Inequity in Education: Examining the Role of Funding on Student Achievement

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Abstract

This project explores the impact of funding differences on educational outcomes in public schools. Through an examination of the amount and sources of funding, this paper explores the political and economic influences on public school budgets and how they affect student achievement. This research showcases the implications of funding inequality on the lives of students through an analysis of the budgets of the following five Illinois cities: Chicago, Evanston, Oak Park, Calumet City, and Park Ridge. Per-student operational budgets in each city were compared with various measures of student achievement, including standardized assessment results, graduation rates, postsecondary enrollment, teacher retention and class size. Correlations were discovered to exist between the sources of funding and increased student achievement. Through this, it was found that the amount and source of finances in a school district impact student achievement.

Introduction

In the United States, public education is thought to serve as the great equalizer. Through schooling, it is believed that people can transcend social disadvantages and find a path to a better life. Schooling, it is thought, serves as the pavement that connects the hallmark of the American dream: the equality of opportunity. Schooling is the pathway on which a person must travel in order to find her happiness at the end of the road. While Americans still seem to believe in the power of education, many have lost faith in the integrity of the public-school system. In 2018, over 55% of those surveyed stated that they were dissatisfied with the quality of K-12 public education, a percentage consistent since 2000 (Gallup 2018). An era of school accountability has led to an increased perception in the academic quality of a school, and the general public has been made aware of the ever-increasing gaps in standardized assessments results. In search of lessening these gaps, people have sought to find suitable solutions to address the needs of America's students. Thus far, as will later be explored, solutions have largely revolved around

the ways in which schools receive money, which is the focus of this research. Educational reforms in the last fifty years have generally attempted to address academic inequality through increasing the financial resources available to schools.

Thus, the purpose of this research, using a comparative case study approach, is to critically examine the role of financial resources on certain measures of student achievement. Through this research, I have found that funding sources and amount impact various measurements of student achievement. Solutions intended to reduce observable academic inequalities that are currently facing our schools shall be highlighted and analyzed. I argue that in order to actualize the basic tenet of the American dream, the equality of opportunity, through education, we must find solutions that allow for *all* children to receive a high quality, equitable education.

Research Questions

Question 1: What role does funding play in the observable differences in student achievement?

The first research question seeks to identify relationships between operational per-student budgets and variables of student achievement. Through this question, I seek to empirically explore the influence of funding on academic inequality. If a relationship between funding and performance is found, I will be better able to advocate on behalf of school districts that lack financial resources. If a relationship is not found between the variables, I will be able to devote time to exploring potential solutions to address academic inequities. Based on prior experiences in school settings, I hypothesize that funding will be positively correlated with increases in student achievements as it pertains to graduation rates, PARRC and SAT results, postsecondary enrollment, and teacher retention. Furthermore, I hypothesize that funding will be negatively

correlated with student to teacher ratios. That is to say that classes with fewer students will be correlated with larger operational per-student budgets.

Question 2: What impact does per-student funding from property tax have on differences in student achievement?

This question highlights the role of local sources of revenue on student achievement. This is a question of interest because it is the central focus of the debate regarding the sources of funding in schools. Through gathering and analyzing data, I will be better able to assess if property-rich communities are advantaged when it comes to schooling. The interpretations of the data have implications for policies regarding equitable sharing of local resources. I hypothesize that larger per-student budgets based solely on property tax will be correlated with increases in student achievement. Districts that rely heavily on local sources of revenue will have greater autonomy over budgetary decisions, therefore rendering them more capable of disbursing funds as needed.

Question 3: What is the impact of depending on multiple revenue sources student achievement?

Through this question, I hope to investigate whether funding from different sources impact student achievement. I want to find out if increasing state or federal funding changes student achievement because of its implications for policy. If increases in state or federal funding are correlated with increases in student achievements, policies should be implemented to increase funding in these areas. I hypothesize that the source of funding will not have an influence on student achievement. Rather, as long as districts have equitable per-student budgets, the source of the funding should not influence the student achievements.

Methodology

In order to consider the impacts of the funding on student achievement, I have applied the methodology that is followed when creating school funding policy. By comparing the budgets of five Illinois school districts in the same county, I have sought to analyze correlations between student achievement and the amount of funding to which a school district has access. I have analyzed the budgets of Evanston, Chicago, Calumet City, Park Ridge and Oak Park school districts. In order to analyze student achievement, I have compiled data that I believe represents a more holistic understanding of performance than simply considering results from standardized assessments. I have gathered evidence relating to graduation rate, standardized assessment through the Partnership for Assessment of College and Career Readiness and SAT results, postsecondary enrollment, class size, and teacher retention. It is important to note that all of the cities studied, excluding Chicago, serve students through multiple school districts and, therefore, an average of each of these data points has been collected.

After data was collected, correlations between student achievement variables and operational per-student budgets, per-student budgets based on property tax, and sources of funding were gathered. This allowed any relationships between the student achievements and funding to be highlighted, thus showcasing the sources of academic inequity in Illinois. While it is important to note that a small sample size (n=5) was utilized to provide interpretations, I believe this data does hold merit because it represents a range of school districts and budgetary information. Thus, it does seem to be a representative sample of the districts in Cook County, Illinois.

Background Information

Historically, educational reformers in the United States have sought to address issues of academic equity through adjusting the amount of funding available to local educational agencies.

The United States federal government began holding an active role in monitoring school equity in the 1960s (Gaudet, 1994, p. 9). The adoption of the Elementary and Secondary Education Act (ESEA) in 1965 allowed state and local education agencies to receive increased federal funding through a grant in order to support schools that demonstrated need (National Center for Education Statistics, 2015). With this federal policy, lawmakers sought to increase funding to school districts that "enrolled large numbers of poor children" (Ravitch, 2016, p. xxxvii. Through reauthorizations, it is estimated that funds allocated through the Title 1 grant continues to impact more than 21 million children nationwide (National Center for Education Statistics, 2015).

Since the passage of the ESEA, many federal and state policies have been enacted in hopes of equalizing funding between schools. The central belief of these policies is that increased financial input creates increased student achievement (Gaudet, 1994, p. 12). This philosophy guided the methodology and framework of educational policies such as former President Bush's "No Child Left Behind" and former President Obama's "Race to the Top," both of which allocated larger amounts of federal funds to schools that demonstrated policy-defined kinds of academic need (Ravitch, 2016, p. xxxvii). These legislations differed, however, from the original authorization of the ESEA because funding became tied to student achievement in the name of accountability (Ravitch, 2016, p. xxxvii). While one might expect to find vast improvements in educational outcomes as a result of increased funding, researchers have yet to find any observable link between academic improvement and funding from "Race to the Top" and other similar federal programs on educational accountability (Dragoset et al, 2016, p. iv). In this way, "No Child Left Behind" and "Race to the Top" reoriented the ESEA from allocating funds to some districts that demonstrated need towards a system of incentivizing funding through

student achievement for *all* districts. While policymakers continue to hold that the reauthorizations of the ESEA promote equity, it is clear that the nature of disbursing funding has changed.

School Funding in Illinois

In order to understand the nature of funding, it is important to consider the ways in which public schools in Illinois receive funding. In Illinois, public schools typically receive funding from the following three sources: 1) Local Funding: (68%); 2) State Funding: (24%); and 3) Federal Funding: (8%) (Illinois Report Card 2016-2017 B, 2017). As the percentages illustrate, the majority of funding for public schools in Illinois falls at the local level. According to the Illinois State Board of Education Report Card which compiles data concerning all schools in Illinois, 63% of the local funding is generated through property tax, with other sources of local funding accounting for the remaining 5% (Illinois Report Card 2016-2017 B, 2017).

Table 1: Sources of School Funding in the State of Illinois

Sources of School Funding	Percentage of Total School Funding
Local Funding (such as Property Taxes)	68
State Government Funding	24
Federal Government Funding	8
Total	100

Source: Illinois Report Card 2016-2017 B, 2017

While states allocate funds from taxes to financially support schools to varying degrees, Illinois utilizes a funding formula in order to divert funds to each of the 852 school districts (Pasachoff, 2008, p. 5). General state aid is intended to equalize the amount of funding between districts so as a to create a progressive tilt that allocates the greatest amount of funding to districts with the most financial need while other state funding is intended to adjust for the differing costs of education (Baker & Corcoran, 2012, p. 4).

Instead of a set budget given to every school district, a funding formula is designed to account for the differing needs of each district. The funding formula first addresses the number of students in the district so the amount of money allocated to a district is determined based on the average daily pupil attendance from the previous school year. Secondly, funds are disbursed based on the total amount of taxable property within the district boundaries (Illinois Association of School Boards, 2016, p. 6). Districts that generate less revenue from local sources of funding receive a greater allocation of funding from the state of Illinois.

In 2017, Governor Bruce Rauner supported the Illinois School Funding Reform Commission's framework for reforming the state's school funding formula to address disparities in funding (Illinois School Funding Reform Commission, 2017). The framework, titled the *New Illinois School Funding Formula*, has the potential to support funding equality because it is shifting to be progressive in nature (Illinois School Funding Reform Commission, 2017). Progressive funding formulas first allocate funds to the schools furthest from their adequate funding goal so as to verify that these districts are well funded. This is a shift from a regressive funding formula, which allocate funds to adequately funded first. By attempting to increase the amount of funding available to districts that are not adequately funded, Illinois has again relied on the belief that a monetary increase can produce student achievements that will in turn address the inequity of the current system.

Decisions about education at the federal level have repercussions even though direct federal funding only accounts for 8% of the funding in a typical school district in Illinois. Instead of automatically disbursing funds to states, the federal government incentivizes states to accept federal funds with the stipulation that they will meet specific requirements in order to be eligible to receive federal dollars (Popham, 2018, p. 23). For example, former President Obama's "Race

to the Top" educational program incentivized the adoption of Common Core State Standards by offering grants to states that adopted college-readiness standards (Common Core State Standards Initiative, 2019). Through this, the instructional goals of educators shifted to match the newly adopted standards. Because the "Race for the Top" initiative was implemented in the aftermath of the Great Recession, a time in which many state education budgets suffered, 46 states were quick to adopt the new standards to ensure funding (Popham, 2018, p. 28). Popham notes that this may signal the increasing role of the federal government in public education (Popham, 2018, p. 28; Common Core State Standards Initiative, 2019). While states were not mandated to reform standards, the federal government incentivized the adoption of Common Core State Standards and accountability checks in the form of standardized assessments in order to receive the greatest amount of federal funding.

President Trump's administration has sought to reduce the budget allocated to the Department of Education, and consequently, the funding given to educational agencies (United States Department of Education, 2018). The 2018 fiscal year saw a budgetary reduction of 13%, nearly $9 billion, from the previous year. While many educational programs that offer grants saw reductions, it is interesting to note that programs that incentivize school choice, a movement for which Secretary of Education Betsey DeVos has advocated, were allocated a larger share of the budget (Strauss, 2017). School choice programs allow students who live outside of traditional attendance borders to attend a school in a different district. Many critics of school choice movements argues that the school choice movement "ultimately aimed at privatizing" a public service and creating larger disparities in funding between districts (Strauss, 2017). For example, the Furthering Options for Children to Unlock Success (FOCUS) grants, which is only available to local educational agencies that offer open enrollment without attendance borders, received a

$1 billion increase in the 2018 fiscal year (United States Department of Education, 2018). By offering additional funds through programs such as these, it is clear how the political agenda of an administration greatly influences the academic life of students, particularly those in underfunded schools.

According to Jonathon Kozol (1991), the breakdown of revenue sources at the local level are mirrored across the United States. He states that while communities rely on the revenue generated from property taxes to varying degrees, "most public schools in the United States depend for their initial funding on a tax on local property" (Kozol, 1991, p. 66). Property tax is collected at the local level, and cities and counties are responsible for setting a tax rate in order to meet budgetary needs (Cook County Clerk, 2016). After a tax rate has been decided, all homeowners are expected to pay a percentage of the assessed value of their home. Further, as part of the property tax bill, a school tax rate, set by the Illinois Board of Education, is recorded so as to denote what percentage of the property tax is being allocated to schools within the attendance boundary (Illinois Report Card 2016-2017 B, 2017; Illinois Association of School Boards, 2016). Thus, school tax rates can differ between districts according to the needs of the school district.

Because property tax is based on the assessed value of a home and the land on which it is built, districts with higher median home values are more likely to generate higher revenues from property tax. That is to say that homes that have been assessed at higher values pay more in terms of property tax. For those living in Evanston, the median home is valued at $313,000 compared to a Chicago home that is valued at $223,000 (U.S. Census Bureau, 2016).

After the property tax has been collected, the total amount of funding generated from the sources of revenue within the district is distributed to its schools. Similar to the ways in which

state funding is allocated, money is disbursed to the schools according to attendance and students in decidedly vulnerable situations. While schools within a district receive varying amounts of money, the per-student allocations within a school district are similar, excluding additional funding from external sources. Between districts, however, great variance can occur. Thus, one way to compare the financial inequities between districts is to consider the differences in per-student budgets. Traditionally, there are two variations of per-student budgets that are described: 1) operational budgets and 2) instructional budgets. While instructional budgets include only the components of the budget that are directly used for instruction, operational budgets incorporate all components of school funding (Illinois Report Card 2016-2017 B, 2017). It should be noted that the operational budget of a school district was used as a comparative tool in this analysis because I believe that a child's environment influences her ability to engage in school, thus influencing her student achievements. For example, the cost of a well-resourced school library would not be contained within the instructional budget but clearly influences the ways in a which a child learns about the world around her. In this way, the operational budget seems to best illustrate a child's whole experience in a school setting.

In summary, schools in Illinois receive funding from many sources. The Federal Department of Education contributes to school funding by providing states with incentivized funding through the use of grants. Funding from the state of Illinois constitutes another part of a district's budget. Through the use of a funding formula, the state of Illinois allocates funds to school districts based on the average attendance and the total revenue from property tax. Local funding dominates the sources of revenue for districts in Illinois, with the majority of local funding being generated through local property taxes. Understanding the sources of funding in Illinois public schools provides a context against which a critical analysis can occur.

Literature Review

In order to examine the many variables associated with school funding and student achievements, a review of the current literature is presented. First, I examine the key debates regarding the sources of school funding. This includes a discussion of the reasons as to why property tax has been used as a predominant system of school funding in the US, as well as proposals to alter the sources of funding. Then, I examine the measurable outcomes of student achievement including graduation rate, standardized assessment results, postgraduate enrollment, class size, and teacher retention are explored. Within each category, a justification as to why this measurement has been considered is also presented.

Nature of Funding.

Property tax is "relative[ly] stable under economic conditions," meaning that cyclical fluctuations in the economy that impact spending and other consumer behaviors do not significantly influence the amount of revenue generated (Terman & Behram, 1997, p. 5). This is due to the fact that property tax is collected according to the assessed value of a home, which is often more stable than factors such as income and sales tax which "tend to drop more sharply […] during recessions" (Terman & Behram, 1997, p. 5). Thus, revenue from property taxes allows for a reliable source of funding for local governments.

This was exemplified in a study completed by the Lincoln Institute when researchers found that following the recession of 2001, income and sales tax revenues dropped while those of property tax continued to rise (Kenyon, 2007, Figure 8). In addition to its stability, proponents of property tax state that "local governments face difficulties when they try to tax a mobile tax base, and the property tax base is generally less mobile than sales or income" (Kenyon, 2007, p.6). As it pertains to schools, a stable source of funding from the revenue of local property taxes

allows a school to offer students similar student based budgets year to year. In this way, access to tax revenues is not compromised due to economic instability or the mobility of a tax base. While property tax seems to provide districts with a stable source of funding, some have argued that funding from the state cannot provide reliable access to funding. According to Joan Youngman, districts that are more dependent on the state for large percentages of funding are subject to unstable sources of funding (Youngman, 2016). The issue of dependence on the state was exemplified in Michigan. Since the 1990s, Michigan has faced economic turmoil, which has resulted in a "school fund that is dangerously vulnerable to cyclical fluctuations" (Youngman, 2016, p. 19). In effect, therefore, changes in the political and economic fortunes of a state have a significant impact on changes are reflected in the amount of funding allocated to public schools. This is exemplified in the range of the percentages of funding that the state of Illinois has provided to Evanston and Chicago schools over the last ten years; Evanston has received 7-11% of funding from the state since 2008 while CPS has received 30-37% of funding from the state during the same time frame (Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017; Illinois Report Card 2016-2017 B, 2017). In a time of economic boom or a time in which the state government's political agenda is aligned with education, districts may receive a greater percentage of funding from the state. During times of decline, however, schools are just as likely to receive less funding from the state government. Because CPS is highly dependent on the state to fund its schools, it is greatly impacted by the decisions and indecisions of the state of Illinois. If the state's budget suffers, CPS's budget will be impacted more negatively than the budget of Evanston.

Some people believe that the localization of funds allows for the greatest possibility of equality at the local level, as illustrated by research economist Charles E. Gilliland in *Property*

Taxes: The Bad, The Good, The Ugly. He argues that "property tax liability depends on the budget requirements of local governments" (Gilliland, 2013, p. 1). Thus, local government leaders can address the needs of the community and adjust taxes, such as property tax rates, to reflect these needs. While some have proposed the use of a sales taxes applied to property as a basis of school funding, Gilliland (2013) believes that "the historical sales tax receipts suggest that a sizable increase in sales tax rates would [be] required to cover local school expenditures" (p. 8). Further, sales taxes would be ineffective in reducing inequality because of the regressive nature of consumption taxes, which is to say that it impacts low income earners at a higher proportion than high income earners (Sims, 2004, p.12). In this way, Gilliland argues that maintaining the current funding system through the use of property tax offers the most reliable source of funding for schools. While his argument garners strength from its focus on a local district's needs, it does not seem that maintaining the current system of funding allows for substantial change to occur as it relates to funding inequality. Gilliland and others advocate for maintaining current funding schemes because it is static and, therefore, dependable. With this, however, they neglect to challenge the great inequities that result from relying on property taxes to fund schools.

Some proponents of changing the nature of public education funding advocate for an increased role of an individual state as it relates to property tax and addressing inequalities in school funding. While many argue that a form of school funding that is centralized at the state level will benefit districts, others recognize that while "[a]t the local level, school spending is often the single most important element of the budget," state governments are responsible for covering a wider variety of expenses (Youngman, 2016, p.19). In this regard, some argue that states would be unable to generate as high of a percentage of property tax revenue than if the tax

is controlled at the local level. While some believe that property tax should be maintained as the primary source of school funding, others have proposed alterations in the form of increased state funding.

According to Baker and Corcoran (2012), in *The Stealth Inequities of School Funding*, the state of Illinois has historically not adequately addressed the funding inequalities through its funding formula. According to the authors, the Illinois funding formula continues to function with a regressive tilt because it allocates state resources in an inequitable way (p. 28). While the combination of a general state aid formula and a need based formula is intended to offset inequalities produced through differences in local revenue, differences in per student budgets have continued to occur. While the lowest-poverty districts have higher per student based funding amounts, these districts continue to receive funding from the state of Illinois. Evanston, for example, meets 76% of its desired budget to best support all students before state intervention. The state's contribution allows a surplus of funding to occur in the district (Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017). It can be argued that instead of allocating funding to school districts that are well supported based on local revenue, it is more equitable for the state of Illinois to shift these resources to school districts with greater needs.

In order to allow for financial equity to occur in the public education system, the state of Illinois must adopt funding formulas that promote vertical equity. Vertical equity refers to the notion of distributing greater amounts of funding from the state government and subsequently districts with greater financial needs. With the installation of the newest funding formula, it is possible that the funding scheme in Illinois will become progressive in that higher percentages of funding will be given directly to districts with higher rates of poverty (Baker & Corcoran, 2012,

p. 22). However, in order to relieve the burden of higher property tax amounts, Illinois utilizes tax relief programs that reserves $50 million in state funds to allocate to districts that incur higher rates of property tax (Illinois State Board of Education, 2019). Instead of disbursing funds to districts that require more funding, the state of Illinois chooses to use funds to mitigate the tax burden on property tax rich communities. According to Baker and Corcoran, this program allows school districts that are often the most capable of funding their schools through high property tax assessments to be relieved of this responsibility (2012, p. 23). While this does in fact promote equality of tax burden between districts, it has been made explicitly clear that certain districts require more funding than others. Currently, the funding formula that is utilized in Illinois allows for equal per-student budgets and yet issues of funding equity continue to exist between districts because some districts need larger per-student budgets in order to rectify the legacy of regressive funding formulas.

The 1971 Supreme Court of California case *Serrano v. Priest*, exemplifies a movement towards increasing a state's role in funding the public education system. In the case, the California Supreme Court voted in favor of a limited use of property tax as a means of funding local schools under the belief that "divergent local property tax bases led to constitutionally unacceptable variations in school budgets" (Youngman, 2016, p. 18). While *Serrano v. Priest* case did not eradicate funding disparities in California, it marked an important step in reducing funding inequalities by allowing the state of California to manage the local property tax rates in addition to the budgets of each school district (Youngman, 2016, p. 18). The *Serrano v. Priest* decision seemed to open the door for others to argue that funding differences were unconstitutional and advocate for an increased role of the state in managing school budgets.

One year after the *Serrano v. Priest* decision, the United States Supreme Court dismissed a case claiming that the allocation of funds in the San Antonio school district did not violate the federal constitution because education is not a protected right (*San Antonio Independent School District v. Rodriguez*, 2019). Decisions made at the federal level in the wake of *San Antonio Independent School District v. Rodriguez* have mirrored the opinion of the court. In this way, it seems that the federal court has continued to delegate the issue of education to the states and minimize hopes for changes to the funding system at the federal level.

One proposed solution to the funding disparities that have impacted America's schools calls upon the federal government to invest more efficiently in public education. According to Eloise Pasachoff in *How the Federal Government Can Improve School Financing Systems* (2008), funds from Title 1 should be redirected in order to better meet the needs of the students in specific states. Pasachoff (2008) argues that the School Improvement Program should be funded through a different provision of Title 1 in order to allow states more flexibility in distributing money from low-poverty districts to high poverty-districts (p. 20). Because Pasachoff's solutions do not involve the federal government contributing more money to public education, thus invoking a debate regarding the autonomy of a state when funding schools, it is possible that reshaping the nature of federal funding would reduce funding inequality.

Across the United States, calls have been made for education reform in order to address issues of academic and financial equity in public education. The proposed solutions offer changes to varying degrees; while some propose working within the current funding schemes, others advocate for entirely new systems of funding. Some educational researchers and economists have advocated for continuing to utilize the current systems of funding, and others have called for an increased role of the state or federal government. School choice movement

leaders and advocates of charter schools have recommended pursuing educational options outside of the traditional system in order to address funding inequities. While the proposals differ according to the degree of change, it is clear that many people believe funding inequities must be addressed.

Indicators of Student Achievement: Graduation Rates, PARCC, SAT, and Postsecondary Enrollment.

Graduation rates, the PARCC and the SAT all provide insight into the academic success of a district because they all assess a student's mastery of the standards. In order to be graduated from a high school, students must demonstrate mastery of the standards by passing required courses. The Partnership for Assessment of Readiness for College and Careers (PARCC), the standardized assessment given to students in Illinois until the 2018-2019 school year, measures students' mastery of grade level content as described by the Common Core (Partnership for Assessment of Readiness for College and Careers, 2019). The results of standardized assessments are often cited to compare school quality because all students are tested within the same framework. According to research collected by Jackson, Wigger, and Xiong (2018), decreases in spending are strongly associated with reductions in standardized scores (p. 3). The researchers found that a 10% decrease in per-student spending resulted in .08 standard deviations lower standardized test scores (p.4). Further, the researchers found that districts that are reliant on state-funding saw decreases in standardized assessment scores when spending was reduced (p. 16). While it is important to consider that the research focused on intra-district spending reductions, it is made clear that funding plays a role in student outcomes on standardized assessments.

While the results of the PARCC and the SAT do provide insight into the level of mastery a student has achieved on specific, grade level standards, it is important to note the limitations of utilizing standardized assessments to assess school quality. As described by Popham (2018), standardized assessments were not created with the purpose of assessing school quality; rather, their purpose is to measure the outcomes of a particular student (p. 116). Thus, perceptions of school quality based on PARCC results and SAT results should be approached with caution because the tests were not created to assess school quality. However, graduation rates, the PARCC and SAT assessments do provide insight into the percentages of students meeting and exceeding the standards measured.

Indicators of Student Achievement: Class size and teacher retention.

In a study conducted by the Brookings Institute, researchers found that a reduction of class size from 22 students to 15 students "increase[d] student achievement by an amount equivalent to about 3 additional months of schooling four years later" (Whitehurst, 2011, p. 6). The study relied upon the evidence gathered in the 1980s during the Student Teacher Achievement Ratio (STAR) research in Tennessee. This research has been regularly cited in support of class size reduction. Dr. Raj Chetty of Harvard University completed research that extended the results of the STAR research in order to form conclusions about the long term, economic impacts of class sizes. According to his research, "students in small classes are significantly more likely to attend college" in addition to improvements on measures such as home ownership and mobility ratings (Chetty, 2011, p. 3).

While the benefits of class size reduction point towards increased academic achievement because teachers are able to better address the needs of each student, it is a costly expenditure for school districts and considered a cost-ineffective solution to educational funding inequalities

(Whitehurst, 2011, p. 5). For example, if every public school in the United States decreased its class sizes by one student, it would result in a $12 billion increase in nationwide school spending. This is due to the fact that reducing class sizes would result in a greater number of teachers an on average, "each student has an individual cost of about $3,600 in teacher salary alone (Whitehurst, 2011, p. 5). Thus, the amount of salaries a district must pay would increase. School districts that can afford to implement small student to teacher ratios are able to provide opportunities for increased academic success. Further, it is impossible to separate the benefits of small class sizes from the conditions that allow them to occur. That is to say that other external factors, such as a larger budget, may actually account for the gains demonstrated in class size reduction.

An additional impact of school funding reveals itself through a district's ability to hire and retain a highly qualified staff. According to research gathered by Ronfeldt, Loeb and Wyckoff (2012), student engagement and achievement are negatively impacted when teacher retention is low (p. 7). The researchers argue that disruptions to staffing not only impact the school community, but also the "coherent implementation of […] instructional programs" (Ronfeldt, 2012, p. 7). Further, returning to Dr. Chetty's research on the STAR experiment, "students randomly assigned to a KG [kindergarten] teacher with more than 10 years of experience earn an extra $1,093" in salary by the age of 27 compared to peers with educator with less experience (Chetty, 2011 p.3). This figure speaks to the benefits of retaining qualified educators.

It is important to note that external variables may be influencing the relationship between class size and teacher and later outcomes. As noted in Whitehurst (2011), this correlation could be due to the fact that districts that are wealthier are able to decrease class sizes (p. 3). With this,

Whitehurst highlights that spending, and not small class sizes, are responsible for increased test scores or higher average salaries. In this way, Whitehurst emphasizes the connection between funding and practices. Just as class size is associated with schools with greater amounts of funding, teacher retention has a negative correlation with spending. Because of the high costs associated with recruiting and training teachers, schools that experience higher rates of teacher turnover are forced to divert a greater percentage of their budgets in order to support the new staff. Thus, in this paper, class size and teacher retention are considered in connection with spending and not a variable of student achievement.

Case Studies

Table 2: Comparative Data on Selected Chicago Area School Districts.

City Name[1]	Population	Median Household Income	% of People Living in Poverty	School Tax Rate Per $100[2]
Evanston	75,000	$75,000	13%	3.3
Chicago	2,700,000	$52,000	21%	3.46
Calumet City	37,000	$42,000	22%	6.4
Park Ridge	37,000	$98,000	4%	3.9
Oak Park	52,000	$87,000	8%	4.1

[1]All data collected courtesy of U.S. Census Bureau (2016).
[2]School tax rate refers to a district's tax rate as it appears on property tax bills.

As is highlighted in Table 2, the Chicago area school districts selected to compare differ in comparisons of population, median household income, percentage of people living in poverty and the school tax rate. While some districts, including Evanston serve students across city lines, the population serves to highlight the number of people of people that contribute to the local sources of funding. The median household income allows for a comparative analysis of relative wealth within a district. Of the districts considered for this study, the wide range of median

household income points to potential disparities in wealth. It is interesting to note that the range of the percentage of people living in poverty has a range of 18% for the districts examined. The percentage of people living in poverty is connected to the percentage of students in school eligible to receive Title 1 funding which increases the amount of federal funding a district can receive. Based on the data, I would expect to find that there is a greater percentage of schools that receive Title 1 funds in Chicago and Calumet City than in Park Ridge. Finally, the school tax code rate highlights the rate of taxation community members must pay as part of property tax. It is interesting to note that Calumet City, the community with the highest percentage of people living in poverty and the community with the lowest median household income has the highest school tax rate by over 2.5%. This means to say that the citizens of Calumet City must pay a larger percentage of property tax towards their local educational agency.

Evanston Public Schools.

Evanston schools are divided into two districts; District 65 is comprised of 16 middle and elementary schools and serves students in Evanston and in neighboring Skokie, and District 202 is comprised of the Evanston Township High School (Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017). All combined, the two school districts educate approximately 8,000 students per year, with approximately 9% of the student population receiving English language support and approximately 65% of the student population considered low income (Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017). 43% of the students marked their racial or ethnic identity as white, and 23% of the students marked their racial or ethnic identity as black (Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017).

Chicago Public Schools.

Chicago Public Schools (CPS) is the third largest unified school district in the United States. Educating over 370,00 students in 633 schools, CPS serves a wide population of students from many language and socioeconomic backgrounds. Approximately 19% of the student population is categorized as an English Language Learner and 83% of the students are considered low income (Illinois Report Card 2016-2017 B, 2017). 47% of the students marked their racial or ethnic identity as Hispanic, and 37% of the students marked their racial or ethnic identity as black (Illinois Report Card 2016-2017 B, 2017).

Calumet City Public Schools.

Calumet City serves students living in its attendance borders with two districts. Calumet City School District 155 is comprised of three elementary schools, and Thornton Fractional High School District 215 is comprised of two high schools. Combined, the districts serve approximately 5,000 students per year (Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017). An average percentage of students who are considered low income is 80% between the two districts, but it is interesting to note that 97% of students attending the Thornton Fractional High School District are currently categorized as low income. There is a significant difference between the socioeconomic status of students attending the middle and elementary schools in Calumet City and those attending the high schools. Additionally, 14% of the student body receives English Language support (Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017). The racial and ethnic makeup of the districts are as follows: 62% identify as black and 30% identify as Hispanic (Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017).

Park Ridge Public Schools.

Park Ridge schools are divided into two districts; District 64 is comprised of 8 middle and elementary schools and serves students in Evanston, and District 207 is comprised of Maine East, South and West High Schools (Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017). Combined, the districts educate approximately 10,000 students per year, with approximately 7% of the student population receiving English language support and approximately 15% of the student population considered low income (Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017). It is interesting to note that there is a large disparity in the number of students categorized as low income between the two districts; 27% of the student body is considered low income in District 207 compared to only 3% in District 64. 70% of the students marked their racial or ethnic identity as white, and 14% of the students marked their racial or ethnic identity as black (Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017).

Oak Park Public Schools.

Oak Park serves students living in its attendance borders with two districts. Oak Park Elementary School District 97 is comprised of 10 elementary and middle schools, and Oak Park-River Forest School District 200 is comprised of one high school. Combined, the districts serve approximately 9,500 students per year (Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017). 20% of the students in this school district are considered low income (Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017). Additionally, 4% of the student body receives English Language support (Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017). The racial and ethnic makeup of the districts are as follows: 53% identify as white and 19% identify as black (Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017).

Comparative Analysis

Table 3: Total Budget of 5 Chicago Area School Districts.

City Name	Total Operational Budget	Total Instructional Budget	Adequacy Target (% met)
Evanston[1]	$102 million	$50 million	115%
Chicago[2]	$6 billion	$3.6 billion	63%
Calumet City[3]	$36 million	$16.5 million	58%
Park Ridge[4]	$108 million	$59 million	130%
Oak Park[5]	$87.5 million	$45.5 million	104%

[1]Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

As can be noted in Table 3, the school districts examined have different operational and instructional budgets. It is interesting to note the wide range in adequacy target percentages. While Calumet City is only 58% funded to provide each student with the desired per-student budget, Oak Park, Evanston and Park Ridge are all *over-funded.*

Table 4: Revenue percentages based on funding sources as a percent of the budget.

City Name	Local Funding	State Funding	Federal Funding
Evanston[1]	85%	7%	6%
Chicago[2]	57%	30%	14%
Calumet City[3]	48%	43%	9%
Park Ridge[4]	92%	5%	3%
Oak Park[5]	86%	11%	4%

[1]Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017

[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The data in Table 4 shows the ways in which districts depend on revenue sources to varying degrees. While the school districts in Evanston, Park Ridge and Oak Park generate at least 85% of the total budget from local sources of funding, Chicago and Calumet City rely on local sources of funding for only 50% of the budget. These two districts rely on state funding to a much greater degree than the other districts examined.

Table 5: Per Student Budgets.

City Name	Per Student Operational Budget	Per Student Instructional Budget
State Average[1]	$13,000	$8,000
Evanston[1]	$18,000	$10,300
Chicago[2]	$15,000	$10,500
Calumet City[3]	$15,500	$8,250
Park Ridge[4]	$18,000	$11,500
Oak Park[5]	$19,000	$12,000

[1]Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The data in Table 5 highlights the differences in per-student operational budgets in different school districts. It is interesting to note that while per-student instructional budgets have a range of $4,000 per student, there is a larger range of per student operational budgets.

Table 6: Property Tax.

City Name	Amount of Budget from Property Tax	Per Student Budget from Property Tax
Evanston[1]	$82 million	$10,250
Chicago[2]	$2.9 billion	$8,050
Calumet City[3]	$19 million	$3,800

Park Ridge[4]	$93 million	$9,300
Oak Park[5]	$67 million	$7,050

[1]Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The data in Table 6 illustrates the impacts of generating a larger amount of property tax on a school's budget. It is interesting to note that districts such as Evanston and Park Ridge fund a majority of the per-student operational budgets through property tax, cities such as Calumet City generate less than 20% of the per-student budget in this way.

Table 7: Graduation Rates.

City Name	Graduation Rate	Per Student Operational Budget	Per Student Budget from Property Tax
State Average[1]	85%	$13,000	-
Evanston[1]	91%	$18,000	$10,250
Chicago[2]	74%	$15,000	$8,050
Calumet City[3]	96%	$15,500	$3,800
Park Ridge[4]	91%	$18,000	$9,300
Oak Park[5]	93%	$19,000	$7,050

[1]Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The information presented in Table 7 provides information about the percentage of students who are graduated from high school after 4 years. It is interesting to note that Calumet City, the district with the smallest per-student budget from property tax, has the highest

graduation rate of all of the districts. A clear connection between graduation rate and budget does not seem to be present.

Table 8: Percentage of students meeting or exceeding standards on 2017 PARCC.

City Name	ELA	Math	Per Student Operational Budget	Per Student Budget from Property Tax
State Average[1]	37%	32%	$13,000	-
Evanston[1]	42%	24%	$18,000	$10,250
Chicago[2]	29%	24%	$15,000	$8,050
Calumet City[3]	17%	15%	$15,500	$3,800
Park Ridge[4]	53%	28%	$18,000	$9,300
Oak Park[5]	49%	29%	$19,000	$7,050

[1]Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The data in Table 8 showcases the percentage of students meeting or exceeding standards on the 2017 PARRC assessment in connection with the per student operational budget. It is interesting to note that the range of scores for the ELA assessment is 44%, with Park Ridge constituting the highest percentage and Calumet City marking the lowest percentage. It is also interesting to note that while Chicago has the lowest percentage of students passing or exceeding the standards, the district does not have the lowest per-student operational budget.

Table 9: Percentage of 11th grade students meeting or exceeding standards on 2017 SAT.

City Name	ELA	Math	Per Student Operational Budget	Per Student Budget from Property Tax
State Average[1]	40%	37%	$13,000	-
Evanston[1]	56%	52%	$18,000	$10,250
Chicago[2]	28%	24%	$15,000	$8,050

Calumet City[3]	15%	13%	$15,500	$3,800
Park Ridge[4]	50%	49%	$18,000	$9,300
Oak Park[5]	66%	57%	$19,000	$7,050

[1] Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

Table 9 provides information about the relationship between the percentage of students meeting or exceeding standards on the SAT. The results mirror those presented in Table 8; Oak Park, Evanston and Park Ridge have the greatest percentage of students meeting or exceeding the standards on the SAT and Chicago and Calumet City have the lowest percentages.

Table 10: Percentage of students enrolling in a two or four-year college within 12 months.

City Name	Post-Secondary Enrollment	Per Student Operational Budget	Per Student Budget from Property Tax
State Average[1]	70%	$13,000	-
Evanston[1]	77%	$18,000	$10,250
Chicago[2]	65%	$15,000	$8,050
Calumet City[3]	61%	$15,500	$3,800
Park Ridge[4]	83%	$18,000	$9,300
Oak Park[5]	68%	$19,000	$7,050

[1] Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The data in Table 10 highlights the connection between post-secondary enrollment within 12 months of graduation and per-student budgets. It is interesting to note that while Oak Park provides students with the largest per-student operational budget, only 68% of students attend a

post-secondary institution within 12 months. Because 93% of students in Oak Park are graduated (Table 7), it seems that a factor outside of instructional quality is influencing post-secondary enrollment. A per-student operational budget of $7,050, the second lowest of the cities studied, means that most of the school revenue is not gathered through property tax. This means that the total amount of property tax revenue available is smaller. This could lead to the inference that an external factor, such as familial wealth, is impacting the percentage of students attending a post-secondary institution.

Table 11: Average Student to Teacher Ratio.

City Name	Ratio	Per Student Operational Budget	Per Student Budget from Property Tax
State Average[1]	19:1	$13,000	-
Evanston[1]	15:1	$18,000	$10,250
Chicago[2]	23:1	$15,000	$8,050
Calumet City[3]	19:1	$15,500	$3,800
Park Ridge[4]	22:1	$18,000	$9,300
Oak Park[5]	22:1	$19,000	$7,050

[1] Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The data presented in Table 11 provides insight into the class sizes and operational budgets of the selected cities in the Chicago area. It is interesting to note that there is not a clear connection between class size and budget. For example, while Evanston and Calumet City have small student to teacher ratios, Evanston has a larger per-student operational budget. In the same way, Chicago and Oak Park have large class sizes, yet Oak Park has the highest per-student operational budget. This highlights that budget may not be the only influence on class size.

Table 12: 3-year average of teachers returning to district.

City Name	Teacher Retention	Per Student Operational Budget	Per Student Budget from Property Tax
State Average[1]	85%	$13,000	NA
Evanston[1]	91%	$18,000	$10,250
Chicago[2]	77%	$15,000	$8,050
Calumet City[3]	90%	$15,500	$3,800
Park Ridge[4]	92%	$18,000	$9,300
Oak Park[5]	89%	$19,000	$7,050

[1] Illinois Report Card 2016-2017 C, 2017; Illinois Report Card 2016-2017 D, 2017
[2] Illinois Report Card 2016-2017 B, 2017
[3] Illinois Report Card 2016-2017 A, 2017; Illinois Report Card 2016-2017 I, 2017
[4] Illinois Report Card 2016-2017 F, 2017; Illinois Report Card 2016-2017 E, 2017
[5] Illinois Report Card 2016-2017 G, 2017; Illinois Report Card 2016-2017 H, 2017

The information in Table 12 captures the percentage of teachers remaining within the same district for three consecutive school years. The cities with the three highest per-student operational budgets (Oak Park, Park Ridge, and Evanston) also boast the highest percentages of teacher retention. This allows for the interpretation that when schools have greater per-student budgets, teachers are more likely to return for 3 consecutive schools years.

Findings

Question 1: What role does funding play in the observable differences in student achievement?

Table 13: Correlations between variables and per-student operational budgets.

Variable	Correlation Coefficient
Graduation Rate	0.43
PARCC Results (ELA/Math)	0.62 / 0.01
SAT Results (ELA/Math)	0.69 / 0.68
Postsecondary enrollment	0.45

Student to Teacher Ratio	0.02
Teacher Retention	0.59

Correlation coefficients have been identified based on the data presented. Positive correlations closer to 1.0 signify a direct relationship in which both variables increase, and negative correlations closer to -1.0 represent a direct relationship in which one of the variables increase while the other variable decreases. A coefficient of 0 signifies that a relationship between the variables does not exist. This seeks to highlight the relationship between the presented variables and the per-student operational budget.

While there are clear limitations of this research due to the small sample size, patterns within the data may illuminate some of the problems influencing school equity in Illinois.

Based on the data presented in Table 12, there seems to be a strong, positive correlation between English Language Arts (ELA) PARRC results and per-student operational budget as shown in Table 13. A strong, positive relationship also exists between SAT scores and per-student operational budget. These results indicate that higher per student operational budgets are correlated with higher SAT results and ELA PARRC results. A moderate, positive relationship exists between teacher retention rates and per-student operational budgets as well as graduation rates and postsecondary enrollment. There does not seem to be a linear relationship between Math PARRC results and per-student operational budgets and student to teacher ratios and per-student operational budgets.

These interpretations match my initial hypothesis that increased funding demonstrated through higher per-student budgets is correlated with student achievement. It is interesting to note the relationship between the variables of student achievement and the budgets because of its implications on educational policies. The measures of student achievement that are correlated

with larger per-student budgets are standardized assessments which are used as measures of accountability for school districts. This is particularly of interest because the districts that reported the highest per-student budgets reported the largest percentages of students meeting or exceeding standards (see Tables 8 and 9). This could lead to the interpretation that increasing funding could result in increased student achievement, thus strengthening the argument for the current practices of increasing funding to under-funded schools. However, it is important to consider that correlations were found only with the standardized measures of student achievement; holistic measures, such as graduation or postsecondary enrollment do not show strong relationships with increased funding. Thus, this seems to challenge the practice of increasing funding. There is a correlation between larger per-student budgets and increases in some measures of student achievement.

Question 2: What impact does per-student funding from property tax have on differences in student achievement?

Table 14: Correlations between variables and per-student budgets from property tax.

Variable	Correlation Coefficient
Graduation Rate	-0.31
PARCC Results (ELA/Math)	0.71 / 0.70
SAT Results (ELA/Math)	0.64 / 0.69
Postsecondary enrollment	0.82
Student to Teacher Ratio	-0.18
Teacher Retention	0.03

Based on the data gathered, there appears to be strong, positive correlations between per-student budgets based on property tax and PARCC results, SAT results, and postsecondary enrollment. According to the data, there is a moderate, negative relationship between per-student

budgets based on property tax and graduation rate and student to teacher ratio. Based on the data presented in Tables 7 and 13, I interpret these results to mean that there is not a direct relationship between the two variables. Finally, there is not a direct relationship between per-student budgets from property tax and teacher retention.

My initial hypothesis regarding this question stated that I believed there would be a positive correlation between the student achievement variables and larger per-student budgets based on property tax. In a response similar to that of the first research question posed, my interpretation of the results leads me to believe that some measures of student achievement are correlated with larger per-student budgets from property tax. It is important to note that the positive correlation between postsecondary enrollment and budget could be influenced by external variables such as family income due to the high cost of attending college. This strengthens my interpretation of the data because of the relationship between community wealth as seen through property tax revenue and college attendance. This interpretation also speaks to the influence of a person's environment on her academic experience.

Question 3: What is the impact of depending on multiple revenue sources student achievement?

Table 15: Correlations between student achievement and local, state and federal funding.

Variable	Local Funding Correlation Coefficient	State Funding Correlation Coefficient	Federal Funding Correlation Coefficient
Graduation Rate	0.26	-0.14	-0.74
PARCC Results (ELA/Math)	0.98 / 0.84	-0.96 / -0.85	-0.76 / -0.50
SAT Results (ELA/Math)	0.93 / 0. 97	-0.92 / -0.96	-0.73 / -0.77
Postsecondary enrollment	0.86	-0.87	-0.69
Student to Teacher Ratio	-0.08	0.11	0.17
Teacher Retention	0.52	-0.42	-0.87

As is demonstrated in Table 15, there are relationships between the sources of revenue and student achievement. When considering the percentage of funding that is derived from local sources, there are strong, positive correlations with PARCC results, SAT results and postsecondary enrollment. There is a moderately strong correlation with teacher retention and graduation rate. There does not seem to be a linear relationship with student to teacher ratio.

Because the correlation coefficients between state and federal funding follow the same patterns, they will be compared together. When compared to percentage of funding from the state and federal, there are strong, negative correlations with PARCC and SAT results. There is a moderate, negative correlation with teacher retention and graduation rate. There is a minor, positive correlation with student to teacher ratio.

In my opinion, the interpretations of the correlations between the sources of funding and student achievement are the most illuminating of those found through this research study. The negative relationships between state and federal funding and standardized assessments highlight the fact that dependence on state and federal funding is correlated with decreases in standardized measurements. This is particularly interesting because state and federal intervention is given to districts in the name of *increasing* student achievement, particularly as measured through standardized assessment tools. This calls into question the practice of merely increasing funding to school districts without examining the causes of lower rates of academic success.

Conclusion and Solutions

Based on established literature on the subject of public school financial and academic equity and the findings presented in this essay, it is clear that there is a relationship between a district's finances and some measures of student achievement. Correlations seem to exist particularly between larger per-student operational budgets and results from standardized

assessments, indicating that increasing a school's overall budget could be correlated with increases in academic accountability measures. Interestingly, there seem to be very strong and positive correlations between the sources of funding and student achievement. These results indicate that districts in Illinois that are able to finance their schools predominantly though local funding may experience higher rates of students passing standardized assessments and postsecondary enrollment. While this is not true of all of the variables measured, it is indicative of a relationship between funding and student achievement.

In order to address the concerns highlighted by the data, I believe that districts in the state of Illinois must spread local school resources more equitably. As is demonstrated in the above data, simply increasing the amount of funding at the state and federal level is not predictive of increases in student achievement. Rather, increasing local funding seems to indicate improvements in a student's holistic experience in school. In order to spread local wealth more equitably, I propose that school district boundaries are designed in ways that wealth is not concentrated to one particular district. For example, the attendance boundaries in Evanston could be reconstituted to include people living in Chicago that may otherwise attend a school with a fewer financial resources through property tax. In essence, I propose that policies of integration be enforced to ensure equitable funding of all schools based on local resources. Such policies would incentivize cities to create communities of people with mixed incomes in order to balance property tax wealth. This solution will allow a school district to increase its per-student operational budgets without increasing reliance on state and federal sources of funding, practices that are associated with increases in student achievement.

Because school tax rates are set within the district and property taxes are predominately determined at the county level, reshaping school district borders across communities in order to

disburse wealth seems to be a plausible solution. While some may argue that changing school boundaries will decrease the assessed value of a home, newly defined school districts would have tools such as increasing the school tax rate to counter the effects of decreased revenue from property tax. Policy incentives, such as creating waivers for mixed income housing centers, should be freely used in order to create neighborhoods of greater socioeconomic diversity. Through this, wealth will not be concentrated to particular cities and particular students, but rather to all children in public education.

As Diane Ravitch noted in *The Death and Life of the Great American School System* (2016), the "greater good of the overwhelming majority of students" should not be sacrificed "to satisfy [an] ideological commitment to 'choice'" (p. xix). The public-school system was created with the intention of providing a public good to all school-aged people; thus, it is logical to ask all members of society to contribute to the funding of an education for all. Instead of relying on state and federal sources of revenue to increase funding, a practice that is not supported by empirical evidence to increase student outcome, the people of Illinois must be willing to commit to changing segregationist policies. In order to ameliorate the inequities in funding and its impact on student achievement, the people of Illinois must seek solutions that fall outside of the traditional, funding based solutions. It is through a commitment to addressing the needs of the general public that we may begin to ameliorate the problems associated with the relationships between school funding and student achievement.

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