INSTRUCTIONAL EXPENDITURES IN ILLINOIS HIGH SCHOOL DISTRICTS AND THE RELATIONSHIP TO STUDENT ACHIEVEMENT DURING NCLB

BY

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DISSERTATION

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Abstract

A democratic society is dependent on a quality public education system (Alexander & Alexander, 2011). The disparity in expenditures between school districts in Illinois has fueled political and public debate related to the equitable, adequate, and efficient access to resources in order to educate students. Recent legislation has been introduced to reallocate state provided funds from districts with large property tax wealth as defined by their Equalized Assessed Valuation (EAV) to districts with less property tax wealth. In contemplating this change, it is imperative that the relationship of school expenditures to student achievement be considered given the wide range of per pupil expenditures in high schools and academic achievement that exists throughout the state.

This study examined if a relationship existed between specific school budget categories related to per pupil expenditures and achievement for all Illinois high school districts as indicated on the Illinois School Report Card in the first and final year of NCLB. Achievement was measured by average ACT score. A significant relationship between student achievement and educational resources was observed, as well as for students identified as low-income. The linkage between student achievement, property values, and educational resources in Illinois was also confirmed.

Unique to this study was the addition of the Gini Coefficient analysis to determine if the wealth of school districts was equitably distributed throughout the 96 school districts. The findings indicating the distribution of wealth is not equitable, confirming the need for a school funding structure that does not rely upon property wealth. The findings of this study also suggest school finance policies in Illinois have continued to advantage some districts while disadvantaging others. Specifically, those advantages and disadvantages continue to impact those students who are economically disadvantaged the most.

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Chapter 1: Introduction

This study examined expenditures in Illinois high school districts and the relationship to student achievement. This section introduces the study and provides information related to the background, problem, purpose, and relevant theoretical perspectives. The research questions and an overview of the research methodology are presented, followed by a discussion of the significance of the study. Following information regarding delimitations, limitations and definitions, the chapter closes with a description of the organization of the study.

Background of the Study

The disparity in expenditures between school districts in Illinois has fueled political and public debate related to the equitable, adequate, and efficient access to resources in order to educate students. Recent legislation has been introduced to reallocate state provided funds from districts with large property tax wealth as defined by their Equalized Assessed Valuation (EAV) to districts with less property tax wealth. In contemplating this change, it is imperative that the relationship of school expenditures to student achievement be considered given the wide range of per pupil expenditures in high schools and academic achievement that exists throughout the state.

While expenditures in high school districts range greatly throughout the State of Illinois, the link to student achievement has not been researched and analyzed regularly. Given the unique funding structure and variety of school districts within the State of Illinois, though, comparing costs and achievement between districts has been difficult. Since the reauthorization of the Elementary and Secondary Education Act (ESEA) of 1965 was completed in 2001 as No Child Left Behind (NCLB), though, high schools across the state have assessed student achievement in a consistent manner, allowing for an unique opportunity to consider the relationship between school expenditures and student achievement.

For that reason, this study focused on high school districts throughout the state as well as within the top and bottom quintile of high school districts as identified by specific school budget categories related to per pupil expenditures. These districts were chosen so that the EAV for each school district could be identified and compared amongst the high school districts used in this study.

Historical Background

Beginning with the Old Deluder Satan Act of 1647, passed by Massachusetts lawmakers only 40 years after the first Puritans arrived, localized and publicly funded education for all citizens has remained in this nation (Noble, 1935). This act required each town of at least 50 families to have an elementary schoolhouse to educate the children of its community. It was the first implementation of the concept of using local revenue to fund schools. The topic of whether this method creates equitable, adequate, or efficient use of these funds has been a cause of disagreement for decades, though, as the evolution of legislative and judicial interventions have focused on improving student achievement.

In Illinois, Ward (2000) explains the political events that led to the rise and fall of the level of state funding over time. Illinois was a leader in providing a state equalization program and adopted a foundation formula in 1928. The formula was amended several times but remained intact through the 1960s. From 1928 until the late 1960s, the state contributed approximately 25% of the funding for public education. In the late 1960s, policymakers determined that the level of funding was inadequate to meet the needs of publicly funded schools and, therefore, adopted a state income tax on individuals and corporations. This new tax, combined with a major reform of the finance system in 1973, led to a boost of the state's share to 48% by 1975. The 1973 reform also provided a guaranteed tax-base formula for public schools to receive state aid.

During the 1980s, the nation was in an economic recession and a strain on state revenues, along with the "conservative fiscal policies of the administration of Republican Governor James Thompson, caused the state share of total spending to decline to 38% by 1983-84" (Ward, 2000, p. 1). As a result, legal challenges emerged, and the plaintiffs in *Committee for Educational Rights v. Edgar* (1996) challenged the constitutionality of Illinois's public education funding system since the disparity between districts had increased significantly. Although the suit was dismissed, it laid the foundation for school finance reform in the State of Illinois. Various interest groups began to form strong coalitions to make school finance reform a reality. A follow-up report of the National Council's Committee on Education Finance Equity, Adequacy, and Productivity recommended new finance structures to evolve from effective strategies leading to fiscal equity (Ladd, 1999). Currently, the Illinois State Senate and House of Representatives have both proposed legislation designed to significantly shift state funding from districts with greater property wealth to be distributed to those with limited resources.

With the reauthorization of the Elementary and Secondary Education Act (ESEA) in 2001, better known as the No Child Left Behind (NCLB) Act, the role the federal government would play in school accountability, funding and the focus on student achievement changed significantly. The linkage between federal funding and state accountability became reality, as did the focus upon student performance on standardized assessments. States were required to create a model that assessed students at each grade level from third grade to eighth, and again in the eleventh grade. States were also required to identify whether individual schools and districts were displaying Adequate Yearly Progress (AYP) based upon student performance on these assessments.

The State of Illinois, for example, began to require all eleventh grade students to complete the American College Testing (ACT) exam prior to graduation and utilized this

measure as one portion of accountability measures for high schools under NCLB. High schools throughout Illinois aligned curriculum, created specific lessons, and linked local assessments to the ACT in an effort to increase student performance on this measure, but the effectiveness of these practices related to student performance has not been measured.

Currently, student performance on the ACT varies from a composite score of 3 to 36 in high schools throughout the state. Given the variance in student population, community demographics, and available funding between each district in the state, this range is not surprising. What is not known, though, is whether the amount of funding allocated is related to student performance in any way. Therefore, the focus of this study was to determine if a relationship exists between specific school budget categories related to per pupil expenditures and achievement for all Illinois high school districts as indicated by average ACT score.

Statement of the Problem

Until 2014, the State of Illinois, through the Illinois State Board of Education (ISBE), developed levels of status for schools and districts based upon whether each school or district made AYP in a given year. For high schools and districts, the requirements for making AYP were linked to overall student performance on the ACT, as well as in specific subgroup categories, including students with special needs and from low Socio-Economic Status (SES) backgrounds. For many districts and schools, the ISBE status level was also linked to a series of requirements the school and district must follow. This ranged from how funds may be used to which personnel may teach students.

During the 2012-2013 school year, the State of Illinois reported that 58% of all schools and 42 % of districts made AYP. Given the range of ACT scores and the limited amount of high schools and districts that made AYP, identifying whether a relationship exists between

expenditures and student achievement at those schools has become more necessary as the legislature considers the reallocation of funds within the state.

Purpose of the Study

The purpose of this quantitative study was to determine if a relationship existed between specific school budget categories related to per pupil expenditures and achievement for all Illinois high school districts as indicated on the Illinois School Report Card in the first and final year of NCLB. Achievement was measured by average ACT score.

Rationale

The alignment of accountability policies with state finances formulas to allocate resources toward student learning goals has been reviewed and proposed by scholars (Adams, 2008; Ryan, 2008; Superfine, 2009; Verstegen, 2002). Presently, state systems are focused on equity, which seek to distribute comparable funding amounts to school districts. With the evolution of accountability policies that focus on improving students' achievement, though, state finance systems must allocate resources toward meeting specific learning goals. The allocation of resources based upon research-based practices that are linked to student achievement may result in significant improvements in student learning (Governor's Education Symposium, 2011).

Given the importance of meeting the expectations of ISBE and AYP during NCLB in Illinois, and the limited amount of resources available, it is imperative that schools and districts understand the relationship between expenditures and student achievement as new funding formulas are considered. In addition, throughout the state, if a relationship between expenditures and achievement can be identified, policy makers and ISBE officials could consider allocating necessary resources to increase student achievement.

Conceptual Framework

This study builds on the premise that disparities exist in educational resources because of the state's significant reliance on property taxes to fund public education. While the dollars available for public education determine to a large extent the resources a district can provide, it is also acknowledged that similar resources do not necessarily equal similar results. That is, equity among districts does not equal adequacy among all districts. The allocation of similar educational resources may vary significantly among districts and lead to significantly different outcomes for the students whom the districts serve (Tajalli & Opheim, 2004).

The relationship between educational resources and student achievement was examined through the lens of allocative efficiency. Allocative efficiency is defined as the effective utilization of all resources, or inputs, in pursuit of desired or preset outputs (Guthrie, Springer, Rolle, & Houck, 2007; Knoeppel, Verstegen, & Rinehart, 2007). This framework allows for not only multiple inputs but also for multiple outputs, which is more representative of the function of schooling (Knoeppel et al., 2007).

Research Questions

This research proposal was guided by the following research questions:

1. Is there a relationship between instructional expenditure per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
2. Is there a relationship between student support expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
3. Is there a relationship between instructional support expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
4. Is there a relationship between general administration expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?

5. Is there a relationship between school administration expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
6. Is there a relationship between school district wealth and student achievement as identified by the ACT for high school districts in Illinois?
7. Is there a relationship between low-income percentage and student achievement as identified by the ACT for high school districts in Illinois?
8. Is there a relationship between instructional expenditure per-pupil and student achievement as identified by the ACT for high school districts in the top and bottom quintile of spending in Illinois?

The following null hypotheses will be tested:

H_o1: There is no significant relationship between instructional expenditure per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o2: There is no significant relationship between student support expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o3: There is no significant relationship between instructional support expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o4: There is no significant relationship between general administration expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o5: There is no significant relationship between school administration expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o6: There is no significant relationship between school district wealth and student achievement as identified by the ACT for high school districts in Illinois.

H_o7: There is no significant relationship between low-income percentage and student achievement as identified by the ACT for high school districts in Illinois.

H_o8: There is no significant relationship between instructional expenditure per pupil and student achievement as identified by the ACT for high school districts in the top and bottom quintile of spending in Illinois.

Significance of the Study

There is limited research within the state of Illinois related to the relationship of spending and achievement. Sharp (1993) analyzed spending levels and standardized state assessment data, but this study has not been replicated. Currently, there are no studies that investigate the relationship between specific school budget categories related to per pupil expenditures and student achievement within high school only districts.

While all 50 states and the District of Columbia have data on school expenditures, student outcomes and all were required under NCLB to evaluate student performance, few currently combine these data in any meaningful way to provide district leaders with the tools that they need to make better choices. Some states have been exploring the idea, and in 2010, Oregon ran productivity evaluations on all of its districts and provided them to the districts on an informal basis.

As for actually evaluating the productivity of schools and districts, today, only two states, Florida and Texas, regularly examine education efficiency. Texas uses a sophisticated modeling technique to control for factors outside of a district's control such as student poverty. The program evaluates schools and districts each year and offers a set of "smart practices" gathered from local interviews. Florida has been using a productivity evaluation program for years, but

decided this past year to reform the approach to better align with the state's data system. The new approach is currently awaiting approval from the State Board of Education.

This study examined whether a relationship exists between specific school budget categories related to per pupil expenditures and student achievement. By examining these characteristics and the impact upon student achievement, the Illinois State Board of Education, local school districts, and communities will understand better the funding levels that potentially impact student performance. In addition, because of the increased level of accountability, schools will have more information regarding the specific adjustments necessary to impact student achievement. Finally, by understanding the historical significance of past accountability efforts and educational impact studies, future researchers will be provided additional insight and results from the State of Illinois.

Assumptions

The following assumptions were central to the overall design and implementation of this research study:

1. The data provided by the Illinois State Board of Education for ACT performance are accurate and the ACT is a valid measure of student achievement.
2. The per pupil expenditures defined by the State of Illinois have been consistently utilized by all school districts.
3. The instructional expenditures defined by the State of Illinois have been consistently utilized by all school districts.
4. The enrollment as reported by Illinois school districts to the Illinois State Board of Education is consistent and reliable.

Delimitations

Delimitations are the factors that prevent a researcher from claiming that findings are true for all people in all times and places (Bryant, 2004). The following delimitations are noted:

1. The study only utilizes data from high schools in the State of Illinois.
2. The study measures student achievement as an average ACT for each high school.
3. The study utilizes the definition of specific school budget categories related to expenditures based on the Illinois State Board of Education Financial Accounting Manual.

Limitations

Limitations are the restrictions created by the researcher's choice of methodology (Bryant, 2004). Limitations include:

1. The study utilizes data from Illinois public high schools. The results cannot be generalized for other states.
2. The study uses only one assessment instrument, the ACT.

Definition of Terms

Throughout the course of this study, various terms were instrumental in examining and analyzing the research questions. Many of these terms have multiple interpretations, depending on the background and understanding of the reader. To provide a sense of continuity and a common foundation level, definitions for such terms are provided. For the purposes of this research, the following definitions applied:

1. ACT: American College Testing is an independent, not-for-profit organization. Its purpose is to provide assessment, research, information, and other services in the broad areas of education and workforce development (ACT, 2014).

2. ACT Composite Score: The arithmetic average of the four subject area scores on the ACT English, mathematics, reading, and science tests rounded to the whole number. Scale scores range from 1 (low) to 36 (high) for each of the four tests and for the composite (Noble & Camara, 2003).
3. Adequate Yearly Progress (AYP): Under NCLB, states set the criteria for what is proficient in relation to standards they set. They must define the level of improvement considered sufficient each year to determine whether districts and schools have made AYP toward meeting the standard of proficiency, as well as the rate at which they will get all students to this proficiency standard by 2014 (Keegan, Orr, & Jones, 2002). In order to make AYP schools must meet the following benchmarks: performance goals, participation rate, and secondary indicators (Illinois State Board of Education, 2013).
4. Average ACT Score: Refers to the sum of all ACT scores received in a school divided by the number of students who completed the exam. For this study, the average used for each school will be the average listed on the Illinois School Report Card (ISBE, 2013).
5. Elementary and Secondary Act of 1965 (ESEA): ESEA was a legislative effort by the U.S. Congress to improve public education. Passed in 1965, the primary focus was inequities that exist within the public school sector (Kantor, 1991). This later became the No Child Left Behind (NCLB) federal legislation.
6. Equalized Assessed Valuation: Commonly referred to as EAV, it is “a property’s valuation after county and state equalization are performed. The term is applied to both individual properties and the total property within a school district or unit of

government" (Fritts, 2006, p. 7). In this study, EAV is only utilized when referring to how property is taxed.

7. High School District: District that includes grades nine through twelve; sometimes referred to as a secondary district (Illinois State University, 2011).
8. Illinois School Report Card: According to section 10-17a (Better schools accountability) of the Illinois School Code, each school district in the state must submit a school report card to the public assessing the performance of the school and students. This school report card must "be an index of school performance measured against statewide and local standards and will provide information to make prior year comparisons and to set future year targets through the school improvement plan" (ISBE, 2013).
9. Instructional Expenditure Per Pupil: "Instructional expenditures divided by the nine month average daily attendance. Instruction includes activities dealing with the teaching of pupils or the interaction between teachers and pupils" (Illinois State Board of Education, 2012, p. 8). This study frequently uses the abbreviation IEPP for instructional expenditure per pupil.
10. Low-Income Percentage: The percent of students in a school/district receiving free and reduced lunch services.
11. No Child Left Behind (NCLB) Act: Passed into law on January 8, 2002, by President G.W. Bush, this act states that, "all students regardless of race or socioeconomic status must be held to the same academic expectations, and all students regardless of race or socioeconomic status must have their academic progress measured using a newly refined concept of adequate yearly progress" (Keegan et al., 2002, p. 3). NCLB

focuses on how well students are making progress towards the standards set (Keegan et al., 2002).

12. Per Pupil Expenditures: The gross operating cost of a school district divided by the average daily attendance for the regular school term (ISBE, 2012).
13. Prairie State Achievement Exam (PSAE): This measures individual student achievement, for public high schools and districts, as it relates to the Illinois Learning Standards, which curriculum experts and Illinois teachers developed in collaboration with the Illinois State Board of Education (ISBE). Starting in 2002 students in grade 11 began taking the PSAE, consisting of an ACT, two Work Keys Assessments and one state created Science Assessment (Illinois State Board of Education, 2004a).
14. School District Wealth: A per student ratio of Equalized Assessed Valuation (EAV) divided by Average Daily Attendance (ADA), referred to as EAVPP.

Method of the Study

This study is a quantitative study utilizing a nonexperimental design. The data was collected using Illinois School Report Card data ex-post-facto. An ex post facto research study is a process of going backward in time to identify the causal factors (Leedy & Ormrod, 2001). The research is a quantitative analysis conducting a correlation analysis utilizing the Pearson R correlation to calculate coefficients between specific school budget categories related to per pupil expenditures and achievement as measured by the ACT. A multivariable linear regression analysis will be performed on each of the independent variables in relation to the dependent variable to determine whether correlation exists.

Nature of the Study

The method utilized in this study was a quantitative research design. Quantitative research is defined by Creswell (2009) as a type of educational research in which the researcher

decides what to study. The questions are narrowly focused to allow for a collection of quantifiable data, in which analysis of these numbers using statistics can be conducted. The inquiry is unbiased and objective. The researcher will study specific school budget expenditures in Illinois high school districts and the relationship to student achievement through analyzing Illinois School Report Card Data.

Organization of the Remainder of the Study

Chapter 2 will present a review of literature on Illinois school funding as well as patterns in student achievement resources at the state and national levels. Chapter 3 includes research to support the methodology and design for this study. It also present the data collection process and procedures. Chapter 4 presents the data collected and results of the study. Chapter 5 includes a summary of the data, conclusions drawn from the data, limitations of the investigation and recommendations for further study.

Chapter 2: Review of Literature

Introduction

Each year, the Federal Government, State Legislatures and local school boards determine funding for public education. This occurs because the success of a democratic society is dependent on a quality public education system (Alexander & Alexander, 2011). The decisions are critical to supporting quality education and represent large portions of their overall budget. Over time funding has continued to increase (Hanushek & Rivkin, 2007), with the National Center for Education Statistics (2016) reporting public school expenditures amounting to $620 billion in 2012-13. Current expenditures per student in public elementary and secondary schools increased by five percent overall between 2002-03 and 2012-13; however, expenditures per student peaked in 2008-09 at $11,621 and decreased each year since then, after adjusting for inflation (NCES, 2016).

To better understand the evolution of education finance policy, it is important to review the events that have historically influenced public school funding. This review of literature begins with the history of public school funding and finance policy. It continues with a review of how resources are allocated, specifically the distinction between equitable, adequate, and efficient distribution of state and district resources. Next, a review of the funding structures in Illinois is examined. Finally, the key research studies related to educational expenditures and achievement and legal cases that have shaped the landscape of education finance policy are presented.

History of School Finance

From the beginning, local communities supported the formation and funding of public schools in the United States. Americans came to understand that freedom would be preserved with an educated population. School funding and spending in the United States has followed the

growth and development of the nation (Webb, 2001). Hence, as states developed, so did the structure of funding education.

Initially, funding was provided through voluntary contributions (Alexander & Alexander, 2011). The system that developed was a continuation of the class oriented system brought from England with no universal education systems. In Massachusetts, though, the Deluder Satan Act of 1642 mandated towns of fifty families or more to establish a school to teach reading and writing. Settlements with over 100 families had to establish grammar schools that taught not only reading and writing, but also Latin and grammar. The primary purpose of teaching these skills was to insure that everyone was able to read the Bible (Cato Institute, 2004). During the century that followed, schools were established with funding provided through a combination of tuition and property taxes.

Not until the 1700s was it recognized that education was essential to the welfare of the nation. With the founding of the United States, though, the U.S. Constitution made no provision for education, leaving individual states to develop, determine, and fund education programs. In the late 1800s, access to schooling for all became more prevalent as Horace Mann championed an education system free of cost. Funding such an endeavor conflicted with religious and public leaders' views of education and created political turmoil, though. Still, from 1870-1920, the transition from private to public education accelerated and the funding structures grew in complexity, as well. During this time, many public schools began to be financed through local property taxes (Snyder, 1995). With a smaller population at the time and more isolated communities, this framework was advantageous (Biddle & Berliner, 2002).

During this time, the taxation of property varied between the northern states and the southern states. In the north, property was more evenly distributed so property was taxed equally. In the south, property was not equally distributed and excise taxes on exports and

imports became the primary funding sources for education. Eventually, the property taxation method used in the northern states was generally accepted for property taxation throughout all states (Alexander & Alexander, 2011). The more complex funding was intended to create equity and addressed three factors: general taxation of all property rather than specific types; appraisal of property rather than a fixed rate per piece of property; and the principle of uniformity whereby all properties were taxed at the same rate. This taxation method is still the cornerstone of school funding today (Snyder, 1995).

As the population migrated toward larger communities, states began to take on a larger role in the funding of public schools. The Tenth Amendment to the Constitution of the United States (1791) allows states to have the authority for education and state constitutions began to include language to provide education for all. Although each state's constitution contains language on the responsibility for education, each is unique, allowing for differing educational funding systems. During the 20th century the federal government began its involvement in the funding of public schools. Brown v. Board of Education of Topeka and the Soviet Union launching of Sputnik in 1957 set a new focus on the importance of education in our country (Webb, 2001).

President Lyndon Johnson thrust the federal government into public education funding in 1964 with the Civil Rights Act and the War on Poverty. In response to the Federal Government's entrance into education, The National Center for Education Statistics (NCES) commissioned a study concerning equity issues in education. The report titled Equality of Educational Opportunity (Coleman, 1966) was a massive survey from several thousand randomly selected schools across the nation with a focus on the factors that impact student achievement. The report concluded that family and socioeconomic status of students were the

best predictors of student achievement. All other variables, including school quality and funding, reported weak effects on student achievement (Coleman, 1966).

After the launch of Sputnik in 1957, the United States called for more emphasis in the areas of mathematics and science education in public schools (Cato Institute, 2004) by passing the National Defense Education Act in 1958. This Act also required more emphasis on foreign language and vocational training (United States Department of Education, 2016a). Thereafter the federal government has continued to pass legislation designed to improve educational efficacy, most notably the 1965 Elementary and Secondary Education Act (ESEA), which remains the center of federal education policy (Cato Institute, 2004). The federal government continued its expansion into public education in 1980 by establishing the Department of Education as a cabinet level agency (U.S. Department of Education, 2016a).

The Elementary and Secondary Education Act (ESEA) was reauthorized as No Child Left Behind (NCLB) in 2001. NCLB mandated that each state implement state standards and assessments for the subject areas of reading, math, and science. While mandating these, the federal government contributed less than 12% of funding to elementary and secondary schools, leaving the primary responsibility for funding these federal mandates to state and/or individual school districts (United States Department of Education, 2016a). As a result, these underfunded federal mandates have placed steadily increasing financial strains on school districts throughout the United States.

In addition to ESEA, the Education for All Handicapped Children Act was implemented in 1975 to ensure children with disabilities had access to a free, appropriate public education. Amended several times and renamed the Individuals with Disabilities Education Act (IDEA) in 1990, the federal government originally established a maximum funding level for the program of 40% of the average per pupil expenditure but have never fully funded it. Apling (2001) argued

that the law capped the allotment at 40% of the average per pupil expenditure but did not guarantee this amount. Currently the federal government only provides about 15% of special education costs, leaving the states to provide the remaining cost of mandated special education services (Hancock, 2009).

Educational spending in the United States continues to increase with the National Center for Education Statistics reporting that public school expenditures in 2012-2013 amounted to $620 billion (NCES, 2016). Increased state and federal funding has created the opportunity for analysis related to the level of funding for all school districts. A review of spending by district, even within the same area or state, has shown that not all school districts have the same level of resources to educate their children (Wenglinsky, 1997). The disparity in funding between districts has resulted in studies on equity, adequacy, and efficiency and has been the basis for legislative and legal actions.

Types of School Funding

Efforts to reform school funding policies either legislatively or judicially have focused on measures of equity, adequacy, and/or efficiency. As a result, the influence of state and federal government on public education, especially during the last half of the twentieth century, has significantly increased. The debate on the impact of educational funding and student achievement has centered on three key areas: equity, adequacy, and efficiency.

Equity. "As a rule, U. S. citizens say they are committed to the welfare of children, the ideal of equal opportunity, and the notion that public education can and should provide a level playing field for all students" (Biddle & Berliner, 2002, p. 51). For some researchers, educators, and citizens, this requires the same level of funding for each district. As there is not a consistent funding system in the country, educational funding has been debated throughout the states and across our country for decades. "Significant inequalities in school expenditures and resources

remain, even after 30 years of court decisions designed to reduce inequalities" (Wenglinsky, 1997, p. 19).

Defined as a fair distribution of costs and/or resources (Berne & Stiefel, 1984), the concept of equity appears to be simple and straightforward, but is significantly complex given the economic framework of our country. Berne and Stiefel developed an equity framework for education, with children as the primary focus and amended the framework in 1999, expanding it to include taxpayer equity. There are multiple approaches to defining educational equity for children and taxpayers, and some of these approaches can be in opposition to one another (Berne & Stiefel, 1999; Fritts, 2006).

This debate focuses on the funding variation across the nation and within states. For example, in 2012 New Jersey funded its schools at an annual funding rate of $12,568 while Utah funded at $4,838 (NCES, 2016). In Alaska, funding ranged from $16,546 per-student funding, at the 95th percentile, while the 5th percentile funding (Arizona) was $7,379. Again, the discrepancies between districts and states come from funding formulas that rely heavily on local property taxes (Odden, 1999).

As school boundaries were developed, widely varying property wealth per pupil resulted (Odden, 1999). Biddle and Berliner (2002) found that nearly half of public school funding is from local property taxes and this system has produced large funding differences between wealthy and impoverished communities. In addition, differences in the property tax base per pupil resulted in large differences in the ability to raise local dollars to support public education (Odden, 1999). For example, even in 1995, districts with a 22.6% student poverty rate spent less than $4,000 per student while districts with an average 6.4% student poverty rate spent $13,000 or more (Biddle & Berliner, 2002).

Many state legislators and policy analysts have identified the connection and viewed funding mechanisms as unfair (Odden, 1999; Weglinsky, 1997). Although most state legislatures have begun to address the equity issue, they have used different means. For example, Michigan abolished its property tax system and guaranteed a minimum level of state funding (Wenglinsky, 1997). In Illinois, a poverty entitlement grant providing additional state aid for each student identified as living in poverty is built into the formula. The amount of funding for each child increases as the overall percentage of poverty students increases (Illinois State Board of Education, 2013). With the increase in the number of students identified as living in poverty throughout our state, the additional funding faces criticism since some districts have also maintained a large local property tax base.

Despite efforts to date, there is still unequal access to local education revenue in most states. Odden (2003) concluded, "whatever the core school financing equalization strategy, spending per pupil is still highly associated with property wealth per pupil – the higher the wealth, the higher the spending" (p. 6). Although equity is often a publicly stated desire, those with influence and wealth typically do not support equal funding of schools for impoverished children (Biddle & Berliner, 2002). This reluctance and influence was powerful enough that many legislatures have not addressed this issue, resulting in litigation and judicial reforms.

Adequacy. School finance policy reformers have been attempting to define funding adequacy since the late 1980s and continue today. Adequate funding would be an amount sufficient to achieve desired outcomes for the average student (Imazeki & Reschovsky, 1998; Odden & Clune, 1998). Ramirez (2003) defines adequacy as "that amount needed to help the student reach the academic and performance standards established by the state" (p. 56).

Near the end of the 1980s, the movement from funding equity to funding adequacy was bolstered by the 1989 Kentucky Supreme Court decision in Rose v. Council for Better Education

(Hanushek, 2009; Hickrod, Chaudhari, Pruyne, & Meng, 1995; Hunter, 1999; Koski & Hahnel, 2008; Minorini & Sugarman, 1999; Rebell, 2002, 2008). In Rose (1989), the Justices determined that the Kentucky State Constitution called for a substantial level of "educational quality" rather than "education equality" (Hickrod et al., 1995; Koski & Hahnel, 2008). Since Rose (1989), policy reformers have had continued success using the adequacy argument in those states whose constitutions call for the provision of an "efficient" and "high quality" education (Hanushek, 2009; Hickrod et al., 1995; Hunter, 1999; Koski & Hahnel, 2008; Minorini & Sugarman, 1999; Rebell, 2002, 2008). While Rose (1989) supported adequate funding, difficulties remained as courts tried to determine how much funding is enough.

Many states have developed adequacy-based formulas to address funding differences created with unequal property revenue formulas. According to WestEd (2000), "Adequacy-based formulas start with a base cost of education and then adjust for particular characteristics (e.g., low-income, English language learner, and special education), district size and character (urban, suburban, and rural), and geographic cost differences" (p. 3). By addressing the differences in student needs, state funding formulas are designed to equalize disparities that exist so that all children are ensured a comparable or adequate education regardless of where they reside within a state.

It has been widely acknowledged for some time that some students require greater amounts of financial resources to meet their state's academic and performance standards (Mosborg, 1996; Verstegen & Driscoll, 2008; WestEd, 2000). The challenge is to identify for each district/school the funding necessary for students to reach a determined level of achievement (Odden & Clune, 1998).

It has been difficult for researchers to determine adequate school funding as it varies from state to state (Downes & Stiefel, 2008; Education Funding Advisory Board [EFAB], 2001;

Hanushek, 2006). Hanushek noted that approaches to defining adequacy are often politically based and have included the resource cost, successful districts, and cost function models.

The resource cost model includes the assembly of education professionals who attempt to calculate an adequate level of funding based upon their experiences so that a base cost for an effective education program can be established (Chambers, 1999; Downes & Stiefel, 2008). It identifies the inputs of base staffing levels for regular education and considers effective program practices, including in compensatory, bilingual, and special education programs. These aggregated costs are then adjusted by an education price index. Reschovsky and Imazeki (2001), in an analysis of Wisconsin and Texas districts, expanded the Resource Cost Model by incorporating variations in districts for non-controlled variables, including student backgrounds and parental educational levels.

An additional approach to developing an adequacy model attempts to determine a level of spending to meet a given level of performance, adjusting for the characteristics of students and other district factors. The Successful Districts Model identifies districts that have a history of high academic achievement and then calculates the average per pupil expenditure (Downes & Stiefel, 2008). With this approach, researchers identify districts that have been successful in teaching standards and measuring student achievement. Analysis of the high performing districts/schools is then conducted to determine how much is spent to attain the level of achievement. Researchers then average those levels of per-pupil expenditures and apply a price index for costs variations.

Hanushek (2006) and Downes and Stiefel (2008) noted that each has inherent defects that make their results unreliable. Each method uses an output goal as the basis for determining per-student funding levels, but each fails to indicate what educational strategies produce the desired outcomes (Odden, 2003). Therefore, the challenge for the judicial and legislative system and

adequacy advocates continues to be determining what level of funding provides students an adequate education.

The final model, the Cost Function Model, relies on deriving correlated formulas from inputs (district resources) and outcomes (student achievement) (Downes & Stiefel, 2008). These formulas are then used to derive the optimum cost to achieve the desired outcome. While all adequacy models attempt to bridge the gap of equity by providing resources necessary to attain a certain level of student achievement, this method of funding seeks to tighten the connection of funding to student achievement and explores the levels of efficiency in educational systems (Odden, 1999).

Efficiency. The cost function modeling utilized for determining adequacy of funding attempts to find the level of funding necessary to obtain a prescribed level of educational achievement (Odden, 1999). This causal relationship has led researchers to consider educational funding through the lens of efficiency to consider if dollars are allocated optimally to achieve desired outcomes (Hanushek, 1989). In addition, the efficiency models consider whether there is a relationship between the amount of money spent per pupil and student achievement (Hanushek, 1986). Also, this model considers whether there is a limit on how much money can and should be spent before there is a diminishing return on student achievement (Odden, 1999).

Studies of efficiency first became prevalent after the release of The Coleman Report in 1966. This was followed in 1983 with A Nation at Risk (National Commission on Excellence in Education, 1983). Both reports called into question the effectiveness of public schools throughout the nation (Guthrie et al., 2007), although A Nation at Risk provided no empirical evidence to support its claim (Guthrie, 2008).

Since that point, researchers such as King, Swanson, and Sweetland (2003) indicate that the focus of educational efficiency should be on increasing the desired outputs from available

resources or using fewer current resources. This perspective of educational efficiency implies holding expenditures steady or decreasing them while maximizing outputs, or outcomes (Guthrie et al., 2007).

The most commonly utilized measure of educational efficiency is one of technical efficiency, which applies cost analysis or production function methodologies, both of which "inform the lowest possible cost" (Wall, 2006, p. 239) to provide an adequate education (Guthrie et al., 2007). Educational studies that utilize technical efficiency have attempted to calculate a "one size fits all" formula that minimizes or decreases educational costs while maximizing or increasing student academic achievement.

In contrast, allocative efficiency attempts to maximize or increase student achievement by utilizing all available resources as effectively as possible. Allocative efficiency through a canonical analysis was utilized in by Knoeppel, Verstegen, and Rinehart (2007), reviewing not only multiple inputs but also multiple outputs to create a more representative view of the function of schooling (Knoeppel et al., 2007). A host of independent variables were used, including per pupil expenditures, student-teacher ratio, days of school, average teacher salary, and a measure of local wealth. The dependent variables in the study included student performance on the Iowa Test of Basic Skills (ITBS), schools' graduation rates, college plans, and voter participation. The analysis yielded average teacher salary and local wealth as the two inputs with the largest effects on student achievement.

Public schools throughout Illinois, as well as the nation, have been challenged by unequal and inadequate levels of funding from both the state and federal governments. School districts, including many in Illinois, have struggled to increase student academic achievement without consistent additional funding from the state and federal governments (Education Trust, 2006; Quality Counts at 10, 2006; Walter & Sweetland, 2003; WestEd, 2000). As a result, school

districts have relied on local revenue sources to fund local programs and meet state and federal mandates. In Illinois, this means most districts have needed to rely predominantly on local property taxes (Illinois Local Education Agency Retrieval Network, 2012).

School Funding in Illinois

Spread throughout Illinois is the nation's fifth largest population, although the majority of the population is found in the northern part of the state. Illinois contains a myriad of 869 school districts consisting of 378 elementary school districts (K-8), 100 secondary school districts (9-12), 390 unit school districts (K-12), and one district in the Illinois Department of Justice (Illinois State Board of Education, 2016).

Property taxes have been the primary funding source for education since the inception of public schooling. Illinois continues to be heavily dependent upon property taxes as the primary source for funding even though Illinois does not have a state property tax (Martiere, 2007). Property values vary significantly throughout Illinois by geographic region, and each school district taxes property within its boundaries at a different rate (Illinois Local Education Agency Retrieval Network, 2014). Tax rate variances produce disparities in the amount of revenue collected by individual school districts of similar size and type (Illinois State Board of Education, 2014). Further complicating the Illinois school funding system is the fact that Chicago Public School District 299 operates under provisions that differ from the rest of the public school districts in the state.

Not only is Illinois heavily reliant on property taxes to fund education, but property values vary greatly and are unevenly distributed throughout the state. The state of Illinois is divided into four geographic regions: (1) urban areas including Chicago, Rockford, Peoria, Moline, Springfield, and East St. Louis; (2) the suburbs, densely populated areas that are adjacent to urban areas; (3) towns, geographic regions located between the suburban and rural

areas; and (4) rural areas that comprise a physical majority of the state (Illinois State Board of Education, 2014). The wealthiest property school districts in the state are found in the collar counties, suburban areas surrounding Chicago, whereas most of the poorer property districts are found downstate in rural areas, with a few exceptions found in Cook County and the collar counties.

Over 67% of Illinois funding for education came from local property taxes in fiscal year 2014-2015 (Illinois Local Education Agency Retrieval Network, 2015). As a result, Illinois ranked 50th for the percentage of state revenue provided for public schools (kindergarten-twelfth grade) for the fiscal school years 2010 to 2014 (National Education Association, 2012, 2013, 2014). In contrast, Vermont, Hawaii, and Minnesota, the three top-ranked states, provided between 74.7% and 90.7% of the public education funding during the same time period (National Education Association, 2012, 2013, 2014).

Every school district taxes property within its boundaries at different rates and range from $.90 to $7.80 per one hundred dollars of assessed valuation (Illinois State Board of Education, 2014). This coupled with the varied EAV in each district has resulted in funding disparities within and among elementary, high school, and unit districts. The socioeconomic population segregation combined with a reliance on property taxes to fund public education has disadvantaged low-income and minority students throughout the state (Beck & Shoffstall, 2005; Hickrod, 2006; Mullin & Brown, 2009; Verstegen & Driscoll, 2008, 2009; Wall, 2006).

The Illinois legislature in 1973 created a new state aid formula, the first since 1927, which coincided with the implementation of a state income tax (Hall & Pierson, 1990; Hickrod, Arnold, Chaudhari, McNeal, & Pruyne, 1993). The state aid funding reform was intended to avoid future lawsuits, but, due to political pressure, the older grant-in-aid format remained, negating the equalization effect sought by the reform (Hickrod et al., 1993). Due to ever

increasing funding disparities between wealthy and poor districts, the state legislature modified the 1973 state aid formula in 1980, eliminating the reward for local effort component (Hickrod et al., 1993).

Given the disparities in property values across the state, the State of Illinois developed three adequacy formulas designed to support school districts. The formulas include the foundation formula, the alternative formula, and the flat grant formula. The foundation level is the highest amount of state aid and is given to school districts with the lowest property values. The alternative method is a flexible amount given to school districts with moderate property values while the flat grant is given to school districts with the highest property values (Fritts, 2006).

In addition to the adequacy formulas, Illinois implemented a supplemental poverty grant as part of the school funding formulas to make funding more equitable and adequate for school districts with high concentrations of low-income students (Fritts, 2006). Notwithstanding these equalization formulas, studies have shown that students continue to be disadvantaged by Illinois' system of funding public education (Beck & Shoffstall, 2005; Mullin & Brown, 2009; Verstegen & Driscoll, 2008, 2009; Wall, 2006).

Challenges to Illinois funding system. The Committee for Education v. Edgar (1996) was initiated by Illinois school districts in 1990. Those participating school districts challenged the state constitution as it related to adequate funding, equitable distribution of resources, and increased efficiency (Alexander & Alexander, 2011; Hall & Pierson, 1990; Reynolds, 2008). According to Hall and Pierson (1990), the lawsuit was sparked by three events that occurred during the 1980s, an economic recession, alterations in property assessment, and the Education Reform Act of 1985. The alignment of these three events served to exacerbate the growing resource disparity between suburban and rural districts.

Districts charged the state with violations of the constitution, discriminatory distribution of resources, failure to provide an adequate level of funding for all children, and the failure to provide the children of Illinois an efficient system of high quality education (Hall & Pierson, 1990; Reynolds, 2008). Ultimately, after six years of appeals, the case was dismissed by the Illinois State Supreme Court in 1996 (Johnston, 1996; Ward, 1997; Reynolds, 2008). The State Supreme Court findings included the Illinois constitution does not consider education a fundamental right, therefore, no violation of the constitution existed (Alexander & Alexander, 2011; Ward, 1997). Additionally, the court indicated it was not their responsibility to determine the level of funding to be provided (Johnston, 1996).

A year prior to the State Supreme Court's ruling on The Committee for Education (1996), students of East St. Louis School District 189 filed a lawsuit against the State Board of Education and the school district in Lewis E. v. Spagnolo (1999). The plaintiffs in Lewis E. (1999) challenged the constitutionality of inadequate state funding which had led to outdated textbooks, poorly trained teachers, and failing facilities (Bilandic, 1999). The Illinois State Supreme Court upheld the findings of the lower court and reaffirmed their decision in The Committee for Education (1996), repeating that the quality of education in Illinois is not for the courts to determine (Bilandic, 1999).

The Chicago Urban League in 2008 challenged the inability of the state to address achievement and funding gaps among school districts in Chicago Urban League, et al. v. State of Illinois and State Board of Education (2009) (Chicago Urban League, 2009; Clarke, 1993). The defendants cited the State Supreme Court ruling in The Committee for Education (1996) to convince the Cook County Circuit Court to dismiss four of the five counts presented by the plaintiffs. The action represented the second time the 1994 State Supreme Court decision in

Committee for Education (1996) prevented a challenge to the state constitution as it relates to adequate school funding.

More recently, plaintiffs in Carr v. Koch (2012), acknowledged that the decision in Committee for Educational Rights v. Edgar (1996), was related to the legitimate state goal of promoting local control of education, but argued since the Edgar decision, individual schools and school districts in Illinois no longer exercise local control over the core education functions of schools. They specifically cited the Illinois Learning Standards (ILS) and how the state measures school performance in Illinois based on the results of the Illinois Standard Achievement Test (ISAT) and the Prairie State Achievement Exam (PSAE) as examples of why the funding structures are unconstitutional.

The plaintiffs alleged schools face serious penalties for failing to meet state prescribed student performance targets on the ISAT and PSAE, including limiting a school's or district's control over its budget and spending, requiring the use of state-designed tutoring programs, and even assuming control over and imposing forced restructuring on the school or district where a school fails to meet targets for several years. The Illinois Supreme Court again found in favor of the state, specifically citing the funding structure is written in relation to funding schools and not applicable to how residents are taxed locally.

Despite unsuccessful legal challenges, calls for reform efforts to the school funding structure and model in Illinois have been ongoing. Although based upon an adequacy model, the requirements of NCLB for monitoring student achievement and potential restricted use of funds have created further concerns about the funding structures in the state. In 2012 alone, 82% of school districts and 66% of schools in Illinois failed to make AYP (ISBE, 2012). Therefore, the relationship between school expenditures and student achievement is necessary to determine

adequate and efficient uses of funds as the reallocation of funds is considered through reform or legislative efforts.

Illinois funding reform efforts. The Illinois Task Force on School Finance (1993) was formed in 1990 by a joint resolution between the House and Senate. After more than 30 meetings, the committee presented its findings. Among the findings were that "the primary reason for low revenues per pupil in some districts is simply the insufficiency of state funding" and that "the ratio of local property taxes to General State Aid (GSA) is more than two to one" (1993, p. 4). The commission made recommendations for calculating adequacy and equity formulas, property tax relief, school district organization, and a phase-in period of five years. However, the General Assembly did not implement the recommendations.

The Property Tax Extension Limitation Law (PTELL) was passed by the General Assembly in 1991 after property owners, especially in school districts in the collar counties with higher property values, began to complain to state legislators about rapidly increasing tax rates. As a result, the PTELL, otherwise known as tax caps, was implemented to control the growth of property taxes regardless of a school district's revenue requirements to operate and meet state and federal mandates (Fritts, 2006). PTELL initially took effect in the collar counties: DuPage, Kane, Lake, McHenry, and Will counties and was expanded to Cook County in 1994. Since that time, PTELL has been approved by voters in 33 of the 102 counties throughout the state. While PTELL has regulated property tax increases in these counties, the economic impact on school districts has been detrimental. As a result of PTELL, the tax caps limit the amount of revenue a school district may generate with local property taxes and does "not take into account changes in a school district's budgetary needs as a result of enrollment changes or new programs" (Fritts, 2006, p. 22). In addition, as additional federal and state mandates are implemented, school

districts are often obligated to absorb the costs of these mandates into their budgets without additional funding from federal or state sources.

In 1996, Governor Jim Edgar initiated the Governor's Commission on Education Funding for the State of Illinois. Known as "The Ikenberry Commission Report," it called for sweeping reforms of the state's educational funding system. These recommendations included increasing the state's contribution to school funding and an accompanying reduction of property taxes (Ikenberry, 1996). The recommendations passed in the House but failed in the Senate because the Senate leader refused to call the proposal for a vote. The Chicago suburban region (the North Shore area) would have been negatively impacted because home owners in this area would have paid a larger amount of state income tax because of overall wealth, but would not have received a proportionate amount in return for the educational services they receive (Ward, 2000).

In 1997, Governor George Ryan created the Illinois Education Funding Advisory Board (EFAB) as part of the Illinois State Board of Education. In an October 2002 report to the General Assembly, EFAB put forth recommendations regarding school district reorganization, property tax relief, alternative revenue sources, levels of state funding, distribution of state funds, and the means in which school districts receive and account for revenues. While these recommendations have yet to be acted upon, EFAB serves as an advisory board to the ISBE and is charged with making recommendations to the Illinois General Assembly on what dollar amount would constitute an "adequate" foundation level to educate a student in Illinois. In 2014, EFAB said the minimum needed to adequately educate an Illinois student is $8,672. Since 2010, though, Illinois has not increased the "foundation level," which is the amount the state determines is available to provide an adequate education to children. The state share has remained at $6,119 per child, with many schools receiving a portion of that amount due to "proration" or state budget allocations. The General Assembly has not fully funded public education at the levels

recommended by EFAB since 2002, and the difference between the EFAB funding recommendations and the actual foundation level approved by the General Assembly has steadily increased (Kiracofe, 2011).

A legislative attempt to address public school funding inequities was drafted in 2007 with House Bill 750 (HB 750). The proposed legislation was supported by the Center for Tax and Budget Accountability and would have implemented many of the recommendations made by EFAB and previous commissions, most notably funding public education by increasing the state income tax and implementing service taxes in exchange for property tax relief (Martiere, 2007). The proposed reform stalled in the General Assembly and received little support from the collar counties and their respective legislators since neither have would have gained from its passage. Since the legislators of the collar counties make up the largest regional block in either house of the General Assembly, any meaningful school finance reform would generally require their approval (Ward, 2000).

In January 2011, the General Assembly did pass the Taxpayer Accountability and Budget Stabilization Act (Public Law 96-1496), increasing taxes in Illinois while placing hard caps on spending levels through FY15 (Center for Tax and Budget Accountability, 2011). As a result, the budget passed by the General Assembly in June, 2011 maintained the foundation level of $6,119 for FY12 (Illinois State Board of Education, 2012a). Additionally, Public Law 96-1496 authorized the state funds payable to school districts to be prorated at 89% because of the budget crisis in Illinois at the time (Illinois State Board of Education, 2012b). The increased tax rate for Illinois residents was considered a temporary measure and had a January 1, 2015, expiration date, which was not extended. As a result, the estimated deficit for the state budget was predicted to double to over $12 billion.

Currently, although having been modified numerous times in the past three years, Senate Bill 231 (SB231), or the Better Funding for Better Schools Act, was passed by the Illinois Senate. The measure was set to increase the amount received by poorer school districts in the state while holding funding steady for a year in districts that would otherwise receive less funds in the new model. Prior to the bill being considered in the House, though, the governor released estimated decreases in state funding for collar county districts and criticized the increase in funding for Chicago Public Schools.

The average state and local share of education cost in the United States is about 44% state share, and 44% local share, with the remaining cost paid with other grants or federal dollars. In Illinois, the state supports 28% of the cost, while local districts pay for 61% of the costs through property taxes. Any adjustments to the current funding structure would seek to create a more equitable balance in order to provide an adequate education.

Studies Related to Funding and Achievement

Education finance policy was introduced in the early 1800s when policy makers first realized a free public education system was sustainable only through tax support from the state's citizens (Alexander & Alexander, 2011). Education finance policy has been a subject for debate in America since and numerous studies focused upon the relationship between funding and achievement has been conducted.

Elwood P. Cubberley broached the subject in his 1906 work titled, School Funds and Their Apportionment. Cubberley understood the need to adequately fund school districts; however, he was greatly concerned about the distribution of resources to achieve the best outcome (Springer, Houck, & Guthrie, 2008). The funding concerns expressed by Cubberley and education policy makers of the early 20th century were somewhat diffused by the 1966 publication of The Equality of Educational Opportunity Report (Coleman, 1966). The Coleman

Report questioned the relationship between education spending and student outcomes (Berne & Stiefel, 1999; Hanushek, 1981, 1989; Minorini & Sugarman, 1999; Rivkin, Hanushek, & Kain, 2005). According to the report student achievement was not related to the level of education resources provided (Hanushek, 1981, 1989). The Coleman Report initiated a flurry of education funding research and despite the apparent growing concern over school funding policy. There were minimal attempts to initiate wide-scale school funding reform prior to the 1980s.

While researchers and economists have argued that increased funding has not produced any better outcomes, implying funding levels do not matter (Childs & Shakeshaft, 1986; Ecole-Woods 2006; Hanushek, 1986, Kern, 1998; Perkins, 1992; Snyder, 1995), others indicate that expenditures do relate to student achievement (Baker, 1991; Bracey, 1996; Freeman, 2000; Hedges, Laine, & Greenwald, 1994; Thompson, 2003; Verstegen & King, 1998; Wenglinksy, 1997).

National trends. School districts are often compared to one another using two major criteria: performance on standardized assessments and per pupil expenditures. In a comprehensive analysis of public schools over a ten-year period, Quality Counts at 10 (2006) found that not only did average per pupil expenditures vary greatly between states, but there were often substantial differences between school districts within the same state. A closer examination of these per pupil expenditures revealed many of the poor-property wealth districts had higher concentrations of minority students and lower per pupil expenditures than more affluent school districts.

When standardized test scores were examined, similar disparities were identified. On the standardized state assessments, minority students consistently scored lower in reading and math than more affluent students and White students. Similar results were reported by other studies conducted within the last ten years (Darling- Hammond, 2007a; Mullin & Brown, 2009;

Verstegen & Driscoll, 2008, 2009; Wall, 2006). Quality Counts at 10's comprehensive study also found that over one-half of the states imposed sanctions on low-performing districts, often financial in nature, which further perpetuated disparities.

Verstegen and King (1998) reviewed 11 studies and cited other research to conclude there was a relationship between funding and achievement. In addition, Hedges, Laine, and Greenwald (1994) concluded production research findings were important for policy makers, identifying a relationship between funding and student achievement, but not providing information on how to efficiently allocate existing and new resources to maximize achievement. Childs and Shakeshaft (1986) conducted a meta-analysis of dissertations and other publications dating back to 1928, and used correlation analysis to concur there was a relationship between funding and achievement.

Wenglinsky (1997) conducted a national study using National Assessment of Educational Progress scores, financial information from the Common Core Database, student socio-economic status, and Teacher Cost Index for teacher costs. His review included the variables of instructional expenditures, central office administration expenditures, teacher-student ratios, and school social environment to correlate with math achievement and concluded instructional and central office expenditures related to higher teacher-student ratios, improved the school environment, and had a large and significant impact on student achievement in math.

In contrast, LeFevre and Hederman (2001) found that the SAT scores of students in states with higher spending per pupil were no higher than those of students attending schools in states with lower spending per pupil in data analyzed from 1976 through 2000. Additionally, they found that neither increases nor decreases in spending per pupil produced increased student achievement on the SAT. Similarly, Houtenville and Conway (2008) failed to find a relationship

between spending on teacher salaries and student NAEP test scores for reading or mathematics at any grade level in a sample of over 10,000 students from all 50 states.

In a study of the impact of variance in state spending on public schools, though, Harknett et al. (2005) reported substantially stronger relationships between spending per pupil and student achievement. Their analysis estimated that an additional $1,000 in public school spending per pupil led to a 10% increase in fourth-grade and eighth-grade math NAEP scores and fourth-grade NAEP reading scores.

Noting previous studies compared differences in spending per pupil among the states and mean scores on the National Assessment of Education Progress (NAEP), Scholastic Aptitude Test (SAT), or American College Testing (ACT) examinations, Ram (2004) investigated the effects of median high school spending per pupil on mean SAT scores. After adjusting for statewide impacts of socioeconomic status, he found a moderately positive relationship between spending per pupil and the reading component of the SAT and only a weak relationship with the mathematics component of the same test.

In a national study of school funding equity, Baird (2008) examined the allocation of federal direct expenditures on school funding disparities between 1990 and 2000. Utilizing data from the National Center for Education Statistics, Baird was able to identify trends on the impact of federal direct funds on funding disparities between states and within states over a ten-year period. Baird found that federal funding has had minimal impact on within-state funding, although federal funding disparities decreased during this time period. On the other hand, the differences in per pupil revenues among states remain significantly larger than differences within states. Baird concluded that federal direct funding in many instances has not reached the school districts and students who are most in need.

Focusing on schools with large populations of economically disadvantaged students, defined as more than 50% low-income, Tajalli and Opheim (2004) examined primary and secondary schools for factors that contribute to successful and failing schools. Acknowledging that factors may not be the same for primary and secondary schools, their study utilized selected schools at the fourth-, eighth-, and tenth-grade levels that administered the Texas Assessment of Academic Skills (TAAS) in 2001. These schools were divided into two groups: high-performing schools, those with 90% or higher on the TAAS, and low performing schools, those with 50% or lower on the TAAS.

Utilizing regression analysis, Tajalli and Opheim (2004) controlled for three process variables: school characteristics, teacher characteristics, and per pupil expenditures. They found that student achievement scores decreased as the percentage of low-income students increased within the student population of a school, but the impact on student achievement was not as significant in smaller schools. Their results also indicated that the demographics of a school, especially in regards to race, gained importance as students moved through middle and high school, finding a positive association between test scores and the percentage of White students in the school at the tenth-grade level. They also found that student achievement improved in elementary schools and high schools for every additional year of teacher experience. Tajalli and Opheim determined that the allocation of resources matters, especially for schools with large populations of economically disadvantaged students.

Examining how the allocation of real resources, defined as personnel and materials, impact student learning, Greene, Huerta, and Richards (2007), conducted a longitudinal study from 1999-2002 and focused on 303 New Jersey comprehensive public high schools. Scores in mathematics and language arts for students who took the Grade Eight Proficiency Assessment in 1999 and the eleventh-grade High School Proficiency Assessment in 2002 were used and the

researchers controlled for 11 environmental and resource variables, some within and others outside the control of schools. The results indicated socioeconomic status predicted scores on reading and math assessments for special education children, but was not statistically significant for regular education students. However, similar to the results found by Tajalli and Opheim (2004), this study suggested that teacher quality, defined as the number of teachers with advanced degrees, which often result in an increase in expenditure level because of salary, may be especially important for students with learning disabilities.

Murnane and Levy (1996) reviewed fifteen public schools in Austin, Texas, with high percentages of students identified as low-income. Students at each school were predominately African American or Hispanic, and, as a result of court-mandated racial discrimination settlement, each school received $300,000 a year in additional state aid between 1989 and 1993. Despite substantial increases in funding, though, only two of these schools posted significant improvements in student achievement during that time span.

Clark (1998) noted that the Texas legislature enacted Senate Bill 7 in 1993, which was the first instance of school finance equalization reform. The measure increased state aid to poor districts, eliminated state aid to rich districts, and required high-wealth districts to transfer some of their local property tax revenues into a common fund for redistribution to low-wealth districts. By 1997, however, Clark found no evidence that student achievement in the low-socioeconomic-status districts had experienced any measurable improvement.

Both Patterson (2004) and Vedder and Hall (2004) analyzed the impact of school finance equalization measures in Texas between 1993 and 2003. Patterson (2004) found that while total spending on public schools had more than doubled over that decade, measures of student achievement displayed no significant gains. Additionally, Patterson noted that there was very little convergence on the mean test scores between districts who had high percentages of students

identified as low-income and those with low percentages. Patterson also reported that neither increased teacher pay nor reduced class size was associated with improvements in student performance.

Using a cross-sectional design, Vedder and Hall (2004) found no correlation between variance in district spending per pupil and student achievement. In their study, the strongest predictors of student achievement were the proportion of the adult population in the district holding post-secondary degrees, the proportion of the district budget derived from local revenue sources, and the student-teacher ratio. It was also noted that teacher pay and class size were not found to be major determinants of student achievement.

Aleman (2005) applied critical race theory (CRT) and Latino/a critical (LatCrit) theoretical frameworks to school finance data and analyzed inequities in Texas school finance policy. Both theories advocate for the acknowledgement of past political, social, and historical discrimination to people of color and for progressive reforms to be implemented. In analyzing the data, Aleman (2005) found that in spite of legislative reforms and judicial mandates in recent years, Texas school finance policy has continued to "…disadvantage, discriminate, and oppress communities and students of color" (p. 548) because of its continued reliance on property values. The reliance on property wealth to fund public schools in Texas has continued to advantage wealthier districts in regards to facilities and maintenance, and perpetuated funding disparities between students of color and their White counterparts.

Rolle, Houck, and McColl (2008) analyzed the impact of judicially mandated policy restraints between 1996 and 2006 in North Carolina on horizontal and vertical equity using data from four public record databases. They found more dollars were allocated per student during this time period, but the level of inequity remained constant or increased marginally. With regards to vertical equity, local property wealth was still the strongest predictor of a district's per

pupil expenditure rate. The researchers found that judicially mandated policy restraints have not improved horizontal or vertical equity in the schools. Since areas with lower property values had larger percentages of minority students in North Carolina, particularly Black students, the reliance on property wealth continued to perpetuate further inequities.

In a comprehensive analysis of the relationship between school funding policies and student achievement in the United States, Darling-Hammond (2007) affirmed that minority students and low-income students are disadvantaged because of funding policies currently in place throughout the United States. These policies often financially penalize districts whose students perform poorly on standardized tests. In the study, achievement gaps that persist between Black, Hispanic, and low-income students and their White and Asian counterparts were analyzed, as well as the disparities created by the public finance system. Darling-Hammond found that in addition to a lack of physical resources such as textbooks and equipment, schools with high populations of disadvantaged socioeconomic and minority students often have a greater percentage of inexperienced and/or unqualified teachers. She concluded that the disparities in educational resources actually perpetuated gaps in student achievement despite the intentions of the standards-based reform movement advocated for by state and federal governments.

In support of this, Sonstelie (2007) noted that districts with a high percent of students identified as low income have faced higher costs than other districts. For example, inner city, urban school districts with high proportions of students identified as low-income are often required to offer higher pay rates than suburban schools. In addition, increased state aid provided to low-wealth school districts helped to increase spending per pupil, but was not significant enough to offset the educational disadvantages of larger than average percentages of students identified as low-income enrolled in the schools.

During that same time, recognizing the percent of students identified as low-income often correlates indirectly to the property wealth of district, Loeb, Bryk, and Hanushek (2007) identified the relationship between the assessed valuation per pupil of a district and student achievement was not the subject of extensive research. Loeb et al. reported a positive relationship between student achievement and district assessed valuation per pupil in California, highlighting families with a higher socio-economic status tended to reside within school districts that had above average residential property values, possessing the financial ability to purchase homes with higher assessed values.

Loeb et al. (2007) noted, though, that solely directing more money into the current system will not dramatically improve student achievement and what matters most are, "the ways in which the available resources and any new resources are used" (p. 4). Loeb et al. argued that systematic reform of the California public education system was necessary in order to accurately measure whether or not additional resources were needed to positively impact student achievement. Similarly, in 2003, Hanushek had already cautioned he was not claiming that funding levels or school resources could not influence student achievement or that additional resources would not have some impact. His position was, as it is spent within American public school systems, adding more funding has not reliably improved student performance.

Rebell (2007) added "in the end, all of the elaborate economic production analyses and discussions in the academic literature and in the legal decisions about whether money matters really comes down to a basic consensus that, of course, money matters—if it is spent well" (p. 1487). He called for the continued intervention of the courts to implement the reforms that were necessary to attain state and national goals for student achievement.

Similarly, Odden et al. (2007) stated that in this "arcane debate about the conclusions of economic production function studies, all analysts conclude that it is the way money is spent that

will make the largest and critical differences" (p. 14). In the state of Wisconsin, Odden et al. noted where high-quality professional development and effective instructional strategies were implement is where student achievement was positively impacted. The same amount of school spending, without a focus on where the money was to be spent, was not positively related to increased student achievement.

While the national studies are not conclusive regarding a relationship between school expenditures and student achievement, the research does suggest funding policies that primarily rely on property wealth to fund education may disadvantage particular groups of students. Recent studies of Illinois data have found similar results.

State trends. Studies have consistently shown that the students most commonly disadvantaged by Illinois' current system of school funding are African-American, Hispanic/Latino, and low-income students (Beck & Shoffstall, 2005; Mullin & Brown, 2009; Verstegen & Driscoll, 2008, 2009; Wall, 2006).

Beck and Shoffstall (2005) analyzed data from the 2000 Illinois Standards Achievement Test (ISAT) and found a strong relationship between the socioeconomic characteristics of schools and student achievement. The study focused on the impact of school finance policies on rural schools within the state and utilized 1,342 junior high schools in Illinois that administered the reading, writing, mathematics, science, and social studies tests to their seventh- and eighth-grade students. They also controlled for certain variables that were "highly associated with student performance" (p. 4) in prior studies: percentage low-income, percentage Black, student mobility, percentage with limited English proficiency, local property values, percentage of students with special education needs, school enrollment, and parental involvement.

The findings identified rural schools performed better on the ISAT than non-rural schools, but further analysis found the schools that exceeded expectations had lower percentages

of minority and low-income students. Conversely, districts with high percentages of minorities and low-income students were placed on the Academic Watch List. Also, the school districts placed on the Academic Watch List had lower property values in comparison to districts placed in the Exceeded Expectations category (Beck & Shoffstall, 2005). Like Darling-Hammond (2007), Beck and Shoffstall (2005) concluded that differences in funding for schools directly related to student achievement. They also recommended state policy makers reconsider the system of rewards and sanctions that had been implemented in Illinois because the system was seemingly contributing to the disparities in student achievement.

Wall (2006) employed cost analysis to investigate the equity and adequacy of funding throughout the state using 2005 Illinois School Report Card data. The study included 314 variables for 810 school districts categorized into four major groups: measures of finance, achievement, environment, and school. Utilizing ordinary least squares regression and two-stage least squares regression, Wall sought to identify a relationship among school funding, educational achievement, school composition, and school environment.

The findings indicated a positive relationship existed between funding and student performance. Specifically, though, the results found low-performing districts had greater percentages of minorities and low-income students and reported lower per pupil state and local revenue. In addition, low-performing districts had lower property wealth and paid a higher percentage of property tax. Wall concluded small districts and non-unit districts needed more resources for a given level of student performance and the reliance on property wealth to fund education will continue to perpetuate the inequities between school districts unless adequacy is addressed.

Verstegen and Driscoll (2008) also analyzed the disparity in funding in Illinois using 2005 school expenditure data. Their research found that per pupil expenditures in Illinois

schools were most reliant on property values, disparities among districts and districts types (elementary, high school, and unit) have continued, and the reliance on property values frequently impacted low-income and minority students the most. They found the range between the wealthiest and poorest districts in per pupil expenditures was over $16,000, while over one-half of the students in Illinois received less than $5,452 in per pupil expenditures for their education. Verstegen and Driscoll acknowledged that while the foundation level has been increased, it has never approached the suggested level put forth by the Illinois Education Funding Advisory Board.

Attempting to replicate the 2008 study by Verstegen and Driscoll, Mullin and Brown (2009) compared results of the Verstegen study to the results of a study conducted by the Illinois Education Research Council (IERC) and found an even more inequitable system than reported by Verstegen and Driscoll (2008). The results of the IERC study found that elementary school districts were the least equitable of the three district types in Illinois, high school districts showed inequities among schools, and unit school districts were the most equitable, although disparities still existed among school districts. Mullin and Brown (2009) also reported a strong relationship between per pupil expenditures and the level of property wealth within a district.

Summary

In the current state of accountability and standards, individual schools and school districts are evaluated and compared at the local, state, and national levels. The most common comparisons center on student academic achievement scores and per pupil expenditures, with studies suggesting a relationship exists between student achievement and educational resources (Darling-Hammond, 2007; Tajalli & Opheim, 2004; Verstegen & Driscoll, 2008, 2009; Wall, 2006). Studies documenting disparities in achievement scores among student subgroups (Horn, 2003; O'Gorman, 2010) as well as disparities in the availability of educational resources

(Aleman, 2007; Rolle, Houck, & McColl, 2008), further validate the need examine the relationship per pupil expenditures and student achievement among high school districts in the state of Illinois.

Since the onset of federal participation in public education, researchers have attempted to identify if a relationship between educational resources and student achievement exists (Archibald, 2006; Coleman et al., 1966; Fortune & O'Neil, 1994; Greene, Huerta, & Richards, 2007; Greenwald, Hedges, & Laine, 1996; Hanushek, 1981, 1989, 1991; Knoeppel et al., 2007; Okpala, 2002). Many have developed conceptual models and tested them using multiple regression and production function methods with a range of findings. Some have reported significant relationships between variations in resources and variations in student achievement (Archibald, 2006; Fortune & O'Neil, 1994; Greenwald, Hedges, & Laine, 1994; Knoeppel et al., 2007), while others have identified non-significant effects (Coleman et al., 1966; Hanushek, 1981, 1989, 1991; Okpala, 2002).

Current state and national policies require all students achieve at levels of academic proficiency. Policymakers and educational leaders need reliable information in order to adequately distribute educational resources so all students may achieve proficiency. Given the expectation that school funding aligns to accountability structures, a current and thorough study of the relationship of educational resources on student achievement is necessary. Though attempts have been made to identify the relationship of resources to student achievement, findings remain mixed. Therefore, further study is necessary analyzing the relationship between specific school budget categories related to per pupil expenditures and student achievement among high school districts in the state of Illinois.

Chapter 3: Methodology

Introduction

The purpose of this study was to examine the relationship between specific school budget categories related to per pupil expenditures and student achievement among high school districts in the state of Illinois. The first section of this chapter addresses the research design and research questions that were employed for the research study. The data collection techniques are discussed in the second section. A discussion of data analysis procedures is found in the third section. The final section includes a summary of the methodology employed for this study and a preview of the next chapter.

Research Design

The research design of this study was nonexperimental and utilized univariate and multivariate quantitative methods incorporating both descriptive and inferential statistics. Quantitative research design is appropriate for the study because data will be analyzed for statistical significance (Creswell, 2009; Mertens, 2010). The purpose of descriptive statistics is to summarize, organize, and simplify data (Gravetter & Wallnau, 2008; Mertler & Vannatta, 2005), and descriptive data is commonly displayed in tables and graphs. Descriptive statistics are generally used to describe patterns in the data by examining measures of central tendency, range, variance and/or standard deviation (Creswell, 2009; Mertens, 2010).

Inferential statistics are used to compare two or more groups to determine if significant differences exist among them (Creswell, 2009; Mertens, 2010). Inferential statistics utilize a confidence interval, the probability that any significant differences are not due to random chance (Field, 2009). The purpose of inferential statistics is to analyze information from samples in order to make generalizations, or inferences, about the larger population from which the samples were taken (Gravetter & Wallnau, 2008; Mertler & Vannatta, 2005).

This study used specific school budget categories related to per pupil expenditures of Illinois high school districts to correlate with the student achievement of students in those districts as identified by the ACT average composite score reflected in the 2002-2003 and 2013-2014 school years. In addition, those districts in the top and bottom quintile as defined by instructional expenditure per pupil were analyzed to determine if a significant difference in spending and achievement exists. The information gathered from this study will generate insights for the linkage between school expenditures and student achievement.

In this study, the independent variable was specific school budget categories related to per pupil expenditures for all Illinois high school districts as indicated on the Illinois School Report Card. The dependent variable was the ACT average composite score of each high school district in Illinois for the 2002-2003 and 2013-2014 school years. In this study, the ACT average composite score was correlated to specific school budget categories related to per pupil expenditures for all Illinois high school districts as indicated on the Illinois School Report Card and then high school districts were further grouped in quintiles based upon these expenditures. Further analysis related to the distribution on property wealth (EAV) and instructional expenditures per pupil were conducted by calculating the Gini coefficient. The results of the study sought to determine the relationship between specific school budget categories related to per pupil expenditures for all Illinois high school districts as indicated on the Illinois School Report Card and student achievement as measured by the ACT.

Measurement instrument. In addition to the Illinois School Report Card data, this research used the ACT average composite score of each high school district in Illinois for the 2002-2003 and 2013-2014 school years, administered as part of the 2003 and 2014 Prairie State Achievement Exam (PSAE). In the spring of each year all Illinois students in grade 11 were expected to take the ACT exam as part of the required state assessment.

In 1959 the American College Testing (ACT) Program was developed as a result of the increased number of students reaching college age. The test was designed to serve two purposes: (a) to help students make informed decisions about college choice and the program to study and (b) to aid institutions in the selection and retention of strong academic students (ACT, 2014). According to the ACT Technical Manual (2014):

> The specific knowledge and skills selected for evaluation are determined through a detailed analysis of three sources of information. First the objectives for instruction for grades 7 through 12 are examined for all states in the United States that have published such objectives. Second, textbooks on state approved lists for courses in grades 7 through 12 are reviewed. Third, educators at the secondary and postsecondary levels are surveyed and consulted to determine the knowledge and skills taught in grades 7 through 12 that are prerequisite to successful performance in postsecondary courses. (p. 35)

Since its inception, ACT has evolved into a commonly recognized and used measure of testing. The four ACT tests, English, mathematics, reading, and science reasoning, are "tests of general educational achievement used to satisfy the diverse requirements of tests used to facilitate the transition from secondary to postsecondary education" (ACT, 2014, p. 3). Because high-school courses vary in their content and standards by institution, colleges may use a common assessment to compare students. The ACT provides this common baseline, and the ACT test has proven to be both valid and reliable.

Measurement validity. The ACT has undergone extensive research to ensure content validity (ACT, 2014). Members of faculty at colleges across the nation, who are familiar with the skills required for a successful college career, were surveyed on the numerous knowledge and skill areas on the basis of their importance to succeed in the entry level college year. They were also asked to identify the knowledge and skills whose mastery would qualify a student for

advanced placement. A series of consultant panels were convened, at which the experts reached consensus regarding the important knowledge and skills in English and reading, mathematics, and science, given current and expected curricular trends. These tests measure not only educational achievement, but also a student's ability to "solve problems, grasp implied meanings, draw inferences, evaluate ideas, and make judgments in subject-matter areas important to success in college" (p. 3).

Measurement reliability. An important measure of the quality of a test is how reliable test scores are for each administration of it. Reliability is important because it indicates how consistently a test measures the test takers ability. The extent to which scores are free from inaccuracies of measurement is indicated in the reliability of the test. The continuity of test scores across changing conditions, test reliability, indicates the extent to which differences in test scores reflect differences in the skill being measured. If testing conditions change it is therefore understood that reliability coefficients will change as well (Creswell, 2009).

Testing is subject to the influence of many factors that are not relevant to the ability being measured. Such irrelevant factors contribute to what is called "measurement error" which in turn determines how reliable test scores are deemed. The more reliable the scores the more confidence score users have in using the scores for making decisions. In educational measurement, score reliability is a statistical index to quantify and evaluate the consistency of tests. The reliability coefficients for each of the four subtests of the ACT range from .85 to .92 (ACT, 2014).

Research Questions

The purpose of this quantitative study was to determine if a relationship exists between specific school budget categories related to per pupil expenditures and achievement for all

Illinois high school districts as indicated on the Illinois School Report Card. Achievement was measured by average ACT score. The study was guided by the following research questions:

1. Is there a relationship between instructional expenditure per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
2. Is there a relationship between student support expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
3. Is there a relationship between instructional support expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
4. Is there a relationship between general administration expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
5. Is there a relationship between school administration expenditures per-pupil and student achievement as identified by the ACT for high school districts in Illinois?
6. Is there a relationship between school district wealth and student achievement as identified by the ACT for high school districts in Illinois?
7. Is there a relationship between low-income percentage and student achievement as identified by the ACT for high school districts in Illinois?
8. Is there a relationship between instructional expenditure per-pupil and student achievement as identified by the ACT for high school districts in the top and bottom quintile of spending in Illinois?

The following null hypotheses were tested:

H_o1: There is no significant relationship between instructional expenditure per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o2: There is no significant relationship between student support expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o3: There is no significant relationship between instructional support expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o4: There is no significant relationship between general administration expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o5: There is no significant relationship between school administration expenditures per pupil and student achievement as identified by the ACT for high school districts in Illinois.

H_o6: There is no significant relationship between school district wealth and student achievement as identified by the ACT for high school districts in Illinois.

H_o7: There is no significant relationship between low-income percentage and student achievement as identified by the ACT for high school districts in Illinois.

H_o8: There is no significant relationship between instructional expenditure per pupil and student achievement as identified by the ACT for high school districts in the top and bottom quintile of spending in Illinois.

Data Collection

Student achievement scores, demographic data, and financial data are publicly available and were downloaded for this study from the Illinois State Board of Education website (Illinois State Board of Education, 2014). Data is reported at the district-level for every public school district in the state of Illinois, including a composite ACT score, combining the reading, math, English, and science reasoning scores, is calculated, respectively, for each public high school district in Illinois that administered the test. The Illinois State Board of Education reports the results of the composite score for the ACT and these were collected and utilized for this study.

Demographic data collected from the Illinois' State Board of Education database also included district location, enrollment, EAV, and demographic data for percentage of students identified as Economically Disadvantaged (Low-income).

The financial data used for this study also included Equalized Assessed Valuation per pupil (EAVPP), instructional expenditure per pupil (IEPP), and per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP). Each expenditure per pupil was reported in dollars and was computed by dividing the total amount of each expenditure by the nine-month average daily attendance for the regular school term (ISBE, 2014).

Data Analysis

The included data was analyzed using SPSS, a software package for analyzing relationships using univariate and multivariate analysis. The data was downloaded and imported into SPSS from the Illinois State Board of Education Illinois website (ISBE, 2014). Descriptive and inferential statistics were also utilized to analyze the data. The use of both descriptive and inferential statistics in research studies is commonly practiced in data analysis (Mertler & Vannatta, 2005; Tabachnick & Fidell, 2007).

Research Methodology

This research used quantitative statistical analysis, specifically descriptive, correlational, and ex post facto designs. The study sought to determine if a relationship existed between specific school budget categories related to per pupil expenditures and achievement for all Illinois high school districts as indicated on the Illinois School Report Card. Achievement was measured by average ACT score.

Descriptive research is a type of quantitative research in education that "describes characteristics of a particular sample of individuals or other phenomena" (Gall, Gall, & Borg,

2007, p. 298). Correlational research involves collecting data on two or more variables for each sample and determining the correlation coefficients (Gall et al., 2007). Specifically, the study sought to determine the relationship between specific school budget categories per pupil expenditures and achievement for all Illinois high schools as indicated on the Illinois School Report Card. To assist with the study, this research included results from correlational research previously conducted with similar variables in Chapter 2.

Ex post-facto research is the relationships that occur naturally and are not manipulated by the researcher. The outcomes of the independent variables have already occurred, and are examined for patterns, sequence, or relationships to find meaning (Isaac & Michael, 1997). In this study, the variables were specific school budget categories related to per pupil expenditures for all Illinois high school districts as indicated on the Illinois School Report Card and student achievement as measured by the ACT.

Summary

The purpose of Chapter 3 was to identify and define the research methods that were utilized to conduct this study. The chapter included the research questions, research design, demographics, and instrumentation. It also included an explanation of the data collection and analysis procedures. Chapter 4 will report the results of the analysis. Chapter 5 will provide the findings of the study, conclusions, study limitations, and recommendations for future research.

Chapter 4: Results

This chapter presents the results of the statistical analysis outlined in Chapter 3. First, a general discussion on the characteristics of the descriptive statistics for the data is addressed. Then, the primary research questions are analyzed using graphical and inferential statistics, including commentary on significant findings.

Procedures

All data and information was downloaded from the Illinois State Board of Education report card database and loaded into the Statistical Package for Social Science Windows version 16.0 (SPSS). Using SPSS, the data was categorized into composite ACT score, student enrollment, percent of students identified as low-income, Equalized Assessed Valuation per pupil (EAVPP), instructional expenditure per pupil (IEPP), and per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP).

The data downloaded from the Illinois State Board of Education included information for 96 high school district in 2002-2003 and 97 high school districts in 2013-2014. Illini-West High School District 307 was removed from the data since they did not exist as a school district until the 2007-2008 school year. As a result, the total number of high school districts included in this study was 96. A list of the districts included in this study, including a graphic representation of location throughout the State of Illinois can be found in Appendix A.

The data elements were coded for each of the independent variables; percent of students identified as low-income, Equalized Assessed Valuation per pupil (EAVPP), instructional expenditure per pupil (IEPP), and per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP).

Data Analysis

The data were placed into a matrix with the fields of district name, composite ACT score, student enrollment, percent of students identified as low-income, Equalized Assessed Valuation per pupil (EAVPP), instructional expenditure per pupil (IEPP), and per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP). All financial data included is in actual dollars and not adjusted for cost of living or inflation.

Descriptive statistics of mean, minimum scores, maximum scores and standard deviation for the 2002-2003 and 2013-2014 school years were calculated. A Pearson product-moment correlation was run to measure the degree and direction of the relationships of the independent variables with the dependent variable.

Descriptive Statistics

Table 4.1 presents the descriptive statistics for all variables of interest in this study for the 2002-2003 school year. For the 2002-2003 school year, there were 96 public high school districts in Illinois and for the 2013-2014 school year there were a total of 97 public high school districts. Illini-West High School District 307 was removed from the data since they did not exist as a school district until the 2007-2008 school year. As a result, the total number of high school districts included in this study was 96.

In the 2002-2003 school year, the mean ACT score for the 96 districts was 20.3, which was slightly above the mean for the State of Illinois, 20. The mean for the state does include high schools that are part of unit districts, though, including Chicago Public Schools. The lowest average ACT in the sample was 15.4, with the highest being 26.3.

The average enrollment of the 96 high school districts in 2002-2003 was 2432.97, with a range of 138 to as high as 12,829. The percent of students identified as Low-Income ranged

from 0% to 56.7%, with an average of 15.7%. The average in the state for that school year was identified as 37.9%.

Fiscally, the mean EAV per pupil, an identifier of the wealth of each district, was $365,909. This ranged from $92,234 in Webber Township High School District 204 to $1,184,745 in Lake Forest Community High School District 115. In addition, the mean Instructional Expenditure Per Pupil (IEPP) within the 96 districts for the 2002-2003 school year was $5,792.62, compared to an average of $4,842 for the state of Illinois. Each value, though, was above both the Foundation Level established for that year ($4,560) and the recommendation established by the EFAB ($4,680).

Further descriptive statistics for the 2002-2003 school year regarding the mean values as well as the range for each of the variables described in the research questions, including per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP), can be found in Table 4.1.

Table 4.1

Descriptive Statistics for the 2002-2003 School Year

2002-2003	N	Minimum	Maximum	Mean	Std. Deviation
ACT	96	15.4	26.3	20.3	1.95
Enrollment	96	138	12829	2433	2412.68
Low-Income %	96	0	56.7	15.7	13.4
EAV PP	96	$92,234	$1,184,745	$365,909.40	$201,760.10
IEPP	96	$3,870	$9,422	$5,792.62	$1,339.51
SSEPP	96	$130.02	$1,703.76	$655.16	$364.94
ISEPP	96	$35.34	$1,461.95	$368.69	$270.25
GAEPP	96	$42.23	$1,416.86	$420.31	$248.00
SAEPP	96	0	$2,692.58	$423.03	$322.59

Table 4.2 includes the descriptive statistics for the 2013-2014 school year. As mentioned earlier, for the 2013-2014 school year there were a total of 97 public high districts in Illinois, but Illini-West High School District 307 was removed from the data since they did not exist as a

school district until the 2007-2008 school year. As a result, the total number of high school districts included in this study was 96.

The mean ACT score for the 96 districts in 2013-2014 was 20.7, which was slightly above the mean for 2002-2003, 20.3, and continued to exceed the mean for the State of Illinois, 20.4. Again, the mean for the state does include high schools that are part of unit districts, including Chicago Public Schools. The lowest average ACT in the sample was 16.3, with the highest identified as 27.4.

The average enrollment of the 96 high school districts in 2013-2014 was 2,516.52, with the lowest enrollment being 128 and the highest at 12,058. The percent of students identified as Low-Income ranged from 2.3% to 87.4%, with an average of 34.5%. The average in the state for that school year was identified as 51.5%.

An indicator of the wealth of each district, the mean EAV per pupil was $458,402.50 in 2013-2014. This ranged from $159,851 in Woodlawn Community High School District 205 to $1,648,816, again in Lake Forest Community High School District 115. In addition, the mean Instructional Expenditure Per Pupil (IEPP) within the 96 districts during the 2013-2014 school year was $8,354.23, compared to an average of $7,094 for the state of Illinois. The average for this sample and the state remained above the Foundation Level established for that year ($6,119), but both were below the recommendation established by the EFAB ($8,672).

Further descriptive statistics for the 2013-2014 school year regarding the mean values as well as the range for each of the variables described in the research questions, including per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP), can be found in Table 4.2.

Table 4.2

Descriptive Statistics for the 2013-2014 School Year

2013-2014	N	Minimum	Maximum	Mean	Std. Deviation
ACT	96	16.3	27.4	20.7	2.3
Enrollment	96	128	12058	2516.52	2441.74
Low-Income %	96	2.29	87.39	34.52	19.49
EAV PP	96	$159,851	$1,648,816	$458,402	$262,038
IEPP	96	$4,754	$13,369	$8,354.23	$2,067.43
SSEPP	96	$98.98	$2,818.99	$949.81	$543.79
ISEPP	96	$10.34	$1,316.84	$435.75	$276.01
GAEPP	96	$173.64	$2,982.81	$714.54	$464.38
SAEPP	96	$89.25	$2,143.18	$580.17	$315.70

In reviewing the data from 2002-2003 and 2013-2014, the spread from minimum to maximum ACT scores increased. In 2003, the minimum to the maximum score difference was 10.9 (15.4-26.3). In 2014, the difference between the minimum and maximum composite test score was 11.1 (16.3-27.4). The mean composite test score also increased from 2003 to 2014, moving from 20.3 in 2003 to 20.7 in 2014. The variance of the scores also increased (2003 SD=1.95, 2014 SD=2.3).

The difference in enrollment in the districts decreased on average, with a minimum to maximum range of 12,691 (138-12,829) in 2003 to 11,930 (128-12,058) in 2014. The variance between the districts, though, increased (2003 SD=2412.68, 2014 SD=2441.74).

The percent of student identified as low-income increased with a range of 56.7% (0%-56.7%) in 2003 to 85.1% (2.3%-87.4%) in 2014. And the variance between the districts increased (2003 SD=13.42, 2014 SD=19.49).

The wealth of the districts, as identified by EAV per pupil, increased on average, with a range of $1,092,511 ($92,234-$1,184,745) in 2003 and $1,488,965 ($159,851-$1,648,816) in 2014. The variance between the districts also increased (2003 SD=$201,760, 2014 SD=$262,038).

The difference between the lowest and highest expenditures per pupil for instruction increased when comparing 2002-2003 to 2013-2014, with a range of $5,552 ($3,870-$9,422) in 2003, and $8,615 ($4,754-$13,369) in 2014. The variance of the expenditures also increased (2003 SD=$1,339.51, 2014 SD=$2,067.43).

Research Questions

Research Question 1. Research Question 1 attempted to determine if a relationship existed between instructional expenditure per-pupil and student achievement as identified by the ACT for high school districts in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the instructional expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years.

For both school years, there is a large variance in the instructional expenditures per pupil by district. Table 4.3 indicates that the mean district instructional expenditure per pupil was $5,792.62 in 2003 and $8,354.23 in 2014, with a range of $3,870 to $9,422 in 2003 and $4,754 to $13,369 in 2014.

Table 4.3

Instructional Expenditures Per Pupil (IEPP)

Year	Minimum	Maximum	M	SD
2003	$3,870	$9,422	$5,792.62	$1,339.51
2014	$4,754	$13,369	$8,354.23	$2,067.43

From 2003 to 2014, the difference in the lowest to the highest instructional expenditures per pupil increased from $5,552 to $8,615. In both years, districts at the minimum instructional expenditures per student were spending nearly two and one-half times less per student than districts spending at the maximum.

For the years included in the study, the overall dispersion of instructional expenditures per pupil among the districts is also widening (2003 SD = $1,339.51; 2014 SD = $2,067.43). Table 4.4 reports the results of the Pearson product-moment analysis.

Table 4.4

Correlation between Instructional Expense per Pupil and ACT Test Score by Year

Year	r	p
2003	.330**	.001**
2014	.505**	.000**

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level. The significant positive correlations indicate that as instructional expense per pupil increased there was a corresponding increase in test scores.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .109 for 2003 and .255 for 2014, indicating approximately 10.9% and 25.5% of the variability in the ACT Test Score for each year can be accounted for by instructional expenditure per pupil.

Research Question 2. Research Question 2 sought to determine if a relationship existed between student support expenditure per-pupil and student achievement as identified by the ACT for high school districts in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the student support expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years.

For both school years, there is a large variance in the student support expenditures per pupil by district. Table 4.5 indicates that the mean district student support expenditure per pupil

was $655.17 in 2003 and $949.84 in 2014, with a range of $130.02 to $1,703.76 in 2003 and $98.98 to $2,818.99 in 2014.

Table 4.5

Student Support Expenditures Per Pupil (SSEPP)

Year	Minimum	Maximum	M	SD
2003	$130.02	$1,703.76	$655.17	$364.95
2014	$98.98	$2,818.99	$949.84	$543.79

From 2003 to 2014, the range of student support expenditures per pupil increased from $1,573.74 to $2,720.01. In both years, districts at the maximum student support expenditures per student were expending nearly 20 times more per student than districts spending at the minimum level.

For the years included in the study, the overall dispersion of student support expenditures per pupil among the districts is also widening (2003 SD = $364.95; 2014 SD = $543.79). Table 4.6 reports the results of the Pearson product-moment analysis.

Table 4.6

Correlation between Student Support Expense per Pupil and ACT Test Score by Year

Year	r	p
2003	.390**	.000**
2014	.475**	.000**

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level. The significant positive correlations indicate that as student support expense per pupil increased there is a corresponding increase in test scores.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .152 for 2003 and .226 for 2014, indicating approximately 15.2% and 22.6% of the variability in the ACT Test Score for each year can be accounted for by student support expense per pupil.

Research Question 3. Research Question 3 attempted to determine if a relationship existed between instructional support expenditure per-pupil and student achievement as identified by the ACT for high school districts in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the instructional support expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years.

For both school years, there is again a large variance in the instructional support expenditures per pupil by district. Table 4.7 indicates that the mean district instructional support expenditure per pupil was $368.69 in 2003 and $435.75 in 2014, with a range of $35.34 to $1,461.95 in 2003 and $10.34 to $1,316.84 in 2014.

Table 4.7

Instructional Support Expenditures Per Pupil (ISEPP)

Year	Minimum	Maximum	M	SD
2003	$35.34	$1,461.95	$368.69	$270.25
2014	$10.34	$1,316.84	$435.75	$276.01

From 2003 to 2014, while the range of instructional support expenditures per pupil decreased from $1,426.61 to $1,306.50, both the mean (2003 M=$368.69; 2014 M=$435.75) and the overall variance (2003 SD = $270.25; 2014 SD = $276.01) of instructional support expenditures per pupil among the districts increased. Table 4.8 reports the results of the Pearson product-moment analysis.

Table 4.8

Correlation between Instructional Support Expense per Pupil and ACT Test Score by Year

Year	r	p
2003	.256	.012
2014	.251	.014

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2003. Neither was deemed significant at the .01 level, though.

Research Question 4. Research Question 4 attempted to determine if a relationship existed between general administration expenditure per-pupil and student achievement as identified by the ACT for high school districts in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the general administration expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years.

For both school years, there is a large variance in the general administration expenditures per pupil by district. Table 4.9 indicates that the mean district general administration expenditure per pupil was $420.31 in 2003 and $714.54 in 2014, with a range of $42.24 to $1,416.86 in 2003 and $173.64 to $2,982.81 in 2014.

Table 4.9

General Administration Expenditures Per Pupil (GAEPP)

Year	Minimum	Maximum	M	SD
2003	$42.24	$1,416.86	$420.31	248.00
2014	$173.64	$2,982.81	$714.54	464.38

From 2003 to 2014, the range of general administration expenditures per pupil increased from $1,374.62 to $2,809.18. In both years, districts at the minimum general administration

expenditures per student were expending nearly twenty times less per student than districts spending at the maximum.

For the years included in the study, the overall dispersion of general administration expenditures per pupil among the districts is also widening (2003 SD = $248.00; 2014 SD = $464.38). Table 4.10 reports the results of the Pearson product-moment analysis.

Table 4.10

Correlation between General Administration Expense per Pupil and ACT Test Score by Year

Year	r	p
2003	-.274**	.007**
2014	-.284**	.005**

**p < .01.

There were negative correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level. The significant negative correlations indicate that as general administration expense per pupil increased there was a corresponding decrease in test scores.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .075 for 2003 and .081 for 2014, indicating approximately 7.5% and 8.1% of the variability in the ACT Test Score for each year can be accounted for by general administration expense per pupil.

Research Question 5. Research Question 5 attempted to determine if a relationship existed between school administration expenditure per-pupil and student achievement as identified by the ACT for high school districts in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the school administration expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years.

For both school years, there is a large variance in the school administration expenditures per pupil by district. Table 4.11 indicates that the mean district school administration expenditure per pupil was $423.03 in 2003 and $580.17 in 2014, with a range of $0 to $2,692.58 in 2003 and $89.25 to $2,143.18 in 2014.

Table 4.11

School Administration Expenditures Per Pupil (SAEPP)

Year	Minimum	Maximum	M	SD
2003	$0	$2,692.58	$423.03	$322.59
2014	$89.25	$2,143.18	$580.17	$315.70

From 2003 to 2014, the difference in the range of school administration expenditures per pupil decreased from $2,692.58 to $2,053.93. Also, the overall dispersion of school administration expenditures per pupil among the districts decreased slightly (2003 SD = $322.59; 2014 SD = $315.70). Table 4.12 reports the results of the Pearson product-moment analysis.

Table 4.12

Correlation between School Administration Expense per Pupil and ACT Test Score by Year

Year	r	p
2003	.256	.012
2014	.212	.038

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2003. Neither was deemed significant at the .01 level, though.

Research Question 6. Research Question 6 attempted to determine if a relationship existed between Equalized Assessed Valuation (EAV) per-pupil and student achievement as identified by the ACT for high school districts in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and

strength of the relationship between the EAV per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years.

For both school years, there is a large variance in the EAV per pupil by district. Table 4.13 indicates that the mean district EAV per pupil was $365,909.40 in 2003 and $458,402.50 in 2014, with a range of $92,234 to $1,184,745 in 2003 and $159,851 to $1,648,816 in 2014.

Table 4.13

Equalized Assessed Valuation Per Pupil (EAVPP)

Year	Minimum	Maximum	M	SD
2003	$92,234	$1,184,745	$365,909.40	$201,760.10
2014	$159,851	$1,648,816	$458,402.50	$262,038.10

From 2003 to 2014, the range of EAV per pupil increased from $1,092,511 to $1,488,965. In both years, districts at the maximum EAV per student were more than ten times the value of districts at the minimum.

For the years included in the study, the overall dispersion of EAV per pupil among the districts also increased (2003 SD = $201,760.10; 2014 SD = $262,038.10). Table 4.14 reports the results of the Pearson product-moment analysis.

Table 4.14

Correlation between Equalized Assessed Valuation per Pupil and ACT Test Score by Year

Year	r	p
2003	.562**	.000**
2014	.709**	.000**

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level.

The significant positive correlations indicate that as EAV per pupil increased there was a corresponding significant increase in test scores.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .316 for 2003 and .503 for 2014, indicating approximately 31.6% and 50.3% of the variability in the ACT Test Score for each year can be accounted for by EAV per pupil.

Research Question 7. Research Question 7 attempted to determine if a relationship existed between percent of students identified as low-income and student achievement as identified by the ACT for high school districts in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the percent of students identified as low-income and the composite ACT test score for the 2002-2003 and the 2013-2014 school years.

Table 4.15 highlights that the mean district percent of students identified as low-income was 15.71% in 2003 and 34.52% in 2014, with a range of 0% to 56.70% in 2003 and 2.29% to 87.39% in 2014.

Table 4.15

Percent of Students Identified as Low-Income

Year	Minimum	Maximum	M	SD
2003	0	56.7%	15.71%	13.42
2014	2.29%	87.39%	34.52%	19.49

From 2003 to 2014, the range of percent of students identified as low-income increased from 56.70 to 85.10. The number of districts that experienced an increase in percent of students identified as low-income from 2003 to 2014 was 93 of the 96 districts identified in this study.

For the years included in the study, the overall dispersion of percent of students identified as low-income among the districts also widened (2003 SD = 13.42; 2014 SD = 19.49). Table 4.16 reports the results of the Pearson product-moment analysis.

Table 4.16

Correlation between Percent of Students Identified as Low-Income and ACT Test Score by Year

Year	r	p
2003	-.649**	.000**
2014	-.773**	.000**

**p < .01.

There were negative correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level. The significant negative correlations indicate that as percent of students identified as low-income increased there was a corresponding significant decrease in test scores.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .421 for 2003 and .598 for 2014, indicating approximately 42.1% and 59.8% of the variability in the ACT Test Score for each year can be accounted for by the percent of students identified as low-income.

Research Question 8. Research Question 8 attempted to determine if a relationship existed between instructional expenditure per-pupil and student achievement as identified by the ACT for high school districts in the top and bottom quintile of spending in Illinois. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the instructional expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years for high school districts in the top and bottom quintile of spending.

Descriptive statistics for Research Question 8. Of the 96 public high school districts included in this study, for the purpose of research question 8, 19 were identified in the top quintile based upon instructional expenditure per pupil and 19 in the bottom quintile based on instructional expenditure per pupil. The same number of districts were identified for the 2002-2003 and 2013-2014 school years using the same criteria and a list of the school districts can be found in Appendix B.

The mean Instructional Expenditure Per Pupil (IEPP) within the 96 districts for the 2002-2003 school year was $5,792.62, compared to an average of $4,842 for the state of Illinois. For school districts identified in the top quintile, the average instructional expenditure per pupil was $7,874.16, with a minimum of $7,205 and a maximum of $9,422.

For school districts identified in the bottom quintile based upon instructional expenditure per pupil, the mean IEPP was $4,227.84, with a minimum of $3,870 and a maximum of $4,583. In comparison, the Foundation Level established for the 2002-2003 school year was $4,560 and the recommendation established by the EFAB was $4,680.

In the 2002-2003 school year, the mean ACT score for the top quintile districts was 21.6, which was above the mean for the entire set of 96 districts, 20.3, as well as the State of Illinois, 20. The mean for the state does include high schools that are part of unit districts, though, including Chicago Public Schools. The lowest average ACT in the top quintile was 16.6, with the highest at 26.3.

In the 2002-2003 school year, the mean ACT score for the bottom quintile districts based upon instructional expenditure per pupil was 20.3, which was the same for the entire set of 96 districts, 20.3, and slightly higher than the State of Illinois, 20. The lowest average ACT in the bottom quintile was 18.5, with the highest at 22.1.

For 2002-2003, the average enrollment of the 19 high school districts in the top quintile based upon instructional expenditure per pupil was 3,962.26, with a range of 485 to as high as 12,829. The average enrollment of the 19 high school districts in the bottom quintile was 1,531.74, with a range of 183 to 5,551.

The percent of students identified as Low-Income in 2002-2003 for all school districts in the study ranged from 0% to 56.7%, with an average of 15.7%. For schools identified in the top quintile, the average was 14.01% with a range of 0.9% to 47.4%, while schools in the bottom quintile had an average of 14.7% with a range of 1.9% to 50.5%. The average in the state for 2002-2003 was 37.9%.

Fiscally, the mean EAV per pupil, an identifier of the wealth of each district, for schools in the top quintile was $592,000, compared to $243,417 for schools in the bottom quintile. This ranged from $92,234 in Webber Township High School District 204 to $1,184,745 in Lake Forest Community High School District 115.

Further descriptive statistics for the 2002-2003 school year for school districts in the top and bottom quintile based upon instructional expenditure per pupil, including the mean values and range for each of the variables described in the research questions for per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP), can be found in Table 4.17 and 4.18.

Table 4.17

2002-2003 School Year – Top Quintile Districts

	N	Minimum	Maximum	Mean	Std. Deviation
ACT	19	16.6	26.3	21.63	2.79
Enrollment	19	485	12829	3962.26	2736.94
Low-Income %	19	0.9	47.4	14.01	13.2
EAV PP	19	$194,398	$1,184,745	$592,000.50	$264,455
IEPP	19	$7205	$9,422	$7,874.16	$658.03
SSEPP	19	$613.47	$1,667.05	$1,053.91	$320.51
ISEPP	19	$231.26	$1,332.38	$608.30	$275.92
GAEPP	19	$42.24	$817.46	$429.45	$242.07
SAEPP	19	0	$2,692.58	$648.45	$574.39

Table 4.18

2002-2003 School Year – Bottom Quintile Districts

	N	Minimum	Maximum	Mean	Std. Deviation
ACT	19	18.5	22.1	20.29	1.19
Enrollment	19	183	5551	1531.74	1540.33
Low-Income %	19	1.9	50.5	14.7	12.77
EAV PP	19	$92,234	$442,321	$243,416.60	$110,974
IEPP	19	$3,870	$4,583	$4,227.84	$224.87
SSEPP	19	$180.08	$776.26	$366.87	$133.02
ISEPP	19	$37.5	$789.42	$278.21	$192.66
GAEPP	19	$194.10	$668.55	$379.20	$155.84
SAEPP	19	$149.84	$825.89	$334.99	$149.75

For the 2013-2014 school year, the mean Instructional Expenditure Per Pupil (IEPP) within the 96 districts was $8,354.23, compared to an average of $7,094 for the state of Illinois. For school districts identified in the top quintile, this same average was $11,623.68, with a minimum of $10,115 and a maximum of $13,369.

School districts identified in the bottom quintile based upon instructional expenditure per pupil had a mean IEPP of $5,902.21, with a minimum of $4,754 and a maximum of $6,509. The Foundation Level established for the 2013-2014 school year was $6,119 and the recommendation established by the EFAB was $8,672.

In the 2013-2014 school year, the mean ACT score for the top quintile districts was 23.2, which was above the mean for the entire set of 96 districts, 20.7, as well as the State of Illinois, 20.4. The mean for the state does include high schools that are part of unit districts, though, including Chicago Public Schools. The lowest average ACT in the top quintile was 16.3, with the highest at 27.4.

In that same year, the mean ACT score for the bottom quintile districts based upon instructional expenditure per pupil was 20.1, which was below the mean for the entire set of 96 districts, 20.4, as well as the State of Illinois, 20.4. The lowest average ACT in the bottom quintile was 16.9, with the highest at 23.1.

For 2013-2014, the average enrollment of the 19 high school districts in the top quintile based upon instructional expenditure per pupil was 4383.37, with a range of 457 to as high as 12,058. The average enrollment of the 19 high school districts in the bottom quintile was 1733.58, with a range of 243 to 8,357.

The percent of students identified as Low-Income in 2013-2014 for all school districts in the study ranged from 2.29% to 87.39%, with an average of 34.52%. For schools identified in the top quintile, the average was 25.45% with a range of 3.31% to 53.75%, while schools in the bottom quintile had an average of 39.26% with a range of 9.46% to 87.39%. The average in the state for 2013-2014 was 51.5%.

Fiscally, the mean EAV per pupil, an identifier of the wealth of each district, for schools in the top quintile was $825,543, compared to $316,112 for schools in the bottom quintile. This ranged from $159,851 in Woodlawn Community High School District 205 to $1,648,816 in Lake Forest Community High School District 115.

Further descriptive statistics for the 2013-2014 school year for school districts in the top and bottom quintile based upon instructional expenditure per pupil, including the mean values as

well as the range for each of the variables described in the research questions for per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP), can be found in Table 4.19 and 4.20.

Table 4.19

2013-2014 School Year – Top Quintile Districts

	N	Minimum	Maximum	Mean	Std. Deviation
ACT	19	16.3	27.4	23.2	2.75
Enrollment	19	457	10.58	4383.37	3062.52
Low-Income %	19	3.31	53.75	25.45	15.44
EAV PP	19	$253,239	$1,648,816	$82,5543	$333,858
IEPP	19	$10,115	$13,369	$11,623.70	$1,099.55
SSEPP	19	$241.10	$2,818.99	$1,695.05	$599.97
ISEPP	19	$363.38	$1,616.84	$645.70	$247.99
GAEPP	19	$173.64	$2,352.66	$612.37	$490.42
SAEPP	19	$233.21	$2,143.18	$821.62	$483.23

Table 4.20

2013-2014 School Year – Bottom Quintile Districts

	N	Minimum	Maximum	Mean	Std. Deviation
ACT	19	16.9	23.1	20.1	1.60
Enrollment	19	243	8357	1733.58	2226.19
Low-Income %	19	9.46	87.39	39.26	20.29
EAV PP	19	$171,695	$534,136	$316,112	$97,444.60
IEPP	19	$4,754	$6,509	$5,902.21	$476.50
SSEPP	19	$169.09	$887.88	$574.58	$173.81
ISEPP	19	$68.42	$646.09	$285.83	$173.65
GAEPP	19	$208.48	$1,397.69	$660.06	$283.63
SAEPP	19	$89.25	$1,180	$421.14	$227.99

Comparison of Top Quintile Districts

For both school years, there is a large range in the instructional expenditures per pupil for districts identified in the top quintile. Table 4.21 indicates that the mean district instructional expenditure per pupil was $7,874.16 in 2003 and $11,623.68 in 2014, with a range of $7,205 to $9,422 in 2003 and $10,115 to $13,369 in 2014 for the districts in the top quintile.

Table 4.21

Instructional Expenditures Per Pupil (IEPP) – Top Quintile

Year	Minimum	Maximum	M	SD
2003	$7,205	$9,422	$7,874.16	$658.03
2014	$10,115	$13,369	$11,623.68	$1,099.55

From 2003 to 2014, the difference in the minimum increased $2,910 while the difference in the maximum increased $3,947. The overall range of instructional expenditures per pupil for districts in the top quintile also increased from $2,217 to $3,254. In both years, the mean for districts in the top quintile was more than $2000 greater than the mean for the 96 schools identified in the study. The mean for schools in the top quintile is also $3000 to $6000 greater than the mean of the school districts identified in the bottom quintile.

For the years included in the study, the overall dispersion of instructional expenditures per pupil among the top quintile districts was also larger (2003 SD = $658.03; 2014 SD = $1,099.55).

A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the instructional expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years for high school districts in the top quintile of spending. Table 4.22 reports the results of the Pearson product-moment analysis.

Table 4.22

Correlation between Instructional Expense per Pupil and ACT Test Score by Year – Top Quintile

Year	r	p
2003	.283	.240
2014	.541	.017

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2014. Neither was deemed significant at the .01 level, though.

Comparison of Bottom Quintile Districts

For both school years, there is a large range in the instructional expenditures per pupil for districts identified in the bottom quintile. Table 4.23 indicates that the mean district instructional expenditure per pupil was $4,227.84 in 2003 and $5,902.21 in 2014, with a range of $3,870 to $4,583 in 2003 and $4,754 to $6,509 in 2014 for the districts in the bottom quintile.

Table 4.23

Instructional Expenditures Per Pupil (IEPP) – Bottom Quintile

Year	Minimum	Maximum	M	SD
2003	$3,870	$4,583	$4,227.84	$224.87
2014	$4,754	$6,509	$5,902.21	$476.50

From 2003 to 2014, the difference in the minimum increased only $884 while the difference in the maximum increased $1,926. The overall range of instructional expenditures per pupil for districts in the bottom quintile increased from $713 to $1,755. In both years, the mean for districts in the bottom quintile was nearly $2,000 less than the mean for the 96 schools identified in the study. The mean for schools in the bottom quintile is also $3,000 to $6,000 less than the mean of the school districts identified in the top quintile.

For the years included in the study, the overall dispersion of instructional expenditures per pupil among the bottom quintile districts increased (2003 SD = $224.87; 2014 SD = $476.50), but each was less than that of the 96 school districts included in the study (2003 SD = $1,339.51; 2014 SD = $2,067.43).

A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the instructional

expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years for high school districts in the bottom quintile of spending. Table 4.24 reports the results of the Pearson product-moment analysis conducted.

Table 4.24

Correlation between Instructional Expense per Pupil and ACT Test Score by Year – Bottom Quintile

Year	r	p
2003	-.196	.421
2014	-.061	.804

**p < .01.

There were negative correlations in both school years, with a stronger correlation identified in 2003. Neither was deemed significant at the .01 level, though.

Additional Analysis

Given the significant relationships identified between expenditures per pupil for instruction (IEPP), student support (SSEPP) and general administration (GAEPP), percentage of students identified as Low-Income, and EAV per pupil and student achievement, additional analyses were conducted to further investigate the relationship of school district wealth and student achievement.

First, to determine if the wealth of the district (EAVPP) was related to the expenditures per pupil for instruction (IEPP), student support (SSEPP), general administration (GAEPP), and percent of students identified as low-income, a Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of each relationship. The results of those analyses are identified in Table 4.25, 4.26, 4.27, and 4.28.

Table 4.25

Correlation between EAV per Pupil and Instructional Expense per Pupil

Year	r	p
2003	.649**	.000**
2014	.708**	.000**

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level. The significant positive correlations indicate that as EAV per Pupil increased there was a corresponding significant increase in Instructional Expense per Pupil.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .421 for 2003 and .501 for 2014, indicating approximately 42.1% and 50.1% of the variability in the instructional expenditure per pupil for each year can be accounted for by EAV per pupil.

Table 4.26

Correlation between EAV per Pupil and Student Support Expense per Pupil

Year	r	p
2003	.622**	.000**
2014	.671**	.000**

**p < .01.

There were positive correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level.
The significant positive correlations indicate that as EAV per Pupil increased there was a corresponding significant increase in Student Support Expense per Pupil.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .387 for 2003 and .450 for 2014, indicating approximately 38.7% and 45.0% of the variability in the student support expense per pupil for each year can be accounted for by EAV per pupil.

Table 4.27

Correlation between EAV per Pupil and General Administration Expense per Pupil

Year	R	P
2003	-.090	.383
2014	-.007	.946

**p < .01.

There were negative correlations in both school years, with a stronger correlation identified in 2003. Neither was deemed significant at the .01 level, though.

Table 4.28

Correlation between EAV per Pupil and Percent of Students Identified as Low-Income

Year	r	P
2003	-.433**	.000**
2014	-.468**	.000**

**p < .01.

There were negative correlations in both school years, with a stronger correlation identified in 2014 and both have been identified as significant at the .01 level. The significant negative correlations indicate that as EAV per Pupil increased there was a corresponding significant decrease in Percent of Student Identified as Low-Income.

In addition, when calculating the coefficient of determination, r^2, for each year, we find values of .187 for 2003 and .219 for 2014, indicating approximately 18.7% and 21.9% of the variability in the percent of students identified as low-income for each year can be accounted for by EAV per pupil.

Each analysis further confirmed that the EAV per pupil for each district has a significant relationship to the funds available to educate students (IEPP and SSEPP) as well as the achievement of students. In addition, this additional analysis demonstrated that as district wealth increases, the percent of students identified as low-income decreases, verifying those districts with lower property value have higher percentages of students identified as low-income. Previously, the percent of students identified as low-income had already been shown to have an indirect relationship related to student achievement, meaning as the percent of students increase, average performance on the ACT decreased.

Gini Coefficient Calculation

Given the significant relationships identified when considering EAV per Pupil and student achievement as well as significant relationships between EAV per pupil and instructional expenditure, student support expense, and percent of students identified as low-income, a final analysis was conducted to determine if the wealth of each district was distributed evenly amongst the 96 school districts.

The Gini coefficient, named after Italian statistician Corrado Gini, is a dimensionless measure of statistical dispersion that is frequently used in the analysis of income distribution (Atkinson, 1970; Burrell, 2006). The Gini coefficient, G, of a data set or income distribution curve ranges from 0 to 1, with 1 being the most unequal distribution of wealth (one person owns everything) and 0 being the most equal (each person owns an equal share).

A visual depiction of this distribution can be found in the Lorenz Curve. A point (x,y) on a Lorenz curve shows the percentage y of total income in an economy enjoyed by the poorest x% of the population. The Gini index for a set of incomes is calculated from the associated Lorenz curve. It is equal to the area between that curve and the line of perfect income equality, scaled to

a number between 0 and 100. The Gini coefficient is the Gini index expressed as a number between 0 and 1.

When considering the distribution of property wealth, as identified by EAV per pupil, for each of the years of the study, we are reminded of the range of EAVPP amongst the 96 school districts. For example, the mean EAVPP for 2003 was $365,909.40 and $458,402.50 in 2014, with a range of $92,234 to $1,184,745 in 2003 and $159,851 to $1,648,816 in 2014. Since this is already calculated as a per pupil amount, the enrollment of each district has been accounted for.

In order to calculate the Gini coefficient related to the EAV per district for 2003 and 2014, the student enrollment was utilized to graphically represent the distribution of EAV across the 96 districts. The calculated Gini Coefficient for each year can be found in Table 4.29 and the association Lorenz Curves for each year can be found in Figure 4.1 and 4.2.

Table 4.29

Gini Coefficient Calculation for EAV per District

Year	G
2003	.577
2014	.578

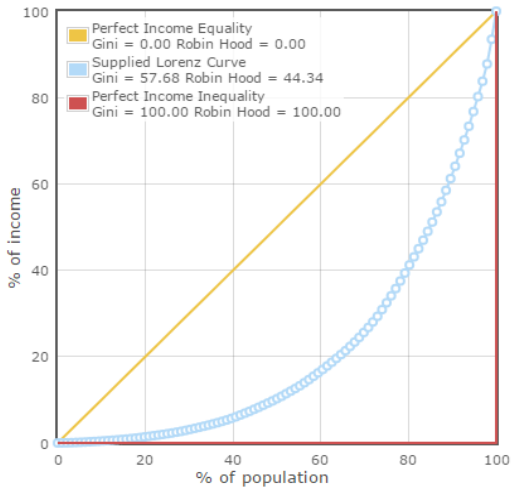

Figure 4.1. Lorenz Curve of EAV - 2003

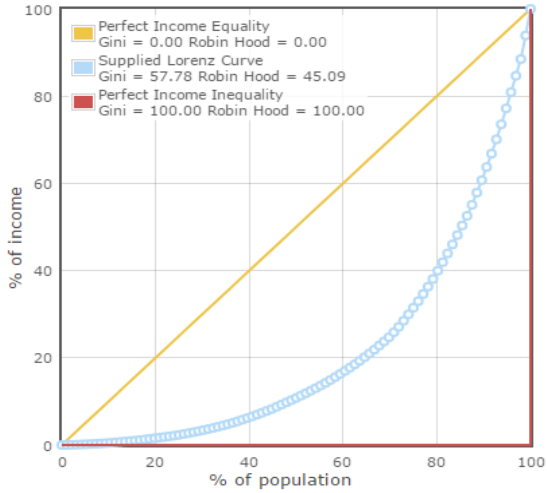

Figure 4.2. Lorenz Curve of EAV - 2014

*Graphic representation created at http://www.peterrosenmai.com.

The points that comprise the curved line of each graph indicates the percent of EAV in relation to the students comprised in the 96 school districts as it accumulates. The Gini Coefficient for each year exceeds .57, indicating the wealth or property is not evenly distributed throughout the 96 school districts.

In addition, when comparing by quintile, the top quintile of districts based upon EAVPP in the study had a mean EAVPP of $679,427 in 2003 and $871,753.74 in 2014, well above the mean for each year. When compared to those in the bottom quintile, with a mean EAVPP of $158,022.41 in 2003 and $210,588.95 in 2014, each were well below the mean for that year.

Given the strong relationship identified between EAVPP and Student Achievement as well as Instructional Expenditure, the distribution of resources at the top 20% and bottom 20% of the data as well as throughout the 96 school districts, indicate the distribution of wealth is not evenly distributed.

When considering the distribution of instructional expenditures for each of the years of the study, we are reminded of the range of IEPP amongst the 96 school districts. For example, the mean IEPP for 2003 was $5,792.61 and $8354.23 in 2014, with a range of $3,870 to $9,422 in 2003 and $4,754 to $13,369 in 2014. Since this is already calculated as a per pupil amount, the enrollment of each district has been accounted for.

In order to calculate the Gini coefficient related to the instructional expenditure per district for 2003 and 2014, the student enrollment was utilized to graphically represent the distribution of instructional expenditure across the 96 districts. The calculated Gini Coefficient for each year can be found in Table 4.30 and the association Lorenz Curves for each year can be found in Figure 4.3 and 4.4.

Table 4.30

Gini Coefficient Calculation for IEPP per District

Year	G
2003	.539
2014	.538

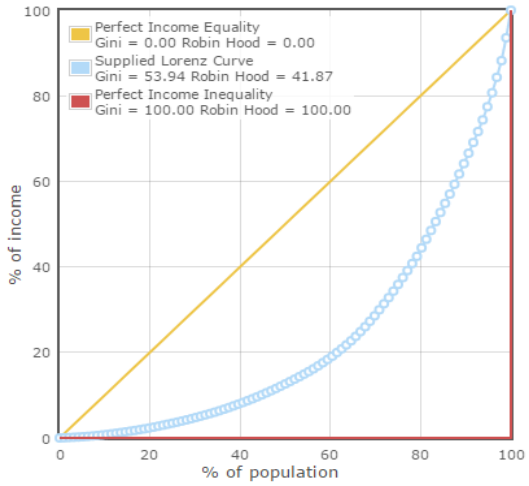

Figure 4.3. Lorenz Curve of IEPP - 2003

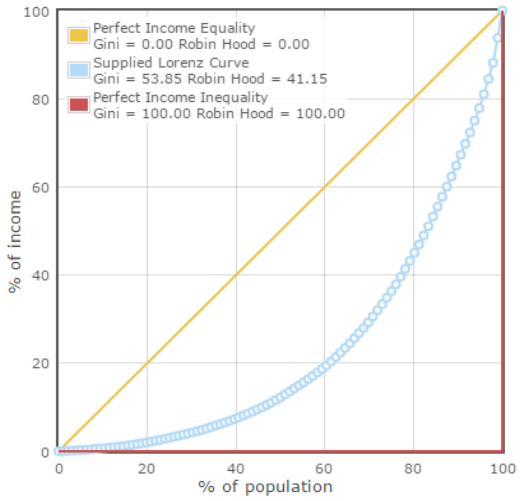

Figure 4.4. Lorenz Curve of IEPP - 2014

*Graphic representation created at http://www.peterrosenmai.com.

The points that comprise the curved line of each graph indicates the percent of instructional expenditure in relation to the students comprised in the 96 school districts as it accumulates. The Gini Coefficient for each year exceeds .53, indicating the instructional expenditure per pupil is not evenly distributed throughout the 96 school districts.

In addition, when comparing by quintile, the top quintile of districts based upon IEPP in the study had a mean IEPP of $7,874.16 in 2003 and $11,623.70 in 2014, well above the mean for each year. When compared to those in the bottom quintile, with a mean IEPP of $4,227.84 in 2003 and $5,902.21 in 2014, each were well below the mean for that year.

Given the strong relationship identified between IEPP and Student Achievement as well as EAVPP, the distribution of resources at the top 20% and bottom 20% of the data as well as

throughout the 96 school districts, indicate the distribution of wealth and resources is not evenly distributed. In addition, it also indicates that the unequal distribution did not change from 2002-2003 to 2013-2014.

Summary

Chapter 4 provided the results of the analysis of each research question and a presentation of the data. The first section of this chapter discussed the procedures and methodology that was employed in this study, the descriptive statistics calculated for the data, and the research questions that guided the study. The analysis of each research question included a summary of each element as well as the data analysis procedures that were implemented.

A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between each of the independent variables and composite ACT test score for the 2002-2003 and the 2013-2014 school years for high school districts in Illinois.

Significant relationships were identified for five of the seven independent variables identified in this study. There were significant positive relationships identified between the Equalized Assessed Valuation (EAVPP), Student Support Expenditures (SSEPP), and Instructional Expenditure per pupil (IEPP) and the composite ACT score for each school year. There were significant negative relationships identified between the percent of Low-Income Students and General Administration Expenditure per pupil (GAEPP) and the composite ACT score for each school year.

There were no significant relationships identified when comparing School Administration Expenditure (SAEPP) and Instructional Support Expenditure (ISEPP) per pupil and the composite ACT score for each school year. There were also no significant relationships identified for schools identified in the top and bottom quintile when sorted by the Instructional

Expenditure per pupil (IEPP) for each school year. Each analysis by quintile rendered correlations that were not significant at the .01 level.

Further analysis was conducted to determine if the wealth of the district (EAVPP) was related to the expenditures per pupil for instruction (IEPP), student support (SSEPP), general administration (GAEPP), and percent of students identified as low-income, a Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of each relationship.

There were significant positive relationships identified between the Equalized Assessed Valuation (EAVPP) and Instructional Expenditure per pupil (IEPP) and Student Support Expense per Pupil (SSEPP) and a significant negative relationship identified between Equalized Assessed Valuation (EAVPP) and the percent of Low-Income Students. There was no significant relationship found between Equalized Assessed Valuation (EAVPP) and General Administration Expenditure per pupil (GAEPP).

Finally, the Gini coefficient related to the EAVPP and IEPP for each school year was calculated to determine if the wealth and resources of each district was distributed evenly across the 96 districts. For each year, the Gini coefficient related to EAVPP was found to be more than .57, indicating the wealth is not evenly distributed, with school districts in the top quintile identified with an EAVPP that is on average nearly 4 times greater than those in the bottom quintile. In addition, the Gini coefficient related to IEPP was found to be more than .53, indicating the resources are not evenly distributed, with school districts in the top quintile identified with an IEPP that is on average nearly 2 times greater than those in the bottom quintile.

Also, given the significant relationship between Equalized Assessed Valuation (EAVPP) and student achievement as well as the resources available to educate students (IEPP and

SSEPP), the wealth of the property in the school district can be seen as a significant factor in the achievement of students.

Chapter 5 further analyzes the data, discusses implications of the findings, and offers recommendations for future research.

Chapter 5: Summary, Discussion, Conclusions, and Recommendations

Summary

The purpose of this quantitative study was to determine if a relationship existed between specific school budget categories related to per pupil expenditures and achievement for all Illinois high school districts as indicated on the Illinois School Report Card in the first and final year of NCLB. Achievement was measured by average ACT score. As stated in previously cited literature, a significant relationship between student achievement and educational resources has been repeatedly observed, especially for particular groups of students. Specifically, the performance of students identified as low-income on standardized state assessments have consistently been lower than the scores for more affluent students (Beck & Shoffstall, 2005; Darling-Hammond, 2007; Rolle, Houck, & McColl, 2008; Tajalli & Opheim, 2004).

In addition to the linkage between student achievement and educational resources, the literature also provided evidence of a relationship between property values and educational resources in Illinois (Verstegen & Driscoll 2008, 2009; Wall, 2006). In previous studies, school districts with higher property wealth had lower concentrations of students identified as low-income and higher per pupil expenditures in comparison to school districts with less wealth (Hickrod, 2006; Mullin & Brown, 2009; Verstegen & Driscoll, 2008, 2009; Wall, 2006).

This study utilized financial and student achievement data available to determine if a relationship existed between specific school budget categories related to per pupil expenditures and achievement for all Illinois high school districts. The remainder of this chapter discusses the results of each research question, the implications of the findings, and offers recommendations for practice and future research.

Discussion of Findings

The data included for this study utilized composite ACT score, student enrollment, percent of students identified as low-income, Equalized Assessed Valuation per pupil (EAVPP), instructional expenditure per pupil (IEPP), and per pupil expenditures for student support (SSEPP), instructional support (ISEPP), general administration (GAEPP), and school administration (SAEPP) data for 96 high school district in Illinois for the 2002-2003 and 2013-2014 school years. A list of the districts included in this study, including a graphic representation of location throughout the State of Illinois can be found in Appendix A.

Composite ACT test scores for each district were analyzed for the 2002-2003 and 2013-2014 school years and found a trend of increased student performance overall with 61 school districts having a higher ACT Composite in 2013-2014 as compared to 2002-2003, 30 school districts having a decrease in ACT composite, and 5 remaining the same. The average increase in Composite ACT was 0.4 for the 96 school districts, the same average increase for the state of Illinois during that same time.

The average enrollment of the districts included in this study increased slightly when comparing the two school years (2003 = 2,433, 2014 = 2,517), but the percentage of students identified as low-income increased substantially. The percent of students identified as low-income in 2002-2003 ranged from 0% to 56.7%, with an average of 15.7%, while in 2013-2014 the range amongst the 96 districts was 2.3% to 87.4%, with an average of 34.5%. The average in the state for 2002-2003 was 37.9% and increased to 51.5% in 2013-2014. Of the 96 school districts included in this study, only 3 identified a decrease in the percent of students identified as low-income and the average increase amongst the districts was 18.9%.

Fiscally, the mean EAV per pupil in 2003 was $365,909, compared to $458,402 in 2014. For the districts included in the study, the average increase in EAV per pupil was $92,493, but 19

districts indicated an EAV per Pupil decrease when comparing 2003 to 2014, a factor that coincides with the economic recession the state suffered in 2008 and subsequent property value decreases.

At the same time, the mean Instructional Expenditure per Pupil (IEPP) increased from $5,792.62 in 2003 to $8,354.23 in 2014. All of the districts included in this study indicated higher Instructional Expenditures per Pupil in 2013-2014 as compared to 2002-2003, except one, Bloom Township High School District 206. On average, districts indicated an increase of $2,562 per pupil from 2003 to 2014. The overall average IEPP of $4,842 for the state of Illinois in 2003 and the average for this study were both more than the Foundation Level established for that year ($4,560) and the recommendation established by the EFAB ($4,680). In 2014, though, the average for this study was higher than the average for the state of Illinois ($7,094) as well as the Foundation Level ($6,119), but was less than the recommendation established by the EFAB ($8,672).

Research Question Interpretations

Research Questions 1-7 will be discussed together as each sought to determine if a relationship existed between specific school budget categories related to per pupil expenditures as well as percentage of students identified as low-income and student achievement. Also discussed are additional analyses conducted to determine the relationship between independent variables that were found to be significantly related to student achievement.

A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between each of the independent variables and average ACT score for each school district in the 2002-2003 and 2013-2014 school years. The strongest significant relationships to student achievement were found between with Equalized Assessed Valuation per Pupil (2003 $r = .562$, $p<.01$; 2014 r =

.709, p<.01), percent of students identified as Low-Income (2003 r = -.649, p<.01; 2014 r = -.773, p<.01), Instructional Expenditures per Pupil (2003 r = .330, p<.01; 2014 r = .505, p<.01), Student Support Expenditures per Pupil (2003 r = .390, p<.01; 2014 r = .475, p<.01), and General Administration Expenditures per Pupil (2003 r = -.274, p<.01; 2014 r = -.284, p<.01). While there were positive relationships identified between Instructional Support Expenditures per Pupil and School Administration Expenditure per Pupil and student achievement, neither were significant at the p<.01 level.

In considering the resources a district has available to expend per student, the relationship of Equalized Assessed Valuation to student achievement confirmed previous research indicating a relationship exists between per pupil expenditures and property values (Mullin & Brown, 2009; Verstegen & Driscoll, 2008, 2009; Wall, 2006). In addition, wide spending ranges among districts were also reported by Verstegen and Driscoll (2008) and Mullin and Brown (2009) when they examined data from 2004-2005.

The percentage of students identified as low-income was identified as the independent variable most significantly related to student achievement. Research conducted by Tajalli and Opheim (2004), Beck and Shoffstall (2005), Sirin (2005), Chambers, Levin, & Parrish (2006) and Verstegen and Driscoll (2008, 2009) indicated similar patterns regarding the relationship between student achievement and the percentage of students identified as low-income. The relationship for the 96 high school districts cited in this study also supports studies that have found similar patterns regarding the relationship between student achievement and the percentage of students identified as low-income (Chambers, Levin, & Parrish, 2006; Darling-Hammond, 2007).

The relationship between Equalized Assessed Valuation and the variables that were found to be most significantly related to student achievement (Instruction Expenditure per Pupil,

Student Support Expenditure per Pupil, General Administration Expenditure per Pupil and Percent of Students Identified as Low-Income) were analyzed to determine if a relationship existed between each and EAV per Pupil.

A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between each of the variables identified and EAV per Pupil for each school district in the 2002-2003 and 2013-2014 school years. The strongest significant relationships were found between Equalized Assessed Valuation per Pupil and Instructional Expenditures per Pupil (2003 $r = .649$, $p<.01$; 2014 $r = .708$, $p<.01$), Student Support Expenditures per Pupil (2003 $r = .622$, $p<.01$; 2014 $r = .671$, $p<.01$), and percent of students identified as Low-Income (2003 $r = -.433$, $p<.01$; 2014 $r = -.468$, $p<.01$). While there were negative relationships identified between General Administration Expenditures per Pupil and EAV per Pupil, it was not significant at the $p<.01$ level.

These results further confirm prior studies indicating the wealth of property in the district relates directly to the resources available for students and has an indirect relationship to the concentration of students identified as low-income (Quality Counts at 10, 2006; Loeb, Bryk, & Hanushek, 2007; Vedder & Hall, 2004).

Given the significant relationships identified when considering EAV per Pupil and student achievement as well as significant relationships between EAV per pupil and instructional expenditure, student support expense, and percent of students identified as low-income, a final analysis was conducted to determine if the wealth of each district was distributed evenly amongst the 96 school districts.

The Gini coefficient is a dimensionless measure of statistical dispersion that is frequently used in the analysis of income distribution (Atkinson, 1970; Burrell, 2006). The Gini coefficient, G, of a data set or income distribution ranges from 0 to 1, with 1 being the most unequal

distribution of wealth (one person owns everything) and 0 being the most equal (each person owns an equal share). In each year, the Gini coefficient for EAVPP is greater than .57, which indicates the wealth is not evenly distributed among the 96 school districts. In addition, the Gini coefficient for IEPP is greater than .53, indicating the resource distribution among the 96 school districts is not evenly distributed. This analysis further confirmed the inequitable distribution of resources throughout the state of Illinois due to the link to property wealth in each school district.

The final research question identified if a relationship existed between school districts identified in the top and bottom quintile based upon Instructional Expenditure per Pupil and student achievement for each year of the study. A Pearson product-moment analysis, two-tail test with a significance level of .01, was conducted to determine the direction and strength of the relationship between the instructional expense per pupil and the composite ACT test score for the 2002-2003 and the 2013-2014 school years for high school districts in the top and bottom quintile of spending.

School districts identified in the top quintile for each year of the study were found to have a positive relationship to student achievement, but neither we determined to be significant at the $p<.01$ level (2003 $r = .283$, $p>.01$; 2014 $r = .541$, $p>.01$). Similarly, schools districts identified in the bottom quintile for each year of the study were found to have a negative relationship to student achievement, but neither were determined to be significant at the $p<.01$ level (2003 $r = -.196$, $p>.01$; 2014 $r = -.061$, $p>.01$).

The lack of significance for the relationship can be found in the outliers for the school districts identified in the top and bottom 20% based upon IEPP. In 2003, Bloom Township High School District 206 had the third highest IEPP, $8,596, but a Composite ACT of 16.6. In that same year, though, the percent of students identified as low-income in District 206 was 47.4%. Contrast this with O'Fallon High School District 203, who had the second lowest IEPP in 2003

at $3,939 and a Composite ACT score of 22.1. In that same year, the percentage of students identified as low-income in District 203 was 7.2%.

Similar outliers can be found in the 2013-2014 school year, with Thornton Township High School District 204 having an IEPP of $11,856, ninth highest overall, and a Composite ACT of 16.3. The percentage of students identified as low-income, though, was 53.7%. The lowest IEPP in that year, $4,754, was in St. Joseph-Ogden Community High School District 305, who had a corresponding Composite ACT of 21.3 and 11.7% of students identified as low-income.

Given the small number of districts identified in this research question (N=19 for each quintile), the impact of outliers such as these is greater than when the entire set of 96 school districts is included. For this reason, the findings related to the relationship between IEPP and student achievement are more significant when all school districts were included.

Conclusions from Analysis

The two most significant independent variables related to student achievement in this study, EAV per Pupil and percentage of students identified as low-income, were also found to be directly linked to one another. As the EAV per Pupil increased, so did the Composite ACT, while an increase in students identified as low-income resulted in a decrease in ACT.

A decline in property values, especially in Illinois, has adversely impacted school districts because of the reliance on property taxes as the main source of public education funding. While property values declined in Illinois, the percentage of students identified as economically disadvantaged increased from 37.9% in 2003 to 51.5% in 2014. With more 66% of Illinois' education funding derived from property taxes in 2013-2014 (Illinois Local Education Agency Retrieval Network, 2016), instructional expenditures per pupil were primarily determined by the amount of yearly property taxes collected by school districts. While assistance to school districts

with high percentages of students identified as low-income is provided, it is rarely enough to offset the needs.

As Sonstelie (2007) noted, districts with a high percent of students identified as low income have faced higher costs than other districts and are often required to offer higher pay rates than schools with smaller percentages. In addition, increased state aid provided to low-wealth school districts helped to increase spending per pupil, but was not significant enough to offset the educational disadvantages of larger than average percentages of students identified as low-income enrolled in the schools.

Darling-Hammond (2007) also affirmed low-income students are disadvantaged because of funding policies currently in place throughout the United States. In the study, Darling-Hammond found that in addition to a lack of physical resources such as textbooks and equipment, schools with high populations of disadvantaged socioeconomic and minority students often have a greater percentage of inexperienced and/or unqualified teachers. She concluded that the disparities in educational resources actually perpetuated gaps in student achievement despite the intentions of the standards-based reform movement advocated for by state and federal governments.

Other studies have also identified a relationship exists between property values and per pupil expenditures in Illinois (Mullin & Brown, 2009; Verstegen & Driscoll, 2008, 2009; Wall, 2006). This relationship is in violation of the wealth neutrality principle which stipulates there should not be any relationship between per pupil expenditures and property values when they are the primary source of educational funding (Fritts, 2006; Verstegen & Driscoll, 2008).

When considering the distribution of property wealth for the school districts identified in the study, the imbalance identified by the Gini Coefficients for each year further indicate the funding structure and supports provided create a direct impact upon student achievement, both

directly through EAV per Pupil and indirectly based upon the percentage of students identified as low-income.

Implications

Students who are economically disadvantaged require additional educational resources to attain similar levels of achievement in comparison to other students (Mosburg, 1996; Verstegen & Driscoll, 2008; WestEd, 2000). This study found that more than one-half of the state's student population was identified as low-income in 2013-2014, and as the percentage of low-income students increased within a district, the district's achievement scores decreased on the ACT.

As fiscals resources vary, as indicated by the unequal distribution of property wealth among school districts in this study, the expenditures per pupil begin to vary significantly, as well. The results of this study reinforce that educational resources need to be allocated efficiently to maximize student achievement in all Illinois public schools because of the variation among property values and student populations. Without this allocation, school districts often begin to reduce programs, families with the financial means begin moving to districts with better resources, and those families who cannot afford to relocate, mostly minorities and low-income, witness declines in property values, a reduction in programs, and the socioeconomic segregation of our educational system perpetuates itself. This scenario is likely to continue if the state of Illinois continues to prorate foundation-level funds and not provide the adequate funding recommendations of the EFAB.

Understanding salaries account for the majority of school districts' instructional expenditures, since those instructional expenditures are determined by tax revenues based upon property values, salaries vary throughout the state of Illinois. Although not analyzed in this study, teacher quality is consistently identified as one of the most important variables in relation to student achievement but is often most inequitably distributed (Adamson & Darling-Hammond,

2011; Darling-Hammond, 2007). As a result, districts with higher property values are at an additional advantage to districts with lower property values in terms of securing teachers with greater experience and skills as well as retaining those teachers.

Given the potential implications and sanctions during NCLB intended for districts who did not identify adequate student achievement, and since the findings of this study suggest that there is a relationship between socioeconomic status and student achievement, school districts may have been evaluated more on the effects of poverty rather than students' academic achievement (Sadker & Zittleman, 2011). The unintended consequence of not adequately funding school districts is not having a level playing field when considering student achievement across the state of Illinois.

Recommendations for Practice

The first recommendation includes for the Illinois General Assembly to follow the recommendations of the Educational Funding Advisory Board (EFAB) and the Illinois State Board of Education regarding educating all children in Illinois' public schools. The foundation level established by the General Assembly remains at $6,119, over $2,520 less than the amount recommended by EFAB for 2013-2014 and $3,000 less than the amount established for 2017-2018. In addition, given the strong relationships identified between property value, instructional expenditure, percent of students identified as low-income, and student achievement, school funding formulas need to be reformulated to provide more educational resources to those students most in need. Although additional funding alone does not ensure equity or adequacy, this study found that great disparities exist in expenditures per pupil among school districts and the distribution of property values across the districts is not distributed equitably.

In order to increase the foundation level and reformulate adequacy formulas, the Illinois General Assembly needs to reform educational funding in Illinois. The multitude of legal

challenges and proposed legislation has further identified the impact of the current funding structures on the fiscal health of school districts across the state. As indicated in this study, the combination of decreasing property values and increases in students identified as low-income has resulted in increasing disparities in expenditures per pupil and student achievement among public school districts. Recommendations for possible legislation include the use of an alternate form of tax, such as a service tax, should be enacted so that the educational resources allocated to students are no longer associated in any way with property values as found in this study. Surrounding states tax 40-70% of services such as salons and lawn care, but Illinois still does not assess service taxes (Martire, 2014). A change such as this would provide financial relief to many struggling homeowners and communities and make the tax burden more equitable and fair (Martire, 2014).

An additional recommendation for consolidation and/or reorganization of school districts has recently been offered by the Illinois State Board of Education and adopted by the Illinois General Assembly (Illinois State Board of Education, 2016). In the 2013-2014 school year, only two states, Texas and California, had more public school districts than Illinois (National Center for Educational Statistics, 2016). While some school districts in Illinois have consolidated with overlapping or neighboring school districts over the last few years, lawmakers often believe educational costs to the state will be reduced if the number of school districts is further reduced. Administrative costs may decrease when districts consolidate, but this study suggests an unintended consequence may include an increase in instructional costs because the percentage of students identified as economically disadvantaged will be more concentrated, resulting in the need for additional educational resources (Mosburg, 1996; Verstegen & Driscoll, 2008; WestEd, 2000).

More realistically, local communities, school board members, administrators, and teachers should ensure at the district and school levels that all educational resources are allocated effectively to directly impact and improve student achievement among all students. With revenues from the state delayed and not keeping pace with recommended funding levels, school districts must continue to analyze and deploy their resources effectively (Darling-Hammond, 2007; Greene et al., 2007; Tajalli & Opheim, 2004; Rebell, 2007; Odden et al., 2007).

Finally, multiple studies, including this one, have consistently shown that differences in student achievement are largely accounted for by the percentage of students identified as low-income (Darling-Hammond, 2007; Kozol, 1996, 2005; Sirin, 2005; Hong & Youngs, 2008). Students living in poverty adversely impacts student performance and affects every segment of our society. It is estimated that students living in poverty costs our nation $500 billion per year (Acemoglu, 2013).

The consequences of continuing to allocate educational resources in Illinois inequitably and inadequately include a continued variation in student achievement levels. School districts will continue to be charged with closing the achievement gap, only to have it perpetuated by a lack of resources, programs, and supports for those students most at risk. With more than 50% of the student population receiving financial assistance, school districts can only supplement that gaps in needed resources to a point that exhausts local availability. This increase in students identified as low-income, coupled with a growing economic and achievement gap, we are beginning to see the negative impact upon local school districts, communities, and our state.

Districts with high percentages of students identified as low-income often have a high dropout rate of school-aged children and high unemployment rates among the adults. With most employment opportunities requiring a minimum of a high school education, the employability of students will remain a concern if the resources are not provided to help supplement the gaps in

opportunities. The continued divide between those with fiscal resources and those who do not continues to increase and can be directly linked to the differences in the allocation of educational resources (Darling-Hammond, 2007; Kozol, 1996, 2005).

Recommendations for Further Study

Similar to other studies of Illinois data, this study did identify significant relationships between school district expenditures and percentages of students identified as low-income and student achievement. While this study focused upon high school districts within the state of Illinois, a structure that is unique in comparison to other states, further research is needed to explore whether the findings are unique to this study or similar across the state and country.

Future studies might also consider expanding the current study to determine if there is a relationship between percent of students identified by race, English language programming, and as low-income as well as school district taxing capacity and effort with regards to student achievement. Significant achievement gaps that exist among economically disadvantaged and racial/ethnic minority students and their more affluent, White peers have been frequently documented (Darling-Hammond, 2007; Kozol, 1996, 2005; Sirin, 2005) and educational leaders and policy makers have implemented policies to address these specific achievement gaps. Determining the relationship of these additional factors would assist in the development of educational policy.

An additional recommendation would be to examine multiple years of Illinois data to obtain a better understanding of funding and student achievement patterns. Studies such as this one provide a timely snapshot of districts' per pupil expenditures and student achievement data at the start and end of a specific era in education, NCLB, but may not completely identify patterns that emerged during the span of time, especially immediately following the economic recession. The study could simply be expanded to include all school years from 2002-2003 to

2013-2014 and only consider the variables previously identified as significantly related to student achievement. A more longitudinal study that examines the financial data of school districts and student achievement patterns among student subgroups could assist in the modification of existing educational policies or the development of new policies.

Future studies may also consider investigating student and family-level data in addition to district-level data. This study only analyzed district-level data collected by the Illinois State Board of Education. A study by Lubienski and Crane (2010) found that other socioeconomic factors beyond low-income status were significantly related to student achievement. Collecting student and family-level data via survey or questionnaire, including education level of the parents, number of children in the family, parents' perception of the education system, and parents' educational expectations for their children, could be time consuming and may place limitations on the number of schools or districts included in the study, but may provide an additional body of research not previously conducted with Illinois data.

The final recommendation for future studies is an analysis based upon all school districts in the state of Illinois, disaggregating the data by whether the district is a unit, elementary, high school, urban, suburban or rural district. This analysis, with student achievement at the elementary level indicated by average ISAT score, would provide additional information as to the effectiveness of policies during the span of the study as well as inform legislators regarding potential new policies and funding structures.

Conclusion

A democratic society is dependent on a quality public education system (Alexander & Alexander, 2011). Funding for the public education system is one of the largest expenditures of local and state government. The National Center for Educational Statistics (2016) indicates that public school education expenditures in the United States exceeds $620 billion. Annually, state

legislatures are pressured to provide an adequate level of funding for education, with continued pressures from public schools to provide increases.

This study examined if a relationship existed between specific school budget categories related to per pupil expenditures and achievement for all Illinois high school districts as indicated on the Illinois School Report Card in the first and final year of NCLB. Achievement was measured by average ACT score. Similar to previously cited literature, a significant relationship between student achievement and educational resources was observed, as well as for students identified as low-income. The linkage between student achievement, property values, and educational resources in Illinois was also confirmed, similar to prior studies (Verstegen & Driscoll, 2008, 2009; Wall, 2006). This study confirmed prior research in identifying school districts with higher property wealth had lower concentrations of students identified as low-income and higher per pupil expenditures in comparison to school districts with less wealth (Hickrod, 2006; Mullin & Brown, 2009; Verstegen & Driscoll, 2008, 2009; Wall, 2006).

Unique to this study was the addition of the Gini Coefficient analysis to determine if the wealth of school districts was equitably distributed throughout the 96 school districts. The findings indicating the distribution of wealth is not equitable, confirming the need for a school funding structure that does not rely upon property wealth. And given school districts continue to be challenged with how to meet state and federal expectations while maintaining an adequate education for all students in the face of difficult economic times, the findings of this study suggest school finance policies in Illinois have continued to advantage some districts while disadvantaging others. Specifically, those advantages and disadvantages continue to impact those students who are economically disadvantaged the most.

With student achievement mandated to be a “significant factor in every evaluation by the 2016-2017 school year” (Illinois State Board of Education, 2012a), the relationship between

educational resources and student achievement is more important than ever. Beyond the access to resources to help close achievement gaps, the access to quality instruction is vital so that every student has the opportunity to succeed. Providing funding structures to close the gap in resources will be a step toward reaching this goal.

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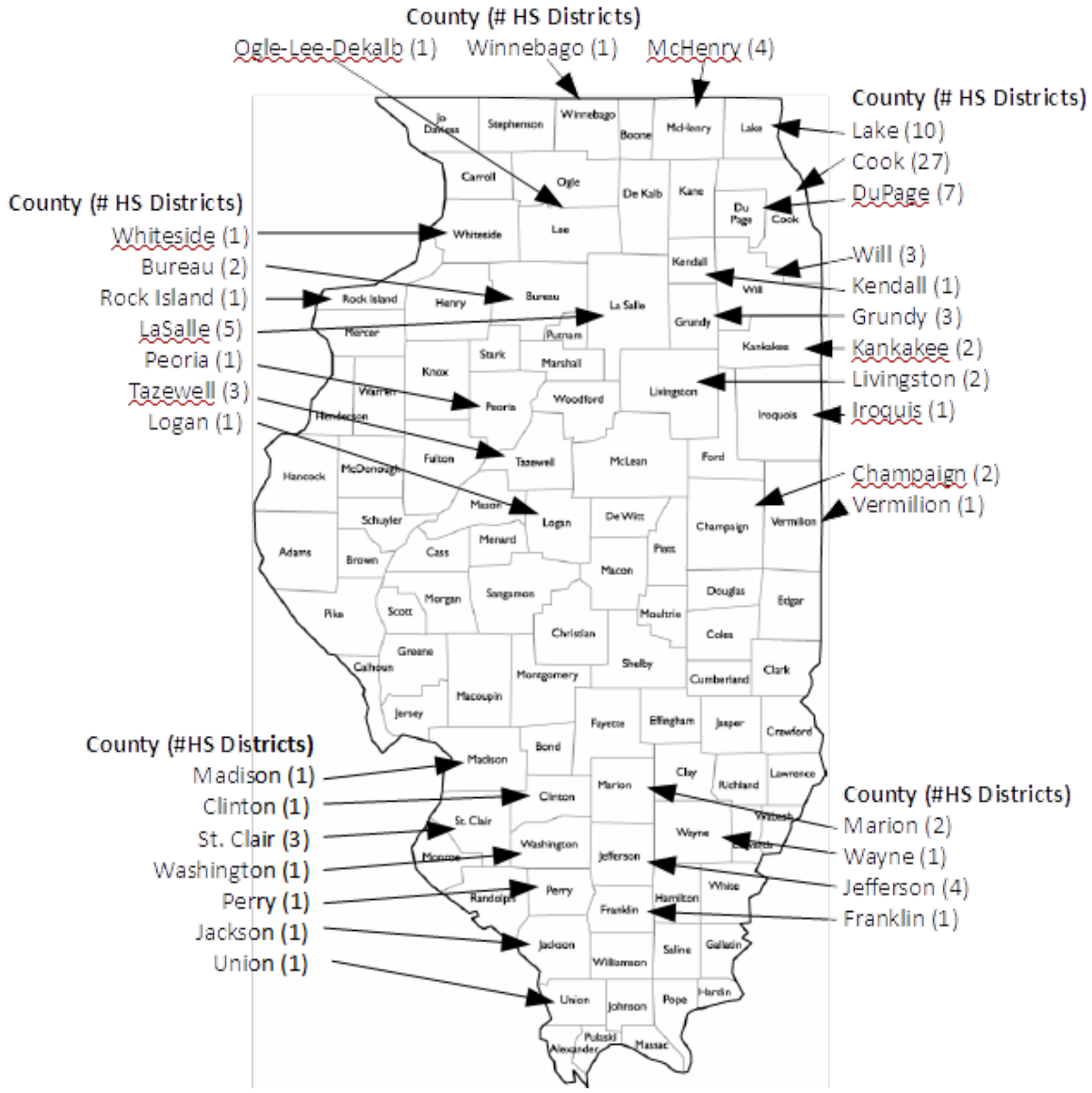
Appendix A: Illinois High School Districts Identified in Study

District	County	District	County
Adlai E Stevenson HSD 125	Lake	Maine Township HSD 207	Cook
Anna Jonesboro CHSD 81	Union	Marengo CHSD 154	McHenry
Argo CHSD 217	Cook	McHenry CHSD 156	McHenry
Armstrong Twp HSD 225	Vermilion	Mendota Twp HSD 280	LaSalle
Belleville Twp HSD 201	St. Clair	Milford Twp HSD 233	Iroquis
Benton Cons HSD 103	Franklin	Minooka CHSD 111	Grundy
Bloom Twp HSD 206	Cook	Morris CHSD 101	Grundy
Bradley Bourbonnais CHSD 307	Kankakee	Mt Vernon Twp HSD 201	Jefferson
Bremen CHSD 228	Cook	Mundelein Cons HSD 120	Lake
Carbondale CHSD 165	Jackson	Nashville CHSD 99	Washington
Central CHSD 71	Clinton	New Trier Twp HSD 203	Cook
Centralia HSD 200	Marion	Newark CHSD 18	Kendall
CHSD 117	Lake	Niles Twp CHSD 219	Cook
CHSD 128	Lake	Northfield Twp HSD 225	Cook
CHSD 155	McHenry	O Fallon Twp HSD 203	St. Clair
CHSD 218	Cook	Oak Lawn CHSD 229	Cook
CHSD 94	DuPage	Oak Park - River Forest SD 200	Cook
CHSD 99	DuPage	Ottawa Twp HSD 140	LaSalle
Cons HSD 230	Cook	Pekin CSD 303	Tazewell
DuPage HSD 88	DuPage	Pinckneyville CHSD 101	Perry
Dwight Twp HSD 230	Livingston	Pontiac Twp HSD 90	Livingston
East Alton-Wood River CHSD 14	Madison	Princeton HSD 500	Bureau
East Peoria CHSD 309	Tazewell	Proviso Twp HSD 209	Cook
Evanston Twp HSD 202	Cook	Rantoul Township HSD 193	Champaign
Evergreen Park CHSD 231	Cook	Reavis Twp HSD 220	Cook
Fairfield Comm H S Dist 225	Wayne	Rich Twp HSD 227	Cook
Fenton CHSD 100	DuPage	Richmond-Burton CHSD 157	McHenry
Freeburg CHSD 77	St. Clair	Ridgewood CHSD 234	Cook
Gardner S Wilmington Twp HSD 73	Grundy	Riverside-Brookfield Twp SD 208	Cook
Glenbard Twp HSD 87	DuPage	Rochelle Twp HSD 212	Dekalb
Grant CHSD 124	Lake	Rock Falls Twp HSD 301	Whiteside
Grayslake CHSD 127	Lake	Salem CHSD 600	Marion
Hall HSD 502	Bureau	Seneca Twp HSD 160	LaSalle
Hinsdale Twp HSD 86	DuPage	St Anne CHSD 302	Kankakee
Homewood Flossmoor CHSD 233	Cook	St Joseph Ogden CHSD 305	Champaign
Hononegah CHD 207	Winnebago	Streator Twp HSD 40	LaSalle
J S Morton HSD 201	Cook	Thornton Fractional Twp HSD 215	Cook
Joliet Twp HSD 204	Will	Thornton Twp HSD 205	Cook
La Salle-Peru Twp HSD 120	LaSalle	Township HSD 211	Cook

Lake Forest CHSD 115	Lake	Township HSD 214	Cook
Lake Park CHSD 108	DuPage	Twp HSD 113	Lake
Lemont Twp HSD 210	Cook	United Twp HSD 30	Rock Island
Leyden CHSD 212	Cook	Vienna HSD 133	Jefferson
Limestone CHSD 310	Peoria	Warren Twp HSD 121	Lake
Lincoln CHSD 404	Logan	Washington CHSD 308	Tazewell
Lincoln Way CHSD 210	Will	Webber Twp HSD 204	Jefferson
Lockport Twp HSD 205	Will	WOODLAWN CHSD 205	Jefferson
Lyons Twp HSD 204	Cook	Zion-Benton Twp HSD 126	Lake



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Appendix B: Illinois High School Districts Identified in Top Quintile Based Upon Instructional Expenditure Per Pupil (IEPP) for 2002-2003

District	ACT	Enrollment	Low Income %	EAV Per Pupil	IEPP
Evanston Twp HSD 202	22	3148	22.6	$510,417	$9,422
Twp HSD 113	24.7	3373	8.2	$844,455	$9,113
Bloom Twp HSD 206	16.6	2812	47.4	$259,539	$8,596
Oak Park - River Forest SD 200	22.9	2962	5.8	$359,225	$8,545
Northfield Twp HSD 225	24.3	4585	4.2	$741,368	$8,353
New Trier Twp HSD 203	26.3	3806	0.9	$711,433	$8,200
Maine Township HSD 207	21.7	6786	16.2	$523,563	$7,981
Lake Forest CHSD 115	25.1	1729	3.3	$1,184,745	$7,835
Hinsdale Twp HSD 86	23.7	4221	5.4	$814,606	$7,682
Niles Twp CHSD 219	21.9	4795	4.5	$639,064	$7,612
Township HSD 211	21.7	12829	8.5	$444,323	$7,529
Thornton Twp HSD 205	17.3	6527	38.4	$194,398	$7,486
CHSD 218	18.3	4916	33.8	$379,524	$7,407
Fenton CHSD 100	19	1523	15.4	$759,107	$7,404
Seneca Twp HSD 160	19.4	485	9.1	$995,545	$7,371
Mundelein Cons HSD 120	21.9	1972	17.4	$497,796	$7,311
Bremen CHSD 228	18.4	4692	18	$216,395	$7,307
Riverside-Brookfield Twp SD 208	21.7	1196	4.8	$503,961	$7,250
CHSD 128	24.1	2926	2.3	$668,545	$7,205

Illinois High School Districts Identified in Bottom Quintile Based Upon Instructional Expenditure Per Pupil (IEPP) for 2002-2003

District	ACT	Enrollment	Low Income %	EAV Per Pupil	IEPP
Freeburg CHSD 77	20.9	660	4.7	$200,253	$3,870
O Fallon Twp HSD 203	22.1	2124	7.2	$201,590	$3,939
Grayslake CHSD 127	21.4	1940	5.1	$396,448	$3,962
United Twp HSD 30	19	1850	31.7	$201,517	$3,980
St Joseph Ogden CHSD 305	21.5	447	4.5	$241,947	$4,014
Marengo CHSD 154	20	717	8.6	$381,381	$4,072
Minooka CHSD 111	21.2	1428	2.5	$373,259	$4,077
Vienna HSD 133	19.7	368	50.5	$116,864	$4,132
Pekin CSD 303	19.3	2134	26.5	$217,200	$4,199
WOODLAWN CHSD 205	20	183	17.5	$115,430	$4,252
Webber Twp HSD 204	18.5	192	21.9	$92,234	$4,275
Limestone CHSD 310	19.3	1053	14.6	$221,174	$4,312
Anna Jonesboro CHSD 81	18.6	545	27.7	$142,779	$4,314
Warren Twp HSD 121	21.7	3570	7.4	$442,321	$4,356
Lincoln Way CHSD 210	21.4	5551	2.3	$340,061	$4,433
Richmond-Burton CHSD 157	21.4	635	1.9	$395,951	$4,470
Fairfield Comm H S Dist 225	18.5	501	17.4	$132,524	$4,508
Nashville CHSD 99	20.9	544	7.5	$166,234	$4,581
Belleville Twp HSD 201	20.2	4661	19.8	$245,748	$4,583

Illinois High School Districts Identified in Top Quintile Based Upon Instructional Expenditure Per Pupil (IEPP) for 2013-2014

DISTRICT	ACT	Enrollment	Low Income%	EAV PP	IEPP
Lake Forest CHSD 115	26.3	1656	3.5	$1,648,816	$13,369
Twp HSD 113	26	3696	9.4	$1,013,384	$13,228
New Trier Twp HSD 203	27.4	4170	3.3	$1,108,937	$13,187
Northfield Twp HSD 225	25.5	4800	23.0	$946,147	$12,990
CHSD 128	25.3	3272	7.5	$812,909	$12,491
Maine Township HSD 207	22	6297	28.9	$646,907	$12,220
Oak Park - River Forest SD 200	23.9	3220	17.2	$581,179	$11,900
Evanston Twp HSD 202	23	2914	41.2	$854,136	$11,893
Thornton Twp HSD 205	16.3	4620	53.7	$253,239	$11,856
Niles Twp CHSD 219	21.8	4767	37.8	$741,554	$11,844
Township HSD 214	23.1	11836	27.9	$637,773	$11,588
Hinsdale Twp HSD 86	25.1	4487	14.2	$1,059,613	$11,185
Adlai E Stevenson HSD 125	26.4	3832	10.0	$818,018	$10,946
Fenton CHSD 100	20.5	1460	44.8	$717,962	$10,642
Seneca Twp HSD 160	20.6	457	28.0	$1,463,104	$10,582
Township HSD 211	22.6	12058	29.0	$557,825	$10,332
CHSD 99	22.8	4998	25.6	$759,979	$10,274
DuPage HSD 88	20.4	3936	51.6	$617,437	$10,208
Evergreen Park CHSD 231	21.3	808	26.1	$446,397	$10,115

Illinois High School Districts Identified in Bottom Quintile Based Upon Instructional Expenditure Per Pupil (IEPP) for 2013-2014

DISTRICT	ACT	Enrollment	Low Income %	EAV PP	IEPP
St Joseph Ogden CHSD 305	21.3	486	11.7	$372,968	$4,754
O Fallon Twp HSD 203	23.1	2456	20.0	$355,622	$5,251
Grant CHSD 124	20.9	1860	32.7	$383,653	$5,341
St Anne CHSD 302	17.7	243	74.5	$222,662	$5,368
Pekin CSD 303	19.5	2005	41.2	$313,152	$5,634
Bradley Bourbonnais CHSD 307	20.6	2009	38.7	$337,171	$5,666
United Twp HSD 30	18.1	1715	59.4	$287,306	$5,730
Fairfield Comm H S Dist 225	19.3	411	33.6	$211,313	$5,756
J S Morton HSD 201	16.9	8357	87.4	$171,695	$5,950
Nashville CHSD 99	21.3	410	22.4	$324,828	$5,973
Anna Jonesboro CHSD 81	19.4	448	42.6	$277,384	$6,077
Central CHSD 71	21.1	531	17.5	$534,136	$6,211
Vienna HSD 133	20.1	332	50.3	$181,519	$6,222
Salem CHSD 600	19.4	753	43.3	$221,900	$6,307
Mendota Twp HSD 280	19.8	626	43.8	$318,196	$6,332
Morris CHSD 101	21.5	916	22.8	$425,348	$6,336
Mt Vernon Twp HSD 201	19.2	1237	51.4	$285,056	$6,338
Limestone CHSD 310	19.4	1049	43.0	$292,472	$6,387
Lincoln Way CHSD 210	22.7	7094	9.5	$489,741	$6,509