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LOYOLA UNIVERSITY CHICAGO

PRIVATIZING LAWS:
EXAMINING THE RELATIONSHIP BETWEEN
PRIVATIZATION ELEMENTS IN STATE EDUCATION LAWS
AND FOURTH GRADE ACADEMIC PERFORMANCE

A THESIS SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
MASTER OF ARTS

CULTURAL AND EDUCATIONAL POLICY STUDIES

BY
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CHICAGO, IL

MAY 2017

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ABSTRACT

In the midst of a global context tied to expanding market connections, the United States adopted privatized education reform that has only been increasing over the years. Specific states have adopted privatization in varying degrees and forms, including vouchers, charter schools, public-private partnerships, contracting out services, and virtual education. States have implemented privatization forms for different reasons, such as to improve student achievement, save money, or provide for increased student choice. This research study evaluates the impact of privatization reforms on student achievement by examining the relationship between various privatization elements in state laws and student achievement. To do so, this study employed mixed methods to code and obtain privatization data and assess the states' student achievement levels in math and reading as demonstrated on the NAEP in 2015. Aligning with the generally mixed findings of privatization reform efforts on student achievement, this study produced mixed results. The results mainly showed negative relationships between privatization elements and student achievement, but the results were statistically insignificant. Thus, based on the mixed and insignificant relationship results, privatization may not be an effective solution to improve student achievement on its own.

Keywords: Privatization; Reform; Education; Education Policy; School Choice; Charter Schools; School Vouchers; Contracts; Public-Private Partnerships; Virtual Schools; Online Classes; State Laws; Student Achievement

PRIVATIZING LAWS: EXAMINING THE RELATIONSHIP BETWEEN PRIVATIZATION
ELEMENTS IN STATE EDUCATION LAWS AND FOURTH GRADE ACADEMIC
PERFORMANCE

Introduction

Privatization is a general term that includes many forms (Rho, 2013; Burch, 2006; Fitz & Beers, 2002). Throughout the world, including in the United States, privatization use has increased in educational settings (Witte, 2000; Zimmer, Gill, Booker, Lavertu, & Witte, 2011). The privatization movement is associated with a shift toward markets and government decentralization (Witte, 2000). Privatization can provide benefits, such as additional parental choice in which parents have greater freedom to choose schools because more alternatives to uniform public schools exist (Witte, 2000). Increased choice is especially beneficial for parents who live in neighborhoods with poor-performing schools and would like more school options for their children (Kane & Lauricella, 2001). In addition, due to the government deregulation of schools, privatized schools are free to engage in innovative educational practices, which can cater more to the local community's interests, values, and needs, providing students with a more individualized educational setting (Kane & Lauricella, 2001). Therefore, increased privatization brings about additional educational possibilities.

However, the use of privatization in education is imperfect and contains disadvantages inherent in the nature of government deregulation and privatization. To begin, governments often enact privatization methods for funding reasons because states can generally provide less per-pupil funding to privatized schools than in traditional public schools; this leaves private entities to make up the difference and saving states money (Kane & Lauricella, 2001). Additionally, the

use of privatization, especially charter schools and voucher programs, relies on market principles of competition and efficiency within the educational setting. Consequently, less government regulation exists and more competition exists between traditional and privatized schools, creating additional pressure on traditional public schools to perform or risk being taken over by an education management organization (Fitz & Beers, 2002). Also, due to the decreased government regulation, privatized schools have less accountability to the public and more private accountability, leading to concern over possible discrimination in privatized schools since there are less government mandates and special education services requirements to protect students of color and students with disabilities (Kane & Lauricella, 2001). Similarly, additional concern surrounds the effectiveness of the privatized schools because privatization has generally been found to produce inconsistent results in improving student achievement despite the decreased level of accountability and standardization found in traditional schools (Silverman, 2012; Zimmer, Gill, Booker, Lavertu, & Witte, 2011). Thus, although privatization can provide benefits, privatization produces many drawbacks associated with a privatized rather than governmental educational structure, which may impact the chief goal of education: to increase student achievement.

Often, research on privatization's effect on student achievement is inconsistent and limited involving analyzing state laws, so this study aimed to provide more information about the relationship between the degree of privatization found in state laws and student achievement. Additionally, few research studies have focused on privatization on a national scale, and few research studies have focused on many types of privatization. As a result, this study's purpose was to examine privatization and student achievement on a national scale, involving five common forms of privatization.

Review of Research Literature

Within education, privatization is a broad concept that involves the transfer of public funds or assets to a private entity (Rho, 2013; Fitz & Beers, 2010). Privatization also includes the provision of services by private entities within education to public entities (Fitz & Beers, 2010). Privatization signals a shift in educational structure and funding from the government to private entities (Fitz & Beers, 2010; Witte, 2000). However, limited research examines privatization and its relationship to student achievement by analyzing state educational laws, and the research that does exist usually contains inconsistent results (Network for Public Education, 2016; Ladner, 2015; Silverman, 2012; Zimmer, Gill, Booker, Lavertu, & Witte, 2011).

Privatization and Student Achievement Scholarship

Generally, most existing research examines privatization by focusing on a specific type of privatization method. The most common examples of privatization in education include charter schools, vouchers, private management organizations, and contracting out services (Fitz & Beers, 2010; Levin & Belfield, 2003). The studies often focus on a specific state or school district and tend to use multiple qualitative research methods to better understand the privatization form (Wells & Scott, 2001). As a result, most existing research is limited to a specific form of privatization and geographic area rather than multiple forms of privatization and multiple areas (Burch, 2006; Fitz & Beers, 2002; Wells & Scott, 2001; Simon & Lovrich, 1996). For example, in one charter school study, Bulkley (2005) examined how states conceptualized the role of charter schools as reflected in the state charter school laws and policy-making process. The National Alliance for Public Charter Schools also examined charter school laws and rated states based on their use of model charter school language, including no cap on the number of charter schools, comprehensive monitoring of charter schools, charter school applications,

accountability systems, funding level, renewal processes, multiple authorizers, independent charter school boards, and collective bargaining and state law exemptions (Ziebarth, 2016). Many studies related to contracting out services have similarly focused on the underlying reasons for moving toward utilizing private entities to perform traditionally public services (Rho, 2013; Burch, 2006). Thus, many studies have only involved one type of privatization.

However, most studies involving privatization and education evaluate student outcomes, such as student achievement, graduation rate, and/or retention (Silverman, 2012; Okpala, Bell, & Tuprah, 2007; Simon & Lovrich, 1996). The existing research utilizes diverse research methods to determine privatization's impact on student achievement, such as Simon and Lovrich (1996) using regression analysis to assess whether the presence of private schools in North Carolina school districts impacted competition and student achievement and Witte (2000) conducting surveys, case studies, and regression analysis to analyze Milwaukee school vouchers and student achievement. Most studies only involve one state, but some studies are multi-state studies (Silverman, 2012). For example, Zimmer et al. (2011) examined the impact of charter schools on student performance based on test scores across seven states and found positive statistical significance in two states and negative statistical significance in two states. The research that does exist usually contains inconsistent or slightly significant results (Silverman, 2012; Zimmer, Gill, Booker, Lavertu, & Witte, 2011; Simon & Lovrich, 1996).

Privatization Scholarship Involving Education Laws and Student Achievement

Although much more limited, some research exists that analyzes student achievement from a legal or policy perspective. Most of the studies analyze privatization on a state-level and utilize education laws and NAEP scores. Most of the studies include multiple states and

generally involve mixed-methods of coding and regression analysis (Wong, 2014; Zimmer, Gill, Booker, Lavertu, & Witte, 2011).

In particular, Wong (2014) studied whether the degree of several dimensions, accountability, autonomy, and permissibility, in charter school state laws impacted student achievement and the number of charter schools in a state. Wong (2014) used fourth and eighth grade reading and writing scores as the measurement for student achievement. To determine the relationship between each state law and each outcome, Wong (2014) utilized Ordinary Least Squares regression. She found that “laws granting higher permissibility and autonomy significantly relate to a greater number of charter schools, while accountability is associated with fewer charter schools” and that none of the dimensions had a statistically significant effect on student performance (Wong, 2014). However, the results demonstrated that the more accountable the state laws were the more likely students’ performance would decrease (Wong, 2014). Due to the insignificant effect on student academic performance, Wong (2014) suggested looking more closely at the laws and even evaluating laws by individual provisions (p. 119).

Carnoy and Loeb (2002) similarly examined whether strong or weak accountability systems within state laws impacted student achievement. When conducting the study, Carnoy and Loeb (2002) developed a scale from 0-5 with 0 as the lowest score and 5 as the highest score to measure testing procedures and possible consequences and external pressures as they relate to degree of accountability. Carnoy and Loeb (2002) found a positive relationship between stronger accountability systems and fourth and eighth grade math test scores with the relationship being the most significant at eighth grade (p. 322).

In addition, the American Legislative Exchange Council (ALEC) published a report that evaluated states’ education laws based on the degree of privatization and student achievement

(Ladner, 2015). The report first described privatization-related law, such as those involving virtual schools, tax credits, voucher programs, and charter schools, that states had enacted within the past year and listed as well as provided maps that indicated which states currently employed those types of education reforms (Ladner, 2015). Then, the report provided ratings for each state based on “Academic Standards, Charter Schools, Homeschooling, Private School Choice, Teacher Quality and Digital Learning” (Ladner, 2015, p. 39). The category ratings were on a scale of A-F with A as the highest grade and F as the lowest grade for each category and were determined using a ranking of each category based on the state’s policies (Ladner, 2015). The report additionally discussed changes in fourth grade NAEP performance relative to the states (Ladner, 2015). Most states received mixed grades for performing differently depending on the category (Ladner, 2015).

In response to the ALEC study, the Network for Public Education (NPE) (2016) conducted its own study that examined states’ resistance to privatization and educational policies. Accordingly, NPE (2016) assessed each state’s support for public education within the United States by evaluating all 50 states’ educational laws and policies based on the following major categories: “Professionalization of Teaching,” “No High Stakes Testing,” “Resistance to Privatization,” “Chance for Success,” “School Finance,” and “Spend Taxpayer Resources Wisely” (p. 18). Then, NPE (2016) assigned a rank to each state on a similar A-F grading scale as the ALEC study. Ultimately, the NPE (2016) found that no state received high grades in multiple categories and instead mostly had grades of C or below for all of the categories (p. 4, 18).

The results look similar when examining virtual education. The Center for Research on Education Outcomes (CREDO) (2015) extensively studied virtual schools and examined

kindergarten through twelfth grade student performance in all seventeen states with virtual schools as compared to the student performance in traditional public schools within the same seventeen states. CREDO found a negative, although generally insignificant, relationship between student achievement at virtual schools as compared to the peer performance at traditional public schools (CREDO, 2015, p. 19).

Digital Learning (2015) studied online education more broadly and produced reports analyzing states on ten criteria and grading them on an A-F grading scale. In its 2015 report, Digital Learning found most states fell within the C-F range (Digital Learning, 2015). However, some states received grades of an A, demonstrating that the results may not be so clear (Digital Learning, 2015). Moreover, most of the existing research involving privatization and education demonstrate that privatization does has a negative or inconsistent relationship with student achievement.

Research Questions

What is the relationship between the degree of privatization language use in United States state education laws and each state's fourth grade standardized test performance in math?

What is the relationship between the degree of privatization language use in United States state education laws and each state's fourth grade standardized test performance in reading?

These questions are important because states are increasingly using privatization methods throughout the United States, especially in the form of charter schools, vouchers, and contracting out services. For instance, in 2015, over forty states had charter schools (Ladner, 2015), and in 2017, the United States Congress even considered instituting national privatization in the form of vouchers (Congress, 2017). Consequently, these questions are relevant and will help determine how a greater number of privatization-related laws impacts student performance.

The main information used to answer the research questions included the type of regression line, the degree of significance, patterns based on the range of scores, and the prediction value of student performance based on the degree of privatization utilized in state education laws. Other studies usually only focused on one form of privatization, generally charter schools, but these research questions examined multiple privatization types. Therefore, the data could be used to influence educational policy related to multiple types of privatization.

Research Methodology

Rationale

In order to answer my research questions, I employed a mixed-methods study involving a content analysis and multiple linear regression. The content analysis was used to find existing privatization and student achievement data and code statutes and locate the privatization language used in the statutes that did not have existing research with a coding system, namely public-private partnerships and contracting out services. Then, multiple linear regression was used to determine the relationship and the strength of the relationship between students' test scores and whether the degree of privatization language could predict students' performance. Multiple linear regression was specifically chosen because that statistical analysis allows the examination of one dependent variable and independent variable while controlling for other variables. Therefore, by employing both methods, I was able to fully answer my research questions.

Participants

In the study, I used two main types of existing public sources of data. The sources consisted of state education laws and states' fourth grade test scores. The goal of using the existing sources was to gather information that would allow an accurate and reliable relationship between privatization use in states and states' fourth grade test performance to be determined.

The education laws were retrieved directly from each state's official legislative compiled statutes as listed on each state's official website. The web addresses for the statutes are listed in Appendix A. The education laws were statutes from the following states: Arizona, Illinois, Kentucky, Massachusetts, Nebraska, Ohio, South Dakota, Texas, Vermont, and Wisconsin. The statute sections with "Education," "Schools," or a variation of those words that still describe education in their titles were examined when existing data was unavailable, namely for public-private partnerships and contracting out services.

Additionally, when reviewing the statutes for privatization areas, I used primarily an a-priori coding system to obtain the degree of privatization found within the statutes (Johnson & Christensen, 2014, p. 597). The coding system covered the public-private partnerships and contracting out services privatization types included in the study and awarded points for the existence of a privatization type and the degree that the state laws provided protection for the privatization type. However, as is often found in qualitative research and among researchers, I also used inductive coding to determine how many partnerships or contracted services would constitute each score within the public-private partnership category and the contracting services category in order to have a range of scores (Johnson & Christensen, 2014, p. 596-597).

The included privatization concepts were based on existing peer-reviewed research involving forms of privatization in education. For example, Burch (2006) discussed privatization as "encompass[ing] a broad range of activities, initiatives, programs, and policies such as charter schools, vouchers, the contracting out of instructional and non-instructional services, and the total management and takeover of entire school districts and schools" (p. 2582). Similarly, Fitz and Beers (2002) also discussed privatization as a general concept and listed popular forms of privatization as vouchers, tax credits, contracting out public services to private entities, public-

private partnerships, and education management organizations (p. 139). These classifications have further been confirmed by other studies that examined one form of privatization, such as Torre (2013)'s study discussing virtual charter education; Zimmer, Gill, Booker, Lavertu, and Witte (2011)'s seven state comparative study analyzing the effect of charter schools on student achievement; Burch (2006)'s study examining contracting out educational services; and Witte (2000)'s extensive study examining a voucher program in Milwaukee and its effect on student achievement. Accordingly, the main coding categories in this study included school vouchers or school choice tax credit programs, charter schools, virtual schools and online classes, public-private partnerships, and contracting out services.

In addition, the student test score data was retrieved from the United States Department of Education's National Center for Education Statistics website, which contains test scores from the nationally administered standardized test, the National Assessment of Educational Progress (NAEP) (U.S. Department of Education, National Center for Education Statistics, 2015). The NAEP is uniformly administered in the United States and functions as a common metric to assess student performance in numerous subject areas across states (U.S. Department of Education, National Center for Education Statistics, 2015). The NAEP test scores are reported regularly for each state, and the NAEP assesses students in fourth grade, eighth grade, and twelfth grade (U.S. Department of Education, National Center for Education Statistics, 2015). The fourth grade reading and math numerical scores served as the measure of fourth grade students' test performance in this study. The fourth grade reading and math test scores from 2015, the most recent test scores, were used in the study.

Consequently, by using the state education statutes and NAEP test scores, I obtained data that directly related to my variables of the degree of privatization in education laws and students'

standardized test scores to answer my research questions. These sources were also the best sources to use because they serve as the actual education policy in each state, such as those involving privatization reform methods, and students' actual performance in a uniform national study. Moreover, by using these sources, I was provided with the best opportunity to determine whether a relationship exists between privatization language use and fourth grade test performance.

Lastly, these sources were reliable and valid because they came from official public sources and related to my research study. First, the education laws were reliable because they were located publicly on official legislative websites and are capable of being found again even if sections are added, amended, or repealed since the official records of the laws are maintained on the website. The education laws were also valid sources because they pertained to each state and involved the state's actual education provisions. Each section in the statutes contained an effective date or repeal notification that further ensured that the appropriate sections would be used within the same time period. In addition, the NAEP results were reliable and valid because the NAEP is a standardized test that is administered semi-annually and is capable of measuring the same data throughout the states, and the NAEP measures fourth grade reading scores, which was being examined in this study. Therefore, the education laws and NAEP test results were reliable and valid.

Data Collection

The variables used in this research study included the dependent variables of student performance in math and reading and the independent variables of the degree of privatization concepts per state statute as well as the confounding variables that were controlled in the study. Student performance was measured by fourth grade students' performance on the NAEP as

indicated by the fourth grade math and reading scaled scores from 2015 in each state included in the study. The degree of privatization was determined based on existing studies, namely ALEC (2015) and NPE (2016) for charter schools; Digital Learning Now (2015) for virtual education; and ALEC (2015) for vouchers. The remaining privatization elements, public-private partnerships and contracting out services, were determined through the use of a rubric based on the number of public-private partnerships and contracting out occurred. Public-private partnerships included activities or collaborations with private entities or non-profits whereas contracting out services involved the entering into contracts for services with private entities (Russo, Sandidge, Shapiro, & Harris, 1995). Each privatization example, such as contracting out bus services for schools or partnering with private schools for classes, was only counted once even if the partnership or service was listed multiple times in the statute. In addition to the independent variable of degree of privatization, the study included the following confounding variables: state population, state poverty rate, state racial demographics, and gender demographics (Wong 2014). The United States Census Bureau website provided the 2015 state-level population, state poverty rate, and state racial demographic information that were used in the study (U.S. Census Bureau, 2016).

When conducting this research study, I first determined which states I would use to review the state laws. In order to have states with a range of privatization levels, I selected ten states based on the existence or lack of peer-reviewed research on a particular state in consultation with the ALEC 2015 Report Card and the NPE 2016 Report Card that list the types of privatization found in each state (NPE, 2016; Ladner, 2015). Next, I gathered the states' corresponding education statutes as located on each state's official legislative website. Then, I determined which privatization categories I would study, namely charter schools, vouchers or tax

credit programs, virtual education, public-private partnerships, and contracting out services. Afterwards, I found existing data for charter schools, vouchers or tax credit programs, and virtual education and read through the state statutes, reading all sections that have “Education,” “School,” or a variation of the two words related to K-12 education in the statute’s title, and completed the privatization rubric in Appendix B for public-private partnerships and contracting out services. Each privatization category had a range of scores based on the degree of privatization language in the education laws.

Data Analysis

Once all of the variable data was found by locating existing data sources or retrieving data based on the statutes, I used SPSS to conduct multiple linear regression. To do so, I inputted the math and reading state performance scores as the dependent variables, respectively. Then, I inputted the values of my confounding variables followed by the amount of privatization as the independent variable to isolate the privatization type from the confounding variables.

Next, I analyzed the test scores. I first looked at the test scores to determine the range in scores, the states with the highest and lowest test scores, and any other patterns that could be noticed from the data. Then, I compared the states’ total privatization number and test scores by looking at the privatization and student performance data collectively and creating a scatter plot of all of the data.

Lastly, I used multiple linear regression to determine the relationship and whether the relationship was significant. To do so, I calculated the multiple linear regression equation and looked at the regression line provided by SPSS to determine the type of relationship, such as if the relationship was positive (Johnson & Christensen, 2014). Then, I looked at the slope or regression coefficient to determine the predicted change in student test scores with a change in the degree of privatization (Johnson & Christensen, 2014). In addition, I examined the

significance of the relationship between privatization and test score performance in which any value less than 0.05 was significant (Johnson & Christensen, 2014, p. 565). Moreover, by analyzing the type of relationship and significance, I determined the relationship between the degree of privatization in state education laws and fourth grade test performance.

Analysis

I examined the multiple types of privatization found in each state's education law and each state's fourth grade math and reading test scores to determine the relationship between the degree of privatization in state laws and fourth grade student performance. The study involved six variables: student performance of either math or reading, population, poverty, gender, race, and privatization. Each of those variables had ten numerical values, representing one value per state. All of the variables are listed in Appendix C. The privatization values ranged throughout the states but generally consisted of a balance among low, medium, and high values for each type of privatization. Consequently, the privatization value distributions were consistent with the purposive sampling method for this study. The state math test scores ranged from 237 (Illinois) to 251 (Massachusetts) with several states each scoring 243 and 244. The reading test scores ranged from 215 (Arizona) to 235 (Massachusetts) with no state having the same score on the test. Overall, when controlling for confounding variables, the results generally showed a negative relationship between privatization elements, but the significance of that result varied.

Charter Schools

First, charter schools involved two data sets with opposite views, such as the information from the NPE as well as ALEC (NPE, 2016; Ladner, 2015). The data sets were scored from 0 to 4 with 0 meaning the state does not have charter schools and 4 with the state having charter schools and many laws that favor them. The inclusion of multiple data sets into this study was

intended to examine the data from more studies to increase reliability. Based on both studies, Arizona was found to have the highest score with several other states having in-between scores and Kentucky, Nebraska, and South Dakota had the lowest scores.

In general, as states had more robust charter school laws, students' performance decreased. Based on the linear regression, charter schools based on ALEC data were found to have negative relationships with student performance both in math and reading, but the negative results were not statistically significant. The relationship between math and charter schools was negative with a -1.21 decrease in charter schools with every 1.00 unit increase in math, and the relationship between reading and charter schools was a -1.72 decrease in charter schools with every 1.00 unit increase in reading. Figures 1 and 2 provide a scatter plot of the data as well as the best-fitted equation that can be used to further examine the relationship between charter schools and reading and math performance and predict future student performance based on an increase in charter schools. Similarly, charter schools based on NPE data had a negative relationship with student performance in math but a slightly positive relationship with reading. The relationship between math and charter schools based on NPE data was negative with a -0.65 decrease in charter schools with every 1.00 unit increase in math, but the relationship between reading and vouchers was a 0.34 increase in charter schools with every 1.00 unit increase in reading. Therefore, the results demonstrated that relationships between math and charter schools were negative but mixed for reading and charter schools. Figures 3 and 4 provide the scatter plots for the NPE-based charter school data.

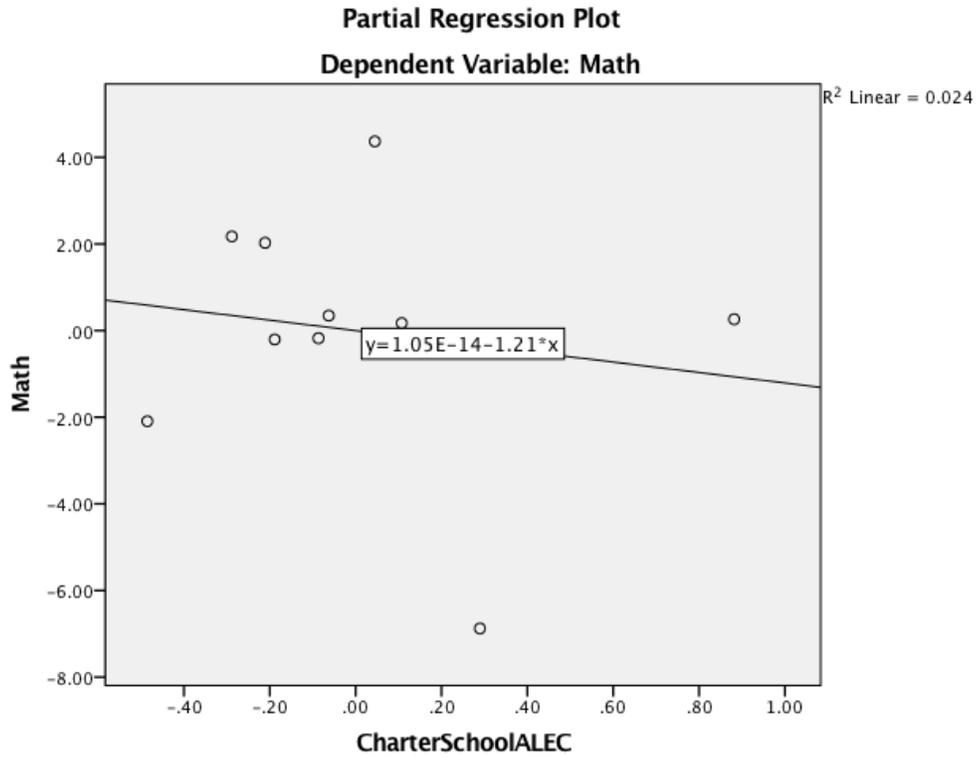


Figure 1. The Relationship Between Math Performance and Charter School Laws (ALEC)

Source: SPSS

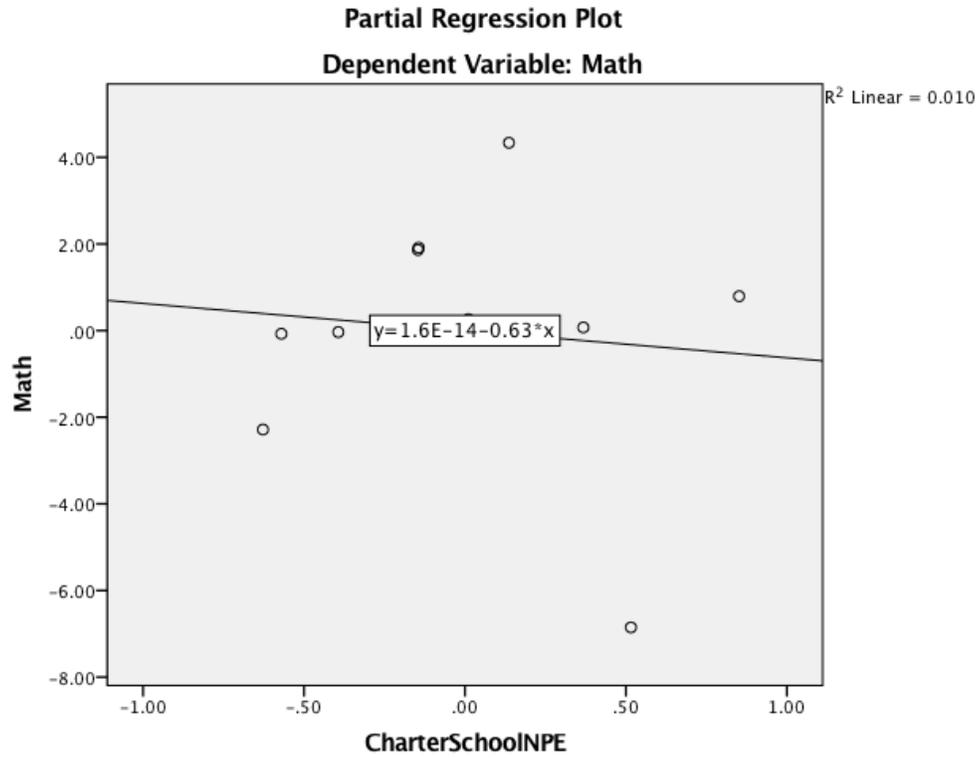


Figure 2. The Relationship Between Math Performance and Charter School Laws (NPE)

Source: SPSS

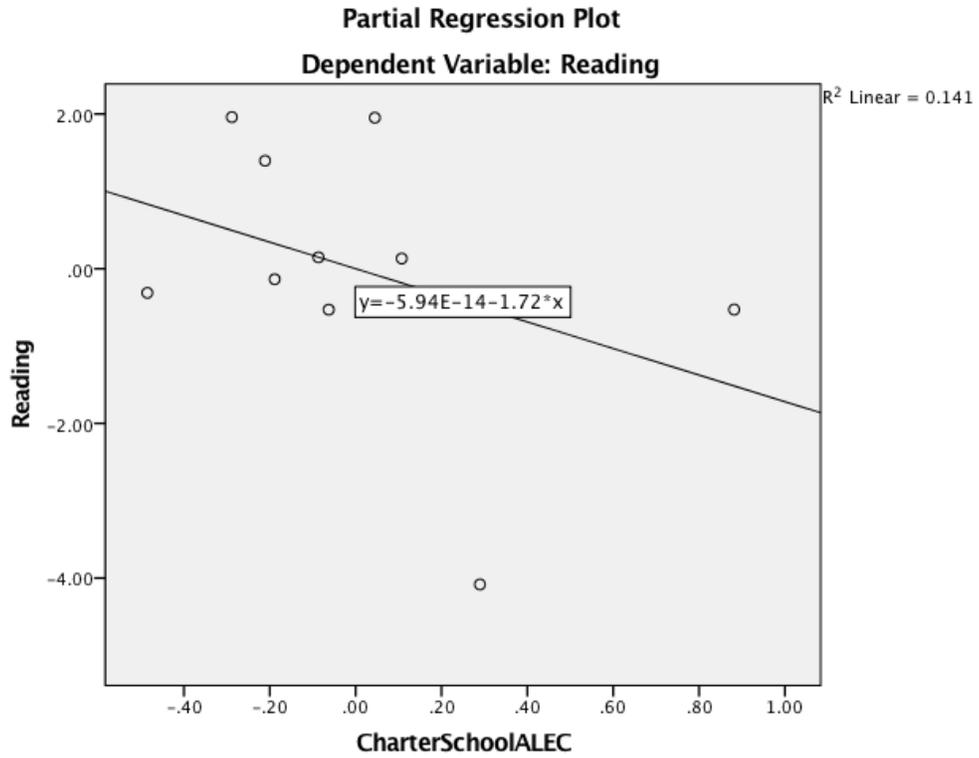


Figure 3. The Relationship Between Reading Performance and Charter School Laws (ALEC)

Source: SPSS

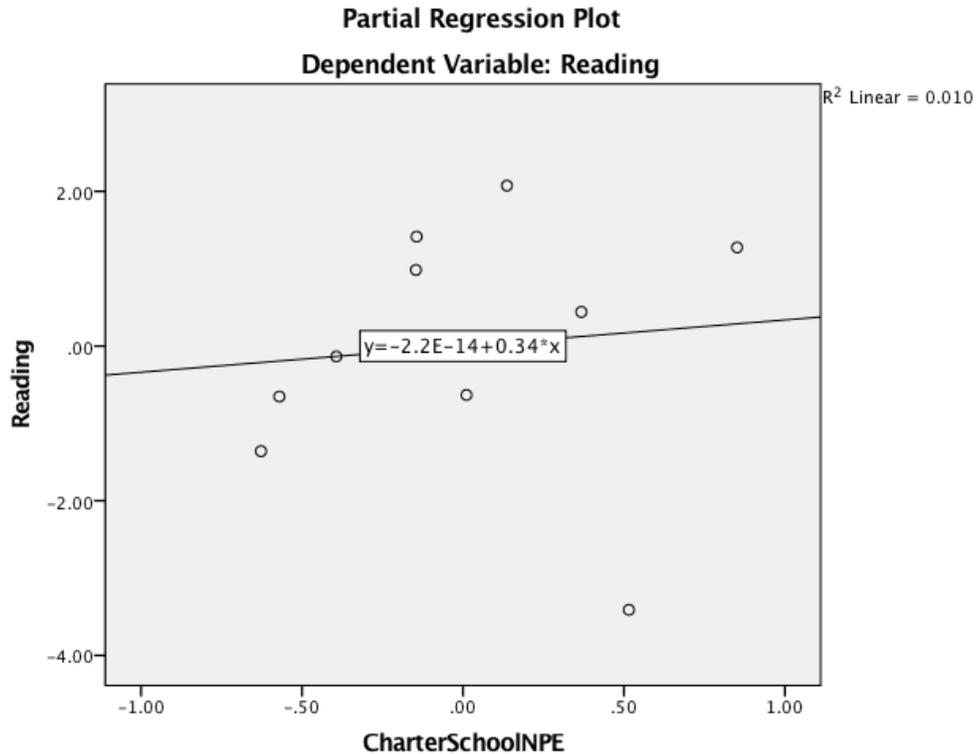


Figure 4. The Relationship Between Reading Performance and Charter School Laws (NPE)

Source: SPSS

Vouchers

Similar to charter schools, the increased amount of vouchers had a negative relationship with fourth grade math and reading performances. Like charter schools, vouchers were rated on a scale of 1-4 with 4 having vouchers within the state as well as robust protections of vouchers and 1 having vouchers but not with robust protections. Several states, including Kentucky, Massachusetts, and Nebraska, did not have vouchers and were given a 0 rating. Arizona and Ohio had the highest score. Overall, vouchers had negative relationships with student performance, but the relationships were not significant. For instance, the reading test was just barely statistically insignificant because the level of significance was 0.064 instead of 0.05. The relationship between math and vouchers was negative with a -0.95 decrease in vouchers with

every 1.00 unit increase in math, and the relationship between reading and vouchers was a -1.13 decrease in vouchers with every 1.00 unit increase in reading. Figures 5 and 6 provide the scatter plot of the data as well as the best-fitted line that can be used to predict future student achievement based on the increase or decrease of vouchers in a state.

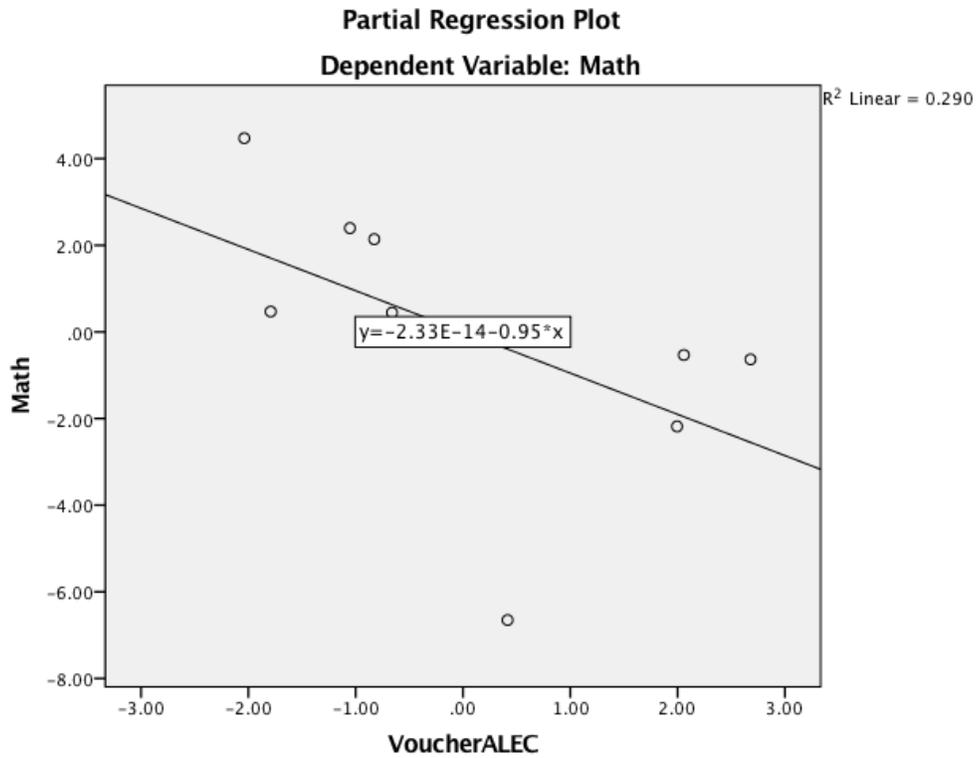


Figure 5. The Relationship Between Math Performance and Voucher Laws

Source: SPSS

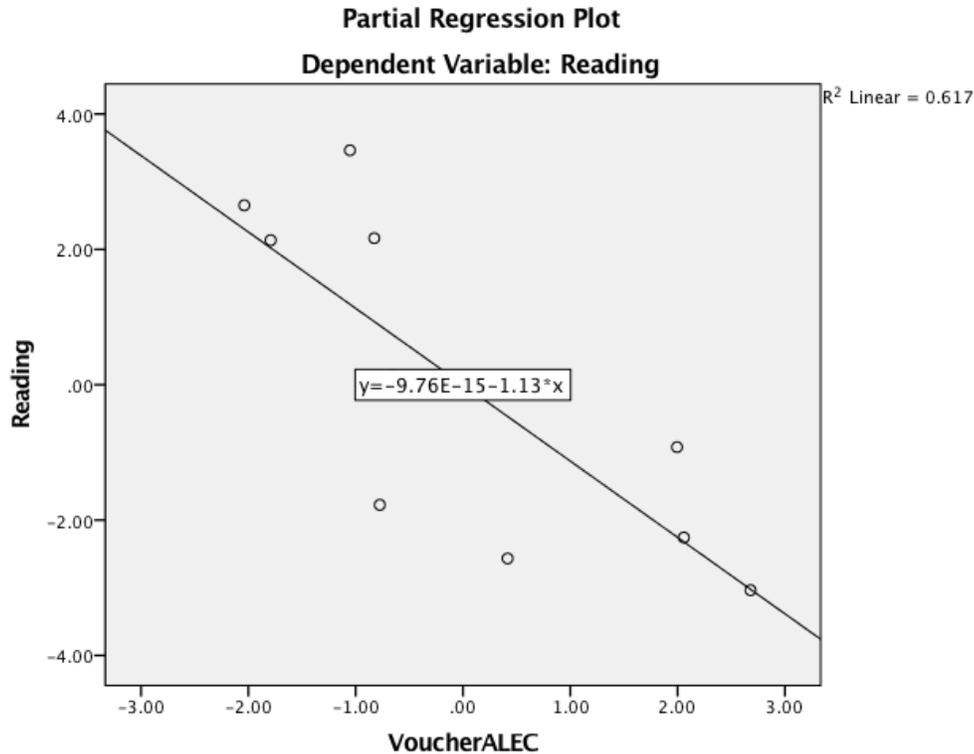


Figure 6. The Relationship Between Reading Performance and Voucher Laws

Source: SPSS

Virtual Education

Virtual education also had a negative relationship with student performance. Virtual education was rated 1-4 with 4 for states with robust virtual school and online learning programs and 1 for states with minimum virtual school and online learning programs. Illinois and Massachusetts had the highest scores based on the quality of their virtual education systems, and Kentucky and Nebraska had some of the lowest scores. Based on the linear regression, virtual education had a negative relationship with fourth grade performance in both math and reading. In particular, the relationship between virtual education and math was a -0.86 decrease in virtual education for every 1.00 unit increase in math, and the relationship between virtual education and reading was a -0.51 decrease in virtual education for every 1.00 unit increase in reading.

Like the other privatization areas, the results were not statistically significant, but unlike in the charter school and voucher relationships, the virtual education relationship was not the most negative influence on student performance; instead, the state level of poverty impacted student performance the most negatively. Figures 7 and 8 provide the scatter plots as well as the equations of the best-fitted lines that can be used to predict student performance based on virtual education in the future.

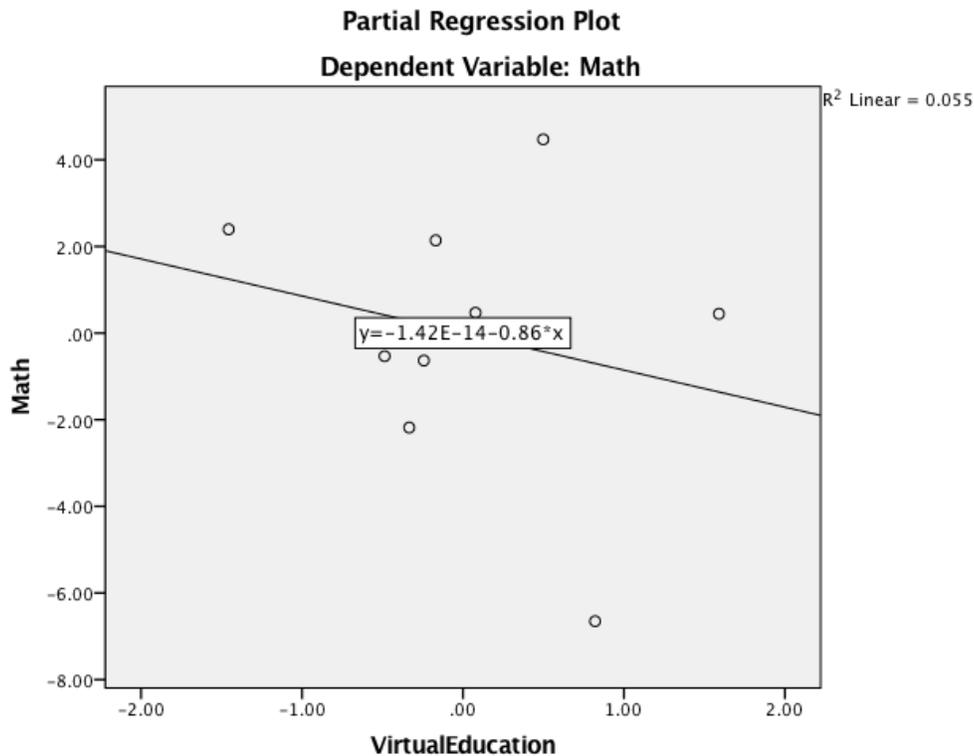


Figure 7. The Relationship Between Math Performance and Virtual Education Laws

Source: SPSS

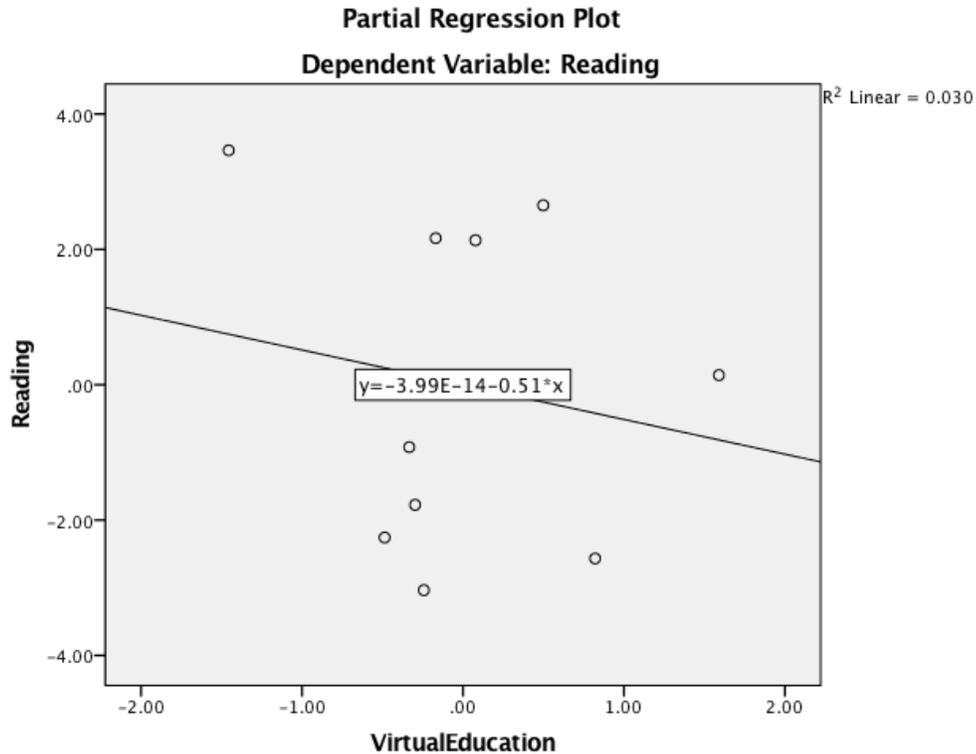


Figure 8. The Relationship Between Reading Performance and Virtual Education Laws

Source: SPSS

Public-Private Partnerships

Unlike the previous privatization elements, public-private partnerships had mixed results for its relationship with student achievement. The scoring for public-private partnerships was based on a 1-4 scale with 4 for states with significant public-partnerships and 1 for states with minimal public-private partnerships. Based on the coding of the state statutes, the number of partnerships ranged from 6 to 21 or more partnerships. Vermont and South Dakota had some of the lowest number of partnerships while Illinois and Kentucky had some of the most partnerships. The relationship between reading and public-private partnerships was positive with a 0.49 increase in public-private partnerships with every 1.00 unit increase in reading. In contrast, the relationship between math and public-private partnerships was negative with a -1.12

decrease in public-private partnerships with every 1.00 unit increase in math. However, both relationships were statistically insignificant. Figures 9 and 10 provides the regression equation and more information about the relationships between student achievement and public-private partnerships found in this study.

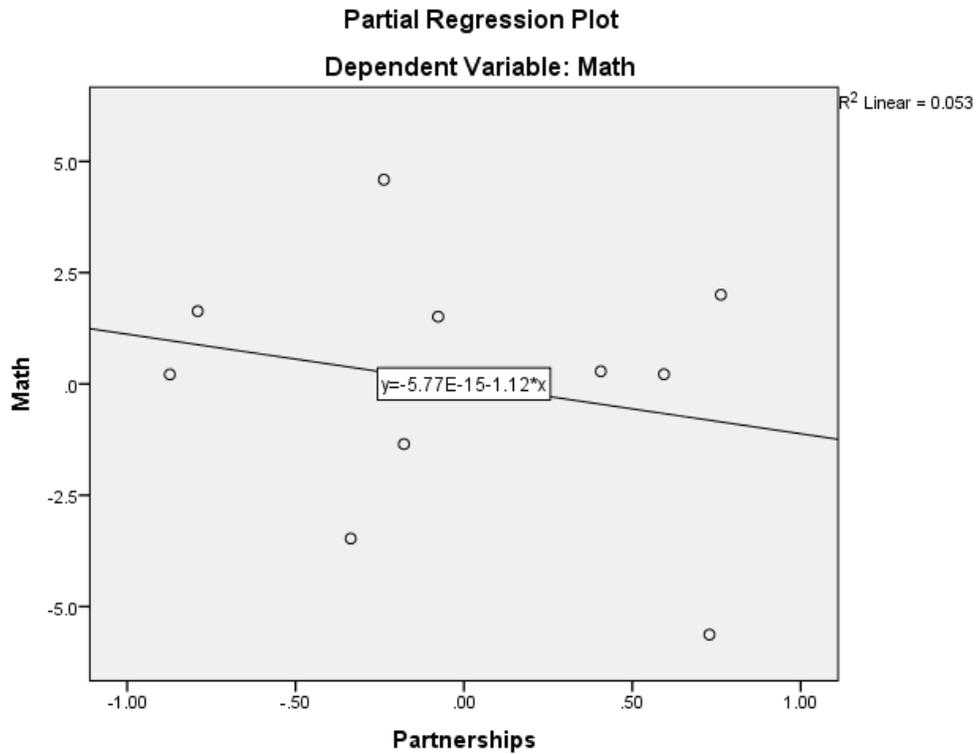


Figure 9. The Relationship Between Math Performance and Public-Private Partnerships

Source: SPSS

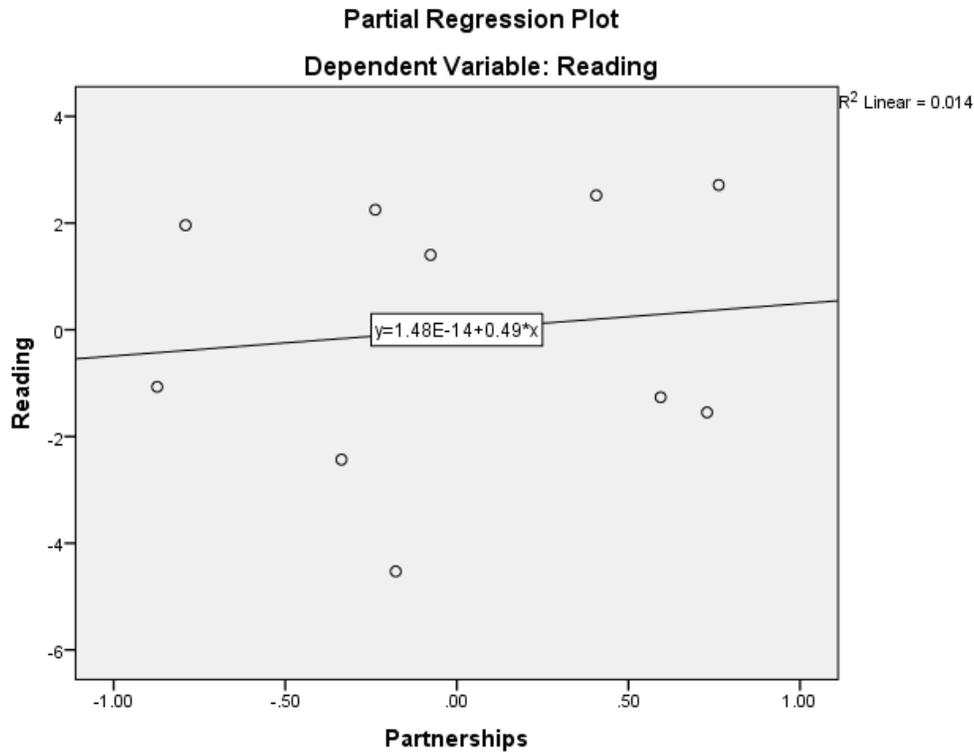


Figure 10. The Relationship Between Reading Performance and Public-Private Partnerships

Source: SPSS

Contracting Out Services

Lastly, contracting out services showed negative, though insignificant, relationships. The scoring for contracting out services was based on a 1-4 scale with 4 for states with significant contracting out to private entities and 1 for states with minimal contracting out of services. Based on the coding of the state statutes, the number of contracted out services ranged from 6 to 21 or more services. Wisconsin and Texas had the lowest amount of privatization while Arizona and Ohio had the most in this category. In terms of the relationship, for every 1.00 unit increase in math scores, the contracting scores decreased by -1.62. Similarly, for every 1.00 unit increase in reading scores, the degree of contracting language decreased by -2.07. Figures 10 and 11 provide the regression equations and a scatter plot of the data as well as the best fit line.

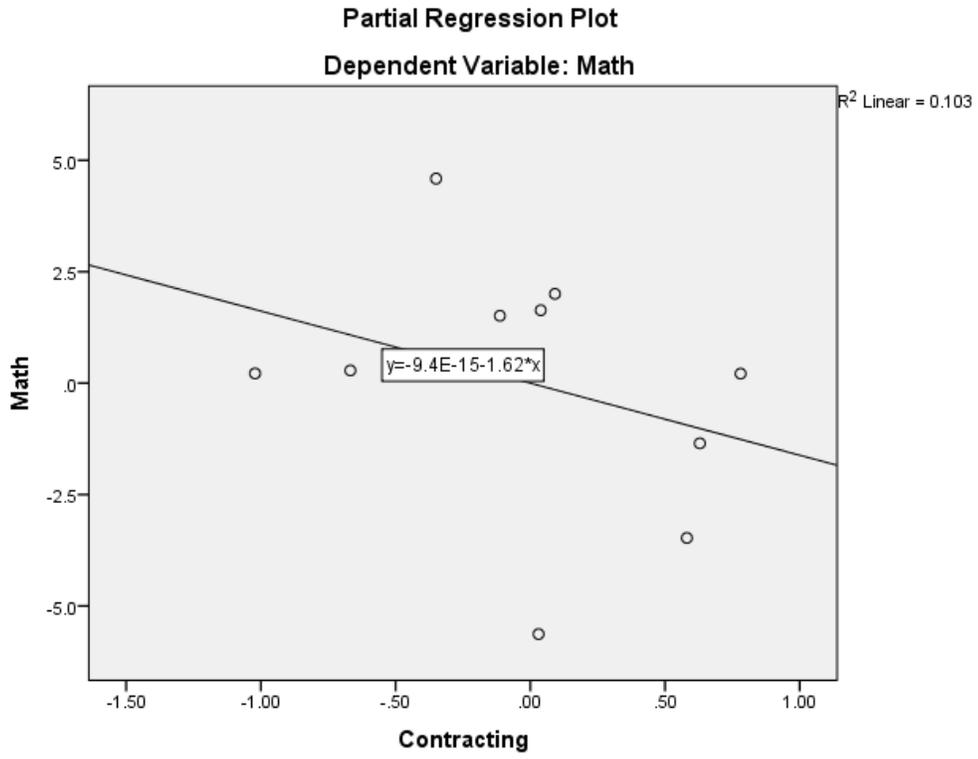


Figure 11. The Relationship Between Math Performance and Contracting out Services

Source: SPSS

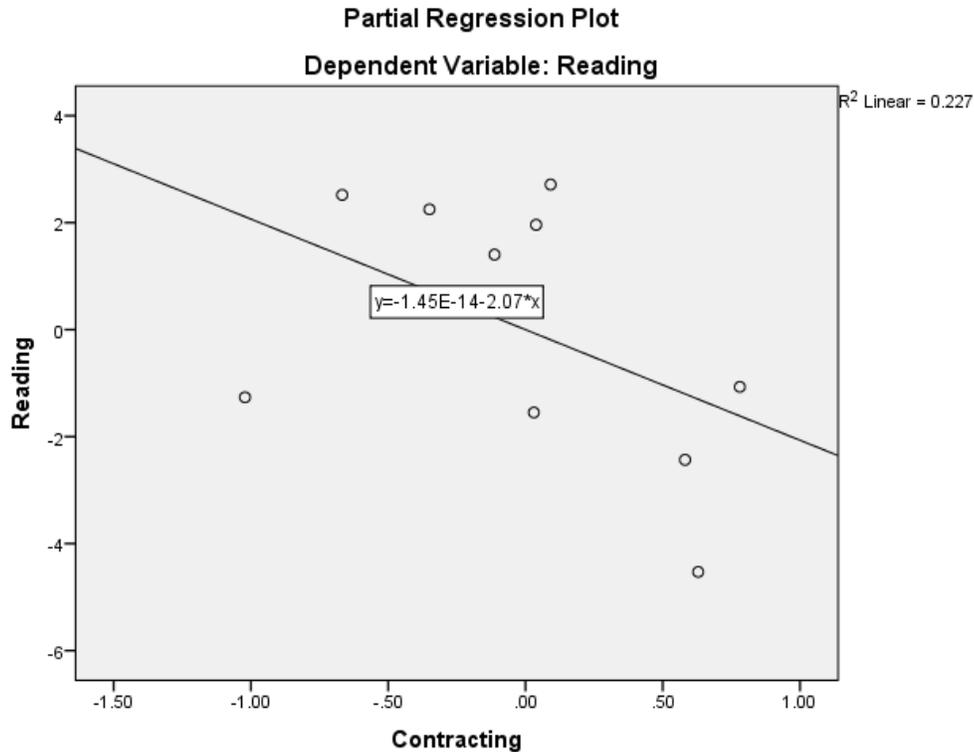


Figure 12. The Relationship Between Reading Performance and Contracting out Services

Source: SPSS

In sum, by utilizing mixed methods, I answered my research questions and determined the relationships between fourth grade academic performance and the degree of privatization. The relationship between fourth grade performance and privatization was generally negative. However, the degree of negativity was statistically insignificant. Nonetheless, a relationship still existed, suggesting that privatization may not be a quick solution to improve education. Instead, states with a low degree of privatization, such as Kentucky, South Dakota, and Nebraska, tended to perform generally the same if not better than states with a high degree of privatization, such as Arizona and Wisconsin. Therefore, other reasons should be considered when determining whether states should increasingly privatize their education systems.

Limitations

Although intended to be as comprehensive as possible, the results of the study conducted hold several limitations. First, the study did not examine all 50 states (Network of Public Education, 2016; Ladner, 2015). Instead, the study only focused on ten purposively selected states. In the future, a similar study of all of the state education laws may provide a more comprehensive analysis of privatization's impact on education throughout states as well as a more complete evaluation of the relationship between privatization and student achievement throughout the country. With a larger sample size, the study would be able to better evaluate the relationship since more data points will be involved. This study controlled the presumed confounding variables, but if additional variables would like to be added, a larger sample size will also be more conducive to that type of study.

In addition, this study only examined data from 2015. States may have performed differently with privatization in different years. Consequently, the results may be different if a longitudinal study examined state trends over multiple years.

Lastly, even though the study accounted for possible extraneous variables, the states' implementation of policies may have occurred differently than written in the laws. For instance, local agents and practitioners may not have read the policy or may have implemented the policy differently (Ball, 2006). Thus, the possible implementation differences and any student performance variations because of them have not been factored into any of the states' student achievement results.

Conclusion

States increasingly incorporate privatization into their education laws and policies, but based on existing research, privatization alone is not a guaranteed solution to allegedly failing

public schools in the United States. Instead, privatization elements have varying effects on student achievement. As demonstrated in this study, nearly all privatization elements had a negative relationship with student achievement. Although the results were not statistically significant, the results still demonstrate that the use of privatization is not a simple means to improve public education. Policymakers must instead consider what programs work best for their states and fashion education in their state accordingly.

APPENDIX A:
LIST OF EDUCATION STATUTES

The specific websites that were used to gather the education statutes include the following: <http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=15> (Arizona); <http://www.ilga.gov/legislation/ilcs/ilcs2.asp?ChapterID=17> (Illinois); <http://www.lrc.ky.gov/statutes/> (Kentucky); <http://www.doe.mass.edu/lawsregs/statelaws.html> (Massachusetts); <http://nebraskalegislature.gov/laws/browse-statutes.php> (Nebraska); <http://codes.ohio.gov/orc/33> (Ohio); http://legis.sd.gov/Statutes/Codified_Laws/DisplayStatute.aspx?Type=Statute&Statute=13 (South Dakota); <http://www.statutes.legis.state.tx.us/?link=ED> (Texas); <http://legislature.vermont.gov/statutes/title/16> (Vermont); and <http://docs.legis.wisconsin.gov/statutes/statutes/118.pdf> (Wisconsin).

APPENDIX B:

RUBRIC FOR PRIVATIZATION FACTORS WITHOUT EXISTING RESEARCH

Privatization Factors in Education Laws

Public-Private Partnerships

1- 1-6 Partnerships **2-** 7- 12 Partnerships **3-** 13-20 Partnerships **4-** 21 or More Partnerships

Contracting Out Services

1- 1-6 Services **2-** 7- 12 Services **3-** 12- 20 Services **4-** 21 or More Services

APPENDIX C:
LIST OF DATA COLLECTED

Variables

States	Reading (NAEP)	Math (NAEP)	Population (U.S. Census Bureau)	Poverty (U.S. Census Bureau)	Gender (U.S. Census Bureau)	Race (U.S. Census Bureau)
Arizona	215	238	6931071	17.40	50.3	55.80
Illinois	222	237	12801539	13.60	50.9	61.90
Kentucky	228	242	4436974	18.50	50.8	85.10
Massachusetts	235	251	6811779	11.50	51.5	73.50
Nebraska	227	244	1907116	12.60	50.2	80.00
Ohio	225	244	11614373	14.80	51.0	79.80
South Dakota	220	240	865454	13.70	49.7	82.90
Texas	218	244	27862596	15.90	50.4	43.00
Vermont	230	243	624594	10.20	50.7	93.30
Wisconsin	223	243	5778708	12.10	50.3	81.90

Privatization Elements

States	Charter School (ALEC)	Charter School (NPE)	Voucher (ALEC)	Virtual Education (Digital Learning Now)	Public- Private Partnerships	Contracting Out Services
Arizona	4	0	4	2	3.00	4.00
Illinois	2	2	2	4	4.00	3.00
Kentucky	0	4	0	0	3.00	3.00
Massachusetts	2	2	0	4	2.00	2.00
Nebraska	0	4	0	0	3.00	2.00
Ohio	2	0	4	1	2.00	4.00
South Dakota	0	4	0	2	2.00	2.00
Texas	2	0	0	3	4.00	4.00
Vermont	0	3	3	1	1.00	2.00
Wisconsin	2	2	0	1	3.00	1.00

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