However, despite this fact, it is clear that there is a sizable impact on rolloff explained by the share of the VAP that are teachers.

Figure 4.11 provides same look at an interactive effect with district size, but for school board seat competitiveness. Each panel represents one quartile of the voting age population variable. Competitiveness has an almost imperceptible role in small districts, but as districts get larger toward the right, more competitive races result in reduced voter rolloff. In larger communities, competitive races may be more necessary to drive

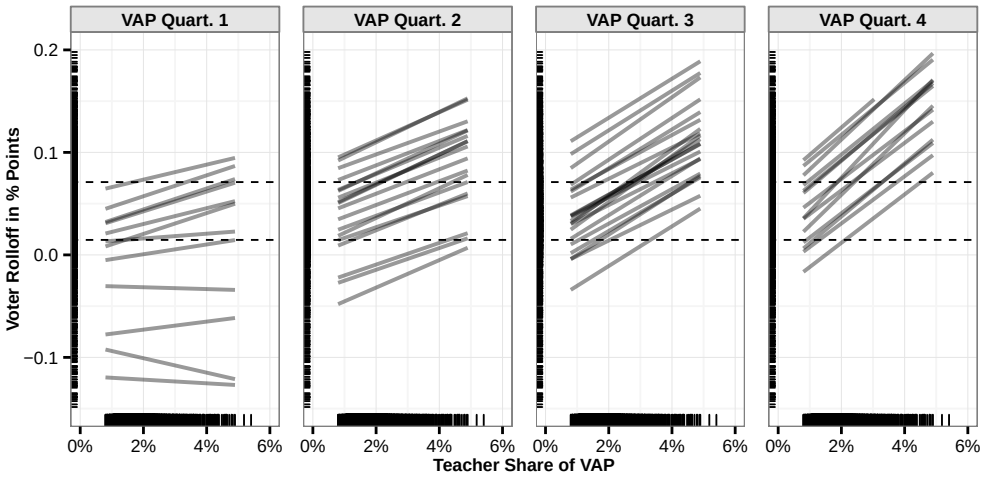


Figure 4.10: Interaction between teacher share of the VAP and district VAP on school board voter rolloff. Each panel displays a random sample of districts within a quartile of the VAP distribution. Each line represents the predicted rolloff for a single district as the teacher share of VAP is increased. The horizontal dotted lines represent the interquartile range of the rolloff variable.

turnout because personal contact is more difficult and media coverage of local elections is scarce (Oliver, 2012).

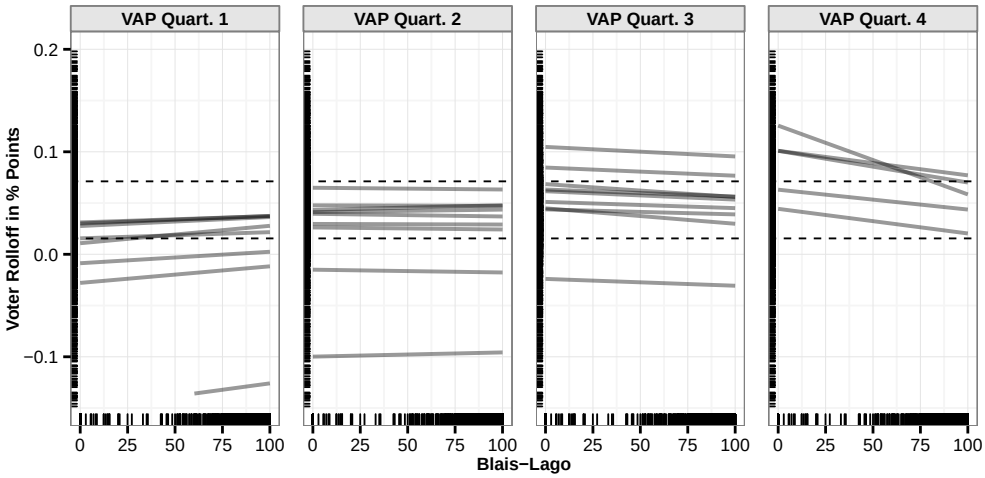


Figure 4.11: Interaction between the Blais-Lago quotient and district VAP on school board voter rolloff. Each panel displays a random sample of districts within a quartile of the VAP distribution. Each line represents the predicted rolloff for a single district as the competitiveness of races is increased. The horizontal dotted lines represent the interquartile range of the rolloff variable.

4.7 Discussion

Overall, unlike the results in Chapter 3, the results in this chapter reflect theoretical expectations for election behavior. This suggests that although the school board electorate is different than the general election electorate, it behaves in expected ways – that is, spring voters are habit forming, selective about their vote mattering, and influenced by social group mechanisms.

Results

This chapter has explored the explanatory power of four different theories of voter turnout in small democracies using the example of Wisconsin school board elections from 2002-2012. In this exploration of democracy at the small scale, there was consistent evidence to support each of the theories - habit forming voters, rational voters, and social group led voters. To test this theory I used two separate measures of voter turnout. First, the estimated number of voters in school board elections as a share of the voting age population residing in the school district. The second, rolloff, is a measure of the proportion of voters who cast a ballot for the top ticket race (a non-partisan statewide office) but did not cast a ballot for school board. This second measure provides a measure of school board turnout net of the macro political forces that may be shaping spring turnout.

The strongest evidence is in support of habit-forming electorates. Even after controlling for demographic factors, turnout in the fall election cycle, and unobservable community characteristics lagged turnout remained a substantively important predictor of turnout in school board elections. This means that communities with higher historical spring election participation will have smaller rolloff on school board ballots and overall higher turnout in the spring election. Though non-partisan spring school board elections have much lower levels of turnout, they appear to be behaving similarly to other electorates. And, by modeling unobservable school district characteristics

which are also likely to include the civic character of the electorate, the estimated impact of twice-lagged school board turnout reported in this chapter is likely an underestimate of the stickiness of school board turnout year to year.

There is also support for rational voters. School district size explains more of the variance in voter turnout and rolloff than any other variable of theoretical interest. These data provide a great test of this theory because of the large variance in electorate size from a few hundred to tens of thousands of voters. Smaller communities exhibit much higher voter turnout than larger communities – all else equal. Additionally, voters in smaller communities are more likely to cast a ballot for school board after casting a ballot in the top ticket election. In fact, in small communities, it can happen that more voters abstain from the top of the ticket race than from the school board. This "turnout twist", as it is called by Horiuchi (2001), may have a number of contributing mechanisms including personal familiarity with the candidate, a higher sense of influence, and a stronger sense of social obligation (Oliver, 2012; Plutzer, 2002; Mueller, 2003; Aldrich, 1993).

The other variables of theoretical interest had measurable impact on turnout and rolloff as well, but not with the substantive magnitude of the above impacts. Competitiveness led to an increase in turnout but did not affect rolloff. That is, competitiveness explained the number of voters going to the poll and voting for school board, but not the share of all voters who did not complete a school board ballot. Interestingly, there is evidence that the impact of competitiveness is partially attenuated by the size of the district. Larger districts have an increase in turnout when races are competitive that is larger than the increase in smaller districts. Additionally, rolloff is decreased in larger districts when races are competitive, but in smaller districts, rolloff will increase (suggesting turnout is saturated and additional turnout is not interested in school board).

Taken together, this suggests that, despite a lack of campaigning by

candidates or major media coverage, voters in school board elections may be able to assess whether or not to vote based on an assessment of how contested a race will be and they are more able to do so in smaller communities where informal information networks may be more far reaching. On the other hand, it may be that voters are much more likely to hear about a school board election if it is competitive, and so they are more likely to be reminded to vote. Without further study into the motives and knowledge of individual voters in spring elections it is hard to know what in particular is shaping voter behavior. However, at the community level there is evidence that having more competitive elections drives turnout up.

The evidence of direct influence of social groups is less consistent and strong. I test for the influence of two of interest groups – political parties and teacher unions. Teacher unions appear to suppress turnout, albeit to a modest degree. They also increase rolloff, again to a higher degree in larger communities than in smaller communities. This may be due to a deterrent effect – if the nomination process is controlled by interest groups, voters may feel less clear that they have a true choice between candidates (Moe, 2011).

Partisan divides increases rolloff, but with differential effects between small and large communities. In fact, in small communities, partisan divide leads to a decrease in rolloff on the part of voters. However, in larger communities rolloff increases greatly with deeper partisan divides. This seems likely due to increased turnout for top ticket spring non-partisan races in communities with deep party divisions where party activists may be working to turn voters out for non-partisan races. The spring 2011 Supreme Court race in Wisconsin is a prime example of a non-partisan statewide race that turned into a deep battle between parties. Parties may be doing organizing for the top ticket spring race – such as State Superintendent or Supreme Court – and increasing voter turnout for these races by providing information to voters on policy preferences of the candidates. If parties are

successful in organizing voters for top ticket races, then more voters with less interest in down-ticket races like school board may find themselves at the polls and thus not interested in casting a vote in school board races.[32]

Limitations and Future Work

This study is not without its limits. A first limitation is the question of how much spring election voter turnout can be considered to be driven by local down-ticket elections. This is particularly true during the period of study in this chapter, which included the highest turnout spring election in Wisconsin history – a result that cannot be attributed to a slate of particularly contentious school board elections. In an effort to address these concerns I examined a narrower dependent variable – the difference in turnout between the top spring ticket and the school board race. While this addresses the concern about falsely attributing larger spring election forces to school boards, more evidence directly about school boards would be preferred – particularly the information available to individual voters at the time of their decision.

This study is an attempt to infer voter behavior from the observed patterns of turnout and rolloff observed over the last several years in a sample of Wisconsin school districts. It is not appropriate to draw conclusions about the behavior of individuals from the group level results presented here. Thus, while theories of habit-forming voters are in accordance with the pattern observed here, this study is limited by its inability to peer into the rationales of individual voters. In order to disentangle the many confounding theories, future research must survey eligible voters and ask them about their decision to vote or not vote in local school board elections like the work of Oliver et al. (2012). In fact, such local election studies suggest that much voter

[32] As further evidence, the partisanship variables and their interaction with VAP are statistically significant predictors in models using spring election top ticket turnout as the dependent variable.

turnout in local elections is issue based. The large remaining unexplained variance uncovered here could be in part due to the lack of district-election specific issue measures. Chapter 5 will attempt to address this concern, in part, by measuring community preferences on a statewide education issue.

Third, there is a limited ability to draw causal inferences from this study. While all of the results presented are net of a set of strong control variables and after conditioning out unobservable election and school district specific effects, there may be a large set of potential omitted variables responsible for the patterns shown here. Chapter 5 will leverage an exogenous statewide shock to school board elections to investigate the causal impact of some of these variables on turnout and lend more support to these findings.

Theory

Actualized democracy in the form of voter turnout is rare in school board elections. However, unlike the case of contestation, the democratic potential is also low given the structural and informational barriers to voting. This chapter has shown that many of the forces that shape voter turnout in state and national elections also shape turnout in spring non-partisan elections. However, this turnout still remains very small and these forces are very likely shaping an unrepresentative subset of the residents in a school district. There is evidence that school board election turnout is shaped by interest groups. However, this low turnout is only consequential if this subset of the electorate is representing interests out of alignment with the wider voting age population of the school district. This is the question that I turn to in the next chapter.

4.8 Appendix

Sensitivity checks and further table analysis.

Random Effect Specification Tests

Likelihood Ratio Test results for models with and without a third level of year effects. In all cases the year effects should be retained. I used the simulated finite sample distribution of the Restricted Likelihood Ratio Test (Crainiceanu and Ruppert, 2004; Scheipl et al., 2008; Scheipl, 2008). Computation implemented using the `RLRsim` package for R (Scheipl et al., 2008).

- Lag Model: p-value < 0.01
- Competitiveness Model: p-value < 0.01
- Partisanship Model: p-value < 0.01
- Teacher Influence Model: p-value < 0.01

Additional Substantive Effect Plots

Figure 4.12 shows the standardized intercepts for each election cycle – here the year effects are measured in standard deviations from the grand average of 0 marked by the red line. From 2004 to 2009 elections were relatively consistent with one another in terms of turnout. From 2010 to 2012, turnout was first depressed, and then heightened across the state. Most interestingly is that two years of elevated turnout across the state (net of district-election and district-average effects) were in 2011 and 2012 after the election of Governor Scott Walker and the introduction of Act 10.

District and Year Fixed Effect Results for Turnout

Available for review from the author upon request.

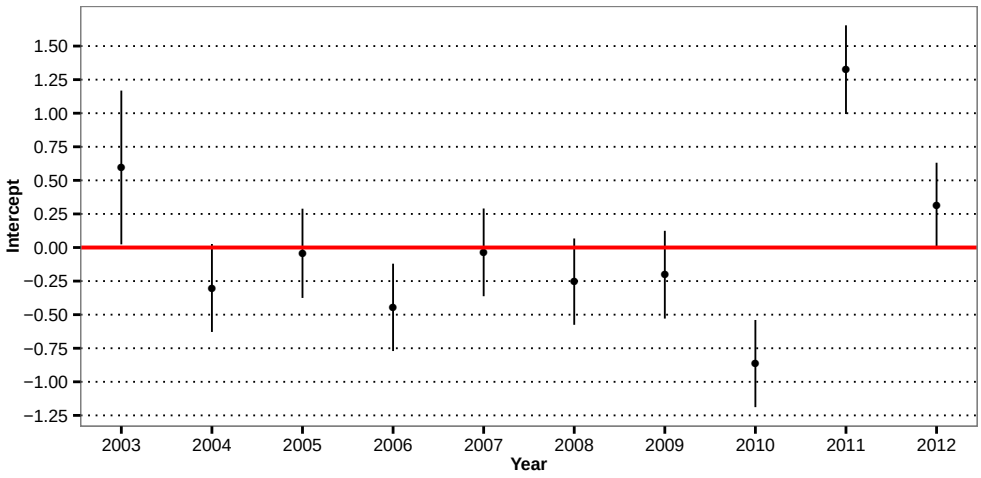


Figure 4.12: Estimated year effects in model effect size terms. Each point represents the estimated standard deviation increase or decrease in turnout for a given election year across all school districts. Confidence intervals are the 90 percent confidence interval across 1000 simulations of the model random effects.

5 DOES SCHOOL BOARD REPRESENTATION ADJUST TO COMMUNITY PREFERENCES?

5.1 Introduction

The previous two chapters do not make a strong case for the democratic nature of school boards. The time and place of the focus of this study – Wisconsin school board elections from 2002-2012 – represented a period of deeply contested education politics and upheaval. Yet, in Wisconsin from 2002-2012 it was nearly impossible to predict the emergence of challengers or competitive elections using measures of school district fiscal, political, or policy pressure. Turnout was more easily predicted by demographics and community factors, but rarely moved above 20-30% and was not strongly responsive to social group and partisan influences. Thus, in many communities, school board elections can be best described as 20-30% of voters nearly unanimously approving unopposed incumbents.

Defenders of the democratic nature of school boards have three strong counterarguments that this chapter will explore. First, measuring conditions for changes in turnout and contestation with the kind of statewide measures used will not work – the issues that spark controversy for boards are local and idiosyncratic. Whether it is a protest over eliminating an AP course in the high school, or a scandal involving an employee, they argue that wedge issues in school boards campaigns are based on crises.[1] Second, turnout and contestation in the period of study chosen here may be low, but turnout and contestation increase when necessary – a cornerstone of the dissatisfaction theory of school board democracy (Iannaccone and Lutz, 1970). Only over a longer time period and a larger sample might we expect to find systematic patterns of voter dissatisfaction with boards. Third, voters are more likely to participate when they are informed on the issues. Like the argument against

[1] Oliver (2012) finds this to be the case exactly in suburban mayoral elections.

the importance of non-voting in American presidential races, defenders of school boards may suggest that the preferences of voters and non-voters are not different, and thus despite the low turnout, the appropriate values and goals of the electorate are advanced by a subset of voters.

This chapter seeks to answer these challenges directly by taking advantage of a natural experiment arising out of the unique political conditions in Wisconsin during this time period. Specifically, I use the political turmoil that followed the election of Governor Scott Walker in 2010. I argue that the events of this period formed an exogenous policy shock which a) raised awareness about the power of local school boards, b) created a unified, contentious, and widely debated statewide issue on which all school board candidates and voters were focused across the state, and c) and placed that issue on a familiar and polarized liberal-conservative issue dimension. I analyze the change in turnout and contestation during this period of political upheaval from 2010-2012. As I will show, the political focus on education politics and school boards provides a test of dissatisfaction theory on a statewide scale.

This chapter proceeds as follows. First, I review the literature on dissatisfaction theory and its descendants to identify testable hypotheses. Next, I describe the Wisconsin context and describe the statewide political conditions in the period surrounding the passage of Wisconsin Act 10. Next, I establish the data and methods used to test dissatisfaction theory in Wisconsin. Finally, I assess the results in the context of existing theories of school board governance.

5.2 Literature Review

Dissatisfaction Theory

Dissatisfaction theory is the dominant theoretical lens developed for understanding school board elections. It grows out of Key (1955)'s concept

of critical elections, stating that the politics of school boards is characterized by long stretches of equilibrium punctuated by periods of upheaval, contentious elections, and incumbent defeats (Iannaccone and Lutz, 1970). Proponents argue that the lack of two-party politics creates a closed system between administrators and the board to make decisions without strong feedback from the community. As the distance between the community and the school district grows, eventually a fracture occurs and an outpouring of political activity leads to upheaval, incumbent defeat, and board and superintendent turnover (Lutz and Iannaccone, 1978a). To operationalize this theory, Iannaccone and Lutz (1970) identify a dimension of community characteristics that identify the level of activity in school board elections. They label this continuum the secular-to-sacred continuum. Sacred communities are insular, skeptical of outside expertise, and consensus driven. Secular communities are less monolithic, marked by more conflict and competition. Dissatisfaction theory, thus, seeks to explain the transition of communities when the monolithic power of the insular political community decays and is replaced by a new power structure before re-stabilizing.

Much of the existing evidence supporting dissatisfaction theory relies on snapshot studies of a single year or small sample of school districts using survey items and interviews with board members (Alsbury, 2003; Maguire, 1989; Schoenefeld, 1986; LeDoux and Burlingame, 1973). Many of these studies draw on some of the quantitative measures that Iannaccone and Lutz (1970) argue may be associated with communities in transition such as school district size, urbanization, geographic mobility, the extent the district is coterminous with other local government units, the cosmopolitan character of the residents, and the political associations within the community. The authors suggest that communities in transition in these ways may move along the secular-to-sacred continuum.

These studies face two difficulties. First, they rely on candidate self-reports of politically motivated retirement and electoral defeat. This is a

labor intensive method of studying school board turnover. As with previous chapters, I eschew this approach and focus on electoral defeat from official election records. This means that true retirements that are politically motivated are missing in my results with no way to distinguish between a candidate not running for office for political reasons and an open seat.

Another, and more fundamental problem with this literature is the lack of analysis explicitly on voter turnout. Voter dissatisfaction is talked about as an "upwelling" or "rising tide" of discontent, yet changes in voter turnout are not measured or explained. Chapter 4 takes up this issue and finds some evidence that voter turnout is linked to measures of community dissatisfaction with local education policy.

Empirical work on school board turnover, incumbent defeat, and subsequent superintendent turnover is relatively more common. Hunt (1980) attempted to predict school board turnover using socioeconomic factors and measures of dissatisfaction in Ohio but was unsuccessful. A re-analysis of this data by Lutz and Wang (1987) considers recalculating the dependent and independent variables of interest and finds that dissatisfaction is predictive. As I have shown previously in Chapter 3, observable district demographics do not predict emergence of challengers or incumbent defeat. Instead, across the sample, variance in the level of contestation of school boards appears to be due to district specific unobservable characteristics.

One explanation for the discrepancy between Chapter 3 and prior studies is the that previous studies ignored the endogeneity inherent in predicting incumbent defeat by using the number of challengers. This endogeneity arises due to a simple fact that with more choices available, the win expectancy of the incumbent decreases as a function of available options to voters – particularly in an uninformed environment. More problematic though, is the fact that the same forces that cause candidates to emerge for office (strategic candidates) are strongly associated with the likely defeat of an incumbent. These issues are addressed in Chapter 3 where incumbent defeat

is not found to be easily predicted by measures suggested by dissatisfaction theory. The other studies of incumbent school board defeat also rely on outdated statistical methods or substantial identification issues (Alsbury, 2003; Maguire, 1989; Schoenefeld, 1986; LeDoux and Burlingame, 1973). Thus the empirical rigor of this literature to date has been weak.

Mediating Forces

While dissatisfaction theory is the dominant lens through which most previous studies of school board elections have been conducted, it is not without its critics. Zeigler et al. (1974) argues that policy and political turnover in school districts is an illusion. Essentially, school districts are viewed as administrative bodies that are captured by the special interests with the most at stake in their decisions. This is known as continuous participation theory.

Continuous participation theory agrees with dissatisfaction theory in the finding that periodic incumbent defeat and swells of participation exist. The theories diverge in their predictions about the result of these democratic outbursts. Dissatisfaction theory sees them resulting in a realignment of school board policy toward the preferences of the wider community. Continuous-participation theory sees them as a way to further entrench the interests of the narrow interest group behind the up welling. Thus in one case challengers arise to defend the interests of the community, and in another challengers arise to better serve the interests of specific factions within the community.

Recent work has picked up this thread and found evidence of special interest influence in school districts on employee wages (Moe, 2011, 2005; Anzia, 2011), curriculum content (Deckman, 1999, 2004), and evidence on taxation in special jurisdiction governments analogous to school districts (Berry, 2009). Thus, any apparent increase in school board political activity observed is viewed as being in the best interest of the special interest groups

which dial participation up and down depending on their policy goals.

However, it is difficult to identify how these two theories are incongruous in their expectations. Without measures of the preferences of the community, the board, and the superintendent it is difficult to draw support for either model from the observation of political activity at the school board level. Both models see political activity as being mediated by the interests of different groups – for dissatisfaction theory the community at large, and for continuous participation theory entrenched special interests. In the next section, I will describe a new lens of interpreting school board elections that draws from both of these traditions and can be tested using the events of 2010-2012 in Wisconsin.

A New Approach for Small Democracy

I suggest a reframing of dissatisfaction theory to provide more testable hypotheses and a stronger linkage to other theories of democracy. I conceptualize democracy of having two distinct dimensions – potential and actualized democracy. Potential democracy describes the existence of conditions that allow citizens to voice their opinion, select their leaders, and influence policy – the democratic promise. A democratic system can be considered to have high democratic potential when it has open and free elections, transparency in decision making, and high levels of information about candidate and citizen policy and preferences. A government may have these features, but they may not be being utilized in any given election period. This can be for a number of reasons, most importantly, satisfaction with the status quo. Actualized democracy describes the usage of these systems in the form of citizen participation, candidate choice, and information levels available to make decisions. This simple two dimensional model of democracy has important implications for the understanding of the political activity at the school board level.

Like others, I focus on several sources of *friction* which inhibit citizens

from converting the potential of their democratic institutions into actualized democratic actions. The most important is the lack of information. Obtaining information about candidates is expensive and the more specialized the policy making, the more expensive the acquisition of knowledge on preferences of candidates can be (Downs, 1957a). In this framework, the narrow and specialized issue brief of school boards, like other local and special jurisdiction governments, makes the actualization of democratic potential difficult for individual citizens (Foster, 1997; Burns, 1994).

This informational deficit can be seen as a collective action problem. I consider three special interest groups that seek to fill this deficit and organize information on school board to different degrees: district employees, property taxpayers, and parents. Each of these groups are different in their size, core issues, and preferences. These groups are also not mutually exclusive – citizens can belong to any combination of them.

Table 5.1: Potential Interest Groups in School Board Elections

Group	**Benefit**	**Cost**	**Cohesion**	**Size**
Teachers	High	Lowest	Concentrated	Small
Parents	Medium	Moderate	Diffuse	Medium
Property Owners	Low	High	Diffuse	Large

Table 5.1 describes these groups along the dimensions of their expected benefit from public schools, their relative share of the cost of schooling, their cohesion as a group, and their relative size. Teachers are the most cohesive group with the biggest benefit from district policies as the school district is their employer and provider of benefits. Thus teachers have the strongest incentives to participate in school board elections, organize others, and express their voice. Parents, on the other hand, are a diffuse group with generally lower resources (parents have less wealth and income than

the other two groups in most communities), but a large connection to the benefit of schools through the provision of better education for their children. Property owners have an interest in school boards because of their ability to set a substantial portion of property tax rates. However, property owners face the greatest coordination problem because they are the most diffuse group and their coordination costs are the highest – they are the least homogeneous group.

Thus, while organized interest groups can be conceptualized as a way to overcome the friction involved in actualizing democracy, the incentives for these groups vary. School board elections can be interpreted as reflecting the preferences of those voters mobilized by these groups based on the intensity and homogeneity of each of their preferences multiplied by their size – Dahl's polyarchy (Dahl, 1963).

Dissatisfaction theory would agree with this reframing of the power structures of school boards and suggest that periodically if the board strays too far from the preferences of less represented groups, voters will punish them and adjust the board to reflect the preferences of the community. If this is the case, then if more individuals actualized their democratic behavior, voters would largely retain their current board members but with greater numbers. That is, if we could exogenously eliminate the coordination and information costs for each interest group, we should not expect to see great changes in school board membership.

However, if community fractures do exist, then this injection of information should accelerate the process of actualizing democratic activity for broader swaths of the community. In these cases, the exogenous shock should accelerate the process of increased candidate and voter activity, culminating in heightened incumbent defeat. A final case might occur if before the shock an equilibrium was reached either through overall satisfaction with the board, or through capture by interest groups that warded off challengers. Candidates and dissatisfied community members become emboldened with

the chance of change, and democratic actualization would increase. In the case of interest group blocking, this effect should be even stronger with interest groups newly weakened through Act 10. How to distinguish between whether the community will rally behind or backlash against teachers' unions post Act 10, then, is dependent on the distance between the community's preferences and the status quo, and the organizational capacities of each side to mobilize for spring elections.

I now turn to describing the political conditions in Wisconsin from 2010-2012 that created such an exogenous provision of information to voters. I demonstrate how this statewide shock increased information for voters about school board candidates and lowered the cost to participating in school board elections. This allows me to explore whether the status quo prior to the exogenous shock reflected the will of voters, or the will of a well-organized subset of voters who were not representative of the broader community interests.

Wisconsin from 2010-2012

Wisconsin from 2002-2012 provides an ideal test case for examining the impact of increased voter information and decreased friction in the democratic process. As discussed in previously the election of Scott Walker to Governor and the subsequent passage of Act 10, the 2011-13 biennial budget, and the mass protests in the state capitol lead to state level politics in Wisconsin becoming polarized. The precipitating event was the passage of a statewide reform restricting the power of public employee unions to collectively bargain. This reform was passed as part of Wisconsin Act 10, known as the budget repair bill. In practice, the bill was packaged as a set of "tools" to allow local and state government the authority to extract concessions from employees on wages and benefits that would not be possible under collective bargaining. This was necessary, it was argued, to allow local governments to absorb the large budget reductions necessary to balance the

state budget.

School districts led by local school boards, and the teachers' unions they bargained with, made up the largest proportion of those affected by the Act 10 reforms. In fact, Act 10 represented a sweeping expansion of the power of school boards away from local teachers' unions. This shift and the proposed budget cuts was met with an unprecedented up welling of political opposition. Madison was engulfed in protests for weeks ahead of the 2011 spring elections as shown in Figures 5.1 and 5.2.

Figure 5.1: Budget Protests at the Wisconsin Capitol. © Justin Ormont | Wikimedia Commons | CC-BY-SA-3.0

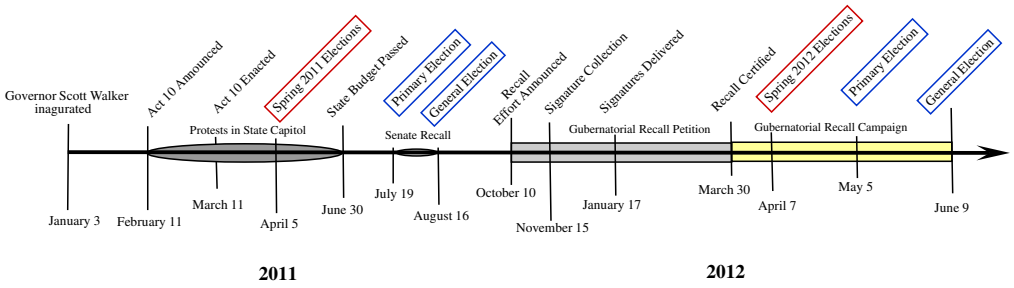
The new freedom to determine employee compensation outside of collectively bargained agreements meant that school boards now had more power. Importantly, this grant of power and increased political discourse

Figure 5.2: Budget Protests Inside the Capitol. © Joe Rowley | Wikimedia Commons | CC-BY-SA-3.0

surrounding the power of school boards relative to their employees was unanticipated by political observers and the public. It represents an exogenous shock because voters, school board members, and public employee unions had no knowledge prior to the introduction of the budget repair bill that the right to collectively bargain would be modified in 2011.[2]

[2]This last point is disputed by some conservative political observers and Scott Walker himself who claim that candidate Walker campaigned on this issue. However, the consensus has been that there is no record of any proposal during the 2010 campaign according to an investigation by the Milwaukee Journal Sentinel.

Figure 5.3: Wisconsin Politics 2011-2013 Timeline



The events of 2011 and 2012 are depicted in Figure 5.3. Key events are marked as well as the dates of the spring school board elections of 2011 and 2012. As Act 10's introduction was the precipitating event, I refer to this political unrest as the Act 10 period, which stretches from February 11, 2011 with the introduction of Act 10 to Scott Walker's defeat of Milwaukee Tom Barrett in the recall election on June 9, 2012. I argue that the exogenous shock to the school board election process persists throughout this period because of the continual focus on education policy, school board politics, and the sustained polarization around Act 10 and Governor Walker's education policy. For example, after Act 10 was passed it became entangled in court battles while protesters turned their attention to the Wisconsin 2011-2013 Biennial Budget and its substantial cuts to school funding. Additionally, a signature drive for recall elections against several state senators was underway through the spring and summer. After that, the 2012 spring primary election took place during the heart of the recall petition signature drive and the spring 2012 general elections took place after the recall petition signatures were made public at the start of the gubernatorial recall election campaign. I argue that this Act 10 period galvanized the debate around education policy in Wisconsin in three distinct ways.

First, it forced school board members and teachers' unions to show their hands to the public with respect to bargaining agreements. After Act 10 boards were given the ability to unilaterally set compensation plans for their

staff, which account for the vast majority of their annual operating costs. This new power strongly incentivized both employee unions and property owners to express their policy preference for school district expenditures and to mobilize both candidates and voters. School boards now, more than ever, had the chance to actualize the preferences of voters either to hold down property taxes, or to protect school staff from budget cuts. Additionally, many school boards had the option of renewing their union contracts between the time that Act 10 was passed and the time the law took effect – effectively honoring their existing compensation and working condition agreements into the future. This new power was a high profile polarizing issue faced by some school boards in the post Act 10 period.

The second effect Act 10 had on school board elections is that it injected a partisan dimension into traditionally non-partisan school board races. Candidates had to take a position on Act 10 publicly, aligning themselves with either Governor Walker and the Republican party or the Democrats. Thus, voters and candidates who may have faced informational deficits in school board elections previously could quickly signal to one another their policy goals using a public statement in favor of or condemning Act 10. During this period, the Wisconsin Association of School Boards reported an uptick in school board members facing pressure and criticism about their decision to sign or not sign the public petition to initiate a recall of Republican Wisconsin state senators and Governor Scott Walker.[3]

The third effect of Act 10 was an intensified public discourse over the stewardship of public schools. This statewide political debate surrounding Act 10, the historic protests, and the recall election campaign all increased the amount of information voters had about school boards, school board powers, and the positions of their local school boards on issues such as Act 10, school funding, and budget priorities. Thus the informational advantage possessed by members of some interest groups prior to Act 10 evaporated.

[3]Correspondence with Dan Rossmiller of Wisconsin Association of School Boards (Rossmiller, 2013).

A critical reader might argue that this shock was not about education at all and that the true impact of Act 10 on education policy itself was small. Even if this is true, it is hard to argue that this period does not represent one of the biggest possible shocks to education politics short of directly rewriting school board election rules. Thus, I view the results of this study as defining a sort of upper bound for statewide impacts on democratic behavior within local school board elections.

Expectations

How might an exogenous shock like the Act 10 period affect school board elections? For candidates, it raises the potential benefit and lowers the cost of running. Challengers to current board members can now capitalize on the increased public awareness about school funding and compensation plans to distinguish themselves from incumbents and enact real policy change. Additionally, these candidates have more information about the likelihood of their success based on the preferences of the voters in their school district for Governor Walker – both in the 2010 Gubernatorial race and in the 2012 recall.

For voters, the advantages are perhaps even more clear. Now voters have a high profile polarizing issue into which to divide candidates. This increases the information available for voters, decreasing the costs of voting. Additionally, if boards are given more power, voters have more reason to believe that their policy preferences can be actualized by electing a candidate more closely related to their preferences.

If school board members were already representing the preferences of the majority of their community, and not a majority of the spring election electorate, then this increased information would result in potential increases to participation, but not a substantive change in representation. Voters may be more active because of an increased interest in voting in general – an issue I will return to later – but the results should be largely the same.

However, continuous participation theory suggests that by expanding the electorate and revealing more information about the preferences of board members, voters should be more likely to participate and reject candidates who represent the interests of those who were participating prior to the Act 10 period.

Both dissatisfaction theory and continuous participation theory anticipate that the Act 10 period should result in increases in all electoral activity and a decrease in rolloff, or spring election voters who do not cast a ballot for school board. Dissatisfaction theory suggests that the impact of the shock is larger in communities with greater polarization around Governor Walker. However, if teacher union strength is high, the impact of the Act 10 shock should be attenuated as unions work to protect incumbents, deter challengers, and keep races close relative to communities with weaker teachers' union strength.

Turnout should increase in the Act 10 period, and should increase even more in communities divided in their support of Governor Walker.[4] This follows from Lassen (2005) who leveraged an exogenous shock of an information campaign in some electoral districts and found that increasing voters' information also produced a sizable effect on the propensity to vote. However, if interest group activity is strong, in the pre-shock period we should see voter turnout be suppressed, but in the post-shock period we should see turnout increase as teachers' unions attempt to mobilize a show of force at the ballot box in support of their candidates locally.

To measure actualized democracy in school districts, I use four separate measures of democratic activity. The first two are related measures of contestation. I categorize school board races with challengers receiving 20 or more votes as "seriously contested".[5] I also employ a continuous measure of

[4]One concern might be that the polarization was so extreme and the state so saturated with negative campaigning of all forms that voter turnout was suppressed even in the case of spring school board elections (Kahn and Kenney, 1999).

[5]For robustness, I check another variable, the dissatisfaction factor, which is the

the competitiveness of a race that accounts for the number of seats available, number of voters casting ballots, and the number of votes necessary for at least one candidate to move from being a winner to a loser. This measure is known as the Blais-Lago quotient and was also used in Chapters 3 and 4 (Blais and Lago, 2009). Finally, I use two separate measures of voter turnout. The first captures the raw turnout for school board races out of the total voting age population of the school district. The second captures the proportion of voters who roll off, or fail to cast a ballot for school board but voted in the spring election (Wattenberg et al., 2000).

Mediation

With dissatisfaction theory the story is more nuanced. Depending on where a community is in the cycle of insular policy making to public dissatisfaction much change may not happen. That is, the impact of the Act 10 period will be mediated by the prior electoral activity in the school district. Specifically, if the board has already been made reflective of the interests of the broader community through a prior period of upheaval, then the Act 10 period should have little effect on board membership. However, if the board was previously insular and little information about its position relative to those of the community was known, then the Act 10 period should result in larger impacts in these communities. Act 10 provides me with new measures of community preferences across the state, without the need for a survey. I use these to measure the mediating effect of these preferences and test if, as dissatisfaction theory suggests, these realignments are more common when community preferences are divided.

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number of candidates above the number of seats open in the district. The results are in the Appendix.

Figure 5.4: A Theoretical Model of School Board Policy Shock

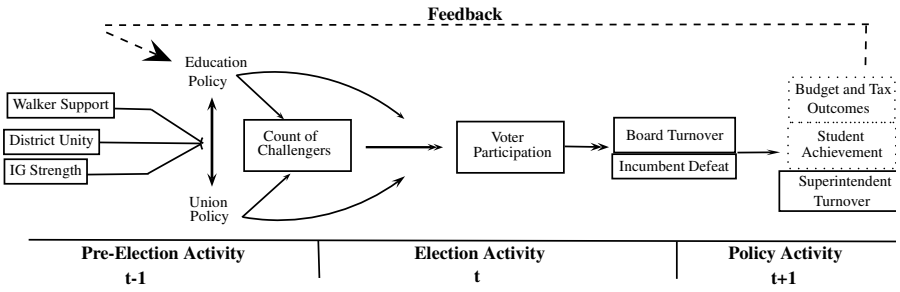

Figure 5.4 shows how preferences of the community and board policy in the pre-election period are related to the rise of challengers, voter participation, and incumbent defeat in the election period. Three potential indicators of the alignment of community and school board preferences are posited. The first is the level of support for Governor Walker's education policies in the Act 10 period, second, is the level of participation by the community in the recall election itself, and third is the relative strength of interest groups within the community – specifically in this case teachers' unions.

Table 5.2 summarizes the expected relationships between these variables. Shock refers to the main effect of the Act 10 period on the election activity in a school district, relative to its prior school board election activity. Both continuous participation and dissatisfaction theory have the same expectation. However, evidence for dissatisfaction theory comes from the expectation that the interaction of mediating factors and the policy shock should have an impact on some of the dependent variables.

Threats to Validity

The argument above is not without its counterpoints. Critics might counter that though voters were mobilized in the Act 10 period, it had nothing to do with school boards. The 2011 spring election was also marked by a highly contested statewide Supreme Court election and the ultimate

Table 5.2: Expected effect of Act 10 shock and mediating factors on key measures of actualized democratic activity in school districts. Shock refers to elections during the Act 10 period, polarization refers to the community divide in support of Governor Walker, recall refers to the level of participation in the recall election, and IG refers to the strength of the teachers' union in the school district.

DV	Shock	Polarization	IG strength	shock x polariza-tion	shock x recall	shock x IG
Cont. Race	+	null	-	+	null	-
Blais-Lago	+	+	-	+	null	+
Inc. Def.	+	+	-	+	+	-
Turnout	+	null	-	+	+	-
Rolloff	-	null	+	-	-	-

impact of Act 10 was in doubt due to multiple legal challenges. Voters in this period may have been motivated almost entirely by the statewide Supreme Court race and any participation in school board elections was incidental. By the 2012 spring election, Act 10 was ruled as constitutional and there was no policy shock. Moreover, though Act 10 now gave school boards more power, it came coupled with historical cuts in state aid and a freeze on school district revenue limits. In practice this meant that though compensation policy may have been freed up, school boards had very little flexibility to innovate under such fiscal constraint and school board office may have appeared particularly unappealing to potential candidates.

I believe this study addresses these concerns in several ways. First, instead of focusing on a single measure of actualized democracy, I apply multiple measures. For example, while turnout may be subjected to political forces like statewide interest in a Supreme Court race, school board incumbent defeat and school board ballot rolloff are perhaps less so. In addition

to multiple outcome measures, I measure the policy shock of the Act 10 period as two distinct events, instead of averaging across the 2011 and 2012 elections. This more closely reflects the reality that different conditions were in place in each election. More importantly, it allows for the effect of the Act 10 period to be measured with more nuance and the persistence of the effect to be explored. I also test for mediation effects. While it is not possible to measure and model all possible biasing omitted variables, I leverage the panel nature of the data to focus on within district comparisons which difference out all time invariant unobservable characteristics. I now turn to describing the data and methods I employ to achieve this.

5.3 Data

The data in this chapter is drawn from a unique collection of school board election results in Wisconsin school districts from 2002-2012. In addition to the election results from over 75% of Wisconsin school districts, administrative records are incorporated to include annual measures of school districts on fiscal, political, demographic, and educational dimensions.

Dependent Variables

In this section I outline the key dependent variables for this investigation. Broadly, I am looking for evidence of the causal impact of the Act 10 period on the behavior of both candidates and voters. For candidates, I look for a change in the patterns of candidate contestation and seat competitiveness after the passage of Act 10 and the granting of additional powers to school boards. For voters, I look for changes in voter turnout and decreases in voter rolloff.

Table 5.3 shows the frequency of serious contestation of school board races across the sample period from 2007-2012. Most important is that the

	No Serious Contestation	Serious Contestation
2007	129	167
2008	156	142
2009	148	149
2010	135	164
2011	140	164
2012	138	165

Table 5.3: Districts with at least one seriously contested school board race.

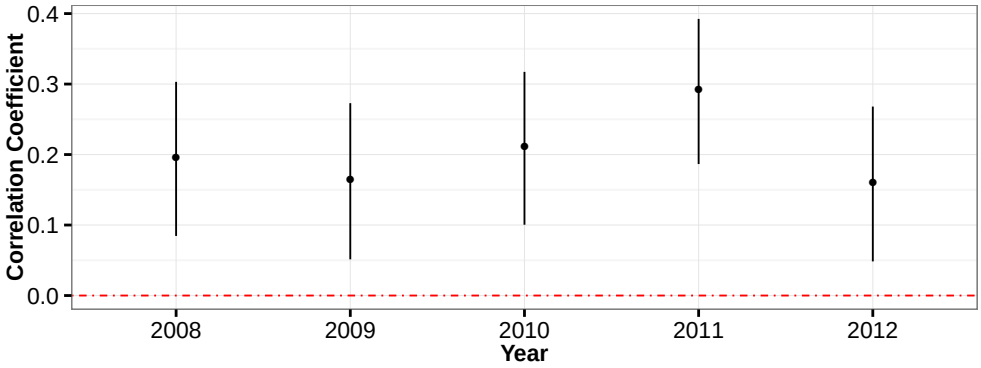

Figure 5.5: Correlation of Blais-Lago Quotient and 2x Lag. Point is the correlation coefficient and confidence bands mark the 95 percent confidence interval for the correlation in each year.

number of districts with such a race is remarkably stable in both the pre- and post-Act 10 periods.

Figure 5.5 shows the annual correlation between district competitiveness and its lag. In general the relationship is stable with an increase in 2011 that suggests there may be an Act 10 impact on competitiveness. Figures 5.6 and 5.7 show the relationship between school board turnout and voter rolloff and their respective lags. In Figure 5.6 the three years from 2010-2012

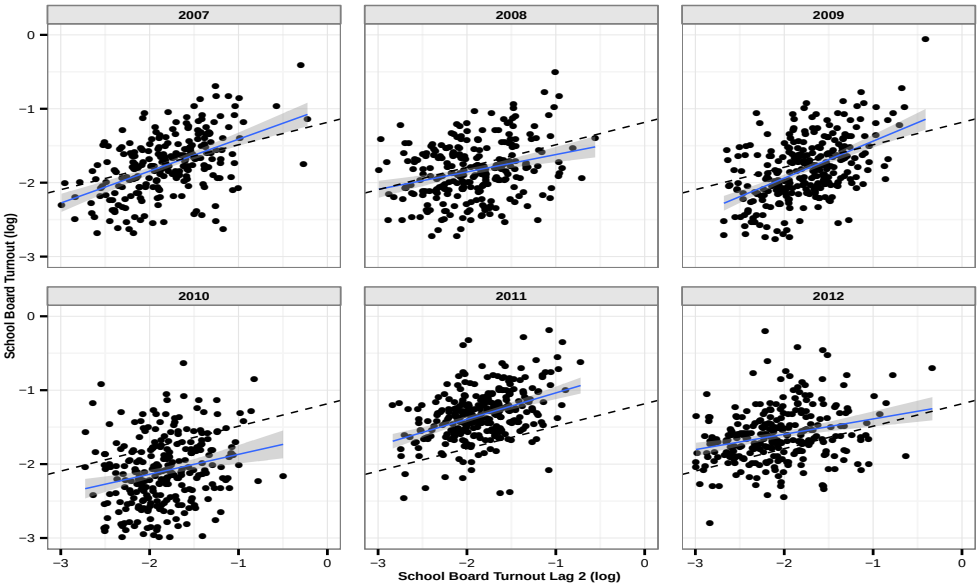

Figure 5.6: Relationship between school board turnout and twice lagged school board turnout. Each panel is a school board election cycle and each point represents a school district. The dashed line represents the pooled relationship between the lag and turnout across all years, and the blue line represents the relationship in each year.

deviate the most from the grand sample average represented by the dotted line. In 2011 the slope looks the same, but the intercept is much higher suggesting higher overall turnout. In 2012, the slope is steeper, but the intercept is close to the same.

For rolloff both 2011 and 2012 standout with slopes that deviate dramatically from the sample average represented by the dotted line. Here there are fewer years pre Act 10 to examine, but the pattern suggests rolloff is worth investigating.

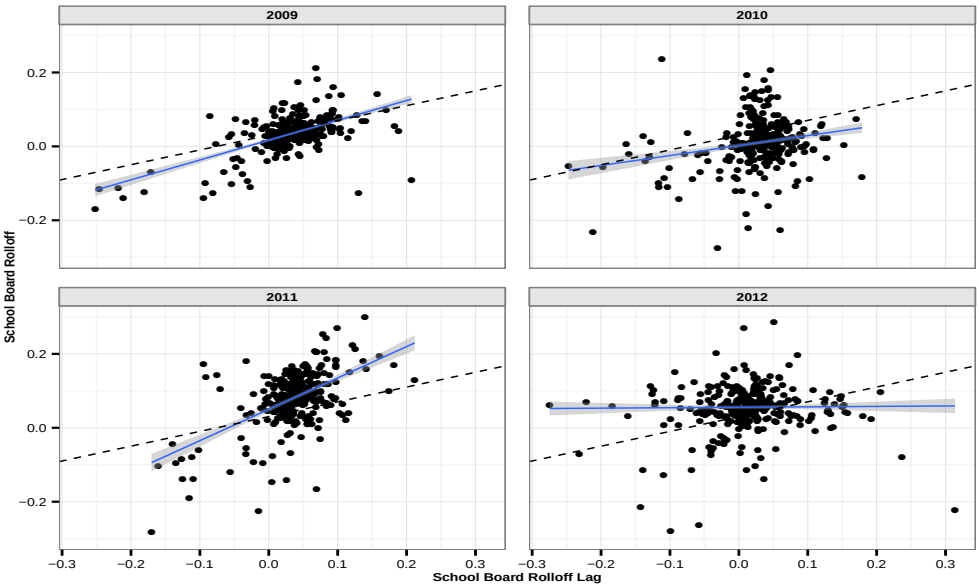

Figure 5.7: Relationship between school board rolloff and twice lagged school board rolloff. Each panel is a school board election cycle and each point represents a school district. The dashed line represents the pooled relationship between the lag and rolloff across all years, and the blue line represents the relationship in each year.

Independent Variables

Figure 5.8 shows the correlations among some key control variables and is similar to the plot introduced in Chapter 4. These variables are related to the key independent variables identified by Iannaccone and Lutz (1970) as indicators of school districts in transition from insular to competitive in their politics. In general, the relationship to turnout is modest with the strongest relationships being a positive correlation between percentage elderly and school board turnout and a negative correlation between turnout and population size.

New Measures

In addition to the suite of independent variables found in Chapters 3 and 4, this chapter features some additional key variables drawn from results of Wisconsin's historic recall election. The Act 10 period itself created three unique measures available statewide to provide a window into the preferences of communities. First, the level of polarization in the community in the recall election of Scott Walker. The result of this election can be seen largely as an opinion poll of voters on the issues of Act 10 and education funding in the state – the two largest issues in the campaign.[6]

A second measure that arises from this period is the level of turnout for the recall election itself. As with any election, voters without a strong preference either way were able to stay home. What's more, the election was at an unconventional time – neither during the fall or the spring general election. Turnout was specifically driven by a desire to express support or opposition to the Governor. As such, it can be seen as an indication of the intensity with which a community was in favor of or against the policies of

[6]While some have argued that another issue, the legitimacy of recalling the Governor in the first place was also important, this may also be a reflection on how strongly those voters felt about Act 10 in the first place.

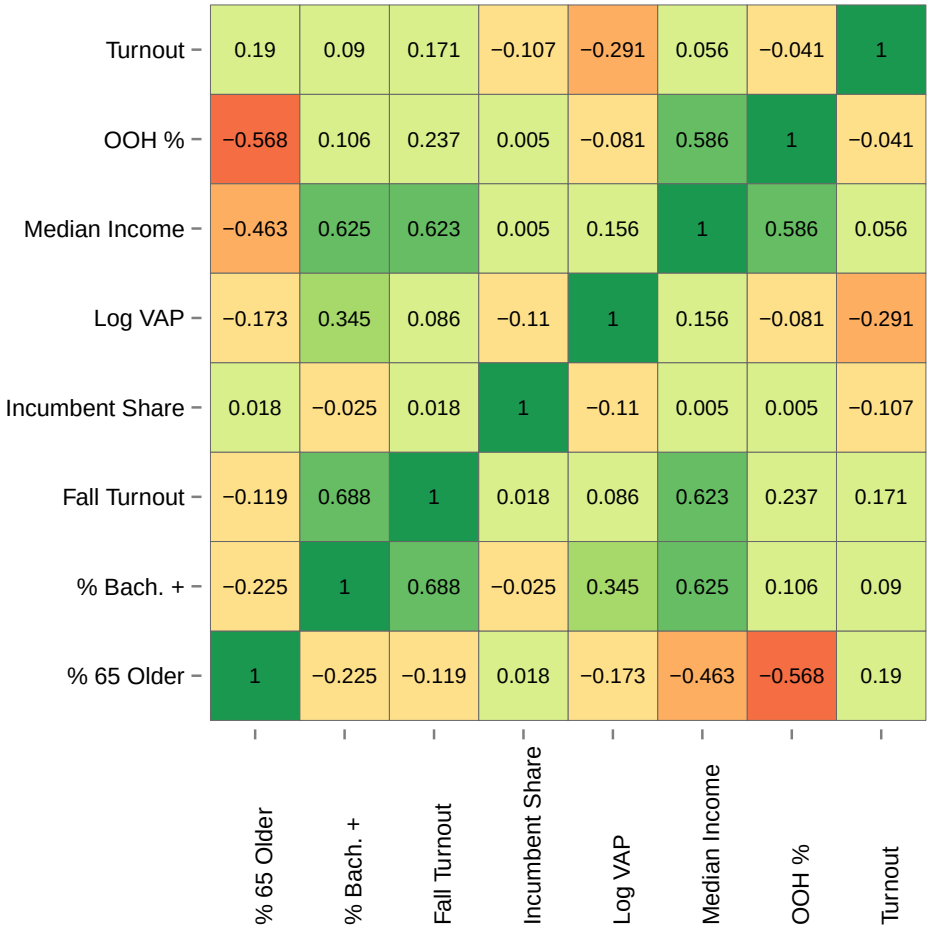

Figure 5.8: Correlation Matrix of Demographic Variables and Turnout Across Sample

the Governor.[7]

A final measure was created by the mechanics of Act 10 itself. Act 10 required public employee unions to recertify through an election process. Over the next few years all public employee unions in Wisconsin held recertification elections. Recertification required unions to hold elections and that a majority of all members, not just of those who voted, must vote in favor of recertifying for the union to continue to operate. The results of these elections – the margin by which the union recertified – can be seen as a measure of latent union strength.

Each of these measures was made available *after* the exogenous shock and as are *post-treatment* variables. As I argue below, I believe these measures can be interpreted as measuring latent traits within the communities that existed pre-shock and thus serve as *pre-treatment* proxies of community traits which would not have been measured statewide without intervention. This rests on the assumption that while Act 10 activated citizens to more democratic activity, it did not shift their existing preferences, but rather gave them voice.

Polarization

Figure 5.9 shows the relationship among these mediating variables in a correlation matrix. Union recertification election turnout is the most orthogonal measure with only a weakly positive correlation with recall election turnout and negative relationships with two party Democratic vote share in Fall elections and polarization in the Recall election. Two other patterns are worth noting – recall election polarization is negatively related to turnout of all kinds and positively related to Fall general election Democratic

[7]The recall election took place on June 5^{th}, 2012. Turnout was 57.4% with 2,516,065 voters casting votes for Governor out of a voting age population of 4,378,741. For more information see `http://gab.wi.gov/sites/default/files/Statewide%20Percentage%20Results_6.5.12%20Recall%20Election_PRE%20SEN21%20RECOUNT.pdf`

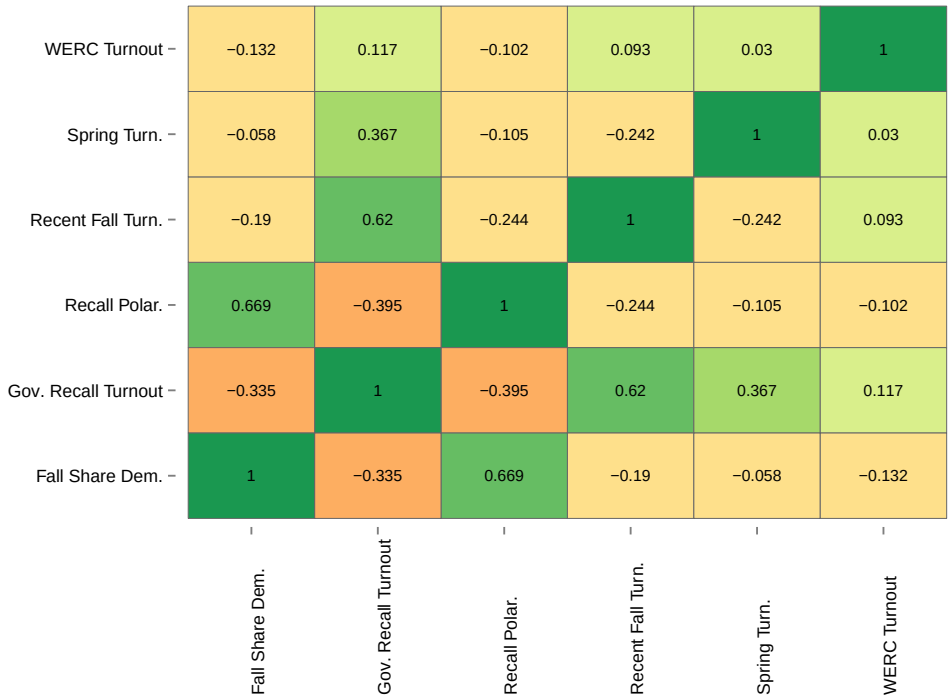

Figure 5.9: Polarization and Other Variables

vote share. This suggests more polarized communities in Wisconsin have lower voter turnout.

WERC Elections

As discussed above, the strength of teachers' unions is a potentially important mediating factor in the actualization of democracy in school board elections. The Act 10 period created a measure of such strength because it forced teachers' unions to show their strength through recertification elections. Statewide, most unions recertified sometime in the period from 2011-2013. While previously the proportion of the electorate composed of teachers was used as a proxy for teacher union strength in Chapter 4,

Figure 5.10: Polarization and Population Control Variables

this measure is a measure of the cohesiveness and political strength of local teachers' unions. The Wisconsin Employment Relations Commission (WERC) maintains records of the annual recertification of unions. I use WERC records from 2011, 2012, 2013, and 2014. After recertifying the first time, unions must hold an annual recertification election. I collapse the recertifcation elections for all unions in the district available in all years as a measure of latent union strength.

This measure does reduce the sample. Overall, 272 school districts had a certification election and of these, 209 are also in my sample. Taken together, teachers' unions in Wisconsin held 513 certification elections, and won 487. This high win rate makes using wins as a variable not possible.

A key feature of the elections is, however, that voters who did not turn out are counted as voting "No" for recertification. Thus, voter turnout is a measure of the ability of the union to organize. On average, districts saw 76.5% margins of votes in favor of certification and 74.6% voter turnout.

I opt for turnout because it is clearer how to handle districts that did not hold a recertification election. I code these as having zero turnout. As of the writing of this dissertation, nearly every union local is eligible for recertification. Those that have chosen not to recertify election should be interpreted as either unsure of winning or too weakened to pull off the logistics of an election. I explore the sensitivity to this by also exploring the impact of a dummy variable which simply codes for the decision to offer a recertification election or not.

Controls

Figure 5.10 explores the correlations between recall polarization, WERC election turnout, and and demographic variables. Here, WERC turnout is weakly correlated with any of the control variables. Recall turnout and polarization are strongly correlated with standard demographic predictors of polarization and turnout – income, owner occupied housing, education levels. The size of some of these correlations is potentially problematic for estimating statistical models. I now turn my attention to describing the modeling approach I take.

5.4 Methods

Causal Inference

Extraordinary claims require extraordinary evidence, and there is no more extraordinary claim for a quantitative analysis of social phenomena than assessing causality from observational data. To credibly claim to

estimate the causal effect of Act 10 and the power granted to school boards, I must demonstrate both how this impact is exogenous and how I will operationalize it into a variable. Above, I have already described how the events surrounding the passage of Act 10 were unforeseen by the electorate and therefore not endogenous to school board elections post Act 10.

To operationalize this exogenous shock I code two dummy variables for each post Act 10 election. If this was a randomized experiment and exposure to Act 10 had been randomly distributed to school districts and years, I could stop and simply compute the average levels of the dependent variables for these groups and perform a t-test. However, as the prior chapters have shown, there exist substantial observable characteristics that affect candidate and voter participation. Not taking these variables into account risks allowing them to confound the estimation of the treatment effect and bias estimates away from the true impact Gelman and Hill (2006).

Though school districts in Wisconsin were not randomly assigned to greater power and more engaged voters at different time periods, they were all assigned to this treatment at exactly the same moment with perfect fidelity. This eliminates one potential bias to estimating the causal impact of the treatment – assignment bias. Now, by comparing districts to themselves pre- and post- assignment, I can be more sure that I am estimating the impact of the treatment.

In addition to the assumption that the passage of Act 10 was exogenous, unforeseen, and universal, this approach also assumes that all confounding covariates are observable and included in the model and that no omitted variables may bias the estimation of the treatment effect Gelman and Hill (2006). In practice, this assumption is not empirically verifiable. I argue that instead that the treatment effect is a valid estimate given the inclusion of terms to capture within district variance, a lagged dependent variable, and substantively important predictors of each of the dependent variables

as demonstrated in previous chapters.[8]

One remaining concern is the presence of confounding effects. It is rare that a social process produces a neat linear causal relationship between treatment and outcome. Here, the biggest threat is from the unprecedented partisan mobilization around the 2011 state Supreme Court race. Voter turnout and spring non-partisan election political activity was no doubt heightened for reasons not related to the school board. To address this I measure the treatment effect in 2011 and 2012 with separate variables to avoid the 2011 race biasing the estimate of the Act 10 period. Additionally, I investigate measures of democratic activity that are less directly influenced by the Supreme Court race, namely school board seat contestation, incumbent defeat, and voter rolloff.

Modeling Strategy

I use three modeling strategies to triangulate the causal impact under different identifying assumptions. Leveraging the panel nature of my data, I can use two different methods to control for unobservable characteristics in the data. Using a lagged dependent variable I can control for time-variant unobservables that have the potential to bias causal estimates. Using school district fixed effects I can control for time-invariant unobservable characteristics between school districts. Angrist and Pischke (2009) demonstrate how a lagged dependent variable and an individual fixed effect model can serve as a lower and upper bounds on the causal effect respectively. To avoid problems with endogeneity, and because of the long panel nature of the data, I use twice lagged predictors for all control variables. Twice lagged predictors also help for the few school districts which hold every other year cyclical school board elections being retained in the data, notably the largest

[8] Additional robustness checks included fitting all models with once lagged predictor variables, fitting random instead of fixed-effect models, and rescaling and transforming skewed and non-normal predictors. Results were robust to these.

school district Milwaukee Public Schools.

The equation below represents the fixed effects approach with the i's representing individual district-year observations and the γ_j 's representing the individual district intercepts. The λ is the parameter of interest and in this model it represents the the estimate of the effect of the treatment within each school district relative to the outcomes in that school district in the non-treatment period.

$$y_{it} = \alpha + \gamma_j + \beta X_{it-2} + \lambda T_{it} + \epsilon_{it}$$

This estimate provides a upper bound for the true causal effect of the treatment; a lagged dependent variable model provides a lower bound. The equation below depicts this model with the lagged dependent variable effect represented by the γ parameter:

$$y_{it} = \alpha + \gamma Y_{it-2} + \beta X_{it-2} + \lambda T_{it} + \epsilon_{it}$$

Here, the γ term is a measure of the average change in the level of the outcome variable conditional on the prior values of that variable in previous observed periods and the lagged control variables for community attributes. Time variant characteristics are controlled for, but time invariant differences between school districts are not accounted for in this model.

A third modeling approach I employ as an additional check is a differences-in-differences estimator. This model uses the lagged-dependent variable model from above, but includes an interaction term with the treatment indicator. This model seeks to identify a post-treatment change in the relationship between the dependent variable and the lag term. This can be

thought of as looking for a change in the slope between the lagged dependent variable and the outcome of interest that occurs in the post-treatment period.

$$y_{it} = \alpha + \gamma Y_{it-2} + \beta X_{it-2} + \lambda T_{it} + \delta Y_{it-2} \times T_{it} + \epsilon_{it}$$

Here the λ term represents the overall change in the outcome in the post-treatment period, but the δ term represents a departure in the pre-treatment relationship between the variable and its lag. For each outcome variable, each of these three models are fit, and the value of the λ terms across models are compared.

For all of the models I employ robust clustered standard errors which adjust the degrees of freedom to account for the lack of independence in data with repeated observations (Woolridge, 2002). For binomial outcomes I fit generalized linear models using the logit transformation.

Mediation

In assessing the competing theories of school board political activity, I need to measure the influence of interest groups on school board democratic measures. To do this, I employ models that interact interest group strength measures with the treatment indicator to see if interest groups play a role in attenuating or exacerbating the effect of the treatment.

To fit these measures I use a reduced form of the lagged dependent variable model. In this case, I use fewer demographic controls as they may cause bias or confound the estimate of the mediation effect if they are too strongly correlated with the pre-treatment control measures (Gelman and Hill, 2006). In the equation below I am interested in the ψ term which captures how the strength of the interest group increased or decreased the effect of the Act 10 period on measures of school board democracy.

$$y_{it} = \alpha + \gamma Y_{it-2} + \lambda T_{it} + \delta M_{it+1} + \psi T_{it} \times M_{it+1}\epsilon_{it}$$

I prefer this approach because I wish to make comparisons not only within districts but to leverage the power of between-district comparisons.

Variables

For the lagged-dependent variable and differences-in-differences models, the X vector includes variables that reflect the size and scope of the school district identified by Iannaccone and Lutz (1970). District population, level of urbanization, education level, and relative income of population are all controlled for in addition to both the lagged dependent variable and a lagged measure of fall partisan general election turnout to control for the overall civic participation of the community. In addition to these controls, I also include lagged measures of the proportion of incumbents participating in school board races – to control for prior contestation – and a lagged measure of the number of seats elected previously to control for the number of seats.

For the fixed-effect models, all of the demographic control variables are excluded because there is very little within-district variation on these measures. However, the controls on electoral conditions is kept because this does show variation within school district.

5.5 Results

I organize the results as follows. In the first section, I review the results for the models that leverage the years 2011 and 2012 as treated by a causal shock. I provide results for three different models for each of my five distinct measures of actualized democracy – contestation, competitiveness,

incumbent defeat, voter turnout, and voter rolloff. For each measure, I provide lagged dependent variable, differences-in-differences, and district fixed effect results. In the next section, I then step away from the causal framework and fit longitudinal models which seek to explore evidence, if any, that this causal impact was mediated by the preferences of the community.

Causal Estimates

I provide three sets of results for each dependent variable. The first is a regression with a lagged dependent variable and demographic controls, the second is a differences in differences estimate, and the third is a difference in differences estimate with district level fixed effects.[9]

[9]I tested the models on a restricted sample with only years after 2007, but this had no substantive impact on the results.

Table 5.4: Causal Estimates of Act 10 Period on Contestation

	Lag	DnD	FE
Intercept	−2.031	−2.022	0.154
	(2.898)	(2.900)	(0.220)
Lag. Contest	0.359***	0.357**	
	(0.107)	(0.118)	
Spring 2011	−0.018	0.035	−0.100
	(0.131)	(0.180)	(0.171)
Spring 2012	0.003	−0.063	−0.080
	(0.129)	(0.197)	(0.172)
Electorate Size	−0.101	−0.101	
	(0.736)	(0.736)	
Electorate Size^2	0.037	0.037	
	(0.043)	(0.043)	
Incumbent Share	−0.213	−0.215	0.220
	(0.159)	(0.158)	(0.193)
% Over 65	0.958	0.942	
	(1.757)	(1.757)	
n races	−0.246**	−0.246**	−0.177
	(0.079)	(0.079)	(0.179)
% Owner Occupied	0.479	0.479	
	(0.597)	(0.599)	
% Bach. +	−3.242***	−3.242***	
	(0.728)	(0.730)	
Exurb	0.450	0.448	
	(0.443)	(0.443)	
Rural	0.550	0.547	
	(0.435)	(0.435)	
Lag x 2011		−0.107	
		(0.267)	
Lag x 2012		0.121	
		(0.264)	
N	2362	2362	2362
AIC	3104.787	3108.354	3157.508
BIC	3404.685	3454.390	10308.915
$\log L$	−1500.394	−1494.177	−338.754

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

FE = Fixed effect model with omitted district effects

Coefficients are on the logistic scale

Table 5.5: Causal Estimates of Act 10 Period on Competitiveness

	Lag	DnD	FE
Intercept	5.426*	5.428*	4.636***
	(2.248)	(2.246)	(0.180)
Lag Blais-Lago	0.048	0.035	
	(0.033)	(0.034)	
Spring 2011	−0.167†	−0.529	−0.199*
	(0.087)	(0.343)	(0.089)
Spring 2012	−0.155†	−0.180	−0.171†
	(0.089)	(0.332)	(0.096)
Electorate Size	−0.532	−0.519	
	(0.566)	(0.564)	
Electorate Size^2	0.047	0.046	
	(0.033)	(0.033)	
Incumbent Share	−0.033	−0.036	0.083
	(0.090)	(0.090)	(0.094)
% Over 65	0.095	0.097	
	(1.367)	(1.362)	
n races	−0.864***	−0.860***	−0.093
	(0.076)	(0.075)	(0.155)
% Owner Occupied	0.721†	0.706†	
	(0.392)	(0.390)	
% Bach. +	−2.338***	−2.354***	
	(0.627)	(0.625)	
Exurb	0.183	0.180	
	(0.174)	(0.174)	
Rural	0.351*	0.348*	
	(0.156)	(0.156)	
Lag x 2011		0.093	
		(0.078)	
Lag x 2012		0.006	
		(0.076)	
N	2362	2362	2362
R^2	0.177	0.177	0.386
adj. R^2	0.172	0.173	0.294
Resid. sd	1.380	1.380	1.275

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

FE = Fixed effect model with omitted district effects

Table 5.6: Causal Estimates of Act 10 Period on Incumbent Defeat

	Lag	DnD	FE
Intercept	$-5.567^{\dagger}$	$-5.625^{\dagger}$	-18.572^{***}
	(3.167)	(3.160)	(1.117)
Lag Inc. Def.	0.351^{*}	0.411^{**}	
	(0.140)	(0.156)	
Spring 2011	−0.275	−0.198	−0.321
	(0.178)	(0.191)	(0.219)
Spring 2012	0.039	0.087	0.040
	(0.169)	(0.194)	(0.212)
Electorate Size	0.839	0.853	
	(0.793)	(0.792)	
Electorate Size^2	−0.032	−0.032	
	(0.046)	(0.045)	
% Over 65	−0.754	−0.830	
	(2.056)	(2.066)	
n races	−0.075	−0.077	0.030
	(0.091)	(0.091)	(0.245)
% OOH	−0.277	−0.294	
	(0.674)	(0.674)	
% Bach. +	-3.605^{***}	-3.632^{***}	
	(1.070)	(1.075)	
Incumbent Share	−0.185	−0.189	0.038
	(0.174)	(0.175)	(0.239)
Exurb	0.300	0.302	
	(0.370)	(0.372)	
Rural	0.109	0.112	
	(0.404)	(0.405)	
Lag x 2011		−0.409	
		(0.483)	
Lag x 2012		−0.191	
		(0.386)	
N	2362	2362	2362
AIC	2221.735	2224.810	2419.508
BIC	2521.633	2570.845	9570.915
$\log L$	−1058.868	−1052.405	30.246

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

FE = Fixed effect model with omitted district effects

Coefficients are on the logistic scale

Table 5.7: Causal Estimates of Act 10 Period on Turnout

	Lag	DnD	FE
Intercept	−2.361	−2.340	−1.699***
	(1.508)	(1.486)	(0.182)
Lag SB Turnout	0.249***	0.285***	
	(0.027)	(0.033)	
Spring 2011	0.556***	0.469***	0.585***
	(0.021)	(0.084)	(0.021)
Spring 2012	0.331***	−0.087	0.284***
	(0.027)	(0.099)	(0.025)
Electorate Size	−0.251	−0.253	
	(0.288)	(0.282)	
Electorate Size^2	0.008	0.009	
	(0.017)	(0.017)	
% Over 65	1.485***	1.434***	
	(0.429)	(0.430)	
n races	−0.040†	−0.038†	−0.046
	(0.023)	(0.023)	(0.038)
% Owner Occupied	−0.077	−0.079	
	(0.152)	(0.152)	
ln(Median Income)	0.208†	0.214†	
	(0.114)	(0.113)	
Exurb	−0.101	−0.099	
	(0.080)	(0.079)	
Rural	−0.055	−0.049	
	(0.085)	(0.084)	
% Bach. +	0.388	0.373	
	(0.309)	(0.307)	
Fall Turnout	0.276	0.261	−0.124
	(0.169)	(0.171)	(0.214)
Lag x 2011		−0.047	
		(0.044)	
Lag x 2012		−0.199***	
		(0.045)	
N	2331	2331	2331
R^2	0.311	0.316	0.496
adj. R^2	0.307	0.311	0.419
Resid. sd	0.425	0.423	0.389

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

FE = Fixed effect model with omitted district effects

Table 5.8: Causal Estimates of Act 10 Period on Rolloff

	Lag	DnD	FE
Intercept	0.248	0.275	−0.007
	(0.343)	(0.335)	(0.225)
Lag SB Rolloff	0.154**	0.124	
	(0.058)	(0.086)	
Spring 2011	0.093***	0.073***	0.093***
	(0.009)	(0.009)	(0.010)
Spring 2012	0.040***	0.043***	0.042***
	(0.008)	(0.008)	(0.010)
Electorate Size	−0.251***	−0.246***	
	(0.058)	(0.059)	
Electorate Size^2	0.014***	0.013***	
	(0.003)	(0.003)	
% Over 65	−0.051	−0.010	
	(0.154)	(0.156)	
n races	0.007	0.006	−0.003
	(0.005)	(0.005)	(0.010)
% Owner Occupied	−0.157**	−0.146**	
	(0.055)	(0.054)	
ln(Median Income)	0.087**	0.082**	
	(0.031)	(0.030)	
Exurb	0.041*	0.042*	
	(0.021)	(0.020)	
Rural	0.039*	0.036†	
	(0.020)	(0.019)	
% Bach. +	0.091	0.078	
	(0.105)	(0.101)	
Fall Turnout	0.114	0.113	0.376
	(0.076)	(0.078)	(0.273)
Lag x 2011		0.528*	
		(0.250)	
Lag x 2012		−0.064	
		(0.102)	
N	1137	1137	1137
R^2	0.213	0.230	0.481
adj. R^2	0.203	0.218	0.293
Resid. sd	0.105	0.104	0.099

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

FE = Fixed effect model with omitted district effects

Table 5.9: Summary of Causal Relationship of Act 10 Reforms on Board Elections

DV / Variable	expected	observed	evidence
Contested Race (ser)	+	null	no statistical significance, wrong sign
Competitiveness	+	-	statistically significant decrease in competitiveness
Incumbent Defeat	+	null	no effects
Turnout	+	+	Positive effect in both years, less positive in 2012
Rolloff	-	+	rolloff increases in all models, dip in rolloff in 2012

Table 5.9 summarizes the results in comparison to the expectations from Table 5.2. First, there is no evidence of an increase in the probability of a race being contested in the post Act 10 period across any of the models in Table 5.4. The sign of the treatment in both years one and two is negative across the models, and the interaction effect with the lagged variable, the estimate of the regime change in the post Act 10 period, is close to zero and non-significant. Given the descriptive data on contestation in Chapter 2, this is not surprising.

Competitiveness, measured by the Blais-Lago quotient, is only slightly more promising. The results in Table 5.5 show a consistent decrease in school board race competitiveness post Act 10 on the lagged and fixed-effect models. This is also counter to expectations, where theory suggested that competitiveness should increase as the voting pool expanded and the dividing lines between candidates was sharpened. This will be explored further in seeking out mediating factors that might explain this result.

Incumbent defeat presented in Table 5.6. There is no evidence that incumbents were defeated at a higher rate in the Act 10 period than before. Turnout and rolloff provide the most exciting results. Table 5.7 shows broad

agreement that the level of turnout was increased in 2011 and to a lesser degree in 2012 with the lagged and fixed effect models agreeing in their estimates. The difference in difference model suggests that in 2011 the increase was across the board, while in the 2012 election, districts with higher turnout prior to Act 10 saw a diminished turnout in 2012. Thus, while Act 10 rose turnout in all districts in the spring of 2011, districts with higher turnout prior to Act 10 saw a decrease in their turnout in the spring of 2012. This suggests some regression to the mean or disengagement by voters in communities that were previously engaged.

The rolloff results in Table 5.8 help shed some more light on this phenomenon. Counter to expectations, rolloff increases post Act 10 in both the lagged and fixed effect models. This suggests that while more voters were going to the polls in these spring elections than normal, they were not going to cast ballots for school boards as the share of voters completing their school board ballot decreased. The difference in differences model shows that rolloff was even higher in districts with high pre-treatment rates of rolloff in 2011, but in 2012, high pre-treatment levels of rolloff were associated with a decreased amount of rolloff in 2012. Rolloff was elevated in 2012, but less so than in 2011, and this finding suggests that voters were less likely to rolloff in 2012 in districts that had previously had higher levels of rolloff – suggesting some level of voter learning was possible.

Overall, these findings are not very consistent with the expectations of existing theory which would suggest that if voters are exogenously activated the division between them and their relatively insulated school boards should result in an adjustment through more incumbent defeat and more contested seats. Without exploring mediating factors it is difficult to conclude whether this means incumbent school board members were satisfactorily aligned with the preferences of their communities, or that voters failed to receive enough additional information from the Act 10 shock to lead to turnover and change in school boards. It should be noted that the lack of findings is

not from a lack of data – there are results on over 300 districts across at least 5 elections – providing this study with plenty of power. Instead, the impact, if any, of the Act 10 period must have been small. Now, I turn my attention to the mediation analysis to attempt to unpack these questions.

Mediation Analysis

While the results above can be interpreted as the causal estimate of the political upheaval surrounding Act 10 on democratic activity in school boards, it is important to explore the potential for mediating factors on the causal estimate. To do this, I fit longitudinal models as above, but I include mediating factors as interactions with the treatment indicator.

These mediating measures were observed post-treatment, but I argue that they can be interpreted as a consistent measure of school district attributes that existed pre-treatment. There is no empirical way to validate this assumption, but using this assumption, however, making it allows me to explore a rich set of potential mediating factors to understand what conditions exacerbated or attenuated the actualization of political activity in school boards. Thus, in lieu of school district level opinion polling statewide, I opt to use these indicators of measures of community preferences.

I now analyze the impact of each mediating factor.

Polarization

The first mediating factor I explore is the divide within the community over Walker's education policies. I argue that the level of polarization seen in the vote to recall Walker at the school district level represents the preferences of likely voters in that community with respect to Act 10 and the Governor's education policies. As such, more divided communities should see a post Act 10 increase in their levels of contestation, and less divided communities should not see such an increase – in other words, the interaction

term between the shock and the Act 10 measure should be positive and statistically significant.

Table 5.10 presents these results using simple models with a lagged dependent variable and the treatment indicator as well as an interaction for recall polarization with the treatment indicator. Full models with within district estimates are provided in the Appendix. Both sets of models agree that there is little evidence of any mediating effect of recall polarization for any democratic activity except for voter turnout. In this case, voter turnout in both 2011 and 2012 was *negatively* impacted by recall polarization. In other words, voters were less likely to participate in spring elections in polarized communities than they were in less polarized communities in both 2011 and 2012.[10]

Union Strength

Table 5.11 shows the mediating effect of union strength. Two measures of union strength are included – first whether the union had a recertification election in the 2011-2014 period, and second, the result of that election. There is no evidence of mediating effects of union strength on contestation, competitiveness, or rolloff.

Turnout has evidence of being higher in districts with strong unions post Act 10. In the pre-Act 10 period turnout was not affected by union strength. Post Act 10, districts with stronger unions exhibited higher turnout. There are two interpretations of this finding. First, that unions organized their members to go to the polls in the Act 10 period and drove turnout up in support of their preferred candidates. Alternatively, voters in communities with historically strong unions may have been motivated to go to the polls to defeat union backed candidates. There is weak evidence of this second interpretation by the fact that stronger unions are associated

[10]The main effect of recall polarization being virtually 0 across all models also suggests that this measure is capturing a distinct post-treatment effect.

with higher rates of incumbent defeat post Act 10 relative to pre Act 10 with a statistically significant effect in 2012. Either way, there is evidence that unions are an important factor in mediating or magnifying democratic expression in school board elections.[11]

Full Mediation

Finally, I look at the impact of recall turnout and recall polarization together as mediating factors. The polarization story is unchanged with the inclusion of recall turnout, but recall turnout appears to have a strong moderating effect in the post-Act 10 period. More turnout in the recall election is associated with changes in election activity in 2011 – specifically less competition for school board seats, higher voter turnout, and greater voter rolloff. This is net of any polarization effects.

There is some evidence that greater turnout is associated with greater incumbent defeat in the 2012 period. In general, both recall polarization and recall turnout are associated with increased incumbent defeat post Act 10, but only in the second period does this effect reach statistical significance. This effect is a bit hard to place, because in the causal models in Table 5.6, there was a negative effect on incumbent defeat in the 2011 period though it was not statistically significant.

Table 5.13 summarizes the results from the mediation models. In general, there is some evidence that recall polarization depressed turnout, teacher union strength increased turnout and increased incumbent defeat in 2012, and that the recall election turnout is associated with increased turnout in 2011, increased incumbent defeat in 2012, and increased rolloff in 2012.

[11]I check this finding for robustness by measuring teacher influence with two additional ways. First, I use two different measure, the teacher share of the VAP, and find similar results – though rolloff is now affected. I also use teacher share of the school board turnout two years prior, but here I find only a weak effect on rolloff. The first of these is reported in the appendix. The second robustness check is to estimate the impact of union strength within the subsample of districts which went to a recertification election. These results do not show much impact, and are included in the appendix.

The role of interest groups mediating the impact of the Act 10 period is then unclear. Community polarization appeared to play little role at all in school board elections – despite the heated partisan nature of education politics in the state. Voter activation and union strength resulted in increased incumbent defeat in the 2012 spring election period – suggesting that politically organized communities and strong unions defeated school board incumbents.

Table 5.10: Mediation Estimates of Polarization on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Intercept	−0.182	0.045*	−0.273***	−0.179***	−1.604***
	(0.114)	(0.020)	(0.020)	(0.016)	(0.125)
Spring 2011	0.068	−0.049	0.627***	0.382***	−0.220
	(0.147)	(0.034)	(0.025)	(0.032)	(0.201)
Spring 2012	0.023	−0.063†	0.456***	0.256***	0.040
	(0.146)	(0.033)	(0.036)	(0.033)	(0.192)
Recall Polarization	−0.049	−0.019	0.037	0.002	−0.001
	(0.187)	(0.038)	(0.041)	(0.033)	(0.207)
Districtwide	0.011	−0.311***	−0.010	0.048	−0.071
	(0.286)	(0.087)	(0.065)	(0.077)	(0.360)
Contest Lag	0.566***				
	(0.125)				
Spring 2011 x Polar.	0.182	0.064	−0.124*	−0.063	0.029
	(0.305)	(0.067)	(0.049)	(0.062)	(0.393)
Spring 2012 x Polar.	0.271	0.079	−0.277***	0.041	0.094
	(0.292)	(0.075)	(0.065)	(0.072)	(0.402)
Blais-Lago lag		0.194***			
		(0.051)			
Imputed			0.319***		
			(0.035)		
Turnout Lag				0.195**	
				(0.065)	
Rolloff Lag				0.298***	
				(0.062)	
Inc. Def. Lag					0.338
					(0.205)
N	1146	1146	1146	1146	1146
AIC	1575.366				1056.562
BIC	1736.775				1217.971
$\log L$	−755.683				−496.281
R^2		0.077	0.376	0.189	
adj. R^2		0.072	0.372	0.184	
Resid. sd		0.482	0.396	0.452	

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 5.11: Mediation Estimates of Union Strength on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Intercept	−0.177	0.045*	−0.273***	−0.178***	−1.606***
	(0.114)	(0.020)	(0.020)	(0.016)	(0.126)
Contest Lag	0.560***				
	(0.125)				
Spring 2011	0.070	−0.048	0.627***	0.381***	−0.223
	(0.147)	(0.034)	(0.025)	(0.032)	(0.202)
Spring 2012	0.020	−0.063†	0.457***	0.255***	0.006
	(0.146)	(0.033)	(0.037)	(0.032)	(0.198)
WERC Turnout	0.282	−0.036	−0.071	0.234	−0.120
	(0.631)	(0.108)	(0.086)	(0.145)	(0.745)
WERC Election?	−0.368	0.052	0.040	−0.260†	0.003
	(0.656)	(0.116)	(0.085)	(0.152)	(0.735)
Districtwide	−0.025	−0.316***	0.005	0.040	−0.087
	(0.286)	(0.088)	(0.066)	(0.075)	(0.364)
Spring 2011 x WERC Str.	0.360	0.034	0.084†	0.007	0.367
	(0.289)	(0.070)	(0.050)	(0.059)	(0.407)
Spring 2012 x WERC Str.	0.242	0.005	0.132*	−0.029	0.767†
	(0.307)	(0.069)	(0.062)	(0.070)	(0.427)
Blais-Lago lag		0.193***			
		(0.050)			
Turnout Lag			0.315***		
			(0.035)		
Imputed				0.292***	
				(0.059)	
Rolloff Lag				0.191**	
				(0.065)	
Inc. Def. Lag					0.347†
					(0.205)
N	1146	1146	1146	1146	1146
AIC	1575.596				1053.742
BIC	1757.181				1235.327
$\log L$	−751.798				−490.871
R^2		0.076	0.363	0.193	
adj. R^2		0.070	0.358	0.186	
Resid. sd		0.482	0.400	0.451	

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 5.12: Mediation Estimates of Recall on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Intercept	−0.180	0.045*	−0.272***	−0.181***	−1.604***
	(0.115)	(0.020)	(0.020)	(0.016)	(0.126)
Contest Lag	0.565***				
	(0.126)				
Spring 2011	0.068	−0.050	0.634***	0.392***	−0.256
	(0.147)	(0.034)	(0.024)	(0.031)	(0.206)
Spring 2012	0.021	−0.061†	0.452***	0.261***	0.041
	(0.146)	(0.033)	(0.035)	(0.032)	(0.192)
Recall Turnout	−0.055	0.019	0.102*	0.054	−0.351
	(0.190)	(0.039)	(0.041)	(0.043)	(0.240)
Recall Polarization	−0.069	−0.012	0.073	0.021	−0.127
	(0.195)	(0.039)	(0.044)	(0.039)	(0.225)
Districtwide	0.013	−0.311***	−0.023	0.039	−0.069
	(0.286)	(0.087)	(0.059)	(0.078)	(0.356)
Spring 2011 x Rec. Turn.	0.145	−0.083	0.176***	0.221**	−0.219
	(0.325)	(0.088)	(0.053)	(0.070)	(0.460)
Spring 2012 x Rec. Turn.	−0.015	0.044	0.032	0.171*	0.727†
	(0.293)	(0.070)	(0.061)	(0.082)	(0.394)
Spring 2011 x Rec. Polar.	0.237	0.032	−0.053	0.023	−0.056
	(0.332)	(0.074)	(0.051)	(0.067)	(0.486)
Spring 2012 x Rec. Polar.	0.263	0.098	−0.256***	0.114	0.374
	(0.314)	(0.085)	(0.070)	(0.074)	(0.423)
Blais-Lago lag		0.195***			
		(0.051)			
Turnout Lag			0.294***		
			(0.034)		
Imputed				0.283***	
				(0.062)	
Rolloff Lag				0.205**	
				(0.066)	
Inc. Def. Lag					0.330
					(0.205)
N	1146	1146	1146	1146	1146
AIC	1581.086				1056.802
BIC	1803.024				1278.739
$\log L$	−746.543				−484.401
R^2		0.079	0.400	0.217	
adj. R^2		0.071	0.395	0.210	
Resid. sd		0.482	0.389	0.445	

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Table 5.13: Summary of Mediation Effects on Causal Relationship of Act 10 Reforms

DV / Variable	Polarization	Union	Recall Turnout
Contested Race (ser)	null	null	null
Competitiveness	null	null	null
Incumbent Defeat	null	+ 2012	+ 2012
Turnout	-	+	+ 2011
Rolloff	null	null	+

5.6 Conclusion

I have argued that the Act 10 period represented one of the largest exogenous shocks on a statewide level to school board politics. For this two year period not only were school boards granted much greater power than they had previously, but this grant of power was accompanied with a vigorous and historic statewide debate about the rights of public employees, the role of the state government in public schools, and the value of supporting public schools. Additionally, partisan cues were introduced that provided, or perhaps forced, voters and candidates to organize school boards into Republican and Democrat with respect to their support or opposition to Governor Scott Walker. And, for all this the resulting impact on actualized democratic behavior was minimal.

School board scholars have focused on the relative inactivity in school board elections as either symptomatic of regulatory capture of these governments by special interests or as reflecting overall community satisfaction with the status quo. In fact, there are substantial costs for citizens to move from the democratic potential of the school board to actualizing that potential by running or voting for school board.

In Wisconsin's spring 2011 and 2012 elections these barriers were dramatically reduced. Theory suggests that as a result of this voter participation should have increased, races should have become more competitive, and incumbents should have been defeated more often. This did not happen. Instead, races were less competitive, and while turnout increased so did the number of voters who rolled off. To try to explain this, I next looked for evidence of interest groups causing differential effects of the Act 10 period. Specifically, I looked at two measures of interest group strength – teacher union certification election results and community polarization measured by the Gubernatorial recall election. There was little mediating effect of polarization except on turnout, where curiously, more polarized communities had decreased school board election turnout in both the 2011 and 2012 periods.

This suggests a sort of voter disinterest in school board races particularly in these communities that is difficult to square with either the dissatisfaction or continuous participation theories – both theories would suggest that these communities should exhibit greater participation because of greater disagreement about the role of public schools. One possible explanation here is that local education issues, no matter the broader politics, remain non-partisan and resistant to ideology. There is also the fact that citizens regularly rate public schools as bad, but their own public school as good.

Strong unions were associated with greater turnout as well in the Act 10 period. Though organized interest groups are usually associated with preferring lower voter turnout, it is likely that in this period these organizations turned out voters at a higher level as a show of their strength. This is surprising, then, when taken in conjunction with the weaker evidence that strong unions are more associated with incumbent defeat in both 2011 and 2012 – though only 2012 is statistically significant.

For both union strength and community polarization, mediation effects were not found for competitiveness, contestation, rolloff or incumbent defeat. This, coupled with the weak findings of the Act 10 period in general on these measures leads us to return to the initial question: are school boards democratic? If a statewide sample with hundreds of within year observations, and one to two thousand overall, only finds weak and sporadic effects of a historic education politics shakeup on school board elections, it is hard to conclude that school boards are faithfully reflecting the preferences of the communities they serve if their representation does not change in response to such events. This result suggests that statewide forces are unlikely to convert democratic potential into actualized democratic behavior. Even with an unprecedented increase in stakes and information available, board elections remained stubbornly quiet affairs by these measures. This suggests that large policy change is needed to increase participation in elections.

5.7 Appendix

Alternative Models of Contestation

Lower threshold binary variable, and the dissatisfaction factor.

Table 5.14: Causal Estimates of Act 10 Period on Contestation

	Lag	DnD	FE
Intercept	−1.961	−1.960	0.146
	(2.917)	(2.918)	(0.220)
Lag. Contest	0.345**	0.344**	
	(0.107)	(0.119)	
Spring 2011	−0.028	0.018	−0.113
	(0.131)	(0.183)	(0.173)
Spring 2012	−0.007	−0.061	−0.093
	(0.130)	(0.200)	(0.173)
Electorate Size	−0.095	−0.094	
	(0.742)	(0.742)	
Electorate Size^2	0.036	0.036	
	(0.043)	(0.043)	
Incumbent Share	−0.209	−0.210	0.238
	(0.165)	(0.165)	(0.195)
% Over 65	0.936	0.921	
	(1.762)	(1.761)	
n races	−0.234**	−0.235**	−0.172
	(0.081)	(0.081)	(0.180)
% Owner Occupied	0.531	0.531	
	(0.595)	(0.597)	
% Bach. +	−3.299***	−3.299***	
	(0.732)	(0.733)	
Exurb	0.444	0.443	
	(0.445)	(0.445)	
Rural	0.508	0.506	
	(0.436)	(0.436)	
Lag x 2011		−0.092	
		(0.268)	
Lag x 2012		0.097	
		(0.265)	
N	2362	2362	2362
AIC	3108.464	3112.163	3156.485
BIC	3408.362	3458.199	10307.892
$\log L$	−1502.232	−1496.081	−338.243

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

FE = Fixed effect model with omitted district effects

Coefficients are on the logistic scale

Table 5.15: Causal Estimates of Act 10 Period on Dissatisfaction Factor

	Lag	DnD	FE
Intercept	0.320	0.319	0.167***
	(0.235)	(0.235)	(0.019)
Lag. Dissat. Factor	0.124***	0.125***	
	(0.026)	(0.028)	
Spring 2011	0.010	0.006	0.005
	(0.013)	(0.018)	(0.014)
Spring 2012	0.003	0.007	−0.002
	(0.013)	(0.019)	(0.014)
Electorate Size	−0.080	−0.080	
	(0.060)	(0.060)	
Electorate Size^2	0.007*	0.007*	
	(0.003)	(0.003)	
Incumbent Share	−0.008	−0.008	0.022
	(0.017)	(0.017)	(0.016)
% Over 65	0.120	0.121	
	(0.176)	(0.177)	
n races	−0.027***	−0.027***	−0.008
	(0.007)	(0.007)	(0.016)
% Owner Occupied	0.044	0.043	
	(0.058)	(0.058)	
% Bach. +	−0.263***	−0.263***	
	(0.072)	(0.072)	
Exurb	0.058	0.058	
	(0.037)	(0.037)	
Rural	0.054	0.054	
	(0.037)	(0.037)	
Lag x 2011		0.020	
		(0.070)	
Lag x 2012		−0.020	
		(0.064)	
N	2362	2362	2362
R^2	0.066	0.066	0.262
adj. R^2	0.061	0.060	0.151
Resid. sd	0.204	0.204	0.194

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

FE = Fixed effect model with omitted district effects

Full Mediation Models

Multilevel models of mediation with covariates.

Table 5.16: Mediation Estimates of Polarization on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Intercept	−0.783	−0.104	−0.222*	−0.141	−1.782**
	(0.587)	(0.100)	(0.095)	(0.130)	(0.570)
Spring 2011	0.073	−0.042	0.621***	0.391***	−0.227
	(0.153)	(0.033)	(0.027)	(0.030)	(0.204)
Spring 2012	0.056	−0.055†	0.387***	0.217***	0.074
	(0.154)	(0.033)	(0.029)	(0.030)	(0.193)
Electorate Size	1.417***	0.186***	−0.226***	0.291***	0.805***
	(0.201)	(0.036)	(0.035)	(0.046)	(0.236)
Electorate Size^2	0.210	0.072	0.014	−0.140*	−0.287
	(0.281)	(0.046)	(0.043)	(0.059)	(0.300)
% Over 65	0.093	−0.002	0.100**	0.028	−0.308
	(0.185)	(0.035)	(0.034)	(0.046)	(0.233)
N Races	−0.412**	−0.388***	−0.022	0.047	−0.179
	(0.152)	(0.031)	(0.027)	(0.034)	(0.192)
% Owner Occupied	0.199	0.085*	0.046	0.062	−0.128
	(0.183)	(0.035)	(0.033)	(0.045)	(0.230)
% Bach. +	−0.474**	−0.065*	0.141***	0.038	−0.479*
	(0.159)	(0.030)	(0.029)	(0.038)	(0.203)
Exurb	0.425	0.057	−0.078	−0.077	0.083
	(0.564)	(0.097)	(0.092)	(0.127)	(0.548)
Rural	0.809	0.127	−0.034	0.019	0.207
	(0.564)	(0.097)	(0.092)	(0.126)	(0.544)
Lag	0.252†				
	(0.131)				
Recall Polarization	−0.130	−0.030	0.049	−0.017	−0.094
	(0.194)	(0.039)	(0.035)	(0.044)	(0.240)
Spring 2011 x Polar.	0.203	0.056	−0.127*	−0.055	0.048

Table 5.16: Mediation Estimates of Polarization on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
	(0.311)	(0.065)	(0.054)	(0.058)	(0.419)
Spring 2012 x Polar	0.259	0.090	-0.243^{***}	0.059	0.087
	(0.310)	(0.065)	(0.054)	(0.057)	(0.394)
BL Lag		0.062^{*}			
		(0.030)			
Turn Lag			0.166^{***}		
			(0.027)		
Roll Lag				0.045	
				(0.029)	
Inc. Def. Lag					0.195
					(0.234)
N	1146	1146	1146	1146	1146
AIC	1516.094	1481.676	1125.124	1414.983	1055.279
N Groups	306	306	306	306	306
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.527	0	0.107	0.223	0.337
Sigma		0.4497	0.3707	0.3937	

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Table 5.17: Mediation Estimates of Union Strength on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Intercept	-0.791	-0.103	-0.233^{*}	-0.169	-1.801^{**}
	(0.588)	(0.100)	(0.095)	(0.127)	(0.570)
Spring 2011	0.080	-0.041	0.620^{***}	0.390^{***}	-0.226
	(0.153)	(0.033)	(0.027)	(0.030)	(0.204)
Spring 2012	0.058	$-0.055^{\dagger}$	0.383^{***}	0.216^{***}	0.044
	(0.154)	(0.033)	(0.029)	(0.030)	(0.197)
Electorate Size	1.448^{***}	0.188^{***}	-0.240^{***}	0.301^{***}	0.796^{***}

Table 5.17: Mediation Estimates of Union Strength on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
	(0.204)	(0.036)	(0.035)	(0.046)	(0.238)
Electorate Size^2	0.231	0.073	0.015	-0.120^{*}	-0.289
	(0.285)	(0.046)	(0.044)	(0.057)	(0.302)
% Over 65	0.100	-0.001	0.099^{**}	0.029	-0.312
	(0.186)	(0.036)	(0.034)	(0.045)	(0.234)
N Races	-0.425^{**}	-0.390^{***}	-0.018	0.043	-0.164
	(0.152)	(0.031)	(0.027)	(0.034)	(0.193)
% Owner Occupied	0.207	0.084^{*}	$0.057^{\dagger}$	0.067	-0.117
	(0.181)	(0.034)	(0.033)	(0.044)	(0.225)
% Bach. +	-0.473^{**}	-0.066^{*}	0.147^{***}	0.042	-0.477^{*}
	(0.160)	(0.030)	(0.029)	(0.038)	(0.203)
Exurb	0.434	0.059	-0.074	-0.057	0.093
	(0.565)	(0.097)	(0.093)	(0.124)	(0.549)
Rural	0.822	0.125	-0.020	0.045	0.224
	(0.565)	(0.096)	(0.092)	(0.123)	(0.545)
WERC Elec.	-0.786	-0.018	0.060	-0.411^{**}	-0.114
	(0.556)	(0.106)	(0.102)	(0.137)	(0.674)
WERC Turnout	0.463	-0.006	-0.050	0.333^{*}	-0.086
	(0.536)	(0.103)	(0.098)	(0.130)	(0.654)
Lag	$0.230^{\dagger}$				
	(0.132)				
Spring 2011 x WERC T	0.435	0.040	0.080	-0.005	0.383
	(0.303)	(0.065)	(0.054)	(0.057)	(0.414)
Spring 2012 x WERC T	0.293	-0.009	$0.102^{\dagger}$	-0.014	0.799^{*}
	(0.305)	(0.065)	(0.054)	(0.058)	(0.406)
BL Lag		0.061^{*}			
		(0.030)			
Turn Lag			0.153^{***}		
			(0.027)		

Table 5.17: Mediation Estimates of Union Strength on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Roll Lag				0.045	
				(0.029)	
Inc. Def. Lag					0.203
					(0.233)
N	1146	1146	1146	1146	1146
AIC	1514.670	1485.750	1142.927	1409.819	1052.936
N Groups	306	306	306	306	306
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.536	0	0.11	0.216	0.344
Sigma		0.4502	0.3728	0.3943	

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Table 5.18: Mediation Estimates of Recall Turnout on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Intercept	-0.746	-0.103	-0.234^{*}	-0.138	-1.780^{**}
	(0.580)	(0.100)	(0.091)	(0.128)	(0.573)
Spring 2011	$0.233^{\dagger}$				
	(0.131)				
Spring 2012	0.074	-0.039	0.636^{***}	0.406^{***}	-0.250
	(0.153)	(0.033)	(0.027)	(0.029)	(0.209)
Electorate Size^2	0.051	$-0.058^{\dagger}$	0.402^{***}	0.229^{***}	0.091
	(0.154)	(0.033)	(0.029)	(0.030)	(0.195)
Electorate Size	0.255	0.075	0.035	-0.135^{*}	-0.301
	(0.278)	(0.046)	(0.041)	(0.058)	(0.303)
% Over 65	1.386^{***}	0.166^{***}	-0.217^{***}	0.313^{***}	0.817^{***}
	(0.200)	(0.036)	(0.033)	(0.046)	(0.239)
N Races	0.070	0.007	$0.062^{\dagger}$	-0.011	-0.316
	(0.187)	(0.036)	(0.033)	(0.046)	(0.241)

Table 5.18: Mediation Estimates of Recall Turnout on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
% Owner Occupied	-0.413^{**}	-0.383^{***}	-0.024	0.046	-0.178
	(0.151)	(0.031)	(0.026)	(0.033)	(0.194)
% Bach. +	0.151	0.100^{*}	-0.044	-0.030	-0.136
	(0.199)	(0.038)	(0.035)	(0.049)	(0.257)
Exurb	-0.619^{**}	-0.035	-0.018	-0.119^{*}	$-0.517^{\dagger}$
	(0.215)	(0.041)	(0.037)	(0.052)	(0.276)
Rural	0.392	0.060	-0.093	-0.096	0.090
	(0.558)	(0.097)	(0.088)	(0.125)	(0.551)
Recall Turnout	0.795	0.123	-0.030	0.011	0.193
	(0.557)	(0.097)	(0.088)	(0.124)	(0.547)
Spring 2011 x Recall	0.144	-0.011	0.170^{***}	0.146^{*}	-0.107
	(0.245)	(0.049)	(0.043)	(0.057)	(0.305)
Spring 2012 x Recall	0.155	-0.088	0.194^{***}	0.224^{***}	-0.214
	(0.310)	(0.066)	(0.054)	(0.057)	(0.435)
BL Lag	-0.019	-0.009	0.116^{*}	$0.101^{\dagger}$	$0.688^{\dagger}$
	(0.309)	(0.065)	(0.054)	(0.057)	(0.398)
Turn Lag		0.061^{*}			
		(0.030)			
Roll Lag			0.152^{***}		
			(0.026)		
Inc. Def. Lag				0.025	
				(0.029)	
Intercept					0.177
					(0.235)
N	1146	1146	1146	1146	1146
AIC	1519.235	1493.192	1094.224	1385.092	1051.221
N Groups	306	306	306	306	306
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)

Table 5.18: Mediation Estimates of Recall Turnout on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Group:distid Var.	0.518	0	0.091	0.222	0.376
Sigma		0.4522	0.3691	0.388	

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

Table 5.19: Mediation Estimates of Recall on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
Intercept	-0.772	-0.100	-0.246^{*}	-0.157	-1.793^{**}
	(0.587)	(0.100)	(0.091)	(0.129)	(0.575)
Spring 2011	0.086	-0.045	0.638^{***}	0.407^{***}	-0.253
	(0.154)	(0.033)	(0.027)	(0.029)	(0.209)
Spring 2012	0.067	$-0.056^{\dagger}$	0.402^{***}	0.232^{***}	0.093
	(0.155)	(0.033)	(0.028)	(0.030)	(0.195)
Electorate Size	1.422^{***}	0.185^{***}	-0.216^{***}	0.312^{***}	0.828^{***}
	(0.202)	(0.036)	(0.033)	(0.046)	(0.239)
Electorate Size^2	0.222	0.067	0.042	-0.124^{*}	-0.309
	(0.282)	(0.046)	(0.042)	(0.058)	(0.303)
% Over 65	0.070	0.003	$0.059^{\dagger}$	-0.018	-0.325
	(0.189)	(0.036)	(0.033)	(0.047)	(0.241)
N Races	-0.412^{**}	-0.388^{***}	-0.017	0.047	-0.185
	(0.152)	(0.031)	(0.024)	(0.034)	(0.195)
% Owner Occupied	0.147	0.095^{*}	-0.044	-0.030	-0.152
	(0.200)	(0.038)	(0.034)	(0.049)	(0.256)
% Bach. +	-0.572^{*}	-0.044	-0.025	-0.134^{*}	$-0.515^{\dagger}$
	(0.223)	(0.042)	(0.038)	(0.053)	(0.282)
Exurb	0.396	0.058	-0.080	-0.085	0.097
	(0.563)	(0.097)	(0.088)	(0.126)	(0.552)
Rural	0.790	0.125	-0.020	0.028	0.212
	(0.563)	(0.097)	(0.088)	(0.125)	(0.549)
Recall Turn.	0.083	-0.022	0.208^{***}	0.157^{*}	-0.162

Table 5.19: Mediation Estimates of Recall on Board Elections

	Ser. Cont.	Compet.	Turnout	Rolloff	Inc. Def.
	(0.264)	(0.052)	(0.046)	(0.061)	(0.326)
Recall Polar.	−0.120	−0.034	0.094*	0.010	−0.156
	(0.208)	(0.042)	(0.036)	(0.046)	(0.261)
Lag	0.251†				
	(0.131)				
Spring 2011 x Recall Turn	0.217	−0.087	0.174**	0.240***	−0.240
	(0.334)	(0.071)	(0.058)	(0.062)	(0.466)
Spring 2012 x Recall Turn	0.048	0.047	0.025	0.147*	0.858†
	(0.334)	(0.071)	(0.058)	(0.062)	(0.439)
Spring 2011 x Recall Polar	0.291	0.022	−0.056	0.038	−0.060
	(0.335)	(0.071)	(0.058)	(0.061)	(0.459)
Spring 2012 x Recall Polar	0.282	0.110	−0.235***	0.115†	0.419
	(0.335)	(0.071)	(0.058)	(0.061)	(0.429)
BL Lag		0.062*			
		(0.030)			
Turn Lag			0.155***		
			(0.026)		
Roll Lag				0.023	
				(0.029)	
Inc. Def. Lag					0.181
					(0.237)
N	1146	1146	1146	1146	1146
AIC	1521.308	1489.800	1086.576	1392.388	1055.919
N Groups	306	306	306	306	306
Group Names	*distid*	*distid*	*distid*	*distid*	*distid*
Group:distid Effs.	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)	(*Intercept*)
Group:distid Var.	0.525	0	0.093	0.223	0.364
Sigma		0.4497	0.3661	0.3874	

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

Alternative Measures of Union Strength

Mediation models with alternative measures of union strength are available from the author upon request.

6 DO BOARD ELECTIONS HAVE POLICY CONSEQUENCES?

6.1 Introduction

Prior chapters have focused on the ability of community members to influence their school boards through elections. While the evidence on the responsiveness of school board elections to community influences was mixed, it remains to be seen if successfully defeating an incumbent matters. Why vote or run if meaningful changes in policy do not occur? Mobilizing to vote or run for school board can appear more expensive when compared to a small perceived benefit, thus shifting the democratic potential of school boards. Are voters and potential candidates correct if they assess school boards as unable to shift policy toward their preferences? Are school boards so constrained as actors that they are not able to effect meaningful policy change? In this chapter I explore this issue with two specific policy changes – improvements in student outcomes and the change in district administrator. In other words, are these policies responsive to school board election results.

There are many challenges in testing the responsiveness of school boards. First, in most cases school boards are non-partisan offices and many education issues do not fall along traditional ideological lines (for counter example: Deckman, 2004). This poses a measurement challenge for researchers seeking evidence of policy responsiveness. Additionally, the majority of school board election activity is low-impact and low-cost, eliminating traditional ways of measuring the information provided to voters about candidates and their policy preferences (Hess and Meeks, 2011; Hess, 2002). Finally, the link between school board decisions and aggregate student outcomes in the community is weak in two distinct ways. First, the ability or desire of boards to make decisions that are counter to the preferences of the district administrator is questionable (Strobel, 1991). Second, school board decisions, like

other policy decisions, may take time to show results in district outcomes, particularly aggregate measures of student performance.

Despite these measurement difficulties, there are strong reasons to believe that school boards do in fact matter. School boards have considerable power over local issues in their community. School boards in Wisconsin are responsible for setting property tax levies, managing labor relations with staff, and adopting and approve academic standards and curricula. They determine graduation requirements and discipline and attendance policies for their schools. The driving idea behind locally elected school boards was to ensure that the local community retained some control over the direction taken by their schools and that the school system was responsive to their preferences. Until now there have only been limited tests of school board responsiveness (Alsbury, 2008).

In this chapter I explore the impact of board turnover on student outcomes both directly and indirectly in Wisconsin school districts. I focus on two measures of board turnover – incumbent defeat and the dissatisfaction factor, or number of candidates per seat. Incumbent defeat is the clearest sign of dissatisfaction with current board policy and practice and serves as a cornerstone for dissatisfaction theory, the richest theory linking school board practice to educational outcomes (Iannaccone and Lutz, 1970; Maguire, 1989). The dissatisfaction factor, though, can be considered a strong indication of community dissatisfaction with the school board as well, and has the added advantage of being more frequently occurring than the relatively rare defeat of incumbents. Dissatisfaction studies have used this indicator historically as well (Schoenefeld, 1986; Lutz and Merz, 1992; Maguire, 1989).

6.2 Literature Review and Theory

While previous chapters examined the exercise of democratic control of school board elections – under what conditions did voters and candidates participate, and was this participation sensitive to policy pressures – this chapter seeks to understand the result of such participation. In order for democratic institutions to matter, the results of elections must also matter.

I start with a simplified concept of voter dissatisfaction. Dissatisfaction in the community can be expressed on the ballot in two distinct ways: a) the presence of challengers to incumbents who see an opportunity to exploit voter dissatisfaction to defeat an incumbent, and b) the actual defeat of an incumbent. In the school board election literature these two approaches are known as the Lutz and the Iannaccone-Lutz models of dissatisfaction respectively (Lutz and Wang, 1987; Iannaccone and Lutz, 1970). In the study of school boards, since Iannaccone and Lutz (1970), incumbent defeat has been seen as a strong sign that citizens are dissatisfied with the existing outputs of their school government and wish to see changes. Its roots can be traced back to fundamental ideas about the function elections play in allowing citizens to shape the policies of their government. Incumbent defeat has shown evidence of predicting policy change in school districts, but much of this evidence remains relatively weak (Land, 2002). Additionally, as shown in Chapters 2 and 3, in Wisconsin school board incumbent defeat is relatively rare.

Lutz and Wang (1987) defines the dissatisfaction factor, which is the number of challengers running for a school board seat. Partially in response to the twin measurement problems of the rarity of incumbent defeat and the confounding influence of politically motivated incumbent retirement, this measure has been used to predict both incumbent defeat and policy change (Lutz and Wang, 1987; Schoenefeld, 1986). An increase in the number of challengers is expected to lead eventually to incumbent defeat as well as to encourage incumbents to retire rather than face reelection. It also sends a

strong signal to board members not up for reelection that the community is not pleased with board decisions. This, then, will lead to policy change (Schoenefeld, 1986).[1]

Deciding which policy changes to focus on is the next challenge in this literature. School board policy is, by its very nature, highly localized. Finding policy outputs that are measurable and meaningful across school districts and across time on which to compare the impact of board turnover is difficult. Qualitative studies with interviews of key stakeholders and analyses of board and community preferences have found that dissatisfaction does matter and does drive change, but has done so with a level of depth unavailable for a wide scale study (Schreck, 2010; Beckwith, 1994; Cardella, 1990; Howard, 1982). Without such an in-depth study of the politics of each community, it is difficult to know what voters might wish to see change. Much of the work in this area reviewed in Chapter 1 dealt focused on the impact of school board elections on superintendent turnover (Iannaccone and Lutz, 1970; Lutz and Iannaccone, 1978a; Downs, 1957a; Rada and Carlson, 1985; Rada, 1987; Wu, 1995). The relatively recent emergence of public accountability for student performance in school districts has opened up another venue of potential investigation – the importance of political turnover among school board members as a precursor to improved student performance (Alsbury, 2003).

If voters are dissatisfied with their board and replace some board members with new challengers, it is likely that they demand higher student performance, new district management, or both. While the linkage to superintendent turnover is straightforward, the influence of boards on student outcomes is less clear and merits further explanation.

In many cases, boards are criticized as being highly constrained actors

[1]Formally, the dissatisfaction factor is counted as the number of available seats divided by the number of challengers to that seat. The numerator includes all candidates for seats, though the original study does not indicate how to handle the case of challengers with very few votes or write-in candidates.

with little room to set policy after complying with state and federal mandates (Feuerstein and Dietrich, 2003), although the extent of this is not clear (Fuhrman and Elmore, 1990).[2] Yet, evidence exists that boards can influence student outcomes through a range of decisions - some direct and some less direct.Berry (2005) provides an example by examining the relationship between board decisions to consolidate school districts and the resulting changes in student achievement. More important still, boards allocate limited school resources such as quality staff, technology materials, and curricula materials, and evidence shows that such resources matter (Greenwald et al., 1996). On a more universal basis, Berry and Howell (2005) explores if boards change policies in response to public accountability for student achievement, and find evidence in favor of resulting improvements in student achievement.[3]

6.3 Data

To study the impacts of incumbent defeat in Wisconsin school districts I employ a panel data set of school board election outcomes matched to school district administrative records. School board election results were obtained for a sample of Wisconsin school districts for the time period from 2002-2012 and coded to indicate winners, losers, incumbents, and repeat candidates. To code incumbent defeat, I matched a roster of known school board members in a given school year against the victors in the following school year to identify which candidates were incumbents. In addition to this, I code the dissatisfaction factor in two specific ways – first as the number of elected seats over all candidates, and second as the number of elected seats over all candidates receiving greater than 20 votes (Lutz and

[2]Note that this argument can be reduced down ever further to the impact of district policies on schools or school policies on classroom (Garcia, 2001)

[3]This argument assumes a certain level of effectiveness that is not captured by any measures in the current study and may not be evenly distributed across boards (Bieler, 1988; Cowherd, 1989).

Wang, 1987).[4]

This method differs from the board and candidate self-reported measure of incumbent defeat that have been used previously in the literature (Alsbury, 2008). The longitudinal design is also more observations per district and includes a larger proportion of districts in the state than prior designs. In addition to this, a host of administrative data on school districts is also included, most critically measures of student outcomes and superintendent turnover. I discuss these below.

Independent Variables

Timing is of critical importance in assessing the *impact* of school board incumbent defeat. While school board members are elected in spring elections, their term begins the following fall. I use a lagged indicator of incumbent defeat to account for this by looking at the impact incumbent defeat has on student performance on the state exam and graduation rate two years after the election date. For an incumbent defeated in the spring election of 2004, the impact of this defeat is expected to come not during the 2005-06 school year, but instead the 2006-07 year.[5]

Figure 6.1 shows the count and proportion of incumbent defeats in the Wisconsin data from 2002-2012. Typically 40-60 incumbents are defeated a year, representing approximately 10% of all incumbents running each year. One shortcoming with using simple incumbent defeat as a measure is that Wisconsin school boards are majority rule decision making bodies meaning that if a single incumbent is defeated, it may be insufficient to result in substantive policy change depending on the policy positions of other members of the board. Figure 6.2 shows the number of seats on average up for election in districts in each year. The majority of districts elect one or

[4]In the few cases in which a candidate with fewer than 20 votes was the winner, this latter measure is replaced by the former.

[5]Future work may consider extending the lag even further because of the length of time it may take to see achievement results.

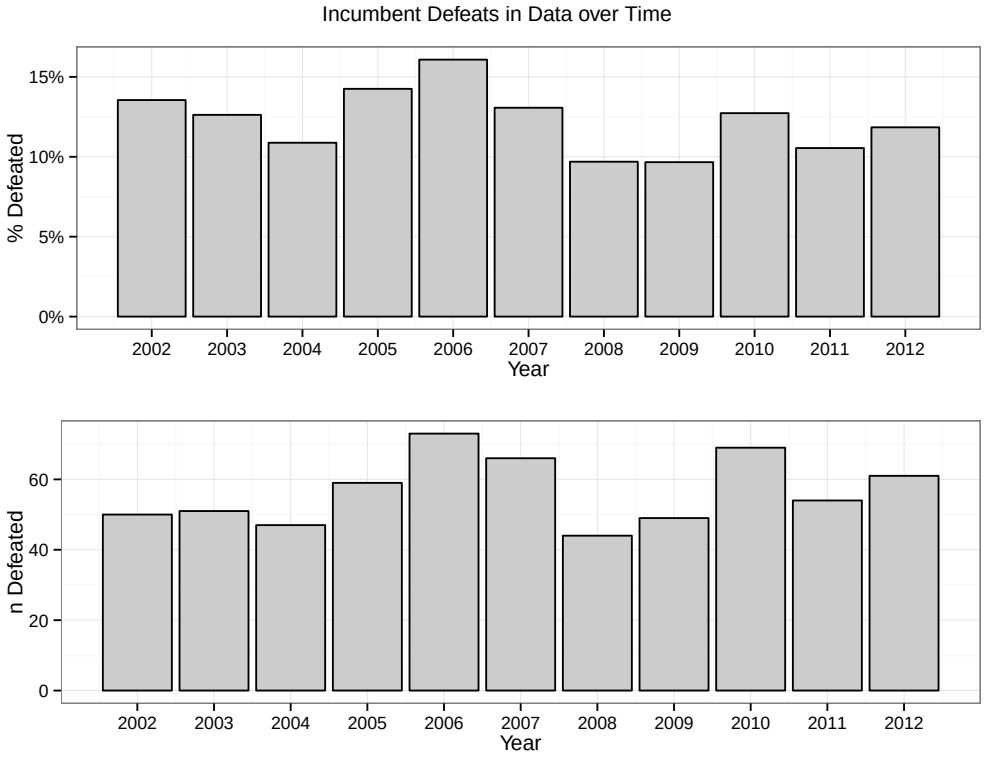

Figure 6.1: Incumbent Defeat Year to Year in Wisconsin 2002-2012

two members and this represents a minority of the typically sized board of five to seven members. Unfortunately, there is not enough variation in the number of board seats elected and the number of incumbents defeated to use anything other than a binary measure of incumbent defeat.

For a more continuous measure, I employ the dissatisfaction factor of Lutz and Wang (1987) as well as a modified version which is the ratio of non-incumbents to incumbents. Figure 6.3 shows the average dissatisfaction factor and average incumbent challenger rate in each year in the data. For both figures, a higher number indicates more dissatisfaction either due to more candidates overall participating or more non-incumbents. In general,

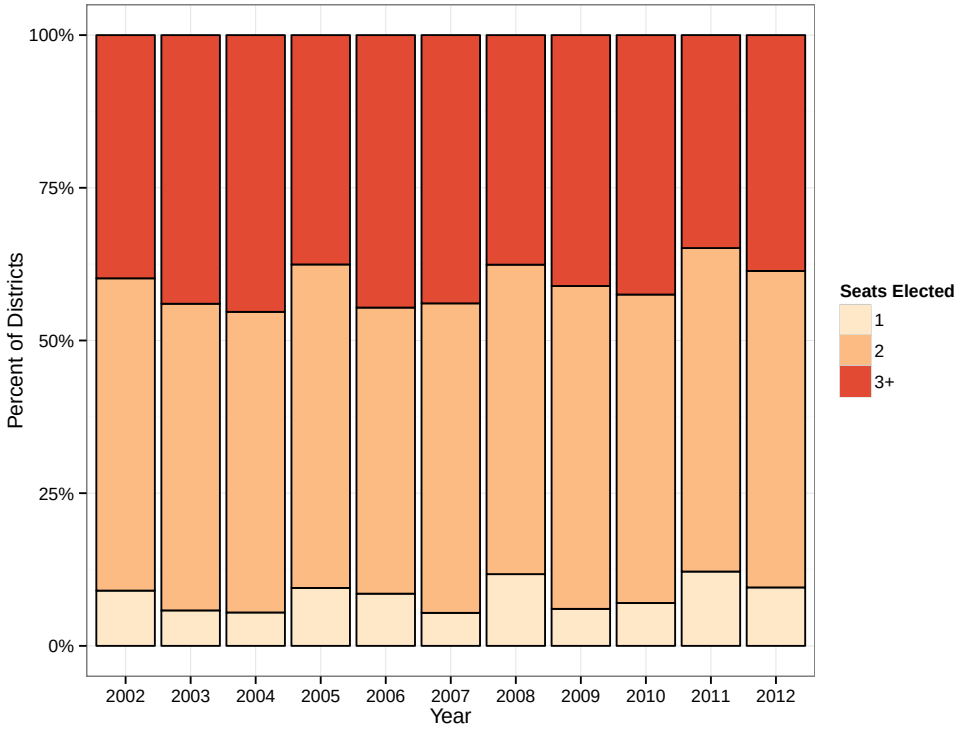

Figure 6.2: Number of Board Seats Elected Each Year

competition seems to have dropped off in both measures since 2002.[6]

Control Variables

Following the work of Alsbury (2008), I include relatively few control variables. Including too many control variables results in overly restricting the variance available to be explained by incumbent defeat and possibly collinear. However I do include measures of whether the district is rural, urban, or exurban, and a control for the size of the voting age population. I also include measures of the level of education of the adult population and

[6]Though years prior to 2007 will be excluded from most further analyses due to concerns about reporting bias with the reduced sample and lack of student performance measures.

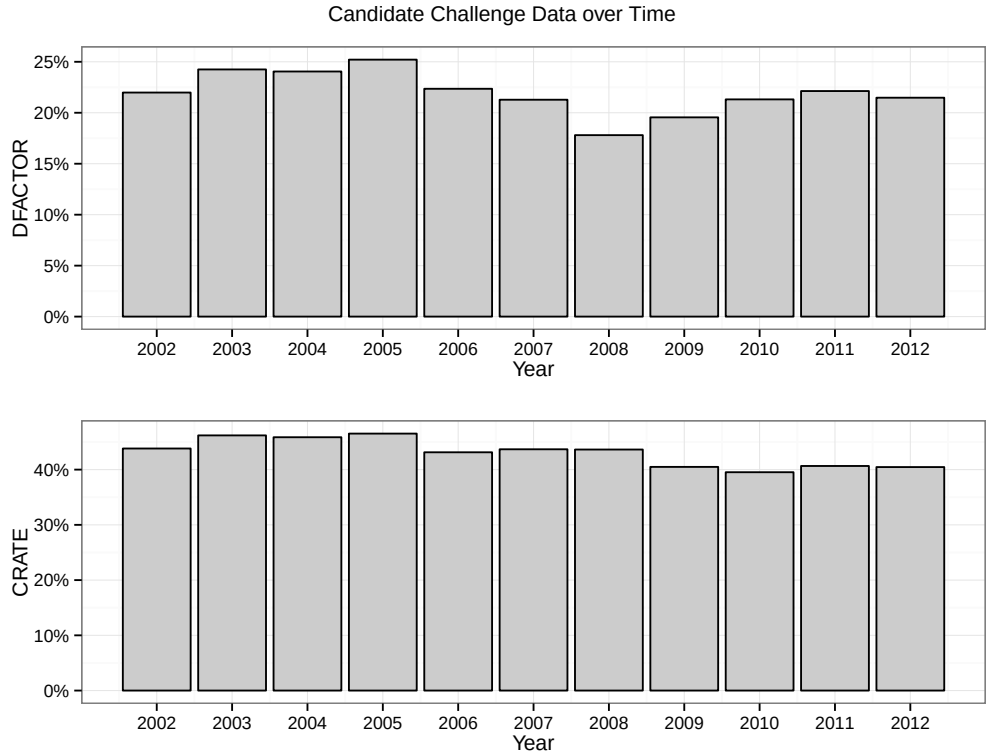

Figure 6.3: Average Candidate Challenge in Wisconsin 2002-2012

the percentage of adults in the community who are over the age of 65. I also include a measure of economic disadvantage for students in the school district – a key predictor of student outcomes.

Outcomes

First, and most directly, boards are charged with hiring and monitoring the performance of a district administrator who manages the academic and financial affairs of the district. The choice of superintendent is critical to the board as the superintendent is the board's primary conduit of information about the health of the district and the educational strategies in place for students (Lutz and Iannaccone, 1978a). Superintendent turnover is a

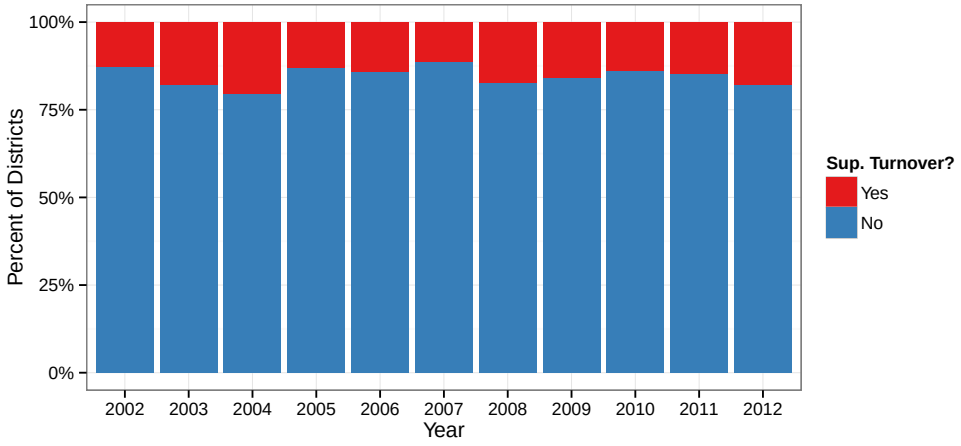

Figure 6.4: Superintendent turnover by year in sample.

primary prediction of dissatisfaction theory, and rightfully so. If voters are unhappy with the state of affairs in their school district, in all likelihood they are unhappy with the performance of their district administrator (Magistro, 1988; Maguire, 1989; Moen, 1978).

Superintendent change is coded using the Wisconsin Department of Public Instruction database on school staffing - the PI-1202 report. This report includes annual information on the job position, license status, full-time equivalency or full-time part-time nature of the job, and salary. This information is collected each fall. A superintendent change was coded if a new superintendent was listed that differed from the prior year.[7] Figure 6.4 shows the percentage of school districts in the sample each year that experienced a superintendent turnover. Annually around 15% of districts in the sample had a change in superintendent.

More indirectly, school boards are responsible for setting policy and directing the superintendent to provide quality education. Thus, incumbent

[7]One limitation in the current study is the inability to distinguish between voluntary and involuntary superintendent turnover. Within year turnover is also not included, but is rare.

defeat may serve as a method by which the community can express its demand for higher quality education as measured by accountability measures such as student test scores and graduation rates. While prior research has found evidence of an effect of school board turnover and elections on student performance on standardized tests, this outcome seems the furthest from the control of school board members.

For student test scores I use the district-wide proficiency rate on the state standardized reading and math examinations known as the Wisconsin Knowledge and Concepts Examination (WKCE). Proficiency rates are calculated by identifying which range of scale scores student scores lie within. Four proficiency categories exist – minimal, basic, proficient, and advanced. I use the percentage of students in the district scoring at the level of proficient or advanced across all grades. During the period of study Wisconsin increased the score required to reach proficiency to reflect increased performance expectations on schools and districts. I use these adjusted proficiency rates retroactively applied throughout the time period.[8]

School boards appear to have more ability to influence graduation rates. First, school boards in Wisconsin have wide leverage in setting the academic standards for graduation and there is large variability in the credit requirements to graduate in high schools across the state. Second, graduation rates are highly visible accountability measures throughout this period of observation, and districts may have been able to attempt a wide variety of policy changes to improve graduation outcomes relatively quickly. The graduation rate measure I use is the only measure consistently calculated throughout the time period and the one used for accountability purposes for most of the period from 2002-2012 – the legacy graduation rate. This rate differs from more recent graduation rates reported by schools, districts, and states – it is not a four-year graduation rate. One challenge with this measure is that overall Wisconsin has a high graduation rate, and many

[8]State standardized assessment results are only available from 2005-2006 to present, truncating the sample for this analysis.

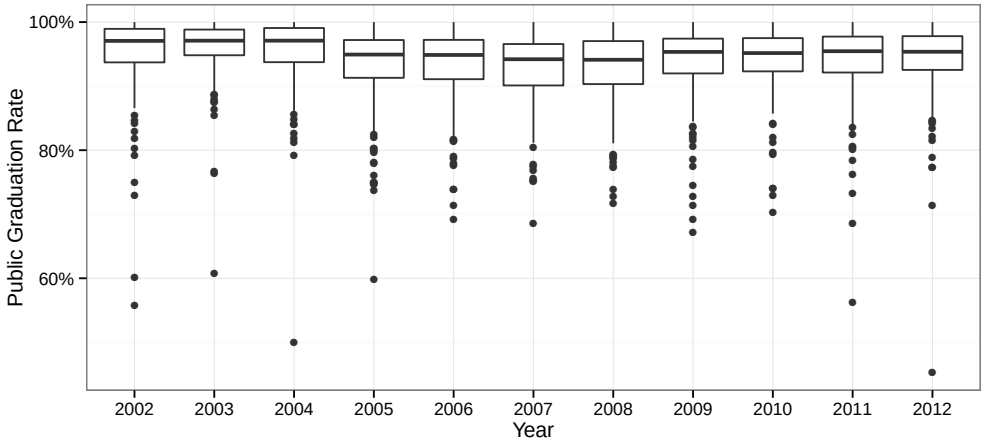

Figure 6.5: Public high school graduation rates in Wisconsin. In general, Wisconsin school districts have very high graduation rates with litle variance between districts.

school districts in Wisconsin has particularly high graduation rates. Figure 6.5 shows the graduation rates of school districts throughout the period of study. [9]

The final set of outcomes are fiscal outcomes. One of the few factors related to the emergence of contested elections from Chapter 3 was fiscal performance. For this chapter, I focus on two salient factors in the community, the change in the millrate on property taxes and the median teacher salary.

In Wisconsin the school funding formula puts restrictions on school millrates with overall revenue limits. Additionally, the amount of state funding school districts receive is highly variable with a few districts receiving only a nominal amount of money from the state – and thus deriving almost all school funding from local property taxes. So, while a change in a millrate does not represent a change in a school district's fiscal fortunes on its own,

[9]Not every school district with a school board graduates students, so this sample is only for school districts with a high school.

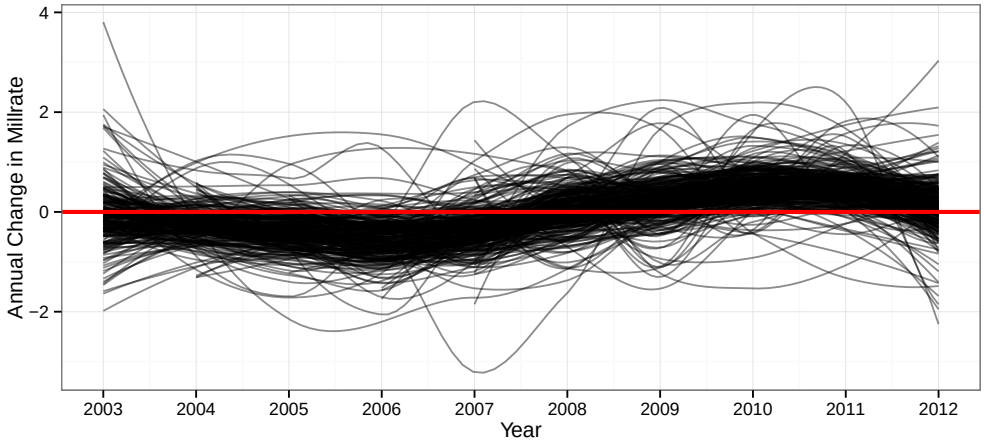

Figure 6.6: Smoothed lines for annual change in the millrate for each district in the sample, measured in mills.

it does represent a highly salient impact of the school district on residents of the district through a higher property tax bill. Figure 6.6 shows the general trend of increasing and then receding school district millrates across the study period. But, substantial variation between districts exists.

Figure 6.7 shows the trajectory of the median teacher salary for the school districts in the sample. In general, during this period all teacher salaries followed the same trajectory, but the variation between districts in median salary is quite large – nearly $8,000 between the first and third quartiles. This figure is important because this accounts for the majority of district expenses.

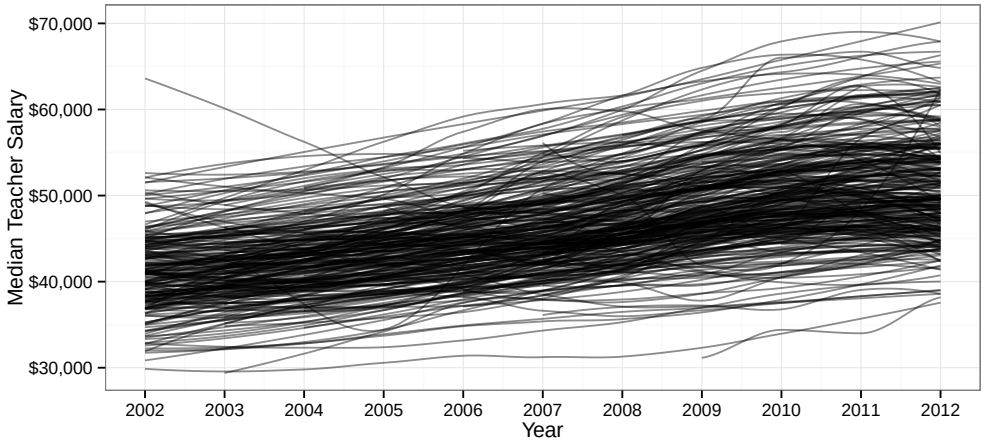

Figure 6.7: Smoothed lines for annual change in the median teacher salary for each district in the sample.

6.4 Methods

To explore the impact that school board member electoral defeat has on school outcomes I employ a regression strategy that leverages the panel nature of my data and repeated measures of school districts over time. As in previous chapters, I employ the bounding strategy from Chapter 5 and suggested by Angrist and Pischke (2009), using a lagged dependent variable and a fixed effect model to compare for time variant and time invariant unobservable factors respectively. This model provides better confidence that the effect estimated, in this case the effect of incumbent defeat, is independent of unobserved factors. I refer to the different measures of board dissatisfaction or incumbent defeat collectively as the dissatisfaction factor, or `DFACTOR`.

The equation below represents the fixed effects approach with the γ_j 's representing the individual district intercepts in the sample. λ represents the conditional estimate of the `DFACTOR`, taking into account the within district variation and conditional on lagged measures of the control variables in X_{it-2}.

$$y_{it} = \alpha + \gamma_j + \beta X_{it-2} + \lambda T_{it-2} + \epsilon_{it}$$

Alternatively, the next equation replaces the γ_j's with a lagged dependent variable to control for time-variant unobservable characteristics.

$$y_{it} = \alpha + \gamma Y_{it-2} + \beta X_{it-2} + \lambda T_{it-2} + \epsilon_{it}$$

The disadvantage of this strategy is that for the outcomes in question,

relatively little variance remains to be explained after accounting for all between school district effects, because the within school district variation is so small. Thus, even with a large sample size and several observations per district, the study may be underpowered to detect any residual impact of school board incumbent defeat. As an alternative to the two model strategy above, I also include a reduced model which includes no district fixed effects and no lagged outcome measure, but instead includes just a few indicators of district demographics so that the effect of board member turnover is estimated between districts that are similar on exogenous demographic factors.[10]

$$y_{it} = \alpha + \beta X_{it-2} + \lambda T_{it-2} + \epsilon_{it}$$

6.5 Results

In all of the models I expect to find a positive relationship between incumbent defeat and the outcome. If voters are defeating incumbents as a way of seeking improvement in their schools, then incumbent defeat should lead to increased accountability pressure and improved student outcomes.

Student Outcomes

Table 6.1 shows relatively little effect of school board incumbent defeat on student proficiency rates. In the simple model, there appears to be a slight negative effect on student scores after an incumbent is defeated. However, this effect disappears when including a lagged dependent variable

[10]Before fitting the models I log the variables expressed as percentages to make their distribution more normal. For all three types of models I report robust district clustered standard errors.

or district fixed effect, and the sign switches. The model also has a very small R^2 and the inclusion of indicators of district economic disadvantage and fixed effects or the lagged dependent variable pushes the R^2 to 0.85 to 0.9.

The substantive impact of the most generous estimate in the first model in Table 6.1 is equivalent to a reduction in 0.3% in the percentage of students in a school district that are proficient or advanced. This is approximately 0.036 of a standard deviation.

Table 6.2 shows the results for math proficiency rates. Again, the effect of incumbent defeat is significant and negative in the first model, but that effect is erased in the lagged and fixed effect models. The first model has a very small R^2, but the lagged and FE models have a much higher R^2 with economic and unobservable characteristics explaining most of the variance in student performance.

The substantive impact here is again small, but larger than that found on the reading models in Table 6.1. Here the reduction due to school board incumbent defeat is equivalent to a reduction of the percentage proficient or advanced at math in the district of 1.4%. This is a much larger effect than that measured in the reading models, about 0.13 of a standard deviation.

For both reading and math, the results for incumbent defeat are broadly similar for the dissatisfaction factor, which is negatively related to future test score performance. These results can be found in Tables 6.13 and 6.12 and again the reduced model is statistically significant, but the lagged and fixed effect models have greatly reduced coefficients and no statistical significance.[11]

Table 6.3 shows the results for graduation rates. Although I expected to find a stronger effect of school boards on graduation rates, there is weaker evidence here. The estimated effect is consistently negative – counter to expectations – but is not statistically significant. The effect is substantively

[11]The challenge rate is similar, but not statistically significant.

equivalent to a decrease of 0.18% in the graduation rate, an effect of 0.03 standard deviations. The effects for the challenge rate and the dissatisfaction factor are largely the same, but only the dissatisfaction factor has a negative statistically significant relationship in the simple model. These results are in Table 6.11 and 6.14.

Table 6.1: Incumbent Defeat and Reading Proficiency Rates

	Simple	Lag	FE
Intercept	2.955***	0.757***	0.797
	(0.208)	(0.101)	(1.357)
Inc. Def. Lag	−0.032*	0.007	0.001
	(0.013)	(0.007)	(0.007)
Exurb	0.213**	−0.003	1.028***
	(0.075)	(0.012)	(0.227)
Rural	0.234***	0.005	1.025***
	(0.068)	(0.012)	(0.228)
Board Size	−0.032***	0.000	−0.009
	(0.010)	(0.003)	(0.009)
Electorate Size	0.072***	−0.002	0.243†
	(0.018)	(0.004)	(0.129)
Econ. Disadv. %		−0.002***	0.001
		(0.000)	(0.001)
Prof Rate Lag		0.797***	
		(0.027)	
% Bach. +		0.201*	0.083
		(0.085)	(0.534)
% Over 65		0.103	−0.067
		(0.096)	(1.107)
N	1918	1425	1918
R^2	0.072	0.846	0.906
adj. R^2	0.070	0.845	0.888
Resid. sd	0.229	0.094	0.079

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.2: Incumbent Defeat and Math Proficiency Rates

	Simple	Lag	FE
Intercept	3.089***	0.907***	−4.949*
	(0.224)	(0.109)	(2.125)
Inc. Def. Lag	−0.031*	0.007	−0.004
	(0.014)	(0.007)	(0.007)
Exurb	0.228**	0.037*	1.387***
	(0.076)	(0.017)	(0.319)
Rural	0.244***	0.033*	1.384***
	(0.070)	(0.016)	(0.320)
Board Size	−0.025*	−0.000	−0.007
	(0.010)	(0.003)	(0.011)
Electorate Size	0.077***	0.011*	0.770***
	(0.019)	(0.005)	(0.204)
Econ. Disadv. %		−0.002***	0.003*
		(0.000)	(0.001)
Prof Rate Lag		0.745***	
		(0.025)	
% Bach. +		0.159	1.122†
		(0.102)	(0.592)
% Over 65		0.052	0.543
		(0.086)	(1.266)
N	1918	1425	1918
R^2	0.066	0.840	0.889
adj. R^2	0.064	0.839	0.868
Resid. sd	0.243	0.097	0.091

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.3: Incumbent Defeat and High School Graduation

	Simple	Lag	FE
Intercept	4.527***	2.525***	3.818***
	(0.038)	(0.269)	(0.628)
Inc. Def. Lag	−0.005	−0.002	−0.002
	(0.003)	(0.003)	(0.003)
Exurb	0.047*	0.016	0.088
	(0.022)	(0.011)	(0.112)
Rural	0.053**	0.021†	0.101
	(0.020)	(0.010)	(0.109)
Board Size	−0.002	0.001	0.009
	(0.002)	(0.001)	(0.007)
Electorate Size	−0.003	−0.008**	0.050
	(0.003)	(0.003)	(0.059)
Econ. Disadv. %		0.452***	
		(0.058)	
Grad Rate Lag		0.150***	0.216
		(0.032)	(0.208)
% Bach. +		−0.073†	0.397
		(0.037)	(0.400)
% Over 65			0.001†
			(0.000)
N	1755	1755	1755
R^2	0.060	0.311	0.592
adj. R^2	0.057	0.307	0.512
Resid. sd	0.059	0.051	0.043

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Superintendent Turnover

Superintendent turnover models are slightly different in that they are logistic regression models predicting a binary outcome of whether the superintendent turned over or not. Table 6.4 shows the results of these logistic regressions. Here, incumbent defeat is consistently positively related with superintendent turnover, but this effect is only statistically significant in the first model. The estimated effect is quite large – an incumbent defeat translates into an odds-ratio of 1.31 which can be interpreted as 1.3x increase in the probability of the superintendent leaving their position two years after an incumbent is defeated.

The results for challenge rate and the dissatisfaction factor in Tables 6.5 and 6.6 are even stronger – with a consistent positive statistically significant relationship. These findings confirm findings like Magistro (1988) that board dissatisfaction does lead to superintendent turnover.

Fiscal Outcomes

Table 6.7 shows the results for the dissatisfaction factor on the millrate change in school districts two years later. Across specifications there is a consistent negative coefficient suggesting that stronger dissatisfaction leads to a millrate decrease in the future. However, this coefficient is only statistically significant in the lagged specification, and none of the models have a respectable R^2.

Table 6.8 shows the results for the teacher median salary. In all the specifications dissatisfaction is associated with a decrease in teacher salary (dependent variable is on the log-scale here), but only in the simple specification is this effect statistically significant. It's easy to see why, while the simple model explains a healthy amount of the variance in teacher salary, including the fixed effects or the lags reduces the variance too greatly for the dissatisfaction factor to retain its predictive power.

Table 6.4: Incumbent Defeat and Superintendent Turnover

	Simple	Lag	FE
Intercept	−1.314	−1.502	−2.497***
	(0.914)	(0.919)	(0.595)
Inc. Def. Lag	0.272†	0.245	0.117
	(0.159)	(0.159)	(0.198)
Exurb	−0.485	−0.261	−0.246
	(0.359)	(0.353)	(0.227)
Rural	−0.440	−0.179	−0.172
	(0.341)	(0.343)	(0.178)
Board Size	0.137**	0.111*	0.146**
	(0.051)	(0.051)	(0.054)
Electorate Size	−0.114	−0.031	−0.060
	(0.086)	(0.090)	(0.059)
Econ. Disadv. %		0.009†	0.018**
		(0.005)	(0.006)
New Sup. Lag		0.268	
		(0.166)	
% Bach. +		−2.091	−0.441
		(1.322)	(0.558)
% Over 65		−3.987*	−1.538***
		(1.835)	(0.457)
N	1918	1918	1918
AIC	1629.854	1624.516	1958.396
BIC	1763.271	1846.878	9007.256
$\log L$	−790.927	−772.258	288.802

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.5: Challenge Rate and Superintendent Turnover

	Simple	Lag	FE
Intercept	−1.388	−1.568†	−2.532***
	(0.913)	(0.919)	(0.597)
Challenge Rate	0.485*	0.470*	0.195
	(0.203)	(0.205)	(0.245)
Exurb	−0.485	−0.259	−0.241
	(0.352)	(0.346)	(0.229)
Rural	−0.455	−0.190	−0.174
	(0.335)	(0.339)	(0.180)
Board Size	0.147**	0.120*	0.151**
	(0.052)	(0.053)	(0.055)
Electorate Size	−0.131	−0.046	−0.068
	(0.088)	(0.093)	(0.062)
Econ. Disadv. %		0.009†	0.018**
		(0.005)	(0.006)
New Sup. Lag		0.255	
		(0.165)	
% Bach. +		−2.182	−0.428
		(1.328)	(0.559)
% Over 65		−4.005*	−1.560***
		(1.841)	(0.462)
N	1918	1918	1918
AIC	1627.119	1621.608	1958.413
BIC	1760.536	1843.969	9007.273
$\log L$	−789.560	−770.804	288.794

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

District fixed effects not displayed.

Table 6.6: Dissatisfaction Factor and Superintendent Turnover

	Simple	Lag	FE
Intercept	−1.188	−1.318	−2.389***
	(0.913)	(0.919)	(0.597)
Dissat. Factor	1.131***	1.067***	0.932***
	(0.203)	(0.205)	(0.245)
Exurb	−0.490	−0.281	−0.248
	(0.352)	(0.346)	(0.229)
Rural	−0.464	−0.210	−0.185
	(0.335)	(0.339)	(0.180)
Board Size	0.147**	0.123*	0.158**
	(0.052)	(0.053)	(0.055)
Electorate Size	−0.159†	−0.079	−0.105†
	(0.088)	(0.093)	(0.062)
Econ. Disadv. %		0.009†	0.018**
		(0.005)	(0.006)
New Sup. Lag		0.250	
		(0.165)	
% Bach. +		−2.001	−0.298
		(1.328)	(0.559)
% Over 65		−4.119*	−1.600***
		(1.841)	(0.462)
N	1918	1918	1918
AIC	1619.624	1615.360	1952.548
BIC	1753.041	1837.721	9001.409
$\log L$	−785.812	−767.680	291.726

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.7: Dissatisfaction and Millrate Changes

	Simple	Lag	FE
Intercept	−0.074	−0.311†	−82.797***
	(0.141)	(0.179)	(11.808)
D-Factor	−0.144	−0.151†	−0.099
	(0.090)	(0.092)	(0.114)
Exurb	0.099*	0.192***	9.476***
	(0.043)	(0.055)	(1.881)
Rural	0.045	0.132**	9.075***
	(0.040)	(0.051)	(1.883)
Board Size	−0.012	−0.008	−0.010
	(0.009)	(0.011)	(0.079)
Electorate Size	0.024	0.022	7.431***
	(0.015)	(0.018)	(1.130)
Econ. Disadv. %		0.006***	0.008†
		(0.001)	(0.004)
MillRate delta Lag		0.020	
		(0.032)	
% Bach. +		0.645**	6.191†
		(0.226)	(3.278)
% Over 65		−0.616†	5.659
		(0.315)	(5.713)
N	1918	1918	1918
R^2	0.003	0.010	0.195
adj. R^2	0.000	0.006	0.037
Resid. sd	0.778	0.776	0.764

† significant at $p < .10$; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$

District fixed effects not displayed.

Table 6.8: Dissatisfaction and Teacher Salary Changes

	Simple	Lag	FE
Intercept	10.168***	2.084**	10.670***
	(0.086)	(0.723)	(0.497)
D-Factor	−0.033*	−0.007	−0.002
	(0.015)	(0.006)	(0.005)
Exurb	0.045	0.013	0.051
	(0.029)	(0.015)	(0.077)
Rural	0.047†	0.010	0.052
	(0.028)	(0.012)	(0.076)
Board Size	−0.008†	−0.001	0.002
	(0.004)	(0.002)	(0.004)
Electorate Size	0.064***	0.012†	0.000
	(0.008)	(0.007)	(0.046)
Econ. Disadv. %		−0.000	0.000
		(0.000)	(0.000)
Teach Salary Lag		0.799***	
		(0.073)	
% Bach. +		0.093*	0.235
		(0.042)	(0.155)
% Over 65		−0.070	−0.154
		(0.044)	(0.264)
N	1917	1917	1917
R^2	0.355	0.811	0.920
adj. R^2	0.351	0.809	0.904
Resid. sd	0.100	0.054	0.038

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District and year fixed effects not displayed.

6.6 Conclusion

There is little evidence that school board turnover is related to student outcomes across any measure of dissatisfaction. If anything, it was found to be counter to the prior findings in the literature which found a small positive affect on student achievement after school board electoral defeats. At best, the findings above provide some evidence that suggests that communities with lower student outcomes have more board turnover. Models that try to identify the causal relationship by controlling for prior levels of achievement or within-district changes in student outcomes did not have any findings. This is, at least in part, due to the nature of the measures of student performance available which show very little year to year variation net of student characteristics and prior achievement or graduation rates.

The story for superintendent turnover is different. Across the three measures of school board dissatisfaction, a positive statistically significant relationship with superintendent turnover was identified. The stability of the prediction across increasingly restrictive model specifications provides strong evidence that an increase in candidates, challengers and defeats for school board in a school district increases the likelihood the superintendent will turnover.

Finally, on the fiscal measures there was some evidence that dissatisfaction is associated with a decrease in property taxes – but the effect was weak. It appears more likely that school board challenges are unable to affect either salary schedules or tax rates. Of the findings in this chapter, these are likely the least generalizable to other states given the peculiarities of Wisconsin's revenue limit and equalization aid funding system – which shapes both which districts have millrate flexibility and limits funds available for salary expenditures.

Future work is needed to explore the mechanisms here. First, a limitation of this study is the inability to distinguish between types of superintendent turnover including retirement, buyout, and firing. Another limitation is

the limited window – using a twice lagged model is preferable, but both board and superintendent turnover may need to be analyzed from a three year rolling average basis to best measure this. For the fiscal measures, it remains to be seen if the new powers granted to school boards by Act 10 result in a change in this relationship and an increased responsiveness of school boards to community dissatisfaction using new fiscal flexibility.

These results provide a first step, perhaps, toward answering the puzzle posed in the previous chapters. If democratic potential is so high in school board elections, why is actualized democracy so weak? One answer might be the dismal prospects for school boards to meaningfully change salient high-profile indicators of school district functioning – student performance, leadership, and salaries and tax rates. The average citizen would be forgiven from opting out of learning about, or worse sitting on, an elected body which is unable to make measurable changes in schools. While the evidence presented in this chapter is just one set of measures of one slice of school district functioning, it's longitudinal nature allows a window into the true impact of school boards that previous cross-sectional studies could not provide. The democratic promise appears, from this view, to go unfulfilled in response to the weak track record of school board election activity resulting in meaningful change.

6.7 Appendix

Sub-analysis of challenger rate models instead of incumbent defeat. The results here are largely the same.

Table 6.9: Challenger Rate and Math Proficiency Rates

	Simple	Lag	FE
Intercept	3.094***	0.906***	−4.946*
	(0.209)	(0.109)	(2.138)
Challenge Rate	−0.026	−0.002	0.004
	(0.020)	(0.009)	(0.009)
Exurb	0.227**	0.038*	1.384***
	(0.076)	(0.018)	(0.320)
Rural	0.244***	0.034*	1.381***
	(0.068)	(0.016)	(0.321)
Board Size	−0.025**	−0.000	−0.007
	(0.010)	(0.003)	(0.011)
Electorate Size	0.078***	0.011*	0.769***
	(0.018)	(0.005)	(0.205)
Econ. Disadv. %		−0.002***	0.003*
		(0.000)	(0.001)
Prof Rate Lag		0.746***	
		(0.025)	
% Bach. +		0.156	1.136†
		(0.103)	(0.590)
% Over 65		0.053	0.540
		(0.086)	(1.266)
N	1918	1425	1918
R^2	0.065	0.840	0.889
adj. R^2	0.062	0.839	0.868
Resid. sd	0.243	0.097	0.091

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.10: Challenger Rate and Reading Proficiency Rates

	Simple	Lag	FE
Intercept	2.960***	0.759***	0.751
	(0.209)	(0.101)	(1.356)
Challenge Rate	−0.015	−0.008	0.004
	(0.020)	(0.008)	(0.007)
Exurb	0.211**	−0.002	1.033***
	(0.076)	(0.012)	(0.227)
Rural	0.234***	0.006	1.030***
	(0.068)	(0.013)	(0.227)
Board Size	−0.032***	0.000	−0.009
	(0.010)	(0.003)	(0.009)
Electorate Size	0.072***	−0.001	0.247†
	(0.018)	(0.004)	(0.129)
Econ. Disadv. %		−0.002***	0.001
		(0.000)	(0.001)
Prof Rate Lag		0.796***	
		(0.027)	
% Bach. +		0.197*	0.085
		(0.086)	(0.534)
% Over 65		0.106	−0.077
		(0.096)	(1.104)
N	1918	1425	1918
R^2	0.070	0.846	0.906
adj. R^2	0.068	0.845	0.888
Resid. sd	0.229	0.094	0.079

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.11: Challenge Rate and High School Graduation

	Simple	Lag	FE
Intercept	4.528***	2.528***	3.835***
	(0.038)	(0.269)	(0.633)
Challenge Rate	−0.007	−0.004	0.001
	(0.005)	(0.004)	(0.004)
Exurb	0.047*	0.016	0.085
	(0.022)	(0.011)	(0.112)
Rural	0.053**	0.021*	0.098
	(0.020)	(0.010)	(0.110)
Board Size	−0.002	0.001	0.009
	(0.002)	(0.001)	(0.007)
Electorate Size	−0.002	−0.008**	0.048
	(0.003)	(0.003)	(0.059)
Econ. Disadv. %		0.452***	
		(0.057)	
Grad Rate Lag		0.151***	0.223
		(0.031)	(0.210)
% Bach. +		−0.073*	0.396
		(0.037)	(0.401)
% Over 65			0.001*
			(0.000)
N	1755	1755	1755
R^2	0.060	0.311	0.592
adj. R^2	0.057	0.308	0.512
Resid. sd	0.059	0.051	0.043

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.12: Dissatisfaction Factor and Math Proficiency Rates

	Simple	Lag	FE
Intercept	3.075***	0.905***	−4.897*
	(0.223)	(0.109)	(2.125)
Dissat. Factor	−0.110**	0.005	−0.006
	(0.033)	(0.014)	(0.014)
Exurb	0.229**	0.038*	1.380***
	(0.076)	(0.017)	(0.319)
Rural	0.246***	0.033*	1.377***
	(0.070)	(0.016)	(0.319)
Board Size	−0.026*	0.000	−0.007
	(0.010)	(0.003)	(0.011)
Electorate Size	0.081***	0.011*	0.765***
	(0.019)	(0.005)	(0.203)
Econ. Disadv. %		−0.002***	0.003*
		(0.000)	(0.001)
Prof Rate Lag		0.746***	
		(0.025)	
% Bach. +		0.157	1.123†
		(0.103)	(0.592)
% Over 65		0.052	0.557
		(0.086)	(1.264)
N	1918	1425	1918
R^2	0.072	0.840	0.889
adj. R^2	0.069	0.839	0.868
Resid. sd	0.242	0.097	0.091

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.13: Dissatisfaction Factor and Reading Proficiency Rates

	Simple	Lag	FE
Intercept	2.946***	0.758***	0.788
	(0.208)	(0.102)	(1.351)
Dissat. Factor	−0.081**	0.004	−0.002
	(0.030)	(0.012)	(0.011)
Exurb	0.213**	−0.003	1.030***
	(0.075)	(0.012)	(0.227)
Rural	0.235***	0.005	1.027***
	(0.068)	(0.012)	(0.227)
Board Size	−0.033***	0.001	−0.009
	(0.010)	(0.003)	(0.009)
ln(VAP)	0.075***	−0.002	0.244†
	(0.018)	(0.004)	(0.128)
FRL %		−0.002***	0.001
		(0.000)	(0.001)
Prof Rate Lag		0.797***	
		(0.027)	
% Bach. +		0.199*	0.077
		(0.087)	(0.534)
% Over 65		0.104	−0.066
		(0.096)	(1.104)
N	1918	1425	1918
R^2	0.074	0.846	0.906
adj. R^2	0.072	0.845	0.888
Resid. sd	0.228	0.094	0.079

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

Table 6.14: Dissatisfaction Factor and High School Graduation

	Simple	Lag	FE
Intercept	4.526***	2.527***	3.844***
	(0.038)	(0.268)	(0.637)
Dissat. Factor	−0.016*	−0.007	−0.000
	(0.008)	(0.005)	(0.006)
Exurb	0.047*	0.016	0.084
	(0.022)	(0.011)	(0.113)
Rural	0.053**	0.021*	0.097
	(0.020)	(0.010)	(0.110)
Board Size	−0.002	0.001	0.009
	(0.002)	(0.001)	(0.007)
ln(VAP)	−0.002	−0.008**	0.047
	(0.003)	(0.003)	(0.060)
FRL %		0.452***	
		(0.057)	
Grad Rate Lag		0.150***	0.222
		(0.032)	(0.210)
% Bach. +		−0.072†	0.400
		(0.037)	(0.400)
% Over 65			0.001†
			(0.000)
N	1755	1755	1755
R^2	0.062	0.311	0.592
adj. R^2	0.059	0.308	0.512
Resid. sd	0.059	0.051	0.043

† significant at $p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$

District fixed effects not displayed.

7 IS THE DEMOCRATIC PROMISE OF SCHOOL BOARDS FULFILLED?

7.1 Introduction

School boards are a puzzling feature of the American polity worth considering. Collectively, school boards manage annual public school expenditures rivaling the budget of the Department of Defense. School boards set policy and guidance on a host of issues that affect the daily lives of nearly fifty million school children in public schools and their families. School boards make decisions about the books that are taught, the graduation requirements that must be met, and the distribution of resources within and between schools in a community. All of this, and more, is entrusted to tens of thousands of local elected officials in school districts across the country.

Aside from their policy role, school boards are the most common example of America's most local form of government – special purpose districts. Special purpose districts are a local government with authority over a specific issue such as water rights, transportation policy, or education. Often, special purpose districts have their own boundaries that are not coterminous with county or municipal government boundaries, and often they are governed by non-partisan elected officials. While responsible for a large and growing share of the total population of elected officials in the the United States, special purpose governments, particularly school boards, have been largely unstudied by scholars of American politics.

This dissertation represents a first step toward a more comprehensive picture of school boards as democratic institutions. To achieve this, I have provided an in-depth analysis of school board elections in one state over a decade to investigate the democratic nature of these governments and their policy implications.

Key Findings

Voters and candidates are not expected to be more active in local races like school boards than in more prestigious or high-profile offices like legislative and executive seats in national, state, and subnational governments. However, the extent of the drop off in participation has important implications for the ability of school boards to play their intended role in US society – to give citizens localized control over the education of the children in their communities. Using Wisconsin school board elections from the 2002-2012 period, I have found mixed evidence that school boards function democratically.

In general, school board races are not contested. I have shown that school board seats are unlikely to be heavily contested with few school districts ever holding a primary. Fewer than half of all elections featured even a nominal challenge or a ballot where voters had a non-write in option. Incumbents were featured in 83% of races, and in 48% of all races, voters had a choice between an incumbent and a challenger. As a comparison, these figures represent a level of contestation similar to partisan primary elections for the U.S. House. However, in most years fewer than 20% of school districts had an incumbent lose their seat to a challenger, suggesting that non-electoral turnover is infrequent.

This lack of contestation is puzzling both because running for school board is easy and because when a school board race is contested, the elections tend to be quite close. This closeness is emblematic of the fact that in most communities relatively little effort is needed to mount a considerable challenge for school board because the median seat requires just 730 votes to secure victory. Community members dissatisfied with the management of their schools face very few formal, financial, or legal barriers to standing for and winning a school board seat. However, after investigating a number of potential motivating community level factors to predict contestation in board elections, only marginal variation could be explained with observable

measures of school district tax rates and community size. Candidate participation was found to largely be explained by district and election-cycle unobservable characteristics suggesting future study needs to include a more in-depth analysis of community specific issues. The example of Wisconsin's sole school board recall race proves instructive – there an intense outpouring of community dissatisfaction arose over accusations that a board member misrepresented their vote on bus stops and failure to obtain cost estimates. These issues matter, and they reflect the benefit of a locally elected school board, but in the period of study such community involvement and participation appear to be outliers as contestation is too rare to be systematically predicted.

Next, I provide one of the first comprehensive analyses of turnout in school board elections and find, unsurprisingly, that voter turnout is typically well below half of the fall general election turnout in Wisconsin. In most jurisdictions, just 20% of the voting age population casts a ballot for school board in a given election cycle. Though the level of turnout is low, the measures that explain variation in turnout are similar to other studies of elections.

For the most part, turnout is higher when jurisdictions are smaller and races are more competitive. This suggests that voters are somewhat rational in their decision to turn out and prefer to vote in races that offer them a choice. It also suggests that community organization, less costly in communities with only several hundred to a few thousand voters, plays an important role in participation. A second important finding is that like other elections, interest groups may have an important role to play in school board elections. Political parties are not found to be influential in non-partisan school board races, but net of community and time specific characteristics, a greater ratio of teachers to the size of the school board electorate is associated with lower voter turnout. While I do not interpret this relationship as causal, this finding is in line with prior research that suggests that membership of

teacher unions is associated with lower participation either because voters are discouraged or because voters are less likely to feel there is a real choice

These findings were also bolstered by using an alternative measure of voter interest in school board races – the share of voters in the spring top ticket rate who completed a ballot for school board. This provides an additional robustness check that the influences in school board voter turnout are not actually just the predictors of turnout in statewide non-partisan races. Though survey or voter-interview work is likely needed to understand the relationship here, other studies have shown voters in local elections to be much more politically knowledgeable and engaged about local issues than the general public, thus providing further support for this.

The picture painted above is not one of a robust system of democratic control, but some scholars of school board politics have long accepted low turnout and low contestation as the standard with school board races. These scholars have argued that while such equilibria exist, and may persist for many election cycles, the low barrier to entry – or democratic potential – of small local jurisdictions ensures that when necessary this equilibria can be punctuated and incumbents and district administrators can be replaced. To explore this, I look at a statewide event that punctuated many such equilibria – the case of Governor Scott Walker's public employee collective bargaining reform and a second wave of large budget cuts in state support for public schools. This legislation greatly altered the balance of power between school boards and their employees; it also touched off an unprecedented level of political activity across the state. Across the state, the stakes of school board races were raised and the preferences of communities for or against more spending on their schools was revealed.

Yet, despite this sustained and bitterly partisan political upheaval, school board elections experienced only relatively modest changes in their level of participation. Instead of leading to an uptick in incumbent defeat, competitiveness, or contestation for school board seats, the evidence suggests

school board seats became slightly *less* competitive. Turnout increased, but so did voter rolloff, suggesting that much of the increased participation in the spring elections represented voters expressing support for top ticket candidates. Finally, instead of leading to greater participation in the struggle to decide the future of school governance in their schools, communities that were more polarized over Governor Scott Walker exhibited suppressed turnout.

Theory suggests that in the wake of such large policy shifts and the availability of more information about the preferences of actors, a key missing element in non-partisan school board races, voters and candidates would be more energized and seize the opportunity to pressure the board to meet their policy objectives. The Act 10 period in Wisconsin shows little evidence of this occurring. However, these results should not be taken as conclusive. First, the measure of voter preferences are not precise enough to capture the nuances of the local policy preferences held by local election voters, and second, it appears there simply has not been enough time since the Act 10 period to give a final verdict. It may be the case that a new normal of increased political activity on school boards has been established, but will take time to permeate across the state as school boards use their new found authority more frequently. Further study is necessary to test this in the long run, but in the short run, this extreme policy shock provides little evidence that voters and candidates at large can be motivated to sustained activity in school board elections.

While the case for democratic elections appears weak, the question remains – does it matter? If voters and candidates do not participate in school board elections because school boards are too constrained by state and federal policy to matter, then their lack of democratic involvement is rational though perhaps unsettling. However, if boards do make decisions that matter, then insomuch as voters are disinterested and interest groups or activists can capture their benefits, the lack of actualized democratic

control is problematic.

My last analysis is a first step in this direction looking at the relationship between community dissatisfaction with the board and turnover. I did not find, counter to previous studies, much evidence of school board incumbent defeat or challengers to school board seats affecting student achievement. However, I found a strong positive relationship between both measures and subsequent superintendent turnover. These results should be interpreted cautiously, as I cannot rule out unobservable characteristics which may drive board and superintendent instability, but this does confirm the previous findings of school board scholars who identified school board turnover and community dissatisfaction as leading to superintendent turnover. More work is needed to assess this finding – do administrators matter, does board and administrator dissatisfaction stem primarily from issues about taxation, school policy, or student performance? But, for now, it is reasonable to assert that the results of school board elections have meaningful impact on the operations of the school district, and, thus, school board elections are consequential for members of their community.

Limitations and Future Work

This study is not without its limitations. Most critical is that in a study of voters and candidates, there is no individual level measurement of policy preferences or intentions. Without survey measures and candidate statements, there is no empirical way to evaluate the alignment or misalignment of preferences between school board incumbents, challengers, voters, and non-voters. Until such evidence is available, it is hard to rule out the fact that most of the time most voters are satisfied with the performance of most of the members of their local school board – making lack of participation a reasonable course of action.

The breadth of this study also precluded a more precise measurement of some of the key variables. Better measures of district administrator

contract renewal, employee compensation decisions, and school board policy decisions (and potential issue cleavages) would all inform a deeper understanding of how, when, and why school board elections do or do not become contested. Deeper measures of individual communities are necessary to unbundle the large between school district variance uncovered in both turnout and candidate participation.

Another area of improvement could be in the model specification. Many of the multilevel models included district-election year measures that were perhaps noisy and should have been included as second-level district predictors. I could also investigate specifying the school board race as the first level variable, with district-election, and districts as the next two levels.

For brevity, this study also gave school district finance only a cursory glance. However, as discussed in prior chapters, property tax payers are most likely the largest potential voting block of spring voters in most communities and property tax rates and school referenda decisions are frequently divisive community issues. The role that school district finances play in shaping school board elections merits its own deeper look.

Finally, this study has focused on elections as the primary form of democratic influence on school boards. However, school boards are subject to a host of other democratic forms of influence including public hearings, campaign contributions, protests, and lobbying by organized interests. To date, studies of such influences have been limited to one-off case studies, with little wider understanding of the frequency, depth, or origins of these forms of democratic participation. For many citizens the ability to go and air their grievances at a board meeting, and the implicit threat of voting or running against an incumbent, may be sufficient to ensure that the school board does not deviate from their preferences. One potential avenue into this would be to obtain records of recall petition signatures – both the number of signatures within a school district, and identification of school board members that signed the recall petition. This would greatly improve

the evidence around the responsiveness of school board policy to community preferences by more accurately measuring the position of each member of each school board. A study of such activity would augment this work nicely.

Final Thought

Where does this leave us? A stylized summary of the state of school board elections over the period of study in Wisconsin may best be described as:

- Few candidates run for office and many races are uncontested.
- When incumbents face a challenger, they most often win.
- When incumbents are defeated, they are defeated by a very small slice of the electorate.
- Incumbent defeat and turnout are moderated by organized interests
- Board turnover often precedes turnover in the district administration

I characterize this as evidence of the unfulfilled democratic potential of school boards. These facts, in most communities, are trivially easy to change. Individual citizens can, and do, file to run for office and wage a successful campaign with no campaign donations and few volunteers. The small scale of most school districts in Wisconsin suggests that relatively few meaningful barriers exist to running for and winning a school board seat relative to almost any other elected office in the state. However, despite this great potential, the actual uptake remains low. More work is needed to study why, but previous studies have suggested that the constrained nature of school board authority, long hours, and low prestige may prevent this potential from being realized.

The story for voters is different. As other observers have noted, the choice of which election day school board seats find themselves on is a political decision. Placement on the spring election ballot leads to a reduced turnout and increased interest group activity (Anzia, 2011). No amount of

reform will overcome the information deficit faced by school boards by being placed on a non-partisan off-cycle election ticket. Voters, with little media coverage of school boards or the school board campaign, have relatively few avenues of acquiring the information necessary to cast a meaningful ballot and largely choose to simply opt out and implicitly endorse the status quo. It is hard to imagine an event within the current organization of school boards that could better provoke the public to care about school board elections than the events in Wisconsin from 2010-2012, and yet the impact on participation was negligible. This lack of mutability in participation is troubling evidence against the likelihood of fulfillment of the democratic potential of school boards.

Democracy looks different at this small scale. The issues are narrower, the divisions less stable, and the barriers to entry lower. Yet, the story of school board elections in Wisconsin appears to be one of unfulfilled potential. Whether that potential is unfulfilled because of a lack of information or a lack of interest remains a question for future scholars to address.

A DATA COLLECTION

Introduction

A major part of the effort associated with this dissertation involved the data collection. Collecting new data was vital to the success of this dissertation and this appendix attempts to capture the outline of this data collection effort. The data collection here leveraged administrative and public records about school districts in the state of Wisconsin over the period from 2002-2012. Information collected included information about the student and adult populations in each school district, the finances of school districts, election returns, and academic performance.

Strategy

Three distinct sets of data were needed for this dissertation:

- School district demographics
- School district finances
- Election results
- WERC Union Recertification
- Student outcomes

Each of these data presented unique collection challenges requiring different strategies to collect and assemble the data for this purpose.

School District Demographics

School district demographic data are derived from the results of the US Census. Census estimates for many demographic characteristics of school districts at the school district level are available in both 2000 and 2010

US Census and the 2007 American Community Survey (ACS) estimates.[1] The data were linearly interpolated which follows the method employed for the estimates provided by the Wisconsin Department of Administration for most Census data at the sub-county level. These variables include primarily indicators of per-capita income, race and ethnic makeup of the school district, and housing status. Median income information was supplied by the Wisconsin Department of Revenue.

Student demographic data was supplemented from Wisconsin Department of Public Instruction annual reports on the population of students in school districts on the third Friday in September – the main statewide student count date.

School Finance Data

Since levying taxes and spending funds on educational services is a primary responsibility of the school board, school finance indicators are an important set of data to include in any study of school board elections. The Department of Public Instruction (DPI) maintains detailed records on the finances of all of the public school districts in the state. This data is reported and made publicly available through the School Finance Data Warehouse (SFDW) at DPI. [2]

These data include information about the tax rates in the school district, the revenue limit of the school district, the amount levied, the maximum allowable levy, and the amount of categorical aid and general school aid from the state received by the district.

[1] Data available from the School District Demographic System (SDDS): http://nces.ed.gov/surveys/sdds/

[2] DPI data:http://dpi.wi.gov/sfs/long_data.html and some data here http://www2.dpi.state.wi.us/sfsref/ref_Home.aspx. The SFDW is available here: http://www2.dpi.state.wi.us/sfsdw/Download.asp

Election Results

Two types of election results were necessary for the analyses above. First, the municipality and ward level results of statewide elections were necessary to understand the political climate within each school district. Obviously, school districts are not a standard reporting level for election results in the state of Wisconsin. In order to generate school-district level returns of vote totals and vote shares for candidates for statewide office, the municipality and ward-level returns had to be constructed.

In order to this the Minor Civil Division (MCD) and, where possible, ward-level results from statewide races were gathered from the Government Accountability Board (GAB) in Wisconsin.[3] From these files, the data were cleaned and standardized and combined into a panel over time comprising all statewide elections from 2002-2012. To convert the results from wards and MCD into school districts, it was necessary to derive some estimate of how each ward and MCD was mapped into a school district. Unfortunately, such data was unavailable until 2006 when Wisconsin established a Statewide Voter Registration System (SVRS) and SVRS was designed as a transactional data system and not an archival data warehouse – so historical records are not preserved for each eelction.

Instead, as a close approximation an additional data source was used – the property tax master file (PTM) used to determine the school district property tax levy and maintained by the Wisconsin Department of Revenue (DOR).[4] The PTM file for each year reports for each school district every MCD that is located entirely or partially within the boundaries of the school district, as well as the share of property wealth (as measured by equalized values, or EQV), for that MCD that the school district is authorized to levy

[3] Available online: http://gab.wi.gov/elections-voting/results. Statistics for Wisconsin Minor Civil Divisons are maintained by the Department of Administration Demographic Services Center: http://www.doa.state.wi.us/section_detail.asp?linkcatid=11&linkid=64&locid=9

[4] Found online: http://www.revenue.wi.gov/html/govpub.html

tax for. For each year, the share of every MCD's EQV that was allocated to each school district was calculated. This share was used to pro-rate the population of each school district both for the purposes of calculating the voting age population, and for calculating votes cast for and against candidates in statewide elections.[5]

This method is preferable to alternative methods for a number of reasons. First, this method provides consistent estimates of partisanship and population size for school districts from 2002-2012. Any bias or errors that result from the above estimate are consistent for the period under study. Second, EQV is a better approximation than alternative approximations such as geographic area, because the distribution of property should more closely reflect the distribution of the population. Third, in most cases the distribution from MCD to school district is quite clear – either 100% or close to 0%, and so the potential for bias occurs primarily in edge cases. In fact, 60% of MCD to school district relationships in any given year result in less than 10% of the MCD being attributed to the school district, or greater than 90%. 75% of such relationships are within the 20% and 80% range. Additionally, almost all districts have one such edge case within their borders, meaning that the problem does not systematically bias one type of district such as rural districts.

The final result is election results from all statewide elections in Wisconsin from 2002-2012 including the recall primary and Gubernatorial recall elections of 2012 and voting-age population estimates for all school districts in Wisconsin. These were reconstructed from reports of the vote counts by MCD provided by the Governmental Accountability Board. For voter turnout, I gathered voting age population estimates provided by the Wisconsin Department of Administration at the MCD level and aggregated them

[5]The primary issue with this method is that voters are obviously not distributed equally with property wealth in a school district. A large share of a school district's EQV may lie in an MCD, but that EQV may be associated with property that is not residential or sparsely residential. This would lead to an overestimate of the MCD population associated with the school district.

to the school district level.

School Board Election Results

With over 400 elected school boards in Wisconsin, collecting the election results was a substantial part of the work that went into this project.[6] First, I reached out to the Wisconsin Association of School Boards to see if they maintained records of school board election results in the state. Unfortunately, they did not, but from these conversations I discovered that in Wisconsin school districts are the sole legal custodian of the school board election records.[7] Thus, the request for official results would have to be made to each of the 400+ school districts, and not with the 72 county clerks elected in the state.

In order to minimize costs and maximize the likelihood of receiving records an e-mail request strategy was devised. Four waves of requests were made:

- Initial Request: January 22^{nd} 2013 to all school district superintendents in the state.
- Follow up: March 4^{th} 2013
- Follow up: April 12^{th} 2013
- Follow up: October 9^{th} 2013

At the start of this request process the request was too large and too difficult for many school districts to fulfill because I requested precinct level records when available. For subsequent requests I reduced the request to two documents legally required to be on file for all elections for school board and retained for ten years the Certification of the Board of Canvassers and

[6]Many details of the collection of school district election results can be found in the Research Log appendix. However, a brief overview of the data collection strategy will be provided here.

[7]Sections §7.53(3)(a) and §120.06(14) Wis. Stat.

the Statement of the Board of Canvassers. [8] These two documents which stated the names of each candidate for office, the number of votes received, and the winners determined in each race.

However, the record availability and completeness across the state was very uneven. The further back in the decade, the more difficult school districts had locating and providing the Certification and Statement documents. Records that were provided came in a variety of formats and with varying degrees of quality and accuracy. Staff turnover contributed greatly to the varying continuity in the records. In all cases, scanned PDFs of the original records were stored by school district, as well as all e-mail communication with school district staff regarding the nature of the request and how to interpret the files provided the district.

The next step in this process was to turn the PDF election records into a database of candidates, votes, and election winners for all school districts in the state. For each district a separate spreadsheet was created with the following information for each candidate in each election in each year:

- District ID Code: The unique identifying code for each school district
- Year: The year the election was held
- Election Type: 1 for general election, 2 for primary, and 3 for a special election
- Candidate ID: A unique identifier for each individual within the district appearing on ballots
- First Name: Candidate's first name
- Last Name: Candidate's last name
- Votes Received: Number of votes for each candidate
- Winner: 1 indicates candidate won office, 0 did not win office

[8] Retention timeline per guidance issued by the DPI in May 2010: http://publicrecordsboard.wi.gov/docview.asp?docid=15892&locid=165. Election documents information from WASB: http://www.wasb.org/websites/legal/File/P-ElectionSchedule.pdf

- Incumbent: 1 if candidate previously held office, 0 for candidates that did not
- Repeat: 1 if candidate previously ran for office (successfully or not), 0 if candidate did not
- Minor: 1 if candidate receives fewer than 100 votes, or is listed as scatter, 0 if not

In many cases determining a winner was the most difficult challenge. In order to do this, a secondary data source was collected from the Wisconsin DPI – the master roster of school board members from 2002-2012. This roster file is provided to DPI annually by the Wisconsin Association of School Boards and contains the names of all school board members known to be serving in the state. If a candidate was found to be on the school board in the next school year, they were assumed to have won the election the preceding April.

The dataset has some limitations. Primarily, determining incumbency and repeat candidate status are limited by the number of years of records that school boards were able to provide – the data is left censored in 2002. Candidates in 2002 must all be assumed to be starting off as fresh in the data. This places a downward bias on the value of incumbency because long-tenured incumbents will be treated as first time candidates.

From the database for each school district, a master database is constructed for all school districts supplying records. From there, the records are collapsed to school district - election - year records to allow comparisons across districts about voter turnout, candidate emergence, and incumbent defeat in school board elections.

Wisconsin Employment Relations Commission

The Wisconsin Employment Relations Commission (WERC) provided a flash drive with the data contained in Data/WERC/WERC Election Data

which included all WERC election records for all labor relation elections in Wisconsin since 2002. Additional recertification election information was downloaded from the WERC website to include the 2014 WERC election results. The recertification election results for all unions certified with each school district in the state were input into a .csv file for analysis.

Student Outcomes

DPI student outcome data is provided online through the WISEdash education portal. Statewide download files with data for each school district are available online at `www.wisedash.dpi.wi.gov`. This includes student demographics as well as student standardized test achivement and graduation rates.

B RESEARCH LOG

This research log tracks information related to the tools and methods used in completing this project.

Summer Funds **M**ay 15^{th} 2012

Awarded Political Science Summer Initiative Funds of $500. These funds are used to acquire election records on school board elections from the state of Wisconsin. I purchased these records from the Wisconsin Governmental Accountability Board. I received these records in September. These records contain the names of all candidates for school board elections statewide from 2006-2012 from the Wisconsin Voter Registration System. Additionally, the roster of school board members serving in Wisconsin from 2002-2012 is acquired from the Wisconsin Department of Public Instruction.

Additionally, over the summer I worked closely with the Wisconsin Association of School Boards with John Ashley, director, Dan Rossmiller, legislative liaison, and Deb Gurke, researcher, on exploring descriptive statistics related to school board member turnover and school board size across the state of Wisconsin. I provided them an initial report which looked at school board turnover over the last ten years for the first time by using an annual roster of school board members for each school district. I used name matching from year to year to determine if any of the board members had changed. With thousands of records, this process was done using natural language processing to identify close matches and a subset of records were reconciled by hand.

Proposal Accepted **J**une 1st 2012

Proposal is defended with the Political Science faculty. Committee includes David Canon, Kathy Kramer-Walsh, and John Witte. Proposal poses the following questions to be examined:

1. How does a policy shock at the state level of government affect the level of participation in school board elections both in terms of voter turnout and in terms of challengers to incumbent board members?

2. How does that shock change school board policymaking and what are the predictors of that change in the board?

3. Does sudden polarization and partisanship of state level politics lead to evidence of partisanship on school boards?

Additionally one more research question is posed to meet the requirements of the Institute for Education Sciences (IES) Pre-Doctoral Fellowship awarded through the Interdisciplinary Training Program (ITP) at the Wisconsin Center for Education Research (WCER):

1. How does turnover in school boards and among district administrators impact student achievement?

Data Request in the Field **J**an. 22nd 2013

It becomes clear that to determine which candidates won which elections, how many voters participated, and how large the margins of victory were it was necessary to contact school districts directly. Originally, county clerks seemed the ideal place to start in gathering election records in Wisconsin – statutorily required to be maintained for ten years. However, unlike municipal elections, school district clerks are not required to submit their election results to the county. Furthermore, counties have no requirement

to store or retain school board election records. In a few Wisconsin counties (Waukesha county, Milwaukee County, Dane County, and Brown County) such records are maintained for school districts in their jurisdiction. For districts that are intersected by these county lines it is less clear if the records for the entire district are maintained, or merely for the intersecting precincts.

In order to obtain the most accurate picture of school board elections then, it was clear that the original records custodian must be contacted. After consulting with two county clerks (Jean Gottwald, the Price County Clerk, and Lori Stottler, the Rock County clerk), Dan Rossmiller from the Wisconsin School Board Association, and staff at the Wisconsin Department of Public Instruction, it became clear that the superintendent's office in each school district was the best point of contact for a records request.

The e-mail addresses of all District Superintendent's in Wisconsin were obtained from the Wisconsin Department of Public Instruction. On January 28, an e-mail request was sent to all school district administrators of each of the 424 Wisconsin school districts. This e-mail request was sent using the Yet Another Mail Merge script in GMail from a Google Sheet.

The request asked school district administrators to locate and provide any of the following records:

- The certification of the Board of Canvassers for all elections 2002-2012 including primaries
- A tabular statement for each election available showing votes cast for each candidate by reporting unit
- A copy of tally sheets when tabular statements are not available

The initial request yielded the delivery of nearly 200 sets of records. Many districts, however, did not retain election records from earlier years in some cases due to staff turnover, flooding, or other reasons. Furthermore,

many districts found providing tally sheets or tabular statements to be burdensome. In some cases this request was met with some resistance due to the perceived scope of the request, and in other cases because the request was posed as an open records request.

Most districts provided the records free of charge, but several districts submitted cost estimates ranging from a few dollars for postage to several hundred dollars for location time and copying of records. In all 230 districts provided records, with only 15% of districts charging fees to provide the records. The average cost was $11.

The cost of these fees was reimbursed through research assistance funds available to ITP students for dissertation research.

Follow-up Request in the Field **M**arch 4^{th} 2013

For the over 200 districts that had failed to reply and provide records to the previous request, a second request was made. This request avoided the language of open records and also reduced the scope of the request to simply the Statement and Certification of the Board of Canvassers for each election. This was in response to some districts providing several hundred pages of records under the previous request including the tape from individual voting machines at each precinct.

After this request, 300 districts had shared their records. The rate of charging fees remained at 15%, and the average cost was $11.

Second Follow-up Request in the Field **A**pril 12^{th} 2013

The second follow up occurred.

Data Processing Assistance Hired **A**pril 18^{th} 2013

UW-Madison graduate student Vanessa Schwartz is hired to compile election records into machine readable spreadsheets. The vast majority of school districts provided at best scanned in PDFs, and at worst paper photocopies of their election records. These documents were all scanned into PDF format and organized into folders by school district.

Assistance was hired through funds available to students in ITP to assist with their dissertation research. $700 was available to fund her work at a rate of roughly $10 per hour. An additional $600 of support for this work was provided by UW-Madison Political Science department Summer Initiative funds.

School Board Election Data Processing Completed **S**eptember 9^{th} 2013

Vanessa Schwartz completes compiling records for Wisconsin school districts into individual .csv files. These .csv files are then validity checked. Vanessa has noted when there were errors in the data, oddities, or when records were unclear as to the winner of the election. Follow-ups are planned for all school districts where the data is incomplete or ambiguous as to the winner.

Labor Relations Data Collection Starts **S**eptember 10^{th} 2013

Needing to identify measures of union leadership and union strength in Wisconsin school districts, I reached out to two sources to investigate

these measures. The first source was Georgann Kramer of the Wisconsin Employment Relations Commission (WERC). The second source was Dan Rossmiller of the Wisconsin Association of School Boards.

Georgann Kramer and the WERC provided a flash drive with the data contained in Data/WERC/WERC Election Data which included all WERC election records for all labor relation elections in Wisconsin since 2002.

Dan Rossmiller provided a decisions index for all decisions made by WERC in grievances dating back to the mid-80s.

Wisconsin Municipality Demographics Collection **S**eptember 26th 2013

E-mailed Philip Wells and Daniel Barroilhet at the Wisconsin Demographic Services Center in order to obtain the count of eligible voters by municipality by year in order to calculate voter turnout correctly for school board elections. Eligible voters are not available, but voting age population was identified as the most granular measure maintained on a statewide basis. Received files from Philip Wells at the Wisconsin Department of Administration Division of Intergovernmental Relations. Received these documents via e-mail as Excel files and converted them to plain text for merging with other records.

Last Wave of School Board Election Requests **O**ctober 9th 2013

I contacted the remaining school districts with a follow-up request that was greatly simplified. I requested only the 2007-2012 statement and certification of the Board of Canvassers. The hope was that this reduced request would be perceived as less burdensome and more likely to be filled. I received records from around a dozen districts that had not provided

records previously. This represented the last collection wave for school board election results.

Contract to Assemble WERC Data and Clean Up Messy Records **D**ecember 18^{th} 2013

Contracted an undergraduate assistant through WCER using research funds as part of the ITP program. Qi Lian coded WERC election results for teacher union recertification elections as well as continuing the work done by Vanessa Schwartz on coding election results into spreadsheets.

Contract to Determine School Board Races by District **J**une 3^{rd} 2014

Identified that turnout rates were impossible to calculate due to the variability in school board seat organization across districts. Hired Jason Orne for 17.5 hours of work to add an additional code to each candidate indicating a race number to allow candidates running against one another to be identified. Also coded whether the race was for a specific area or for a district wide seat.

Acquire DPI Administrative Records **A**ugust 2014

After the acquisition and cleaning of the board election results, I next set about acquiring the school district attributes. To do this, I used DPI administrative databases to construct aggregate measures of school district financial records, student demographics, student performance, and other

school district features. These records were made available to me through my employment at the agency and through publicly available reports.

Backfill Incumbency Status **O**ctober 2014

Using a database of school board members provided by the Wisconsin Department of Public Instruction and maintained by the Wisconsin School Boards Association, I coded whether a candidate appearing on the ballot in each race was listed as being an official school board member prior to the date of the election.

Recode Winning Seats **J**anuary 2015

Using the newly created Blais-Lago competitiveness quotient, I reviewed all races for which a candidate won, but had lower votes than a winner. In some cases this required fixing the match-ups to reflect the ballot (Waunakee and Madison) and in other cases it required re-evaluating the winner determination and assuming higher vote getting candidates also won if no other evidence was available that they did not win.

Student Outcomes Data **F**ebruary 2015

Work with DPI staff to identify publicly available measures of student performance. Identify high school graduation and achievement proficiency rates for the 2006-2012 time period as the most complete set of records.

Refine Data **M**arch 2015

Identify districts dropped due to consolidation – Trevor-Wilmot. Identify miscoding in district ID and race winners. This is the final piece of the data cleaning done. Future work should look into backfilling districts that did not respond to the records request.

DISCARD THIS PAGE

COLOPHON

This dissertation makes use of Wisconsin thesis template developed by William C. Benton. Any errors introduced by the modification of this dissertation template are mine and mine alone. To produce this dissertation the following build process was employed:

1. Chapters were drafted using the R knitr package and analysis and text were combined using the knitr workflow into individual LaTeXdocuments
2. The Wisconsin Thesis template was used and incorporated these .tex files into one document
3. The bibliography files were included using `bibtex`
4. The project was kept under version control using `git` with GitHub serving as the remote backup
5. The dissertation was built within RStudio using R scripts calling MikTex and bibtex libraries

All attempts were made to preserve the reproducibility and the cross-platform nature of this dissertation. All of the tools used are open source and freely available on any major computing platform. The analyses for the dissertation were built as nearly as possible to be reproducible from the data cleaning and reformating stage, all the way to the fitting of the statistical models and the production of formatted tables of results. All of this code and supporting documentation will be maintained open sourced and freely available in the hope that others who are interested will be able to build on and extend the work presented here, or at least learn more about the process.

Following publication the data will be documented in a codebook and published online to aid the further analysis of these records.

Computing Environment

This dissertation was produced on a Windows 7 PC using the following R environment:

- R version 3.1.2 (2014-10-31), `x86_64-w64-mingw32`
- Base packages: base, datasets, graphics, grDevices, grid, methods, stats, utils
- Other packages: apsrtable 0.9.1, arm 1.8-4, data.table 1.9.4, eeptools 0.3.1, ggplot2 1.0.1, gridExtra 0.9.1, knitr 1.9, lme4 1.1-7, lmtest 0.9-33, MASS 7.3-40, Matrix 1.2-0, optimx 2013.8.7, plyr 1.8.1, Rcpp 0.11.5, reshape2 1.4.1, sandwich 2.3-3, scales 0.2.4, stringr 0.6.2, xtable 1.7-4, zoo 1.7-12
- Loaded via a namespace (and not attached): abind 1.4-3, BB 2014.10-1, car 2.0-25, chron 2.3-45, coda 0.17-1, colorspace 1.2-6, dfoptim 2011.8-1, digest 0.6.8, evaluate 0.6, foreign 0.8-63, formatR 1.1, gtable 0.1.2, labeling 0.3, lattice 0.20-31, magrittr 1.5, maptools 0.8-34, memisc 0.97, mgcv 1.8-6, minqa 1.2.4, munsell 0.4.2, nlme 3.1-120, nloptr 1.0.4, nnet 7.3-9, numDeriv 2012.9-1, optextras 2013-10.28, parallel 3.1.2, pbkrtest 0.4-2, proto 0.3-10, quadprog 1.5-5, quantreg 5.11, Rcgmin 2013-2.21, RColorBrewer 1.1-2, Rvmmin 2013-11.12, setRNG 2013.9-1, sp 1.0-17, SparseM 1.6, splines 3.1.2, stringi 0.4-1, svUnit 0.7-12, tidyr 0.2.0, tools 3.1.2, ucminf 1.1-3

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