LOCAL DEMAND FOR A SCHOOL CHOICE POLICY: EVIDENCE FROM THE WASHINGTON CHARTER SCHOOL REFERENDA

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ABSTRACT: The expansion of charter schools—publicly funded, yet in direct competition with traditional public schools—has emerged as a favored response to poor performance in the education sector. While a large and growing literature has sought to estimate the impact of these schools on student achievement, comparatively little is known about demand for the policy itself. Using election returns from three consecutive referenda on charter schools in Washington State, we weigh the relative importance of school quality, community and school demographics, and partisanship in explaining voter support for greater school choice. We find that low school quality—as measured by standardized tests—is a consistent and modestly strong predictor of support for charters. However, variation in performance between school districts is more predictive of charter support than variation within them. At the local precinct level, school resources, union membership, student heterogeneity, and the Republican vote share are often stronger predictors of charter support than standardized test results.

Keywords: charter schools, politics of school choice

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INTRODUCTION

Expansion of the charter school sector has emerged as a favored tool of policymakers seeking to raise the quality of public education in the United States. Charter schools—publicly funded, yet in direct competition with traditional schools for students and resources—are viewed as an opportunity to expand choice, encourage innovation, and raise student achievement. Indeed, the Obama administration has made the expansion of charter schools a central component of its education policy. In outlining his criteria for awarding federal stimulus funding to the states, U.S. Education Secretary Arne Duncan announced in 2009 that "states that do not have public charter laws or put artificial caps on the growth of charter schools will jeopardize their applications under [the Race to the Top program]."[1]

While a large and growing literature now exists on the impact of charter schools on student achievement (Bettinger 2005; Bifulco and Ladd 2006; Hanushek et al. 2007; Zimmer et al. 2009), comparatively little is known about voter demand for the reform itself. To date all state charter laws have been the product of state legislatures, and as such few measures of popular support for charter schools exist (DeBray-Pelot, Lubienski, and Scott 2007; Kenny 2005; Kirst 2007). Between 1996 and 2004, however, the state of Washington held three consecutive referenda on legislation that would have authorized charter schools in that state. These measures—the only such referenda on charter schools in U.S. history (Bali 2008)—provide a unique opportunity to assess the factors that enable or hinder the expansion of school choice.

In this paper, we use election returns from the Washington charter referenda to weigh the relative importance of school quality as measured by standardized tests, and other community characteristics in explaining support for school choice legislation. We estimate models of voter

[1] U.S. Department of Education press release, "States Open to Charters Start Fast in 'Race to the Top," June 8, 2009. In response to the Race to the Top criteria, at least a half dozen states made significant changes to their charter law, including the wholesale or partial elimination of caps.

support at both the school district level statewide, and at the local precinct level for the six most populous counties in Washington. Together these models allow us to assess the extent to which neighborhood and district-wide factors predict voter support for charter schools. Exploiting the repeated referenda on the same issue, we provide cross-sectional estimates for each ballot measure as well as estimates from pooled models and models with district or precinct fixed effects.

Our results show that weak student performance on state tests is a consistent and modestly strong predictor of voter support for charter schools across school districts. This result is contingent upon controlling for existing school resources, which were also often strongly related to vote outcomes. Districts that raised more in local tax levies—where taxpayers potentially had more to lose to charter schools—were less supportive of the referenda, as were districts with higher-than-average teacher qualifications. These findings suggest that voters in districts with large investments in existing public schools may be wary of policies that threaten these investments.

Notably, variation in school quality *between* districts appears to be more strongly related to charter school support than variation *within* them. In precinct-level models with school district fixed effects, we find a much weaker relationship between local school quality and support for the charter referenda. Other neighborhood and school characteristics—the percent of adults who are college educated, the percent who are black or Hispanic, the average experience level of teachers, and the extent of racial diversity in neighborhood schools, for example—are generally much stronger predictors of support for charter schools. Our results also indicate that politics may have played a much larger role than student achievement in the outcome of the Washington charter referenda. Across precincts, we find that the Republican vote share has an effect on charter support that is 2 to 3 times the size of any other explanatory factor in our model, including achievement. We also find that the state teachers union—which vocally opposed the referenda—may have effectively reduced

voter support. In our district models, we find that where union penetration was high, voter turnout was higher than average and support for charter schools systematically lower.

These findings are of consequence not only to the remaining states without a charter law, but to all states and local districts weighing an expansion of school choice. A greater understanding of the nature of popular support for charter schools will aid in crafting politically sustainable choice policies, whether these policies involve additional charter schools, more lenient charter laws, more flexible enrollment policies, vouchers, or other forms of school choice. More generally, the relationship between local school and community characteristics and the support for school choice is revealing of broader attitudes towards public schooling and educational reform. Our analysis of the Washington experience suggests that the movement toward greater school choice is not merely a response to unmet demand for school quality, but rather the result of a complex political process.

EXISTING EVIDENCE ON THE SUPPORT FOR SCHOOL CHOICE

Researchers interested in the popular support for school choice policies have relied mostly on indirect evidence, rather than direct measures of voter support. This literature includes studies of variation in state charter law strength (Stoddard and Corcoran 2007; Wong and Shen 2004), studies that look explicitly at the exercise of school choice by parents and their children (Bifulco and Ladd 2007; Hastings, Kane, and Staiger 2004; Schneider and Buckley 2002), studies of charter enrollment growth (Glomm, Harris, and Lo 2005; Stoddard and Corcoran 2007), and analysis of public opinion (Brasington and Hite 2007; Moe 2001).

One notable exception is a small empirical literature on the political support for private school vouchers. In a series of papers, Brunner and his colleagues examined variation in voter support for two ballot referenda in California that would have created a statewide voucher system (Brunner, Imazeki, and Ross (forthcoming); Brunner and Imazeki 2008; Brunner and Sonstelie 2003;

Brunner, Sonstelie, and Thayer 2001).[2] They found that, among other things, anticipated effects on peer group composition and home values heavily influenced voter support for a universal voucher. They also found evidence that the existing level of school choice and public school quality played important roles in voter decisions.

Vouchers, however, have never been politically viable in the United States (Bali 2008; Kenny 2005). The two California measures, for example, each failed to garner more than 30 percent of the popular vote. Charter school policies have had much greater political success, but to date there has been no systematic analysis of voter support for these policies. In what follows, we bring together the characteristic features of charter laws and the existing literature on school choice to inform hypotheses on how school quality and other factors may have affected voters' support for expanding choice through charter schools. Where the existing literature on school choice politics is thin, we rely on other sources, in particular research on the exercise of school choice by families with schoolchildren.

The typical charter law has several defining features that are likely inform voters' preferences for these policies. First, charter schools provide alternatives to traditional neighborhood-zoned public schools. The empirical evidence on vouchers and participation in school choice programs suggests that households with limited access to quality schools are most likely to favor and make use of expanded choice. Brunner and Sonstelie (2003) and Sandy (1992), for example, found that voters located near under-performing public schools were more likely to support vouchers than those near higher-performing schools. Similarly, Hastings, Kane, and Staiger (2006) and Hastings and Weinstein (2008) showed that families with children in low-quality schools have a greater propensity to take advantage of transfer options when available. Charter school enrollment has been found to be

[2] See also Catterall and Chapleau (2003). Sandy (1992) analyzed results from a similar ballot referendum in Michigan, and Merzyn and Ursprung (2005) examined the support for a referendum on vouchers in Switzerland. For a theoretical exposition, see Hoyt and Lee (1998).

systematically higher in low-performing school districts (Glomm, Harris, and Lo 2005; Stoddard and Corcoran 2007), and parents of charter students appear to be particularly sensitive to measured school performance (Hanushek et al. 2007).

School quality may also affect the political support of households without children. Policies that break the link between residential location and school attendance have been found to receive weak support among homeowners in communities with high-quality schools and correspondingly high home values (Brunner and Sonstelie 2003; Brunner, Sonstelie, and Thayer 2001). For our purposes, the foregoing collection of papers suggests that voter support for charters will be positively related to poor school performance.

Second, charter schools divert students, teachers, and tax dollars away from existing schools. The fiscal consequences of school choice policies have been found to be particularly important in the case of vouchers that subsidize private school attendance. Vouchers may increase or decrease the tax cost of education, depending on the number of students who move from public to private schools and the long-run impact on efficiency (Hoyt and Lee 1998). Although the fiscal effects of charter schools are not as apparent, in general sending districts lose revenues under a charter policy. As we discuss in greater detail below, this is particularly relevant in Washington, where school finance is highly centralized. The empirical implication is that we expect to observe weaker voter support in areas with greater local resources at risk.

Third, charter schools expand the range of educational offerings. Holding constant school quality, households may support expanded choice when the existing supply of schools is insufficient to accommodate heterogeneous demands for curricula and other educational services. Tastes for education are often unobservable, but may be correlated with income, race, ethnicity, and student needs (Brunner and Sonstelie 2003; Catterall and Chapleau 2001; Weiher and Tedin 2002). Moreover, community composition may further affect demand for choice through a desire to sort

on peers (Brunner, Imazeki, and Ross (forthcoming); Brunner and Imazeki 2008; Elacqua, Schneider, and Buckley 2006; Schneider and Buckley 2002). A growing empirical literature on existing choice programs finds that students who transfer schools disproportionately move to schools aligned with their own race or socioeconomic status (Bifulco and Ladd 2007; Booker, Zimmer, and Buddin 2005). Brunner, Imazeki, and Ross (forthcoming) found that white households are more likely to support vouchers when their children attend schools with higher proportions of non-white students, especially when those students have limited English proficiency. For our study, the empirical implication is that we expect to see greater voter support in areas with more heterogeneity in their schools and communities, and weaker support in areas with greater existing school choice.

Fourth, charter schools are often exempt from collective bargaining rules that govern teacher hiring in traditional school districts. This aspect of charter legislation in particular has spurred opposition from teachers unions and some teachers. Unions have been found to be effective in blocking or weakening state charter laws (Stoddard and Corcoran 2007) and influencing Congressional votes on vouchers (Gokcekus, Phillips, and Tower 2004). Teachers in traditional schools may perceive school choice as a threat, and are often found to vote against these policies (Brunner, Sonstelie, and Thayer 2001; Sandy 1992). This leads us to expect lower voter support in areas where unions are more influential.

Finally, in shifting educational provision away from the government sector and toward non-profit providers, charter schools raise fundamental questions about the role of the public sector in providing basic education. As such, one might expect partisan politics to play an important role in the support for school choice. Indeed, existing research finds that political preferences are closely aligned with support for school choice, with Republican voters much more likely to support choice programs (Bali 2008; Brunner and Imazeki 2008; Brunner, Sonstelie, and Thayer 2001; Kenny 2005;

Wong and Shen 2004). Charter schools are reputed to have much greater bi-partisan support (e.g. Bali 2008), but this dimension has been less studied in the charter school literature.

The three charter referenda in Washington State touch upon all of these issues. Although our primary focus is on the relationship between school quality and the political support for charter schools, the literature examined here suggests weighing the importance of community composition and heterogeneity, and political factors like the influence of teacher unions and partisanship. Understanding the relative importance of these factors will allow policymakers to anticipate how the educational and political context will influence policy feasibility, acceptance, and sustainability. In the next section, we provide a brief history of the campaign for charter schools in Washington and describe how details of the proposed referenda would have been likely to affect local schools, districts, and taxpayers.

BACKGROUND

Washington voters have considered four proposals to expand school choice in three general elections (Table 1). In every case the proposal failed, though not always by a large margin.[3] The move to legalize charter schools in Washington State began in 1996 when charter advocates successfully placed a charter bill before the Washington state legislature. When the legislature failed to act, it was put to voters in the 1996 general election as Initiative 177, where it received fewer than 36 percent of the vote. Incidentally, in the same year another initiative (173) appeared on the ballot that would have also authorized vouchers for private schools. That initiative also failed, with fewer than 36 percent of voters favoring passage.

A second charter school bill, Initiative 729, was taken directly to the voters in 2000. Of the three charter referenda this bill came closest to passage with 48 percent of the vote. When charter

[3] Legislators had also tried on a number of occasions to pass a charter school bill, with legislation introduced every year between 1993 and 2003.

legislation was ultimately signed into law by a bi-partisan government in 2004, a voter petition originated by the Washington Education Association (WEA) resulted in the new law being referred to a popular vote (Washington Research Council 2004). Washington's charter law was overturned by the voters in November 2004 through Referendum 55, with only 42 percent in favor of retaining the law. Importantly, each of these ballot measures coincided with a presidential election, so voter turnout was relatively high, with 74 to 82 percent of registered voters participating.[4]

The politics of charter schools in Washington appears to have grown increasingly contentious. The 1996 campaign for Initiative 177 received little financial backing on either side, but by 2000 charter school supporters had raised over $3.4 million, mostly from a single donor.[5] Opponents collected little more than $11,000. In 2004, charter opponents were more organized, amassing $1.3 million in its petition to overturn the legislation passed that year. Still, at $3.9 million, contributions supporting the campaign for charter schools more than doubled that of its rivals.

While none of the charter school proposals obtained a majority vote, approval varied substantially across localities. Across precincts statewide, the standard deviation in voter approval was highest in 2000 at 6.1 points, and lowest in 2004 at 5.3. Support varied across regions of the state, and between urban, suburban, and rural areas, as seen in Figure 1. Rural areas, small towns, and the city of Seattle provided the weakest overall support for the charter school measures, while the referenda received their highest rates of approval in suburbs and mid-sized cities. Moreover, considerable heterogeneity in support existed within school districts, as is evident in Figure 2 which shows precinct-level support in King, Pierce, Snohomish, and Kitsap counties (4 of the 6 counties for which we have detailed precinct mappings). In King County, the standard deviation in approval

[4] A small fraction of voters abstained from voting on the charter measure, ranging from 3.3 percent in 1996 to 6.0 percent in 2000.

[5] Paul Allen, co-founder of Microsoft, contributed $3.275 million to Initiative 729. See Washington Public Disclosure Commission, http://www.pdc.wa.gov/QuerySystem/statewideballotinitatives.aspx [last accessed: September 28, 2008].

shares mirrored that of the state at large, ranging from 5.6 to 6 points. Seattle largely stood out among large districts in its opposition to charter schools. Other large school districts, including Lake Washington and Tacoma, generally favored the charter initiatives. 48 of the state's 296 school districts produced a majority in support of charter schools in 2000.

[Figures 1-2 about here]

The three charter proposals shared a number of common features. Most importantly, all had serious implications for the fiscal health of local school districts. For each student enrolling in a charter school, the revenues lost by the sending district would have been substantial. Washington has a centralized system of finance in which state dollars comprise more than 70 percent of operating expenditures, with a statewide median of $5,800 per student in 2003-04.[6] Districts also received an average of $750 per student from the federal government in 2003-04. In all three bills, state and federal funding would have followed students to charter schools.

Despite their similarities, the proposed charter legislation in Washington evolved over time, reflecting the maturation of the charter school movement and a desire by backers to produce a politically palatable bill. Although all three laws would have resulted in district losses of state and federal funds, the provisions for *local* revenue sharing were weakened over time. Most local districts supplement state revenues with special levies for operations ("excess M&O"), capital, and transportation. In 2003-04, 274 of the state's 296 districts raised excess M&O, with the median district raising $1,335 per student.[7] Initiative 177 was the most aggressive with respect to local

[6] Authors' calculations using 2003-04 Census of Governments (F-33) data, and Bergeson et al. (2004). State contributions for current operations are calculated as total state aid less contributions for capital outlay and debt service. The official fiscal impact statement for Referendum 55 estimated that charter schools would receive an average of $5,287 per student in state funding; district-sponsored charters would receive an additional $1,226 in local levies.

[7] Authors' calculations using data provided from the Washington Department of Revenue Research Division, and Bergeson et al. (2004). Generally speaking, the state does not subsidize capital projects, although an equalization aid program exists for low property wealth districts. In 2003-04, 87 districts received state aid for capital projects.

revenues, requiring a full sharing of local levies with charter schools. Initiative 729 and Referendum 55, on the other hand, required districts only share tax levies with conversions and new district-sponsored schools.

All three bills would have substantially altered the school choice landscape. The 1996 initiative was the most permissive regarding the number of charter schools, allowing for an unlimited number of new or conversion charter schools in districts whose electorate voted to permit them. If passed, all districts would have been required to poll their residents on conversion to "renewed school district status," which would enable the creation of charter (or "independent") schools.[8] Districts would retain the power to approve new charters, though schools whose applications were denied could appeal to the state. Charter school teachers would have been exempt from collective bargaining, and even private schools would have been able to convert to "independent" status to receive public funding.

Initiative 729 and Referendum 55 were more in line with charter laws enacted in other states. These bills imposed caps on new charter schools, but neither limited the number of conventional schools that could convert to charter. In fact, the state superintendent was given power in the 2004 law to force under-performing schools to convert to charters. Teachers in charter schools would have been required to participate in collective bargaining on a limited basis in both cases.

In theory, state law already provides a modicum of choice in Washington. Districts are required by law to design and adopt an intra-district transfer policy and are "strongly encouraged" to honor inter-district transfer requests (Bergeson et al. 2004). However, despite a relatively liberal open enrollment policy, participation does not appear to be widespread. According to the NCES Schools and Staffing Survey, 72 percent of surveyed school districts in Washington acknowledged an intra-district choice policy and roughly 80 percent reported having an inter-district policy, though in

[8] While the legislation did not use the term "charter schools," the local media covering Initiative 177 did. See, for example, "Taking the Public out of Schools," *Seattle Post-Intelligencer,* October 20, 1996.

theory all should have both. On average, inter-district transfer students comprise only 3 percent of enrollment in districts that reported having an inter-district choice program.[9]

EMPIRICAL MODEL

We are interested in how community voter support for the Washington charter referenda relates to local school quality and other characteristics of schools, neighborhoods, districts, and voters. Lacking individual voter data on ballot choices and factors relevant to their support for school choice, we construct an empirical model that estimates the extent to which school district or neighborhood precinct characteristics are related to support for expanded school choice. Our primary specification is a grouped logit model, where the log-odds ratio of the percent of voters in community c supporting charter measure m, $\overline{P}_{cm}$, is expressed as a linear function of aggregated school, community, and voter characteristics, X_{cm}, and a random component:

$$(1) \qquad \ln\left(\frac{\overline{P}_{cm}}{1-\overline{P}_{cm}}\right) = \alpha_m + \beta_m' X_{cm} + u_{cm}$$

Depending on the level of analysis, community c is either a school district or election precinct, and X_{im} measured at the district or precinct.

The coefficient vector β_m in (1) represents the partial effects of the explanatory variables x_{km} on the log-odds ratio, and can be estimated using weighted least squares.[10] For ease of interpretation we report the estimated marginal effects of the x_{cm} on the percent favoring charter school proposal m

[9] Authors' calculations using the 2003-04 Schools and Staffing Survey (SASS). Surprisingly, the state Office of Superintendent of Public Instruction does not collect and report inter-district transfer data, nor data on magnet school enrollment. The Common Core of Data does contain a flag identifying magnet schools, but these values are missing for all Washington schools. The 2003-04 SASS indicates enrollment in magnet schools in about 19 percent of sampled Washington districts. In 1993-94, magnet enrollment was largest in Seattle, at 11,645 students.

[10] The weights are the inverse of the square root of the variance of the u_{cm}, or: $\sqrt{votes_{cm}\left(1-\overline{P}_{cm}\right)}$, where $votes_{cm}$ represents the total number of votes cast for measure m in school district or precinct c.

at the mean level of X_{cm}. Effects of a one standard deviation change in each explanatory variable are also provided to allow comparisons of magnitude.

Because we are relying on grouped data, our estimated effects should not be interpreted as estimators of individual-level parameters. Strictly speaking, they are an empirical description of differences in voting behavior across jurisdictions. A positive association between the percent of voters who are black and the charter support share, for example, cannot tell us whether this support comes from black voters or white voters in districts with more black residents.

Each level of analysis—district and precinct—offers a useful perspective on community factors related to support for school choice. The 296 school districts in Washington have the advantage of corresponding with the governmental units upon whose policies and performance the charter vote might be considered a referendum. Census and school performance data are also readily available at this level. The drawback of a district-level analysis is that districts are often large and heterogeneous, and voters may be more concerned with the quality of their local school than with their district at large. This may be particularly true for voters without children, whose property values are most likely to be related to the quality of the local school. Precincts, on the other hand, are small, considerably more homogeneous, and roughly correspondent with neighborhoods. We were able to map precinct-level election results for the six most populous counties in Washington (King, Pierce, Snohomish, Spokane, Clark, and Kitsap) to Census block groups and characteristics of nearby schools, and re-estimate (1) at the precinct level. Although some variables unique to districts are lost in this analysis, there should be a much closer correspondence between election outcomes and neighborhood characteristics. Details on the GIS mapping of precincts to schools and census block groups are provided in the next section.

Washington's experience is particularly unique in that they held not one, but three consecutive referenda on charter schools. We exploit the repeated nature of these referenda by

estimating a cross-sectional version of (1) for each election as well as a model pooling data from all three years. In one version of the latter, we include school district (or precinct) fixed effects to control for fixed community characteristics related both to school performance and support for school choice. (see Brunner and Ross (2009) for a similar application to multiple referenda). The chief weakness of a fixed effects strategy is that support for the expansion of school choice is likely to be based partly on systemic attributes of communities or school districts that are relatively time invariant. Some of these characteristics—such as demographics, union strength, and existing school choice options—are policy-relevant and of interest to research.

Taken together, our multiple model specifications and varying levels of geographic detail provide a fuller picture of how voting patterns on the charter school measures relate to the systemic and time-varying characteristics of schools, districts, and local populations.

DATA

Our analysis relates voter support for the Washington charter referenda to measures of student achievement on standardized tests, school resources, student and community demographics, and political partisanship at the district and precinct level. We collected precinct vote counts from each ballot measure and presidential and gubernatorial race from the individual 39 county auditors, covering roughly 7,300 to 8,900 precincts per year. For the district-level models, precinct vote totals were aggregated to school districts based on district identifiers provided by the county auditors. (Precincts are considerably smaller than school districts, and few precincts cross district boundaries). Geographic boundary files that could be used to match precincts to Census block group measures were available only for the six largest counties in the state, as described in more detail below.

Our primary measure of student achievement is based on average performance on the Washington Assessment of Student Learning (WASL), a criterion-referenced exam used to assess

mastery of state academic standards. WASL results are reported for individual schools and districts by levels (1-4): the percent of tested students below basic, basic, proficient, and advanced. Students performing at levels 3 and 4 are said to be meeting state standards in the tested subject. We rely on results from the 1997-98, 1999-00, and 2003-04 test administrations, and for consistency across years we restrict our attention to 4th, 7th, and 10th grade math and reading.[11]

It is not clear *a priori* that any one grade or subject measure of student achievement should be most salient to voters assessing local school quality. Thus, we use a composite measure of school quality indicating the extent of poor performance on the WASL: the mean share of students failing to meet state standards in math and reading across grades 4, 7 and 10. At the district level, this average is weighted by the number of students in each tested grade and subject. For precincts, we take an unweighted average, to avoid giving disproportionate weight to high schools, which are generally much larger than neighborhood elementary or middle schools. As a sensitivity check for the precinct models, we also consider alternative measures. Finally, as an additional indicator of high school achievement, we include annual dropout rates in our district-level models (with the exception of 2004, these are not available for individual schools).

It is important to point out that the first WASL administration did not occur until *after* the 1996 referendum. Thus, our application of 1997-98 scores to that year will not provide a measure of student achievement contemporaneous with the election.[12] In 1995-96, Washington administered the norm-referenced Comprehensive Test of Basic Skills, and reported the percent of 4th and 8th grade students below average for their norm group, as opposed to rates of subject proficiency (as with the WASL). For consistency across years, we use WASL scores for all three years. Notably,

[11] Washington reports these results in June, so 2000 and 2004 results were available to parents and voters prior to the November election.

[12] Fourth graders were first tested on a voluntary basis in 1996-97, and were subject to mandatory testing in 1997-98. Seventh and tenth graders were tested voluntarily in 1997-98 and were subject to mandatory testing by 2000-01. Virtually all districts participated in voluntary testing.

scores on the 1997 WASL and 1995 CTBS are highly correlated, with a same-district correlation of .72.[13]

School demographics were obtained from state Office of the Superintendent of Public Instruction (OSPI) and the Common Core of Data (CCD). Enrollment in five race/ethnicity categories was used to construct a measure of district or school racial diversity, calculated as one minus the Herfindahl index of enrollment shares by race category. (The resulting index ranges from zero to one, with one representing the maximum level of racial diversity). Rates of free lunch eligibility and special education classification were available only at the district level for these years, and thus are included in the district models only.

Community characteristics drawn from the 2000 Census include median household income, the percent black, percent Hispanic, percent age 25 and older who are college graduates, percent aged 65 and older, percent of households with children, percent employed in education, and the percent of K-12 students enrolled in private school. As a measure of income inequality at the district level, we calculated Gini coefficients of household income for each district (Corcoran and Evans 2008). All models—except those with fixed effects, where Census variables are omitted—use Census data from 2000.[14]

Census data for the school districts in our analysis was taken directly from the School District Demographics System of the National Center for Education Statistics. For our precinct analysis, we overlaid boundary files for precincts in King, Pierce, Snohomish, Clark, Kitsap, and Spokane counties with block group boundaries from the 2000 Census. These boundary files were intersected, and the precinct Census measures were calculated as a weighted average of their component block groups; block groups were weighted according to the fraction of the precinct land

[13] Models that use the CTBS score in place of the WASL in 1996 yield results that are qualitatively and quantitatively similar to those that we report below (available from the authors upon request).
[14] We have also estimated models that use a linear interpolation of 1990 and 2000 census characteristics for the 1996 election. The results were very similar to those presented here.

area they comprised. Generally speaking, election precincts are somewhat smaller than block groups, such that no more than 1 or 2 block groups typically contribute to a precinct. In King County, the average and median precinct area was 0.82 and 0.12 square miles in 2004, respectively; the average and median block group was 1.4 and 0.21 square miles.

For measures of school resources, we rely on financial data from the Census of Governments and Washington Department of Revenue. The OSPI also provided average teacher experience and the percent of teachers with masters' degrees, at both the district and school level. An approximation of average class size was constructed as fall enrollment divided by the number of full-time equivalent teachers. As a measure of existing public school district choice, we used CCD enrollment data to calculate the number of districts per 1,000 students within a 25-mile radius (á la Hoxby 2000). Finally, the Republican vote share is the result of a principal components analysis, which combines Republican support for president and governor into a single index (the correlation between the two is typically 0.95 or higher; the composite measure reduces noise from idiosyncratic political races). This composite measure reduces noise Finally, we construct a measure of union penetration at the district level as the ratio of Washington Education Association (WEA) members to FTE teachers.[15] As a proxy for union penetration at the precinct level, we use the percent of employed adults working in education from the census block group.

Summary statistics for school districts statewide and precincts in the six most populous counties are provided in Appendix Table 1. Observations are weighted by the total number of votes cast on each ballot measure and can be interpreted as characteristics of the school district or precinct experienced by the average voter in each election year. Over this eight-year period, public school enrollment became less white on average, more black, considerably more Hispanic and Asian, and

[15] WEA local membership consists of teachers and other education service area employees that are also part of the teacher bargaining unit (psychologists, school counselors, and the like). This membership count does *not* include classified employees (secretaries, bus drivers, etc). Because the numerator of our union representation measure may include non-teachers and part-time teachers, this ratio can exceed one.

poorer as measured by the percent of students eligible for free lunch. School quality as measured by the percent of students failing to meet state standards on the WASL improved markedly, although these gains are more likely to reflect a growing familiarity with the test than real improvements in student learning. It is well-documented that large increases in proficiency are common in the years following the introduction of a new assessment (Koretz 2002).[16] For our purposes the public need only view the WASL as a valid measure of achievement—or at least relative achievement—in their community in a given election year.

RESULTS

Voter Support for Charter Schools across Washington School Districts

We begin by estimating equation (1) using data observed at the school district level. This approach allows us to examine variation in community support for charter schools across a geographically, demographically, and politically diverse set of districts, and to consider district-level factors that may have affected voter decisions on the referenda. The weakness of this approach, as noted above, is that the units of observation are highly aggregated. Our precinct models in the next section provide a much closer correspondence between election returns and local community characteristics, at the cost of a more narrow focus on local, as against district, conditions.

Table 2 reports estimated marginal effects from a grouped logit model relating voter support for charter schools at the district level to measures of school quality and school and community characteristics. Panel A provides the estimated marginal effect of student achievement on support for charter schools conditioning on a small baseline set of controls (district size, urbanicity, and year effects where appropriate). Panel B reports marginal effects conditioning on a broader set of

[16] According to OSPI, state standards of achievement are fixed from year to year. A new edition of the WASL is created each year, although every attempt is made to equate test standards across years (see http://www.k12.wa.us/assessment/WASL/FAQ.aspx#10 [last accessed: September 28, 2008].

controls, including the high school dropout rate, measures of school resources, school and community demographics, existing choice, political partisanship, and union penetration.[17] Columns (1) to (3) are the results of cross-sectional estimates from each election, column (4) represents a model that pools data from all three election years, and column (5) represents the latter model estimated with school district fixed effects. All marginal effects are calculated at the mean value of the regressors. To facilitate comparisons of magnitude, the marginal effect associated with a one standard deviation increase in each regressor is provided in brackets.[18] Standard errors are adjusted for clustering at the district level in columns (4) and (5).

Effects of Student Achievement. In a parsimonious model with minimal controls beyond student achievement (Panel A), we find that poorer district performance on the WASL is positively related to voter support in all models except that for the 2004 election. However, this estimate is only statistically significant in 1996, and the marginal effect is near zero in the other two years. When including district fixed effects, the marginal effect is modest in size, implying a 0.42 point rise in support for a one standard deviation rise in poor WASL scores but remains insignificant.

When conditioning on covariates that are related to achievement and might be considered school and non-school inputs into education production (Panel B), the estimated relationship between voter support for charter schools and achievement becomes sizable and fairly robust across specifications. With the exception of the 2000 election, all estimated marginal effects for district performance on the WASL are statistically significant at the .01 level, and have the expected sign. In 1996 and 2004, we estimate that districts one standard deviation above average in the percent of

[17] District size and urbanicity is specified as a set of dummy regressors for city, suburban fringe, and town (rural is the omitted category), and a quadratic in population. For ease of presentation some coefficients have been suppressed from the table.

[18] Though the results are not provided here, we have also estimated models excluding Seattle, which with more than 300,000 voters is roughly three times the size of the next largest school district in the state, and find that our estimates are not materially different.

students not meeting state standards (9.4 and 9.0) had 1.31 and 1.07 point higher charter approval rates respectively—about a third of the overall standard deviation in these years. These effects are equally strong in our model with fixed effects, suggesting that fixed unobserved characteristics correlated with quality are not driving this relationship. Dropout rates also relate positively to charter support in most cases, and are statistically significant in 2000 and in the pooled model.[19]

Effects of District Resources and Characteristics. Table 2 suggests that other measures of school resources were associated with voter support for the charter referenda, above and beyond their effects through achievement. For example, school districts that raised more in local school levies per student were consistently less supportive of charter schools, on average. Based on our fixed effects model, we estimate that districts raising one standard deviation higher local levies (about $460 per student) had charter approval shares that were 1.6 points lower on average. Given that each of the charter measures required some sharing of local revenues with startup or conversion charter schools, this result is as expected. In every model, districts with more experienced teachers or with a greater percentage of teachers with master's degrees were on average less supportive of charter schools

Districts facing greater levels of existing choice—as measured by public school districts per thousand students within a 25-mile radius—were generally found to be less supportive of the three charter referenda. This relationship was particularly strong in 2000 and 2004, where areas with one standard deviation greater "competition" had 0.62 and 0.46 points lower approval rates on average. However, private school enrollment is generally positively related to charter support. This may be an indication of systematic dissatisfaction with public schools or the view of charter schools as a attractive alternative to private schools.

[19] While district WASL results and dropout rates are modestly correlated, omitting the dropout rate has a very minor impact on our coefficient estimates and standard errors.

In contrast to our generally consistent estimates for achievement and resources, local demographics appear to have less predictable impacts on voter support across districts. Racial and ethnic heterogeneity in school enrollment is negatively associated with support for charter schools, but other demographic measures (percent of population that is Hispanic, district median income, percent of adults with college degrees, local income inequality) do not have consistent signs and are generally not significantly related to the charter support share. [20]

The Role of Politics. Politics appear to have been a formidable factor in these referenda. Holding constant student achievement, district characteristics and other community covariates, the Republican vote share was often a stronger predictor of charter support than any other variable in our models. This effect is largest in 2004: districts one standard deviation above the average in the Republican vote share had 2.1 points higher charter support shares on average —2/3 of the overall standard deviation in charter support.[21]

Union representation, as measured by the number of WEA members per FTE teacher, is consistently *negatively* associated with charter support, and is a statistically significant predictor in the 2004, pooled, and fixed effects models. In 2004—when the WEA was most heavily involved in the campaign against charters—districts with union members per teacher one standard deviation above the state average had charter support shares that were 0.39 points lower on average. We find an even larger effect in our fixed effects model, suggesting that the 2004 referendum may have had a positive effect on membership. (The rise in membership is also apparent in Appendix Table 1).

[20] While many of these demographic variables are related, multicollinearity does not appear to be a substantial problem. The largest variance inflation factor is never above 7, below the usual rule that it should not exceed 10. We have also experimented with regressions that include subsets of the demographic variables, and do not find substantial changes in the basic pattern of our results.

[21] The 2000 election was unusual due to its mix of political support and lopsided financial backing. Both gubernatorial candidates supported the measure, and charter advocates outspent their opponents by more than $3 million. The most significant donor in that year was Paul Allen, a prominent Democrat.

Voter Support for Charter Schools across Precincts

Our district-level models in Table 2 are informative in that many policies and resource decisions affecting school quality—such as funding and teacher recruitment—are made by school districts. Other relevant factors, including district size, union representation, and existing public and private school choice are also appropriately measured at the district level.

The chief disadvantage of the district model, however, is its high level of aggregation. With only 296 school districts statewide, many are quite heterogeneous in their voter population, school characteristics, and student performance. In this section, we estimate equation (1) using data observed at the election precinct level for the six most populous counties in Washington. With observations on more than 4,300 precincts each year, we are able to provide a closer correspondence between election returns and local factors that are plausibly related to voter support for charter schools. In these models, we omit factors that are best measured or are only available at the district level, including local spending per student, existing choice, high school dropout rates, and union membership. We account for district-level factors common to precincts through the inclusion of school district fixed effects in all models (except in the model with precinct fixed effects, which subsume district effects). Thus, all of our estimates in Table 3 are based on variation across precincts within school districts.

As noted earlier, student achievement and other school characteristics for the precinct-level models are calculated as an average of the geographically closest school(s) serving 4th, 7th, and 10th grade. As a robustness check—and to allow for the possibility of measurement error in our identification of schools relevant to voters—we later experiment with broader measures of school quality, including averages of all schools within a 1, 3, and 5 mile radius of the precinct.

Table 3 reports estimated marginal effects from a grouped logit model estimated from precinct-level data; the format of this table mirrors that of Table 2. All standard errors have been adjusted for clustering at the school district level.

Effects of Student Achievement. In a parsimonious model with a small set of controls (Panel A), we again find that low local school performance on the WASL is positively related to voter support for charter schools. Conditional on school district fixed effects, the marginal effect is sizable and statistically significant in the 1996, 2000, and pooled models. The does not persist with precinct fixed effects, which is perhaps not surprising given the persistence of precinct-level measures of achievement over time.[22] However, student achievement is generally a weaker predictor of support for charter schools after controlling for other precinct characteristics. At its largest in 1996, a one standard deviation higher fraction of students not meeting state standards was associated with a 0.37 higher support share on average. Given the standard deviation in support across precincts was 5.4 points, this amounts to only 6.9 percent of the overall standard deviation.

There are several plausible explanations for our finding of weaker achievement effects on charter support in the precinct model. First, it may be that voters cast their votes based on perceived school quality in the district as opposed to their local school. Second, existing school choice options may make the geographically closest school less relevant to voters. In King County, for example, many districts have open enrollment policies that allow parents to choose schools outside of their traditional catchment areas. At the end of this section, we test this possibility by expanding our definition of local school quality. Third, district WASL performance could be correlated with other unobserved differences in schools (such as school safety) that are correlated with support for school choice, resulting in upward bias. These unobserved differences would need

[22] For example, the correlation between precinct-level achievement measures in 2000 and 2004 was 0.92. In contrast, the correlation at the district level was 0.66.

to be time varying, however, as the district-level model with fixed-effects continue to suggest a large role for school quality in voter support for school choice.

Effects of Local School Characteristics. Fewer measures of resources are available at the school level. Those we do have show consistent findings with the district models in some cases, but inconsistent findings in others. For example, we again find that voters near schools with higher-than-average teacher experience were less likely to support charter schools. However, the relationship between charter support and the fraction of teachers with MA degrees differs in sign (in this case it is positive).

Our precinct model suggests a role for within-school racial diversity that differs from the district-level models, in that racial diversity is positively associated with charter school support in all models. In our pooled and fixed effect estimates, precincts with neighborhood schools one standard deviation higher in racial diversity had charter support shares 0.34 points higher on average, about 6 percent of the overall standard deviation. This result is robust to the inclusion of school and population racial composition. Overall—as in the district level results—the role of other neighborhood demographic characteristics appears to be relatively mixed.

Although we do not have a comparable index of existing district choice, we include a measure of proximity to existing public schools: average distance to the nearest schools serving 4th, 7th, and 10th grade, in miles. Precincts located further from the existing set of schools are consistently more likely to support the charter referenda. Based on the pooled estimate, precincts falling one standard deviation above average in their distance to nearby schools had 0.29 point higher support shares, on average.

Effects of Politics. Finally, at the precinct level partisanship appears to have an even stronger association with support for the charter school ballot measures. The Republican vote share is strongly and positively related to charter school support in all models, with the effect growing markedly over time. At its largest in 2004, a one standard deviation higher Republican vote share is associated with a 4.7 point higher charter support share, more than 2/3 of the overall standard deviation. Based on our model with precinct fixed effects, this effect falls to 2.3 points, an effect that remains considerably larger than any other in these models. Our precinct results are also consistent with the district models with respect to teachers union influence, at least to the extent the percent locally employed in education is related to union representation. Based on the pooled model, precincts with a standard deviation higher share of employment in education (3.0) had 0.42 points lower support for the charter policy. Consistent with our district results, this effect grew modestly in importance as the WEA grew more involved in the campaign.[23] None of our estimates are significantly affected by the exclusion of voter turnout from the model.[24]

Alternative Measures of School Quality. Our comparatively weaker precinct-based estimates of the association between student achievement and support for charter schools could potentially reflect error in our measurement of school quality. To the extent student achievement in the geographically closest school is a poor approximation to the set of schools relevant to voters, our estimate of the predictive importance of student achievement will be biased downward. To address this possibility, we experimented with several alternative measures of achievement. A summary of

[23] We used the Census percent employed in education variable in the district model (in place of union members per FTE) and the effect sizes were nearly identical (and statistically significant).
[24] Voter turnout was consistently negatively associated with support for the charter referenda in all three elections, though this relationship weakened over time. Interestingly, precincts with a higher proportion of workers employed in education had consistently higher rates of voter turnout, suggesting that our union effect on vote outcomes may be partly explained via higher turnout.

this exercise is reported in Table 4, where each cell represents the results of a separate regression with the indicated achievement measure used in place of our geographically-closest-school.

The first three measures in Table 4 expand the definition of "geographically closest school" to an average of all schools within a 1, 3, or 5 mile radius of the precinct (or the nearest school, if none fall within this distance). Point estimates from the 1-mile measure are quite close to those found in Table 3. As the measure is expanded to include schools within a 3- and 5-mile radius, the coefficient estimates generally attenuate toward zero (see column (4)). This pattern not only alleviates concerns over the identification of relevant schools, but also provides greater confidence in our geographically closest school measure. A fourth uses the geographically closest school offering 7th grade, which may be subject to less measurement error because of these schools' larger catchment area.[25] Here again, the estimated marginal effects are very close to those reported in Table 3. Finally, a fifth measure returns to the geographically closest schools, but normalizes WASL achievement measure to have a mean of zero and standard deviation one, effectively placing schools in the statewide distribution of WASL performance. This measure may better represent *relative* performance in a given year, and reduces the effect of test inflation over time on the achievement measure. As seen in Table 4, the estimated marginal effects for this measure are almost identical to those in Table 3.

DISCUSSION

Charter school policies have been successfully adopted in forty of the fifty U.S. states, a notable accomplishment in light of the nation's long-standing rejection of tax-supported school vouchers. Those states with charter laws on the books continue to make allowances for further

[25] This approach follows Brunner, Imazeki, and Ross (forthcoming), who use a high school measure of achievement to reduce measurement error. Unfortunately, 10th grade WASL scores were not available in all years, preventing us from using a high school based measure.

expansion of charter schools, as the recent experience with the federal "Race to the Top" has demonstrated. While the rapid expansion of these policies has been impressive, little is known about the driving forces behind their adoption and support. The popular perception is that charter school growth is primarily a response to unmet demand for higher school quality. But other factors—school resources, community heterogeneity, and partisanship—may have shaped these policies as well.

The three ballot referenda that would have authorized charter schools in Washington State provide a unique opportunity to weigh the relative importance of school quality and other key factors in explaining voter support for charter schools. We examined both precinct and school district support for the charter referenda, allowing us to consider the complementary effects of neighborhood school quality and policies and contexts that vary primarily at the district level. While we recognize the need for caution in extrapolating from the Washington experience, we believe these results provide interesting insights into the factors that led some jurisdictions to support charter schools and others to reject them.

Our results suggest that school performance on standardized tests is an important factor in the support for charter schools. However, variation in academic performance between districts is more strongly predictive of charter support than variation within them. In our precinct-level models we found considerably smaller effects of test performance on charter school support. Variation in measures of school resources were often strongly related to charter support. For example, at the school district level, locally raised revenues for education were consistently negatively related to support for expanding school choice. Likewise, voters in districts or near schools with higher than average teacher experience were also much less likely to support charter schools.

Community composition appeared to be a somewhat less consistent predictor of voter support for charter schools. Urbanized areas supported charter schools in greater numbers,

although much of this support came from suburbs. Precincts with more college-educated adults were more likely to support the charter referenda, as did areas with more black residents. Heterogeneity in race and income did not have a consistent relationship with charter support, although within-school racial heterogeneity in enrollment was consistently related to greater support for charters at the neighborhood level.

Finally, politics was a formidable factor in deciding these referenda. Conditional on student achievement and community characteristics, the Republican vote share frequently had a much stronger relationship with charter school support than all other variables in our model—including achievement—particularly at the precinct level. This finding was all the more surprising in a state where the most publicly visible charter supporters were Democrats. Teachers union representation appears to have negatively impacted voter support for the charter referenda, particularly in 2004 when the WEA was most prominently involved in their opposition.

For state and federal policymakers considering the expansion of school choice through charter schools, the lesson from the Washington charter referenda may be the following: voters can and do see charter schools as one viable policy option for improving low-performing schools. However, school quality is but one—and perhaps not even the most important—factor affecting voter support for school choice. Voters in districts that have made large investments in their existing public schools—through greater spending or more experienced teachers, for example—may be wary of policies that threaten these investments. Our finding on the importance of partisanship suggests that, in the end, voters may view the expansion of school choice as more an issue of politics than a *prima facie* solution to improving schools.

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Figure 1 – Percent voting in favor of charter schools by school district, 2004

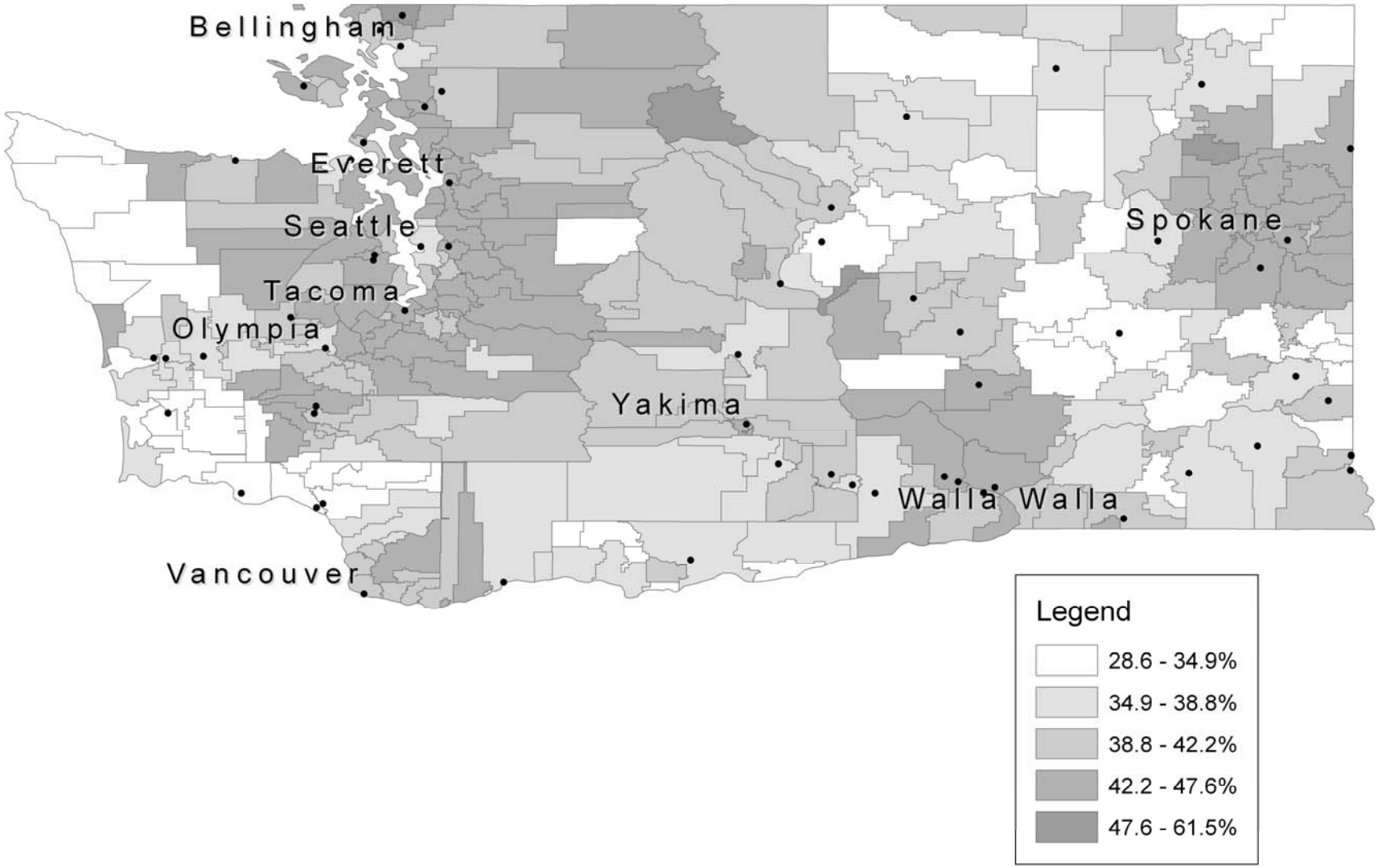

Figure 2 – Percent voting in favor of charter schools by precinct:
King, Pierce, Snohomish, and Kitsap counties, 2004

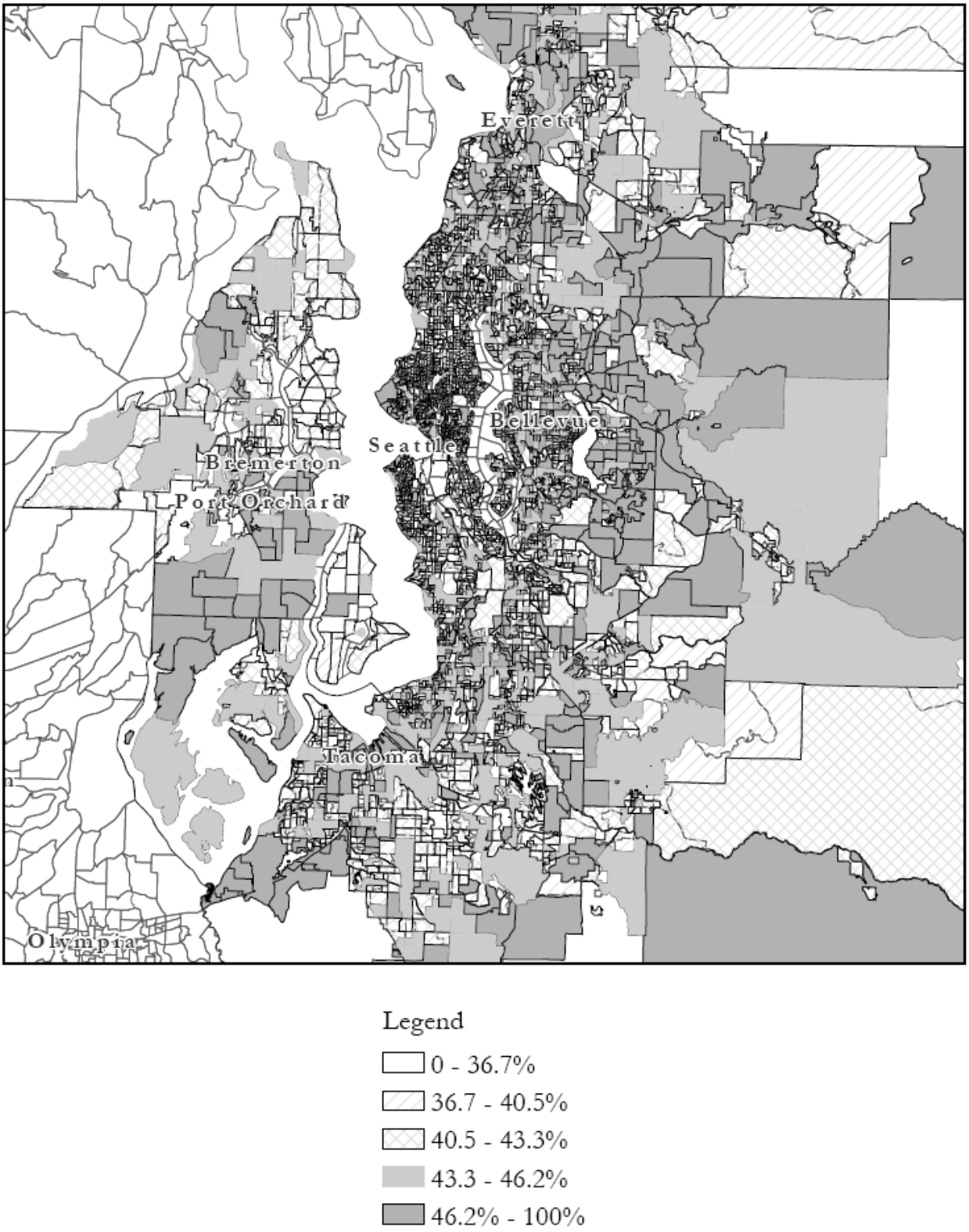

Table 1: School choice ballot measures in Washington, 1996 – 2004

Measure	Date	Brief Description	Total votes	% for	% against	% abstain	% turnout
Initiative 173	1996	Private school vouchers	2,181,714	35.5	64.5	3.3	74.7
Initiative 177	1996	Independent public schools	2,143,183	35.6	64.4	4.9	74.7
Initiative 729	2000	Charter schools	2,337,156	48.2	51.8	6.0	75.5
Referendum 55	2004	Charter schools	2,695,167	41.7	58.3	5.7	82.2

Source: Washington Secretary of State Department of Elections.

Notes: Turnout is measured as the percent of registered voters voting in the given election. Turnout in these three elections was estimated to be 56, 58, and 62 percent of the voting age population. Initiative 729 was an "initiative to the people," placed directly on the general election ballot after sufficient signatures were obtained and the Secretary of State certified the petition. Initiatives 173 and 177 were "initiatives to the legislature," which were first submitted to the state legislature; when not adopted as written they appeared on the ballot. Referendum 55 was a "referendum measure," a law passed by the legislature placed on the ballot as a result of voter petition.

Table 2: Grouped logit model of voter support for charter schools in Washington school districts
Marginal effects calculated at the mean, multiplied by 100
Standard errors in parentheses
Effect of one standard deviation increase in explanatory variable on approval share in brackets

	(1) 1996	(2) 2000	(3) 2004	(4) All years	(5) District fixed effects
(A) School performance only					
Percent not meeting WASL standards	0.0693***	0.0006	-0.0002	0.0124	0.0326
	(0.0170)	(0.0190)	(0.0170)	(0.0300)	(0.0280)
	[0.6578]	**[0.0062]**	**[-0.1961]**	**[0.1605]**	**[0.4233]**
Adj. R-squared	0.351	0.374	0.407	0.779	0.901
Observations	281	292	296	869	869
(B) Full model					
Percent not meeting WASL standards	0.1388***	0.0556	0.1194***	0.0937***	0.0944**
	(0.0330)	(0.0450)	(0.0378)	(0.0260)	(0.0420)
	[1.3105]	**[0.5472]**	**[1.0695]**	**[1.2121]**	**[1.2216]**
High school dropout rate	-0.0042	0.0506*	0.0660	0.0480*	0.0056
	(0.0350)	(0.0270)	(0.0510)	(0.0270)	(0.0300)
	[-0.0202]	**[0.3265]**	**[0.2404]**	**[0.2470]**	**[0.0288]**
Students per FTE teacher	0.0071	0.0373	0.1816	0.0628	-0.2472
	(0.1310)	(0.1510)	(0.1300)	(0.1110)	(0.1900)
	[0.0090]	**[0.0474]**	**[0.2535]**	**[0.0869]**	**[-0.3418]**
Mean teacher experience	-0.4032***	-0.3652***	-0.1276	-0.2619***	-0.3191**
	(0.1420)	(0.1380)	(0.1070)	(0.0970)	(0.1600)
	[-0.4637]	**[-0.3617]**	**[-0.1854]**	**[-0.3506]**	**[-0.4271]**
Percent of teachers with MA degree	-0.0521***	-0.1104***	-0.0580***	-0.0836***	-0.0237
	(0.0160)	(0.0220)	(0.0200)	(0.0170)	(0.0260)
	[-0.4788]	**[-0.9283]**	**[-0.4473]**	**[-0.8378]**	**[-0.2376]**
Enrollment racial diversity	-7.4965***	-0.5635	-4.9773**	-4.7371**	-8.6323**
	(2.7380)	(2.7070)	(2.1600)	(2.0300)	(3.5900)
	[-1.4265]	**[-0.1049]**	**[-0.9063]**	**[-0.8874]**	**[-1.6170]**
Existing choice: districts per student, 25 mile radius	0.0108	-1.0488***	-0.7657***	-0.1398	0.0205
	(0.0640)	(0.3050)	(0.2590)	(0.1810)	(0.0170)
	[0.0201]	**[-0.6248]**	**[-0.4567]**	**[-0.1566]**	**[0.0229]**
Local excess M&O per student (in thousands)	-2.4944***	-2.5052***	-0.1371	-2.1121***	-3.5115***
	(0.7360)	(0.6830)	(0.7400)	(0.5650)	(0.6320)
	[-0.9760]	**[-1.0276]**	**[-0.0662]**	**[-0.9687]**	**[-1.6105]**
Property wealth per	0.7439***	0.4887***	0.3053***	0.1760	-0.1222

student (in $100,000)	(0.1380)	(0.1530)	(0.0900)	(0. 1220)	(0. 1190)
	[1.9218]	**[1.4697]**	**[1.5086]**	**[0.6851]**	**[-0.4756]**
Republican vote share	1.7956***	0.3910	2.1095***	1.1592***	-0.0759
	(0.3070)	(0.3760)	(0.3400)	(0.3430)	(0.9130)
	[1.7491]	**[0.3809]**	**[2.0874]**	**[1.1345]**	**[-0.0743]**
Percent of K-12	0.0598	0.1503*	0.2082***	0.1750***	--
in private school	(0.0650)	(0.0770)	(0.0650)	(0.0570)	
	[0.2891]	**[0.7147]**	**[0.9787]**	**[0.8315]**	
Median household	0.1497***	0.0618	-0.0067	0.1056***	--
income	(0.0350)	(0.0410)	(0.0360)	(0.0340)	
	[1.6665]	**[0.6902]**	**[-0.0742]**	**[1.1766]**	
Percent of adults	-0.0384	0.1031**	0.0578	0.0325	--
with college degree	(0.0350)	(0.0440)	(0.0370)	(0.0390)	
	[-0.4992]	**[1.3341]**	**[0.7400]**	**[0.4190]**	
Percent of population	0.3618***	0.4294***	0.0759	0.2940***	--
black	(0.0960)	(0.1160)	(0.0950)	(0.0790)	
	[1.2245]	**[1.4326]**	**[0.2504]**	**[0.9798]**	
Percent of population	0.0001	-0.0190	-0.0350	-0.0005	--
Hispanic	(0.0350)	(0.0420)	(0.0350)	(0.0260)	
	[0.0001]	**[-0.1518]**	**[-0.2657]**	**[-0.0038]**	
Gini coefficient of	0.0876	-0.0949	0.0637	0.0637	--
income inequality	(0.0720)	(0.0820)	(0.0770)	(0.0860)	
	[0.3116]	**[-0.3407]**	**[0.2281]**	**[0.2277]**	
Union members	-0.1789	-1.0666	-3.6267**	-3.3329**	-5.0221**
per FTE teacher	(1.7230)	(1.9880)	(1.6930)	-(1.5710)	-(2.3110)
	[-0.0168]	**[-0.1003]**	**[-0.3928]**	**[-0.3351]**	**[-0.5050]**
Year effects	-	-	-	Yes	Yes
School district fixed effects	-	-	-	No	Yes
Adj. R-squared	0.72	0.71	0.66	0.87	0.92
Observations	237	244	248	729	729

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors in columns (4) and (5) clustered at district level.

Regression models in panels (A) also include a quadratic of school district population and three locale dummy variables (towns, urban fringe, and cities; rural districts are the omitted group); panel (B) includes these additional regressors, as well as the percent of households with children, percent of population age 65+, percent of population Asian or Pacific Islander, percent of population American Indian or Alaskan Native, percent of enrollment eligible for free lunch, and percent of enrollment in special education (for ease of presentation these estimates have been suppressed from the table). The fixed effects model in column (5) excludes all Census variables.

Table 3: Grouped logit model of voter support for charter schools: precincts in six largest counties
Marginal effects calculated at the mean, multiplied by 100
Standard errors in parentheses
Effect of one standard deviation increase in explanatory variable on approval share in brackets

	(1) 1996	(2) 2000	(3) 2004	(4) All years	(5) Precinct fixed effects
(A) School performance only					
Percent not meeting	0.0586***	0.0345***	0.0048	0.0295***	-0.0049
WASL standards	(0.0110)	(0.0146)	(0.0131)	(0.0116)	(0.0070)
	[0.6929]	**[0.3997]**	**[0.0519]**	**[0.4450]**	**[-0.0745]**
(B) Full model					
Percent not meeting	0.0315***	0.0028	0.0131	0.0122	-0.0022
WASL standards	(0.0085)	(0.0129)	(0.0106)	(0.0083)	(0.0070)
	[0.3723]	**[0.0323]**	**[0.1404]**	**[0.1793]**	**[-0.0338]**
Students per FTE	0.0258	-0.0026	0.0350	0.0071	0.0148
Teacher	(0.0336)	(0.0043)	(0.0356)	(0.0077)	(0.0113)
	[0.0654]	**[-0.0163]**	**[0.0601]**	**[0.0277]**	**[0.0433]**
Mean teacher	-0.0667	-0.1349**	-0.2378**	-0.1954***	-0.0606**
Experience	(0.0740)	(0.0734)	(0.0944)	(0.0574)	(0.0289)
	[-0.1320]	**[-0.2403]**	**[-0.4037]**	**[-0.3704]**	**[-0.1112]**
Percent of teachers	0.0024	0.0450***	0.0640**	0.0326**	0.0512***
with MA degree	(0.0111)	(0.0174)	(0.0299)	(0.0151)	(0.0066)
	[0.0291]	**[0.4135]**	**[0.5231]**	**[0.3694]**	**[0.5660]**
Enrollment racial diversity	1.3417	3.7307**	2.5458	1.8679***	1.8106**
	(1.2605)	(1.6201)	(1.8583)	(0.9883)	(0.8304)
	[0.2518]	**[0.6640]**	**[0.4380]**	**[0.3362]**	**[0.3333]**
Average distance to nearest	0.4755***	0.3748**	0.3968***	0.4594***	-
4th, 7th, and 10th grade school	(0.1096)	(0.1562)	(0.0954)	(0.0919)	
	[0.3159]	**[0.2122]**	**[0.2638]**	**[0.2917]**	
Republican vote share	3.6725***	3.5759***	4.7885***	3.9328***	2.2015***
	(0.2133)	(0.4635)	(0.7415)	(0.4237)	(0.1773)
	[3.4895]	**[3.4648]**	**[4.6976]**	**[3.8073]**	**[2.2873]**
Percent of K-12	0.0078	0.0291***	0.0184***	0.0197***	-
in private school	(0.0074)	(0.0067)	(0.0057)	(0.0060)	
	[0.0883]	**[0.3245]**	**[0.1969]**	**[0.2174]**	
Median household	-0.0289***	-0.0147	-0.0139	-0.0179*	-
Income	(0.0093)	(0.0127)	(0.0091)	(0.0098)	
	[-0.6008]	**[-0.3048]**	**[-0.2872]**	**[-0.3708]**	

Percent of adults with college degree	0.0055 (0.0126) **[0.1001]**	0.0564*** (0.0130) **[1.0158]**	0.0469*** (0.0115) **[0.8286]**	0.0384*** (0.0111) **[0.6886]**	-
Percent of population black	0.0310 (0.0296) **[0.1716]**	0.1565*** (0.0353) **[0.8687]**	0.0942*** (0.0369) **[0.5263]**	0.0932*** (0.0317) **[0.5183]**	-
Percent of population Hispanic	0.2078*** (0.0223) **[0.6637]**	0.2291*** (0.0253) **[0.7058]**	0.2133*** (0.0249) **[0.6469]**	0.2239*** (0.0215) **[0.6934]**	-
Percent of employed adults in education	-0.1273*** (0.0226) **[-0.3882]**	-0.1298*** (0.0273) **[-0.3941]**	-0.1522*** (0.0192) **[-0.4395]**	-0.1395*** (0.0204) **[-0.4162]**	-
Voter turnout	-0.0160 (0.0110) **[-0.2813]**	-0.0069 (0.0045) **[-0.1264]**	-0.0025 (0.0034) **[-0.0497]**	-0.0023 (0.0051) **[-0.0443]**	-
School district fixed effects	Yes	Yes	Yes	Yes	No
Year effects	-	-	-	Yes	Yes
Precinct fixed effects	-	-	-	No	Yes
Observations	4,740	4,882	4,256	13,878	13,082
Adj. R-squared	0.417	0.459	0.490	0.686	0.818

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Regression models in panel (A) also include a quadratic of school district population; panel (B) includes these variables as well as the percent of households with children, percent of population age 65+, percent of population Asian or Pacific Islander, and percent of population American Indian or Alaskan Native (for ease of presentation these estimates have been suppressed from the table). The fixed effects model in column (5) excludes all Census variables.

Table 4: Alternative measures of school performance
Marginal effects calculated at the mean, multiplied by 100
Standard errors in parentheses
Effect of one standard deviation increase in explanatory variable on approval share in brackets

	(1) 1996	(2) 2000	(3) 2004	(4) All years	(5) Precinct fixed effects
(a) Percent not meeting WASL standards (schools in 1-mile radius)	0.0393***	0.0139	0.0120	0.0139**	-0.00021*
	(0.0115)	(0.0121)	(0.0110)	(0.0065)	(0.00012)
	[0.4275]	**[0.1566]**	**[0.1258]**	**[0.1979]**	**[-0.00302]**
(b) Percent not meeting WASL standards (schools in 3-mile radius)	0.0488***	0.0208	-0.0013	0.0090	-0.00012**
	(0.0173)	(0.0160)	(0.0154)	(0.0086)	(0.00006)
	[0.4299]	**[0.2005]**	**[-0.0112]**	**[0.1159]**	**[-0.00157]**
(c) Percent not meeting WASL standards (schools in 5-mile radius)	0.0410*	0.0205	0.0079	0.0018	<-0.00001***
	(0.0247)	(0.0103)	(0.0201)	(0.0109)	(<0.00001)
	[0.3063]	**[0.1711]**	**[0.0580]**	**[0.0215]**	**[-0.00005]**
(d) Percent not meeting WASL standards (closest 7th grade)	0.0318***	-0.0040	0.0135*	0.0138***	0.00899
	(0.0088)	(0.0078)	(0.0076)	(0.0043)	(0.00558)
	[0.3773]	**[-0.0529]**	**[0.1866]**	**[0.2311]**	**[0.00152]**
(e) School z-score for percent not meeting WASL standards	0.4905***	0.0247	0.2461*	0.2636***	0.00903
	(0.1241)	(0.1489)	(0.1371)	(0.0777)	(0.01642)
	[0.4093]	**[0.0195]**	**[0.1833]**	**[0.2075]**	**[0.00752]**

Notes: *** p<0.01, ** p<0.05, * p<0.1. Each cell represents a separate regression, corresponding to the full models estimated in panel (B) of Table 3. In each case, the "percent not meeting WASL standards" variable has been replaced by an alternate measure of school performance.

Appendix Table 1: Means, Washington school districts and precincts in six largest counties

	School districts			Precincts		
	1996	2000	2004	1996	2000	2004
N	281	292	296	4,888	4,929	4,345
Percent in favor of charter measure	35.6	48.2	41.7	36.4	49.5	42.2
Republican vote share (president)	42.4	47.0	46.4	40.0	42.9	42.9
Republican vote share (governor)	41.7	40.5	50.0	39.0	37.9	47.2
School district or closest school(s):						
Percent not meeting WASL standards	62.4	53.1	40.7	61.0	50.9	38.5
High school dropout rate	8.5	8.6	6.2	-	-	4.1
Enrollment percent white	76.7	74.6	71.7	75.3	74.1	71.4
Enrollment percent black	6.2	6.3	6.7	8.1	7.8	8.2
Enrollment percent Hispanic	6.3	7.8	9.8	4.3	5.1	7.0
Enrollment percent Asian/Pacific Islander	8.4	8.7	9.2	10.4	11.0	11.3
Enrollment diversity index	0.342	0.369	0.405	0.353	0.373	0.406
Enrollment percent special education	9.3	11.7	11.9	-	-	12.8
Enrollment percent free lunch eligible	18.8	24.9	25.2	-	29.9	34.2
Students per FTE teacher	20.4	20.0	19.4	20.6	20.7	20.2
Average years of teacher experience	13.6	13.2	13.1	11.7	11.6	12.8
Percent of teachers with a MA or higher	45.6	51.3	59.0	44.3	51.9	58.3
Union members per FTE teacher	1.1	1.1	1.2	-	-	-
Districts per thousand students (25 mi radius)	0.352	0.312	0.297	-	-	-
Excess M&O revenues per student	980	1,037	1,325	-	-	-
Property valuation per student (thousands)	423.5	476.9	653.1	-	-	-
School district or precinct (Census):						
Median household income (thousands)	47.9	47.7	47.9	57.5	57.5	57.6
Income inequality (Gini coefficient x 100)	37.0	36.9	36.8	-	-	-
Percent in urbanized area	82.3	81.3	81.1	89.9	89.2	88.5
Percent age 25+ with a college degree	28.8	28.7	28.6	33.7	33.5	33.2
Percent households with children	33.3	33.4	33.5	33.1	33.5	33.8
Percent age 65+	11.5	11.5	11.4	11.1	11.0	10.9
Percent K-12 enrollment in private school	10.0	9.9	9.9	23.1	23.0	22.8
Percent employed in education	5.7	5.8	5.8	5.3	5.3	5.3
Median housing value (thousands)	175.7	174.0	174.1	221.5	219.0	218.5
Population percent white	79.5	79.9	80.3	83.1	83.4	83.5
Population percent black	3.1	3.0	2.9	3.4	3.4	3.4
Population percent Hispanic	6.6	6.5	6.3	4.2	4.1	4.1
Population percent Asian/Pacific Islander	6.1	5.9	5.8	7.0	6.9	6.8
Population percent American Indian	1.3	1.3	1.3	1.0	1.0	1.0

Notes: observations weighted by district or precinct votes on charter school initiative. All Census characteristics based on 2000 Census counts.