



## **South Carolina's Act 388: Exploring the Relationship of Tiered Reimbursement on School District Revenue**

To cite this article: Smith, S.J., Martinez, D.G., & Tran, H. (2022). South Carolina's Act 388: Exploring the relationship of tiered reimbursement on school district revenue. *eJournal of Education Policy*, 23(1). <https://in.nau.edu/wp-content/uploads/sites/135/2022/03/Smith.pdf>

**Sharda Jackson Smith, Ed.D.**

University of South Carolina, Upstate

**David G. Martínez, Ph.D.**

University of South Carolina

**Henry Tran, Ph.D.**

University of South Carolina

**Abstract:** Property tax limits have been found to reduce property tax revenue, with compensatory increases in replacement taxes often not sufficiently making up for funding loss and systematically promoting inequity. Consequently, such practices suggest severe implications for school district fiscal capacity. Our study explored this issue in South Carolina after Act 388's reimbursement implementation, with a special focus on rural school districts. We examined through correlation and regression the degree to which revenue served as a function of fiscal capacity, and fiscal capacity as a function of reimbursement. Our results established a plausible link between the state's property tax exemption law and school revenue availability for rural districts, non-rural districts, and the state as a whole. We conclude that consequential funding disproportionality resulted in a negative impact on rural, low-income districts.

**Keywords:** *Educational Policy, Tax Policy, Rural, Low-Income*

## Introduction

While historical literature, particularly Hanushek's (1986) widely cited review of production function research, has casted doubt on the relationship between money and valued school outcomes, more recent work has suggested that school funding matters (Jackson et al., 2015; Lafortune et al., 2018). The more funding and resources students have access to, the greater service availability is present including teachers with advanced degrees and more time in the career and infrastructure that is safe and in full working order (Martínez, 2021). This then helps students in the learning environment which may help to increase achievement scores, lower class sizes, raise teacher salaries, reduce the student-teacher ratio, increase adult wages over time, decrease adult poverty over time, and increase property valuation (Hyman, 2017; Jackson et al., 2015; Lafortune et al., 2018).

Property taxes have long represented the primary source of revenue for schools across the nation (Tran, 2018; Youngman, 2016). Historically, property wealth and tax levies determine how much funding is available for students, and often wealthier, non-rural, districts raise more educational funds as a function of property wealth. (Baker, 2021; Martínez, 2021). Due to its "obtrusive" nature (representing large collection(s) annually rather than smaller intermittent payments across the year resulting in visibly larger payment amounts), property tax "revolts" have generated tax limitation legislation that have reduced the share and amount of local and state revenue generated by property tax efforts, despite being widely considered relatively stable, transparent, and efficient (Cabral & Hoxby, 2012; Martin, 2015). Studies examining funding revenue allocation and distribution post property tax limitation legislation find that such policies exacerbate inequities in both rural and non-rural areas; however, it is important to consider the ramifications of rural school funding insufficiency (Kim, 2017; Martin & Beck, 2015).

For instance, the cost of providing rural and non-rural schools with tantamount services is often difficult to equalize and states have largely sought to provide supplements writ large without considering price differential. There are clear costs differences between rural and non-rural schools that are a function of pricing elasticity in services such as transportation or operation and maintenance (Kolbe et al., 2021). There are also resourcing differences with rural schools having less access to technological infrastructure, and educators with advanced degrees (Miller & Liu, 2021; Tieken & Montgomery, 2021). South Carolina is a majority rural state, educating a large proportion of its students through rural schools, and contends with school finance inequity stemming from state policy inertness.

State policies can impact resource allocation distributions (Baker, Farrie, & Sciarra, 2016), thereby affecting funding capacity and equity for schools. In South Carolina the state's reliance on local property tax levies to fund schools, coupled with tax limiting policies, have strained districts financially and spurred litigation. Comparatively, most states rely on property tax levies, however, South Carolina is unique due to its majority rural educational context, and to the tax limiting policies the South Carolina legislation has implemented, which we discuss in more detail below. Because of the importance of property taxes for school revenue, our paper

focuses on the aftermath of legislation designed to limit property taxes in the state of South Carolina.

Property tax levies remain the most significant source of South Carolina's general revenue. In Fiscal Year 2014, property tax levies represented 33.5% of the total tax revenue collected in South Carolina and 78.5% of all revenue collected at the local level (Walczak, 2017). Despite its importance, South Carolina has transferred the fiscal responsibility of revenue generation in policy through Act 388. South Carolina's Act 388 (2006) authorized property tax levy exemptions, imposed for school operating purposes, for owner-occupied properties (South Carolina Code of Law § 12-37-220; sub-section 47(a)). The state attempted to offset local property revenue loss with increased state aid through a one cent sales tax levy (i.e. *single penny solution*) administered by the state, but this change occurred congruent with the Great Recession (2007) (South Carolina Code of Law § 11-11-156), resulting in net revenue loss for many school districts, primarily those from economically challenged locales (Saltzman, & Ulbrich, 2012).

Not isolated, the Great Recession caused many states to reconsider their tax structure in an effort to relieve taxpayers of the perceived excess local property tax burden (Chakrabarti & Setren, 2011; Kenyon & Reschovsky, 2014; Sands & Skidmore, 2014). The tax cuts spurred by the great recession impacted school finance policy and many state legislatures cut funds to public education (Knight, 2017). As a result, those schools with greater proportions of students in poverty, often rural schools, exhibited decreases to infrastructure and personnel funding thus increasing inequity (Knight, 2017; Martínez & Spikes, 2019). South Carolina's tax limiting response prompted a single penny solution to overcome funding shortfalls, however, initiated an unavoidable economic loss before the Great Recession, exacerbating unforeseen fiscal decline as a function of slower consumer spending during a time of personal austerity (Keisler, 2014; Knoepfel, Pitts, & Lindle, 2013; Tran, 2018). Ensuing legislative agendas have historically been unable to address the loss of revenue, and the tax base has continued to deteriorate increasing the tax burden through escalating rates for select populations. Educational stakeholders, on a localized level, recognized the tax levy exemption of owner-occupied residential property, concluding that South Carolina's single penny solution negatively impacted local school district revenue streams (Knoepfel, Pitts, & Lindle, 2013).

This study adds to empirical discourse by measuring how South Carolina's Act 388 impacted the state's educational revenue pipeline. It measured the degree to which revenue serves as a function of fiscal capacity, and fiscal capacity as a function of tiered reimbursement. By providing a direct link to school district revenue availability and policy-implemented disproportionality through fiscal capacity and South Carolina's tiered reimbursement, the resulting analysis implicates South Carolina's tax policy and school funding policy as creating greater school funding disparity across districts predicated on local property wealth. In order to build a theoretical and practical base for this analysis, we outlined South Carolina's historical tax policy, the advent and impact of Act 388, subsequent policy to remedy Act 388, and South Carolina's existing school funding inequity.

Ultimately, this analysis adds to the growing debate regarding historical school funding inequity once again highlighted by the United States Commission on Civil Rights (2018).

## **Background**

### ***History of South Carolina Tax Policy Leading to Act 388***

State level education funding systems have largely relied on the property tax to fund education as historical artifact (Walker, 1984). Historically, the property tax was common and inseparable from movements toward compulsory education (Springer, Houck, & Guthrie, 2008; Walker, 1984). As early as the 17<sup>th</sup> Century, the United States government relied on property tax to fund infrastructure. South Carolina, as an independent state, evolved its own constitutional tax code in order to appropriate funding toward infrastructure and education (Howe & Reeb, 1997; Quirk & Watkins, 1974). In 1784, South Carolina's General Assembly created provisions for tax levies on property that relied on a rule of valuation and proportionality to assess market value, but by 1843 the arbitrary nature of this tax levy structure found its way to the South Carolina Supreme Court (*Martin v. Tax Collector of St. Luke's Parish*, 1 Speers 343 (S.C. 1843)). As the mid-19<sup>th</sup> century waned, the state nullified the previous taxation system and began a structure of taxation based on the actual value of real property (South Carolina State Constitution, 1865). This structure would remain in place until *Parker v. Bates* which helped rescind the use of property taxes to fund in-state infrastructure, instead moving toward an excise tax system (*Parker v. Bates*, 216 S.C. 52, 56 S.E. 2d 723, 726 (1949)).

The South Carolina General Assembly changed the property tax mandate of the late 1800's after *Holtzwasser v. Brady* (1974). Through this case, the state General Assembly required the South Carolina Tax Commission to collect levies from private land owners at a rate of 9.5% if the property was used for manufacturing purposes. This case expanded tax rules to recognize ownership circumstance, and while private property use was still untaxed, private leasing was viewed as a business venture and was taxable (*Holtzwasser v. Brady*, 262 S.C. 481, 205 S.E.2d 701 (1974)). *Holtzwasser v. Brady* served as a foundation for the General Assembly to create new legislation and pass Act 208 that defined taxable levies into four classes (i.e. Manufacturing Property; Inventory of Business; Owner-Occupied; Agricultural Real Property) (Act 208, 1975). Ultimately, the state Legislature attempted to avoid court-ordered statewide equalization in order to mitigate discrepancy between the property that was assessed by the Tax Commission and that assessed by the locality. The state Constitution was further amended in 1976 to include: (1) property owned and leased by transportation companies; (2) categorical real property; and (3) categorical personal property (SCDR, 2018).

By 1988, South Carolina passed its first Fee in Lieu tax statute (i.e. Act 487); this type of statute allows negotiations between business/ industry and the locality (SCDR, 2018). The business/ industry entity negotiates a term of contract and fee

for operation paid to the locality. This new law, intended for corporate expansion, effectively protected business/industry from increases in tax liability on property during the contract period. The tax laws would change in 2005 when classes of property would be assessed at a unique ratio. Finally, in 2006, the legislature introduced Property Tax Reform House Bill 4449 (i.e. Act 388, 2006).

### **Act 388**

Act 388 was established by the South Carolina Legislature in its 2006 session and provided property tax relief exempting property owners from paying property levies for school operating costs (Act 388, 2006). A byproduct of the law included a single penny solution meant to offset lost revenue from Act 388. In whole, Act 388 eliminated owner-occupied property assessment from being calculated into the tax base of school districts directly affecting local fiscal accountability and local school funding generation (Act 388, 2006). The policy also limited millage cap increases to a percentage of local population plus the rate of inflation drawn from the Consumer Price Index (CPI).

Today, Act 388 limits property levies for educational operations and shifts the burden of funding education to other property classifications; majority non-homestead (Act 388, 2006). This circumstance can create a system of inequitable funding when held against the backdrop of implementation. School districts with high local sales or income taxes typically fund a relatively full system of education due to individual fiscal capacity; while localities with lower median incomes and commerce may see a gross amount of disparity due to lack of individual fiscal capacity. Considering these circumstances, several remedies attempted to increase funding were repealed through Act 388.

### **Remedies Counterbalancing Act 388**

Stipulations from within the Act 388 were meant to limit disparity. Specifically, SC Code of Law § 11-11-155 established the homestead exemption fund. This fund was designed to reimburse school districts based on the aggregate loss of local property tax revenue from Act 388 in tiers. Tier 1 reimbursement is equal to the prior year's state distribution and offsets the homestead exemption for imposed millage limits. Tier 2 reimbursement is equal to the prior year's state distribution and offsets property tax levy loss. Tier 3 provides reimbursement of 1% from sales tax levies. The amount of reimbursement scheduled in the Homestead Exemption Fund reimbursements are meant to increase at a rate similar to the Consumer Price Index (CPI). After 2008, the Tier 3 reimbursement is calculated as equal to the prior year's Tier 3 reimbursement, multiplied by a share of the annual growth rate plus a proportion of a districts weighted students (Act 388, 2006).

Another provision within Act 388, SC Code of Law § 11-11-156-B1, guarantees that every county in the state is reimbursed at least \$2.5 million in property tax relief funds, after the required reimbursements to school districts in a county have been made from the Homestead Exemption Fund (Act 388, 2006). However, the utility of this reimbursement is dependent on economic capacity within the county. In wealthy counties, the supplemental reimbursement adds funding that may be unnecessary to operate the localities school districts, while in

economically marginalized districts the reimbursement may be insufficient to overcome economic inequities. Ultimately, neither remedy was sufficient given underlying fiscal deficiencies created by Act 388 itself or the impact of the ensuing Great Recession (Driscoll, Knoepfel, Della Sala, & Watson, 2014).

Acknowledging the caveats that Act 388 created, Act 316 (2008) allowed for 1% local sales and use tax to increase school capital improvement funding. Act 81 (2009) established the South Carolina Taxation Realignment Commission. This commission was meant to study the system of taxation across the state and make improvement recommendations. Act 182 (2016), the Educational Capital Improvements Sales and Use Tax, allowed for a sales and use tax in order to increase capital improvement funding. This act amended section 4-10-470 of South Carolina tax code. The South Carolina General Assembly introduced House Bill 3486 (2017) amending exemptions related to owner-occupied residential property. House Bill 3486 also repealed increased sales and use tax legislation related to homestead exemptions for school district reimbursement. House Bill 3720 (2017) reinforced the legislative appropriation for reimbursement in assessed valuation for school districts. Despite policy seeking to correct the fiscal capacity dilemma Act 388 created, the eroding of the South Carolina tax base still stands strong in impacting fiscal capacity.

**Tax capacity erosion.** South Carolina's fiscal capacity has fallen by approximately \$1B in the last decade from \$23.68 billion in 2009 to \$22.85 billion in 2018 (South Carolina Department of Revenue). This decrease was bolstered by South Carolina's continued property tax incentive expansion for business location and 501(c)3 organization. Property tax incentives are common across South Carolina's economic development landscape. The incentives take two forms: (1) Tax instruments; and (2) Non-tax incentives (Peters & Fisher, 2004). These incentives were meant to increase funding through economic stimulation, but research has found these types of incentives do not act in a revenue generating manner, and instead these business expansions directly erode the tax base by increasing tax burden on taxpayers as property owners leave the tax base (Newman & Sullivan, 1988; Peters & Fisher, 2004; Sager, 2011). In its most recent oppositional opinion, the South Carolina Legislature in 2017 recommended stakeholders vote to repeal Act 388 but consensus has not been met and subsequent fiscal inequity continues to exist across public schools. Throughout the state many stakeholders are aware of funding imbalances and the trickle-down disparity it continues to create at the school district level.

### ***South Carolina's Historical School Funding Imbalances***

The Education Finance Act (EFA) of 1977, Act 163, authorized funding equalization for South Carolina public schools. Its purpose was to establish the state foundation program to provide equitable education despite geographic location. It is the product of district Base Student Cost (BSC), weighted number of students, and the Index of Taxpaying Ability (ITA). Initially, the BSC theoretically represented the funding necessary to minimally support a universal program of instruction. The BSC, supplemented through weighted pupil units (WPU) (i.e. multipliers on the BSC), allowed the state to consider the needs of special populations. Currently,

each population is grouped into one of three categories that dictate the district level multiplier.

The state's WPU is derived from the South Carolina Department of Education and has changed within the last decade, considering both the Average Daily Membership (ADM) and weighting or program cost factors (S. C. Code § 59-20-40(1)(c)). The state also considers fiscal capacity, or local ability to pay, as part of its state funding structure to determine district need. South Carolina defines its total adjusted assessed property value as its district fiscal capacity. It is an index of a local district's relative fiscal capacity in relation to that of all other districts within South Carolina. This calculation is based on the full market value of all taxable property of the district assessed on the basis of property classification assessment ratios (SC Code of Law § 59-20-20). The combination of all school districts' ITA is equal to one and the total adjusted assessed value of a school district is the sum of all property (i.e. Owner Occupied Residential Property; All Other Real Property/Agricultural Property; Personal Property; Real and Personal Property; Fee-in-Lieu and Joint Industrial Park; Tier 1, 2, and 3 replacement assessed property).

In 2012, South Carolina General Assembly passed Senate Bill 310, modifying the ITA, in order to further equalize funding. The bill itself was not expected to impact state revenues or Education Finance Act (EFA) distributions to school districts, but rather redistribute inter-district funding based on changes to each school districts' index value. This revenue bill came with policy complications leading to arguably inequitable revenue distributions. The advent of two tax bases in South Carolina's School Index deviating from the normal assessment process (i.e. Owner-Occupied Residential Property and Fee-In-Lieu and Joint Industrial Park) eroded the ITA by reducing overall liability. When particular property classifications are not included in the tax base per Act 388, the index shifts, effecting the equalization base. The mandate made the equal distribution of tax liability increasingly complex, impacting school district revenue.

Signaling a change in population concentration and resulting capacity, the largest city in South Carolina changed from Columbia in 2016 to Charleston in 2017 (Lincoln Institute of Land Policy, 2018). In 2018, the Allendale School District and Florence School District 4 ITA were tied at 0.00114, while the Charleston School District ITA was 0.13595, meaning that the smallest and largest districts had a state ITA difference of 13.48%, which equated to over \$3 billion (South Carolina Department of Revenue, 2019). Hence, ITA fluctuation and property classification assessment had a direct, substantial impact on district revenue and per-pupil access to quality education. The shortcomings of owner-occupied residential property, as it relates to the ITA, has been evaluated by Saltzman and Ulbrich (2012 & 2017), who found that South Carolina requires an improved system of school district contribution ability stemming from localized sources. This imbalance of funding is one amongst a historical trajectory of school funding inequity highlighted by litigation in *Abbeville County School District, et al. v. State of South Carolina, et al.*

**Abbeville litigation.** The litigation in *Abbeville County School District et al. v. the State of South Carolina et al.* involved 40 high-poverty school districts, many of which are rural. The plaintiff alleged that South Carolina's public education funding system was unconstitutional based on the school funding structure that relied heavily on the property tax. The Plaintiffs also claimed that South Carolina's education funding system prevented the plaintiff districts from achieving necessary education funding levels. They charged that the lack of funding subsequently marginalized the mostly smaller rural districts leading toward inequitable funding opportunities and achievement inadequacy. In 2014, after decades of litigation, the courts acknowledged the failure of proper funding to supply all students an adequate education (*Abbeville v. South Carolina*, 2014; Della Sala & Knoeppel, 2014). The South Carolina Supreme Court further found the opportunity gap unconstitutional, resulting in the state's failure to meet its educational ideal outlined by its constitution as "minimally adequate." As of the date of this publication, the South Carolina General Assembly has failed to address the existing inequities, and the South Carolina Supreme Court has left an already disenfranchised Educational Constituency clamoring for solutions. Holistically, both the courts and the state have failed to create greater educational opportunities as a function of school funding equity, and South Carolina has continued to rely on its funding formula to provide the minimally adequate funding districts receive. The determining factors of its subsequent tax policy dilemma, the continued questions over its school funding solutions, and its desire to create a minimal environment may require an empirically driven solution grounded in the ontology of school finance equity.

### **Equity of Educational Funding**

Rooted in the foundation of school finance equity, Drs. Robert Berne and Leanna Steifel first quantified their epistemic knowledge of equity in the late 1970s, viewing equity as creating greater social justice through equal educational opportunity. By 1984, Berne and Steifel developed a full theory of equity resting on both sound empirical evidence and philosophical foundations, providing students access to resources such that their subsequent educational opportunities are equalized by the base or by the students need contingent upon capacity. Berne and Steifel's frameworks of equity, vertical equity (e.g. an unequal treatment of unequals), and horizontal equity (e.g. an equal treatment of equals) is straightforward and asks three concise questions: (1) For whom do we seek equity; (2) What is the object of equitable distribution; and (3) How is equity determined?

This approach allows researchers to examine fairness at several levels through greater empiricism. Horizontal equity permits for measurements across bases manifesting itself most notably in wealth neutrality (Berne & Stiefel, 1979). South Carolina has attempted this type of functional equity by equalizing the foundation program in 1977 and again in 2012. Vertical equity, however, addresses need on a student-by-student basis requiring different inputs in order to provide students greater educational opportunity (Berne & Stiefel, 1999). One example of vertical equity in practice is weighted student formula for economically disadvantaged students, or students with disabilities. South Carolina has attempted to remedy its school funding dilemmas in this manner as well, through WPU. Subsequent policy suggests South Carolina's weighted pupil funding (Appendix A



Table 1) and its foundation formula for educational revenue allocations are unable to address the historical disparity exhibited by specific populations of students across the state. Furthermore, South Carolina has implemented tax policy ensuring that horizontal inequity is the de-facto tax rule.

Table 1  
*South Carolina Pupil Weights*

Category	Weight
K-12	
Base students	1.00
Students in residential treatment facilities	2.10
Weights for Students with Disabilities	
Educable mentally handicapped	1.74
Learning disability	1.74
Trainable mentally handicapped	2.04
Emotionally handicapped	2.04
Orthopedically handicapped	2.04
Visually handicapped	2.57
Hearing handicapped	2.57
Students with Autism	2.57
Speech handicapped	1.90
Pre-career Technology	1.29
Additional Weights for Personalized Instruction	
Gifted and Talented	0.15
Academic Assistance	0.15
Limited English Proficient	0.20
Pupils in Poverty	0.20
Dual Credit Enrollment	0.15

*Source:* SC House, Ways and Means Committee, 2017-18 General Appropriations Bill (H.3720).

### ***Defining Rurality for Education Funding***

Often state and local policy work together to provide more equitable funding for education. The federal government acknowledges that revenue for particular populations can threaten equity and seeks to provide supplement for spending practices that has been proven to lead to greater achievement. Per the Every Student Succeeds Act (ESSA, Title V, Part B, Subpart 2, Section 5221(b), the United States Department of Education’s Office of School Support and Rural Programs aids the Rural Education Achievement Program (REAP). REAP, a formula grant administered by the state annually “provide[s] rural districts with financial assistance for initiatives aimed at improving student achievement. The grant is

non-competitive, and eligibility is determined by statute” (USDOE, 2017). Rural, low-income school districts may use funds toward parental-involvement activities, improving basic programs, supporting effective instruction, language instruction for English learners and immigrant students, and student support and academic enrichment (ESSA, Title V, Part B, Subpart 2, Section 5221(a)).

In order to qualify for the program, state school districts must be recognized as rural (as determined by the National Center for Education Statistics [NCES]) and impoverished. The United States Census Bureau identifies the level of rurality by a classification system dictated by distance to urbanized areas. The REAP identified code 32, 33, 41, 42, or 43 as eligible rural districts. The NCES defines the previous school locale codes relevant to rurality:

Town-Distant (territory inside an urban cluster that is more than 10 miles and less than or equal to 35 miles from an urbanized area), Town-Remote (territory inside an urban cluster that is more than 35 miles from an urbanized area), Rural-Fringe (rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster), Rural-Distant (rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster), Rural-Remote (rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster) (National Center for Education Statistics, n.d.).

Observing only districts referred as local education agencies, the Rural Education Achievement Program identified 44 eligible South Carolina local education agencies in 2017 (not including Governor’s schools or John de la Howe), making over half of the state’s local education agencies both rural *and* low-income. To date, the United States Department of Education details the fiscal year 2012, 2013, and 2014 state allocation awards and eligibility for fiscal year 2015, 2016, and 2017. Most recently, the percentage of children in South Carolina beneath the poverty line ranged from 24 to 46, but with districts outside of eligibility as low as 8 percent impoverished. Of the 37 local education agencies that did not meet the rural, low-income requirement, 26 met the income requirement but none of which met the locale requirement.

### ***South Carolina Rurality and Tiered Reimbursement***

For decades, public policy and revenue for rural regions has been an area of study (Debertin, Clouser, & Huie, 1986; Bass & Verstegen, 1992; Dayton, 1998; Schmidt, Caspary, Jonas, & SRI International, 2016). History has shown that initiatives and mandates to improve education can be lost where funding serves as a barrier (among others) to successful implementation for rural schools (Barley & Wegner, 2010; Kettler, Russell, & Puryear, 2015). National organizations hold the view that, “many rural school districts are underfunded and some lack a steady revenue stream” (National Education Association, n.d.) and claim that, “rural areas may be more vulnerable to capacity short-falls than urban and suburban areas, owing

largely to employing fewer staff and having a smaller pool of resources” (National Rural Education Association, n.d.).

With approximately half of South Carolina’s school districts qualifying as rural, low-income, the examination of South Carolina’s tax policy on local education agencies noted as rural, low-income recipients has become a priority. Act 388, a tax policy that amends the calculation of owner-occupied housing to be dependent on a tiered reimbursement system requires evaluation. Not only is this important conceptually, but how districts that are not rural, low-income compare to REAP recipients is crucial in determining next steps in public policy ensuring that disparities are minimal. Examining the relationship of South Carolina’s Act 388 on educational revenue as a function of district fiscal capacity is an additional step towards the fiscal ramifications of the policy and an equitable merge of state and federal policy. A comparison of the relationship of owner-occupied housing and its replacement to the fiscal capacity of a local education agency was where this study began. Anticipating an impact on the revenue stream due to previously discussed policy, it was important to observe change within the relationship of fiscal capacity to the total state and local revenue stream. Federal dollars not included, tiered reimbursement and revenue could fairly be observed. Determining the difference the aftermath of the policy had for rural and non-rural districts informed stakeholders of how Act 388 policy affected the fiscal base for school districts.

Many believe that South Carolina’s equalization policy remedies have not provided local school districts exhibiting high amounts of fiscal disparity the means to address the existing inequity, with few empirical studies addressing the inequities created by tax base disproportionality, the complications caused by Act 388 on a localized level, and the intersectional effect on fiscal capacity and reimbursement. The purpose of this study is to calibrate the association South Carolina’s Act 388 tiered reimbursement policy has had on capacity that creates varying educational funding disparities across types of geographic areas within the state.

## **Methods**

Measuring the degree to which Act 388 affected educational funding availability, this study specified how policy-influenced educational revenue as a function of capacity and capacity as a function of reimbursement. Our analysis devoted a special focus to rural districts, non-rural districts, and the state of South Carolina as a whole. The following broad research questions guided the study:

1. What is the impact of South Carolina’s Act 388 on the relationship of revenue streams for education funding?
  - a) What is the relationship between tiered reimbursement and district fiscal capacity?
  - b) What is the relationship between district fiscal capacity and revenue?
  - c) How does student enrollment affect the relationship between revenue and district fiscal capacity?

2. As a function of Research Question 1, how does the degree of the relationship between Act 388's tiered reimbursement, fiscal capacity, and revenue stream differ for rural and non-rural school districts?

### **Data**

Drawn from publicly available information aggregated for years 2009-2016 from three sources, variable data included district revenue and enrollment from the United States Census Bureau's Annual Survey of School System Finance (i.e. Public Elementary-Secondary Education Finance Data), district level fiscal capacity from the South Carolina Department of Revenue's School Index (i.e. Index of Taxpaying Ability), and district locale numbers and data for grouping rural and non-rural districts from the United States Department of Education's National Center for Education Statistics (i.e. Common Core of Data Local Education Agency Universe Survey). We recognized that by identifying federally identified rural districts, other metrics are indirectly considered. The United States Census Bureau defines poverty through the acknowledgement of income, family size, and composition. The National Center of Education Statistics' locale codes has geographic and population density implications.

### **Variables of Interest**

*Rural, Low-Income* districts (i.e. RLI), referenced as a local education agency, were eligible for the Rural and Low-Income School Program federal award if the district had 20% or more of the children 5 through 17 years of age served by the district from families with incomes below the poverty line and if all of the schools in the district were designated with a school locale code of 32, 33, 41, 42, or 43 (i.e. Town-Distant, Town-Remote, Rural-Fringe, Rural-Distant, Rural-Remote). Districts that were not designated as RLI districts were denoted as Non-RLI districts (i.e. NRLI). We chose these districts because the economic and geographic nature of the district is contingent on property value, but also has implications for federal funding which seeks to capitalize revenue into student outcomes. The districts for this study were defined by their 2012 status. This year was the last year the Index of Taxpaying Capacity did not report tiered reimbursement. Thus, we decided to make this year the chronological midpoint of the study. This helped narrow reasons for differences in results concerning the association and functionality of the variables upon one another.

District Fiscal Capacity (DFC) was the total measurement of South Carolina school district wealth. It is the summation of all other real property, agricultural property-use value assessment, personal property – locally assessed, real and personal property – Department of Revenue assessed, and fee-in-lieu and joint industrial park assessed after adjustment. This value did not include Owner-Occupied Residential Property (OOH). Beginning in Tax Year 2013 (i.e. Index Year 2015), this value included the sum of Tier 1, 2, and 3 replacement assessment (i.e. Tiered Reimbursement [TDR]). From that point forward, OOH was reported from 2013 to 2016, but was not calculated as part of the school district fiscal capacity measure in lieu with current state policy. Relative to this study's scope, OOH was reported as "0" from 2009 to 2012. Total revenue (REV) was the total adjusted assessed state and local revenue reported.

Per-Pupil Fiscal Capacity (PPDFC) was the quotient of the total fiscal capacity value and the reported fall membership (i.e. enrollment) as reported by the United States Census Bureau’s Annual Survey of School System Finances. It was the combination of total revenue from state and local sources. Per-Pupil Revenue (PPR) was the quotient of the total revenue value and fall membership. Adjusted Assessed was equal to the quotient of Appraised Value and Median Ratio.

### **Analytic Plan**

We sought to determine the impact of South Carolina’s Act 388 on education revenue. We did this by acknowledging that the property tax of a district is directly connected to the amount of funding districts receive, charging that Act 388’s tiered reimbursement, a form of property tax relief, is where conceptual inequity lies. We explored the descriptive nature of South Carolina by analyzing the scope of tiered reimbursement funding, revenue, and student enrollment through summation and statistical averages. Afterwards, we observed the bivariate correlation between owner-occupied housing and tiered reimbursement, as well as revenue and capacity to form preliminary statistical insight of relationships. Pearson’s  $r$  helped to evaluate the general association between reimbursement, which involved the replacement of a class of property to an alternative funding stream endorsed by the Act 388 policy.

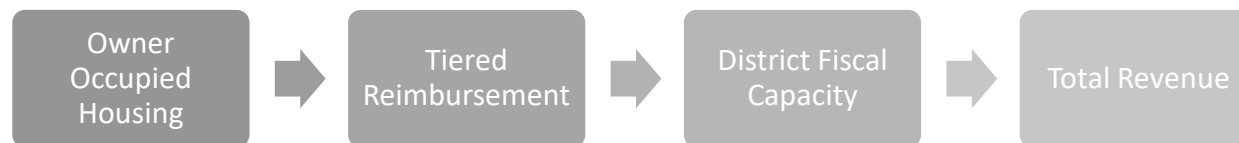
Our main analysis observed the linear relationship of our logic model. We used simple linear regression to fit a best line between capacity and reimbursement. We did this by estimating the natural log of district fiscal capacity as a function of the natural log of tiered reimbursement. We separately examined the entire state, rural districts, and non-rural districts. These three models were performed separately for the year 2013 to 2016. We then used a similar strategy to determine the relationship between revenue and capacity. Estimating the log of total district revenue as a function of the log of district fiscal capacity, we again built three separate simple regression models to assess the linear relationship between the variables for the year 2009 to 2016. Last, we estimated the effect of per-pupil revenue explained by per-pupil fiscal capacity. The use of unweighted pupils did not allow inferences regarding the level of vertical equity present but rather to draw conclusions about the relationship of funding streams when population is considered. Taking the log of the dependent and independent variable, we were able to determine the relationship from 2009 to 2016 for each year. The following set of equations represents our estimation strategy:

1.  $\ln(\text{DFC}_{\text{All}}) = \beta_{01} + \beta_{11}\ln(\text{TDR}_{\text{All}}) + \varepsilon_1$
2.  $\ln(\text{DFC}_{\text{RLI}}) = \beta_{02} + \beta_{12}\ln(\text{TDR}_{\text{RLI}}) + \varepsilon_2$
3.  $\ln(\text{DFC}_{\text{NRLI}}) = \beta_{03} + \beta_{13}\ln(\text{TDR}_{\text{NRLI}}) + \varepsilon_3$
4.  $\ln(\text{REV}_{\text{All}}) = \beta_{04} + \beta_{14}\ln(\text{DFC}_{\text{All}}) + \varepsilon_4$
5.  $\ln(\text{REV}_{\text{RLI}}) = \beta_{05} + \beta_{15}\ln(\text{DFC}_{\text{RLI}}) + \varepsilon_5$
6.  $\ln(\text{REV}_{\text{NRLI}}) = \beta_{06} + \beta_{16}\ln(\text{DFC}_{\text{NRLI}}) + \varepsilon_6$
7.  $\ln(\text{PPR}_{\text{All}}) = \beta_{07} + \beta_{17}\ln(\text{PPDFC}_{\text{All}}) + \varepsilon_7$
8.  $\ln(\text{PPR}_{\text{RLI}}) = \beta_{08} + \beta_{18}\ln(\text{PPDFC}_{\text{RLI}}) + \varepsilon_8$
9.  $\ln(\text{PPR}_{\text{NRLI}}) = \beta_{09} + \beta_{19}\ln(\text{PPDFC}_{\text{NRLI}}) + \varepsilon_9$

where  $\beta_{0i}$  is the intercept,  $\beta_{1i}$  is the slope parameter, and  $\varepsilon_i$  is the error of each model, where  $i=1, 2, \dots, 9$ . RLI represents rural, low-income districts and NRLI represents districts that are not RLI districts. PPR is the total revenue per pupil, PPDFC is district fiscal capacity per pupil, TDR is tiered reimbursement, DFC is district fiscal capacity, and REV is total state and local revenue. Within our analysis, rural, low-income school districts are referenced as rural or RLI districts, as non-rural, low-income districts are referenced as non-rural or NRLI districts.

## Results

In order to determine how Act 388 affected school funding availability for rural, low-income school districts, we began with a descriptive analysis focusing on the amount of revenue supplied to all districts. We then observed the correlation of select revenue streams to determine their linear association. Last, we observed the relationship of variables following a logic model to display the relationship between owner-occupied housing and its indirect impact on district revenue and revenue per pupil (Appendix B Figure 1). In this model, read left to right, owner-occupied housing had a direct relationship with reimbursement. This stands as Act 388 lowers the tax levy on owner-occupied housing for education funding and replaces this lost revenue with a reimbursement subsidy through SC Code of Law § 11-11-156-B1 which guarantees every county in the state to be reimbursed after the required reimbursements to school districts in a county have been made from the Homestead Exemption Fund. By design, owner-occupied housing and subsequent tax levies impact total revenue. This relationship, however, is indirect due to the nature of the tax levy pipeline which first processes funding into the general fund, then toward districts based on fall membership.



*Figure 1.* Logic model indicating the indirect relationship between owner-occupied housing and total revenue.

In order to provide an analysis with nuance, it was appropriate to unpack the relationship between the four variables of interest: Owner-Occupied Housing, Tiered Reimbursement, Fiscal Capacity, and Revenue. Act 388 systematically created a system in which fiscal capacity is relative to how much is reimbursed toward the district in lieu of lost revenue. Following the model, reimbursement directly impacted district fiscal capacity. If reimbursement was higher, there was a relatively higher ability to pay for educational services that exists. While reimbursement also impacted revenue, it was indirectly related as tiered reimbursement was predicated on the availability of funding impacted by tax levies. Because fiscal capacity directly affected revenue, and as such per-pupil revenue, the proportion of total revenue per district to per pupil. These relationships were important to distinguish due to the nature of Act 388 and its relationship to revenue

availability. Following this model, our results show that tiered reimbursement directly influenced a district's fiscal capacity.

### ***Descriptive Analysis***

The South Carolina Department of Revenue's Index of Taxpaying Ability (ITA) Final Report, identified 81 public school districts within the scope of our study. Providing taxpayers with a closer look at the dollars allocated by particular tax classifications, the ITA reported the residual of Act 388 and preceding policy. This platform illuminated surface level intricacies that were fiscally stressful. In 2013, for example, reimbursement was \$6.6 billion, while owner-occupied housing totaled \$7.8 billion. However, in 2016, reimbursement was only \$6.5 billion, while owner-occupied housing was greater than \$8.2 billion. The widening of the gap illustrated that the funding measure Act 388 intended to replace lost revenue did not effectively do so and that the difference between the measures fluctuated hundreds of millions of dollars. The ITA disclosed the state fiscal capacity grew from per-pupil revenue approximately \$14.5 billion (i.e. Index Year 2011, Tax Year 2009) to \$22.9 billion (i.e. Index Year 2018, Tax Year 2016). The United States Census Bureau's Annual Survey of School System Finances reported that during this time revenue grew from about \$6.9 billion (in 2009) to \$8.3 billion (in 2016) and enrollment expanded from about 705,000 pupils in 2009 to 743,000 in 2016.

Through these sources we were able to calculate and demonstrate mean and median statistics to illustrate average and typical values as they relate to capacity, revenue, and property value. Since 2009, mean and median fiscal capacity increased substantially, encompassing a major jump from 2012 to 2013, which was mirrored in per-pupil fiscal capacity (Appendix B Figure 2). Non-rural districts' median was much higher than its mean showing that there were select districts within the group that had very low fiscal capacity. The closing of the gap, when observing rural and non-rural per-pupil values showed that, generally, districts that had relatively low fiscal capacity also had low population. Figure 3 shows trends in state and local revenue over time (Appendix B). Although rural districts' revenue mean and median remained relatively stagnant, non-rural mean and median increased overtime. After a slow dip from 2009, there was a general steady increase in mean and median for per-pupil revenue. There was a brief burst in per-pupil state and local revenue in 2012 due to a rare flux of total revenue that surpassed years preceding and subsequent to 2012. In this year, 16 rural districts had revenues that were greater than the following year. Again, although non-rural districts had a slight increase in median owner-occupied housing, rural districts remained relatively stationary over time while median reimbursement remained consistent (Appendix B Figure 4).

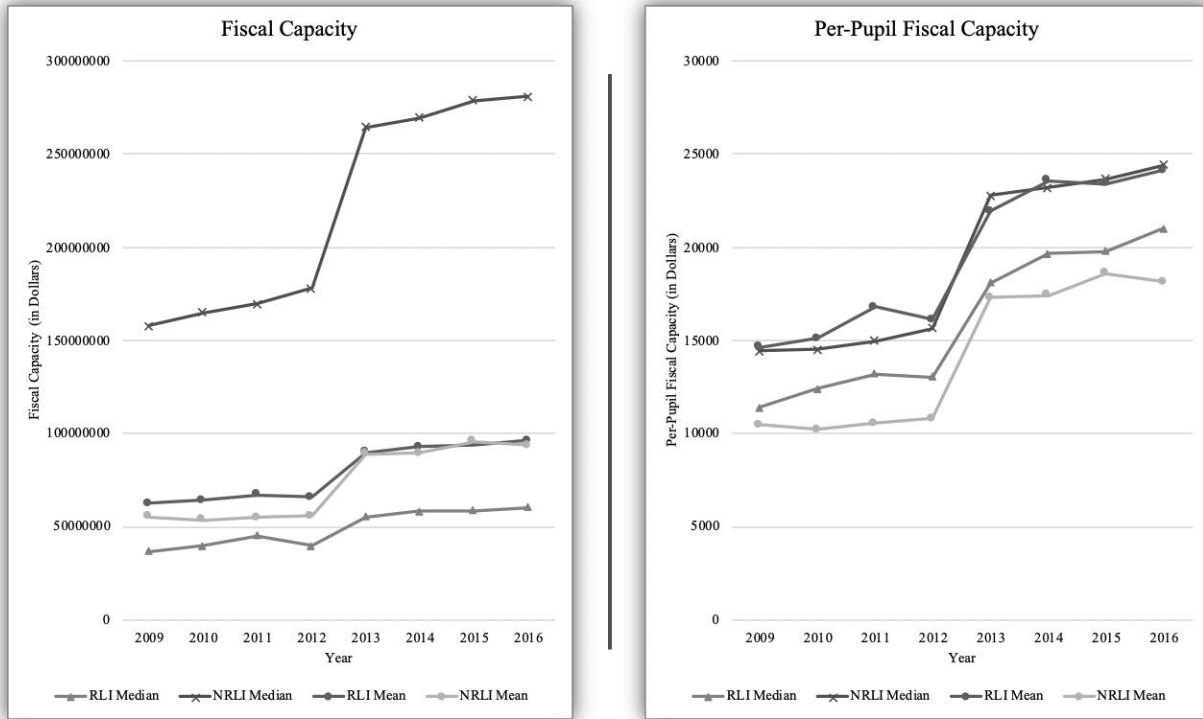


Figure 2. Mean and Median (Per-Pupil) Fiscal Capacity for RLI and NRLI Districts; Data Adapted from the South Carolina Department of Revenue.



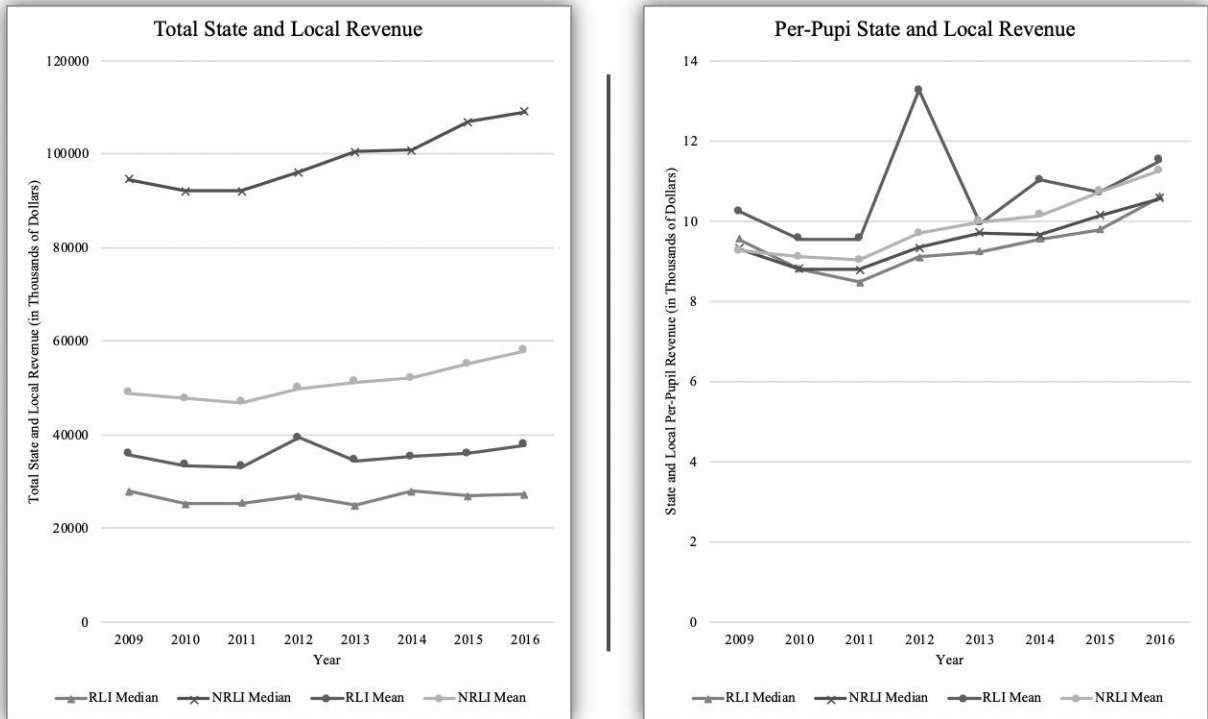


Figure 3. Mean and Median (Per-Pupil) State and Local Revenue for RLI and NRLI Districts; Data Adapted from the United States Census Bureau’s Annual Survey of School System Finances

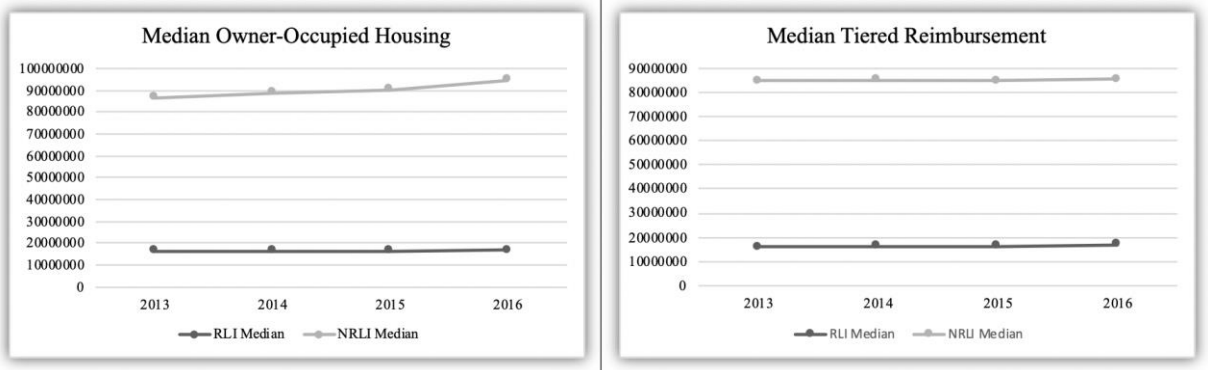


Figure 4. Median Owner-Occupied Housing and Tiered Reimbursement; Data Adapted from the South Carolina Department of Revenue

**Correlational Analysis**

In the case of both rural and non-rural districts there was a strong correlation between reimbursement and owner-occupied housing (Appendix A Table 2). The level of fiscal reimbursement, due to lost educational revenue through Act 388, is determined by property levies. The correlational relationship between

reimbursement and fiscal capacity was statistically significant, as well (Appendix A Table 3). We see for all districts, the two variables displayed a strong, positive relationship each year. This relationship indicated that reimbursement linear association to district fiscal capacity was strong and as such could relate to revenue to some degree whether observing the state, rural districts or non-rural districts. Our results indicate that in all years, there were strong correlations between revenue and fiscal capacity (Appendix A Table 4). These results were important to establish in order to show that district capacity had a significant relationship with district revenue and validates pursuing a line of best fit to estimate one variable upon another. We observed the correlational relationship between per-pupil revenue and per-pupil fiscal capacity (Appendix A Table 5). We saw that for all districts two variables displayed a moderate relationship with several changes over time. Interestingly, when comparing rural with non-rural (aside from 2012), we observed that more urbanized, higher wealth districts displayed a stronger correlational relationship than rural, low-income districts. From this correlation matrix we infer per pupil revenue was fairly correlated with district fiscal capacity, which permitted us to call into question high tax property valuation districts as consistent revenue generators.

Table 2  
*Relationship between Owner-Occupied Housing and Tiered Reimbursement*

Year	2013	2014	2015	2016
<b>All</b>				
PPMCC	.992***	.994***	.994***	.990***
N	81	81	81	81
<b>RLI</b>				
PPMCC	.978***	.972***	.965***	.953***
N	43	43	43	43
<b>NRLI</b>				
PPMCC	.991***	.993***	.994***	.990***
N	38	38	38	38

Note: PPMCC is the Pearson Product-Moment Correlation Coefficient; \*Significant at the 0.05 level, \*\*Significant at the 0.01 level, \*\*\*Significant at the 0.001 level

Table 3  
*Relationship between Tiered Reimbursement and Fiscal Capacity*

Year	2013	2014	2015	2016
All				
PPMCC	.981***	.984***	.986***	.984***
N	81	81	81	81
RLI				
PPMCC	.985***	.991***	.992***	.992***
N	43	43	43	43
NRLI				
PPMCC	.978***	.981***	.983***	.981***
N	38	38	38	38

Note: PPMCC is the Pearson Product-Moment Correlation Coefficient; \*Significant at the 0.05 level, \*\*Significant at the 0.01 level, \*\*\*Significant at the 0.001 level

Table 4  
*Relationship between Fiscal Capacity and Revenue*

Year	2009	2010	2011	2012	2013	2014	2015	2016
All								
PPMCC	.872***	.885***	.887***	.877***	.920***	.918***	.915***	.923***
N	81	81	80	81	81	81	81	81
RLI								
PPMCC	.831***	.876***	.871***	.567***	.898***	.894***	.884***	.884***
N	43	43	42	43	43	43	43	43
NRLI								
PPMCC	.855***	.870***	.873***	.880***	.908***	.906***	.039***	.912***
N	38	38	38	38	38	38	38	38

Note: PPMCC is the Pearson Product-Moment Correlation Coefficient; \*Significant at the 0.05 level, \*\*Significant at the 0.01 level, \*\*\*Significant at the 0.001 level

Table 5

*Relationship between Per-Pupil Revenue and Per-Pupil Fiscal Capacity*

Year	2009	2010	2011	2012	2013	2014	2015	2016
<b>All</b>								
PPMCC	.313**	.379***	.332**	.184	.475***	.431***	.394***	.420***
N	81	81	80	81	81	81	81	81
<b>RLI</b>								
PPMCC	.366*	.403**	.299*	.454**	.529***	.491***	.422**	.467**
N	43	43	42	43	43	43	43	43
<b>NRLI</b>								
PPMCC	.478**	.634***	.643***	.228	.651***	.649***	.619***	.612***
N	38	38	38	38	38	38	38	38

Note: PPMCC is the Pearson Product-Moment Correlation Coefficient; \*Significant at the 0.05 level, \*\*Significant at the 0.01 level, \*\*\*Significant at the 0.001 level

**Regression Analysis**

Regression estimates suggested that reimbursement was positively related to fiscal capacity (Appendix A Table 6). The positive, statistically significant relationships helped determine if fiscal capacity was functionally related to reimbursement. Our analysis showed that in all years, an increase in reimbursement elicited an increase in fiscal capacity, showing that Act 388’s tiered reimbursement could statistically predict fiscal capacity, suggesting that the policy could affect educational spending capacity. This trend holds for the state each year but also echoes for rural and non-rural districts, with rural districts having the strongest relationship. Decomposing this comparative relationship, rural districts had a fiscal capacity impact of almost 1-to-1 with reimbursement. Therefore, it is important that rural, low-income districts have the appropriate effective reimbursements to create spending ability once tiered reimbursements are converted to spending capital (revenue) and further converted to spending (expenditures) through the accounting pipeline.

Table 6

*Regression Estimates of District Fiscal Capacity as a Function of Tiered Reimbursement for All, RLI, and NRLI Districts*

Year	2013	2014	2015	2016
<b>All</b>				
Constant	1.637 (.364)***	1.615 (.305)***	1.462 (.301)***	1.416 (.306)***
TDR	.974 (.021)***	.976 (.018)***	.986 (.017)***	.989 (.018)***
R <sup>2</sup>	.965	.975	.976	.976
Adjusted R <sup>2</sup>	.964	.975	.976	.975
F-Statistic	2155.594	3091.756	3240.611	3161.029
Prob. > F	.000	.000	.000	.000
N	80	81	81	81
<b>RLI</b>				
Constant	1.098 (.483)*	1.107 (.477)*	1.076 (.470)*	1.155 (.485)*

TDR	1.009 (.029)***	1.008 (.029)***	1.010 (.028)***	1.01 (.029)***
R <sup>2</sup>	.968	.968	.969	.967
Adjusted R <sup>2</sup>	.967	.967	.968	.966
F-Statistic	1194.993	1231.827	1274.881	1188.995
Prob. > F	.000	.000	.000	.000
N	42	43	43	43
<hr/>				
NRLI				
Constant	1.421 (.635)*	1.449 (.629)*	.1.280 (.626)*	1.131 (.630)
TDR	.985 (.035)***	.984 (.034)***	.994 (.034)***	1.004 (.035)***
R <sup>2</sup>	.957	.958	.959	.959
Adjusted R <sup>2</sup>	.956	.956	.958	.958
F-Statistic	798.540	814.097	839.623	842.621
Prob. > F	.000	.000	.000	.000
N	38	38	38	38

Note: Estimates for equations 1, 2, 3; Variables were Natural Log Transformed; Standard error of estimated coefficients are reported in parentheses; \*Significant at the 0.05 level, \*\*Significant at the 0.01 level, \*\*\*Significant at the 0.001 level.

Next, we analyzed predictability of revenue as a function of fiscal capacity. The analysis also predicted how revenue and fiscal capacity were functionally related. In terms of the entire state, fiscal capacity had a moderate to high predictive relationship with revenue. This analysis shows that in all years an increase in fiscal capacity will elicit an increase in revenue. Previously, we showed that fiscal capacity was positively associated by reimbursement, and presently we show that revenue can be predicted by fiscal capacity (Appendix A Table 7). This is true for the state as a whole, but also true for rural and non-rural districts. Although still strong, predictability lowered and the type of district displaying the highest association flipped. Relating back to Act 388, if owner-occupied housing was not effectively calculated (i.e. replaced with a lesser reimbursement), this had a direct consequence for revenue.

Table 7

*Regression Estimates of Total Revenue as a Function of District Fiscal Capacity for All, RLI, and NRLI Districts*

Year	2009	2010	2011	2012	2013	2014	2015	2016
<b>All</b>								
Constant	-2.636 (.565)***	-3.234 (.488)***	-3.620 (.506)***	-3.413 (.487)***	-4.377 (.451)***	-4.324 (.455)***	-4.285 (.441)***	-4.382 (.437)***
DFC	.743 (.031)***	.773 (.027)***	.792 (.028)***	.784 (.027)***	.820 (.024)***	.818 (.024)***	.817 (.024)***	.823 (.023)***
R <sup>2</sup>	.878	.914	.914	.919	.936	.935	.939	.940
Adjusted R <sup>2</sup>	.876	.913	.915	.917	.935	.934	.938	.940
F-Statistic	567.596	826.491	814.695	857.232	1140.713	1116.303	1186.668	1230.223
Prob. > F	.000	.000	.000	.000	.000	.000	.000	.000
N	81	80	78	78	80	80	79	80
<b>RLI</b>								
Constant	-.805 (.975)	-1.490 (.860)	-1.537 (1.078)	-1.697 (.847)*	-2.857 (.798)***	-2.757 (.806)***	-2.796 (.768)***	-2.841 (.746)***
DFC	.635 (.056)***	.667 (.049)**	.666 (.061)***	.679 (.049)***	.732 (.045)***	.727 (.045)***	.730 (.043)***	.734 (.042)***
R <sup>2</sup>	.757	.817	.745	.830	.870	.866	.881	.885
Adjusted R <sup>2</sup>	.751	.813	.739	.826	.866	.863	.878	.882
F-Statistic	127.940	183.065	117.160	195.622	266.905	258.676	287.666	308.364
Prob. > F	.000	.000	.000	.000	.000	.000	.000	.000
N	43	43	41	42	42	42	41	42
<b>NRLI</b>								
Constant	-2.849 (.874)**	-3.218 (.813)***	-3.534 (.827)***	-3.158 (.838)***	-4.532 (.720)***	-4.662 (.719)***	-4.479 (.721)***	-4.482 (.721)***
DFC	.759 (.046)***	.776 (.043)***	.792 (.044)***	.775 (.044)***	.831 (.037)***	.838 (.037)***	.830 (.037)***	.832 (.037)***
R <sup>2</sup>	.882	.901	.901	.898	.933	.934	.933	.933
Adjusted R <sup>2</sup>	.879	.898	.899	.895	.931	.932	.931	.931
F-Statistic	268.731	326.069	328.560	307.709	499.637	509.301	498.361	502.791
Prob. > F	.000	.000	.000	.000	.000	.000	.000	.000
N	38	38	38	37	38	38	38	38

Note. Estimates for equations 4, 5, 6; Variables were Natural Log Transformed; Standard error of estimated coefficients are reported in parentheses; \*Significant at the 0.05 level, \*\*Significant at the 0.01 level, \*\*\*Significant at the 0.001 level



The final step was to determine if the relationships between the variables of interest were a function of scale. In order to unpack this relational inference, we used the quotient of revenue and enrollment to calculate revenue per-pupil. Regression determined the predictability of per-pupil revenue as a function of per-pupil fiscal capacity (Appendix A Table 8). Comparatively for the entire state, rural, and non-rural, per-pupil revenue increased as per-pupil fiscal capacity increased. Thus, as with the predictive relationship between revenue and fiscal capacity, per-pupil revenue was dependent on per-pupil fiscal capacity (Appendix B Figure 5). In order to provide the resources necessary for districts in South Carolina, owner-occupied housing, and ultimately the statutes of Act 388 require nuance methodological treatment regardless of scale.





Table 8

*Regression Estimates of the Effect of Per-Pupil Revenue Explained by Per-Pupil Fiscal Capacity for All, RLI, and NRLI Districts*

Year	2009	2010	2011	2012	2013	2014	2015	2016
<b>All</b>								
Constant	.768 (.233)**	.264 (.254)	.068 (.292)	.282 (.286)	-.297 (.333)	-.213 (.313)	.068 (.336)	.063 (.330)
PPDFC	.155 (.024)***	.202 (.027)***	.222 (.030)***	.205 (.030)***	.257 (.033)***	.249 (.031)***	.226 (.033)***	.230 (.033)***
R <sup>2</sup>	.346	.429	.417	.387	.439	.459	.375	.390
Adjusted R <sup>2</sup>	.337	.422	.409	.378	.432	.452	.367	.382
F-Statistic	40.136	57.955	53.556	47.269	59.471	63.649	45.553	49.174
Prob. > F	.000	.000	.000	.000	.000	.000	.000	.000
N	78	79	77	77	78	77	78	79
<b>RLI</b>								
Constant	1.058 (.300)***	-.704 (.864)	.953 (.413)*	.729 (.362)*	.259 (.446)	.377 (.356)	.624 (.428)	.495 (.415)
PPDFC	.127 (.032)***	.305 (.091)**	.128 (.043)***	.158 (.038)***	.200 (.045)***	.190 (.036)***	.170 (.043)***	.188 (.042)***
R <sup>2</sup>	.289	.215	.188	.313	.341	.431	.292	.343
Adjusted R <sup>2</sup>	.271	.196	.167	.295	.324	.416	.273	.326
F-Statistic	15.868	11.230	8.825	17.299	19.704	28.034	15.636	20.328
Prob. > F	.000	.002	.005	.000	.000	.000	.000	.000
N	41	43	40	40	40	39	40	41
<b>NRLI</b>								
Constant	.042 (.359)	-.260 (.428)	-.281 (.450)	.794 (.451)	-1.007 (.525)	-1.000 (.546)	-.745 (.546)	-.617 (.548)
PPDFC	.227 (.037)***	.255 (.044)***	.258 (.046)***	.150 (.046)**	.327 (.052)***	.327 (.054)***	.305 (.054)***	.297 (.054)***
R <sup>2</sup>	.517	.480	.462	.227	.525	.505	.472	.456
Adjusted R <sup>2</sup>	.503	.465	.447	.206	.512	.492	.457	.441
F-Statistic	37.430	33.197	30.919	10.581	39.762	36.799	32.145	30.176
Prob. > F	.000	.000	.000	.000	.000	.000	.000	.000
N	37	38	38	38	38	38	38	38

Note: Estimates for equations 7,8,9; Variables were Natural Log Transformed; Standard error of estimated coefficients are reported in parentheses; \*Significant at the 0.05 level, \*\*Significant at the 0.01 level, \*\*\*Significant at the 0.001 level



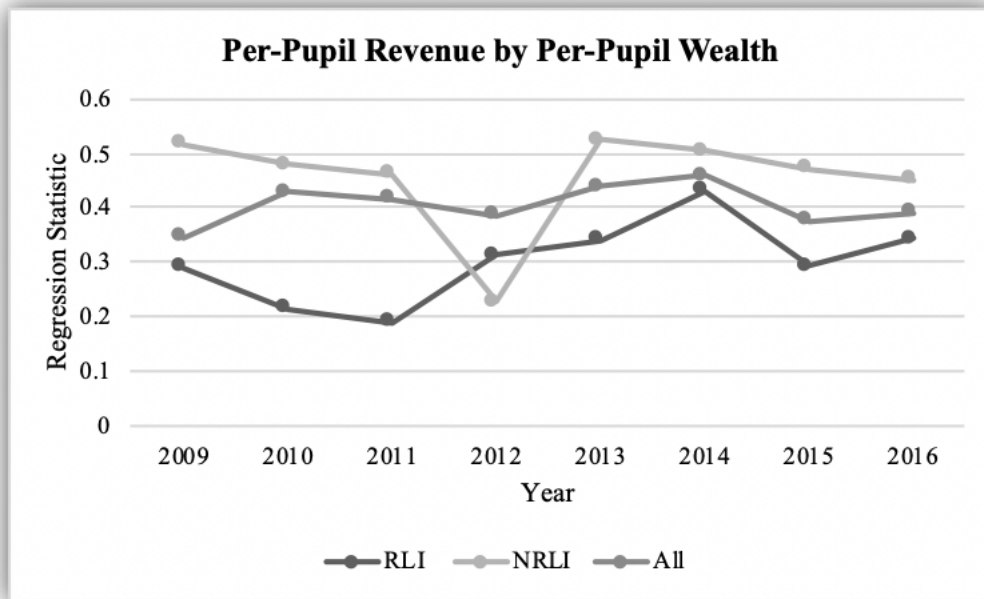


Figure 5. Regression Statistic of Per-Pupil State and Local Revenue by Per-Pupil Wealth (i.e. Fiscal Capacity)

### Discussion

As South Carolina’s post recessionary austerity continues to obstruct educational growth through fiscal policy, it is imperative to create knowledge which can empower the reform effort for greater educational equity. Our results demonstrated a clear and distinct connection between owner occupied housing, and district level revenue through tiered reimbursements: a functional mandate of Act 388. Furthermore, when observing the rural and non-rural fit, the strongest level of predictability was present within the RLI model, revealing that the relationship of tiered reimbursement on fiscal capacity was greater for those areas considered rural and low income. The association of Act 388 implicates a dual marginalization, through policy and poverty, endemic to South Carolina. Our findings suggest districts with 20% or more of its population beneath the poverty line and living in rural communities, are at a greater risk of negative school revenue impact, than more urbanized districts when observing tiered reimbursement’s impact on fiscal capacity. The change in which districts were affected when observing the association of fiscal capacity to revenue is important to acknowledge. These findings are not incongruent from the work of Knoeppel, Pitts, and Lindle (2013), who found through stakeholder interviews that Act 388 created inconsistent revenue streams for marginalized districts.

Revenue inconsistencies add to the growing infrastructure and human resource need. At the school level, legislation limiting property taxes, like Act 388, have been linked to larger class sizes, lower salaries and lower student performance (Figlio, 1997), all of which have been linked to teacher shortages (Grissom, Vano &

Selin, 2016; Loeb & Luczak, 2013). Moreover, a lack of school funding affects working conditions that contributes to school leadership turnover as well (Snodgrass, 2018; Tran, 2017). Repeated educator turnover, as found in many underfunded and economically impoverished schools, is associated with many negative outcomes, including lower student achievement (Ronfeldt, Lloeb & Wyckoff, 2013). Consequently, poor working and academic conditions brought about by funding restrictions are exacerbated, begetting further poor conditions that trap financially poor schools in a vicious cycle (Harrington & Tran, 2019). Unfortunately, these circumstances are commonplace in South Carolina, as exemplified by the teacher shortage crisis in the state (CERRA, 2019).

The educational obstacles South Carolina now faces extend beyond Act 388 (i.e. teaching shortages, salary inequity, infrastructure inequity). In order to remedy these challenges, South Carolina must address the varying impact of Act 388, and likely address the pervasive challenges Act 388 created since 2006. Districts require sufficient funding in order to operate, hire, improve facilities, but without the proper reimbursements, and without the proper revenue streams South Carolina's educational foundation will continue to deteriorate. Considering South Carolina's contentious legal and moral educational funding challenges, it is difficult to ignore the unintended impact of Act 388 on schooling. South Carolina's reliance on an unstable source of revenue does not mitigate existing disparity or balance educational inequity that exists across the state.

## **Conclusion**

Property tax limits have been found to negatively affect local government revenue because not only do they reduce property tax revenue, but compensatory increases in replacement taxes often do not sufficiently make up for the funding loss (Martin, 2015). Moreover, state supported property tax limits result in the promotion of inequity (Kim, 2017; Martin & Beck, 2015). In tandem, this suggests severe implications of property tax limits on the fiscal capacity and equity for schools. In rural areas these property tax limits have greater impact due to pricing disparity in services, and with limiting property tax levy policies, and limited property tax valuations, rural communities may feel fiscally strained multi-directionally. Our study demonstrates these issues in the state of South Carolina. In order to make the statistical connection between the policy and education revenue, we link tiered reimbursement to the fiscal capacity of a district. After linking reimbursement to the fiscal capacity of a district, we connected its capacity to the revenue the district yielded.

By measuring the degree to which revenue served as a function of fiscal capacity, and fiscal capacity as a function of tiered reimbursement, our research established a plausible link between Act 388 and school revenue availability. The funding disproportionality that Act 388 invariably creates affects rural, low-income districts. This impact is displayed in statewide teacher shortages, infrastructure challenges, and revenue availability pervasive to South Carolina's education system. Currently, South Carolina is in dire need of tax reform in order to mitigate the challenges Act 388 creates, and to supplement the years of damage already

incurred to educational funding. Greater attention to regional differences, including rural inequities, must be addressed through sound policy which can provide rural districts with sufficient funding to operate effective and healthy schools (Knight, 2017). Finally, legislators, policymakers, and reformers nationally, and in South Carolina, must make clear steps toward a remedy that decreases the over emphasis of property wealth to fund schools while simultaneously stifling tax levies through tax limiting policies. If not legislators across the United States will continue to degrade the educational pipeline, placing undo fiscal strain on students and communities.



## References

- Abbeville County School District, et al. v. State of South Carolina, et al., 410 S.C. 619 (2014);767 S.E.2d 157
- Baker, B. D. (2021). *Educational inequality and school finance: Why money matters for America's students*. Cambridge, MA: Harvard University Press.
- Baker, B. D., Farrie, D., & Sciarra, D. G. (2016). Mind the gap: 20 years of progress and retrenchment in school funding and achievement gaps. *ETS Research Report Series, 2016(1)*, 1-37.
- Barley, Z. A., & Wegner, S. (2010). An Examination of the provision of supplemental educational services in nine rural schools. *Journal of Research in Rural Education, 25(5)*, 1–13.
- Bass, G. R., & Verstegen, D. (1992). Informing policymakers about the impact of state funding formula components on rural schools. *Journal of Research in Rural Education, 8(1)*, 15–25.
- Berne, R., & Stiefel, L. (1979). Concepts of equity and their relationship to state school finance plans. *Journal of Education Finance, 5(2)*, 109-132.
- Berne, R., & Stiefel, L. (1984). *The measurement of equity in school finance: Conceptual, methodological, and empirical dimensions*. Baltimore, Maryland: Johns Hopkins University Press.
- Berne, R., & Stiefel, L. (1999). Concepts of school finance equity: 1970 to the present. Equity and adequacy in education finance: Issues and perspectives. In H.F. Ladd, R. Chalk, & J.S. Hansen (Eds.), *Equity and adequacy in education finance issues and perspectives* (pp. 7-33). Washington, DC: National Academy Press.
- Cabral, M., & Hoxby, C. (2012). *The hated property tax: salience, tax rates, and tax revolts*. Retrieved from <https://www.nber.org/papers/w18514.pdf>
- CERRA (2019). *South Carolina Annual Educator Supply and Demand Report. (2018-19 School Year)*. Retrieved from [https://www.cerra.org/uploads/1/7/6/8/17684955/2018-19\\_supply\\_demand\\_report\\_update\\_jan\\_16.pdf](https://www.cerra.org/uploads/1/7/6/8/17684955/2018-19_supply_demand_report_update_jan_16.pdf).
- Chakrabarti, R., & Setren, E. (2011). *The impact of the great recession on school district finances: Evidence from New York*. New York, NY: Federal Reserve Bank New York.
- Dayton, J. (1998) Rural school funding inequities: An analysis of legal, political, and fiscal issues. *Journal of Research in Rural Education, 14(3)*, 142–148.



- Debertin, D. L., Clouser, R. L., & Huie, J. M. (1986). Rural poverty, funding for education, and public policy. *Policy Studies Journal*, 15(2), 327–338.
- Della Sala, M. R., & Knoepfel, R. C. (2014). State of the states: South Carolina. *Journal of Education Finance* 39(4), 281-283.
- Driscoll, L. G., Knoepfel, R. C., Della Sala, M. R., & Watson, J. R. (2014). Economic growth, productivity, and public education funding: Is South Carolina a death spiral state? *Educational Considerations*, 41(2). Retrieved from <https://doi.org/10.4148/0146-9282.1070>
- Education, South Carolina Code of Laws § 59-20-40(1)(c) (1977).
- Education, South Carolina Code of Laws § 59-20-20 (1977).
- Grissom, J. A., Viano, S. L., & Selin, J. L. (2016). Understanding employee turnover in the public sector: Insights from research on teacher mobility. *Public Administration Review*, 76(2), 241-251.
- Hanushek, E. A. (1986). The economics of schooling: Production and efficiency in public schools. *Journal of economic literature*, 24(3), 1141-1177.
- Harrington, T., & Tran, H. (2019). How Can Higher Education Engage with Rural Communities to Address Teacher Shortages? *Improving Education through Multi-Level Community Relations and Stakeholder Engagement*. Rowman and Little Field. In press.
- Holtzwater v. Brady*, 262 S.C. 481, 205 S.E.2d 701 (1974)
- Howe, E. T., & Reeb, D. J. (1997). The historical evolution of state and local tax systems. *Social Science Quarterly*, 78(1), 109-121.
- Hyman, J. (2017). Does money matter in the long run? Effects of school spending on educational attainment. *American Economic Journal: Economic Policy*, 9(4), 256-80.
- Jackson, C. K., Johnson, R. C., & Persico, C. (2015). The effects of school spending on educational and economic outcomes: Evidence from school finance reforms. *The Quarterly Journal of Economics*, 131(1), 157-218.
- Keisler, J. (2016). *Property Tax Base Erosion: A South Carolina Study* (Doctoral Dissertation). Clemson, University, SC.
- Kenyon, D. A., & Reschovsky, A. (2014). Introduction to special issue on the property tax and the financing of K–12 education. *Education Finance & Policy*, 9(4), 373-382.

- Kettler, T., Russell, J., Puryear, J. (2015). Inequitable access to gifted education: Variance in funding and staffing based on locale and contextual school variables. *Journal for the Education of the Gifted*, 38(2), 99–117.
- Kim, Y. (2019). Limits of property taxes and charges: City revenue structures after the great recession. *Urban Affairs Review*, 55(1), 185-209.
- Knight, D. S. (2017). Are high-poverty school districts disproportionately impacted by state funding cuts? School finance equity following the Great Recession. *Journal of Education Finance*, 169-194.
- Knoepfel, R., Pitts, D., & Lindle, J. (2013). Taxation and education: Using educational research to inform coherent policy for the public good. *Journal of Research in Education* 23(1), 94-120.
- Knoepfel, R. C., & Sala, M. R. (2015). Education funding and student outcomes: A conceptual framework for measurement of the alignment of state education finance and academic accountability policies. *Educational Considerations*, 42(2). Retrieved from <https://doi.org/10.4148/0146-9282.1050>
- Kolbe, T., Baker, B. D., Atchison, D., Levin, J., & Harris, P. (2021). The additional cost of operating rural schools: Evidence from Vermont. *AERA Open*, 7, 2332858420988868.
- Lafortune, J., Rothstein, J., & Schanzenbach, D. W. (2018). School finance reform and the distribution of student achievement. *American Economic Journal: Applied Economics*, 10(2), 1-26.
- Lincoln Institute of Land Policy and Minnesota Center for Fiscal Excellence. (2018). *50-State Property Tax Comparison Study For Taxes Paid in 2017*. Retrieved from [https://www.lincolnst.edu/sites/default/files/pubfiles/50-state-property-tax-comparison-for-2017-full\\_1.pdf](https://www.lincolnst.edu/sites/default/files/pubfiles/50-state-property-tax-comparison-for-2017-full_1.pdf)
- Loeb, S., & Luczak, L. D. H. (2013). How Teaching Conditions Predict: Teacher Turnover in California Schools. In *Rendering School Resources More Effective* (pp. 48-99). Routledge.
- Martin v. Tax Collector of St. Luke's Parish*, 1 Speers 343 (1843).
- Martin, I. W. (2015). *What property tax limitations do to local finances: A meta-analysis*. Working Paper. Retrieved from <https://escholarship.org/uc/item/1wj2t7cs>
- Martin, I. W., & Beck, K. (2017). Property tax limitation and racial inequality in effective tax rates. *Critical Sociology*, 43(2), 221-236.
- Martínez, D. G. (2021). Interrogating Social Justice Paradigms in School Finance Research and Litigation. *Interchange*, 52(2), 297-317.

- Martínez, D. G., & Spikes, D. D. (2020). Se Acabaron Las Palabras: A Post-Mortem Flores v. Arizona Disproportional Funding Analysis of Targeted English Learner Expenditures. *Educational Policy*, 0895904820917370.
- Miller, R., & Liu, K. (2021). After the Virus: Disaster Capitalism, Digital Inequity, and Transformative Education for the Future of Schooling. *Education and Urban Society*, 00131245211065419.
- National Center for Education Statistics. (n.d.). *Rural education in America: School locale definitions*. Retrieved 2019, from <https://nces.ed.gov/surveys/ruraled/definitions.asp>.
- National Education Association. (n.d.). *Rural Schools*. Retrieved 2019, from <http://www.nea.org/home/16358.htm>
- National Rural Education Association. (n.d.). *National Rural Education Association (NREA) Research Agenda – 2016-2021*. Retrieved 2019, from [https://www.nrea.net/Research\\_and\\_Publications](https://www.nrea.net/Research_and_Publications)
- Newman, R. J., & Sullivan, D. H. (1988). Econometric analysis of business tax impacts on industrial location: What do we know, and how do we know it?. *Journal of Urban Economics*, 23(2), 215-234.
- Parker v. Bates*, 216 S.C. 52, 56 S.E. 2d 723, 726 (1949).
- Peters, A., & Fisher, P. (2004). The failures of economic development incentives. *Journal of the American Planning Association*, 70(1), 27-37.
- Programs; Uniform Assessment Ratios Act 208, South Carolina Chapter 43 Title 12 Statute § 12-37-90 (1976)
- Public Finance, South Carolina Code of Laws § 11-11-156 (2014).
- Quirk, W.J. & Watkins, W.W. (1974). A constitutional history of the property tax in South Carolina. *South Carolina Law Review*, 26(3), 397-412.
- Sager, T. (2011). Neo-liberal urban planning policies: A literature survey 1990–2010. *Progress in Planning*, 76(4), 147-199.
- Salazar, J. & Saltzman, E. (2013). *Act 388 and School Funding in Beaufort County, South Carolina*. Retrieved from <https://www.bcgov.net/archives/school-district/reports/2013-act388-schoolfunding.pdf>
- Saltzman, E. & Ulbrich, H. (2012). *Act 388 Revisited*. Greenville, SC: The Jim Self Center on the Future, Strom Thurmond Institute of Government and Public Affairs, Clemson University.

- Saltzman, E. & Ulbrich, H. (2017). *Updating Base Student Cost*. Retrieved from <https://ed.sc.gov/data/reports/legislative/legislative-reports/special-one-time-reports/2017-updating-base-student-cost/>
- Sands, G., & Skidmore, M. (2014). Making ends meet: Options for property tax reform in Detroit. *Journal of Urban Affairs*, 36(4), 682-700.
- Schmidt, R. A., Caspary, K., Jonas, D., & SRI International (2016). *Study of Experiences and Needs of Rural Education Achievement Program Grantees*. Retrieved from <https://eric.ed.gov/?id=ED571888>
- South Carolina Constitution § 5-9 (1865).
- South Carolina House Bill 3405 (Act 487), 107<sup>th</sup> Legislature, (South Carolina, 1988).
- South Carolina House Bill 4449 (Act 388), 116<sup>th</sup> Legislature, (South Carolina 2006).
- South Carolina Senate Bill 1231 (Act 316), 117<sup>th</sup> Legislature, (South Carolina 2008).
- South Carolina Senate Bill 12 (Act 81), 118<sup>th</sup> Legislature, (South Carolina 2009).
- South Carolina Senate Bill 1233 (Act 182), 121<sup>st</sup> Legislature, (South Carolina 2016).
- South Carolina House Bill 3486, 121<sup>st</sup> Legislature, (South Carolina 2018).
- South Carolina House Bill 3720, 121<sup>st</sup> Legislature, (South Carolina 2018).
- South Carolina Senate Bill 310, 123<sup>rd</sup> Legislature, (South Carolina 2019).
- South Carolina Department of Revenue (SCDR). (2018). *The History and General Principles of Property Taxes In South Carolina*. Greenville, SC: Author.
- South Carolina Department of Revenue. (2019). *School index*. Retrieved from <https://dor.sc.gov/lgs/reports-school-index>
- Springer, M. G., Houck, E. A., & Guthrie, J. W. (2008). History and scholarship regarding United States education finance and policy. Handbook of research in education finance and policy, 3-22.
- Taxation, South Carolina Code of Laws § 12-37-220 (2006).
- Tieken, M. C., & Montgomery, M. K. (2021). Challenges Facing Schools in Rural America. *State Education Standard*, 21(1), 6-11.
- Tran, H. (2018). *Taking the Mystery Out of South Carolina School Finance*. 2<sup>nd</sup> Edition. ICPEL Publications. Ypsilanti, Michigan.

- Tran, H. (2017). The impact of pay satisfaction and school achievement on high school principals' turnover intentions. *Educational Management Administration & Leadership*, 45(4), 621-638.
- United States Commission on Civil Rights. (2018). *Public education funding inequity in an era of increasing concentration of poverty and resegregation*. Retrieved from <https://www.usccr.gov/pubs/2018/2018-01-10-Education-Inequity.pdf>
- United States Department of Education. (2017). *Programs: Rural and Low-Income School Program*. Retrieved from <https://www2.ed.gov/programs/reaprlisp/index.html>
- Walczak, J. (2017). *Unpacking the State and Local Tax Toolkit: Sources of State and Local Tax Collections*. Washington, DC: Tax Foundation.
- Walker, B. D. (1984). The local property tax for public schools: Some historical perspectives. *Journal of Education Finance*, 9(3), 265-288.
- Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal*, 50(1), 4-36.
- Youngman, J. M. (2016). *A good tax: Legal and policy issues for the property tax in the United States*. Retrieved from [https://www.lincolnst.edu/sites/default/files/pubfiles/a-good-tax-full\\_3.pdf](https://www.lincolnst.edu/sites/default/files/pubfiles/a-good-tax-full_3.pdf)