

FINANCIAL IMPACT OF CHARTER SCHOOLS ON TRADITIONAL PUBLIC SCHOOLS IN NORTH CAROLINA: A CROSS-DISTRICTS COMPARISON

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RESEARCH QUESTIONS: Have districts with charter schools experienced any differences in district financial resource allocation in comparison to districts without charter schools? Among districts with charter schools, how has the presence of charter schools affected traditional public school finance?

EXECUTIVE SUMMARY

There has been little empirical evidence suggesting the financial impact of charter schools on traditional public school resource allocation. Using a 10-year panel data set from North Carolina, we examine the resource allocation adjustments school districts made in response to the expansion of charter schools. Our preliminary findings suggest that districts across the state have experienced a statistically significant reduction in per pupil expenditures. This negative impact is most pronounced in districts with high level of charter school enrollment ratios or low level of charter growth rates. Despite the overall reduction in per pupil expenditure, our analysis reveals that charter school expansion is associated with a significant shift of spending devoted to instruction made by school districts. Our policy recommendations aim to promote coordination between districts and charter schools, the State Board of Education, and DPI respectively as ways to alleviate the financial burdens. We also suggest research questions for future investigation.

INTRODUCTION

CHARTER SCHOOLS IN NORTH CAROLINA

North Carolina passed the Charter School Act (§ 115C-218) in 1996 to allow charter schools to open in the state. A charter school, officially designed for educational innovation, is a state-funded public school that operates independently under a charter granted by the State Board of Education, the sole charter authorizer in the state. Any non-profit organizations could apply to open a charter school, and students are free to attend any charter school in North Carolina. The number of charter schools in North Carolina has grown steadily over the past two decades. The initial number of charter schools allowed to open was capped at 100 which was removed in 2011 by the General Assembly. Since then, the number of charter schools have increased nearly by 50%. During the 2014-2015 school year, there were 148 operating charter schools located in 60 school districts, serving over 69,000 students or 5% of the total public school population.

Charter schools in North Carolina receive funds under a similar formula as their traditional public school counterparts do. State funds are allotted based on the average daily membership (ADM) of the charter school. It is calculated by collapsing the student's resident LEA's funding into a per-pupil equivalent. State funds may be used for any purpose other than purchasing or leasing a building. Local funds are given to charter schools based on the local current expense appropriation in the county in which the student resides, and may be used for any purpose. Most federal funds are targeted towards a specific population such as low income students or students with special needs (NCDPI, 2015).



RESEARCH QUESTIONS

Since the introduction of charter schools, it has been speculated that they would impose financial stress on traditional public schools (Arsen, Plank & Sykes, 1999; Hoxby, 2002; Molnar, 1996). However, there is little empirical evidence supporting the argument that charter schools drain resources from traditional public schools within the North Carolina context. The need to study the financial impact of charter schools is reflected in the 2014 Annual Charter Schools Report presented by the Department of Public Instruction (DPI) to the General Assembly:

“Turning to the financial aspects, calculation of a current or projected impact of charter schools on the delivery of services by the public schools is rather difficult” (p.6).

Given the impact of the Great Recession to public education in recent years and the momentum to increase the number of charter schools, it becomes more imperative to study the financial impact of charter schools on traditional public schools in North Carolina. In this study, we attempt to address this gap by examining school district resource allocation as conditioned by the presence of charter schools. We will focus on two questions:

1. Have districts with charter schools (CS districts) experienced any differences in district financial resource allocation in comparison to districts without charter schools (non-CS districts)?
2. Among districts with charter schools, how has the presence of charter schools affected traditional public school finance?

METHODOLOGY

DATA SOURCES

In order to estimate the financial impact of charter schools on traditional public schools in North Carolina, we create a statewide panel data set from 2002 to 2011. The two sources of data for this research are: Common Core of Data from the National Center on Educational Statistics, and the North Carolina Department of Public Instruction. The merged data set includes 10 years of data on district revenues and expenditures, enrollment, and student demographics for all 115 LEAs in North Carolina.

Measures of District Resource Allocation

Inspired by a recent study examining the financial impact of charter schools within Michigan school districts (Arsen & Ni, 2012), we select six standard district resource measures as our outcome variables. We first look at two outcome measures at the student level, and then the total operating expenditure (TE) each district spends on traditional public schools, as measured

by the percentage distribution it is devoted to the following four functional categories¹:

- Total per pupil expenditure (PPE)
- Per pupil expenditure devoted to instruction (PPE on Instruction)
- Instruction (%TE on Instruction)
- Support Services (%TE on Support)
- Capital Outlay (%TE on Capital Outlay)
- Non-instruction (%TE on Non-Instruction).

Measure of Competition

As our key independent variable, competition is defined as the ratio of charter school enrollment over the total public school enrollment (total public school enrollment is the sum of both charter and traditional public school enrollments). Since charter schools have only opened in half of the North Carolina districts as of the 2014-2015 school year, we generate two charter school enrollment ratios with different sets of denominators. CS% is the overall charter school enrollment ratio at the state level, which is the ratio of total charter school enrollment divided by the total public school enrollment including districts with and without charter schools. CS*% is the charter school enrollment ratio specifically among districts with charter schools, which is the ratio of total charter school enrollment divided by the public school enrollment among CS districts only. These two ratios allow us to estimate the impact of charter schools to varying degrees.

METHODS

We first compare the six district expenditure measures between CS districts and non-CS districts to study the trends of district finance (Findings 1). We then utilize a panel data fixed effect model to estimate the TPS resource allocation adjustments conditioned by the presence of charter schools to varying degrees (Findings 2). Fixed effect model is a common method used to measure the impact of school choice (Cremata & Raymond, 2014; Cullen et al., 2005; Zimmer et al., 2009), and they have the advantage of controlling for otherwise unmeasured time-invariant errors (i.e., time-invariant characteristics of the districts, which may be correlated with the independent and dependent variables). The result of the fixed effect model will be an estimate of the average effect of charter schools on the six expenditure measures across districts overtime. Given the study's focus on cross-district variations associated with the presence of charter schools and the many unobserved potential confounding factors that vary between districts, a fixed effect model is most appropriate².

We run six specifications of the model for each of the six expenditure measures. The first specification model includes all districts regardless of charter presence (CS%). We run the second

¹ We include a detailed definition of the six district expenditure measures in Appendix A.

² Appendix B includes the model equation and list of variables used in this study.

specification model among CS districts only (CS*%). Next, we run four model specifications by high and low levels of charter enrollment ratio, and high and low levels of charter growth rates among CS districts. A district is defined as having a high level of charter enrollment if the district's charter enrollment comprises more than 6% of the total public school population (Hoxby, 2006). Growth rate is calculated by the following equation:

$$\text{Growth rate} = \frac{\text{CS}\%2011 - \text{CS}\%2002}{\text{CS}\%2002}$$

If the growth rate is greater than 1, we consider the district as a high charter growth district, indicating that the charter school enrollment ratio has at least doubled in 2011 since 2002³. By including criteria such as level of enrollment ratio and growth rate, we will be able to separate the potential differential effects of charter schools on TPS finance.

FINDINGS

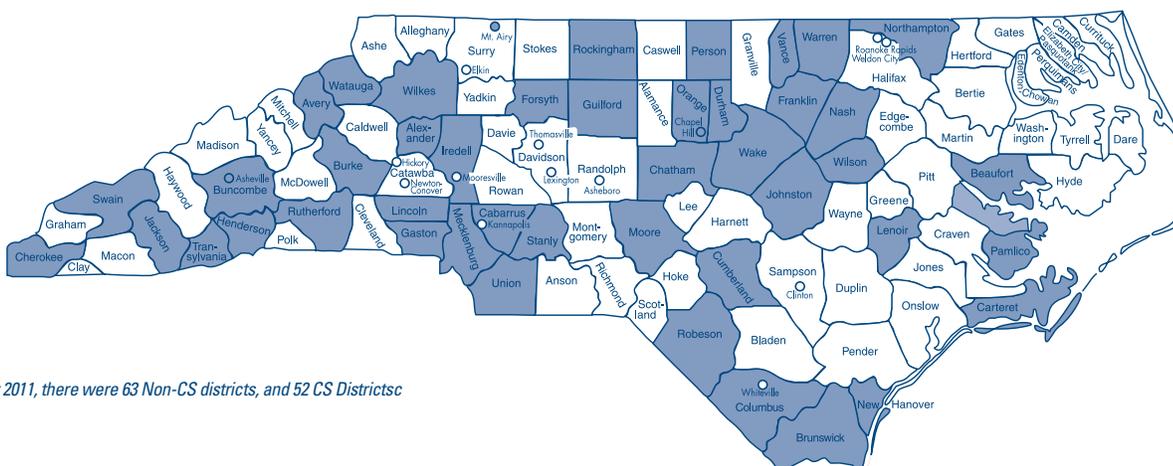
In 2011, there were 52 CS districts (blue) and 63 non-CS districts in North Carolina (Figure 1).

SUMMARY STATISTICS YIELD DIFFERENCES BETWEEN CS DISTRICTS AND NON-CS DISTRICTS CONCERNING STUDENT POPULATION AND DISTRICT FINANCE:

Finding 1.1 – CS districts and non-CS districts have slightly different student population

CS districts have larger proportions of students with limited English proficiency (LEP%: 6.17% vs. 1.65%) and students with special needs (IEP%: 12.32% vs. 4.08%), while having slightly fewer students eligible for free and reduced lunch (FRL%: 46.14% vs. 51.44%) and fewer Black students (Black%: 26.76% vs. 28.35%). In addition, CS districts seem to have slightly larger student enrollments (Table 1).

Figure 1. CS districts distribution in North Carolina (2011)



Note: By 2011, there were 63 Non-CS districts, and 52 CS Districts

Table 1. Comparison of student demographics between districts with and without CS

	CS Districts		Non-CS Districts	
	Mean	s.d.	Mean	s.d.
LEP%	6.17	11.5	1.65	2.02
IEP%	12.32	15.94	4.08	3.69
FRL%	46.14	16.59	51.44	18.81
Black%	26.76	19.23	28.35	23.70
Enrollment (logged)	4.05	0.45	3.66	0.37
Sample Size	52		63	

Note: In 2011, there were 52 districts with charter schools, and 63 without charter schools.

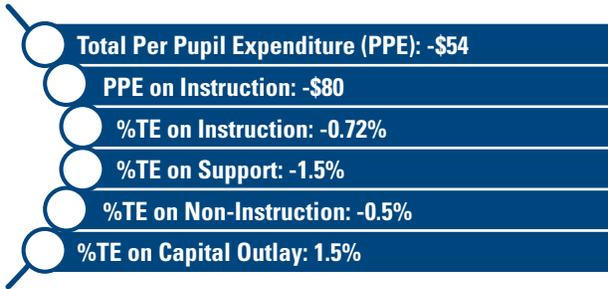
Finding 1.2 – CS districts spent less than non-CS districts

In terms of percentage distributions of public financial resources, CS districts, on average, receive nearly 30% of their funding from the county while local revenue only accounts for 23% of the total revenue for non-CS districts. On the other hand, CS districts receive 59% of their funding from the state while the ratio for non-CS districts is 64%. On average, CS districts spent less than non-CS districts across five out the six expenditure measures, except for total district expenditure devoted to capital outlay (Figure 1)⁴. The descriptive statistics reveal that capital outlay is the only exception where TPSs in CS districts devoted slightly more than their counterparts in non-CS districts. One explanation may be that districts with charter schools need to maintain extra buildings, which could enable them to serve students in the event of charter school closure. This, however, generates an excess cost on the part of the districts.

³ Appendix C includes maps of district distribution by levels of enrollment ratios and growth rates. ⁴ Appendix D includes the trends of the six expenditures from 2002 to 2011.

⁵ Refer to Appendix C for distribution of districts by levels of charter enrollment ratios and charter growth rates.

Figure 2. Differences in district expenditures between CS districts and non-CS districts

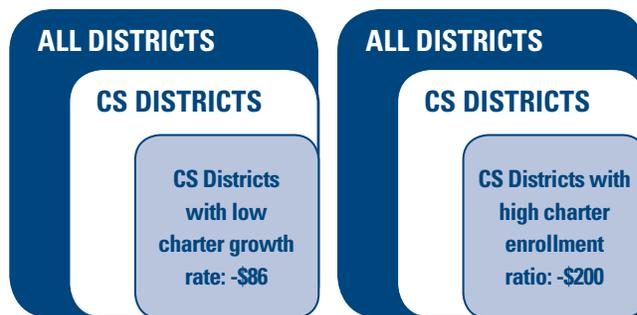


CROSS-DISTRICTS REGRESSIONS YIELD THE DIFFERENTIAL EFFECTS OF CHARTER SCHOOLS ON DISTRICT FINANCE IN NORTH CAROLINA:

Finding 2.1 – The effects of charter schools on district finance vary by level of charter enrollment ratio and charter growth rates.

Districts experienced decrease in per pupil expenditure to varying degrees after the recession, as conditioned by the presence of charter schools⁵. Districts with high charter school enrollment ratio and low charter school growth experienced larger and statistically significant reduction in spending per student after the recession. TPSs in districts with high charter school enrollment spent \$200 less per student, after the recession; the same is true for TPSs in districts with low charter school growth which spent, on average, \$86 less per student (Figure 2).

Figure 3. Reduction in per pupil expenditure after the recession by levels of charter enrollment ratios and growth rates



Note: We didn't find statistically significant results for districts with high level of charter growth rates or districts with low level of enrollment ratios.

Finding 2.2 – Charter school enrollment ratio is associated with increased spending per student devoted to instruction

After controlling for the overall funding reduction due to the recession during the 2008-2009 school year, our analysis shows that the presence of charter schools increased the amount of expenditure devoted to instruction per student, despite the overall reduction in per pupil expenditure. This impact is

statistically significant for three of the model specifications, and increases in magnitude across the three specifications:

- All districts: \$13
- CS districts only: \$67
- CS districts with high charter growth rate: \$90

When we turn to the proportion of total district expenditure devoted to instruction (%TE on Instruction), our analysis shows that the presence of charter schools also increased the level of total district expenditure devoted to instructional areas. This impact is statistically significant for three model specifications. Each 10% increase in charter school enrollment ratios is associated with the following increases devoted to instruction:

- All districts: 0.9%
- CS districts only: 1.54%
- CS districts with high charter enrollment ratios: 2.03%

Finding 2.3 – The expansion of charter schools is negatively associated with total district expenditure devoted to capital outlay, but less significant for support services or non-instructional areas

The total operating expenditure devoted to capital outlay (%TE on Capital Outlay) is negatively affected by the presence of charter schools. For each 10% increase in charter school enrollment, the proportion of total district expenditure devoted to capital outlay experiences some reduction:

- All districts: -1.98%
- CS districts only: -2.56%
- CS districts with high charter enrollment ratios: -4.11%

The impact of charter schools is less pronounced in terms of the percentage distributions of the total operating expenditure devoted to support services (%TE on Support) and non-instructional areas (%TE on Non-Instruction). Changes in charter school enrollment are positively associated with an increase in %TE on Support only for CS districts with low charter growth, and a reduction in %TE on Non-Instruction only for CS districts with high charter enrollment ratios⁶.

DISCUSSION

Using a 10-year panel data set of all 115 districts in North Carolina, our analysis reveals a positive impact of charter schools in shifting district expenditures devoted to instruction. This confirms the conventional logic that TPSs increased spending devoted to instruction to improve student performance or attract families in response to the charter expansion in the state (RPP International, 2001). We find that all districts in North Carolina experienced the same resource

⁶ Regression output tables for model specifications across the six expenditure measures are in Appendix E.

allocation adjustments to varying degrees by levels of charter enrollment ratios and/or charter growth rates. TPSs in districts with high charter school growth rates have experienced the greatest increases in spending devoted to instruction per student. With regard to %TE on Instruction, TPSs in districts with high charter school enrollment ratios have experienced the largest increases. When we take into consideration of the impact of the recession, two findings are most salient. First, we see statistically significant reductions in TPSs' per pupil expenditure associated with the recession. Second, the reductions seem to have had greater impacts on districts with high level of charter enrollment ratios and districts with low level of charter growth rates.

LIMITATIONS

There are several limitations to this study. First, given the data availability from the National Center on Educational Statistics, we were only able to gather data up to 2011, which constrains our analysis to a period prior to the charter school cap removal and the passage of Excellent Public School Act of 2011 (S.L.2012-142), both of which have important policy relevance to the overall landscape of school finance in North Carolina. Next, it is beyond the scope of this study to discuss the merits or instructional quality of charter schools, such as new approaches to school/district governance and management (Arsen, Plank & Sykes, 1999; RPP International, 2001; Teske et al., 2000), and reduction in school crowding (Anderson, 2004). Third, our analysis has only focused on the public sector of school choice, which excludes other choices such as private schools, or homeschool; ignoring these alternatives from the private sector may lead to an overestimation of the impact of charter schools (Holmes, DeSimone & Rupp, 2003).

POLICY RECOMMENDATIONS

Given the recent recession and its impact on public education in recent years, our policy recommendations focus on how to engage traditional public schools and charter schools in efficient and collaborative activities as ways to alleviate the financial burdens felt by both systems and to ensure that school choice improves the educational opportunities available for all children in North Carolina.

POLICY RECOMMENDATION 1 – PROMOTE COORDINATION: BETWEEN DISTRICTS AND CHARTER SCHOOLS

1.1 – Encourage districts and charter schools to share facilities and services to constrain costs

Districts may need to maintain extra buildings, which would enable them to serve students in the event of charter closure. This generates excess cost on the districts. When districts

lease available school buildings to charter schools and/or provide services to charter schools at a lower rate than charter schools in general would need to pay, it creates a win-win situation. On one hand, districts generate revenues from building lease and service provision⁷. On the other hand, charter schools would pay less for both expenditures, which could potentially enable them to focus more on other operational and/or instructional areas.

1.2 – Districts should communicate with charter schools regarding enrollment changes to facilitate budget planning

Doing so will allow districts to budget proactively and reallocate funds in response to enrollment shifts associated with new charter school openings or expansion of existing charter schools.

POLICY RECOMMENDATION 2 – FACILITATE BUDGET PLANNING: BETWEEN SBE AND DISTRICTS

Once the districts and charter schools begin to communicate more about facilities, services, and enrollment information, as the Board continues to solicit comments from the districts on the charter impacts, the focus may shift from projecting the loss of enrollment to how districts would proactively plan to adjust to and accommodate the charter enrollment expansion within the districts.

POLICY RECOMMENDATION 3 – PROVIDE TRANSITIONAL ASSISTANCE: BETWEEN DPI AND DISTRICTS

DPI could also provide transitional assistance to districts who request it. DPI has the capacity to help such districts with budget adjustments, or institutional governance and management changes in the event of enrollment shifts associated with charter growth.

OPEN QUESTIONS

While this study adds to the emergent literature of the broad-scale financial impact of charter schools on traditional public schools, several questions remain to be answered within the North Carolina context. We suggest further investigation of the following questions:

1. How/why were districts able to a) respond to the recession or b) shift resources differently, as conditioned by the presence of charter schools?
2. Are the impacts observed in this study both long lasting and systemic?
3. Is there a relationship between the financial impacts and TPS student performance across districts with different charter characteristics (levels of charter enrollment ratios and/or growth rates)?

⁷ This recommendation is a modification of two previously proposed bills to the General Assembly (Appendix F).

APPENDIX A: SIX STANDARD DISTRICT EXPENDITURE MEASURES

Table 2. Definition of district expenditure measures

Total Operating Expenditure (TE)	Funding to elementary-secondary education, facilities acquisition and construction, replacement equipment, other programs and interest on debt
TE on Instruction	Teacher salaries and benefits and instructional supplies and purchased services (Pre-K to 12)
TE on Support Service	For activities that support instruction, including operation and maintenance of buildings, school admin, student support services (e.g., nurses, therapists, and guidance counselors), student transportation, instructional staff support (e.g., librarian, instructional specialist), school district admin, business services, research, and data processing.
TE on Capital Outlay	Spending for construction, instructional equipment, non-specified equipment, land and existing structures, and all other capital outlay expenditures and equipment
TE on Non Instruction	Food services and enterprise operations
PPE	TE/Enrollment
PPE on Instruction	(TE on Instruction)/Enrollment

Note: PPE is calculated by dividing the total operating expenditure (TE) over traditional public school enrollment for each LEA for each year over the 10-year span. PPE on Instruction is calculated by dividing the total operating expenditure devoted to instruction (TE on Instruction) over traditional public school enrollment. PPE measures would control for the bias that may be introduced by increased enrollment in each LEA over time that would not have been captured by the four TE percentage measures.

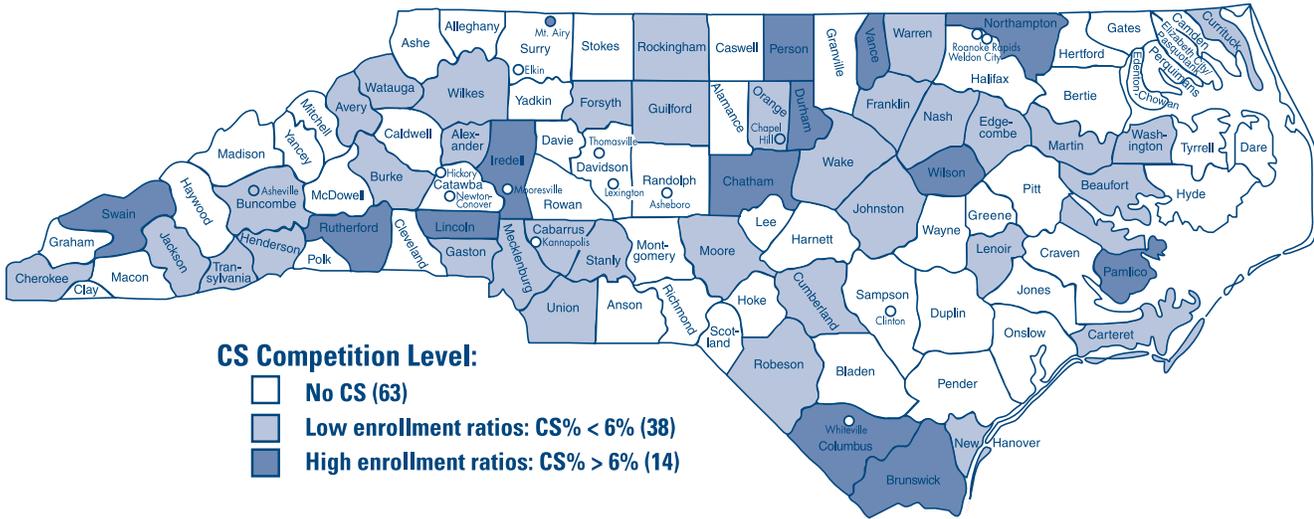
APPENDIX B: FIXED EFFECT PANEL DATA MODEL AND LIST OF VARIABLES

$$Y_{it} = \alpha + \beta_1 CS\%_{it} + \beta_2 TE_{it} + \beta_3 Student_{it} + \beta_4 Rev_{it} + D_charter_t + D_recession_i + district_i + \epsilon_{it} \quad (1)$$

Y_{it} is a set of outcome variables discussed earlier that measures district financial resources for each district i in year t . $CS\%_{it}$ is the charter school enrollment ratio at the state level ($CS^*\%_{it}$ is used in the model that includes only districts experiencing charter presence). TE_{it} is the total operating expenditure per year per LEA (Table 1). $Student_{it}$ denotes a vector of demographic information at the district level, including the percentage of students with limited English proficiency (LEP), the percentage of students with Individualized Education Plans (IEP), the percentage of students eligible for free and reduced priced lunch (FRL),

the percentage of Hispanic, Asian, and Black students, the percentage of male students, and traditional public school enrollment. Rev_{it} denotes a vector of the percentage distribution of local and state revenues in the total revenue per year per LEA. $D_charter_t$ is a dummy variable indicating districts with charter schools. $D_recession_i$ is a dummy variable indicating school years after 2008, a widely accepted starting point for the Great Recession, which had a negative impact on North Carolina school expenditures. $district_i$ is district fixed effect. All expenditure and revenue data are converted to 2002 dollars.

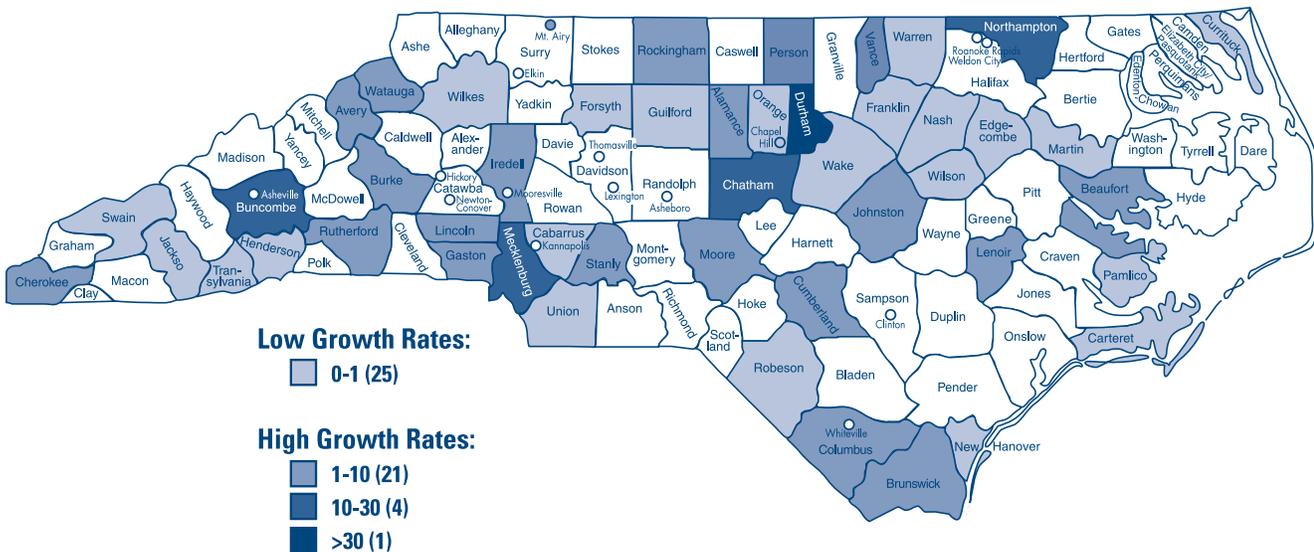
APPENDIX C.1: CHARTER ENROLLMENT RATIO MAP, BY LEAS (2011)



Notes:

1. Enrollment ratio: $CS\% = \frac{\text{Total CS Enrollment}}{\text{Total CS} + \text{TPS Enrollment}}$
2. Enrollment ratio defined by Hoxby (2006)
3. Districts with high charter enrollment ratios: $6\% \leq CS\% < 28\%$

APPENDIX C.2: CHARTER GROWTH RATE MAP, BY LEAS (2011)



Notes:

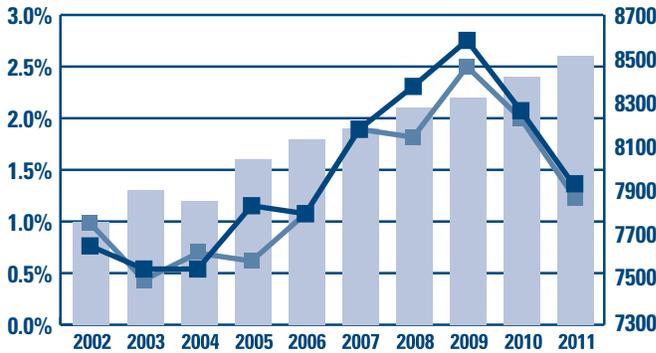
1. Growth rate = $\frac{CS\%2011 - CS\%2002}{CS\%2002}$
2. Range of rates among LEAs with high CS growth: $1 < \text{Growth rate} < 37$

APPENDIX D: TRENDS OF DISTRICT EXPENDITURES BETWEEN CS DISTRICTS AND NON-CS DISTRICTS (2002-2011)

■ CS Districts ■ Non-CS Districts

Note: For all of these figures, the trend for non-CS districts are represented by the darker line while the trend for CS districts are represented by the lighter line.

Figure 4. Trends of PPE between CS and Non-CS Districts



Note: District trends dropped after school year 2008-2009 indicating a negative impact of the Great Recession.

Figure 7. Trends of %TE on Support Services between CS and Non-CS Districts

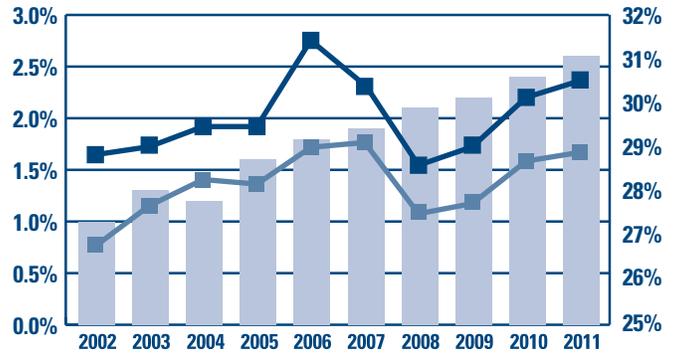
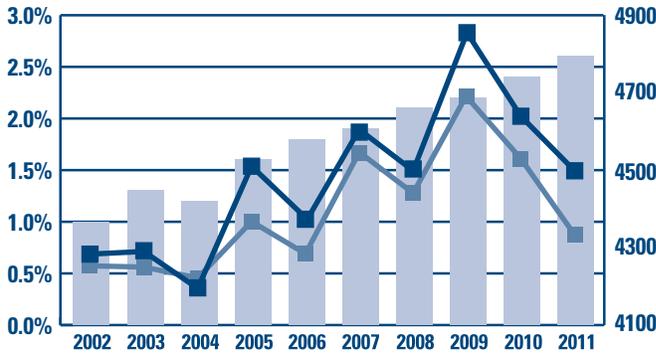


Figure 5. Trends of PPE on Instruction between CS and Non-CS Districts



Note: District trends dropped after school year 2008-2009 indicating a negative impact of the Great Recession.

Figure 7. Trends of %TE on Non-Instruction between CS and Non-CS Districts

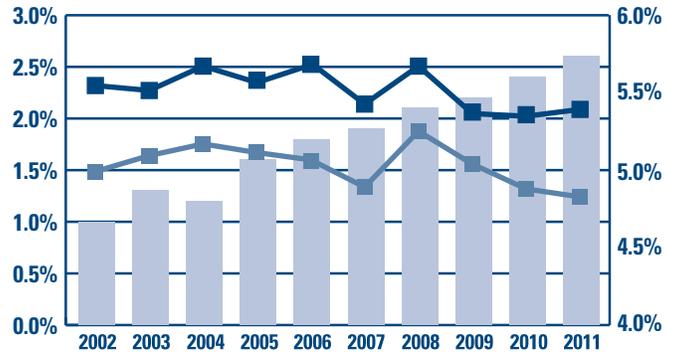


Figure 6. Trends of %TE on Instruction between CS and Non-CS Districts

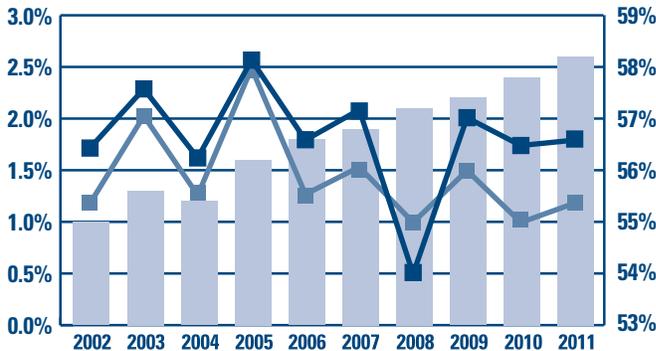
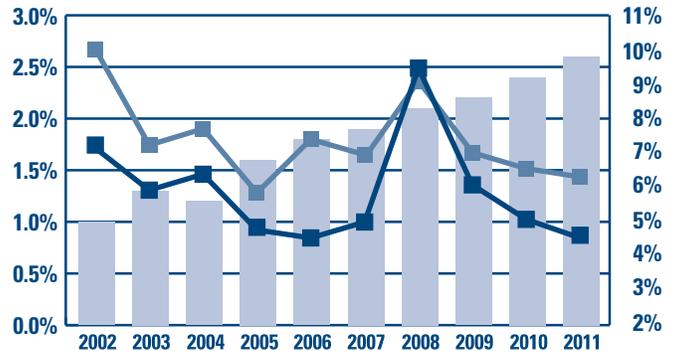


Figure 8. Trends of %TE on Capital Outlay between CS and Non-CS Districts



APPENDIX E: CROSS-DISTRICTS REGRESSIONS OUTPUTS

Table 3. Impact of charter schools on TPS Total PPE

	All Districts		CS Districts (CS*%)		Competition Level				Growth Rate			
	β	s.d.	β	s.d.	High		Low		High		Low	
					β	s.d.	β	s.d.	β	s.d.	β	s.d.
CS%	-0.058	0.232	0.494	0.444	-0.052	0.472	0.410	1.588	1.264	0.661	1.927	1.286
Recession	-0.168***	0.046	-0.075	0.064	-0.166*	0.064	0.009	0.101	-0.075	0.105	-0.086**	0.030
Charter	0.001	0.024	-	-	-	-	-	-	-	-	-	-
TE (logged)	8.139***	0.516	7.266***	0.936	8.252***	0.384	6.831***	1.237	6.047**	1.641	8.384***	0.234
LEP%	-0.189	0.197	0.063	0.090	-1.252	0.776	0.125	0.101	-0.081	0.233	0.050	0.142
IEP%	1.724	0.932	1.360	1.176	1.565	2.056	0.986	1.008	3.352	3.731	0.613	0.460
FRL%	-0.014	0.028	0.021	0.047	0.109	0.063	-0.059	0.079	0.032	0.069	0.030	0.046
Male%	0.514	1.170	-0.399	1.228	-0.104	1.079	-1.742	1.901	-0.461	1.204	0.780	1.344
Hispanic%	1.475*	0.603	-0.111	0.888	2.357	1.335	-2.370	1.620	1.404	1.215	-0.275	0.919
Asian%	3.561**	1.255	4.074	2.200	4.794	3.411	4.704	3.304	1.606	2.693	3.585	2.462
Black%	-0.215	0.348	-0.030	0.440	0.339	0.635	-0.852	0.710	1.182	0.871	-0.382	0.327
Enrollment (logged)	-19.596***	0.921	-17.600***	1.482	-19.552***	0.767	-15.975***	2.540	-15.347***	2.275	-19.516***	0.580
Local revenue %	0.457	0.467	0.412	0.852	0.275	1.098	0.362	1.095	1.627	1.584	0.045	0.637
State revenue %	-0.012	0.536	0.012	0.621	0.251	1.135	0.008	0.905	0.677	1.156	0.105	0.719
R²	0.94		.093		0.97		0.9		0.84		0.97	

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4. Impact of charter schools on TPS PPE on Instruction

	All Districts		CS Districts (CS*%)		Competition Level				Growth Rate			
	β	s.d.	β	s.d.	High		Low		High		Low	
					β	s.d.	β	s.d.	β	s.d.	β	s.d.
CS%	0.841*	0.366	1.549**	0.533	1.805	0.899	1.327	2.265	2.095**	0.663	0.588	2.277
Recession	0.135***	0.026	0.118*	0.045	0.037	0.091	0.160**	0.047	0.143*	0.058	0.075	0.080
Charter	0.023	0.021	-	-	-	-	-	-	-	-	-	-
TE (logged)	1.427***	0.158	1.183***	0.219	1.558**	0.411	1.029***	0.236	0.986**	0.302	1.295**	0.324
LEP%	-0.198*	0.097	-0.056	0.078	-1.914	1.141	-0.044	0.066	-0.155	0.140	0.157	0.309
IEP%	0.763	0.702	-0.100	0.800	-3.320	3.159	0.332	0.723	0.077	1.813	-0.102	1.137
FRL%	-0.016	0.041	-0.019	0.059	0.035	0.105	-0.037	0.077	0.037	0.096	-0.114	0.073
Male%	-4.274***	0.894	-3.408*	1.356	-6.109**	2.010	-3.263	1.781	-3.256*	1.495	-2.709	3.132
Hispanic%	2.139***	0.555	2.330*	0.922	4.039*	1.740	1.678	0.979	1.618	1.310	4.512*	1.711
Asian%	4.808**	1.404	5.781*	2.382	8.590	4.554	5.600	2.829	4.421	2.426	4.145	3.033
Black%	1.439**	0.477	2.122**	0.649	4.089**	1.249	1.289*	0.515	2.425*	0.921	2.110*	0.979
Enrollment (logged)	-4.298***	0.604	-3.837**	1.105	-4.306	2.039	-3.467**	1.025	-2.800*	1.330	-4.573**	1.475
Local revenue %	-0.419	0.403	0.952	0.524	1.189	1.168	0.976	0.583	1.441	0.735	1.019	0.893
State revenue %	0.632	0.427	1.601*	0.618	1.803	1.159	1.671*	0.718	1.966*	0.757	1.797	1.094
R²	0.52		0.37		0.32		0.56		0.39		0.42	

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5. Impact of charter schools on TPS %TE on Instruction

	All Districts		CS Districts (CS*%)		Competition Level				Growth Rate			
					High		Low		High		Low	
	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.
CS%	0.090*	0.038	0.154**	0.057	0.203*	0.093	0.172	0.257	0.168	0.092	-0.041	0.214
Recession	0.022***	0.002	0.017**	0.005	0.013	0.009	0.017**	0.006	0.020**	0.006	0.012	0.008
Charter	0.004	0.003	-	-	-	-	-	-	-	-	-	-
TE (logged)	-0.326***	0.021	-0.319***	0.046	-0.349***	0.047	-0.306***	0.061	-0.280**	0.084	-0.359***	0.034
LEP%	-0.004	0.009	0.000	0.010	-0.112	0.136	-0.002	0.008	-0.006	0.012	0.025	0.031
IEP%	0.057	0.077	-0.065	0.104	-0.312	0.358	-0.012	0.085	-0.133	0.268	-0.041	0.110
FRL%	-0.003	0.005	-0.004	0.008	-0.003	0.011	-0.003	0.012	0.006	0.014	-0.020*	0.009
Male%	-0.468***	0.088	-0.372*	0.141	-0.657**	0.198	-0.286	0.205	-0.354	0.189	-0.348	0.304
Hispanic%	0.122*	0.060	0.206*	0.100	0.290	0.211	0.232	0.134	0.086	0.147	0.458*	0.166
Asian%	0.373*	0.148	0.405	0.211	0.722	0.418	0.342	0.226	0.361	0.274	0.270	0.251
Black%	0.166***	0.045	0.223**	0.067	0.391*	0.144	0.188*	0.075	0.203	0.101	0.237*	0.095
Enrollment (logged)	0.659***	0.060	0.679***	0.129	0.728**	0.218	0.630***	0.156	0.680**	0.200	0.684***	0.150
Local revenue %	-0.066	0.044	0.060	0.066	0.103	0.153	0.049	0.073	0.065	0.100	0.083	0.101
State revenue %	0.057	0.043	0.160*	0.070	0.186	0.157	0.146	0.077	0.194*	0.079	0.167	0.124
R ²	0.36		0.37		0.18		0.54		0.39		0.37	

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6. Impact of charter schools on TPS %TE on Capital Outlay

	All Districts		CS Districts (CS*%)		Competition Level				Growth Rate			
					High		Low		High		Low	
	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.
CS%	-0.198*	0.080	-0.256*	0.110	-0.411**	0.127	-0.568	0.292	-0.229	0.166	-0.519	0.278
Recession	-0.038***	0.004	-0.038***	0.007	-0.020	0.013	-0.040***	0.009	-0.043***	0.010	-0.038**	0.012
Charter	-0.002	0.007	-	-	-	-	-	-	-	-	-	-
TE (logged)	0.561***	0.035	0.538***	0.072	0.560***	0.066	0.524	0.095	0.468	0.127	0.637***	0.049
LEP%	0.041*	0.019	0.027	0.018	0.387	0.260	0.040*	0.016	0.029**	0.024	-0.020	0.061
IEP%	0.023	0.134	0.202	0.156	1.185*	0.440	0.035	0.156	0.295	0.452	0.167	0.184
FRL%	-0.002	0.007	0.000	0.012	0.005	0.015	0.000*	0.017	-0.026	0.022	0.026	0.014
Male%	0.731***	0.147	0.610*	0.240	0.672	0.360	0.633	0.317	0.526	0.353	1.009*	0.440
Hispanic%	-0.436***	0.104	-0.403*	0.186	-0.597	0.354	-0.443	0.215	-0.317	0.292	-0.444	0.304
Asian%	-1.030*	0.458	-0.449	0.637	-3.673**	0.852	0.185	0.468	-0.747	0.750	0.413	0.480
Black%	-0.241**	0.080	-0.312*	0.124	-0.482*	0.217	-0.281	0.145	-0.333	0.206	-0.276	0.142
Enrollment (logged)	-1.115***	0.110	-1.183***	0.215	-1.243***	0.270	-1.117	0.324	-1.080**	0.339	-1.341***	0.276
Local revenue %	0.051	0.065	-0.097	0.119	-0.024	0.188	-0.096	0.153	-0.146	0.174	-0.024	0.173
State revenue %	-0.024	0.063	-0.141	0.121	-0.089	0.149	-0.131	0.173	-0.270	0.157	0.008	0.191
R ²	0.38		0.33		0.2		0.38		0.36		0.38	

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7. Impact of charter schools on TPS %TE on Support Services

	All Districts		CS Districts (CS*)		Competition Level				Growth Rate			
					High		Low		High		Low	
	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.
CS%	0.092	0.055	0.064	0.065	0.090	0.075	0.267	0.149	0.042	0.076	0.567*	0.203
Recession	0.007**	0.003	0.009*	0.004	0.000	0.007	0.010*	0.005	0.007	0.006	0.014**	0.004
Charter	-0.003	0.004	-	-	-	-	-	-	-	-	-	-
TE (logged)	-0.185***	0.014	-0.178***	0.025	-0.175***	0.037	-0.178***	0.030	-0.156**	0.040	-0.224***	0.018
LEP%	-0.051**	0.018	-0.036**	0.012	-0.290*	0.132	-0.042**	0.011	-0.034**	0.011	-0.055*	0.022
IEP%	-0.041	0.080	-0.084	0.084	-0.693**	0.209	-0.015	0.075	-0.155	0.194	-0.031	0.094
FRL%	0.005	0.003	0.005	0.005	-0.001	0.008	0.007	0.007	0.018*	0.008	-0.006	0.007
Male%	-0.219**	0.079	-0.315*	0.121	-0.217	0.202	-0.358**	0.129	-0.382*	0.145	-0.586**	0.172
Hispanic%	0.232***	0.059	0.184	0.107	0.427*	0.165	0.166	0.143	0.276	0.147	-0.010	0.133
Asian%	0.541	0.289	0.378	0.407	2.848***	0.573	-0.114	0.233	0.868	0.460	-0.306	0.229
Black%	0.024	0.052	0.073	0.087	0.110	0.159	0.077	0.099	0.194	0.100	-0.014	0.087
Enrollment (logged)	0.327***	0.058	0.265*	0.115	0.218	0.146	0.301*	0.137	0.208	0.124	0.437***	0.095
Local revenue %	-0.055	0.038	-0.013	0.088	-0.075	0.135	-0.011	0.114	0.006	0.125	-0.087	0.120
State revenue %	-0.037	0.039	-0.022	0.094	-0.054	0.140	-0.021	0.125	0.031	0.129	-0.134	0.131
R²	0.16		0.2		0.15		0.2		0.14		0.2	

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 8. Impact of charter schools on TPS %TE on Non-Instruction

	All Districts		CS Districts (CS*)		Competition Level				Growth Rate			
					High		Low		High		Low	
	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.	β	s.d.
CS%	-0.007	0.011	-0.020	0.018	-0.411**	0.127	-0.568	0.292	-0.007	0.013	-0.095	0.074
Recession	0.000	0.001	0.002	0.001	-0.020	0.013	-0.040***	0.009	0.002	0.001	0.001	0.001
Charter	0.000	0.001	-	-	-	-	-	-	-	-	-	-
TE (logged)	-0.036***	0.003	-0.033***	0.005	0.560***	0.066	0.524***	0.095	-0.031**	0.009	-0.035***	0.005
LEP%	-0.002	0.002	-0.003	0.002	0.387	0.260	0.040*	0.016	-0.005*	0.002	-0.001	0.006
IEP%	-0.007	0.014	0.005	0.016	1.185*	0.440	0.035	0.156	-0.017	0.030	0.021	0.030
FRL%	0.001	0.001	0.001	0.002	0.005	0.015	0.000	0.017	0.003	0.002	-0.002	0.003
Male%	-0.081***	0.019	-0.080*	0.032	0.672	0.360	0.633	0.317	-0.031	0.050	-0.144**	0.047
Hispanic%	0.049**	0.016	0.068**	0.025	-0.597	0.354	-0.443*	0.215	0.064	0.037	0.063	0.034
Asian%	0.058	0.039	0.029	0.031	-3.673**	0.852	0.185	0.468	-0.089	0.064	0.066	0.040
Black%	0.053***	0.012	0.053**	0.015	-0.482*	0.217	-0.281	0.145	0.044	0.027	0.059**	0.017
Enrollment (logged)	0.060***	0.009	0.035	0.020	-1.243***	0.270	-1.117**	0.324	0.061*	0.022	0.023	0.025
Local revenue %	0.009	0.009	0.033**	0.010	-0.024	0.188	-0.096	0.153	0.060***	0.012	0.005	0.020
State revenue %	0.019	0.010	0.046***	0.011	-0.089	0.149	-0.131	0.173	0.076***	0.011	0.012	0.021
R²	0.16		0.15		0.2		0.38		0.02		0.15	

* $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX F: PROPOSED BILLS CONCERNING DISTRICTS LEASING AVAILABLE BUILDINGS TO CHARTER SCHOOLS

Main idea concerning district buildings and charter schools: Districts may rent available buildings to charter schools at \$1 per year

- S.B. 42: Charter School/Government Unit
 - 2012-2013 short session
 - Primary sponsors: Senators Daniel, Tillman, and Tucker
- S.B. 337: NC Charter School Advisory Board
 - 2013-2014 session
 - Primary sponsors: Senators Tillman, Soucek

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By Joe Maugeri, Julia Burrus Pierson, Vincent Reitano, and Qi Wang Xing

The Financial and Business Services Area is in its ninth year of the Research Intern Program. The Program is designed to help build a quality research program within NCDPI to supplement and supply data for discussions related to procedural, process, and policy changes. This year's program included students from Duke University's Master of Public Policy program, North Carolina State University's Master of Public Administration program, and The University of North Carolina at Chapel Hill's Master of Public Administration and Doctorate in Education programs. The intern program is managed by Eric Moore (919-807-3731) and Kayla Siler (919-807-3824) | intern_research@dpi.nc.gov

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