2011-12 ARKANSAS CHARTER SCHOOL ACADEMIC EVALUATION

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Executive Summary

In compliance with state law, the Arkansas Department of Education commissions a yearly evaluation of charter schools around the state, both conversion and open-enrollment charter schools. While Arkansas passed its first charter school law in 1995, there have been annual evaluations since the 2005-06 school year, through this current analysis, 2011-12.

This report reviews past evaluations performed by state sponsored groups, academics, and the national study done by the CREDO research center. In response to these findings, this evaluation brings new value by not only using the best statistical methods available, but also by performing an analysis for all charter schools individually using the most recent data that has been studied. The research team performing this evaluation will provide similar analyses in a future report covering the 2012-13 and 2013-14 school years.

This latest iteration of the state charter evaluation provides a study of the academic impact of all charter schools using a "Virtual Twin" matching method. These impacts are reported for both math and literacy at several level: all schools combined, only conversion charters, only open-enrollment charters, individual schools, and by sub-groups (years of operation, schools with waitlists). Data from the 2010-11 school year is used for the matching process, while gains are reported for the year of this analysis, 2011-12.

Overall, charter schools (including open-enrollment and conversion schools) across the state did not produce a statistically significant impact in math outcomes, and while the literacy impact was positive, it was not significant at the predetermined level. However, for only open-enrollment charter schools, there was a significant positive finding in literacy. Conversion charters had no significant finding in either subject. It should be noted that a limitation of the analysis is the number of students included. Several charter schools, by design or for other reasons, maintain low student populations and therefore have low numbers of students tested. We withhold judgment on the effectiveness of charter schools until the completion of the 3-year analysis of charters with data from 2011-12, 2012-13, and 2013-14.

This report is concluded with notes on the limitations of this study and a call for further research concerning how charter schools can best serve our state and how they can be held accountable. Finally, because lottery style admissions were used at several of the schools for the 2012-13 analysis, an update is given about plans for future studies.

Introduction

Educational choice as a school improvement strategy has been seriously contemplated since the 1960s, as vehicles of choice and as spurs of innovation in the classroom. Nobel laureate economist Milton Friedman from these early days was encouraging policy makers to "introduce competition and give the customers alternatives"[1] in the education sector, saying that the "injection of competition would do much to promote a healthy variety of schools."[2]

Perhaps the most prevalent form of "school choice" in the nation today, charter schools, were developed in 1990 with the first charter schools opening in Minnesota in 1992. Charter schools are unique public schools that are allowed the freedom to be more innovative while being held accountable for advancing student achievement. Because they are public schools, they are open to all children, do not charge tuition, and do not have special entrance requirements.[3] These schools provide parents with an alternative public school option to the traditional public schools in their neighborhoods. Currently, there is no national charter school legislation, though 42 states and the District of Columbia have charter school laws and charter school support in each state varies widely.[4]

From these early roots, states across the country have responded with their own type of charter legislations that would allow for the emergence of individual charters schools, as well as charter management organizations (CMOs) that manage several charter schools. Arkansas was one of those states, passing their first charter school law in 1995 (Act 1126)[5] allowing conversion charter schools, and then a more general open-enrollment charter law in 1999 (Act 890)[6]. The first open-enrollment charter school opened in Arkansas in 2001, and two open-enrollment charter schools have continuously been in operation since that time: Academics Plus and Benton County School of the Arts.[7] [8] Conversion charter schools were slower to form; the earliest continually running school of this type was founded in 2003: Mountain Home High School Career Academy.[9]

Since the institution of the original Arkansas charter school laws, the number of charter schools has grown across the state from serving students in the state's largest city, the state capital of Little Rock,

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[1] Friedman, Milton. Newsweek. "The Friedmans on School Choice." *The Friedman Foundation for Educational Choice*, n.d. Web. 07 August 2014. <http://www.edchoice.org/The-Friedmans/The-Friedmans-on-School-Choice>.
[2] Friedman, Milton. Cap and Free. "The Friedmans on School Choice." *The Friedman Foundation for Educational Choice*, n.d. Web. 07 August 2014. <http://www.edchoice.org/The-Friedmans/The-Friedmans-on-School-Choice>.
[3] National Alliance for Public Charter Schools. "What are Public Charter Schools?" Web. 15 December 2014. <http://www.publiccharters.org/get-the-facts/public-charter-schools/>.
[4] Center for Education Reform. "Choice & Charter Schools: Laws & Legislation." Web. 15 December 2014. <https://www.edreform.com/issues/choice-charter-schools/laws-legislation/>.
[5] Mills, Jonathan N. "The Achievement Impacts of Arkansas Open-Enrollment Charter Schools." Journal of Education Finance 38.4 (2013): 322. <http://muse.jhu.edu/journals/journal_of_education_finance/v038/38.4.mills.pdf>.
[6] *Arkansas Quality Charter Schools Act of 2013*, Acts 1999, No. 890. <http://www.arkansased.org/public/userfiles/Learning_Services/Charter%20and%20Home%20School/Charter%20School-Division%20of%20Learning%20Services/Arkansas_Quality_Charter_Schools_Act_of_2013.pdf>.
[7] *Open-Enrollment*. Arkansas Department of Education, n.d. Web. 13 August 2014. <http://www.arkansased.org/contact-us/charter-schools/charter_school_categories/open-enrollment>.
[8] The Benton County School of the Arts is now the Arkansas Arts Academy.
[9] *District-Conversion*. Arkansas Department of Education, n.d. Web. 13 August 2014. <http://www.arkansased.org/contact-us/charter-schools/charter_school_categories/district-conversion>.

to serving more rural communities throughout the state of Arkansas. During the 2011-12 school year (which is the time period covered by this report), the Arkansas K-12 public school system was responsible for 468,656 students in 260 school districts (mean enrollment: 1,802, median: 893), including all open enrollment charter school districts. From these 260 districts, there were 17 open-enrollment charter school districts and 12 conversion charter schools, which remain part of the remaining 243 school districts. More descriptive information about the state's charter schools will be given in the Data section of this report. While more schools have been chartered since this time, our analysis focuses purely on those working at the time.

This report will seek to use Arkansas state test scores to compare students enrolled in Arkansas charter schools to those who share similar observable characteristics (grade level, test scores, economic status, minority status, gender, and others) but who are not enrolled in a charter school.

The following section will introduce the background of this study, give an introduction to similar studies that have looked at Arkansas charter schools, explain the type of data that was used for this analysis, explain the methods and rules that governed the analysis, and finally report the results of the study of charter schools for the 2011-12 school year. An appendix is included at the end of this report to keep the size of the report manageable.

Background

As background to the literature review and report to follow, we note the depth of evaluations that have been done of charter schools across the country. We classify these evaluations into two types: 1) national evaluations and 2) state and local evaluations.

Since the 2005-06 school year, there has been an annual evaluation of Arkansas charter schools, as commissioned by law. The purpose of the annual evaluation is to provide a snapshot of the status of Arkansas charter schools – their academic outcomes and the interest in them. Except for the first academic year, all studies have been conducted by Metis Associates. The most recent Metis report will be covered in the literature review.

After a competitive bidding process, the initial authors of the research proposal and of this report (Ritter, Wolf, and Crouch) as employees of the University of Arkansas, were brought on to perform the evaluation of Arkansas charter schools for the two school years: 2011-12 and 2012-13. Part of the proposed evaluation is a rigorous academic evaluation that is done on a year-by-year basis. Of previous academic evaluations, which will be covered in the literature review, none have given year-by-year academic outcomes for the state or for individual charter schools. This report will give a snapshot of academic performance for the specific 2011-12 academic year.

As part of our contract with the Charter and Home Schools Office of the Arkansas Department of Education (ADE), we have been asked to study the academic impact of Arkansas charter schools of all types for the 2011-12 school year (this report), the 2012-13 school year, and the satisfaction of charter school parents. Because of the nature of the available data for the 2011-12 school year, the best method for this analysis is a "Virtual Twin" matching (VTM) analysis, which compares charter students to similar students in "feeder districts." These terms and more will be further described in the Data and Methods

section of this report. Portions of the 2012-13 report will use a Randomized Control Trial (RCT), which takes advantage of oversubscription at the school level to make the best comparison possible.

To report these outcomes, academic performance on the state standardized examinations is used. These data are available across school types, both traditional public school and charter public schools, and the tests were taken through the years in question.

Literature Review

Much ink has been spilt on the subject of charter school academic outcomes. Therefore, this report will consider those papers which have analyzed Arkansas charter schools in the past. These analyses come in two forms: those that report Arkansas outcomes as a subset of a national analysis, and those that report only Arkansas outcomes. The two national evaluations that have reported Arkansas outcomes as a subset that we will cover here were performed by the Center for Research on Education Outcomes (CREDO) at Stanford University. CREDO is an evaluation unit of Stanford University that focuses on K-12 education reform research, seeking to offer analysis to school leaders and policymakers.[10] The two evaluations of Arkansas outcomes only were done by separate groups. One was the state commissioned study performed by Metis Associates, a consulting-research firm stationed in New York City that focuses on evaluation.[11] The other study was done by a doctoral student, Jonathan Mills, who shares an institutional affiliation with the authors of this report, the Department of Education.

These four studies represent the broad scope of studies that have looked at Arkansas charter schools. After giving a brief overview of each, a summary table of these evaluations will be presented, as well as an explanation of the distinction between previous evaluations and the current evaluation.

Arkansas in the Context of National Evaluations

CREDO Report, 2009[12]

While CREDO performed a national evaluation of 16 charter schools with available data in 2009, the organization also released a separate analysis of Arkansas charter schools only. Using data from five separate years of schooling (2003-04 through 2007-08), the study team estimated the effect size of Arkansas charter schools on academic growth for their particular students.

In addition, CREDO used a "Virtual Twin" matching (VTM) method, which will be explained further in this report's method section. The study sought to match 4,627 students enrolled in 24 different charter schools to counterparts in the traditional public school sector – which averages out to 925 students per year. Of these students, 88% were matched in reading and 87% were matched in math.

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[10] "Overview." Center for Research on Education Outcomes (CREDO). Web. 15 August 2014. <http://credo.stanford.edu/aboutOverview.html>.
[11] "About Us: Our Company." Metis Associates. Web. 15 August 2014. <http://metisassoc.com/about/our_company.html
[12] Raymond, Margaret, et al. "Multiple Choice: Charter School Performance in 16 States." Center for Research on Education Outcomes (CREDO) Report (2009). Web. 15 August 2014. <http://credo.stanford.edu/reports/AR_CHARTER%20SCHOOL%20REPORT_CREDO_2009.pdf>.

This analysis provides outcomes across several different set-ups: effect by simple enrollment, by years of enrollment, by race/ethnicity, by Free or Reduced Lunch status, by special education status, by English Language Learner status, by grade repeating status, and by starting test score deciles.

The overall charter effect, as reported by this CREDO evaluation, was +.02 standard deviations in reading and +.05 standard deviations in math. Both of these findings are significant at the 5% level, and the math finding is significant at the 1% level. A summary of this report is found in Table 1 below, which summarizes all evaluations covered in this Literature Review.

CREDO Report, 2013[13]

This 2013 report served as a follow-up to the 2009 CREDO study, evaluating the same states as previously, as well as new states that were available, with data that had been released since the 2009 report. In this report, Arkansas was the only state that had seen high gains in the 2009 report and had low gains in the 2013 evaluation of math and reading results.

Specifically, this report focused on growth from the 2006-07 to the 2010-11 school year, the academic year before the focus of this report. Like the 2009 report, CREDO was able to match large numbers of the students, 89% in reading and 82% in math, using the same "Virtual Twin" matching (VTM) method as before.

Of the matched students, the average student started .05 standard deviation below average in reading and .09 standard deviations below average in math. After the VTM analysis is done, the report shows that Arkansas charter students saw a -.03 standard deviation impact in both math and reading. CREDO also converts this impact into days, saying that this negative result is equivalent to losing 22 days of school compared to their counterparts. The CREDO evaluators noted that school closure rates had some impact on the findings overall, but perhaps less so for Arkansas. Schools that were open for the 2010-11 school year had been closed by the beginning of the 2011-12 school year, and therefore not covered in this report. A summary of this report is found in Table 1 below, which summarizes all evaluations covered in this Literature Review.

Arkansas Specific Evaluations

Metis Report, 2012[14]

Annual reports of the status of Arkansas schools have been commissioned going back to the 2005-06 school year. For the 2006-07 through 2010-11 school years, this evaluation was conducted by

[13] Raymond, Margaret, et al. "National Charter School Study: 2013." Center for Research on Education Outcomes (CREDO) Report (2013). Web. 15 August 2014. <http://credo.stanford.edu/documents/NCSS%202013%20Final%20Draft.pdf>.

[14] Lopez, Otoniel, et al. "Arkansas Public Charter Schools: Evaluation of Service Impact and Student Achievement." Metis Associates Report (May 2012). Web. 15 August 2014. <http://www.arkansased.org/public/userfiles/Learning_Services/Charter%20and%20Home%20School/Charter%20School-Division%20of%20Learning%20Services/2010_2011_Charter_Schools_Evaluation_Report_FINAL_053012_3.pdf>.

Metis Associates. For the 2010-11 analysis, which was published in 2012, Metis conducted surveys and obtained information from 27 charter school administrators, 1,118 parents of charter students, and 5,948 charter students, seeking information on charter mission achievement, academic achievement, and parental satisfaction.

The survey was able to show the areas of greatest emphasis for school administrators, who focused on building academic leaders and strong curriculum programs. In addition, attention given to professional development increased over previous results of the survey. Administrators further reported that the greatest concerns for their schools were the public views of the schools and the availability of public funds for building budgets. Finally, the levels of satisfaction of both parents and students were high, especially in those schools with high levels of parental participation.

The Metis group also made suggestions as to the grade level practices that resulted in higher Benchmark examination scores. Compared to findings in the 2009-10 school year, this report found that sub-populations of charter students were seeing higher academic achievement gaps in 2010-11. However, no conclusions were drawn on charter effectiveness. A summary of this report is found in Table 1 below, which summarizes all evaluations covered in this Literature Review.

Mills Study, 2013[15]

Looking at Arkansas students data from academic year 2002-03 to 2010-11, this evaluation considers the academic impact of open-enrollment charter schools on students using panel data over the given period. Using a robust data set with over 1.6 million traditional public school students and over 13 thousand charter school students, the Mills study found small but significant negative results.

However, as has been observed by other studies looking at states with charter laws, this evaluation did find that as a charter school matures in age, these negative results decrease, reaching insignificant or positive significant results by the fourth year, in both math and reading tests. A note of interpretation here should be that this fourth year effect could be caused by several different factors, two of which being that either 1) schools (administrators and teachers) are able to deliver a better product as they learn over the years, or 2) poor schools are closed, fail to keep running, or lose a critical mass of students after three relatively unsuccessful years. These two and other related reasons could contribute to these results.

While the author does seek to compare findings with those from quasi-experimental methods in other states, he concedes that Arkansas is different not only its rural composition, but also in the rather restrictive laws that it has put in place for charter schools, comparatively speaking. A summary of this report is found in Table 1 below, which summarizes all evaluations covered in this Literature Review.

[15] Mills, Jonathan N. "The Achievement Impacts of Arkansas Open-Enrollment Charter Schools." Journal of Education Finance 38.4 (2013): 320-342.

Table 1. Previous Studies of Arkansas Charter School Academic Impacts with Highlighted Outcomes

Study Name by Year	N of Charters (Students)	Years Reported	Methods	Overall Findings
CREDO, 2009	24 (4,627)	2003-08	Matched Twin Analysis	+0.02 Reading +0.05 Math
Metis, 2012	29 (7,633)	2010-11	Stepwise Reg., ANCOVA	No effectiveness conclusions reported
CREDO, 2013	31 (21,896)	2007-11	Matched Twin Analysis	-0.03 Reading, Math; -22 Days of Learning
Mills, 2013	31 (13,255)	2001-11	OLS, A-H, A-B, FE; Yrs of Oper. School Level	-0.02 to -0.11 overall; Positive gains for school in 5th+ Year

Distinctions of the Current Report

In light of this previous research, this report provides new findings on Arkansas charter schools. This report provides the first set of unique findings on the academic impact of Arkansas charter schools for the 2011-12 school year, with specific findings for each school, both conversion and open-enrollment charters.

Our study matches or exceeds the rigor of the methods used in these previous studies, as will be discussed later. As commissioned, this report provides an updated one year analysis of Arkansas charter schools, as opposed to the multi-year studies cited earlier. While this report does uniquely provide school level academic impacts, it also provides aggregated impacts of all charter schools, all open-enrollment charter schools, and all conversion charter schools. Some of these aggregated impacts can be compared to previous studies. Additionally, the sub-group analyses can be compared against their counterparts in other studies. This report uses a similar number of charter schools as previous studies, although it uses a fewer number of students overall. This difference, however, is merely a result of the limited scope of this report as compared to the others cited.

Data

For this analysis, access to non-identifying student level data for the state of Arkansas was given for the 2010-11 and 2011-12 school years. Non-identifying, in this context, means that no student identifying information is used except for an ID that was generated by the ADE. Each ID is paired with information for each school year including the school attended, Free and Reduced Lunch (FRL) status, race/ethnicity, gender, English Language Learner (ELL) status, Individual Education Plan (IEP) status, and test scores for math and literacy. Our use of data complies with Federal Education Rights and Privacy Act (FERPA) regulations and relevant Arkansas regulations.

The test scores that are tied to each student come from two separate Arkansas standardized tests: the Arkansas Comprehensive Testing, Assessment and Accountability Program (ACTAAP, more commonly known as the Benchmark examination) and End of Course (EOC) examinations. Benchmark tests are taken by 3rd through 8th grade students and serve as Arkansas' compliance under the Elementary

and Secondary Education Act (ESEA) and No Child Left Behind Act (NCLB).[16] EOC tests are given in Algebra, Geometry, Biology, and 11th grade Literacy classes.

As noted in Table 2, charter students represent about 2.5% of all Arkansas K-12 students. And while the different observables are not the same between charter students and the state as a whole, the numbers are much closer when comparing charter schools with their local traditional public school districts which serve as their "feeder" districts – those districts where the students would have otherwise been assigned had they not attended the public charter school. Table 3 shows some of the basic details about the school type (whether Conversion or Open-Enrollment), the year the school opened, and the grade levels served during the 2011-12 school year. Appendix A expands on these school characteristics, showcasing the 2011-12 enrollment of each charter school, the percentage of students who are a minority race/ethnicity, and the percentage of students who qualify for Free or Reduced Lunch (FRL) status. Both Table 3 and Appendix A tell a story about charter schools that are very different from each other but look more like their communities.

One additional note should be included about the difference between charter schools and charter districts. For all conversion charter schools, the conversion school continues to be a part of the traditional public school district from whence it came. For open-enrollment charter schools, the rules are different: since charter schools are chartered, hence the name, they are created from scratch to be their own school district. Some charter schools are stand-alone organizations, and their school also serves as the entire district (e.g., Academics Plus is the school name and the name of their school district). Other times, one set of schools can be chartered separately, so that the elementary, middle, and high school have separate charters (e.g., eSTEM Elementary, Middle, and High Schools are three separate charters and thus three separate districts; these three charters have been merged since the 2011-12 academic year). The opposite of stand-alone charters are those created by Charter Management Organizations (CMOs) which control many different schools, sometimes around the country. This can be done under one charter (e.g., KIPP Delta has one charter with schools in Helena/W. Helena and in Blytheville[17]) or under multiple charters (e.g., Lighthouse Academies operates schools in Jacksonville and Pine Bluff under different charters[18])

Table 2. Student Demographics: Charter Students vs. State Combined, 2011-12

	Charter Students	**State (All Students)**
Enrollment	11,395	468,656
FRL %	54%	60%
Minority %	51%	35%
Benchmark Prof./Advanced %	68% (Math)/72% (Lit.)	78% (Math)/81% (Lit.)
EOC Prof./Advanced %	85% (Alg.)/74% (Geo.)/ 75% (Lit.)/42% (Bio.)	81% (Alg.)/75% (Geo.)/ 68% (Lit.)/42% (Bio.)

[16] *ACTAAP*. Arkansas Department of Education, n.d. Web. 13 August 2014. <http://www.arkansased.org/divisions/learning-services/student-assessment/actaap>.
[17] *Our Schools*. KIPP: Delta Public Schools, n.d. Web. 18 August 2014. <http://www.kippdelta.org/our-schools>.
[18] *Our Schools*. Lighthouse Academies, n.d. Web. 18 August 2014. <http://www.lighthouse-academies.org/schools#dropdown-arkansas>.

Table 3. Active Arkansas Charter Schools, 2011-12

Charter School	School Type	Year Opened	Grades Served in 2011-12
Academics Plus	Open-Enrollment	2001	K-12
Arkansas Virtual Academy[19]	Open-Enrollment	2007	K-8
Badger Academy	Conversion Charter	2007	7-12
Benton County School of the Arts	Open-Enrollment	2001	K-12
Blytheville Charter School and Alternative Learning Center	Conversion Charter	2001	7-12
Cabot Academic Center for Excellence	Conversion Charter	2004	7-12
Cloverdale Aerospace Technology Conversion Charter Middle School	Conversion Charter	2010	6-8
Covenant Keepers	Open-Enrollment	2008	6-11
Cross County New Tech High School	Conversion Charter	2011	K-6
Dreamland Academy	Open-Enrollment	2007	K-5
eSTEM Elementary	Open-Enrollment	2008	K-4
eSTEM High School	Open-Enrollment	2008	9-12
eSTEM Middle School	Open-Enrollment	2008	5-8
Haas Hall Academy	Open-Enrollment	2004	8-12
Imboden Area Charter School	Open-Enrollment	2002	K-8
Jacksonville Lighthouse	Open-Enrollment	2009	K-8
KIPP Blytheville	Open-Enrollment	2010	5-6
KIPP Delta	Open-Enrollment	2002	K-3, 5-12
Lincoln Academic Center of Excellence	Conversion Charter	2009	K-12
Lincoln Middle Academy of Excellence	Conversion Charter	2010	5-6
LISA Academy	Open-Enrollment	2004	6-8
LISA Academy North Little Rock	Open-Enrollment	2008	K-12
Little Rock Preparatory Academy	Open-Enrollment	2009	K-7
Mountain Home High School Career Academy	Conversion Charter	2003	9-12
Oak Grove Health, Wellness, and Environmental Science School	Conversion Charter	2009	K-4
Pine Bluff Lighthouse Academy	Open-Enrollment	2011	K-4
Ridgeroad Middle School	Conversion Charter	2003	7-8
SIA Tech	Open-Enrollment	2011	9-12
Vilonia Academy of Service and Technology	Conversion Charter	2007	5-6
Vilonia Academy of Technology	Conversion Charter	2004	2-4

[19] ARVA opened in 2007. The charter was originally approved in 2003, but due to funding issues they did not actual open until the fall of 2007.

Methods

As stated previously, the 2011-12 Academic Impact study of Arkansas Charter Schools uses a "Virtual Twin" matching (VTM) method to allow for the best possible comparison. Given the lack of a clear counterfactual, which is present in a Randomized Control Trial (RCT) analysis, the VTM analysis seeks to create the closest alternative to that counterfactual. What does it mean to create a "Virtual Twin" match? Essentially, this method wants to create a separate set of students to the ones being observed that look essentially the same when comparing observable characteristics – those observables that were mentioned in the Data section of this report.

In order to complete the matching process for open-enrollment charter schools, ADE-provided documents were used to determine which traditional public school districts the charter students would have been assigned to had they not gone to the charter school. These documents, as mentioned above with other data sources, protected the privacy of each student, only revealing a total at the district level. From these documents, the set of feeder districts was identified from which "virtual twins" were drawn. Many charter schools, such as Arkansas Virtual Academy, in particular, drew students from a wide array of districts, thus making it difficult to find the best population to make a comparison with. For this reason, this analysis uses a set of rules to narrow the set of students from which twins are drawn, thus allowing for a better comparison.

The rules are as follows: 1) "Feeder" districts for each charter school district are ordered from most number of students provided to least number of students provided. 2) Districts giving the most students are chosen to be a part of the analysis until 90% of the student body is represented. In one instance, that was accomplished by one feeder district (LISA Academy receives 92% of its students from the Little Rock School District), but often takes more than this. 3) If, while adding districts to the list from which to draw "virtual twins" for each student, the percent of students does reach 90%, but the next district to be added adds less than 10 students, then the addition of districts to the list ceases. This last rule is only used twice for the Arkansas Virtual Academy and SIA Tech. The district list in Appendix B gives the detailed findings of this process.

For creating the matching process group for district-conversion charter schools, special rules are needed since only students from within the host district are allowed to attend the district-conversion charter school. However, some districts have "competition" between traditional public schools and conversion charter schools – where at least one school of each kind serves students of the same grade classification (e.g., each serve 3rd grade students). For those who do not have "competing" schools within their district, we use surrounding school districts – the geographically "next best thing." Therefore, each district has their own unique comparison group from which to draw "virtual twins" for comparison.

From here, the matching process is the same for conversion and open-enrollment charter students. Students who have received the "treatment" of being in a charter school are matched on observable characteristics from the 2010-11 school year, so that the academic growth they experience in 2011-12 can be properly studied. For those students who are not promoted from one grade to the next from 2010-11 to 2011-12, accommodations are made to match properly. Using the group of students that has been identified for each charter student group, treatment students are matched with students in the traditional public school using the following matching procedure (fully outlined in Appendix C):

1. Students are first matched with a student in the same grade in both 2010-11 and 2011-12.
2. For the math and literacy analyses, separately, all students are matched based on previous year scores on the same subject test, rounded to the nearest 0.01 z-score unit. Note, the other subject test score is used as part of the propensity score in step 4, as having a matched test score in the same subject is more relevant for controlling for prior performance. Therefore, the math analysis matches first on math examination scores, and the literacy analysis matches first on literacy examination scores.
3. A propensity score is then created using FRL status (using all three designations: free lunch, reduced lunch, and paid lunch), race/ethnicity (African-American, Asian-American or Pacific Islander, Hispanic-American, Native American, White, or "Two or more races"), gender, and the "other" test score (literacy for the math analysis and math for the literacy analysis).
4. Finally, all matches are based on guaranteeing exact matches from step 1 and 2, and the closest available propensity score match from step 3.[20]

In order to test whether or not this process worked for the purposes of conducting an "apples-to-apples" comparison, a baseline equivalency analysis is conducted to show how similar the two groups are to each other. The average measure of each of the observable variables is reported for both the charter "treatment" group and for the "virtual twin" "control" group. Any difference between the two is reported, and the statistical p-value is reported to show if any difference is significant. P-values below 0.05 are considered to be significantly different, colloquially "apples-to-oranges." For our major comparisons, shown in Tables 4-9, there were only three schools (Arkansas Arts Academy, Covenant Keepers, Cloverdale Aerospace) for which a significant difference is found based on the "other" subject test scores, but in these cases a broader match needed to be used in order to capture a greater proportion of tested students within the analytic sample. For this reason, in all cases, and especially in cases where there are significant differences at baseline, more confidence should be placed in the regression results which include only the matched sample but further control for baseline observable characteristics in the comparison.

Tables 4 and 5 show the math and literacy baselines, respectively, for all charter students across the state. Differences are found to be significantly different for special education students in both math and literacy, and for FRL and minority students in literacy.

[20] If the sample size for analysis was less than 15, those schools were omitted from the school level comparison. These schools included Badger Academy, Blytheville Charter School & ALC, and Lincoln Academy Center of Excellence for the Conversion Charter Schools, and Haas Hall and Pine Bluff Lighthouse Charter School for the Open Enrollment Charter Schools.

Table 4. Baseline Equivalency for Virtual Twin Matches of All Charter Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	3,664	3,664	-	
Range of Grades Served	K-12	K-12	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.31	6.31	-	1.000
Prior Year Math Z-Score	-0.24	-0.24	(0.00)	0.947
Prior Year Literacy Z-Score	-0.18	-0.19	(0.01)	0.786
% FRL	0.64	0.64	(0.00)	0.718
% Minority	0.62	0.60	(0.02)	0.138
% Female	0.52	0.51	(0.00)	0.691
% Special Education	0.07	0.10	(0.04)***	<.001
% Limited English Proficiency	0.04	0.04	(0.01)	0.123

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 5. Baseline Equivalency for Virtual Twin Matches of All Charter Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	3,595	3,595	-	
Range of Grades Served	K-12	K-12	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.31	6.31	-	1.000
Prior Year Math Z-Score	-0.20	-0.21	(0.01)	0.629
Prior Year Literacy Z-Score	-0.14	-0.14	(0.00)	0.883
% FRL	0.61	0.63	(0.02)*	0.057
% Minority	0.38	0.41	(0.03)**	0.035
% Female	0.52	0.51	(0.01)	0.569
% Special Education	0.06	0.09	(0.03)***	<.001
% Limited English Proficiency	0.04	0.04	(0.00)	0.291

*Note: * p<0.10, ** p<0.05, *** p<0.01*

The overall equivalency is made by aggregating all charter students with their "virtual twin" matches to create one large database for analysis.

Tables 6 and 7 show the baseline equivalency for the aggregated matches of conversion charter students only. For the Conversion Charter Baseline Equivalency in Math in Table 6, there appears to be a significant difference in FRL, minority, and special education students. For the Conversion Charter Baseline Equivalency in Literacy in Table 7, there appears to be a significant difference in FRL, minority, special education, and limited English proficient students.

Table 6. Baseline Equivalency for Virtual Twin Matches of Conversion Charter Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value	
Number of Observations	1,370	1,370	-		
Range of Grades Served	K-12	K-12	-		
Range of Grades in Analysis	4-8	4-8	-		
Average Grade	6.49	6.49	-	1.000	
Prior Year Math Z-Score	-0.45	-0.45	(0.00)	0.922	
Prior Year Literacy Z-Score	-0.45	-0.43	(0.02)	0.672	
% FRL	0.89	0.83	(0.06)	0.001	**
% Minority	0.74	0.70	(0.05)	0.006	**
% Female	0.50	0.49	(0.01)	0.731	
% Special Education	0.08	0.12	(0.03)	0.003	**
% Limited English Proficiency	0.06	0.04	(0.02)	0.071	

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 7. Baseline Equivalency for Virtual Twin Matches of Conversion Charter Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value	
Number of Observations	1,351	1,351	-		
Range of Grades Served	K-12	K-12	-		
Range of Grades in Analysis	4-8	4-8	-		
Average Grade	6.50	6.50	-	1.000	
Prior Year Math Z-Score	-0.40	-0.46	(0.06)	0.094	
Prior Year Literacy Z-Score	-0.41	-0.40	(0.00)	0.894	
% FRL	0.89	0.81	(0.08)	0.001	**
% Minority	0.74	0.67	(0.07)	0.001	**
% Female	0.52	0.52	(0.00)	0.939	
% Special Education	0.08	0.11	(0.03)	0.005	**
% Limited English Proficiency	0.06	0.03	(0.03)	0.001	**

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Finally, Tables 8 and 9 show the baseline equivalency for the aggregated matches of open-enrollment charter students only. There are no significant differences.

Table 8. Baseline Equivalency for Virtual Twin Matches of Open-Enrollment Charter Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value	
Number of Observations	2,294	2,294	-		
Range of Grades Served	K-12	K-12	-		
Range of Grades in Analysis	4-8	4-8	-		
Average Grade	6.20	6.20	-	1.000	
Prior Year Math Z-Score	-0.12	-0.12	(0.00)	0.990	
Prior Year Literacy Z-Score	-0.02	-0.04	(0.02)	0.407	
% FRL	0.47	0.51	(0.04)	0.008	**
% Minority	0.54	0.54	(0.00)	0.790	
% Female	0.53	0.53	(0.00)	0.929	
% Special Education	0.06	0.09	(0.04)	<.001	**
% Limited English Proficiency	0.02	0.04	(0.02)	<.001	**

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 9. Baseline Equivalency for Virtual Twin Matches of Open-Enrollment Charter Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value	
Number of Observations	2,244	2,244	-		
Range of Grades Served	K-12	K-12	-		
Range of Grades in Analysis	4-8	4-8	-		
Average Grade	6.20	6.20	-	1.000	
Prior Year Math Z-Score	-0.08	-0.06	(0.02)	0.492	
Prior Year Literacy Z-Score	0.02	0.02	(0.00)	0.930	
% FRL	0.44	0.52	(0.08)	<.001	**
% Minority	0.45	0.45	-	1.000	
% Female	0.53	0.51	(0.01)	0.324	
% Special Education	0.05	0.08	(0.03)	<.001	**
% Limited English Proficiency	0.03	0.05	(0.03)	<.001	**

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Baseline equivalency tables for all individual conversion and open-enrollment charter schools are found in Appendix D, for both math and literacy.

Once the baseline equivalency is established, the resulting matches can be sent through the gauntlet of statistical tests to see how much of the academic growth for students can be attributed to attending individual charter schools, specific types of charter schools, or all charter schools combined. The method of choice that will be presented is regression analysis.

Results

In this section, the results of the evaluation are presented for all schools, only conversion charter schools, only open-enrollment charter schools, and for different sub-groups. Throughout, certain qualifications and explanations will be necessary to properly frame these results.

First, this report tries to frame the size of the sample being analyzed as compared to the total number of students that attend the charter schools being analyzed. Tables 10 and 11 show that while 11,077 students attend charter schools in Arkansas, this evaluation relies on 62% and 65% of students in math and literacy, respectively. One reason for the limitation is the limits of a one year analysis. Each student in the study must have test scores from both the baseline test year (2010-11 in this instance) and the outcome year (2011-12). Reasons for a specific student not being included in the analysis include but are not limited to: being in an untested grade in either the baseline or outcome year, not being enrolled in an Arkansas public school during either year, being in a school with low enrollment and, therefore, restricted information, or if a student misses the test day, amongst other reasons. Even given these reasons, this report makes the assumption that there is no systematic bias that those students who are not included vary greatly from those students who are included.

The academic impacts represented in Tables 10 and 11 show the overall impact across conversion and open-enrollment charter schools. They indicate that charter schools did not create a significant difference in math or literacy outcomes for their students compared to their "virtual twins.

Table 10. Academic Impact of All Charter Schools in **Math**, 2011-12

Charter School	2011-12 Enrollment	Sample Size	Sample %	Treatment Coefficient	Sig.	Robust SE
All	11,077	6,852	62%	0.012	ns	(0.013)

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 11. Academic Impact of All Charter Schools in **Literacy**, 2011-12

Charter School	2011-12 Enrollment	Sample Size	Sample %	Treatment Coefficient	Sig.	Robust SE
All	11,077	7,190	65%	0.003	ns	(0.014)

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Tables 12 through 15 show the academic impacts, math and literacy, for conversion and open-enrollment charter schools. When the impact for any specific school or all of a certain type are statistically significant at the 5% level, the P-value is indicated. Of course, these results should take into account the small sample sizes. Two schools in Tables 12 and 13 were significant – Ridgeroad Middle saw significant gains in math and Lincoln Middle Academy of Excellence saw significant losses in literacy.

Table 12. Academic Impact of Conversion Charter Schools, Combined and Individual in **Math**, 2011-12

Charter School	2011-12 Enrollment	Sample Size	Sample %	Treatment Coefficient	Sig.	Robust SE
All	*2,955*	*1,370*	*69%*	*0.02*		*(0.020)*
Cabot Academic Center for Excellence	191	17	100%	0.28		(0.210)
Cloverdale Aerospace Technology Conversion Charter	648	526	81%	-0.06		(0.030)
Cross County New Tech High School	318	69	70%	0.08		(0.114)
Lincoln Middle Academy of Excellence	497	300	60%	0.00		(0.045)
Oak Grove Health, Wellness, and Environmental Science School	458	64	65%	0.02		(0.089)
Ridgeroad Middle	417	269	65%	0.20	***	(0.045)
Vilonia Academy of Service and Technology	111	81	73%	0.08		(0.079)
Vilonia Academy of Technology	78	21	75%	0.40		(0.279)

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 13. Academic Impact of Conversion Charter Schools, Combined and Individual in **Literacy**, 2011-12

Charter School	2011-12 Enrollment	Sample Size	Sample %	Treatment Coefficient	Sig.	Robust SE
All	*2,955*	*1.351*	*68%*	*-0.08*	***	*(0.024)*
Cabot Academic Center for Excellence	191	16	94%	-0.21		(0.175)
Cloverdale Aerospace Technology Conversion Charter	648	521	80%	-0.07		(0.039)
Cross County New Tech High School	318	70	71%	0.12		(0.129)
Lincoln Middle Academy of Excellence	497	286	58%	-0.17	***	(0.050)
Oak Grove Health, Wellness, and Environmental Science School	458	70	71%	-0.32		(0.123)
Ridgeroad Middle	417	263	63%	-0.02		(0.054)
Vilonia Academy of Service and Technology	111	83	75%	-0.04		(0.078)
Vilonia Academy of Technology	78	20	71%	-0.06		(0.153)

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 14. Academic Impact of Open-Enrollment Charter Schools, Combined and Individual in **Math**, 2011-12

Charter School	2011-12 Enrollment	Sample Size	Sample %	Treatment Coefficient	Sig.	Robust SE
All	*6,574*	*2,294*	*70%*	*0.004*		*(0.016)*
Academics Plus	623	190	82%	-0.15	***	(0.057)
Arkansas Virtual Academy	500	178	72%	-0.04		(0.060)
Benton County School of Arts	769	238	74%	0.09	*	(0.055)
Covenant Keepers	238	72	47%	-0.06		(0.094)
Dreamland Academy	138	41	93%	0.13		(0.108)
eSTEM Elementary	466	72	82%	0.28	***	(0.099)
eSTEM Middle	503	417	83%	-0.01		(0.034)
Imboden	52	30	88%	0.00		(0.155)
Jacksonville Lighthouse	623	342	81%	-0.01		(0.040)
KIPP Blytheville	119	51	43%	-0.19		(0.135)
KIPP Helena	743	175	63%	-0.09		(0.062)
Lisa Academy	599	259	62%	0.06		(0.048)
Lisa Academy NLR	450	136	69%	0.01	*	(0.067)
Little Rock Prep	270	77	55%	0.04		(0.083)

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 15. Academic Impact of Open-Enrollment Charter Schools, Combined and Individual in **Literacy**, 2011-12

Charter School	2011-12 Enrollment	Sample Size	Sample %	Charter Difference	Sig.	Robust SE
All	*6,574*	*2,244*	*68%*	*0.06*	***	*(0.016)*
Academics Plus	623	191	82%	0.11	*	(0.054)
Arkansas Virtual Academy	500	179	72%	0.02		(0.059)
Benton County School of Arts	769	211	65%	0.04		(0.054)
Covenant Keepers	238	74	48%	0.19	*	(0.110)
Dreamland Academy	138	41	93%	0.61	***	(0.151)
eSTEM Elementary	466	72	82%	0.14		(0.093)
eSTEM Middle	503	423	84%	0.08	**	(0.037)
Imboden	52	24	71%	-0.35	**	(0.165)
Jacksonville Lighthouse	623	323	76%	-0.05		(0.045)
KIPP Blytheville	119	46	39%	0.25	**	(0.107)
KIPP Helena	743	147	53%	-0.10		(0.074)
Lisa Academy	599	272	65%	0.10	**	(0.040)
Lisa Academy NLR	450	148	76%	0.11	*	(0.064)
Little Rock Prep	270	78	56%	0.01		(0.108)

*Note: * p<0.10, ** p<0.05, *** p<0.01*

In Tables 14 and 15, amongst open-enrollment charter schools, positive significant impacts were found in literacy for all of these schools combined, as well as significant impacts for several individual

schools. In math, impacts are positive but not significant for all of these schools combined, with significant impacts for some schools. Often, the significance level is driven by the sample size. One aspect of these numbers that might be confusing is that while several schools show negative results, when all of the students in the analysis are put together the overall results are positive though not significant.

While this analysis attempts to show the results of one year of learning, these results do not tell the whole story of the quality of a school. Certainly, a multi-year analysis would help towards achieving this goal of evaluating the true impact of a school over time and as it matures.[21] Tables 16 and 17 begin this process by considering how the age of a charter school in Arkansas can affect the academic outcomes of a school. Tables 18-21 begin to look at these effects by type of charter school.

Table 16. Academic Impacts by Year of Opening in **Math** (*All Charters*), 2011-12

Years in Operation	N= 7,324	Academic Impact	Sig.
One (1) Year in Operation	160	-0.03	
Two (2) Years in Operation	1,754	-0.04	
Three (3) Years in Operation	978	0.01	
Four (4) Years in Operation	1,390	0.04	
Five (5) Years in Operation	254	0.06	
Eight (8) Years or More in Operation	2,788	0.05	**

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 17. Academic Impacts by Year of Opening in **Literacy** (*All Charters*), 2011-12

Years in Operation	N= 7,132	Academic Impact	Sig.
One (1) Year in Operation	160	0.18	
Two (2) Years in Operation	1,706	-0.09	***
Three (3) Years in Operation	950	-0.07	*
Four (4) Years in Operation	1,376	0.09	***
Five (5) Years in Operation	264	0.12	*
Eight (8) Years or More in Operation	2,676	0.02	

*Note: * p<0.10, ** p<0.05, *** p<0.01*

[21] A forthcoming 3-yr report which will provide a much more complete picture than presented in the present report.

Table 18. Academic Impacts by Year of Opening in **Math** (*Open Enrollment Charters)*, 2011-12

Years in Operation	N= 4,584	Academic Impact	Sig.
One (1) Year in Operation	22	-0.17	ns
Two (2) Years in Operation	102	-0.19	ns
Three (3) Years in Operation	838	0.00	ns
Four (4) Years in Operation	1,390	0.04	ns
Five (5) Years in Operation	82	0.13	ns
Eight (8) Years or More in Operation	2,150	-0.00	ns

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 19. Academic Impacts by Year of Opening in **Literacy** (*Open Enrollment Charters)*, 2011-12

Years in Operation	N= 4,430	Academic Impact	Sig.
One (1) Year in Operation	20	1.17	***
Two (2) Years in Operation	92	0.25	**
Three (3) Years in Operation	802	-0.03	
Four (4) Years in Operation	1,376	0.09	***
Five (5) Years in Operation	82	0.61	***
Eight (8) Years or More in Operation	2,058	0.03	

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 20. Academic Impacts by Year of Opening in **Math** (*Conversion Charters*), 2011-12

Years in Operation	N= 2,740	Academic Impact	Sig.
One (1) Year in Operation	138	0.08	
Two (2) Years in Operation	1,652	-0.03	
Three (3) Years in Operation	140	0.01	
Five (5) Years in Operation	172	0.09	
Eight (8) Years or More in Operation	638	0.19	***

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 21. Academic Impacts by Year of Opening in **Literacy** (*Conversion Charters*), 2011-12

Years in Operation	N= 2,702	Academic Impact	Sig.
One (1) Year in Operation	140	0.12	
Two (2) Years in Operation	1,614	-0.11	***
Three (3) Years in Operation	148	-0.30	**
Five (5) Years in Operation	182	-0.05	
Eight (8) Years or More in Operation	618	-0.03	

*Note: * p<0.10, ** p<0.05, *** p<0.01*

While previous research has shown that open-enrollment charter schools mature over time,[22] these tables show mixed results for Arkansas charter schools, both conversion and open-enrollment. However, we again find more significant impacts in literacy than math. Of course, there are two obvious explanations. The first is that conversion charter schools are schools that have been open for more than just their years of operation as a charter school. Their years as a traditional public school are not reflected here. Also, because there is not necessarily a balanced number of schools opening each year, any one variable can be highly influenced by an outlier school that performs better or worse than would be expected from a school of that age.

Another sub-group of schools that would be expected to perform differently are those schools with waitlists – parents and their students who have informed the school that they would like to receive admission if a seat opens in their grade. A waitlist, in this analysis, will serve as a proxy for the "demand" for an open-enrollment charter school. This list is usually formed after a school conducts a lottery admission process. For the purposes of this analysis, only schools that reported their waitlists will be included in the analysis as having a waitlist; nine open-enrollment schools were included. It is possible that some schools have a waitlist but did not report it, in which case they will be classified as "no waitlist in use"; nine open-enrollment schools were not included and no conversion charter schools were included. It is also possible that a school used a lottery admission process but, upon enrolling students, had no waitlist because various parents who received admissions chose not to take advantage of the seat. A summary of how schools are classified for this analysis is found in Appendix G of this report.

Table 22. Academic Impacts by Waitlist in **Math**, 2011-12

Over-Enrollment	Academic Impact	Sig.
Waitlist in Use	0.01	ns

*Note: * p<0.10, ** p<0.05, *** p<0.01*

Table 23. Academic Impacts by Waitlist in **Literacy**, 2011-12

Over-Enrollment	Academic Impact	Sig.
Waitlist in Use	0.07	***

*Note: * p<0.10, ** p<0.05, *** p<0.01*

As seen in Tables 22 and 23 above, the results for schools with waitlists are positive, but only literacy meets the threshold for statistical significance. In the 2012-13 study, we will examine further the impact of oversubscribed schools with waitlists.

[22] Hoxby, Caroline Minter, and Jonah E. Rockoff. *The Impact of Charter Schools on Student Achievement*. Department of Economics, Harvard University, 2004. <http://fugu.ccpr.ucla.edu/events/ccpr-previous-seminars/ccpr-seminars-previous-years/Sem05W%20Hoxby%20Impact%20of%20Charter% 20Schools.pdf>.

Conclusion

This evaluation sought to offer an exhaustive overview of academic impacts of each charter school for the 2011-12 school year. Using a "Virtual Twin" matching method, charter students were matched with similar students in the 2010-11 school year to test how these students differed in the 2011-12 school year. This quasi-experimental model is the best form of analysis given the data available.

In order to see whether or not the matching process had succeeded, results are shown from the baseline equivalency test which compares the characteristics of students prior to the 2011-12 school year in order to show that the comparison is valid in the evaluation year. These results found statistically significant differences in several students' characteristics.

The results of the academic impact studies showed gains in literacy for open-enrollment charter schools that were statistically significant, statistically significant negative impacts in literacy for conversion charter schools, and null gains for all charter schools combined in literacy. Math analyses showed null gains for open-enrollment charter schools, positive gains that were statistically significant for conversion charter schools, and null gains for all charter schools combined in math.

The results of this evaluation tell a somewhat different story than the evaluations discussed in the Literature Review. This can be justified, however, because this evaluation covers a different time period than previous studies covered. The findings on charter school impacts considering their years of operation did match those results found in the Mills study. As charter schools age, there is a general positive relationship towards better educational outcomes, which were significant for years four and five for literacy.

With the evaluation that has been performed, there were certain limitations that can be improved upon in future studies. The key weakness of this study is the single year nature of the analysis. Also, limitations in the number of students in the analysis should be noted. Several of the charter schools, by design or for other reasons, maintain low student populations and therefore have low numbers of students tested. We withhold judgment on the effectiveness of charter schools until we can complete our 3-year analysis of charters with data from 2011-12, 2012-13, and 2013-14. This evaluation team looks forward to conducting a more rigorous experimental analysis using charter school lottery admission results in the 2012-13 study. Upon the completion of the 3-year study, a careful comparison can be made between that study and this one to show how valid this quasi-experimental method has been. .

Future studies of Arkansas charter schools should continue to probe and analyze the academic impacts of these schools. One of the most celebrated aspects of charter schools anywhere is that they are held accountable for their outcomes. This evaluation seeks to add to that process. While academic impacts do not encompass the entire mission of a charter school, or any school, these results can help to inform along with evaluations of other aspects of the mission.

Appendix

Appendix Table of Contents

Appendix A: Demographics of Arkansas Charter Schools

Table A1. Demographics of Arkansas Charter Schools

Charter School	District	Enrollment	FRL %	Minority %
Academics Plus	-	623	34%	29%
Arkansas Virtual Academy	-	500	0%	14%
Badger Academy	Beebe	25	80%	28%
Benton County School of the Arts	-	769	31%	15%
Blytheville Charter School and Alternative Learning Center	Blytheville	92	91%	96%
Cabot Academic Center for Excellence	Cabot	191	46%	9%
Cloverdale Aerospace Technology Conversion Charter Middle School	Little Rock	648	94%	97%
Covenant Keepers	-	238	80%	99%
Cross County New Tech High School	Cross County	318	72%	14%
Dreamland Academy	-	138	96%	99%
eSTEM Elementary	-	466	35%	56%
eSTEM High School	-	488	31%	64%
eSTEM Middle School	-	503	29%	56%
Haas Hall Academy	-	316	0%	13%
Imboden Area Charter School	-	52	81%	2%
Jacksonville Lighthouse	-	623	58%	61%
KIPP Blytheville	KIPP Delta	119	80%	92%
KIPP Helena/W. Helena	KIPP Delta	743	91%	99%
Lincoln Academic Center of Excellence	Lincoln	120	56%	22%
Lincoln Middle Academy of Excellence	Forrest City	497	88%	85%
LISA Academy	-	599	36%	68%
LISA Academy North Little Rock	-	450	29%	47%
Little Rock Preparatory Academy	-	270	80%	99%
Mountain Home High School Career Academy	Mountain Home	1,210	49%	10%
Oak Grove Health, Wellness, and Environmental Science School	Paragould	458	67%	10%
Pine Bluff Lighthouse Academy	-	165	88%	98%
Ridgeroad Middle School	North Little Rock	417	91%	90%
SIA Tech	-	168	100%	84%
Vilonia Academy of Service and Technology	Vilonia	111	40%	5%
Vilonia Academy of Technology	Vilonia	78	26%	0%

Appendix B: "Feeder" Traditional Public School Districts for Open-Enrollment Charter Schools, 2011-12

Table B1. "Feeder" Traditional Public School Districts for Open-Enrollment Charter Schools, 2011-12

DLEA	School Districts	Enrollment from TPS	Cumulative % of Charter Students from TPS	% of Charter Students from TPS
6040700	**Academics Plus**	**650**		
6003000	Pulaski Co. Spec. S.D.	536	82%	82%
6002000	N. Little Rock S.D.	42	89%	6%
6001000	Little Rock S.D.	38	95%	6%
	Sum of All Districts			**94%**
6043700	**Arkansas Virtual Academy**	**500**		
6001000	Little Rock S.D.	43	9%	9%
2301000	Conway S.D.	34	15%	7%
401000	Bentonville S.D.	30	21%	6%
6003000	Pulaski Co. Spec. S.D.	22	26%	4%
4304000	Cabot S.D.	20	30%	4%
405000	Rogers S.D.	19	34%	4%
6303000	Bryant S.D.	17	37%	3%
7207000	Springdale S.D.	14	40%	3%
503000	Harrison S.D.	13	42%	3%
6601000	Fort Smith S.D.	13	45%	3%
7203000	Fayetteville S.D.	11	47%	2%
5703000	Mena S.D.	10	49%	2%
6401000	Waldron S.D.	10	51%	2%
6302000	Benton S.D.	10	53%	2%
	Sum of All Districts			**54%**
440700	**Benton Co. School of the Arts**	**776**		
405000	Rogers S.D.	523	67%	67%
401000	Bentonville S.D.	184	91%	24%
	Sum of All Districts			**91%**
6044700	**Covenant Keepers**	**223**		
6001000	Little Rock S.D.	168	75%	75%
6003000	Pulaski Co. Spec. S.D.	51	98%	23%
	Sum of All Districts			**98%**

DLEA	School Districts	Enrollment from TPS	Cumulative % of Charter Students from TPS	% of Charter Students from TPS
6045700	**eSTEM Elementary**	**471**		
6001000	Little Rock S.D.	278	59%	59%
6002000	N. Little Rock S.D.	97	80%	21%
6003000	Pulaski Co. Spec. S.D.	66	94%	14%
	Sum of All Districts			**94%**
6046700	**eSTEM Middle School**	**509**		
6001000	Little Rock S.D.	305	60%	60%
6003000	Pulaski Co. Spec. S.D.	97	79%	19%
6002000	N. Little Rock S.D.	80	95%	16%
	Sum of All Districts			**95%**
6047700	**eSTEM High School**	**505**		
6001000	Little Rock S.D.	308	61%	61%
6003000	Pulaski Co. Spec. S.D.	101	81%	20%
6002000	N. Little Rock S.D.	77	96%	15%
	Sum of All Districts			**96%**
7240700	**Haas Hall Academy**	**319**		
7203000	Fayetteville S.D.	133	42%	42%
7207000	Springdale S.D.	78	66%	24%
401000	Bentonville S.D.	18	72%	6%
405000	Rogers S.D.	15	76%	5%
7202000	Farmington S.D.	13	81%	4%
406000	Siloam Springs S.D.	13	85%	4%
7206000	Prairie Grove S.D.	12	88%	4%
7208000	West Fork S.D.	10	92%	3%
	Sum of All Districts			**92%**
3840700	**Imboden Area Charter School**	**40**		
3806000	Sloan-Hendrix S.D.	17	43%	43%
6103000	Pocahontas S.D.	14	78%	35%
3810000	Lawrence County S.D.	9	100%	22%
	Sum of All Districts			**100%**

DLEA	School Districts	Enrollment from TPS	Cumulative % of Charter Students from TPS	% of Charter Students from TPS
6050700	**Jacksonville Lighthouse**	**695**		
6003000	Pulaski Co. Spec. S.D.	623	90%	90%
6002000	N. Little Rock S.D.	49	97%	7%
	Sum of All Districts			**97%**
5440700	**KIPP Delta Public Schools**	**1,167**		
5403000	Helena-West Helena S.D.	724	62%	62%
4702000	Blytheville S.D.*	224	81%	19%
5404000	Marvell S.D.	87	89%	7%
3904000	Lee County S.D.	57	94%	5%
	Sum of All Districts			**93%**
6041700	**LISA Academy**	**792**		
6001000	Little Rock S.D.	730	92%	92%
	Sum of All Districts			**92%**
6048700	**LISA Academy NLR**	**500**		
6003000	Pulaski Co. Spec. S.D.	286	57%	57%
6002000	N. Little Rock S.D.	157	89%	31%
6001000	Little Rock S.D.	38	96%	8%
	Sum of All Districts			**96%**
6049700	**Little Rock Prep**	**393**		
6001000	Little Rock S.D.	331	84%	84%
6002000	N. Little Rock S.D.	36	93%	9%
	Sum of All Districts			**93%**
3541700	**Pine Bluff Lighthouse**	**244**		
3505000	Pine Bluff S.D.	188	77%	77%
3509000	Watson Chapel S.D.	23	86%	9%
3502000	Dollarway S.D.	23	96%	9%
	Sum of All Districts			**95%**

DLEA	School Districts	Enrollment from TPS	Cumulative % of Charter Students from TPS	% of Charter Students from TPS
6052700	**SIA Tech**	**124**		
6001000	Little Rock S.D.	33	27%	27%
6003000	Pulaski Co. Spec. S.D.	32	52%	26%
3505000	Pine Bluff S.D.	10	60%	8%
	Sum of All Districts			**61%**
6042701	**Dreamland Academy**	N/A[#]		
6001000	Little Rock S.D.			
6003000	Pulaski Co. Spec. S.D.			
3505000	Pine Bluff S.D.			

* - Blytheville School District particularly served as the feeder district to the KIPP Blytheville school, which is a part of the KIPP Delta public schools charter.

[#] - Dreamland Academy did not have available "district feeder" documents available. However, student data was able to provide the three districts students were most likely to come from.

Appendix C: Quasi-Experimental Design for 2011-2012 Evaluation of Arkansas Public Charter Schools

Step	Description

I. Build Student Level Dataset for all eligible students

A. Dataset includes data from 2010-11 and 2011-12 school years.

B. Dataset includes for each student:

1. Unique ID
2. Grade level each year
3. Standardized test scores from each year for Math and Literacy
4. Free and Reduced Lunch (FRL) status: Free, Reduced, or Full
5. Race/Ethnicity
6. ELL status
7. IEP status
8. Gender

II. District Matching Procedure

A. Using data provided by the ADE, charter districts are matched against districts that students would have attended had they attended their assigned traditional public school district.

1. Districts that provide the most students, up to 90% of all enrolled, are used for matching.
    i. Some districts are able to satisfy that requirement with one district (LISA Academy gets 92% of its students from the Little Rock S.D.).
2. If 90% of students do not come from districts that provide 10 or more students, then a cut-off is made at 10 students.
    i. This occurs in two districts (ARVA and SIA Tech) in 2011-12.

III. Matching Procedure

A. Match students on grade level in matching years, 2010-11 and 2011-12.

1. Rematch pairs that have promotion issues

B. Match students based on comparison feeder districts (see appendix A)

C. Match students on previous year same subject test score within ±.01 of z-score unit

D. Match students on propensity score, which is a composite of the following variables:

1. Previous year other subject test score
2. FRL status
2. Race/Ethnicity
3. Gender

F. Match each charter student with one other student for each subject

IV. Comparison Analysis

A. Regression Analysis

B. Analysis Types: All Charters, Conversion Charters, Open-Enrollment Charters, Individual Schools

C. Other sub-group studies: Charter School Age, Open-Enrollment Schools with Waitlists

Appendix D: Baseline Equivalency for Virtual Twin Matches, Individual Charter Schools

Conversion Charter Schools: Math

Table D1. Baseline Equivalency for Cabot Academic Center for Excellence School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	17	17	-	
Range of Grades Served	7-12	7-12	-	
Range of Grades in Analysis	7-8	7-8	-	
Average Grade	8.00	8.00	-	1.000
Prior Year Math Z-Score	-0.13	-0.13	-	1.000
Prior Year Literacy Z-Score	-0.18	-0.14	(0.04)	0.880
% FRL	0.35	0.35	-	1.000
% Minority	0.06	0.06	-	1.000
% Female	0.24	0.29	(0.06)	0.697

** p<0.10, ** p<0.05, *** p<0.01*

Table D2. Baseline Equivalency for Cloverdale Aerospace Technology Conversion Charter Middle Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	526	526	-	
Range of Grades Served	6-8	6-8	-	
Range of Grades in Analysis	6-8	6-8	-	
Average Grade	6.89	6.89	-	1.000
Prior Year Math Z-Score	-0.69	-0.68	(0.00)	0.995
Prior Year Literacy Z-Score	-0.72	-0.66	(0.06)	0.278
% FRL	0.96	0.94	0.02	0.188
% Minority	0.98	0.98	0.00	0.840
% Female	0.49	0.48	0.02	0.622

** p<0.10, ** p<0.05, *** p<0.01*

Table D3. Baseline Equivalency for Cross County New Tech Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	69	69	-	
Range of Grades Served	7-12	7-12	-	
Range of Grades in Analysis	7-8	7-8	-	
Average Grade	7.48	7.48	-	1.000
Prior Year Math Z-Score	-0.33	-0.33	(0.00)	0.990
Prior Year Literacy Z-Score	-0.16	-0.37	0.21	0.907
% FRL	0.99	0.97	0.01	0.559
% Minority	0.12	0.16	(0.04)	0.459
% Female	0.43	0.38	0.06	0.488

** p<0.10, ** p<0.05, *** p<0.01*

Table D4. Baseline Equivalency for Lincoln Middle Academy of Excellence Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	300	300	-	
Range of Grades Served	5-6	5-6		
Range of Grades in Analysis	5-6	5-6		
Average Grade	5.51	5.51	-	1.000
Prior Year Math Z-Score	-0.50	-0.50	(0.01)	0.939
Prior Year Literacy Z-Score	-0.46	-0.51	0.05	0.529
% FRL	1.00	0.91	0.09	<.001
% Minority	0.81	0.73	0.08	0.019
% Female	0.54	0.51	0.03	0.414

** p<0.10, ** p<0.05, *** p<0.01*

Table D5. Baseline Equivalency for Oak Grove Health, Wellness, and Environmental Science School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	64	64	-	
Range of Grades Served	K-4	K-4	-	
Range of Grades in Analysis	4	4	-	
Average Grade	4.00	4.00	-	1.000
Prior Year Math Z-Score	-0.03	-0.02	(0.01)	0.951
Prior Year Literacy Z-Score	-0.24	-0.14	(0.10)	0.570
% FRL	0.80	0.66	0.14	0.074
% Minority	0.06	0.13	(0.06)	0.225
% Female	0.53	0.52	0.02	0.860

** p<0.10, ** p<0.05, *** p<0.01*

Table D6. Baseline Equivalency for Ridgeroad Middle School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	269	269	-	
Range of Grades Served	7-8	7-8	-	
Range of Grades in Analysis	7-8	7-8	-	
Average Grade	7.45	7.45	-	1.000
Prior Year Math Z-Score	-0.36	-0.35	(0.01)	0.919
Prior Year Literacy Z-Score	-0.36	-0.31	(0.05)	0.534
% FRL	0.89	0.75	0.14	<.001
% Minority	0.88	0.71	0.17	<.001
% Female	0.49	0.53	(0.04)	0.388

Table D7. Baseline Equivalency for Vilonia Academy of Service Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	81	81	-	
Range of Grades Served	5-6	5-6	-	
Range of Grades in Analysis	5-6	5-6	-	
Average Grade	5.49	5.49	-	1.000
Prior Year Math Z-Score	0.36	0.36	-	1.000
Prior Year Literacy Z-Score	0.45	0.56	(0.11)	0.312
% FRL	0.40	0.36	0.04	0.627
% Minority	0.00	0.01	(0.01)	0.316
% Female	0.52	0.56	(0.04)	0.636

** p<0.10, ** p<0.05, *** p<0.01*

Table D8. Baseline Equivalency for Vilonia Academy of Technology Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	21	21	-	
Range of Grades Served	2-4	2-4	-	
Range of Grades in Analysis	4	4	-	
Average Grade	4.00	4.00	-	1.000
Prior Year Math Z-Score	0.48	0.48	-	1.000
Prior Year Literacy Z-Score	0.64	0.41	0.23	0.414
% FRL	0.19	0.24	(0.05)	0.707
% Minority	0.00	0.00	-	1.000
% Female	0.48	0.48	-	1.000

** p<0.10, ** p<0.05, *** p<0.01*

Conversion Charter Schools: Literacy

Table D9. Baseline Equivalency for Cabot Academic Center of Excellence Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	16	16	-	
Range of Grades Served	7-12	7-12	-	
Range of Grades in Analysis	7-8	7-8	-	
Average Grade	7.94	7.94	-	1.000
Prior Year Math Z-Score	-0.14	-0.29	0.16	0.502
Prior Year Literacy Z-Score	-0.22	-0.22	-	1.000
% FRL	0.44	0.44	-	1.000
% Minority	0.06	0.06	-	1.000
% Female	0.25	0.31	(0.06)	0.694

** p<0.10, ** p<0.05, *** p<0.01*

Table D10. Baseline Equivalency for Cloverdale Aerospace Technology Conversion Charter Middle School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	521	521	-	
Range of Grades Served	6-8	6-8	-	
Range of Grades in Analysis	6-8	6-8	-	
Average Grade	6.91	6.91	-	1.000
Prior Year Math Z-Score	-0.63	-0.73	0.10	0.071
Prior Year Literacy Z-Score	-0.66	-0.66	(0.00)	0.977
% FRL	0.96	0.91	0.05	0.001
% Minority	0.98	0.93	0.05	<.001
% Female	0.52	0.51	0.01	0.710

** p<0.10, ** p<0.05, *** p<0.01*

Table D11. Baseline Equivalency for Cross County New Tech Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	70	70	-	
Range of Grades Served	7-12	7-12	-	
Range of Grades in Analysis	7-8	7-8	-	
Average Grade	7.46	7.46	-	1.000
Prior Year Math Z-Score	-0.29	-0.08	(0.21)	0.121
Prior Year Literacy Z-Score	-0.13	-0.12	(0.01)	0.949
% FRL	0.97	0.80	0.17	0.001
% Minority	0.11	0.20	(0.09)	0.164
% Female	0.40	0.54	(0.14)	0.090

** p<0.10, ** p<0.05, *** p<0.01*

Table D12. Baseline Equivalency for Lincoln Middle Academy of Excellence Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Range of Grades Served	5-6	5-6		
Range of Grades in Analysis	5-6	5-6		
Average Grade	5.50	5.50	-	1.000
Prior Year Math Z-Score	-0.43	-0.46	0.02	0.760
Prior Year Literacy Z-Score	-0.47	-0.46	(0.01)	0.915
% FRL	1.00	0.88	0.11	<.001
% Minority	0.82	0.66	0.16	<.001
% Female	0.55	0.53	0.02	0.675

** p<0.10, ** p<0.05, *** p<0.01*

Table D13. Baseline Equivalency for Oak Grove Health, Wellness, and Environmental Science School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	70	70	-	
Range of Grades Served	K-4	K-4	-	
Range of Grades in Analysis	4	4	-	
Average Grade	4.00	4.00	-	1.000
Prior Year Math Z-Score	-0.03	-0.26	0.23	0.139
Prior Year Literacy Z-Score	-0.18	-0.17	(0.01)	0.956
% FRL	0.73	0.67	0.06	0.461
% Minority	0.07	0.13	(0.06)	0.260
% Female	0.59	0.53	0.06	0.496

** p<0.10, ** p<0.05, *** p<0.01*

Table D14. Baseline Equivalency for Ridgeroad Middle School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	263	263	-	
Range of Grades Served	7-8	7-8	-	
Range of Grades in Analysis	7-8	7-8	-	
Average Grade	7.49	7.49	-	1.000
Prior Year Math Z-Score	-0.34	-0.40	0.06	0.427
Prior Year Literacy Z-Score	-0.37	-0.36	(0.01)	0.925
% FRL	0.89	0.75	0.15	<.001
% Minority	0.88	0.74	0.14	<.001
% Female	0.50	0.50	-	1.000

** p<0.10, ** p<0.05, *** p<0.01*

Table D15. Baseline Equivalency for Vilonia Academy of Service Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Range of Grades Served	5-6	5-6	-	
Range of Grades in Analysis	5-6	5-6	-	
Average Grade	5.57	5.57	-	1.000
Prior Year Math Z-Score	0.42	0.33	0.09	0.451
Prior Year Literacy Z-Score	0.62	0.62	0.00	0.999
% FRL	0.40	0.36	0.04	0.631
% Minority	0.00	0.00	-	1.000
% Female	0.55	0.54	0.01	0.876

** p<0.10, ** p<0.05, *** p<0.01*

Table D16. Baseline Equivalency for Vilonia Academy of Technology Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Range of Grades Served	2-4	2-4	-	
Range of Grades in Analysis	4	4	-	
Average Grade	4.00	4.00	-	1.000
Prior Year Math Z-Score	0.58	0.54	0.04	0.879
Prior Year Literacy Z-Score	0.51	0.51	0.00	0.999
% FRL	0.30	0.50	(0.20)	0.197
% Minority	0.00	0.00	-	1.000
% Female	0.35	0.55	(0.20)	0.204

** p<0.10, ** p<0.05, *** p<0.01*

Table D17. Baseline Equivalency for Academics Plus Charter School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	190	190	-	
Range of Grades Served	K-12	K-12	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.08	6.08	-	1.000
Prior Year Math Z-Score	-0.01	-0.01	(0.00)	0.999
Prior Year Literacy Z-Score	0.04	0.10	(0.06)	0.531
% FRL	0.32	0.32	0.01	0.912
% Minority	0.31	0.34	(0.03)	0.510
% Female	0.52	0.57	(0.05)	0.303

** p<0.10, ** p<0.05, *** p<0.01*

Table D18. Baseline Equivalency for Arkansas Virtual Academy Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	178	178	-	
Range of Grades Served	K-8	K-8	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	5.63	5.63	-	1.000
Prior Year Math Z-Score	-0.04	-0.04	(0.00)	0.999
Prior Year Literacy Z-Score	-0.08	-0.09	0.01	0.964
% Minority	0.12	0.16	(0.03)	0.360
% Female	0.51	0.50	0.01	0.916

** p<0.10, ** p<0.05, *** p<0.01*

Table D19. Baseline Equivalency for Benton County School of the Arts Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	238	238	-	
Range of Grades Served	K-12	K-12	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.06	6.06	-	1.000
Prior Year Math Z-Score	0.01	0.01	(0.00)	0.999
Prior Year Literacy Z-Score	0.28	0.05	0.22	0.003
% FRL	0.29	0.34	(0.05)	0.200
% Minority	0.18	0.18	-	1.000
% Female	0.58	0.51	0.07	0.141

** p<0.10, ** p<0.05, *** p<0.01*

Table D20. Baseline Equivalency for Covenant Keepers Charter School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	72	72	-	
Range of Grades Served	6-11	6-11	-	
Range of Grades in Analysis	6-8	6-8	-	
Average Grade	7.24	7.24	-	1.000
Prior Year Math Z-Score	-0.92	-0.92	-	1.000
Prior Year Literacy Z-Score	-0.54	-0.64	0.10	0.480
% FRL	0.83	0.83	-	1.000
% Minority	0.92	0.92	-	1.000
% Female	0.54	0.58	(0.04)	0.614

** p<0.10, ** p<0.05, *** p<0.01*

Table D21. Baseline Equivalency for Dreamland Academy Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	41	41	-	
Range of Grades Served	K-5	K-5	-	
Range of Grades in Analysis	4-5	4-5	-	
Average Grade	4.51	4.51	-	1.000
Prior Year Math Z-Score	-1.35	-1.35	-	1.000
Prior Year Literacy Z-Score	-1.30	-1.22	(0.08)	0.709
% FRL	0.98	0.98	-	1.000
% Minority	0.98	0.98	-	1.000
% Female	0.49	0.54	(0.05)	0.659

** p<0.10, ** p<0.05, *** p<0.01*

Table D22. Baseline Equivalency for eSTEM Elementary School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	72	72	-	
Range of Grades Served	K-4	K-4	-	
Range of Grades in Analysis	4	4	-	
Average Grade	4.00	4.00	-	1.000
Prior Year Math Z-Score	-0.08	-0.08	-	1.000
Prior Year Literacy Z-Score	-0.13	0.00	(0.13)	0.462
% FRL	0.39	0.40	(0.01)	0.865
% Minority	0.58	0.67	(0.08)	0.302
% Female	0.54	0.56	(0.01)	0.867

** p<0.10, ** p<0.05, *** p<0.01*

Table D23. Baseline Equivalency for eSTEM Middle School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	417	417	-	
Range of Grades Served	5-8	5-8	-	
Range of Grades in Analysis	5-8	5-8	-	
Average Grade	6.49	6.49	-	1.000
Prior Year Math Z-Score	0.01	0.01	-	1.000
Prior Year Literacy Z-Score	0.14	0.14	0.01	0.909
% FRL	0.32	0.31	0.00	0.882
% Minority	0.57	0.55	0.02	0.577
% Female	0.56	0.56	0.00	0.889

** p<0.10, ** p<0.05, *** p<0.01*

Table D24. Baseline Equivalency for Imboden Area Charter School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	30	30	-	
Range of Grades Served	K-8	K-8	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.13	6.13	-	1.000
Prior Year Math Z-Score	-0.29	-0.29	-	1.000
Prior Year Literacy Z-Score	-0.28	-0.47	0.19	0.485
% FRL	0.77	0.73	0.03	0.766
% Minority	0.03	0.03	-	1.000
% Female	0.33	0.37	(0.03)	0.787

** p<0.10, ** p<0.05, *** p<0.01*

Table D25. Baseline Equivalency for Jacksonville Lighthouse Charter School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	342	342	-	
Range of Grades Served	K-8	K-8	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.07	6.07	-	1.000
Prior Year Math Z-Score	-0.18	-0.18	0.00	1.000
Prior Year Literacy Z-Score	-0.15	-0.12	(0.03)	0.652
% FRL	0.56	0.56	0.00	0.939
% Minority	0.61	0.62	(0.01)	0.753
% Female	0.52	0.53	(0.01)	0.878

** p<0.10, ** p<0.05, *** p<0.01*

Table D26. Baseline Equivalency for KIPP Delta: Blytheville Charter School Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	51	51	-	
Range of Grades Served	5-6	5-6	-	
Range of Grades in Analysis	5-6	5-6	-	
Average Grade	5.63	5.63	-	1.000
Prior Year Math Z-Score	-0.24	-0.24	(0.00)	0.980
Prior Year Literacy Z-Score	-0.33	-0.40	0.07	0.713
% FRL	0.90	100.00	(99.10)	0.022
% Minority	0.84	0.76	0.08	0.318
% Female	0.55	0.53	0.02	0.691

** p<0.10, ** p<0.05, *** p<0.01*

Table D27. Baseline Equivalency for KIPP Delta: Helena-West Helena Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	175	175	-	
Range of Grades Served	K-3,5-12	K-3,5-12	-	
Range of Grades in Analysis	5-8	5-8	-	
Average Grade	6.65	6.65	-	1.000
Prior Year Math Z-Score	-0.46	-0.46	-	1.000
Prior Year Literacy Z-Score	-0.20	-0.25	0.04	0.614
% FRL	0.95	0.96	(0.01)	0.792
% Minority	0.98	0.99	(0.02)	0.177
% Female	0.57	0.55	0.02	0.747

** p<0.10, ** p<0.05, *** p<0.01*

Table D28. Baseline Equivalency for LISA Academy Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	259	259	-	
Range of Grades Served	6-12	6-12	-	
Range of Grades in Analysis	6-8	6-8	-	
Average Grade	7.00	7.00	-	1.000
Prior Year Math Z-Score	0.32	0.32	(0.00)	0.983
Prior Year Literacy Z-Score	0.42	0.35	0.07	0.379
% FRL	0.32	0.34	(0.02)	0.640
% Minority	0.64	0.63	0.01	0.855
% Female	0.51	0.50	0.00	0.930

** p<0.10, ** p<0.05, *** p<0.01*

Table D29. Baseline Equivalency for LISA Academy North Little Rock Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	136	136	-	
Range of Grades Served	K-11	K-11	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.32	6.32	-	1.000
Prior Year Math Z-Score	0.01	0.01	-	1.000
Prior Year Literacy Z-Score	0.02	0.12	(0.10)	0.292
% FRL	0.34	0.32	0.01	0.797
% Minority	0.42	0.42	-	1.000
% Female	0.50	0.50	-	1.000

** p<0.10, ** p<0.05, *** p<0.01*

Table D30. Baseline Equivalency for Little Rock Preparatory Academy Students in Math, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	77	77	-	
Range of Grades Served	K-7	K-7	-	
Range of Grades in Analysis	4-7	4-7	-	
Average Grade	5.86	5.86	-	1.000
Prior Year Math Z-Score	-0.76	-0.76	(0.00)	0.994
Prior Year Literacy Z-Score	-0.72	-0.78	0.06	0.703
% FRL	0.81	0.88	(0.08)	0.183
% Minority	0.99	0.96	0.03	0.311
% Female	0.43	0.47	(0.04)	0.627

** p<0.10, ** p<0.05, *** p<0.01*

Open-Enrollment Charter Schools: Literacy

Table D31. Baseline Equivalency for Academics Plus Charter School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	191	191	-	
Range of Grades Served	K-12	K-12	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.07	6.07	-	1.000
Prior Year Math Z-Score	-0.03	0.10	(0.13)	0.206
Prior Year Literacy Z-Score	0.02	0.02	(0.00)	0.970
% FRL	0.33	0.47	(0.14)	0.007
% Minority	0.31	0.43	(0.12)	0.020
% Female	0.52	0.47	0.05	0.357

** p<0.10, ** p<0.05, *** p<0.01*

Table D32. Baseline Equivalency for Arkansas Virtual Academy Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	179	179	-	
Range of Grades Served	K-8	K-8	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	5.68	5.68	-	1.000
Prior Year Math Z-Score	0.00	0.01	(0.01)	0.933
Prior Year Literacy Z-Score	-0.08	-0.08	(0.00)	0.993
% Minority	0.12	0.15	(0.03)	0.442
% Female	0.49	0.44	0.05	0.340

** p<0.10, ** p<0.05, *** p<0.01*

Table D33. Baseline Equivalency for Benton County School of the Arts Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	211	211	-	
Range of Grades Served	K-12	K-12	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.03	6.03	-	1.000
Prior Year Math Z-Score	0.05	0.25	(0.20)	0.013
Prior Year Literacy Z-Score	0.34	0.34	(0.00)	0.948
% FRL	0.28	0.41	(0.13)	0.006
% Minority	0.19	0.29	(0.09)	0.023
% Female	0.58	0.53	0.05	0.327

** p<0.10, ** p<0.05, *** p<0.01*

Table D34. Baseline Equivalency for Covenant Keepers Charter School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	74	74	-	
Range of Grades Served	6-11	6-11	-	
Range of Grades in Analysis	6-8	6-8	-	
Average Grade	7.24	7.24	-	1.000
Prior Year Math Z-Score	-0.94	-0.62	(0.32)	0.033
Prior Year Literacy Z-Score	-0.56	-0.55	(0.01)	0.965
% FRL	0.84	0.80	0.04	0.523
% Minority	0.92	0.76	0.16	0.007
% Female	0.57	0.47	0.09	0.249

** p<0.10, ** p<0.05, *** p<0.01*

Table D35. Baseline Equivalency for Dreamland Academy Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	41	41	-	
Range of Grades Served	K-5	K-5	-	
Range of Grades in Analysis	4-5	4-5	-	
Average Grade	4.51	4.51	-	1.000
Prior Year Math Z-Score	-1.34	-1.36	0.02	0.918
Prior Year Literacy Z-Score	-1.29	-1.29	(0.00)	0.993
% FRL	0.98	0.93	0.05	0.305
% Minority	0.98	0.88	0.10	0.090
% Female	0.49	0.37	0.12	0.264

** p<0.10, ** p<0.05, *** p<0.01*

Table D36. Baseline Equivalency for eSTEM Elementary School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	72	72	-	
Range of Grades Served	K-4	K-4	-	
Range of Grades in Analysis	4	4	-	
Average Grade	4.00	4.00	-	1.000
Prior Year Math Z-Score	-0.04	-0.08	0.04	0.828
Prior Year Literacy Z-Score	-0.09	-0.09	(0.00)	0.997
% FRL	0.38	0.40	(0.03)	0.732
% Minority	0.58	0.56	0.03	0.736
% Female	0.54	0.46	0.08	0.317

Table D37. Baseline Equivalency for eSTEM Middle School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	423	423	-	
Range of Grades Served	5-8	5-8	-	
Range of Grades in Analysis	5-8	5-8	-	
Average Grade	6.49	6.49	-	1.000
Prior Year Math Z-Score	0.01	0.02	(0.01)	0.863
Prior Year Literacy Z-Score	0.15	0.15	(0.00)	0.983
% FRL	0.31	0.36	(0.05)	0.146
% Minority	0.57	0.55	0.02	0.533
% Female	0.56	0.53	0.03	0.369

** p<0.10, ** p<0.05, *** p<0.01*

Table D38. Baseline Equivalency for Imboden Area Charter School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	24	24	-	
Range of Grades Served	K-8	K-8	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	5.75	5.75	-	1.000
Prior Year Math Z-Score	0.07	-0.09	0.16	0.534
Prior Year Literacy Z-Score	0.06	0.05	0.00	0.996
% FRL	0.79	0.88	(0.08)	0.439
% Minority	0.04	0.00	0.04	0.312
% Female	0.42	0.46	(0.04)	0.771

** p<0.10, ** p<0.05, *** p<0.01*

Table D39. Baseline Equivalency for Jacksonville Lighthouse Charter School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	323	323	-	
Range of Grades Served	K-8	K-8	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.07	6.07	-	1.000
Prior Year Math Z-Score	-0.14	-0.19	0.05	0.452
Prior Year Literacy Z-Score	-0.08	-0.08	(0.00)	0.998
% FRL	0.57	0.55	0.02	0.692
% Minority	0.60	0.63	(0.03)	0.419
% Female	0.53	0.57	(0.04)	0.304

** p<0.10, ** p<0.05, *** p<0.01*

Table D40. Baseline Equivalency for KIPP Delta: Blytheville Charter School Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	46	46	-	
Range of Grades Served	5-6	5-6	-	
Range of Grades in Analysis	5-6	5-6	-	
Average Grade	5.59	5.59	-	1.000
Prior Year Math Z-Score	-0.22	-0.36	0.14	0.446
Prior Year Literacy Z-Score	-0.38	-0.37	(0.01)	0.963
% FRL	0.89	1.00	(0.11)	0.021
% Minority	0.85	0.83	0.02	0.778
% Female	0.59	0.54	0.04	0.674

** p<0.10, ** p<0.05, *** p<0.01*

Table D41. Baseline Equivalency for KIPP Delta: Helena-West Helena Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	147	147	-	
Range of Grades Served	K-3,5-12	K-3,5-12	-	
Range of Grades in Analysis	5-8	5-8	-	
Average Grade	6.69	6.69	-	1.000
Prior Year Math Z-Score	-0.38	-0.29	(0.08)	0.375
Prior Year Literacy Z-Score	-0.09	-0.09	(0.00)	0.996
% FRL	0.96	0.95	0.01	0.777
% Minority	0.98	0.98	-	1.000
% Female	0.53	0.54	(0.01)	0.907

** p<0.10, ** p<0.05, *** p<0.01*

Table D42. Baseline Equivalency for LISA Academy Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	272	272	-	
Range of Grades Served	6-12	6-12	-	
Range of Grades in Analysis	6-8	6-8	-	
Average Grade	7.00	7.00	-	1.000
Prior Year Math Z-Score	0.40	0.32	0.08	0.354
Prior Year Literacy Z-Score	0.48	0.48	(0.01)	0.949
% FRL	0.31	0.42	(0.11)	0.006
% Minority	0.67	0.63	0.04	0.323
% Female	0.50	0.56	(0.05)	0.229

** p<0.10, ** p<0.05, *** p<0.01*

Table D43. Baseline Equivalency for LISA Academy North Little Rock Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	148	148	-	
Range of Grades Served	K-11	K-11	-	
Range of Grades in Analysis	4-8	4-8	-	
Average Grade	6.32	6.32	-	1.000
Prior Year Math Z-Score	0.06	-0.03	0.09	0.386
Prior Year Literacy Z-Score	0.01	0.01	(0.00)	0.986
% FRL	0.30	0.35	(0.05)	0.386
% Minority	0.46	0.41	0.05	0.412
% Female	0.49	0.47	0.01	0.816

** p<0.10, ** p<0.05, *** p<0.01*

Table D44. Baseline Equivalency for Little Rock Preparatory Academy Students in Literacy, 2011-12

	Charter	Comparison	Difference	P-Value
Number of Observations	78	78	-	
Range of Grades Served	K-7	K-7	-	
Range of Grades in Analysis	4-7	4-7	-	
Average Grade	5.83	5.83	-	1.000
Prior Year Math Z-Score	-0.79	-0.71	(0.08)	0.584
Prior Year Literacy Z-Score	-0.74	-0.73	(0.01)	0.966
% FRL	0.81	0.87	(0.06)	0.275
% Minority	0.99	0.86	0.13	0.003
% Female	0.44	0.42	0.01	0.872

** p<0.10, ** p<0.05, *** p<0.01*

Appendix E: Academic Impacts of Individual Charter Schools

Table E1. Variable Descriptions

Variable	Description
Charter Effect	The effect size of being enrolled in a charter school.
Prior Year Math Z-Score	The effect size of previous year math score on current year score.
Prior Year Literacy Z-Score	The effect size of previous year literacy score on current year score.
Economic Disadvantage (FRL)	The effect size of being eligible for Free or Reduced Lunch.
African-American	The effect size of being an African-American student.
Hispanic	The effect size of being a Hispanic student.
Other Non-White Race	The effect size of being a student of an other non-white race.
Female	The effect size of being female.
Switched Schools	The effect size of having switched schools from the previous year.
Constant	The starting point for outcomes to build from, using other variables.

Open-Enrollment Charter Schools

Table E2. Academic Impact of All Open-Enrollment Charter Schools in Literacy, 2011-12

	OLS	
Charter Effect	**0.0537**	***
	(0.0164)	
Prior Year Literacy Z-Score	0.562	***
	(0.0144)	
Economic Disadvantage (FRL)	-0.0623	***
	(0.0196)	
African American	-0.0707	***
	(0.0200)	
Hispanic	0.0395	
	(0.0336)	
Other Non-White Race	-0.0757	**
	(0.0330)	
Female	0.158	***
	(0.0170)	
Prior Year Math Z-Score	0.213	***
	(0.0131)	
Switched Schools	-0.0659	***
	(0.0169)	
Constant	0.00953	
	(0.0192)	
Observations	4,488	
Adjusted R^2	0.6538	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E3. Academic Impacts of Academics Plus Charter School in Literacy, 2011-12

	OLS	
Charter Effect	**0.105**	*
	(0.0535)	
Prior Year Literacy Z-Score	0.552	***
	(0.0432)	
Economic Disadvantage (FRL)	-0.0320	
	(0.0667)	
African American	-0.0553	
	(0.0721)	
Hispanic	0.0172	
	(0.111)	
Other Non-White Race	-0.164	
	(0.171)	
Female	0.159	***
	(0.0547)	
Prior Year Math Z-Score	0.191	***
	(0.0397)	
Switched Schools	-0.0953	**
	(0.0568)	
Constant	0.0385	
	(0.0615)	
Observations	382	
Adjusted R^2	0.6499	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E4. Academic Impacts of Arkansas Virtual Academy in Literacy, 2011-12

	OLS	
Charter Effect	**0.0227**	
	(0.0589)	
Prior Year Literacy Z-Score	0.614	***
	(0.0441)	
African American	-0.149	
	(0.117)	
Hispanic	0.183	
	(0.157)	
Other Non-White Race	-0.253	
	(0.198)	
Female	0.158	***
	(0.0562)	
Prior Year Math Z-Score	0.203	***
	(0.0479)	
Switched Schools	-0.0459	
	(0.0593)	
Constant	0.0428	
	(0.0627)	
Observations	358	
Adjusted R^2	0.6926	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E5. Academic Impacts of Benton County School of the Arts in Literacy, 2011-12

	OLS	
Charter Effect	**0.0375**	
	(0.0536)	
Prior Year Literacy Z-Score	0.568	***
	(0.0502)	
Economic Disadvantage (FRL)	0.0192	
	(0.0565)	
African American	0.0717	
	(0.174)	
Hispanic	0.00934	
	(0.0754)	
Other Non-White Race	-0.0638	
	(0.0831)	
Female	0.130	***
	(0.0494)	
Prior Year Math Z-Score	0.193	***
	(0.0398)	
Switched Schools	-0.0550	
	(0.0567)	
Constant	0.0934	
	(0.0588)	
Observations	422	
Adjusted R^2	0.5436	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E6. Academic Impacts of Covenant Keepers Charter Schools in Literacy, 2011-12

	OLS	
Charter Effect	**0.188**	*
	(0.110)	
Prior Year Literacy Z-Score	0.608	***
	(0.0857)	
Economic Disadvantage (FRL)	-0.137	
	(0.124)	
African American	-0.199	
	(0.136)	
Hispanic	-0.208	
	(0.162)	
Other Non-White Race	N/A	
	N/A	
Female	0.161	
	(0.119)	
Prior Year Math Z-Score	0.257	***
	(0.0713)	
Switched Schools	0.0100	
	(0.111)	
Constant	0.188	
	(0.129)	
Observations	148	
Adjusted R^2	0.5408	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E7. Academic Impacts of Dreamland Academy in Literacy, 2011-12

	OLS	
Charter Effect	**0.607**	***
	(0.151)	
Prior Year Literacy Z-Score	0.585	***
	(0.112)	
Economic Disadvantage (FRL)	-0.116	
	(0.209)	
African American	-0.210	
	(0.342)	
Hispanic	-0.0580	
	(0.384)	
Other Non-White Race	N/A	
	N/A	
Female	0.164	
	(0.133)	
Prior Year Math Z-Score	0.257	
	(0.159)	
Switched Schools	0.269	
	(0.213)	
Constant	-0.0476	
	(0.250)	
Observations	82	
Adjusted R^2	0.6377	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E8. Academic Impacts of eSTEM Elementary School in Literacy, 2011-12

	OLS	
Charter Effect	**0.144**	
	(0.0929)	
Prior Year Literacy Z-Score	0.564	***
	(0.0652)	
Economic Disadvantage (FRL)	-0.0715	
	(0.126)	
African American	0.107	
	(0.126)	
Hispanic	-0.471	**
	(0.217)	
Other Non-White Race	0.222	
	(0.140)	
Female	0.101	
	(0.0945)	
Prior Year Math Z-Score	0.197	***
	(0.0586)	
Switched Schools	0.0190	
	(0.141)	
Constant	-0.0285	
	(0.0915)	
Observations	144	
Adjusted R^2	0.6272	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E9. Academic Impacts of eSTEM Middle School in Literacy, 2011-12

	OLS	
Charter Effect	**0.0817**	**
	(0.0370)	
Prior Year Literacy Z-Score	0.469	***
	(0.0304)	
Economic Disadvantage (FRL)	-0.108	**
	(0.0475)	
African American	-0.0322	
	(0.0443)	
Hispanic	0.0861	
	(0.0987)	
Other Non-White Race	-0.134	**
	(0.0642)	
Female	0.153	***
	(0.0398)	
Prior Year Math Z-Score	0.299	***
	(0.0283)	
Switched Schools	-0.125	***
	(0.0390)	
Constant	0.00681	
	(0.0426)	
Observations	846	
Adjusted R^2	0.6485	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E10. Academic Impacts of Imboden Area Charter School in Literacy, 2011-12

	OLS	
Charter Effect	**-0.352**	**
	(0.165)	
Prior Year Literacy Z-Score	0.913	***
	(0.188)	
Economic Disadvantage (FRL)	0.344	*
	(0.171)	
African American	N/A	
	N/A	
Hispanic	0.935	***
	(0.197)	
Other Non-White Race	N/A	
	N/A	
Female	0.202	
	(0.185)	
Prior Year Math Z-Score	0.182	
	(0.116)	
Switched Schools	-0.0740	
	(0.183)	
Constant	-0.385	**
	(0.178)	
Observations	48	
Adjusted R^2	0.6151	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E11. Academic Impacts of Jacksonville Lighthouse Charter Schools in Literacy, 2011-12

	OLS	
Charter Effect	**-0.0455**	
	(0.0449)	
Prior Year Literacy Z-Score	0.628	***
	(0.0437)	
Economic Disadvantage (FRL)	-0.0992	**
	(0.0500)	
African American	-0.0001	
	(0.0532)	
Hispanic	0.0740	
	(0.0926)	
Other Non-White Race	0.0505	
	(0.155)	
Female	0.213	***
	(0.0473)	
Prior Year Math Z-Score	0.134	***
	(0.0396)	
Switched Schools	-0.00206	
	(0.0456)	
Constant	-0.0985	*
	(0.0570)	
Observations	646	
Adjusted R^2	0.5985	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E12. Academic Impacts of KIPP Delta: Blytheville Charter School in Literacy, 2011-12

	OLS	
Charter Effect	**0.248**	**
	(0.107)	
Prior Year Literacy Z-Score	0.518	***
	(0.0892)	
Economic Disadvantage (FRL)	-0.227	
	(0.257)	
African American	-0.0818	
	(0.118)	
Hispanic	0.157	
	(0.385)	
Other Non-White Race	-0.194	
	(0.272)	
Female	0.218	*
	(0.114)	
Prior Year Math Z-Score	0.312	***
	(0.0863)	
Switched Schools	-0.183	
	(0.134)	
Constant	0.128	
	(0.298)	
Observations	92	
Adjusted R^2	0.6423	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E13. Academic Impacts of KIPP Delta: Helena/W. Helena Charter Schools in Literacy, 2011-12

	OLS	
Charter Effect	**-0.0981**	
	(0.0743)	
Prior Year Literacy Z-Score	0.678	***
	(0.0653)	
Economic Disadvantage (FRL)	-0.165	
	(0.180)	
African American	0.277	
	(0.287)	
Hispanic	0.244	
	(0.348)	
Other Non-White Race	N/A	
	N/A	
Female	-0.0168	
	(0.0799)	
Prior Year Math Z-Score	0.131	**
	(0.0584)	
Switched Schools	0.0376	
	(0.0758)	
Constant	-0.184	
	(0.362)	
Observations	294	
Adjusted R^2	0.4955	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E14. Academic Impacts of LISA Academy in Literacy, 2011-12

	OLS	
Charter Effect	**0.101**	**
	(0.0402)	
Prior Year Literacy Z-Score	0.583	***
	(0.0446)	
Economic Disadvantage (FRL)	0.0182	
	(0.0521)	
African American	-0.0760	
	(0.0471)	
Hispanic	-0.0684	
	(0.0764)	
Other Non-White Race	-0.0911	
	(0.0560)	
Female	0.130	***
	(0.0436)	
Prior Year Math Z-Score	0.185	***
	(0.0327)	
Switched Schools	-0.0355	
	(0.0406)	
Constant	-0.0656	
	(0.0535)	
Observations	544	
Adjusted R^2	0.7026	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E15. Academic Impacts of LISA Academy North Little Rock in Literacy, 2011-12

	OLS	
Charter Effect	**0.105**	*
	(0.0636)	
Prior Year Literacy Z-Score	0.504	***
	(0.0648)	
Economic Disadvantage (FRL)	0.0420	
	(0.0782)	
African American	0.0221	
	(0.0729)	
Hispanic	0.0263	
	(0.129)	
Other Non-White Race	0.0974	
	(0.124)	
Female	0.227	***
	(0.0689)	
Prior Year Math Z-Score	0.254	***
	(0.0547)	
Switched Schools	-0.129	*
	(0.0668)	
Constant	-0.0237	
	(0.0659)	
Observations	296	
Adjusted R^2	0.5396	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E16. Academic Impacts of Little Rock Preparatory Academy in Literacy, 2011-12

	OLS	
Charter Effect	**0.0140**	
	(0.108)	
Prior Year Literacy Z-Score	0.516	***
	(0.101)	
Economic Disadvantage (FRL)	0.168	
	(0.151)	
African American	-0.106	
	(0.198)	
Hispanic	-0.281	
	(0.291)	
Other Non-White Race	0.488	**
	(0.220)	
Female	0.226	**
	(0.0923)	
Prior Year Math Z-Score	0.395	***
	(0.101)	
Switched Schools	-0.216	**
	(0.101)	
Constant	0.0513	
	(0.230)	
Observations	156	
Adjusted R^2	0.6630	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E17. Academic Impacts of All Open-Enrollment Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**-0.00379**	
	(0.0167)	
Prior Year Math Z-Score	0.665	***
	(0.0139)	
Economic Disadvantage (FRL)	-0.107	***
	(0.0194)	
African American	-0.107	***
	(0.0204)	
Hispanic	0.00900	
	(0.0400)	
Other Non-White Race	0.126	**
	(0.0524)	
Female	-0.0576	***
	(0.0176)	
Prior Year Literacy Z-Score	0.180	***
	(0.0138)	
Switched Schools	-0.0211	
	(0.0171)	
Constant	0.0700	***
	(0.0201)	
Observations	4,112	
Adjusted R^2	0.7132	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E18. Academic Impacts of Academics Plus Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**-0.153**	***
	(0.0571)	
Prior Year Math Z-Score	0.653	***
	(0.0469)	
Economic Disadvantage (FRL)	-0.0911	
	(0.0658)	
African American	-0.128	*
	(0.0739)	
Hispanic	-0.101	
	(0.135)	
Other Non-White Race	0.269	
	(0.187)	
Female	-0.123	*
	(0.0692)	
Prior Year Literacy Z-Score	0.155	***
	(0.0529)	
Switched Schools	-0.0314	
	(0.0602)	
Constant	0.159	**
	(0.0680)	
Observations	380	
Adjusted R^2	0.6550	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E19. Academic Impacts of Arkansas Virtual Academy in Math, 2011-12

	OLS	
Charter Effect	**-0.0367**	
	(0.0606)	
Prior Year Math Z-Score	0.759	***
	(0.0406)	
African American	-0.263	***
	(0.101)	
Hispanic	-0.0414	
	(0.110)	
Other Non-White Race	-0.108	
	(0.166)	
Female	-0.0220	
	(0.0635)	
Prior Year Literacy Z-Score	0.102	**
	(0.0411)	
Switched Schools	-0.0827	
	(0.0633)	
Constant	0.0505	
	(0.0624)	
Observations	356	
Adjusted R^2	0.6826	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E20. Academic Impacts of Benton County School of the Arts in Math, 2011-12

	OLS	
Charter Effect	**0.0947**	*
	(0.0550)	
Prior Year Math Z-Score	0.765	***
	(0.0447)	
Economic Disadvantage (FRL)	-0.0445	
	(0.0553)	
African American	-0.0125	
	(0.108)	
Hispanic	-0.0223	
	(0.0925)	
Other Non-White Race	-0.0554	
	(0.128)	
Female	-0.0381	
	(0.0522)	
Prior Year Literacy Z-Score	0.140	***
	(0.0402)	
Switched Schools	-0.207	***
	(0.0604)	
Constant	0.154	***
	(0.0549)	
Observations	476	
Adjusted R^2	0.6034	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E21. Academic Impacts of Covenant Keepers Charter School in Math, 2011-12

	OLS	
Charter Effect	**-0.0605**	
	(0.0937)	
Prior Year Math Z-Score	0.507	***
	(0.0708)	
Economic Disadvantage (FRL)	0.108	
	(0.111)	
African American	-0.168	
	(0.193)	
Hispanic	-0.165	
	(0.207)	
Other Non-White Race	N/A	
	N/A	
Female	-0.227	**
	(0.0983)	
Prior Year Literacy Z-Score	0.249	***
	(0.0762)	
Switched Schools	0.0613	
	(0.0902)	
Constant	-0.0707	
	(0.225)	
Observations	144	
Adjusted R^2	0.5155	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E22. Academic Impacts of Dreamland Academy in Math, 2011-12

	OLS	
Charter Effect	**0.132**	
	(0.108)	
Prior Year Math Z-Score	0.238	*
	(0.120)	
Economic Disadvantage (FRL)	-0.279	***
	(0.0885)	
African American	-0.0342	
	(0.198)	
Hispanic	0.234	
	(0.265)	
Other Non-White Race	N/A	
	N/A	
Female	-0.0193	
	(0.123)	
Prior Year Literacy Z-Score	0.321	***
	(0.104)	
Switched Schools	0.365	**
	(0.169)	
Constant	-0.422	
	(0.259)	
Observations	82	
Adjusted R^2	0.4662	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E23. Academic Impacts of eSTEM Elementary School in Math, 2011-12

	OLS	
Charter Effect	**0.275**	***
	(0.0992)	
Prior Year Math Z-Score	0.776	***
	(0.0960)	
Economic Disadvantage (FRL)	-0.0381	
	(0.113)	
African American	0.00888	
	(0.115)	
Hispanic	0.0153	
	(0.366)	
Other Non-White Race	0.174	
	(0.115)	
Female	-0.0618	
	(0.106)	
Prior Year Literacy Z-Score	0.108	
	(0.0929)	
Switched Schools	0.0473	
	(0.120)	
Constant	0.0162	
	(0.121)	
Observations	144	
Adjusted R^2	0.7167	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E24. Academic Impacts of eSTEM Middle School in Math, 2011-12

	OLS	
Charter Effect	**-0.0111**	
	(0.0348)	
Prior Year Math Z-Score	0.644	***
	(0.0279)	
Economic Disadvantage (FRL)	-0.108	***
	(0.0397)	
African American	-0.127	***
	(0.0412)	
Hispanic	-0.0544	
	(0.106)	
Other Non-White Race	0.0220	
	(0.116)	
Female	-0.0583	
	(0.0375)	
Prior Year Literacy Z-Score	0.191	***
	(0.0288)	
Switched Schools	-0.0553	
	(0.0366)	
Constant	0.0917	**
	(0.0434)	
Observations	834	
Adjusted R^2	0.7468	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E25. Academic Impacts of Imboden Area Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**-0.000645**	
	(0.155)	
Prior Year Math Z-Score	0.649	***
	(0.138)	
Economic Disadvantage (FRL)	0.227	
	(0.189)	
African American	N/A	
	N/A	
Hispanic	-0.923	***
	(0.159)	
Other Non-White Race	N/A	
	N/A	
Female	-0.419	**
	(0.186)	
Prior Year Literacy Z-Score	0.238	**
	(0.112)	
Switched Schools	0.127	
	(0.189)	
Constant	-0.138	
	(0.179)	
Observations	60	
Adjusted R^2	0.6095	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E26. Academic Impacts of Jacksonville Lighthouse Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**-0.00811**	
	(0.0401)	
Prior Year Math Z-Score	0.614	***
	(0.0345)	
Economic Disadvantage (FRL)	-0.133	***
	(0.0437)	
African American	-0.138	***
	(0.0454)	
Hispanic	0.138	
	(0.0886)	
Other Non-White Race	0.264	
	(0.270)	
Female	-0.0174	
	(0.0400)	
Prior Year Literacy Z-Score	0.197	***
	(0.0325)	
Switched Schools	0.0165	
	(0.0402)	
Constant	0.0124	
	(0.0489)	
Observations	684	
Adjusted R^2	0.6647	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E27. Academic Impacts of KIPP Delta: Blytheville Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**-0.188**	
	(0.135)	
Prior Year Math Z-Score	0.721	***
	(0.0808)	
Economic Disadvantage (FRL)	-0.318	
	(0.203)	
African American	0.106	
	(0.150)	
Hispanic	-0.244	
	(0.279)	
Other Non-White Race	0.217	
	(0.221)	
Female	0.0477	
	(0.102)	
Prior Year Literacy Z-Score	0.245	***
	(0.0619)	
Switched Schools	0.0621	
	(0.152)	
Constant	0.242	
	(0.233)	
Observations	102	
Adjusted R^2	0.7192	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E28. Academic Impacts of KIPP Delta: Helena/W. Helena Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**-0.0927**	
	(0.0624)	
Prior Year Math Z-Score	0.619	***
	(0.0527)	
Economic Disadvantage (FRL)	-0.387	***
	(0.135)	
African American	-0.230	
	(0.303)	
Hispanic	-0.165	
	(0.320)	
Other Non-White Race	-0.0922	
	(0.361)	
Female	-0.0818	
	(0.0623)	
Prior Year Literacy Z-Score	0.260	***
	(0.0506)	
Switched Schools	0.0500	
	(0.0624)	
Constant	0.469	
	(0.299)	
Observations	350	
Adjusted R^2	0.5696	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E29. Academic Impacts of LISA Academy in Math, 2011-12

	OLS	
Charter Effect	**0.0579**	
	(0.0480)	
Prior Year Math Z-Score	0.691	***
	(0.0397)	
Economic Disadvantage (FRL)	0.0548	
	(0.0618)	
African American	-0.0412	
	(0.0611)	
Hispanic	0.140	
	(0.0987)	
Other Non-White Race	0.209	**
	(0.0908)	
Female	-0.0420	
	(0.0516)	
Prior Year Literacy Z-Score	0.275	***
	(0.0420)	
Switched Schools	-0.0235	
	(0.0486)	
Constant	-0.106	*
	(0.0608)	
Observations	518	
Adjusted R^2	.7312	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E30. Academic Impacts of LISA Academy North Little Rock in Math, 2011-12

	OLS	
Charter Effect	**0.125**	*
	(0.0667)	
Prior Year Math Z-Score	0.687	***
	(0.0629)	
Economic Disadvantage (FRL)	-0.0459	
	(0.0738)	
African American	-0.188	**
	(0.0807)	
Hispanic	-0.148	
	(0.139)	
Other Non-White Race	-0.0734	
	(0.167)	
Female	-0.0973	
	(0.0649)	
Prior Year Literacy Z-Score	0.100	*
	(0.0580)	
Switched Schools	-0.00409	
	(0.0706)	
Constant	0.139	**
	(0.0690)	
Observations	272	
Adjusted R^2	0.6274	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E31. Academic Impacts of Little Rock Preparatory Academy in Math, 2011-12

	OLS	
Charter Effect	**0.0374**	
	(0.0830)	
Prior Year Math Z-Score	0.678	***
	(0.0753)	
Economic Disadvantage (FRL)	-0.0447	
	(0.121)	
African American	0.0335	
	(0.205)	
Hispanic	0.450	**
	(0.198)	
Other Non-White Race	-0.217	
	(0.230)	
Female	0.0373	
	(0.0843)	
Prior Year Literacy Z-Score	0.0825	
	(0.0752)	
Switched Schools	-0.163	*
	(0.0831)	
Constant	-0.182	
	(0.231)	
Observations	154	
Adjusted R^2	0.6696	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Conversion Charter Schools

Table E32. Academic Impacts of All Conversion Charter Schools in Literacy, 2011-12

	OLS	
Charter Effect	**-0.0801**	***
	(0.0235)	
Prior Year Literacy Z-Score	0.668	***
	(0.0203)	
Economic Disadvantage (FRL)	-0.0760	**
	(0.0356)	
African American	-0.0174	
	(0.0313)	
Hispanic	-0.0624	
	(0.0565)	
Other Non-White Race	-0.0840	
	(0.111)	
Female	0.121	***
	(0.0239)	
Prior Year Math Z-Score	0.252	***
	(0.0205)	
Switched Schools	-0.0300	
	(0.0234)	
Constant	-0.0107	
	(0.0342)	
Observations	2,702	
Adjusted R^2	0.6663	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E33. Academic Impacts of Cabot Academic Center for Excellence in Literacy, 2011-12

	OLS	
Charter Effect	**-0.207**	
	(0.175)	
Prior Year Literacy Z-Score	0.792	***
	(0.149)	
FRL-Eligible	-0.0138	
	(0.218)	
African American	N/A	
	N/A	
Hispanic	-0.103	
	(0.355)	
Other Non-White Race	N/A	
	N/A	
Female	0.368	*
	(0.213)	
Prior Year Math Z-Score	0.170	
	(0.186)	
Switched Schools	-0.0301	
	(0.178)	
Constant	-0.132	
	(0.175)	
Observations	32	
Adjusted R-Squared	(0.7059)	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E34. Academic Impacts of Cloverdale Aerospace Technology Conversion Charter Middle School in Literacy, 2011-12

	OLS	
Charter Effect	**-0.0713**	*
	(0.0392)	
Prior Year Literacy Z-Score	0.661	***
	(0.0354)	
FRL-Eligible	-0.139	
	(0.0872)	
African American	-0.0141	
	(0.109)	
Hispanic	-0.0900	
	(0.122)	
Other Non-White Race	-0.110	
	(0.122)	
Female	0.141	***
	(0.0392)	
Prior Year Math Z-Score	0.259	***
	(0.0331)	
Switched Schools	-0.0650	*
	(0.0386)	
Constant	0.0262	
	(0.110)	
Observations	1042	
Adjusted R-Squared	0.6246	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E35. Academic Impacts of Cross County New Tech in Literacy, 2011-12

	OLS	
Charter Effect	**0.124**	
	(0.129)	
Prior Year Literacy Z-Score	0.842	***
	(0.132)	
FRL-Eligible	-0.346	***
	(0.132)	
African American	-0.0200	
	(0.137)	
Hispanic	-0.669	***
	(0.208)	
Other Non-White Race	N/A	
	N/A	
Female	-0.166	*
	(0.0992)	
Prior Year Math Z-Score	0.300	***
	(0.108)	
Switched Schools	0.0412	
	(0.138)	
Constant	0.256	*
	(0.145)	
Observations	140	
Adjusted R-Squared	0.6751	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E36. Academic Impacts of Lincoln Middle Academy of Excellence in Literacy, 2011-12

	OLS	
Charter Effect	**-0.174**	***
	(0.0500)	
Prior Year Literacy Z-Score	0.722	***
	(0.0374)	
FRL-Eligible	0.117	
	(0.107)	
African American	-0.0659	
	(0.0594)	
Hispanic	-0.400	
	(0.405)	
Other Non-White Race	-0.204	
	(0.320)	
Female	0.0551	
	(0.0488)	
Prior Year Math Z-Score	0.287	***
	(0.0446)	
Switched Schools	-0.0927	*
	(0.0478)	
Constant	-0.0776	
	(0.0978)	
Observations	572	
Adjusted R-Squared	0.7291	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E37. Academic Impacts of Oak Grove Health, Wellness, and Environmental Science School in Literacy, 2011-12

	OLS	
Charter Effect	**-0.315**	**
	(0.123)	
Prior Year Literacy Z-Score	0.611	***
	(0.0859)	
FRL-Eligible	0.0672	
	(0.125)	
African American	-0.344	
	(0.311)	
Hispanic	0.00964	
	(0.169)	
Other Non-White Race	0.184	
	(0.170)	
Female	0.238	*
	(0.120)	
Prior Year Math Z-Score	0.136	
	(0.109)	
Switched Schools	-0.181	
	(0.214)	
Constant	-0.107	
	(0.130)	
Observations	140	
Adjusted R-Squared	0.5315	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E38. Academic Impacts of Ridgeroad Middle School in Literacy, 2011-12

	OLS	
Charter Effect	**-0.0172**	
	(0.0538)	
Prior Year Literacy Z-Score	0.557	***
	(0.0462)	
FRL-Eligible	-0.0944	
	(0.0875)	
African American	0.0378	
	(0.101)	
Hispanic	0.0447	
	(0.136)	
Other Non-White Race	-0.297	
	(0.218)	
Female	0.172	***
	(0.0564)	
Prior Year Math Z-Score	0.288	***
	(0.0433)	
Switched Schools	-0.0147	
	(0.0540)	
Constant	0.0145	
	(0.0856)	
Observations	526	
Adjusted R-Squared	0.5976	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E39. Academic Impacts of Vilonia Academy of Service and Technology in Literacy, 2011-12

	OLS	
Charter Effect	**-0.0446**	
	(0.0776)	
Prior Year Literacy Z-Score	0.545	***
	(0.0807)	
FRL-Eligible	-0.109	
	(0.0869)	
African American	N/A	
	N/A	
Hispanic	N/A	
	N/A	
Other Non-White Race	N/A	
	N/A	
Female	0.246	***
	(0.0778)	
Prior Year Math Z-Score	0.206	***
	(0.0644)	
Switched Schools	0.0388	
	(0.0831)	
Constant	-0.0206	
	(0.130)	
Observations	166	
Adjusted R-Squared	0.4884	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E40. Academic Impacts of Vilonia Academy of Technology in Literacy, 2011-12

	OLS	
Charter Effect	**-0.0561**	
	(0.153)	
Prior Year Literacy Z-Score	0.430	**
	(0.191)	
FRL-Eligible	-0.424	**
	(0.184)	
African American	N/A	
	N/A	
Hispanic	N/A	
	N/A	
Other Non-White Race	N/A	
	N/A	
Female	-0.0606	
	(0.184)	
Prior Year Math Z-Score	0.251	*
	(0.145)	
Switched Schools	-0.0789	
	(0.266)	
Constant	0.274	*
	(0.155)	
Observations	40	
Adjusted R-Squared	0.4000	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E41. Academic Impacts of All Conversion Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**0.0332**	*
	(0.0199)	
Prior Year Math Z-Score	0.635	***
	(0.0192)	
Economic Disadvantage (FRL)	-0.0185	
	(0.0349)	
African American	-0.186	***
	(0.0267)	
Hispanic	-0.119	***
	(0.0461)	
Other Non-White Race	0.0466	
	(0.152)	
Female	-0.0828	***
	(0.0204)	
Prior Year Literacy Z-Score	0.219	***
	(0.0177)	
Switched Schools	-0.0467	**
	(0.0199)	
Constant	0.0736	**
	(0.0326)	
Observations	2,740	
Adjusted R^2	0.6963	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E42. Academic Impacts of Cabot Academic Center for Excellence in Math, 2011-12

	OLS	
Charter Effect	**0.0280**	
	(0.210)	
Prior Year Math Z-Score	1.131	***
	(0.172)	
FRL-Eligible	-0.321	*
	(0.170)	
African American	N/A	
	N/A	
Hispanic	0.701	*
	(0.354)	
Other Non-White Race	N/A	
	N/A	
Female	-0.167	
	(0.195)	
Prior Year Literacy Z-Score	-0.104	
	(0.120)	
Switched Schools	-0.0761	
	(0.223)	
Constant	0.159	
	(0.117)	
Observations	34	
Adjusted R-Squared	(0.6551)	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E43. Academic Impacts of Cloverdale Aerospace Technology Conversion Charter Middle School in Math, 2011-12

	OLS	
Charter Effect	**-0.0575**	*
	(0.0302)	
Prior Year Math Z-Score	0.587	***
	(0.0291)	
FRL-Eligible	-0.00437	
	(0.0791)	
African American	-0.131	
	(0.128)	
Hispanic	-0.0161	
	(0.136)	
Other Non-White Race	0.0322	
	(0.306)	
Female	-0.0393	
	(0.0317)	
Prior Year Literacy Z-Score	0.193	***
	(0.0263)	
Switched Schools	0.0527	*
	(0.0303)	
Constant	-0.121	
	(0.128)	
Observations	1052	
Adjusted R-Squared	0.6322	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E44. Academic Impacts of Cross County New Tech in Math, 2011-12

	OLS	
Charter Effect	**0.0754**	
	(0.114)	
Prior Year Math Z-Score	0.86	***
	(0.0624)	
FRL-Eligible	-0.615	***
	(0.147)	
African American	-0.0300	
	(0.104)	
Hispanic	-0.0563	
	(0.105)	
Other Non-White Race	N/A	
	N/A	
Female	-0.0751	
	(0.0709)	
Prior Year Literacy Z-Score	0.0360	
	(0.0537)	
Switched Schools	-0.0808	
	(0.122)	
Constant	0.648	***
	(0.152)	
Observations	138	
Adjusted R-Squared	0.7782	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E45. Academic Impacts of Lincoln Middle Academy of Excellence in Math, 2011-12

	OLS	
Charter Effect	**-0.00199**	
	(0.0449)	
Prior Year Math Z-Score	0.649	***
	(0.0462)	
FRL-Eligible	0.0302	
	(0.101)	
African American	-0.116	**
	(0.0575)	
Hispanic	-0.189	
	(0.158)	
Other Non-White Race	0.112	
	(0.440)	
Female	0.000670	
	(0.0447)	
Prior Year Literacy Z-Score	0.272	***
	(0.0391)	
Switched Schools	-0.178	***
	(0.0442)	
Constant	0.133	
	(0.0927)	
Observations	600	
Adjusted R-Squared	0.6989	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E46. Academic Impacts of Oak Grove Health, Wellness, and Environmental Science School in Math, 2011-12

	OLS	
Charter Effect	**0.0226**	
	(0.0891)	
Prior Year Math Z-Score	0.538	***
	(0.0890)	
FRL-Eligible	0.0264	
	(0.104)	
African American	-0.377	***
	(0.102)	
Hispanic	-0.0228	
	(0.211)	
Other Non-White Race	-0.0175	
	(0.269)	
Female	-0.110	
	(0.0988)	
Prior Year Literacy Z-Score	0.342	***
	(0.0757)	
Switched Schools	-0.0209	
	(0.164)	
Constant	0.0833	
	(0.116)	
Observations	128	
Adjusted R-Squared	0.6290	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E47. Academic Impacts of Ridgeroad Middle School in Math, 2011-12

	OLS	
Charter Effect	**0.199**	***
	(0.0453)	
Prior Year Math Z-Score	0.645	***
	(0.0429)	
FRL-Eligible	-0.0309	
	(0.0817)	
African American	-0.174	**
	(0.0770)	
Hispanic	-0.0812	
	(0.110)	
Other Non-White Race	0.272	
	(0.222)	
Female	-0.171	***
	(0.0464)	
Prior Year Literacy Z-Score	0.201	***
	(0.0430)	
Switched Schools	0.0509	
	(0.0466)	
Constant	-0.0610	
	(0.0741)	
Observations	538	
Adjusted R-Squared	0.6863	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E48. Academic Impacts of Vilonia Academy of Service and Technology in Math, 2011-12

	OLS	
Charter Effect	**0.0807**	
	(0.0796)	
Prior Year Math Z-Score	0.634	***
	(0.0756)	
FRL-Eligible	-0.0132	
	(0.0887)	
African American	N/A	
	N/A	
Hispanic	N/A	
	N/A	
Other Non-White Race	0.0800	
	(0.106)	
Female	-0.207	**
	(0.0808)	
Prior Year Literacy Z-Score	0.261	***
	(0.0732)	
Switched Schools	-0.363	***
	(0.0854)	
Constant	0.329	***
	(0.101)	
Observations	162	
Adjusted R-Squared	0.6124	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E49. Academic Impacts of Vilonia Academy of Technology in Math, 2011-12

	OLS	
Charter Effect	**0.397**	
	(0.279)	
Prior Year Math Z-Score	0.744	***
	(0.233)	
FRL-Eligible	-0.193	
	(0.301)	
African American	N/A	
	N/A	
Hispanic	N/A	
	N/A	
Other Non-White Race	N/A	
	N/A	
Female	-0.0476	
	(0.245)	
Prior Year Literacy Z-Score	0.200	
	(0.276)	
Switched Schools	-0.0954	
	(0.298)	
Constant	-0.0695	
	(0.237)	
Observations	42	
Adjusted R-Squared	0.5538	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

All Charter Schools

Table E50. Academic Impacts of All Charter Schools in Literacy, 2011-12

	OLS	
Charter Effect	**0.00336**	
	(0.0136)	
Prior Year Literacy Z-Score	0.613	***
	(0.0118)	
Economic Disadvantage (FRL)	-0.100	***
	(0.0166)	
African American	-0.0532	***
	(0.0171)	
Hispanic	0.00735	
	(0.0301)	
Other Non-White Race	-0.0714	**
	(0.0324)	
Female	0.141	***
	(0.0140)	
Prior Year Math Z-Score	0.220	***
	(0.0112)	
Switched Schools	-0.0603	***
	(0.0139)	
Constant	0.0169	
	(0.0164)	
Observations	7,190	
Adjusted R^2	0.6712	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table E51. Academic Impacts of All Charter Schools in Math, 2011-12

	OLS	
Charter Effect	**0.0118**	
	(0.0128)	
Prior Year Math Z-Score	0.653	***
	(0.0112)	
Economic Disadvantage (FRL)	-0.0775	***
	(0.0160)	
African American	-0.136	***
	(0.0161)	
Hispanic	-0.0428	
	(0.0300)	
Other Non-White Race	0.106	**
	(0.0499)	
Female	-0.0690	***
	(0.0133)	
Prior Year Literacy Z-Score	0.196	***
	(0.0108)	
Switched Schools	-0.0324	**
	(0.0129)	
Constant	0.0775	***
	(0.0163)	
Observations	6,852	
Adjusted R^2	0.7145	

*Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Appendix F: List of Charter Schools by Year of Opening, 2011-12

Table F1. List of Charter Schools by Year of Opening, 2011-12

Charter School Name	Year of Opening	Years of Operation
Academics Plus	2001	11
Arkansas Virtual Academy	2007	11
Badger Academy	2007	5
Benton County School of the Arts	2001	11
Blytheville Charter School and Alternative Learning Center	2001	11
Cabot Academic Center for Excellence	2004	8
Cloverdale Aerospace Technology Conversion Charter Middle School	2010	2
Covenant Keepers	2008	4
Cross County New Tech High School	2011	1
Dreamland Academy	2007	5
eSTEM Elementary	2008	4
eSTEM High School	2008	4
eSTEM Middle School	2008	4
Haas Hall Academy	2004	8
Imboden Area Charter School	2002	10
Jacksonville Lighthouse	2009	3
KIPP Blytheville	2010	2
KIPP Delta	2002	10
Lincoln Academic Center of Excellence	2009	3
Lincoln Middle Academy of Excellence	2010	2
LISA Academy	2004	8
LISA Academy North Little Rock	2008	4
Little Rock Preparatory Academy	2009	3
Mountain Home High School Career Academy	2003	9
Oak Grove Health, Wellness, and Environmental Science School	2009	3
Pine Bluff Lighthouse Academy	2011	1
Ridgeroad Middle School	2003	9
SIA Tech	2011	1
Vilonia Academy of Service and Technology	2007	5
Vilonia Academy of Technology	2004	8

Appendix G: List of Charter Schools by Waitlist, 2011-12

Table G1. List of Charter Schools by Waitlist, 2011-12*

Charter School Name	Waitlist
Academics Plus	Yes
Arkansas Virtual Academy	Unreported
Badger Academy	Conversion Charter
Benton County School of the Arts	Unreported
Blytheville Charter School and Alternative Learning Center	Conversion Charter
Cabot Academic Center for Excellence	Conversion Charter
Cloverdale Aerospace Technology Conversion Charter Middle School	Conversion Charter
Covenant Keepers	Unreported
Cross County New Tech High School	Conversion Charter
Dreamland Academy	Unreported
eSTEM Elementary	Yes
eSTEM High School	Yes
eSTEM Middle School	Yes
Haas Hall Academy	Unreported
Imboden Area Charter School	Unreported
Jacksonville Lighthouse	Unreported
KIPP Blytheville	Yes
KIPP Delta	Yes
Lincoln Academic Center of Excellence	Conversion Charter
Lincoln Middle Academy of Excellence	Conversion Charter
LISA Academy	Yes
LISA Academy North Little Rock	Yes
Little Rock Preparatory Academy	Yes
Mountain Home High School Career Academy	Conversion Charter
Oak Grove Health, Wellness, and Environmental Science School	Conversion Charter
Pine Bluff Lighthouse Academy	Unreported
Ridgeroad Middle School	Conversion Charter
SIA Tech	Unreported
Vilonia Academy of Service and Technology	Conversion Charter
Vilonia Academy of Technology	Conversion Charter

* - Because of the high level of movement of students on waitlists, it is difficult to say if a school truly has no waitlist. For those who have no waitlist, their status is "Unreported," which could mean there is no waitlist, or that the school is full and no waitlist was reported.