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AND COMMUNITY TYPE AND STUDENTS' ACADEMIC
PERFORMANCE**

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PREDICTIVE RELATIONSHIP BETWEEN SCHOOL BUDGETING AND
COMMUNITY TYPE AND STUDENTS' ACADEMIC PERFORMANCE

A dissertation submitted in partial fulfillment
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by

Jack R. Mitchell

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Jack R. Mitchell

Dr. Seokhee Cho

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ABSTRACT

PREDICTIVE RELATIONSHIP BETWEEN SCHOOL BUDGETING AND COMMUNITY TYPE AND STUDENTS' ACADEMIC PERFORMANCE

Jack R. Mitchell

The purpose of this study is to investigate how the school budgeting process factors into the financial stability of a district, that ultimately impacts academic achievement. Best practices as defined by methods that allow for greater transparency, cost effectiveness, and overall success in the passing of school budgets. School funding is an important facet regarding how resources are ultimately provided within the classroom and indirectly may have a major impact on student learning. Review of the literature has provided a background on the successful implementation of school-based budgeting and factors that lead into budget development. The data techniques implemented were to gather information regarding measurable achievement and financial standing of every possible traditional public school district in New York State. Multiple data tests were conducted to compare test results against the financial condition and the geographical makeup of a district. The quantitative analysis was intended to see what effect the financial condition may have on achievement. The results from the study aimed to connect and make a suggestion towards what goes into the financial affairs of a school district and if any prediction can be made regarding various financial conditions and academic performance. This may help future studies better understand the budgeting

process, learn the importance of maximizing financial resources, and reveal any other potential connections to underlying student achievement.

DEDICATION

I dedicate this study to all of my colleagues in school business affairs in New York and across the country and world.

ACKNOWLEDGEMENTS

I would like to acknowledge my family for their undying moral and gracious support throughout my entire schooling endeavor. I would like to also acknowledge Bernadette DeFalco for her special support. In addition, many thanks to my cohort and work colleagues for their assistance as well.

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CHAPTER 1

Introduction

According to the World Development Report (WDR, 2018), the link between spending and learning, differs enormously even among countries at similar levels of economic development. However, there is a correlation between public spending and learning, albeit not a strong one. This study examined the financial stress ratings of 663 districts across the state of New York and the corresponding test proficiency scores for third grade students in ELA and Mathematics for the same districts. In districts where spending deficits occur, there can be a shortage of resources possibly resulting in a deficiency of instructional materials and instructors. In particular, there may be patterns in these districts, for low levels of academic achievement by students. Therefore, there is an importance of sound budgeting practices to produce surpluses and efficient budgets, for sustainability of funding and long-term financial planning.

Education is widely accepted as the fundamental resource for individuals and societal development. The United States of America has endured multiple expansions and reforms within the school system over the past two centuries. According to the National Center for Education Statistics (NCES), data suggests that the more a state invests in education by per pupil expenditures the higher the achievement results will be (U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics, 2019). This is not always the case, and when spending is not wholly in effect to cover the majority of school expenses and is hindered by mismanagement, insufficient funding or other types of malfeasance, achievement results can decline. For the most part, this is true with some exceptions of where the funds for education really

are expended, once it's in the hands of the state and local school districts. Furthermore, empirical research and data suggest that the long-term impact of an all-encompassing education for our youth, yields a higher income earned per student, which helps the economic growth of the state and nation overall.

Purpose of the Study

The purpose of the study is to determine the relationship between school budgeting and the academic performance of a school district. The study adds to future studies surrounding sound budget development and the elements involved in coordination and planning. This study also contributes to the increasing research regarding the implementation of school-based budgeting, offering empirical research in certain areas not previously discussed, such as state aid and other funding constraints, and the political pressure of school board members. Moreover, contractual agreements place a lot of pressure on budgets. In many cases, school budgeting begins as a rollover budget with salary known increases for the next year. However, budget committees are charged to set school priorities and develop long-term plans to support the curriculum and instruction of their respective district. There is sometimes flexibility over the spending in certain budget lines but in most cases extremely tough decisions are made as needs are assessed. Successful implementation of school-based budgeting requires the dissemination and use of school level data by members of the school community (Moser, 1998). How a school business official (SBO) navigates those uncharted waters is critical up to budget adoption and subsequent taxpayer voter approval. Many previous studies analyze how the finances of school district are affected by certain mechanisms and such

outside forces, but they don't look at every aspect together nor do they suggest what may be the most impact aspect, the financial condition of a district.

Significance of the Study

Under the premise of an inequitable education funding theory, measures of school district financials uncover what is prioritized, and analyze what is deemed as most effective for the budgeting process. Findings of the quantitative study include how districts are measured, what additional factors are involved, and what principles frame and guide successful budget development. Implications resulting from this study should link back to student achievement and how districts can maximize their resources and provide the best education possible. Ultimately, this may help future studies better understand the budgeting process and reveal any other potential connections to underlying student achievement.

Scope of the Study

The study evaluates on the surface the effectiveness of different funding styles and budgeting systems in public school districts in New York State. The evaluation was based on the financial condition of the district. The most common indicator in determining the status of a district's finances is the relationship between expenditures and revenues. In other words, if the financial statements for a district show that funds are being spent, an unbalanced budget indicates the potential inability to manage recurring expenditures and continually provide programmatic services. The Office of the State Comptroller for New York annually provides a fiscal stress rating for school districts

statewide. These ratings are calculated based on a scale that measures environmental (poverty, class size, teacher turnover, tax base, budget support, English-Language learners), fiscal (fund balance, operating deficits, cash position, reliance on debt), and organizational factors. School districts that are rated with above average fiscal stress, may be more prone to have lower test scores. The New York State Education Department administers state assessments in the primary subjects, Mathematics and English Language Arts (ELA) for grades 3-8, and is used as the academic outcome for student achievement in this study. The rationale for utilizing annual academic assessments as an academic indicator is because they are current, compared to graduation rates. The state assessments are also aligned with the NYS learning standards and by determining the percentage change annually of those scores, a resulting snapshot of state math and reading scores for a district, may indicate the most recent academic standing of a district following a corresponding budgetary cycle. Whereas a graduation rate or a similar measure may be a post indicator.

Research Questions

The research questions of the study are: (1) To what extent is the financial stress rating of a school district related to their 3rd grade achievement level in Mathematics and ELA? (2) To what extent is the community type of a school district related to their 3rd grade achievement level in Mathematics and ELA? (3) To what extent does community type and fiscal stress rating of a school district predict students' achievement in 3rd grade Mathematics and ELA?

Definition of Terms

Fiscal Stress Levels: no stress, susceptible, moderate, significant (rated by Office of the State Comptroller)

Financial condition - school district's ability to finance expected services on a continuous basis

Fund Balance - accumulation of surpluses/deficits

Fiscal Stress - ability of a district to maintain solvency

Budget Solvency - ability to generate funding to sustain spending without incurring a deficit

Capital Outlay - large initial expenditure for an asset

Per Capita Debt - Total debt divided by population

Math achievement – competency level for scores on annual Mathematics assessment administered by New York State Education Department

ELA achievement - competency level for scores on annual English Language Arts assessment administered by New York State Education Department

Summary

Many states perform assessments to evaluate and monitor students' academic achievement. However, most of that data is not analyzed in accordance with the funding of a school district. Moreover, the performance of district management in spending through budgeting systems and the available means of funding and such impacts, are generally not factored into decision-making. The majority of districts in fiscal stress remain in fiscal stress in subsequently rated years, and they are more likely struggling

academically, with these outcomes self-perpetuating. Management theories such as Management by Objectives and Balanced Scorecard can positively affect the performance of a budget. The literature supports the premise that sound budgeting will have a positive effect on students' academic performance levels when it is applied to school districts. Additionally, a review of the literature will reinforce quantitative measures and the effectiveness of the rating system to aid in changing and improving academic performance as measured by performance indicators such as state assessments. The purpose of this study is to examine the relationship between fiscal stress score and students' performance. The overall purpose of this research study is to investigate the academic consequences of a school budget, help others better understand the dynamics of budget and how they play in a financial condition of a school district, and potentially provide a blueprint for best practices toward budget development. Furthermore, this study contributes to additional research in the field of school-based budgeting.

CHAPTER 2

Review of Related Literature

In the Literature Review, articles referenced within reveal relevant facts and ideas regarding the spending disparities between districts and the implications resulting from them. Additionally, budgeting methods are stated along with district structure and spending (primarily for teacher salaries). Moreover, discussion is raised on the surface regarding how to equalize school spending and mention of achievement gaps. Lastly, connections are made toward decision making, outward factors such as racial gaps and funding predicated from a community type, and actual fiscal stress ratings and their impact on student achievement.

Fiscal Stress Ratings and Student Achievement

Adams (1983) examined the effects of fiscal stress ratings and audits on school districts towards a district's financial behavior, can this type of oversight improve fiscal decisions? This question is an important one with regard to this paper because beyond how budgeting can have an underlying influence on academic performance, the fiscal audit may indirectly influence future behavior if a district is rated with fiscal stress. Budget practices are vital to producing a well aligned budget that is fiscally sound and responsible with taxpayer dollars. Ultimately, budget decisions can have further reaching consequences for stakeholders and their bid to stay on a board, for a district to attain a good reputation and subsequently retain high home values, and for administrators to receive positive employee performance evaluations that may be tied to their employment. The reason why this concept may take precedence over arguments

surrounding aid levels, how spending decisions occur, equalization in funding, or other reasons that could impact academic performance, is because a fiscal stress rating is a more tangible measurement. The rating isn't foolproof, but some of the other reasons mentioned are either captured somewhat within the rating or are too arbitrary to hold much weight as a factor in academic performance.

Thompson and St. John (2019), found that school districts do reduce expenditures as a result of the state imposed performance audits. The whole purpose of the financial rating system for states was to not just monitor school finances, but to develop better oversight that might allow for better budgeting and in some instances a way to intervene with school districts. Their study distinguished between various oversight systems and categorized them into two types. A strong oversight system allows a state government to take over a school district. A weak oversight system mostly provides financial performance information as a potential guide to assist districts in adjusting their practices or planning to become more compliant by implementing recommendations. The in-depth examination of the Ohio state rating system suggested that oversight can be effective in changing fiscal behavior and help justify unpopular financial decisions (Thompson & St. John, 2019). Moreover, this was likely to occur as a result of recommendations for modifications from the state as opposed to specific changes outlined by the state. Thompson and St. John (2019), also found that math proficiency rates declined following a stress rating for a school district. Although there is a little impact on the overall efficiency of an educational program for a district but in the long run, decisions can be made to avoid getting into a financial bind and helping a district remain consistently efficient and maybe positively impact achievement.

Theoretical/Conceptual Framework

There are many legal, political, and philosophical bases for financing a functionable public school system. Seemingly, there isn't much of any theory between the relation of school funding and student achievement. Conventional thinking equates more spending with better results, and Baule (2019) helps to provide a blueprint for a rich and useful data source under school finance. Through the organization of such data, research improves along with a better understanding of the public-school system. A complex structure of the methods and techniques for this study, based on the understanding of an annual budget cycle, lends the research to attempt to answer the aforementioned research questions.

Betts and Roemer's (2005) theoretical framework of equality of educational opportunity, rationalized that opportunity is comprised of five components: circumstances, type, effort, objective, and instrument. Type delves into the set of individuals with the same circumstances. Objective presents to the actual condition that is to be equalized. Circumstances are what students are faced with. The instrument, or state finance distribution model, refers to the policy used to equalize the condition. As a consequence of equalization, the attempt to fully finance an adequate education would pre-determine the outcome of student achievement. Outcomes are not all the same, and they may be the result of the state's unwillingness to adequately fund public education. This in turn can result in financial stress for a district. Additionally, these outcomes may be permissible if all students achieve at or above proficiency. A major goal of education finance policy is to equalize opportunities for students, although different definitions of

equalization may lead to different conceptions of equality of educational opportunity and what financial policy should be.

The theoretical framework exhibits a connection between what is old in public school finance and what is new, and what seemingly “works” now. There are a plethora of school districts still trying to figure it out. The hypothesis that there is no difference in academic performance levels among similar districts, based on the existence of the fiscal stress rating systems, if supported statistically, would provide a rationale for a reevaluation of budgeting mechanisms in public schools. Empirical evidence could also assist in better budget preparation. This information would be extremely helpful for policy makers as they seek to understand the extent to which the time, money and effort of constructing and maintaining a budgeting platform is justifiable and sustained to maximize the resources and subsequently, the effectiveness of an educational program.

In 1867, President Andrew Johnson signed legislation that led to the United States Department of Education. The Department’s purpose then was to collect information (student demographics, achievement data, teacher metrics, etc.) and coordinate with states to establish effective school systems. Over the years, many court cases and legal issues have surfaced that put too much pressure on the federal government to be the sole decider of how states should “own” their educational policies. The vast diversity of the United States was too much to bear on our legal system or Department of Education so states assumed majority of control of education. Each state is almost as large (student population) as some smaller countries around the world so it should not be farfetched why each state owning education is acceptable. The federal government still has control with education as three of the most important educational initiatives are still funded from

the United States Department of Education – Title I (for specific socio-economic statuses of families, students with specific criteria, underperforming students, etc.), Child Nutrition (breakfast, lunch, snacks, etc.), and IDEA (Individuals with Disabilities Education Act) for the students with developmental disabilities commonly known as special education. Also, states must still comply with qualifying, applying, and being approved for educational grants and other supplemental funding formats. However, most of the funding states get are from their own taxation system within state from taxpayers that bear the biggest brunt of funding education. Federal aid is available if federal guidelines are adhered to by states.

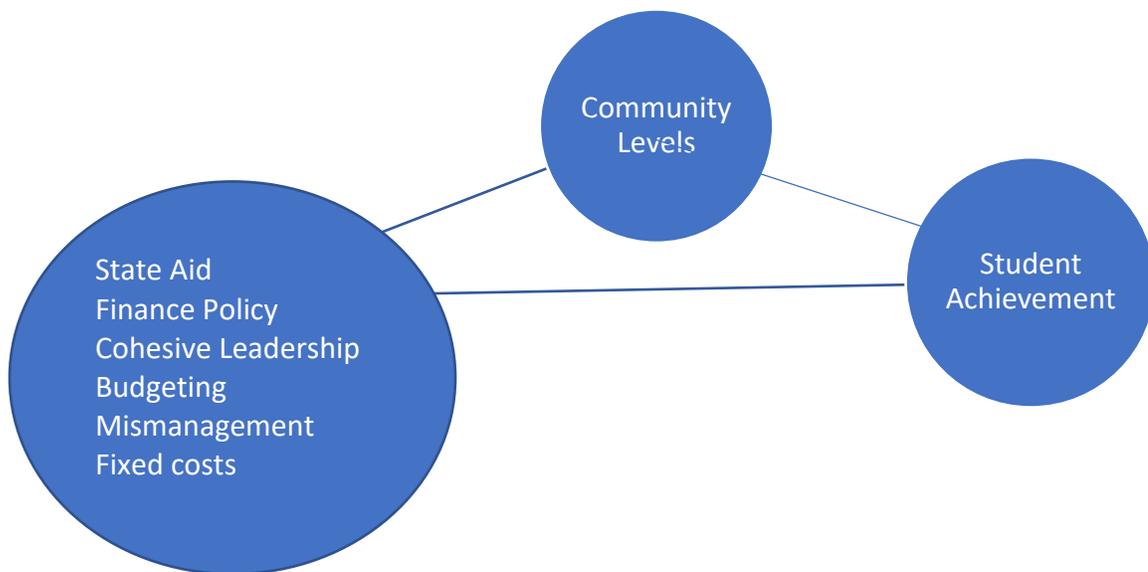
Another reason ownership of education has shifted is better coordination of where the need is in a school district. Based out of Washington D.C., the US Department of Education is limited in having a time-sensitive ear to the street to understand the day-to-day struggles school districts endure. Having to rely on data can be cumbersome in order to effectuate appropriate educational policy. With this being understood, it's easy to see how states have their own databases. The reasoning of states and their understanding of the climate of education and what's (educationally) best for their state varies and is highly subjective. According to Baker (2019), data regarding financial systems have become more prevalent and accessible. In continuing this trend, data needs to remain consistent, systematically collected, organized, and disseminated. These measures are important for adjusting the allocations of educational dollars. If stakeholders can work together, they can create an invaluable resource.

Compounding the issue of sound budgeting are the inequities of state funding directed to individual school districts. This is evident in lower-poverty districts do

receive more state aid than higher performing districts that are able to levy more tax dollars. Nonetheless, the amount they receive does not equalize the necessary funding they should receive to have comparable per pupil spending levels akin to wealthier school districts. Stealth inequities in school finance, which are defined as often-overlooked features of school funding systems that tend to exacerbate inequities in per-pupil spending rather than reduce them, and that do so in a way that favors communities with the least need (Baker & Corcoran, 2012).

Lastly, the task of investing into education would be the beginning of appropriating the funds appropriately. This is a great time to shift the old, fragmented, inequitable funding formula (i.e., Tax Cap Formula) in New York to revamp into something greater and modernized. Allocating fiscal resources for the students' needs should be the only priority the state faces. Prioritizing the needs of students would give local governing bodies of education the platform to improve facility infrastructure, pay closer attention to the hiring, recruiting, and retention of staff members, offer more school – community activities to increase parental involvement, and show the data to the federal government's United States Department of Education to prioritize the financial investment of education as New York and an entire nation.

Figure 1 | A Conceptual Framework of School Finance Measures and Community toward Fiscal Stress and Student Achievement



Community type

According to the U.S. Census Bureau 2015 American Community Survey, median household income for [rural households](#) was \$52,386, which is about 4.0 percent lower than the median for urban households, \$54,296. In addition, poverty rates were consistently lower for those living in rural areas than for those living in urban areas, with the largest difference in the Northeast. When the question is raised of whether or not a community type can predict student achievement, a more pointed question about the type of corresponding governance there is in each community must be answered.

If there is a connotation that a district with higher poverty levels is situated with a certain type of community, then the individuals sitting on such school boards in those communities may have an influence on student achievement. However, there isn't a

generalization that can be made about whether a community type, for example rural, will have lower income earners and urban, will have higher income earners. Rather, what can be stated is that board members from low-performing districts appear to spend more time reviewing and updating policy related to student achievement and fiscal policy related to resources for student achievement (Plough, 2014). Whereas high-performing school districts' board members reported higher levels of agreement with all of the belief statements related to connecting with the community and the board's linkage with other agencies enhanced their ability to raise student achievement (Plough, 2014). In furtherance, Plough (2014) found that providing school boards with training to collectively operate as a unit focused on student achievement coupled with an ability to leverage community resources for the betterment of all students, can effectively support and sustain school board governance resulting in positive outcomes.

School Finance

Two assumptions regarding school finance are: (1) traditional school funding that relies on local funds mostly raised by property taxes, creates sizable disparities between the education available to rich students from suburban locales and poor students from urban and rural local; and (2) the inequities in the quality of schooling resulting from the fiscal system, are to be corrected by the courts to compel the legislature to provide disadvantaged youth with better schooling (Hanushek, 1991). Educational policies can have a major impact on school finance. When it applies to the many varying intricacies of state systems, more effective policies must transcend across state lines.

In contrast to what that study aims to accomplish, it has been refuted that there is no systematic relationship between school expenditures and student performance (Hanushek, 1991). The Hanushek (1991) reference is an older article, and because over the span of many years, student performance has fallen while spending has continually increased in schools. Evidence from the Hanushek (1991) study exhibited that teacher/student ratios, teacher experience and teacher education, have not shown to positively influence student achievement. School performance as being indicative of school expenditures, is an unreliable measure of educational variance. The implication here is that school reform placed to increase spending will improve student outcomes, but there is no guarantee that funds expended will be directed in a manner as to contribute towards student achievement.

Furthermore, in the late 1970s through to the early 1990s, there was a number of litigation and legislation surrounding state aid formulas, but that did not lead to corresponding changes in spending (Card & Payne, 2002). Rather the gap in spending between richer and poorer districts has shown an effect test participation – that is the equalization of spending by different districts narrowing the test participation gap between higher and lower economic family background groups. Additionally, an aspect of school spending that has raised a ton of attention over the past 20 years, is funding for students with physical or learning disabilities. However, this analysis shows a slight equalizing effect of school finance reforms on SAT test scores for children from different family backgrounds.

Permanent changes in school spending imposed by states if used efficiently, should increase the flow of student services. Achievement is cumulative, so those

services may not have an immediate impact on test scores but should raise scores over time if students are exposed to additional academic assistance for longer periods of time (LaFortune et al, 2018). With school finance reforms less geared now for equity than adequacy, this additional funding still does not speak as to how funds are spent. Additionally, many reforms can reduce learning gaps, but do not have measurable effects especially between black and white students. In echoing Lafortune (2018), what may help to close those achievement gaps are policies that focus on the distribution of achievement with school districts.

School-based budgeting

School based budgeting is determined by teacher contracts, class size limitations, and fringe benefits that equate to fixed costs and essentially predefined rules. The various impact variables for large city school districts, such as income-based state aid and high-needs grants, are merely representative of key governmental arrangements and have very little impact on school expenditures. The fiscal dependence of these school districts is mired with problems related to the level and stability of funding and the effective use of resources.

According to Garms (1967), there are three conditions essential to public support of schools. The first is the ability to support educational programs. The second is a prominent existence of educational expectations to promote a demand for education. The third is a governmental system that facilitates access to available resources to properly sustain the demand for education. From a longstanding study by Garms (1967), where data was collected from a large number of city district types, he concludes that

governmental considerations have a minimal effect on expenditures, the primary determinants are the ability to pay for education and demand for education.

Going back to studies in the seventies on public school finance, school administrators are assumed to possess a utility function which depicts the perception of the willingness of the school board (or the local community) to bear increased school property tax burdens per household, a negative good, to obtain a perceived quality of education, a positive good (Barro, 1974). It is further explained that district decision makers choose the combination of educational expenditures and local tax burden which maximizes their utility function (Chambers, 1978). Both studies marked an era that exemplified school finance reform and provided a blueprint for resource allocation, most frequently strategized in today's modern school budgeting.

According to Baker and Chingos (2019), there is a new understanding of how findings may differ across data systems and measures, on such things as characterizations of equity and adequacy. State policy is more likely influenced positively by a consistent message derived from the evaluation of such data. Baker and Chingos (2019) find significant consistencies, with explainable differences, in two common measures used to characterize state school finance systems—the regression-based approach underlying the SFID (School Finance Indicators Data system) and the weighted average approach used by the Urban Institute to characterize progressiveness.

The ability to connect the data incidentally helped to address an important problem that may have even been overlooked – the impact of neighboring school district spending. Additional questions raised by Baker and Chingos (2019) regarding an efficient use of data, are very well supported and a number of examples help to relay the study in

layman's terms. Both sides of an argument to use different types of data independently or collectively, are dispensed with powerful supporting references. Data are outlined and defined, providing a methodology that has a clear connection to the problem. The longitudinal model derived yields a rich description of a systematic collection and organization of data. The comprehensive analysis includes a polarization index that is fitting for the model prescribed. Interpretation of the model explicitly couldn't provide further inference because of the derivatives from the matrix since the parameters for spatiality coefficients differ from a standard regression. However, by averaging the elements of the matrix, significant averages can be shown to have a direct impact. This intuitively places great value on following all the data. Baker and Chingos (2019) highly substantiated their findings and offered the best explanatory measures related to the subject matter. The discussion continues to raise tangible factors and explanations that completely fulfill the purpose of understanding education funding. Drawing from the conclusion of Baker and Chingos (2019) can yield several implications and key points that will be elaborated further within the findings of this study.

School Spending Disparities between School Districts

In a comprehensive study by Bradbury (1994), research shows how school spending may be related to state or federal school aid and how spending differences may be affected by aid levels or other factors. Bradbury attempts to do this by examining factors related to spending and analyzing the school aid distribution approaches of Massachusetts and Rhode Island. The underlying research of the study is based on economics literature that suggests the states seek to reduce spending disparities between

districts. This action is coupled with those of decision makers in local districts, who must consider the quality of education they would like to provide, the costs of providing it, and the resources available, before they determine what to spend. Within their decision-making, these local districts are challenged with spending mandates and varying state aid monies which require and shape local outcomes, respectively. Additionally, local residents may vote on approval of these budget decisions or the election of officials responsible for them, but do not directly make those decisions. Through a regression analysis of school aid towards reducing disparities in poor and rich districts, implications are uncovered regarding allocated aid and district spending variations. Moreover, legislation is studied along with effects on school spending disparities and a comparison is illustrated between districts. With a direct connection to how school budgeting impacts student achievement, the research by Bradbury (1994) provides insight for spending disparities between rich and poor districts. In addition, Bradbury (1994) illustrates how modifications for state aid in formulas for poor districts do very little to help total school spending because local resources are unequal – suggesting that possibly budgeting or another factor may lead to inequities in learning that are related to the achievement of a district.

Upon further examination, Bradbury (1994) clearly states the purpose of the state aid and imparts the structure of state funding along three major processes. Furthermore, she addresses an important issue of spending by local school districts, specifically, how local districts respond unreasonably, or how they don't receive sufficient funds. The regression analysis used was best suited for the problem because Bradbury (1994) was seeking to establish the effects of state aid funding for school districts and congruency

with data collections methods. The analysis of the two states, Massachusetts and Rhode Island, are well described with details of each states' formulae for state aid and helps to dissect critical factors associated with per pupil spending.

School District Structure and Education Spending

Burnell (1991) conducted a research study to investigate the relationship between school district structure and education spending. An empirical model was created from the 1977 Census of Governments for 280 central counties of Standard Metropolitan Statistical Area's (SMSA's) across the United States, to test a multitude of variables predicated on district structure and voter preference, and the effects they may have on per pupil expenditures. The review of literature that undergirds this paper, helps to provide a common basis for many prior empirical studies. Burnell (1991) conveys that most studies covering school district spending report interjurisdictional differences between socioeconomic characteristics that affect what is expended and the ability to expend district dollars. Also, those studies have not dived into any systematic analyses that examine differences in government structures and their effects. The theory that fragmented government (decentralization) is preferred and most prevalent, is the most central theme presented with contrarian viewpoints. The results of Burnell's research, exposes inconsistencies with the bureaucracy theory such as a more competitive fragmented system, and raises questions if that is valid reasoning for the relationship between structure and spending. Without a correlation, an alternate explanation may lie in there being a fragmented system that results in more competition and greater expenditures. The connection with Burnell (1994) on budget practices, is that in looking

at budgeting there is a common goal of establishing a relationship between how budgeting is conducted and student achievement. In essence, this study by Burnell (1994) raises the effect a school district structure can have on finances, which is an integral component of budgeting.

It is important to note that Burnell (1994) does begin with an excellent set of ideals that are explained in detail. However, there is a limitation to the Burnell (1994) study as the article progresses and explanations aren't offered with much detail but are mentioned as complex. There is a focus on the operational model and its components which do lend to demonstrate that some of the conclusions are justified. The need for the Burnell (1994) study is explained and is somewhat convincing because other similar studies have not delved into questioning the governmental structure. The empirical results are solid as a regression test is run on a host of relevant variables ranging from the size of district to the tax base/incomes and per pupil expenditures with qualitative teacher factors. Thus, making the methodology suitable for predicting spending disparities, and the data collection methods are congruent to such research so that anecdotal evidence can be utilized. With regard to the findings, they were mostly explained on the surface with sound reasoning but not enough explanation. Therefore, in summary, Burnell (1994), could have provided more ancillary evidence and an even more meaningful discussion of related research in the field with some additional limitations but also with alternative explanations for spending disparities.

How to Equalize School Spending

As stated by Muley and Harris (2010), an important element of district funding is to examine the structure of a state's education finance program and whether that is the determining factor or if the resources provided by a state government relative to revenues raised locally, is what matters when attempting to equalize spending in schools. The support provided for the research in their literature review is through the definition of the two major types of state aid programs – foundation and power equalization. In addition, as claimed the biggest influence on the analysis of spending is the impact of education finance policies that have resulted from court mandates throughout the years. The study conducted by Muley and Harris (2010) takes a prior longitudinal case study that focused on court reform mandates in 46 states over a 25-year time frame, and further analyzes the structure of the state aid program governing the distribution of state aid to the local school districts. Using four state aid dispersion metrics and a sample excluding four more states due to their organizational structures, an empirical model is used to predict whether or not a state aid program (foundational or power equalization) includes a price effect. The main findings suggest that states contributing smaller shares of local district revenues are more likely to have adopted a state aid program that contains a price effect, meaning the cost per pupil takes precedence over how much local households can generate in tax revenue. This price effect doesn't work well with foundation programs and is counterintuitive towards lessening the spending inequalities present in local school districts – a product of no mandated spending or minimum local tax rate. The economic consequence of adopting a power-equalization price effect can have an implication on revenues for a district's budget because spending is part of the equation, an underlying

facet of this research performed by Muley and Harris (2010) and concerning budget practices of SBOs throughout the State.

This information is complex, but Munley and Harris (2010) do a good job delineating key aspects of their research study. The objective of looking at the effect aid increases have is clearly stated and sufficient background information is provided throughout their study to better understand the history and in workings of the programs as well as the rationale of why this occurs. A plausible explanation regarding a state's structure is argued and well substantiated. An in-depth analysis is provided with a multitude of equations involving structure and empirical models testing correlations that find significance in the price effect. The research questions both directly and indirectly posed are answered and the findings go well above the descriptive level, with discussion of significance and the suggestions for further research referencing other contributors the subject, are aligned to this paper.

Aid Types and Budgeting

Eom and Leo (2006) attempt to test whether different types of aid have an effect on budgeting. The Abbott Parity Remedy Aid has a differentiated impact from other forms of state aid and ultimately on the managerial efficiency of school district spending. An Abbott district is covered under a court ruling and is supervised by the state of New Jersey. These poorer districts receive more aid to equalize funding with districts that have a wealthier tax base. The support from the literature review covers multiple factors related to the impacts of state funding on school efficiency and is exceedingly comprehensive. In addition, key features are expressed from other studies

are explained. Eom and Leo (2006) developed a model to measure district efficiency, that is to show if a district spends just what is necessary to achieve a certain student performance. Most of the data used and observed in this study is from the New Jersey Department of Education, (DOE), the Department of Treasury, and the New Jersey Legislative District Data Book covers 445 New Jersey districts in a non-parametric method based on linear programming with a DEA (Data Envelopment Analysis) index. Eom and Leo (2006) find that Abbott Parity Remedy Aid has a significant stimulative impact on spending. However, the overall impact of such aid is minimized when residents in the districts take the special aid as given, or at least the same as other types of state aid. In fact, based on the efficiency model, districts that receive relatively more state aid are less efficient. This is a useful measure in determining the relationship between test scores and per pupil expenditures to further studies in a dissertation topic that focuses on the impact of budgeting in New York school districts on student achievement. Primarily because aid levels are extremely varied, Eom and Leo (2006) show that additional funding does not close the gap of student performance.

The outcome from the Eom and Leo (2006) study regarding aid is positive because it digs deep into a specific state, New Jersey, that is relatively local to New York, and doesn't raise valid concerns of the data analyzed because it closely resembles that of NYS. Eom and Leo (2006) clearly revealed several findings that are intriguing since conventional wisdom would ascertain that more aid would raise efficiency of spending. Their analysis sought to answer whether inequality is a result an ineffective aid formula or some other reason? Eom and Leo (2006), captured the history of school reform with the results of their model that determined key factors of school spending, and

the approach of their quantitative study conveyed an important notion of how aid can adversely impact a district. More could have been stated, but against other research in the field, the Eom and Leo (2006) study fits right into the mold of financial implications toward student performance and proves to offer valuable background to the inner aspects of budgeting.

Relationship between School Spending and Achievement Gap

When it comes to school spending, there have been a plethora of investigations by Plough (2014), Bradbury (1994), and Burnell (1991), aforementioned in this chapter of the effects of the income inequality within school districts. The market values and tax bases of residents in various geographical areas suggest wealth or poverty. Several measures specifically indicate the predominant socioeconomic status of a community: the share of private enrollment, the school district public spending per student and the local public spending per capita. Per capita spending can be interpreted as a measure of redistribution through education spending. Overall, the relationship between spending and inequality signifies a distinction between high- and low-income districts. Moreover, this pattern helps explain the behavior of per capita spending in both poor and rich school districts.

Public school districts across New York State, exhibit wide disparities in enrollment and spending per student in public schools. The lower amount of funds translates into dysfunction of school boards and incompetent administrations trickle down to terrible teacher hiring and ineffective management, that perpetuates a vicious cycle (Munley & Harris, 2010).

Moral judgement

There are other elements that can factor into a decision made by a school business official. According to Reck (2000), moral judgement can come into play. Moral judgement (Kohlberg, 1958) suggests that the level of moral reasoning which an individual attains is a function of various social and cognitive factors. Such level is how one determines what is fair and equitable. Parallel studies covering a wide range of topics already find that political ideology, gender, age, previous experiences shape individual decision-making. Reck (2000), examined the impact of moral judgement on the budget allocations of government budget officers, she uncovered that moral judgement is common influence because governments are non-profit entities, and concluded that decisions are not based on an economic rationale. In fact, most governments are concerned with parity and the fairness of civil rights, and budget officers are fiduciaries - putting the interests of the locals first. In districts where the interests of individuals take precedence over that of their district, problems can arise. The budgetary decisions may then be questionable as the administrators in these districts may have personal agendas and either indifferent to districts goals or ideals.

Teacher Salary and School Spending

Sometimes there can be too many forces at play within a district. These circumstances may force the hand of decision making for school business officials and they may not seemingly have control over what they can decide or plan to do financially for a district. A major hindrance to budgeting could occur when a collective bargaining

unit imposes their will on a district. Particularly, a teacher's union for a district is oftentimes bargaining a new contract every few years on average. To put this further into perspective, for the majority of districts in New York, the percentage of a school budget as it relates to teacher salaries and benefits, is generally upward of seventy percent. An article by Strunk and Marino (2019) posits that the content of collective bargaining agreements (CBAs) play an important role in shaping district finances. The study primarily focused on periods of an economic downturn such as a recession, and how districts can become susceptible to making drastic cuts and reducing budgets in response to a financial crisis - regardless of what may have triggered the recession. It is important to note that New York State has laws in place to avert strikes from teachers, but a long-standing law (Taylor's Law) also allows for salary step increases, even if a contract has not been settled. However, this loophole that grants the continuance of pay raises, can also lead to low morale if teachers are asked to work without a contract for multiple years. The financial commitments in CBAs can have long standing effects as obligations to pay teachers are contractual without recourse to any ability of renegotiating while in term. Prior research suggests that decreases in instructional-based expenditures as a result of fiscal shocks to school districts are associated with lower test scores and lower rates of high school completion (Jackson, Wigger, & Xiong, 2018). Within schools that have high fiscal stress this can happen even without a financial crisis but with mismanagement. Then a vicious cycle is perpetrated from having to cut teachers every year to make payroll - one that can create an extremely timorous and toxic environment. If better budget practices were in place to prepare for a rainy day, districts would not have to incur stress and be more flexible in allocating resources that could

sustain a budget and offer better working conditions in a more stable learning environment that will most certainly impact student learning. This study is critical toward research in this area of budgeting practices because the widespread changes school districts and teachers' unions make to key instructional resources during times of fiscal constraint, strongly signal the many ways that such tactics may not benefit students. As districts work to balance growing pension liabilities with ongoing operational needs, navigate cyclical recessionary patterns, see their enrollments decline, and experience competitive pressures from alternative schooling options such as charter schools, most if not all public school districts in the United States will face mounting fiscal pressure (Arsen, DeLuca, Ni, & Bates, 2015; Bifulco & Reback, 2014; Dolan, 2016; EdSource, 2012; Favot, 2016; Shaffer, 2016). The preeminent opportunity must rely on the stakeholders and their decision-making prowess, to thwart the financial and academic failures of school districts.

Funding Disparities and Racial Gaps

A fundamental look at overall school district spending exposes funding disparities that may be related to racial gaps and the fewer number of opportunities to generate funding in some racially segregated districts that have a large population of lower socioeconomic residents. Student achievement outcomes have been shown to be linked to per pupil spending. A study by Sosina and Weathers (2019) finds that spending disparities are associated with more racially segregated schools. Understanding that if spending matters for student achievement, then racial disparities in resources may play a key role in the racial opportunity gap. The authors find that when Black students are

increasingly concentrated in separate school districts from White students in the same state, total revenue shifts in a way that disfavors the typical Black student's district, even after controlling for racial differences in poverty (Weather & Sosina, 2019). Reason being that because specific types of spending such as reductions in class size, increased instructional time, higher teacher salaries, and capital outlay may mediate the relationship between spending and student outcomes (Jackson et al., 2016; Lafortune, Rothstein, & Schanzenbach, 2018). In these types of districts, the budgeting practices may not be pertaining to this study, some of the inequalities presented in the Sosina and Weathers article may explain why some districts don't necessarily have high fiscal stress levels, may have higher environmental components to their scores and low student achievement. Revenue constraints are highly evident in poorer districts without a sizable tax base. These high poverty districts with significant numbers of minority students, will continue to have fiscal stress and will be staffed with less experienced, educated, and skilled teachers - a direct correlation to student learning.

The right budget practices should employ the proper amount of resources to maximize the academic achievement of students. However, this raises the question about what resources and level, or amount is deemed necessary to meet achievement standards? A study by Knight and Mendoza (2019) that drew on budget simulations with 568 randomly selected public school teachers, principals, and superintendents, in hypothetical schools, was utilized to elicit the thinking behind the scenes when it comes to decision-making. The budget was presented as a spreadsheet and the budget simulations build on the work of Rose, Sonstelie, and Richardson (2004) that calibrated the relationships between school budgets and student achievement, were inspired by the

professional judgment panels convened in a number of states to “cost out” an adequate education (Taylor, Baker, & Vedlitz 2005). Participants were forced to make decisions within a fixed budget and set of costs (determined by researchers). Although this was an exercise geared to discover what educators may value, the Taylor, Baker, and Vedlitz (2005) study, can be extremely helpful in determining best budgeting practices. The needs for many school districts are common but the process by which financial decisions are made and who is involved, can be modeled by successful districts and can be an extremely helpful aid for lower achieving districts to follow.

Effective Budgeting Strategies

In general, research has shown that there is a plethora of strategies to support pedagogy in a variety of learning environments. There are instances where these measures can be implemented without burdensome additional costs or staffing. Oftentimes, small increases in class size, along with increased support, interventions or professional development. Finding ways to identify low-cost options to help improve the quality of instruction and learning and implementing them in today’s school systems is often hard because of political and contractual constraints, but with leadership and effort, it is often possible to demonstrate the potential of cost-effective strategies that enhance school district efficiency and at the same time help students meet state-established performance goals (Picus & Odden, 2011).

Without venturing too far from the core of this paper, an acute examination must also be made regarding student achievement gaps and some of the inequalities faced by districts. Owens (2018) states that large achievement gaps exist between high- and low-

income students, as well as blacks and whites - by looking at the districts where the demographics for the high stress and low achieving districts, contain a large number of minorities. Therefore, it is important to understand the intricacies of such dynamics and how they can influence achievement. There has been long standing segregation in America. Even after *Brown v. Board of Education*, many neighborhoods aren't fully integrated. It has been shown that high-income students perform better academically as they may come from highly educated parents, they are given more support (i.e tutoring), and their schools are equipped with better teachers and more learning resources. This income disparity is prevalent in affluent areas that are segregated and contributes further to the racial achievement gaps across New York State. According to Owens (2019) these spatial inequalities created by income segregation between school districts contribute to achievement gaps between advantaged and disadvantaged students. This issue should be taken into account when analyzing budget practices because additional supports will need to be put into place to make up for achievement deficiencies, but there is a cost for this. Moreover, a return of investment (ROI), that is higher achievement from a higher monetary investment in education, needs to be established and closely monitored so that resources are efficiently allocated. Whenever funds are expended, you want and need those programs to be successful because there is a limit to overall availability of funds. Therefore, evaluations should be factored into the budgeting process annually and tracked frequently.

Loubert (2008) probed academic achievement before and after an increase in funding, and the case for better budgeting practices can be argued. Loubert (2008) explored per pupil funding and academic achievement scores at the neighborhood school

level. As state governments grapple with the continuance of high amounts of state aid to low-income districts, high fiscal stress districts still receive these funds on scales that increase each year. Yet, the academic results remain stagnant and there is no significant progress. This seldom occurs without political support but in moving a step further, it should prompt school finance reform. An increase in school funding across Loubert's (2008) study shows an improvement in quality can be an outcome. Since an impact to academic achievement can be extremely difficult to measure or gauge, because there can be a complex set of elements that attribute to performance, sound budget practices that deliver the resources that ultimately are the means - to allow for the amount of instruction necessary to make a difference.

Fiscal Stress and its Measurement

When it comes to measuring fiscal stress in a school district, what would be the main purpose? Pragmatically speaking, it is of great use to understand financial equity of school districts. Although equity and finance are not one in the same, one can argue that you need some form of financial equity to provide a good learning environment with the latest technology and money to pay for a number of quality teachers. Districts that are stressed, do not have the financing. A big part of a negative fiscal score is overspending and you typically overspend when you are deficient in funding. In California found that district-level studies of resource allocation omit analysis of within-district resource allocation. In fact, states with larger and more segregated districts, such as California, Florida, and Maryland, are more likely to have within-district resource disparities (Knight, 2019; Orfield & Frankenberg, 2014; Sosina & Weathers, 2019). Additionally,

most of these studies do not explore the educational practices and how districts invest their funds. Lastly, to cast further doubt about finance equity, trends cannot be established as year-to-year things change and an impact, at least casually can be hard to ascertain. According to Knight and Mendoza (2019), accurate measure of school finance equity, with greater understanding of how particular theoretical perspectives, analytic approaches, and data sources influence results, will better inform policy efforts to improve state school finance systems.

For many years, scholars have debated the merits of school finance reforms that increased funding for high-poverty districts (Greenwald, Hedges, & Laine, 1996; Hanushek, 1986, 1997). In another study on intra-district public school funding in Tennessee, direct funding was not shown to be significantly related to school performance (Klein, 2008). School-level data of student performance on standardized test scores and school average individualized scores, in Klein (2020)'s study showed that state funding doesn't respond to the performance, but rather the number of students from low-income households. This seems to also take place in New York State's Foundation Funding formula for state aid, that uses a combination of enrollments and wealth ratios to determine state aid funding for a district.

Most of the literature intertwined in this paper is closely related. Within each research article there is a problem associated with funding from the state and subsequent spending by local districts. There is an examination of the impact of school aid directly intrastate. There are considerations toward synthesizing models to analyzing differences and conjure underlying issues from public spending. There isn't any conflict of results but there are slightly different focuses. There is an attempt to uncover potential impacts

of spending from neighboring districts while another closely positioned article explains the problem stemming from the structure of a district in relation to its funding and spending. More in-depth analysis looks into the court reform further and school district spending equalization to determine the price effect of a program's structure. There is a rationale as to why school district disparities exist, and a weigh-in that drills down extensively into the dynamics that are encountered by local districts alongside guidance to reduce the impact of such extenuating problems. Hence, the emerging theme or rather question – how can states get it right structure-wise and formula-wise, to provide the right amount of resources so that spending is truly equalized across districts everywhere? This may not be achievable but understanding these elements will lend to the dissertation topic of budgeting and assist in gaining a sense of the looming factors surrounding complexities of school district spending. The dissertation topic of this paper on budgeting will extend the present-day research to see where other gaps may be filled to help overcome balanced state aid funding obstacles if that isn't able to be resolved from a higher level. Ultimately, providing a rigorous lens into the ideology and the district side of spending control from the key individuals involved, the CFO, other central administrators, and various stakeholders, an attempt will be made to find a significant connection to learning and a consistent solution or come a step closer to doing so.

Prior research has exhibited that there may be a relation to a district that is poorly managed from a financial standpoint, thus resulting in a low fiscal stress rating, that seemingly is indicative of a district that is low performing academically. The review of over two dozen studies, delved into the foundation of budgeting to the funding sources and how in certain cases deficiencies can have a negative overall influence on the

instructional process of a district. The next chapter will focus on the methodology that will determine the root causes of the aforementioned issues.

CHAPTER 3

Methods and Procedures

Research Questions

1. To what extent is the financial condition (stress rating) of a school district related to their 3rd grade achievement level in Mathematics and English?
2. To what extent does community type and fiscal stress rating of a school district predict students' achievement in Mathematics and English?

The hypotheses for questions 1 are as follows:

H0: There is no difference in 3rd grade achievement levels in Mathematics and English between school districts with different financial stress rating.

H1: There is a difference in 3rd grade achievement levels in Mathematics and English between school districts with different financial stress rating.

The hypotheses for questions 2 are as follows:

H0: There is no difference in 3rd grade achievement levels in Mathematics and English between school districts with different community types {Rural, Suburban, Town, City}.

H1: There is a difference in 3rd grade achievement levels in Mathematics and English between school districts with different community types {Rural, Suburban, Town, City}.

The hypotheses for question 3 are as follows:

H0: There will be no relationship between fiscal stress rating, rural, urban, suburban or town communities and 3rd grade achievement levels in Mathematics and English.

H1: There will be a relationship between fiscal stress, rural, urban, suburban or town communities and 3rd grade achievement levels in Mathematics and English.

Research Design

Quantitative Analyses

The research study is a comparative and correlational study. The study is a non-experimental design and is overly quantitative. Correlational research was conducted from data that was collected through archived state sources – achievement data and fiscal stress ratings data. An independent samples *t* test was performed twice with one dependent variable and one independent variable with two groups. There is also a multiple regression performed with the same dependent (criterion) variable and five predictor variables.

Population

Overall, a minor amount of school districts is classified with fiscal stress. Throughout the first several years of the Fiscal Stress Monitoring System (FSMS), the number of districts exhibiting stress remained constant at between 12 and 13 percent of all districts. In contrast, a much smaller share of districts repeatedly experienced chronic

fiscal stress. For example, 5 percent of districts have been in a fiscal stress category for all three years that the FSMS has measured fiscal stress in school districts. Fiscal stress ratings are purposeful to school boards, school business officials, taxpayers, and other interested parties. Within these districts those stakeholders inherently must work to comprehend and address the factors that contribute to fiscal stress.

Careful management of district finances is even more critical since the property tax levy limit law, popularly known as the “tax cap,” continues to constrain school districts’ ability to increase their property tax levies. The law limits year-over-year property tax levy growth to the lesser of 2 percent or the rate of inflation, whichever is lower. Since the 2012-13 school fiscal year, the allowable levy growth factor for school districts has been on average below 2 percent. This makes the fiscal stress ratings a valuable measurement due to the public nature of the results being published and the same constituency that votes on the proposed budget annually.

In the 2018-2019 school year of 671 public school districts in New York State across 57 counties, 33 school districts were found to be in one of the three levels of fiscal stress, up from 26 in 2017-18. Four had a significant stress level, five had a moderate stress level and 24 had a susceptible stress level. 95 percent of districts (637) are not in a fiscal stress category, with four that didn’t file financial reports. Additionally, 50 percent of districts received no points on any of the six fiscal stress indicators. High-need districts were more likely than other school districts to be in fiscal stress. Within the high-need category, urban/suburban school districts were more likely to be in fiscal stress than rural districts. Geographically, the Central New York and North Country regions had the largest proportions of districts in a fiscal stress category. The Southern Tier was the only

region with a decrease from the previous school year in the number of districts in fiscal stress.

The Institute of Education Sciences (IES), is a division of the U.S. Department of Education that conducts research, compiles statistic, and evaluates education. Under the IES, the National Center for Education Statistics (NCES) is the major federal operation that collects and analyzes data related to education. The characteristics used from the NCES to determine the type of locale (rural, suburban, urban, town) are variables for this study.

Sample

All public traditional districts with an elementary school in New York State – excluding the Big Five city school districts (New York City, Buffalo, Rochester, Syracuse, and Yonkers), special-act, vocational and state-run districts). Out of the 671 districts, four did not file. Additionally, four districts did not have reported scores for Math and English. Altogether, 663 districts are utilized in the study.

Instruments

The Fiscal Stress Monitoring System (FSMS) measures fiscal stress through a set of financial indicators. Districts showing signs of stress in these indicators receive points: a high number of points reflects higher levels of fiscal stress. The points on the individual indicators are then converted to an overall fiscal stress percentage score, using a calculation that assigns set weights to each indicator category. The metrics associated

with the score include; low fund balance (savings), operating deficits, low liquidity and short-term debt. The original four indicator categories evaluated for fiscal stress by the OSC in school districts are calculated on a scale of no designation (group 1): 0 - 24.9, susceptible rating (group 2): 25 - 44.9, moderate stress rating (group 3): 45 - 64.9, and significant stress rating (group 4): 65 - 100. These classifications were re-grouped to a no designation group with zero scores and a second group with all other scores. In general, low fund balance and low liquidity were much more prevalent in stressed districts than in their lower-scoring counterparts. In contrast, many lower-scoring districts may still have had operating deficits. Relatively few districts of any description relied on short-term debt—although fiscally stressed districts were more likely than others to do so.

Table 3.1

Fiscal Stress Rating of School District.

Category	Number	%
Significant	4	.6
Moderate	5	.8
Susceptible	24	3.6
No designation	633	95

Data Sources

Data for the 2018 – 2019 school year were collected from national and state public websites, the National Center for Education Statistics (NCES), the Office of the State Comptroller (OSC) and the State Education Department (SED). All data have been validated and certified by each respective state agency and will be reliable inasmuch of

what was reported by each school district's financials and what was scored upon their test results.

Achievement Data

The first data source includes the number of proficient achievement test scores for the corresponding districts rated with a fiscal stress score. The New York State Education Department (NYSED) is committed to making data available and easy to use. The site provides a first step in publicly reporting educational data so all interested parties can be better informed as they work to advance student achievement. Data in the New York State Report Cards are reported to the New York State Education Department annually by districts and schools primarily using the Student Information Repository System (SIRS) and BEDS (Basic Educational Data System) Online, which includes the Personnel Master File (PMF) and the Institutional Master File (IMF). Districts and schools may revise their data weekly in SIRS until the end-of-year reporting deadline, which is generally at the end of August following the end of the school year. The data is viewed and verified for accuracy by districts and schools using verification reports in the Level 2 Reporting (L2RPT) environment. More detailed information about these reports and their accessibility is available at

<http://www.p12.nysed.gov/irs/level2reports/reportguides.html>. Approximately a week after the year-end reporting deadline, all district superintendents and charter school leaders must certify their school data using the certification form available on the Information and Reporting Services (IRS) Portal. Additional information about the IRS Portal and all filings are available at <http://p1232.nysed.gov/irs/irs-portal/home.html>. A downloadable PDF table file located on the OSC (Office of State Comptroller) website

offers information on the sources of data in report cards and the L2RPT verification report used (if applicable) to verify the data.

Specifically, the grades 3-8 English Language Arts (ELA) and mathematics assessments measure the higher learning standards that were adopted by the State Board of Regents in 2010, which more accurately reflect students' progress toward college and career readiness. Data are available statewide and at the county, district, and school level. This study inspected the proficiency scores for the districts, as defined by a score of 3 or 4 on a scale of four, for both the ELA and Math achievement tests of all students in grades 3 - 8 within the respective school district.

Data available on the data.nysed.gov site are based on those reported by schools and districts to the State as of July 25, 2019, via the Student Information Repository System (SIRS). The New York State School Report Card 3-8 English Language Arts (ELA) and Mathematics assessment data are all based on those data reported as of the final school year reporting deadline.

Fiscal Stress Ratings Data

The second data set comes from the Fiscal Stress Monitoring System (FSMS), which was created by the OSC to assess fiscal stress in local governments and school districts. Local governments and school districts are required to file their financial reports 60-120 days after the end of their fiscal year. OSC staff begin reviewing reports as soon as they are filed. System scores are typically available 7-9 months after the end of the local government or school district fiscal year.

As OSC receives annual financial reports, Division staff perform a standardized review and follow-up with the local government or school officials, as necessary. A

subset of specific data elements is then used in the fiscal stress calculations to preliminarily determine whether or not a unit might be in one of the stress categories. After these entities are identified, additional contact and follow-up is made to review this information and resolve any data issues (e.g., data errors or inconsistencies). The entire process may involve multiple phone and email communications and often results in adjustments being submitted by individual entities. The process culminates with an official notification by OSC to the local government and school district officials, prior to the public release of scores. This lengthy and rigorous review ensures that there are no surprises at the local level when the scores are announced.

A low score resulting in "no designation" means that the district is not "susceptible" to fiscal stress, in the judgment of the Comptroller. The score takes into account factors such as the district's budget management, fund balances and debt. In addition, a score is provided for "Environmental Factors", such as socioeconomic conditions and property values, which are mostly outside of a school district's direct control. A "no designation" score of fiscal or environmental stress, is the lowest indicator possible and an affirmation that the district's financial condition is very strong.

There are a set of FSMS environmental indicators that do not factor into the fiscal stress score but do provide minor context for evaluating the challenges that school districts face. The environmental indicators for school districts inspect the changes in the size of the district's property tax base, enrollment trends, school budget vote results, the district's graduation rate, and a poverty measure (by industry measure – the percentage of students in kindergarten through sixth grade who are eligible for free or reduced-price lunch).

According to the OSC, the majority of districts in a fiscal stress category are more likely than those with no designation to have a shrinking property tax base, low budget support and a low graduation rate. They are also less likely to have declining enrollment. Districts in fiscal stress have levels of poverty similar to those of districts without any designation. Voter support for school budget votes has generally been increasing in recent years for both fiscally stressed districts and those with no designation. Since 2008, most school districts have been experiencing a shrinking property tax base, in a big contrast to the rapid growth that most districts experienced in the years leading up to the recent recession. Downstate districts in particular have experienced dramatic downward shifts in property values and thus in their property tax bases. From 2002 to 2008, downstate districts (those on Long Island and in the Mid-Hudson region) generally experienced much higher growth in the taxable full value of real property than upstate districts. Since the recent recession, however, downstate districts have had shrinking tax bases in many cases, while a majority of upstate districts have continued to see growth—albeit slower growth—in their property tax bases. These shifts would tend to reduce disparities in the districts’ ability to raise funds to support education through property taxes.

Procedures

Data analyses

An independent sample *t* test was utilized to analyze the data statistically for the first research question. The rationale for using the independent samples *t* test was to see if there is a difference between the achievement test scores in Math and English of the

two groups, and what financial factors related to the conditions or the independent variable, fiscal stress rating, of a school can be determined as an influence on the achievement test scores. A one-way ANOVA was performed to analyze the data statistically for the second research question. The rationale for using the one-way ANOVA was because there were more than two types of the independent variable and to see if there is a difference between the achievement test scores in Math and English of the two groups, and what community types where a school district is located, can be determined as an influence on the achievement test scores. A separate hierarchical linear regression analysis was utilized to analyze the data statistically for the third research question. The rationale for using the multiple regression for the dependent variable, the locale or community type of a school district locale, was administered to illustrate any influence a community type may have on the fiscal stress or the academic standing.

The data analyses and variables for each research question is as follows:

Research question 1: To what extent is the financial condition (stress rating) of a school district related to their 3rd grade achievement level in Mathematics and English?

Data analyses – Independent Samples t Test

Variables – Independent – Fiscal Stress Rating Group 1 – low ratings, Group 2 – high ratings. Dependent – Mathematics and ELA scores.

Research question 2: To what extent is the community type {Rural, Suburban, Town, City} of a school district related to their 3rd grade achievement level in Mathematics and English?

Data analyses – One Way ANOVA

Variables – Independent – Community type {Rural, Town, City, Suburban} Dependent – Mathematics and ELA scores.

Research question 3: To what extent does community type and fiscal stress rating of a school district predict students' achievement in Mathematics and English?

Data analyses – Hierarchical Multiple Regression

Variables – Independent – Fiscal Stress Rating Group 1 – low ratings, Group 2 – high ratings. Dependent – Mathematics and ELA scores. Dependent – Community Type with four types: {Rural, City, Town, Suburban}

When analyzing district results in this study, it is important to note the predominant way revenue is raised for each district. Districts are generally distinguished in two ways: one being a district that is funded by a majority of taxes and the other by a district that are funded by a majority of state aid. The reason for such distinction is to possibly uncover if there is another reason why fiscal stress may occur in one district versus another.

Variables

The independent variable is categorized by the high group and the low group of financial stress ratings of public schools in the 2018-19 school year. The independent

variable includes school districts that either received a fiscal stress score or in some cases a rating of no score or zero. These variables were separated into two stress rating groups, distinguished by the lowest of scores indicating virtually no fiscal stress versus districts that had an inkling of stress to a preponderance of stress. Group 1 contained fiscal scores from 0 -3.3, and this accounted for approximately 50% of the lower half of the fiscal stress ratings. Group two accounted for all others.

The dependent variable is the achievement test score corresponding to the district's financial stress rating score and separately, the community type. These values are continuous. However, the percent of proficiency level for any given district and their values are used in the computations for the independent samples *t* test. The community type utilized four different categories. The means were compared from each independent group in order to determine whether there was statistical evidence that the associated population means are significantly different. The dependent variable was continuous, and the independent variable was between-subjects (groups). If the *p*-value was less than or equal to .05, the null hypothesis was rejected. There were three assumption tests: a test for normality, homogeneity of variances, and independence of observations. Post hoc tests were run if there were statistically significant results, to confirm where the differences occurred between groups.

CHAPTER 4

Results

Introduction

The study results presented in this chapter addressed the financial condition of public schools in New York State and their related English (ELA) and Math scores for grades 3- 8. The archived data is based on the state assessment results of the 2018 – 2019 school year and the New York State fiscal stress ratings for 671 public school districts for the same school year. An independent samples *t* test and a one-way ONOVA was presented with quantitative data outlined demonstrating the change statistics. In addition, a multiple regression was performed to determine if the financial condition of a school district was related to the geographical type as determined by National Center for Education Statistics (NCES) Institute of Education Sciences.

Research findings are presented for each research question below.

Research Question/Hypothesis 1: To what extent is the financial condition (stress rating) of a school district related to their 3rd grade achievement level in Mathematics and English?

The hypotheses chosen were:

H₀: There is no difference in 3rd grade achievement levels in English and Mathematics between school districts with different financial stress rating.

H₁: There is a difference in 3rd grade achievement levels in English and Mathematics between school districts with different financial stress rating.

Table 4.1

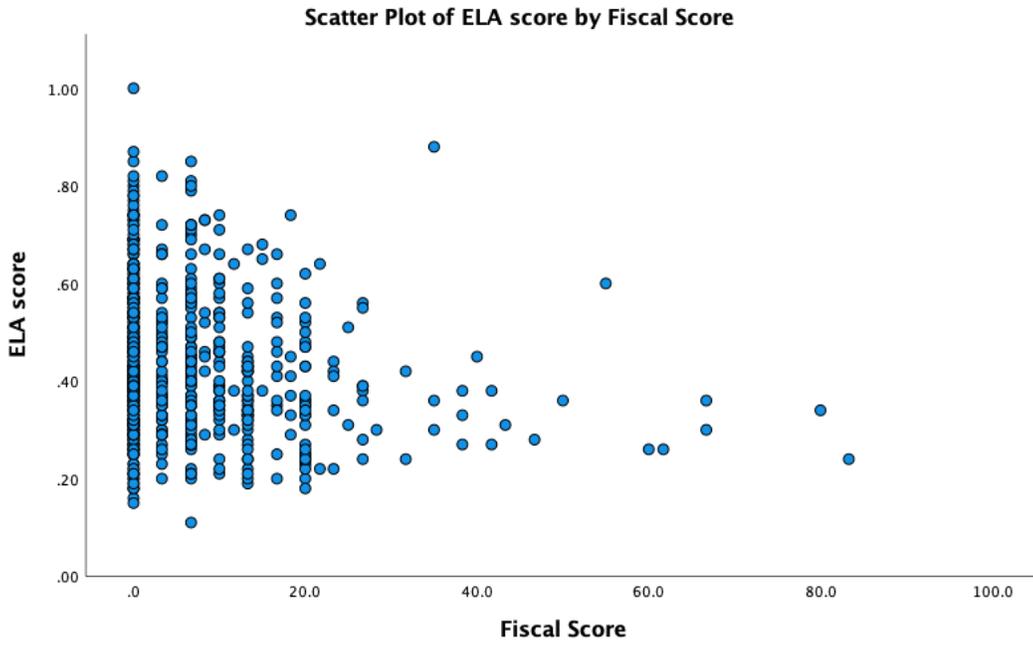
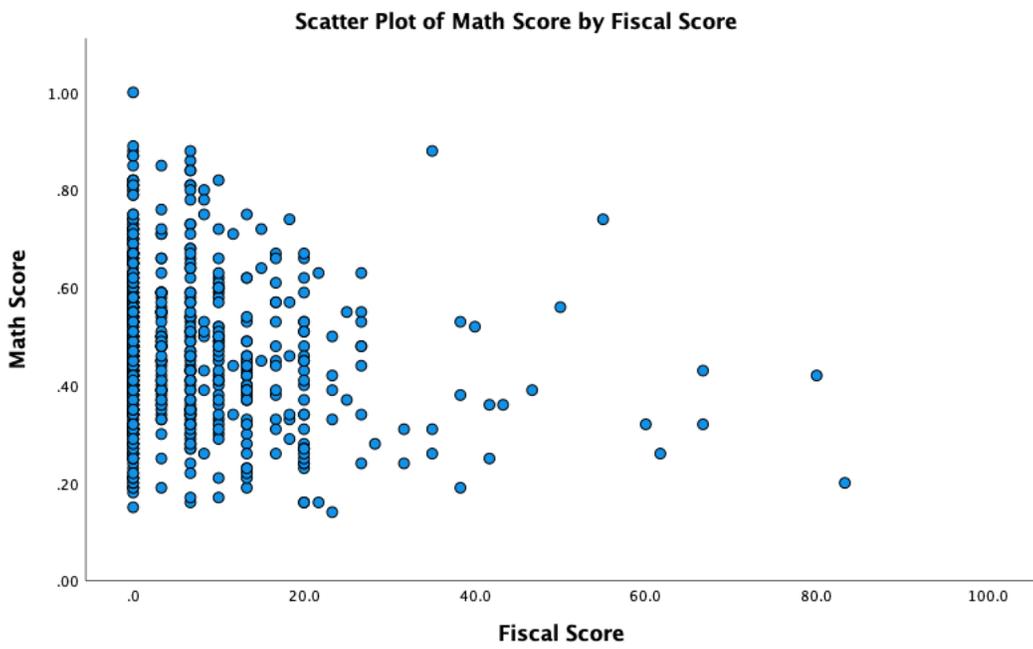


Table 4.2



Results

An independent samples t test was chosen as the appropriate test for the statistical analysis because the t test determines if achievement test scores vary by a district's fiscal stress score rating. This test was deemed appropriate as the data included only one independent categorical variable with two levels and two dependent categorical variables. The statistical analysis determined if there was a significant difference between the means of the groups. An alpha level of .05 was chosen to test for significance.

The data were screened and there were no missing or miscoded values or outliers. Four school districts did not file fiscal information for the stress test. Four separate districts did not have either ELA or Mathematics test scores reported for the school year. There were no coding errors, and four total assumption tests were conducted. There was at least one continuous dependent variable. There was normality noted in each of the groups of histograms for Mathematics and ELA. There was independence of observations as each score was only a member of one group. There was homogeneity of variances as shown by the nonsignificant result on the Levene's test for the ELA scores $F(29,627) = 1.272, p = .195 (p > .05)$.

Analysis of the independent samples t test first revealed that in lower range of fiscal stress scores the mean ELA score was $M = .450 (SD = .1484)$, whereas in the higher range of fiscal stress scores the mean was $M = .418 (SD = .1415)$, that is 45% and 42% of students are in the proficiency range for English Language Arts in groups 1 and 2, respectively. The confidence interval, that is 95% of scores occurred between .009 and .055, shows directionality because the range did not include zero. This difference of .032

or roughly three percentage points was found to be statistically significant, $t(335) = 2.801, p = .005$. According to Cohen's $d = .1450$ for Group 1, the effect size was below .2 and was thus negligible for the lower group and upper group, respectively. However, this statistically significant finding suggests that the financial condition of a school district (fiscal stress rating) may be a predictor of ELA state achievement test scores. The null hypothesis was rejected.

The t test was then conducted with Mathematics scores. The mean test scores were as follows: Fiscal Stress Low group mean Mathematics score was $M = .488$ ($SD = .1579$) and for Fiscal Stress High group mean Mathematics score was $M = .457$ ($SD = .1535$). The confidence interval, that is 95% of scores occurred between .007 and .055, showed directionality because the range did not include zero. There were approximately 49% and 46% of students within the proficiency range for Mathematics in the Fiscal Stress Low and High groups, respectively. In this test, $t(326) = 2.547, p = .011$, which was also statistically significant. According to Cohen's $d = .1557$ for Group 2, the effect size was below .2 and was also negligible for the lower group and upper group, respectively. There was a significant difference between the fiscal stress rating and Mathematics achievement test scores, as exhibited in Table 4. The null hypothesis was rejected, and this statistically significant finding suggests that the financial condition of a school district (fiscal stress rating) may be a predictor of Mathematics state achievement test scores.

Table 4.3

Mean and SD of Mathematics & ELA Scores of Fiscal Stress Groups

Groups	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
ELA low group	336	.4500	.14843	2.801	661	.005
high group	327	.4184	.14150			
Math low group	336	.4877	.15794	2.547	661	.011
high group	327	.4569	.15353			

Research Question/Hypothesis 2: To what extent is the community type {Rural, Suburban, Town, City} of a school district related to their 3rd grade achievement level in Mathematics and English?

The hypotheses chosen were:

H₀: There is no difference in 3rd grade achievement levels in English and Mathematics between school districts with different community types {Rural, Suburban, Town, City}.

H₁: There is a difference in 3rd grade achievement levels in English and Mathematics between school districts with different community types {Rural, Suburban, Town, City}.

Table 4.4

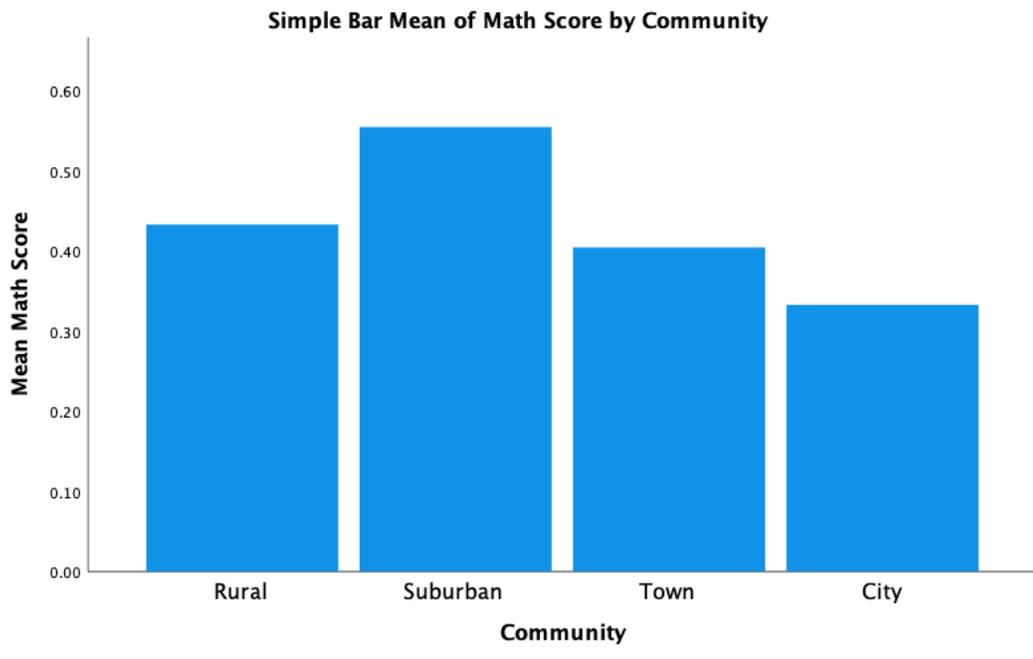
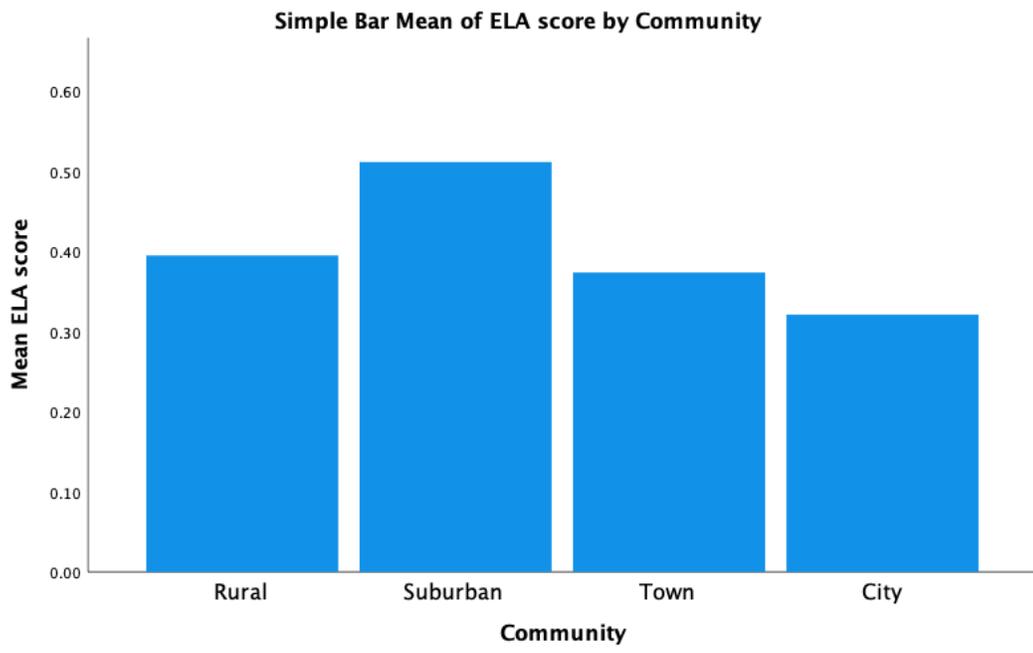


Table 4.5



one anova with post hoc tukey to test the null hypothesis that there would be no differences in Math and English scores by community type. Based on the F test, there was a statistically significant relationship between all community types and Math and English. After running the tukey test, we found that there was no statistical significance between community types. ($p < 0.05$).

Research Question/Hypothesis 3: To what extent does community type and fiscal stress rating of a school district predict students' achievement in Mathematics and English?

H₀: There will be no predictive relationship between the financial condition of a school district and its community type [rural, suburban, town, city] on student achievement.

H₁: There will be a relationship between the financial condition of a school district and its community type [rural, suburban, town, city] on student achievement.

Hierarchical linear regression analysis was chosen to predict students' achievement based on their community type; rural, suburban, town or city and financial stress scores. The rationale for using hierarchical linear regression was that there was only one continuous criterion variable and two predictor variables.

Prior to running the hierarchical linear regression analysis, the six assumption tests were executed. The relationship between the independent and dependent variables was linear, as demonstrated by scatterplots. There was no multicollinearity in the data. The values of the residuals were independent as were noted by the Durbin-Watson statistic, which was close to 2 (Durbin-Watson = 2.045). The values of the residuals were normally distributed, which was evidenced by the P-P plot. Finally, there were no influential cases of biasing by apparent outliers in the data, which was verified by calculating Cook's Distance values, which were all under 1.00.

In the case with ELA as the dependent variable, the results of the block or model revealed that all community types showed statistical significance. The fiscal score had an $R = .165$. The $R^2 = .027$, associated with this model suggested 2.7% of the variance in the ratio of students whose ELA proficiency level is at 3 or 4 and can be explained by

fiscal stress rating. The results indicated that fiscal score was a relatively fair predictor of ELA proficiency, $F(1,661) = 18.396, p < .001$. The combination of community types, suburban, city, town, and rural, placed into a separate predictor model, explained 18.2% more of the variance or a total 20.9% of the students that achieved a 3 or 4 proficiency on the ELA assessments. Fiscal score ($\beta = -.168, p < .001$), indicated that there was an inverse relationship, that is, the higher the fiscal score, the lower the ELA proficiency. Results that predicted ELA proficiency was equal to the regression equation of $ELA = .488 - .002(\text{Fiscal})$.

In the case with Mathematics as the dependent variable, Fiscal score, $R = .165$, also signified strength between the Mathematics proficiency and all of the predictor variables was moderate. $R^2 = .027$, or 2.7% of the Mathematics proficiency can be explained by fiscal store. In the predictor model with community types, proficiency increased similarly to that of the ELA results, with 21% variance explained with the addition. The results indicated that the model was a significant predictor of math proficiency, $F(1,661) = 18.574, p < .001$. Similarly, Fiscal score, ($\beta = -.168, p < .001$) primarily predicted proficiency on the Mathematics exams. Fiscal score also indicated that there was an inverse relationship, that is, the higher the fiscal score, the lower the math proficiency. Lastly, the community types, City, Rural, and Town, likewise did not significantly predict Math or ELA proficiency. Results predicted Mathematics proficiency was equal to the regression equation of $\text{Math} = .449 - .002(\text{Fiscal})$.

Table 4.6

Model Summary of Multiple Regression Analysis for Predicting ELA Proficiency.

Model	<i>R</i>	<i>R</i> ²	<i>R</i> ² _{adj}	<i>SEE</i>	ΔR^2	ΔF	<i>df</i> ₁	<i>df</i> ₂	<i>p</i>
1	.165 ^a	.027	.026	.14393	.027.	18.396	1	661	.001
2	.454 ^b	.206	.201	.13034	.179	49.324	3	658	.001

a. Predictors: (Constant), Fiscal Score

b. Predictors: (Constant), Fiscal Score, Community Type

Table 4.7

Summary of Multiple Regression Coefficients for Predicting ELA Proficiency.

Variable	<i>B</i>	<i>SE</i> β	β	<i>t</i>
Model 1				
Fiscal score	-.002	.001	-.165**	-4.289
Model 2				
Fiscal Score	-.002	.000	-.167**	-4.806
Rural	-.117	.011	-.399	-10.489
Town	-.135	.016	-.325	-8.641
City	-.183	.032	-.204	- 5.761

Note: **p* < .05. ***p* < .001

Table 4.8

Summary of ANOVA for ELA Proficiency.

Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
Model 1				
Regression	.381	1	.381**	18.396
Model 2				
Regression	2.895	4	.724**	42.601

Note: * $p < .05$. ** $p < .001$

Table 4.9

Model Summary of Multiple Regression Analysis for Predicting Mathematics Proficiency.

Model	R	R^2	R^2_{adj}	SEE	ΔR^2	ΔF	$df1.$	$df2.$	p
1	.165 ^a	.027	.026	.15439	.027	18.574	1	661	.001
2	.455 ^b	.207	.203	.13969	.180	49.810	3	658	.001

a. Predictors: (Constant), Fiscal Score

b. Predictors: (Constant), Fiscal Score, Community Type

Table 4.10

Summary of Multiple Regression Coefficients for Predicting Mathematics Proficiency.

Variable	B	$SE \beta$	β	t
Model 1				
Fiscal score	-.002	.001	-.165**	-4.310
Model 2				
Fiscal Score	-.002	.001	-.167**	-4.789
Rural	-.122	.012	-.388	-10.218
Town	-.147	.017	-.331	-8.786
City	-.214	.034	-.223	-6.281

Note: * $p < .05$. ** $p < .001$

Table 4.11

Summary of ANOVA for Math Proficiency.

Variable	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>
Model 1				
Regression	.443	1	.443**	18.574
Model 2				
Regression	3.359	4	.840**	43.030

*Note: *p < .05. **p < .001*

Summary

The study used information from districts all across New York State that comprise of central school districts, elementary school districts and traditional K-12 school districts. The financial information presented to rate each district from a standpoint of fiscal stability, raised questions about how districts that were financially impaired (high stress rating) may have a significant impact on student achievement, specifically math and ELA state assessment exams. Perhaps it can be stated that districts with a high fiscal stress rating, may have been in a more dire financial situation. In addition, the question was raised if the community type could be a predictor of the fiscal stress rating. Some can argue the state assessments may not be reliable or opt-outs may skewer the results. In either case, the financial affairs must still be managed carefully, as that may be indicative of stress rating, and thus will certainly have an effect on available resources necessitated for learning. It is also likely that a rural town may be more fiscally stressed because there may be less funding due to fewer taxpayers and larger commercial

properties for taxes. Although the results did not explicitly show this for rural school districts, other community types probably are not predictors as correlations were also low.

CHAPTER 5

Discussion

Introduction

The purpose of this research was to examine the relationship between the financial condition of a public school district, the community type, and academic achievement. The study is essential because with potential changes in the economic landscape and the restrictive nature of the tax cap, districts are challenged annually with sufficiently budgeting and the subsequent apprehension that there may be a risk of decrease in academic achievement (resulting from forced reductions in teaching personnel and programs). Districts in fiscal stress have had to decrease capital expenditures, which has also led to a downgrade of facilities, and fewer resources for innovation and instructional support. It is extremely imperative to examine the impact of reduction of tax-based income on achievement so that districts can have a better understanding to guide future budgeting and the allocation of resources. Furthermore, it is important to help better understand the dynamics of a budget by investigating the financial condition and makeup of a district, so that best practices can be advanced toward budget development.

Results of this study indicate that the student achievement levels may be affected by the financial condition in some ways; however, further research of the allocation of funds and its relation to academic achievement is recommended to gather to what extent of a relation there is and what other factors need to be taken into account that may increase or decrease such effects.

The study used information from districts all across New York State that comprise of central school districts, elementary school districts and traditional K-12 school districts. The financial information presented to rate each district from a standpoint of fiscal stability, raised questions about how districts that were financially impaired (high stress rating) may have a significant impact on student achievement, specifically math and ELA state assessment exams. Districts with a high fiscal stress rating, may have been in a more dire financial situation. In addition, the question was raised if the community type could be a predictor of the fiscal stress rating. Some can argue the state assessments may not be reliable or opt-outs may skew the results. In either case, the financial affairs must still be managed carefully, as that may be indicative of stress rating, and thus will certainly have an effect on available resources necessitated for learning. It is also likely that a rural town may be more fiscally stressed because there may be less funding due to fewer taxpayers and larger commercial properties for taxes. Although the results did not explicitly show this for rural school districts, other community types probably are not predictors as correlations were also low.

Implications of Findings

The district test scores that were evaluated and the corresponding public budgetary documents listed for the fiscally stressed districts, helped to conclude the following one or more of the conditions to be indicative of financial distress: (a) declining fund balances; (b) failure of internal controls in a school district; (c) board policies that are not updated regularly and do not coincide with administration's financial plans; (d) inaccurate revenue forecasting; (e) lack of a reserve for economic uncertainties

or contingency funds; (f) a lack of financial reporting to the Board of Trustees; (g) lack of long or mid-range budget planning; (h) lack of fiscal leadership in the superintendency; (i) lack of knowledge of TEA funding formulas and (j) lack of communication to the Board and community of the fiscal ramifications and implications.

The problem with determining influences on student achievement is that there isn't just one root cause or even several root causes. In addition, there are many potential underlying issues (i.e. legislation) that insinuate causes and in certain instances, intensifies those root causes. Munley and Harris (2010) purports this by posing whether more state funding is needed or if a state program's structure is sound. That insufficiency either way directly impacts a fiscal stress rating because a rating is based on a school district's ability to stay solvent. This is primarily measured in the rating through a district's fund balance or savings, as within the scoring that holds 50% of the weight. When districts that rely heavily on state funding don't receive enough to support their instructional program, they will show a deficit and have a higher fiscal stress score. The research presented in this study raises the question further on if high fiscal stress contributes to low achievement and vice versa. The many of the studies in Chapter Two are indirectly connected to fiscal stress in a similar fashion. The strategies for budgeting, school spending, judgements, and other disparities all impact a fiscal score and present "stress" on either the cash position, fund balance, debt usage, or operating deficit from year-to-year because there will always be fixed costs that are generally increasing annually.

Specifically, unequal funding presents a straightforward disparity. One that lower achieving districts may not be able to eradicate. Often, the same districts are listed as

being in moderate or significantly stress because their financial resources are marginalized to that of 'richer' districts. The imbalance creates a perception of these districts that may carry over to their own morale and perpetuate mediocrity or lower performance. If there is increased funding through state aid to recapture a shortfall or to provide an equal balance to better performing peer districts, there isn't a strong enough plan for direction to allocate those funds and therefore these districts will still have a high fiscal stress rating – very much indicative of instability.

Financial insolvency represents a crisis situation for a school district. The impediments to success include time pressures, political pressures, conflicting information and uncertainty. School leaders must act within compressed time frames, high stakes environments, tough choices, and unpredicted events.

The community type ties to almost every parameter surrounding the funding mechanisms of schools. When a community is rural, there is lower tax base directly because the population is smaller. Conversely, when a community is a city, there are more taxes attributed to more individuals and businesses. There isn't a type that can directly be labeled as having more funding than another because other things are sometimes factored in. For one, you can have a higher population of citizens in an area, but their salaries may not be commensurate with that of another neighborhood with wealthier residents. Secondly, the disparity in total income may also be compensated with more public funds to equal communities. Hence, the most important aspect of funding is how the money is spent. In following up with that, how should the money be spent? Looking the financial condition then would be key to justify and properly align

Relationship to Prior Research

In a longitudinal study to assess the direction and magnitude of the relations between a variety of school inputs and student achievement (Greenwald, Hedges, & Laine, 1996), an extensive set of resources were positively related to student outcomes. Moreover, effect sizes were big enough to indicate that spending increases may be associated with significant increases in achievement. This indirectly supports the findings in this study, which found that some student achievement may be attributed to fiscal stress ratings.

In a study using state ELA assessments, results showed that a different variable, class size, did not have a significant impact on achievement (Shin & Chung, 2009). The relationship to this study could imply that shortfalls in financial resources impacting class size may not solely demonstrate significant differences, but a multitude of other factors may impact student achievement. The results of a mixed study by Plough (2014), involving school board governance, suggest that board members in high-performing districts demonstrated more of a commitment, a deliberative purpose, and connection to the public. A community type may be too broad in producing parents and possible members of the local board with those characteristics and thus there are other elements of poverty levels and conditions that may result from a community type.

Another study suggested that school funding was not racially discriminatory towards the percentage of minority students and that the majority of studies, have not found statistical significance with the relationship between budgeted government expenditures and school performance (Klein, 2008). However, more broader scale

research should be conducted, and a wider scope of variables should be interplayed with one another.

Most of the research that delves into studies of rural school districts, does not consider the differences between cities and suburbs (Lichter & Brown, 2011). Many times, boundaries shift based on population density cut-offs to distinguish rural versus suburban areas. There are also patterns of migration from rural to suburban areas. Thus, the designations of community type may be influx and can alter studies from year to year.

Upon inspection, poor and minority families are moving into inner suburban neighborhoods at increasing rates (Allard, 2008). More immigrants are moving directly to suburban and rural neighborhoods with their traditional path through the city or urban ethnic enclaves (Lichter & Brown, 2011). All this factors into the local student population. There is relevance to the academic level of these students.

Statistics involving school segregation illustrate that there are racial and economic differences between school districts and according to Lareau & Goyette (2014), most students attend a school in the district where they reside, and many families, affluent or not, make housing determinations based on the perceived quality of the public schools in each district. If a school district has a publicly disclosed fiscal stress rating that is negative, this is something that may factor into a person's decision to move into such district.

The community type in relation to a fiscal stress rating or student outcomes may present a conditional expectation because a community in large part is associated with a tax base that will either have more funds to spend on education or be more reliant on public funding assistance. While the relationship between expenditures and achievement

is not simplistic, and more money does not necessarily lead directly to higher achievement, when resources are used appropriately, both scholars and parents expect them to lead to better schooling outcomes and more educational opportunity (Morgan & Jung, 2016).

Limitations of the Study

The quantitative non-experimental research design contained limitations because the design does not control threats to internal and external validity. The external threat to validity in the study is generalizability. The data collected in the study only covered New York State public school districts and therefore cannot be generalized to similar populations in other states. While some general limitations were noted in Chapter 1, several more issues were observed when conducting the data analyses, which resulted in data not being comprehensive enough. Since the data were collected by the New York State Department of Education, the test score data were limited in scope with regard to the specific grade levels at level three or four and the number of level 3's versus level 4's – all that was stipulated was the competency percentage reported by the school district. Some further restrictions include: the number of students who have opted out of the state assessments, the reliability of the exam with subject matter and applicability toward student learning, the overall access of the community type.

There were a multitude of reasons of high fiscal stress ratings, due to various aspects of budgeting, spending, and aids. However, another limitation to the study would be not knowing which part of the finance was the most critical for student achievement. A

different type of model needs to be created to not just capture the level of impact but to also discern the type of reason.

Recommendations for Future Practice

Adequate school funding is a necessary precondition for school districts to secure the resources required to accomplish the goals and satisfy state mandates (Hoffman, Wiggall, Dereshiwsky & Emmanuel, 2013). Districts should analyze pressures affecting spending, in particular the decision-makers and their experience, credibility, judgement, and motive. Collaborative and representative budget determinations must be made in accordance with practicality so that essential resources can be made available for student achievement. Salary and benefits are generally the highest cost factors in a district's budget and sound, fair and responsible negotiating must also be conducted. Underlying issues such as class size needs to be sufficient, and then resources are better diverted to other instructional areas to support the academic program.

The leadership perspective, often something that is overlooked in public finance, practices of administrators matter towards gaining consensus on an educational direction. Future research must dissect the thinking process and how laws are interpreted by administration. The effects of unfunded mandates must be wholly taken into account, and creative funding measures must be fully investigated.

Hiring highly qualified school business officials who perform multi-year financial projections and careful reserve fund planning. Further, state educational policy makers should facilitate spending and raising revenues. District and building leaders should

evaluate the return of investment on their initiatives, develop realistic objectives, and prioritize school expenditures accordingly. Lastly, Boards of Trustees should monitor and comply with policy and administrative regulation involving staffing, budget controls, outstanding debt, and budget controls. Explicit reasoning must also be provided to justify staffing and personnel raises.

Recommendations for Future Research

Future research should focus on the impact of the tax cap with regard to how districts set their levy. In other words, are districts levying to their maximum allowable levy limit each year or are they trying to appease their tax base or even worse fearful of dissenting voters, and in certain cases not raising taxes at all, and thereby putting more strain on their budgeting. More research needs to gain a better understanding of what input other central administrators (e.g., Superintendents, Assistant Superintendent, Directors, etc.) may have in the budget process and how educated they may be towards budgeting and the affects presented by their programming and instructional planning. Further research should also investigate per pupil spending in rural and urban areas. Moreover, future research should incorporate studies on other stakeholders such as board members and their part in the budget process. Ultimately, research must drill down into the attitudes, experiences, and pedigrees of school business officials. Qualitative research can be incorporated to better gage these habits and behaviors that contribute to school district expenditure setting.

Research could be conducted on labor negotiations and labor unions if certain aspects are not confidential. Further, longitudinal research when the tax cap has been in

effect for three or more years will shed additional light on the impact of this fiscal constraint on the educational system.

Additionally, Long Island has seen a decline in enrollment due to the failing economy. A recent report from the Empire Center shows New York public schools are on track to experience the largest decline in enrollment since 1981, with 66,424 fewer K-12 students—a 2.6 percent drop—as compared to the 2019-20 school year. Future study should include student enrollment and the effects on funding received from state aid formulas – major revenue source for state aid dependent school districts.

The budget referendum pass rate should also be analyzed. Trends that display more dissenting voters within a community need to be addressed and plans to provide more transparency and trust will go a long way to ensure budgets aren't voted down and there aren't any zero-increase budgets.

Lastly, based on results from the regression model, the make-up of suburban districts and the complexities around parental education and their ideologies, may lend to better resources for students in those areas, thus translating into higher assessments and more accountability for the taxes those residents pay towards higher fiscal stability for those districts.

It is highly recommended that:

1. Further research be conducted with this type of research design and methodology with similar districts in other states.
2. Research must be continued which examines the impact on school districts of changes in the way schools are funded within a state.

3. Focused research must be conducted on school districts that are both economically and academically challenged with inferior ratings in terms of budgeting factors that may be interrelated.

APPENDIX IRB Approval Memo

Federal Wide Assurance: FWA00009066

Dec 20, 2021 11:09:48 AM EST

PI: Jack Mitchell
CO-PI: Seokhee Cho
Dept: Ed Admin & Instruc Leadership

Re: Initial - IRB-FY2022-125 *Predictive Relationship Between School Budgeting and Students' Academic Performance*

Dear Jack Mitchell:

The St John's University Institutional Review Board has rendered the decision below for *Predictive Relationship Between School Budgeting and Students' Academic Performance*.

Decision: Exempt

PLEASE NOTE: If you have collected any data prior to this approval date, the data must be discarded.

Selected Category: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Category 2.(ii). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording). Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation.

Sincerely,
Raymond DiGiuseppe, PhD, ABPP
Chair, Institutional Review Board
Professor of Psychology

Marie Nitopi, Ed.D.
IRB Coordinator

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VITA

Name	<i>Jack R Mitchell</i>
Baccalaureate Degree	<i>Bachelor of Arts, Binghamton University, Binghamton Major: Mathematics</i>
Date Graduated	<i>May, 1996</i>
Other Degrees and Certificates*	<i>Master of Science, Long Island University, Brookville, Major: Mathematics</i>
Date Graduated	<i>January, 2001</i>
Other Degrees and Certificates*	<i>Master of Arts, Long Island University, Brookville, Major: School District Business Leader</i>
Date Graduated	<i>September, 2013</i>