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Effects of Charter School Competition on District School Budgeting Decisions: Experimental Evidence from Texas

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We randomly assign surveys to district school leaders in Texas in the 2019-20 school year to determine the effects of anticipated competition from public charter schools on reported desire for budget autonomy and expectations about future school-level spending decisions. We find the first experimental evidence to suggest that anticipated charter school competition has large negative effects on school leaders' reported spending on certain categories of support staff, and reduces, or has no effect on, the reported desire for more school-level budget autonomy. The negative effects on spending for support staff tend to be larger for school leaders with more experience.

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Abstract

The effects of competition from public charter schools on district school budget decisions are theoretically ambiguous. Competitive pressures could increase desired budget autonomy since they give district school leaders more flexibility; however, competition could decrease desired budget autonomy if district school leaders are generally risk-averse or if they believe that central office staff are in better positions to make school-level budget decisions. Competitive pressures could also increase or decrease changes in school-level spending depending on school leaders' beliefs about how to efficiently allocate resources.

We randomly assign surveys to district school leaders in Texas in the 2019-20 school year to determine the effects of anticipated competition from public charter schools on reported desire for budget autonomy and expectations about future school-level spending decisions. We find the first experimental evidence to suggest that anticipated charter school competition has large negative effects on school leaders' reported spending on certain categories of support staff, and reduces, or has no effect on, the reported desire for more school-level budget autonomy. The negative effects on spending for support staff tend to be larger for school leaders with more experience.

Keywords: charter schools; economics of education; education finance; school autonomy

JEL Codes: I28; I20

Introduction

The effects of changes in spending in district-run schools on student-level outcomes have been widely debated (e.g. Baker, 2016; Hanushek, 1994; Hanushek, Rivkin, & Taylor, 1996; Hedges, 1994; Jackson, 2018). Eric Hanushek (1997) summarized around 400 studies linking school funding to student performance and concluded that "there is not a strong or consistent relationship between student performance and school resources, at least after variations in family inputs are taken into account." In a more recent review of the literature, Jackson (2018) found that 25 of 33 quasi-experimental studies detected statistically significant positive effects of spending increases on student outcomes (e.g. Hyman, 2017; Jackson, Johnson, & Persico, 2015; Lafortune, Rothstein, & Schanzenbach, 2018), while the remaining 8 evaluations did not find statistically significant effects overall (e.g. Cellini, Ferreira, & Rothstein, 2010; Hoxby, 2001; Martorell, Stange, & McFarlin, 2016).

Although the evidence is generally mixed on the relationship between spending and outcomes, the strength of that relationship differs by context and design. Jackson's (2018) most recent review of the evidence concluded that "researchers should now focus on understanding what kinds of spending increases matter the most." All else equal, by definition, more-efficient allocations of educational resources should be more likely to lead to improvements in student outcomes. As Baker (2018) points out, "money spent wisely matters in terms of student learning." In theory, school leaders with the autonomy, power, and incentives to spend scarce educational resources wisely will be more successful in terms of translating additional dollars into school-level improvements.

It is possible that some district-run school systems have weak incentives to spend education dollars efficiently because of the monopoly power created by residential assignment

(Friedman, 1955). Some economists would argue that competitive pressures generated through the introduction of new public charter schools would decrease the monopoly power held by residentially assigned public schools (Chubb & Moe, 1988; Friedman, 1997). In other words, competition from new public charter schools could strengthen the incentives for school leaders to spend education dollars wisely (DeAngelis, 2019; Hoxby, 2007). If additional competitive pressures alter the incentives to spend education dollars wisely, then they would likely affect the budgeting decisions made by leaders of district-run schools.

However, the effect of competition from new public charter schools on school-level spending decisions is theoretically ambiguous. More competitive pressures could lead to increases in expected spending levels for certain categories if the school leaders believe that allocating more resources towards those particular categories will help them compete effectively. On the other hand, competitive pressures could reduce expected spending levels, in general, because uncertainty generally produces incentives to save resources (Guiso, Jappelli, & Terlizzese, 1992; Sandmo, 1970). Further, competitive pressures could reduce expected spending levels for certain categories if the school leader believes those reductions would allow their school to compete more effectively. School leaders may choose to reduce the amount of resources allocated to particular categories of spending if they believe those resources would create a better experience for their students if they were allocated elsewhere, invested, or saved for future expenditures. It is also unclear which categories of spending would be increased, if at all, in the face of more competitive pressures in the K-12 education system. However, because monopoly power could theoretically lead to bloat in administration, support staff, and non-classroom spending, we might expect competition to reduce spending for these categories and

cause commensurate increases for classroom spending. (Greene, Kisida, & Mills, 2010; Niskanen, 1971; Scafidi, 2012; Scafidi, 2017).

The effect of competition from new public charter schools on the desire for budgetary autonomy is also theoretically ambiguous. More competition could increase the likelihood that leaders of district-run schools desire budgetary autonomy if they view the additional autonomy as a means to help compete with new public charter schools effectively. On the other hand, additional competition could decrease the likelihood that leaders of district-run school leaders desire additional budgetary autonomy if they are risk-averse (Bowen et al., 2015; Dohmen & Falk, 2010; Dohmen et al., 2011), if they do not wish to accept additional responsibility, or if they believe that central office staff are in the best position to make competitive school-level budget decisions. Based on these theories, this evaluation empirically examines the three following research hypotheses:

Hypothesis 1: Anticipated competition from new public charter schools will affect desired budgetary autonomy;

Hypothesis 2: Anticipated competition from new public charter schools will affect expected changes in school-level spending; and

Hypothesis 3: Anticipated competition from new public charter schools will have larger effects on budget decisions for more-experienced school leaders.

We find the first experimental evidence to suggest that anticipated charter school competition has large negative effects on school leaders' reported spending on certain categories of support staff, and reduces, or has no effect on, the reported desire for more school-level budget autonomy. The negative effects on spending for support staff tend to be larger for school leaders with more experience. These findings tend to support our three hypotheses. In the next

section, we review the literature on the competitive effects of public and private school choice in the United States. We then discuss our data, methods, and empirical results. Finally, we conclude with a discussion of the results, their limitations, the need for more research, and potential policy implications.

Literature Review

School choice programs could theoretically harm or improve outcomes for the students who remain in their residentially assigned public schools. Because public and private school choice initiatives reduce the costs associated with exiting residentially assigned schools, and because school-level funding is partially determined by student enrollment counts, school choice could reduce the total amount of financial resources left in the district-run public schools. A reduction in total financial resources could harm educational outcomes for students who do not have the opportunities, for whatever reason, to exit their district-run schools. Similarly, if the most motivated students take advantage of school choice options, the least motivated students might be negatively affected by a reduction in opportunities to interact with more-engaged peers. However, school choice programs could improve outcomes for the students remaining in residentially assigned public schools by increasing competitive pressures that lead to improvement in district school operations (e.g. Chakrabarti, 2008; Egalite & Mills, 2019; Figlio & Hart, 2014). In addition, the residentially assigned public schools might financially benefit on a per pupil basis as a result of losing students to school choice programs because student enrollment determines less than 100 percent of education funding (Roza & Edmonds, 2014).

Six reviews of the evidence have summarized the competitive effects of public and private school choice in the United States. Each of these reviews has concluded that school choice competition generally leads to slightly positive effects, or no effects, on academic

outcomes overall for the children who remain in district-run public schools. Egalite (2013) performed a systematic review of the evidence and found that 20 of 21 studies on the topic indicate that private school choice competition improves outcomes in district-run public schools. In their review of the evidence, EdChoice (2019) similarly found that 24 of 26 studies on the topic indicated private school choice competition had statistically significant positive effects on academic outcomes for students in district-run public schools. Most recently, Jabbar et al. (2019) performed a systematic review and meta-analysis on the topic and "found small positive effects of competition on student achievement" overall. Jabbar et al. (2019) also found that the positive competitive effects tended to be larger for private school choice programs than for nearby public charter schools. Similarly, Epple, Romano, and Urquiola (2017) found that "evidence from both small-scale and large-scale programs suggests that competition induced by vouchers leads public schools to improve." Two other reviews also found that these studies tend to reveal effects that are either slightly positive or no different from zero (Carnoy, 2017; Egalite & Wolf, 2016).

While there is an abundance of empirical literature on the topic, the existing studies are limited in two important ways. First, although Rouse et al. (2013) found that competitive pressures from private school choice in Florida changed instructional practices, no studies have examined how school choice competition affects school-level spending decisions. There is some research examining how spending decisions change in districts and states practicing weighted student funding (WSF), which is a funding method that gives school leaders more budgetary autonomy and that generally includes intra-district open enrollment (Chambers, et al, 2008. Roza, et al, 2017). But this research doesn't specifically examine the effects of school competition on spending patterns. Second, none of the existing studies are able to use random assignment methodology because competitive pressures have never been randomly assigned to

individual district-run public schools. The current evaluation begins to fill this vital gap in the literature since it is the first study to experimentally examine how competitive pressures affect district-run public schools. In particular, we survey district-run school leaders in Texas to examine how expectations about competition from public charter schools affects hypothetical school-level spending decisions. We discuss our specific data and methods in the next two sections.

Data

We obtained a complete list of 9,572 public schools in Texas from the school directory at the Texas Education Association website in the fall of 2019.[1] We also used the Texas Education Agency website to access publicly available data on student demographics at the school level from the 2017-18 school year.[2] We randomly selected 2,325 public schools (24 percent) from the complete list. Using the randomly selected subsample, we randomly assigned 1,155 schools (49.7 percent) to the control group and 1,170 schools (50.3 percent) to the treatment group. Surveys were first sent to each school's listed email on September 5, 2019 and 278 of the emails bounced, meaning valid contact information was available for 2,047 of the public schools (88 percent) in the subsample. The final survey reminder was sent on November 4, 2019. We offered to give the first 465 respondents a ten-dollar gift card for their time. The full survey instrument can be found in Appendix B.

We received 155 responses from the 2,047 schools, so our overall response rate was 7.6 percent. Our response rate is within the expected range of 1 to 20 percent published by Practical

[1] AskTED. Texas Education Agency. Retrieved from http://tea4avholly.tea.state.tx.us/TEA.AskTED.Web/Forms/DownloadFile.aspx
[2] Student Enrollment Reports. Texas Education Agency. Retrieved from https://rptsvr1.tea.texas.gov/adhocrpt/adste.html

Surveys.[3] Another survey published by The Hope Center at Temple University in 2019, for example, had a response rate of 5.8 percent.[4] Other recent studies using emails to survey public and private school leaders in the United States find similar response rates (DeAngelis, Burke, & Wolf, 2019a; DeAngelis, Burke, & Wolf, 2019b; DeAngelis & Burke, 2019).

Response rates, start rates, and completion rates did not differ between experimental groups, suggesting random assignment was effective and that subsequent analyses are internally valid (Table 1). Equivalence on most observable characteristics between treatment and control groups also generally suggests that random assignment was effective (Table 2). Out of the 56 observable characteristics listed, only two statistically significant differences and two marginally significant differences were detected between the two groups. We can be fairly confident that these differences are Type I errors since false positives occur about 10 percent of the time. We control for each of these differences in our main analyses. It is possible for treatment and control groups to differ on unobservable characteristics if random assignment was not effective, but the evidence presented in Table 1 and Table 2 suggests the study is internally valid.

Table 1: Response Rates by Experimental Group

Distribution	Control	Treatment	Overall
Assigned	1,155	1,170	2,325
Emailed	1,005	1,042	2,047
Surveys Started	91	107	198
Responded	72	83	155
Start Rate	9.05%	10.27%	9.67%
Response Rate	7.16%	7.97%	7.57%
Completion Rate	79.12%	77.57%	78.28%

Notes: + p<0.10, *p<0.05, ** p<0.01, *** p<0.001. Statistical significance was calculated using a chi-squared test. "Emailed" excludes observations with duplicate emails and observations with emails that bounced. "Start Rate" equals "Surveys Started" divided by "Emailed." "Response Rate" equals "Responded" divided by "Emailed." "Completion Rate" equals "Responded" divided by "Surveys Started."

[3] Typical Response Rates. Practical Surveys. Retrieved from https://www.practicalsurveys.com/respondents/typicalresponserates.php

[4] College and University Basic Needs Insecurity: A National #RealCollege Survey Report. The Hope Center. Retrieved from https://hope4college.com/wp-content/uploads/2019/04/HOPE_realcollege_National_report_digital.pdf

Table 2: Equivalence on Observables

Variable	Control	Treatment	Variable	Control	Treatment
GT (%)	7.38	8.22	Stressed with Job	1.79	1.73
CTE (%)	29.24	24.35	Not Happy with Job	2.72	2.49
LEP (%)	11.28	15.51+	Satisfied with Job	4.55	4.38
ESL (%)	8.18	8.26	More Years Desired	5.49	5.68
Econ (%)	50.93	60.10*	Fighting	2.44	2.39
Title One (%)	57.30	73.36*	Drugs	1.83	1.66
SPED (%)	10.04	9.69	Racial Tensions	1.71	1.78
Black (%)	11.12	12.90	Theft / Robbery	1.96	1.91
Hispanic (%)	41.27	45.98	Vandalism	1.80	1.80
White (%)	41.24	35.83	Bullying	2.45	2.45
Female (%)	48.26	48.27	Gang Activity	1.18	1.28
Enrollment	792.93	720.99	Response Time (Numeric)	4371.67	43734.80
Charter School	0.04	0.01	Response Latitude	31.22	31.67
Meets (%)	50.11+	46.10	Response Longitude	-96.93	-96.84
Masters (%)	22.13	19.71	Duration (Seconds)	11345.03	6144.86
Years of Experience	12.48	11.42	Principal	0.92	0.91
Open House	2.93	2.89	Female Respondent	0.59	0.59
Volunteer	1.41	1.38	White Respondent	0.83	0.83
Parent Budget Involvement	1.18	1.10	Has Doctorate	0.20	0.17
Performance Standards	3.42	3.34	Age 45 to 54	0.59	0.48
Curriculum	3.04	2.90	Harris County	0.08	0.12
Evaluating Teachers	3.93	3.86	Bexar County	0.03	0.06
Hiring / Firing Teachers	3.79	3.86	Dallas County	0.01	0.06
Discipline Policy	3.66	3.52	Houston	0.10	0.07
Budget Policy	3.54	3.62	San Antonio	0.01	0.05
Budget Understanding	4.17	4.35	Elementary School	0.39	0.51
Percent Dollars Controlled	2.44	2.60	Middle School	0.26	0.17
Zipcode	77040.43	77025.59	High School	0.26	0.24

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. T-tests are used to calculate statistically significant differences between experimental groups. “SPED” is “Special Education.” “Econ” is “Economically Disadvantaged.” “ESL” is “English as a Second Language.” “LEP” is “Limited English Proficiency.” “GT” is “Gifted and Talented.” “CTE” is “Career and Technical Education.” “Meets” is the percent of students meeting grade level or above on all subjects on STAAR. “Masters” is the percent of students mastering grade level on all subjects on STAAR.

While we find strong evidence of internal validity, it is possible for a relatively low response rate to lead to weak external validity. Because we have access to the full directory of public schools in Texas, we are able to test the representativeness of our sample by comparing survey respondents to nonrespondents on observable characteristics. In general, we find that our sample is representative of the population of public schools in Texas. However, we find statistically significant differences between respondents and nonrespondents on 11 of the 30 observable characteristics listed in Table 3. Respondents are more likely than nonrespondents to lead a middle school or a high school, less likely to lead a public charter school, have higher enrollments, and have lower proportions of students identified as Hispanic, Limited English Proficiency, Title One, and economically disadvantaged. While these differences tend to suggest respondents' schools serve more advantaged students than nonrespondents' schools, the two groups do not differ on characteristics such as student achievement or the proportions of students identified as gifted or requiring special services.

Descriptive statistics of the dependent variables can be found in Table 4. Public school leaders in Texas generally prefer to have more control over their school budgets. When asked whether they would like to have more control over the school budget in the following school year, 57 percent of the school leaders responded "probably yes" or "definitely yes," and 26 percent responded "definitely yes." On the other hand, only 2 percent of the sample responded "definitely not." If more motivated school leaders selected to take the survey, and higher levels of motivation are positively associated with desired autonomy, the sample's proportion of affirmative responses might be upper bounds of the population's. Similar survey research tends to suggest that school leaders generally prefer having more budgetary autonomy. (e.g. Frank, 2012; Moon, 2018).

When asked how they would allocate resources when given more budget autonomy, assuming the budget would be roughly the same as the current year, school leaders tended to report that they would increase spending levels in each of the 17 categories (Table 4).[5] On average, leaders reported that they would increase spending by 5.84 percent across the 17 categories. School leaders reported the highest increases for "technology and equipment" (10.07 percent), "enrichment programs" (9.60 percent), and "classroom teachers" (9.19 percent). School leaders reported the lowest increases for "athletics and extracurriculars" (2.07 percent), "school supplies and textbooks" (2.07 percent), and "transportation" (3.13 percent). Notably, because these responses were bounded between a 20 percent reduction and a 20 percent increase, they are likely less dispersed than the school leaders' actual preferences.

Public school leaders in Texas perceive having high degrees of budgetary influence and budgetary understanding (Table 5), although other recent research suggests school leaders actually tend to control relatively small shares of their schools' operating budgets (Levin et al., 2019). In our sample, 93 percent of the public school leaders reported having a "major influence" or a "moderate influence" over their school budgets, and 66 percent reported having a "major influence" over their school budgets. Eighty percent of the sample reported "a great deal" or "a lot" of understanding with their school budgets, and 52 percent reported "a great deal" of understanding with their school budgets.

[5] In reality, it would not be possible for school leaders to increase spending on every category, as observed in the hypothetical, if budgets remained the same.

Table 3: Representativeness of Respondents

Variable	Respondents	Population	Variable	Respondents	Population
Elementary School (%)	45.16	53.26*	Title One (%)	65.77	75.53**
Middle School (%)	21.29*	15.44	LEP (%)	13.54	19.93***
Junior High School (%)	3.87	2.77	ESL (%)	8.26	9.13
High School (%)	25.81*	18.13	Black (%)	12.11	13.81
Elementary / Secondary (%)	4.52+	8.36	Hispanic (%)	43.80	51.74***
Meets or Above (%)	48.07	46.79	White (%)	38.31*	32.89
Masters (%)	20.84	20.75	Houston (%)	8.39	8.88
School Enrollment	753.14**	641.59	Dallas (%)	1.29	4.26+
District Enrollment	28417.62	32670.42	Fort Worth (%)	0.65	1.33
Female (%)	48.28	48.52	San Antonio (%)	3.23	4.75
SPED (%)	9.85	9.83	El Paso (%)	0.65	2.24
GT (%)	7.84	7.04	Corpus Christi (%)	1.94	1.16
CTE (%)	27.26**	19.77	Harris County (%)	10.32	13.06
Econ (%)	55.85	62.55**	Bexar County (%)	4.52	4.89
Per Pupil Revenues ($)	7334.48	9059.34	Charter (%)	2.58	7.58*

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. T-tests are used to calculate statistically significant differences between groups. "SPED" is "Special Education." "Econ" is "Economically Disadvantaged." "ESL" is "English as a Second Language." "LEP" is "Limited English Proficiency." "GT" is "Gifted and Talented." "CTE" is "Career and Technical Education." "Meets" is the percent of students meeting grade level or above on all subjects on STAAR. "Masters" is the percent of students mastering grade level on all subjects on STAAR.

Table 4: Descriptive Statistics of Dependent Variables

Variables	Mean	Standard Deviation	Minimum	Maximum
More Budget Control Desired				
Definitely Yes	0.26	0.44	0	1
Probably Yes	0.31	0.46	0	1
Might or Might Not	0.24	0.43	0	1
Probably Not	0.18	0.38	0	1
Definitely Not	0.02	0.14	0	1
Expected Spending Change				
Classroom Teachers	9.19	8.10	-20	20
Counselors	6.09	7.57	-20	20
Class Aides	8.20	7.78	-20	20
Security Guards	3.74	7.04	-20	20
Administrators	4.44	6.80	-10	20
Librarians	3.29	6.62	-20	20
Maintenance / Janitors	6.04	8.04	-20	20
Instructional Leaders	7.79	7.52	-10	20
School Supplies / Textbooks	2.07	8.38	-20	20
Technology / Equipment	10.07	8.71	-10	20
Food	3.47	6.85	-20	20
Athletics / Extracurriculars	2.07	6.48	-10	20
Transportation	3.13	6.46	-10	20
Facilities	8.68	8.62	-20	20
Enrichment Programs	9.60	7.74	-10	20
After School Programs	6.73	7.55	-10	20
Summer Programs	5.53	7.38	-10	20
Average	5.84	3.97	-3.53	17.65

Notes: Sample size is 152.

Table 5: Descriptive Statistics of Selected Independent Variables

Variables	Mean	Standard Deviation	Minimum	Maximum
Students				
GT (%)	7.83	6.46	0.00	45.55
CTE (%)	26.62	37.23	0.00	100.00
LEP (%)	13.54	14.46	0.00	61.53
ESL (%)	8.22	8.68	0.00	49.15
Econ (%)	55.84	24.26	1.89	97.59
SPED (%)	9.85	3.23	1.35	17.85
Black (%)	12.08	13.77	0.00	81.54
Hispanic (%)	43.79	25.33	3.75	99.17
Female (%)	48.27	2.84	28.47	55.11
Enrollment	754.41	552.52	78.00	3193.00
School				
Meets (%)	47.96	13.91	18.00	90.00
Masters (%)	20.83	10.27	4.00	65.00
Charter	0.03	0.16	0.00	1.00
Elementary School	0.45	0.50	0.00	1.00
Middle School	0.21	0.41	0.00	1.00
High School	0.25	0.44	0.00	1.00
Respondent				
Years as School Leader	11.91	5.72	2.00	30.00
Principal	0.92	0.28	0.00	1.00
Doctorate	0.18	0.39	0.00	1.00
Female	0.59	0.49	0.00	1.00
White	0.83	0.38	0.00	1.00
Treatment Group	0.54	0.50	0.00	1.00
Budget Understanding				
A Great Deal	0.52	0.50	0.00	1.00
A Lot	0.28	0.45	0.00	1.00
A Moderate Amount	0.15	0.35	0.00	1.00
A Little	0.05	0.21	0.00	1.00
None at All	0.01	0.08	0.00	1.00
Budget Influence				
Major Influence	0.66	0.48	0.00	1.00
Moderate Influence	0.27	0.45	0.00	1.00
Minor Influence	0.07	0.25	0.00	1.00
No Influence	0.01	0.08	0.00	1.00

Notes: Sample size is 155.

Methods

To evaluate the effect of expected charter school competition on the anticipated desire for more control over the school budget, we employ an ordered probit regression of the form:

$$Pr(Budget\_Control\_Desired_i) = \beta_0 + \beta_1 Competition_i + X_i + \varepsilon_i$$

Where the dependent variable of interest, *Budget_Control_Desired*, is a five-point Likert-scale response item to the question "Would you like to have more control over your school budget next year?" ranging from "definitely not" to "definitely yes." The independent variable of interest, *Competition*, is an indicator variable taking on the value of one if the question has a randomly assigned note saying "Imagine that a new charter school is expected to open in your district next year" and zero if the randomly assigned note says "Imagine that no new schools are expected to open in your district next year." *X* is a vector of control variables capturing student (percent gifted and talented, percent economically disadvantaged, percent Title One, percent female, percent English as a second language, percent limited English proficiency, percent career and technical education, percent white, percent black, percent Hispanic, percent special education, percent meets grade level or above on STAAR, percent masters grade level on STAAR), school (district enrollment, school enrollment, school level, per pupil revenues, zipcode, reported school safety problems, reported parental engagement, and whether the observation is a public charter school), and respondent (gender, race/ethnicity, highest education received, latitude of response, longitude of response, duration of response, position, years of experience, reported influence on school policies, age, and reported job satisfaction) characteristics. ε_i is the random error term.

The expected effect of anticipated competition from public charter schools is theoretically ambiguous. The leader of the district-run public school may prefer to have more

budget autonomy when presented with competitive pressures from new charter schools if they expect that additional budgetary autonomy will help them compete. On the other hand, leaders of district-run schools may prefer to have less budget autonomy when presented with competitive pressures if they are risk-averse and do not wish to take on the additional responsibility (Bowen et al., 2015; Dohmen & Falk, 2010; Dohmen et al., 2011). These effects might also differ based on leaders' background knowledge of school budgets.

To evaluate the effect of expected charter school competition on anticipated changes in spending, we employ an ordinary least squares regression of the form:

$$Spending\_Change_i = \beta_0 + \beta_1 Competition_i + X_i + \varepsilon_i$$

Where the dependent variable of interest, *Spending_Change*, is a five-point response ranging from "decrease 20 percent" to "increase 20 percent," with each point on the scale increasing by 10 percentage points. The question asks "If you had complete control over your school budget and staffing next year how would you change the amount of dollars allocated to the following positions/areas? Assume your budget is roughly the same amount as this year." Eighteen categories of spending are analyzed including teachers, counselors, administrators, and facilities. The independent variable of interest, Competition, and the vector of control variables, X, are identical to the previous model. ε_i is the random error term.

Again, the expected coefficient on β_1 is theoretically ambiguous. Anticipated competition from public charter schools could increase spending in some areas and decrease spending in others depending on expected needs of students. Additionally, competition from public charter schools could incentivize school leaders to allocate more dollars to students in the classroom and fewer dollars to administrators and support staff. However, if school leaders expect that administrators and support staff are highly valued by students and their families, they might

choose to allocate more dollars towards those areas when faced with competition. It is also possible for public charter school competition to have no effects on spending patterns if leaders believe their schools are already allocating education dollars efficiently. It is also worth noting that all results produced from these models are based on expectations about efficient spending patterns, which may differ from the actual economically efficient allocation of resources.

Results

While effective random assignment leads to equivalence on all observable and unobservable characteristics between treatment and control groups in expectation, we present results from models including various combinations of control variables. The first column in Table 6 presents results without any control variables and the seventh column presents results from the fully specified model.[6] Although the coefficients on the independent variable of interest, competition, is negative for each of the seven models, only one of them is marginally significant at a p-value of 6.1 percent (Table 6, column 7). The fully specified model suggests that expected competition from a new charter school decreases the likelihood that Texas public school leaders report that they "definitely" want more control over the budget during the following school year by 10.2 percentage points, a 39 percent reduction relative to the sample mean. This finding suggests leaders of district-run schools in Texas may prefer to have less budget autonomy when presented with competitive pressures, at least initially, if they are risk-averse and do not wish to take on the additional responsibility.[7] However, results from the first six models are statistically insignificant, suggesting that anticipated charter school competition does not affect reports of desired budget autonomy.

[6] Eleven observations are dropped so that the sample size (141) is consistent across models. Similar results from models using inconsistent sample sizes are shown in Table A2 (Appendix A).

[7] This negative effect is not robust to ordered logistic regression, as the p-value is 12.5 percent (Appendix A, Table A1).

Statistically significant control variables suggest that leaders in schools with higher proportions of economically disadvantaged students and lower proportions of LEP students want more budget autonomy. The analytic models also suggest that leaders of public charter schools tend to desire more budget autonomy, which might explain why they initially opted into charter schools. Heterogeneous effects based on the experience of school leaders are presented in Table 7. No statistically significant heterogeneous effects are detected based on years of experience, current school budget influence, or current understanding of the school budget.

Tables 8 and 9 present results from models without control variables on the effects of anticipated competition from charter schools on reported changes in spending. One statistically significant effect and two marginally significant effects are detected in these models. Specifically, anticipated competition from charter schools reduces reported changes in spending on "maintenance / janitors" by 3.60 percentage points, on "administrators" by 2.12 percentage points, and on "instructional leaders" by 2.24 percentage points. Relative to the sample mean, these negative effects are equivalent to a 60 percent reduction for spending on maintenance, a 48 percent reduction for spending on administrators, and a 29 percent reduction for spending on instructional leaders. These negative effects are also equivalent to a 45 percent of a standard deviation reduction for spending on maintenance, a 31 percent of a standard deviation reduction for spending on administrators, and a 30 percent of a standard deviation reduction for spending on instructional leaders. As shown in Table 10 and 11, only one of these results remains statistically significant after all control variables are included in the analytic model. Specifically, anticipated competition from charter schools reduces reported changes in spending on "maintenance / janitors" by 4.93 percentage points, an 82 percent reduction relative to the sample mean.

These findings suggest that competitive pressures would reduce the amount of financial resources allocated to certain categories of support staff. However, these reductions can be explained in a few different ways. These findings might suggest that Texas public school leaders believe that additional spending on maintenance, administrators, and instructional leaders would not help them with new competition, perhaps because they are not providing as much value to students as the other spending categories. The negative effect on changes in spending on administrators is especially notable since public school principals and other school leaders are administrators. These negative findings do not mean that these categories of support staff are not valuable, but that Texas public school leaders tend to view that other spending categories are more valuable when it comes to dealing with competitive pressures from new charter schools. This finding also does not mean that these particular categories of spending would actually be less helpful when dealing with new charter school competition than other categories; these findings are about the expectations of public school leaders, which may not align with the allocation of resources that is the most efficient in reality. Competitive pressures also create uncertainty, which could give school leaders incentives to save money for later, which would explain why no statistically significant positive effects were detected.

Heterogeneous effects by experience levels of the school leaders are presented in Table 12 and Table 13. These results suggest that more-experienced school leaders, as measured by years of experience, current influence on the school budget, and current understanding of the school budget, tend to be more likely to reduce spending on maintenance, facilities, librarians, and security guards than less-experienced school leaders in anticipation of competition from new charter schools. Specifically, we find that a one-year increase in years of experience is associated with a 0.84 percentage point larger reduction in changes in spending on maintenance and a 0.58

percentage point larger reduction in changes in spending on librarians. Anticipated charter school competition reduces changes in spending on maintenance by 7.48 percentage points, and reduces changes in spending on facilities by 4.77 percentage points, for leaders who report having a major influence on budget decisions. Anticipated charter school competition has a 4.24 larger negative effect on expected changes in spending on security guards for school leaders who report "a great deal" of understanding with their school budget than for other leaders; however, although the heterogenous effect is marginally significant at a p-value of 9.6 percent, the general effect for this particular subgroup is not statistically significant at a p-value of 12.3 percent.

These findings suggest that charter school competition is more likely to reduce spending in certain categories for more-experienced school leaders. If the more-experienced school leaders are better equipped to make rational budget decisions, these findings suggest resources may currently be inefficiently allocated towards maintenance, facilities, librarians, and security guards. These findings generally support the theory that lower levels of competition in the school system lead to staffing surges and administrative bloat (Niskanen, 1971; Scafidi, 2012; Scafidi, 2017).

Table 6: The Effect of Expected Charter School Competition on Desired Budget Control

	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control
Competition	-0.041	-0.052	-0.031	-0.027	-0.058	-0.038	-0.102+
	(0.485)	(0.352)	(0.569)	(0.624)	(0.303)	(0.502)	(0.061)
GT (%)		-0.005	-0.006	-0.007	-0.009	-0.008	-0.005
		(0.298)	(0.289)	(0.198)	(0.125)	(0.117)	(0.261)
CTE (%)		-0.001	-0.001	-0.002	-0.002	-0.005	-0.001
		(0.816)	(0.802)	(0.520)	(0.512)	(0.145)	(0.672)
LEP (%)		-0.005	-0.005	-0.006+	-0.008*	-0.008*	-0.009*
		(0.137)	(0.108)	(0.069)	(0.030)	(0.032)	(0.010)
ESL (%)		0.001	-0.001	0.001	0.002	0.003	0.005
		(0.867)	(0.917)	(0.874)	(0.680)	(0.451)	(0.176)
Econ (%)		0.008***	0.011***	0.010***	0.011***	0.013***	0.013***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SPED (%)		-0.011	-0.013	-0.012	-0.012	-0.007	-0.012
		(0.240)	(0.198)	(0.242)	(0.214)	(0.524)	(0.199)
Black (%)		0.003	0.004	0.004	0.004	0.007+	0.003
		(0.268)	(0.351)	(0.402)	(0.327)	(0.070)	(0.372)
Hispanic (%)		-0.001	-0.003	-0.002	-0.002	-0.003	-0.002
		(0.479)	(0.289)	(0.431)	(0.506)	(0.285)	(0.466)
Female (%)		0.002	-0.002	-0.006	-0.004	0.000	0.007
		(0.838)	(0.816)	(0.540)	(0.681)	(0.997)	(0.436)
Enrollment		-0.000	-0.000	-0.000	-0.000	-0.000+	-0.000+
		(0.924)	(0.437)	(0.237)	(0.225)	(0.069)	(0.076)
Charter School		0.357*	0.490+	0.519*	0.575*	0.489+	0.343
		(0.049)	(0.073)	(0.045)	(0.032)	(0.065)	(0.120)
Meets (%)		0.009	0.011	0.009	0.011	0.009	0.012+
		(0.226)	(0.159)	(0.234)	(0.147)	(0.238)	(0.089)
Masters (%)		-0.003	0.001	0.007	0.006	0.014	0.009
		(0.724)	(0.919)	(0.552)	(0.589)	(0.198)	(0.342)
School Level		X	X	X	X	X	X
Respondent Background			X	X	X	X	X
Parental Involvement				X	X	X	X
Principal Autonomy					X	X	X
School Safety						X	X
Principal Satisfaction							X
Pseudo R-Squared	0.0012	0.0593	0.1163	0.1290	0.1437	0.2078	0.2615
N	141	141	141	141	141	141	141

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported for the last outcome category of "definitely yes" after ordered probit regression. "SPED" is "Special Education." "Econ" is "Economically Disadvantaged." "ESL" is "English as a Second Language." "LEP" is "Limited English Proficiency." "GT" is "Gifted and Talented." "CTE" is "Career and Technical Education." "Meets" is the percent of students meeting grade level or above on all subjects on STAAR. "Masters" is the percent of students mastering grade level on all subjects on STAAR.

Table 7: The Effect of Expected Charter School Competition on Desired Budget Control (Heterogeneous Effects)

	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control
Years of Experience	0.009	0.003	0.004	0.005	0.002	0.007	-0.001
	(0.435)	(0.783)	(0.717)	(0.688)	(0.853)	(0.568)	(0.953)
Major Budget Influence	-0.015	-0.068	-0.054	-0.048	-0.060	-0.038	-0.084
	(0.837)	(0.341)	(0.432)	(0.492)	(0.426)	(0.605)	(0.216)
Less Budget Influence	-0.085	-0.022	0.015	0.009	-0.046	-0.033	-0.114
	(0.391)	(0.832)	(0.881)	(0.926)	(0.625)	(0.736)	(0.202)
Difference	0.070	-0.046	-0.069	-0.058	-0.013	-0.005	0.029
	(0.569)	(0.716)	(0.590)	(0.655)	(0.916)	(0.966)	(0.798)
Great Understanding	0.006	-0.059	-0.024	-0.015	-0.060	-0.038	-0.115
	(0.947)	(0.469)	(0.778)	(0.859)	(0.502)	(0.664)	(0.144)
Less Understanding	-0.097	-0.059	-0.047	-0.048	-0.060	-0.046	-0.104
	(0.226)	(0.454)	(0.573)	(0.565)	(0.491)	(0.579)	(0.174)
Difference	0.102	-0.000	0.023	0.034	-0.000	0.009	-0.011
	(0.376)	(1.000)	(0.856)	(0.788)	(0.999)	(0.946)	(0.921)
School Level		X	X	X	X	X	X
Respondent Background			X	X	X	X	X
Parental Involvement				X	X	X	X
Principal Autonomy					X	X	X
School Safety						X	X
Principal Satisfaction							X
Pseudo R-Squared	0.0012	0.0593	0.1163	0.1290	0.1437	0.2078	0.2615
N	141	141	141	141	141	141	141

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported for the last outcome category of "definitely yes" after ordered probit regression. "SPED" is "Special Education." "Econ" is "Economically Disadvantaged." "ESL" is "English as a Second Language." "LEP" is "Limited English Proficiency." "GT" is "Gifted and Talented." "CTE" is "Career and Technical Education." "Meets" is the percent of students meeting grade level or above on all subjects on STAAR. "Masters" is the percent of students mastering grade level on all subjects on STAAR.

Table 8: The Effect of Expected Charter School Competition on Anticipated Changes in Spending (No Controls)

	Teachers	Counselors	Classroom Aides	Security Guards	Administrators	Librarians	Maintenance / Janitors	Instructional Leaders	Supplies
Competition	-0.420 (0.752)	-1.425 (0.253)	0.692 (0.594)	-0.804 (0.487)	-2.115+ (0.060)	-1.163 (0.296)	-3.596** (0.008)	-2.236+ (0.070)	0.070 (0.960)
R-Squared	0.0007	0.0089	0.0020	0.0033	0.0242	0.0077	0.0501	0.0221	0.0000
N	149	151	150	147	151	149	149	149	150

Notes: P-values in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Average marginal effects are reported after ordinary least squares regression.

Table 9: The Effect of Expected Charter School Competition on Anticipated Changes in Spending (No Controls)

	Technology / Equipment	Food	Athletics / Extracurriculars	Transportation	Facilities	Enrichment Activities	After School Programs	Summer Programs	Average Spending Change
Competition	-1.487 (0.297)	-1.363 (0.231)	-0.735 (0.493)	0.703 (0.512)	-1.670 (0.237)	-0.208 (0.870)	0.929 (0.456)	1.390 (0.248)	-0.756 (0.252)
R-Squared	0.0073	0.0099	0.0032	0.0030	0.0094	0.0002	0.0038	0.0089	0.0091
N	150	150	150	150	151	151	150	150	146

Notes: P-values in parentheses. + p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001. Average marginal effects are reported after ordinary least squares regression.

Table 10: The Effect of Expected Charter School Competition on Anticipated Changes in Spending (All Controls)

	Teachers	Counselors	Classroom Aides	Security Guards	Administrators	Librarians	Maintenance / Janitors	Instructional Leaders	Supplies
Competition	-1.915	-1.087	-0.952	-1.398	-0.925	-1.243	-4.927**	-2.155	-0.627
	(0.286)	(0.449)	(0.587)	(0.342)	(0.559)	(0.381)	(0.003)	(0.226)	(0.742)
R-Squared	0.5166	0.4347	0.4173	0.5215	0.3823	0.4186	0.5262	0.3712	0.4679
N	138	140	139	136	140	138	138	138	139

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported after ordinary least squares regression.

Table 11: The Effect of Expected Charter School Competition on Anticipated Changes in Spending (All Controls)

	Technology / Equipment	Food	Athletics / Extracurriculars	Transportation	Facilities	Enrichment Activities	After School Programs	Summer Programs	Average Spending Change
Competition	-1.895	-1.587	-1.226	0.184	-2.466	-1.243	0.682	1.748	-1.159
	(0.392)	(0.297)	(0.432)	(0.911)	(0.164)	(0.514)	(0.692)	(0.305)	(0.225)
R-Squared	0.3984	0.4000	0.4349	0.3309	0.4312	0.3595	0.4273	0.4342	0.3992
N	139	139	139	139	140	140	139	139	135

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported after ordinary least squares regression.

Table 12: The Effect of Expected Charter School Competition on Anticipated Changes in Spending (Heterogeneous Effects)

	Teachers	Counselors	Classroom Aides	Security Guards	Administrators	Librarians	Maintenance / Janitors	Instructional Leaders	Supplies
Years of Experience	-0.037	0.050	-0.369	-0.228	-0.055	-0.582*	-0.841**	0.310	-0.141
	(0.911)	(0.862)	(0.280)	(0.408)	(0.840)	(0.030)	(0.006)	(0.357)	(0.678)
Major Budget Influence	-0.229	-2.350	-2.369	-1.568	-1.803	-2.812	-7.480***	-2.410	-1.691
	(0.910)	(0.215)	(0.251)	(0.398)	(0.362)	(0.107)	(0.000)	(0.315)	(0.455)
Less Budget Influence	-3.834	1.722	2.586	-1.256	1.405	2.280	0.340	-1.194	1.270
	(0.261)	(0.528)	(0.437)	(0.601)	(0.617)	(0.427)	(0.898)	(0.634)	(0.684)
Difference	-3.604	4.072	4.955	0.311	3.209	5.092	7.821*	1.216	2.961
	(0.363)	(0.263)	(0.216)	(0.918)	(0.370)	(0.169)	(0.018)	(0.734)	(0.426)
Great Understanding	-0.506	-2.444	-1.760	-3.266	-1.036	-0.430	-6.855*	-2.149	-0.182
	(0.835)	(0.204)	(0.508)	(0.123)	(0.622)	(0.848)	(0.010)	(0.415)	(0.941)
Less Understanding	-3.050	0.480	0.205	0.974	-0.142	-1.811	-2.912	-1.819	-1.051
	(0.202)	(0.830)	(0.931)	(0.550)	(0.948)	(0.349)	(0.184)	(0.424)	(0.702)
Difference	-2.543	2.924	1.966	4.240+	0.894	-1.381	3.943	0.330	-0.868
	(0.423)	(0.339)	(0.591)	(0.096)	(0.755)	(0.653)	(0.266)	(0.922)	(0.809)
R-Squared	0.5166	0.4347	0.4173	0.5215	0.3823	0.4186	0.5262	0.3712	0.4679
N	138	140	139	136	140	138	138	138	139

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported after ordinary least squares regression. All controls are included.

Table 13: The Effect of Expected Charter School Competition on Anticipated Changes in Spending (Heterogeneous Effects)

	Technology / Equipment	Food	Athletics / Extracurriculars	Transportation	Facilities	Enrichment Activities	After School Programs	Summer Programs	Average Spending Change
Years of Experience	0.158	0.049	0.397	-0.034	-0.144	-0.265	-0.252	-0.161	-0.134
	(0.652)	(0.871)	(0.183)	(0.919)	(0.668)	(0.472)	(0.431)	(0.652)	(0.497)
Major Budget Influence	-3.969	-2.815	-1.663	-0.607	-4.770*	-2.697	0.264	2.868	-1.849
	(0.103)	(0.112)	(0.390)	(0.789)	(0.038)	(0.252)	(0.907)	(0.190)	(0.119)
Less Budget Influence	1.796	0.173	-0.339	2.034	2.467	2.161	2.201	-0.390	0.443
	(0.639)	(0.952)	(0.896)	(0.466)	(0.444)	(0.523)	(0.444)	(0.901)	(0.815)
Difference	5.766	2.988	1.323	2.642	7.237+	4.859	1.936	-3.258	2.292
	(0.172)	(0.384)	(0.683)	(0.497)	(0.083)	(0.245)	(0.610)	(0.425)	(0.330)
Great Understanding	-3.329	-1.365	-1.688	1.020	-2.072	-1.988	0.613	3.524	-1.328
	(0.273)	(0.559)	(0.441)	(0.649)	(0.443)	(0.458)	(0.792)	(0.139)	(0.295)
Less Understanding	-0.543	-2.186	-0.986	-0.471	-2.583	-0.226	1.298	0.553	-0.779
	(0.849)	(0.335)	(0.629)	(0.819)	(0.255)	(0.924)	(0.551)	(0.813)	(0.497)
Difference	2.786	-0.822	0.703	-1.491	-0.511	1.763	0.685	-2.971	0.549
	(0.480)	(0.814)	(0.813)	(0.599)	(0.884)	(0.604)	(0.818)	(0.384)	(0.723)
R-Squared	0.3984	0.4000	0.4349	0.3309	0.4312	0.3595	0.4273	0.4342	0.3992
N	139	139	139	139	140	140	139	139	135

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported after ordinary least squares regression. All controls are included.

Discussion

We find the first experimental evidence to suggest that anticipated charter school competition has large negative effects on school leaders' reported spending on certain categories of support staff, and reduces, or has no effect on, the reported desire for more school-level budget autonomy. The negative effects on spending for support staff tend to be larger for school leaders with more experience. These results suggest that competition from public charter schools could lead to reductions in spending for certain categories in district-run public schools if school leaders have the autonomy to make budget decisions.

However, although our results suggest that these hypothetical spending decisions are influenced, more research is needed to determine how and whether these changes in resource allocation affect student outcomes. Hanushek, Link, and Woessmann (2011) found that school-level autonomy was positively associated with student achievement for developed countries and negatively associated with student achievement for developing countries. Honig and Rainey (2012) found some evidence to suggest that districts that increased school-level autonomy experienced modest gains in student achievement. Although these results are interesting, the existing research is limited because the results do not provide information about how different categories of spending are expected to affect student outcomes. However, Timar and Roza (2010) suggest that one size does not fit all when it comes to resource allocation, as "two identical school expenditure schemes can produce very different outcomes in terms of instructional quality."

Additionally, more research is needed to determine whether principals who are actually given more budgetary discretion match the decisions reflected in our survey of hypothetical preferences. A limited body of research suggests that principals who are given more budgetary

autonomy do not necessarily, in practice, make substantially different decisions with resources than those they made prior to receiving more budget authority (e.g. Chambers et al., 2008).

Although effective random assignment leads to equivalence on all observable and unobservable characteristics between treatment and control groups, in expectation, the study has important limitations. First, although we provide evidence that random assignment was effective using 56 observable characteristics, it remains possible that treatment and control groups differ on unobserved characteristics if random assignment was not successful. Second, the survey responses are stated intentions, which may not match the true actions taken by school leaders in response to actual competition from new public charter schools in the area. In other words, the results in the study are based on stated rather than revealed preferences, which may differ (Samuelson, 1948).

Finally, although we provide evidence that our sample is moderately representative of the population of schools in Texas, a response rate of 7.6 percent warrants caution regarding the external validity of the findings. Similarly, these findings should only be applied to this sample of district school leaders in the state of Texas. Evidence from other states is needed to better understand whether these findings apply elsewhere.

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Appendix A

Table A1: The Effect of Expected Charter School Competition on Reported Desire for Budget Control (Ordered Logit)

	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control
Competition	-0.040	-0.057	-0.039	-0.030	-0.059	-0.041	-0.106
	(0.501)	(0.331)	(0.501)	(0.628)	(0.345)	(0.551)	(0.125)
GT (%)		-0.005	-0.006	-0.007	-0.009	-0.008	-0.005
		(0.291)	(0.393)	(0.310)	(0.191)	(0.207)	(0.374)
CTE (%)		-0.001	-0.001	-0.003	-0.003	-0.005	-0.001
		(0.814)	(0.788)	(0.572)	(0.527)	(0.222)	(0.741)
LEP (%)		-0.005	-0.005	-0.006	-0.008+	-0.008	-0.008
		(0.148)	(0.165)	(0.126)	(0.076)	(0.126)	(0.101)
ESL (%)		0.001	-0.001	0.000	0.001	0.002	0.004
		(0.899)	(0.887)	(0.963)	(0.879)	(0.674)	(0.319)
Econ (%)		0.007**	0.011**	0.010**	0.012***	0.013***	0.013***
		(0.002)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)
SPED (%)		-0.011	-0.017	-0.014	-0.016	-0.007	-0.014
		(0.286)	(0.172)	(0.241)	(0.193)	(0.584)	(0.239)
Black (%)		0.004	0.006	0.005	0.006	0.007	0.003
		(0.255)	(0.309)	(0.360)	(0.335)	(0.170)	(0.560)
Hispanic (%)		-0.001	-0.003	-0.002	-0.002	-0.003	-0.002
		(0.642)	(0.316)	(0.493)	(0.495)	(0.437)	(0.494)
Female (%)		0.003	-0.001	-0.005	-0.003	0.001	0.008
		(0.796)	(0.883)	(0.616)	(0.737)	(0.898)	(0.453)
Enrollment		-0.000	-0.000	-0.000	-0.000	-0.000+	-0.000
		(0.950)	(0.497)	(0.256)	(0.253)	(0.095)	(0.144)
Charter School		0.345+	0.527	0.534	0.596+	0.483	0.302
		(0.091)	(0.142)	(0.106)	(0.087)	(0.167)	(0.250)
Meets (%)		0.008	0.010	0.008	0.010	0.008	0.010
		(0.284)	(0.260)	(0.333)	(0.262)	(0.350)	(0.213)
Masters (%)		-0.003	0.003	0.008	0.008	0.014	0.010
		(0.751)	(0.820)	(0.560)	(0.572)	(0.296)	(0.375)
School Level		X	X	X	X	X	X
Respondent Background			X	X	X	X	X
Parental Involvement				X	X	X	X
Principal Autonomy					X	X	X
School Safety						X	X
Principal Satisfaction							X
Pseudo R-Squared	0.0011	0.0569	0.1173	0.1308	0.1438	0.2049	0.2548
N	141	141	141	141	141	141	141

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported for the outcome category of "definitely yes" after ordered logistic regression. "SPED" is "Special Education." "Econ" is "Economically Disadvantaged." "ESL" is "English as a Second Language." "LEP" is "Limited English Proficiency." "GT" is "Gifted and Talented." "CTE" is "Career and Technical Education." "Meets" is the percent of students meeting grade level or above on all subjects on STAAR. "Masters" is the percent of students mastering grade level on all subjects on STAAR.

Table A2: The Effect of Expected Charter School Competition on Reported Desire for Budget Control

	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control	Budget Control
Competition	-0.060	-0.076	-0.065	-0.057	-0.071	-0.041	-0.102+
	(0.282)	(0.163)	(0.208)	(0.277)	(0.200)	(0.464)	(0.061)
GT (%)		-0.003	-0.004	-0.005	-0.007	-0.006	-0.005
		(0.431)	(0.444)	(0.349)	(0.166)	(0.228)	(0.261)
CTE (%)		-0.001	-0.001	-0.002	-0.003	-0.005	-0.001
		(0.689)	(0.853)	(0.579)	(0.335)	(0.161)	(0.672)
LEP (%)		-0.005*	-0.006*	-0.006+	-0.007*	-0.007*	-0.009*
		(0.050)	(0.041)	(0.056)	(0.030)	(0.048)	(0.010)
ESL (%)		0.004	0.002	0.002	0.003	0.003	0.005
		(0.393)	(0.681)	(0.746)	(0.573)	(0.457)	(0.176)
Econ (%)		0.006**	0.008**	0.008**	0.010***	0.013***	0.013***
		(0.003)	(0.002)	(0.002)	(0.000)	(0.000)	(0.000)
SPED (%)		-0.011	-0.013	-0.012	-0.010	-0.006	-0.012
		(0.262)	(0.179)	(0.217)	(0.278)	(0.558)	(0.199)
Black (%)		0.004	0.004	0.004	0.005	0.006	0.003
		(0.209)	(0.343)	(0.365)	(0.288)	(0.113)	(0.372)
Hispanic (%)		-0.001	-0.002	-0.002	-0.001	-0.003	-0.002
		(0.717)	(0.491)	(0.505)	(0.602)	(0.163)	(0.466)
Female (%)		-0.002	-0.005	-0.007	-0.004	-0.000	0.007
		(0.850)	(0.616)	(0.471)	(0.673)	(0.961)	(0.436)
Enrollment		-0.000	-0.000	-0.000	-0.000	-0.000+	-0.000+
		(0.810)	(0.475)	(0.358)	(0.192)	(0.094)	(0.076)
Charter School		0.314+	0.361	0.400	0.490+	0.494+	0.343
		(0.090)	(0.215)	(0.125)	(0.060)	(0.067)	(0.120)
Meets (%)		0.004	0.006	0.004	0.007	0.007	0.012+
		(0.582)	(0.433)	(0.548)	(0.351)	(0.385)	(0.089)
Masters (%)		0.002	0.005	0.008	0.008	0.014	0.009
		(0.827)	(0.649)	(0.459)	(0.458)	(0.215)	(0.342)
School Level		X	X	X	X	X	X
Respondent Background			X	X	X	X	X
Parental Involvement				X	X	X	X
Principal Autonomy					X	X	X
School Safety						X	X
Principal Satisfaction							X
Pseudo R-Squared	0.0027	0.0569	0.1173	0.1308	0.1438	0.2049	0.2548
N	152	152	150	146	144	142	141

Notes: P-values in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Average marginal effects are reported for the last outcome category of "definitely yes" after ordered probit regression. "SPED" is "Special Education." "Econ" is "Economically Disadvantaged." "ESL" is "English as a Second Language." "LEP" is "Limited English Proficiency." "GT" is "Gifted and Talented." "CTE" is "Career and Technical Education." "Meets" is the percent of students meeting grade level or above on all subjects on STAAR. "Masters" is the percent of students mastering grade level on all subjects on STAAR.

Appendix B

Survey Instrument

Control Group

Q0 What is your position at the school?

- ○ Principal
- ○ Director
- ○ Administrator
- ○ Other Leader

Q1 Do you currently hold a license or certification in “school administration”?

- ○ Yes
- ○ No

Q2 What is the highest level of education you have completed?

- ○ Less than high school
- ○ High school graduate
- ○ Some college
- ○ 2 year degree
- ○ 4 year degree
- ○ Professional degree
- ○ Doctorate

Q3 What is your gender?

- ○ Male
- ○ Female
- ○ Other

Q4 What is your race/ethnicity?

- ○ White
- ○ Black or African American
- ○ American Indian or Alaska Native
- ○ Asian
- ○ Native Hawaiian or Pacific Islander
- ○ Other

Q5 What is your age?

- ○ Under 18
- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84

○ 85 or older

Q6 How many years have you been a principal or school leader?

_____

Q7 Last school year, what percentage of students had at least one parent or guardian participating in the following events?

	0-25%	26-50%	51-75%	76-100%
Open house or back to school night	○	○	○	○
All regularly scheduled schoolwide parent-teacher conferences	○	○	○	○
Special subject-area events (e.g. science fair, concerts)	○	○	○	○
Volunteer in the school as needed or on a regular basis	○	○	○	○
Involvement in budget decisions	○	○	○	○

Q8 How much actual influence do you think you have as a principal on decisions concerning the following activities?

	No Influence	Minor Influence	Moderate Influence	Major Influence
Setting performance standards for students of this school	○	○	○	○
Establishing curriculum at this school	○	○	○	○
Evaluating teachers of this school	○	○	○	○
Hiring and firing teachers of this school	○	○	○	○
Setting discipline policy at this school	○	○	○	○
Deciding how your school budget will be spent	○	○	○	○

Q9 How often do the following types of problems occur at this school?

	Daily	At least once a week	At least once a month	On occasion	Never
Physical conflicts among students	○	○	○	○	○
Robbery or theft	○	○	○	○	○
Vandalism	○	○	○	○	○
Student use of illegal drugs	○	○	○	○	○
Student racial tensions	○	○	○	○	○
Student bullying	○	○	○	○	○
Gang activities	○	○	○	○	○

Q10 To what extent do you agree or disagree with the following statements?

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The stress and disappointments involved with being a principal at this school aren't really worth it.	○	○	○	○	○
I'm generally satisfied with being principal at this school.	○	○	○	○	○
I don't seem to have as much enthusiasm now as I did when I began this job.	○	○	○	○	○

Q11 How many years do you want to continue being a principal?

_____

Q12 How would you rank your understanding of your school's operating budget?

- ○ A great deal
- ○ A lot
- ○ A moderate amount
- ○ A little
- ○ None at all

Q13 What is your best estimate of your school's operating budget, in dollars?

_____

Q14 What is your best estimate of the percentage of dollars spent on your school that you control?

- ○ 0-25%
- ○ 26-50%
- ○ 51-75%
- ○ 76-100%

Q15 Would you like to have more control over your school budget next year? (Note: Imagine that no new schools are expected to open in your district next year).

- ○ Definitely yes
- ○ Probably yes
- ○ Might or might not
- ○ Probably not
- ○ Definitely not

Q16 If you had complete control over your school budget and staffing next year how would you change the amount of dollars allocated to the following positions? Assume your budget is roughly the same amount as this year.
(Note: Imagine that no new schools are expected to open in your district next year).

	Decrease 20%	Decrease 10%	No Change	Increase 10%	Increase 20%
Classroom teachers	○	○	○	○	○
Counselors	○	○	○	○	○
Classroom aides	○	○	○	○	○
Security guards	○	○	○	○	○
Administrators	○	○	○	○	○
Librarians	○	○	○	○	○
Maintenance/Janitors	○	○	○	○	○
Instructional leaders	○	○	○	○	○

Q17 If you had complete control over your school budget and staffing next year how would you change the amount of dollars allocated to the following areas? Assume your budget is roughly the same amount as this year.

(Note: Imagine that no new schools are expected to open in your district next year).

	Decrease 20%	Decrease 10%	No Change	Increase 10%	Increase 20%
School supplies/textbooks	○	○	○	○	○
Technology/equipment	○	○	○	○	○
Food	○	○	○	○	○
Athletics/extracurriculars	○	○	○	○	○
Transportation	○	○	○	○	○
Facilities	○	○	○	○	○
Enrichment programs (e.g. field trips, college readiness)	○	○	○	○	○
After school programs	○	○	○	○	○
Summer programs	○	○	○	○	○

Q18 Please enter your email if you would like to receive a $10 gift card for completing this survey. (Note: the first 465 respondents to complete the survey will receive a gift card).

_____

Q19 Please enter your first and last name if you would like to receive a $10 gift card for completing this survey. (Note: the first 465 respondents to complete the survey will receive a gift card).

_____

Treatment Group

The same survey, but all notes are replaced with "(Note: Imagine that a new charter school is expected to open in your district next year)."