Do Equity and Adequacy Court Decisions and Policies Make a Difference for At-Risk Students following Abbott, Rose, McDuffy, and Hancock?

Longitudinal Evidence from New Jersey

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I. Purpose

The question of whether increased funding pursuant to equity and adequacy court decisions has improved academic performance of at-risk students sparks a lively and spirited debate. Education has been termed the "the great equalizer." (Lee and Burkham 2002). Court decisions such as Abbott v. Burke in New Jersey; McDuffy v. Secretary of the Executive Office of Education, and Hancock v. Commissioner of Education in Massachusetts mandated the shift of billions of dollars from upper and middle class districts into economically disadvantaged districts. However, eighteen years after this monumental shift of resources, the American people are still deeply divided on whether we should continue to pour money into our high poverty schools.

In the landmark case of Abbott v. Burke, the New Jersey Supreme Court held that students in 28 "special needs" districts must receive the same funding per pupil as students in the two highest socio-economic district factor groups in the State. 149 N.J. 145 (1997).[1] In 2009, the Court purported to end the twenty-year Abbott litigation, holding that the School Funding Reform Act of 2008 (SFRA) funding scheme based on the socioeconomic needs of each individual student, rather than geography, satisfied the thorough and efficient clause of the New Jersey constitution.[2] Abbott v. Burke, 199 N.J. 140 (2009). However in 2011, the Court reaffirmed the Abbott IV ruling, and ordered New Jersey to provide an additional $500 million to exclusively urban Abbott districts, rather than funding the needs of the individual students. Abbott v. Burke, 206 N.J. 332 (2011).[3]

This study evaluates the relationship between equity and adequacy court decisions and economically disadvantaged students, particularly focusing upon New Jersey. First, the research

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[1] New Jersey utilizes district factor groups (DFGs), which represent an approximate measure of a community's relative socioeconomic status.) New Jersey Department of Education District Factor Groups (DFG) for School Districts (2004). The DFGs were calculated using the following six variables that are closely related to SES:

1. Percent of adults with no high school diploma
2. Percent of adults with some college education
3. occupational status
4. unemployment rate
5. percent of individuals in poverty
6. median family income

The DFGs were first developed in 1975 for the purpose of comparing students' performance on statewide assessments across demographically similar districts. Subsequent to the Abbott IV ruling, the DFGs were also used to define the group of school districts in which the Abbott v, Burke parity remedy would be based.

[2] The legislature was mandated to fully fund 31 urban Abbott districts and 200 districts under the "adequacy" level pursuant to SFRA.

[3] The relief was limited to students from Abbott districts for whom the Court had a historical finding of constitutional violation and for whom the court has had specific remedial orders in place through Abbott XX. In response to the Abbott decision in May of 2011, the legislature increased aid to school districts by $850 million, reversing last year's $820 million cut. The education funding included $450 million for the poorest districts, and another$400 million allocated to other schools within the state.

concentrates on whether the increased funding reaches students in the classroom? Second, this study evaluates the relationship between the equity court decision of Abbott v. Burke and the academic achievement of economically disadvantaged students in the Abbott districts. Third, the study examines whether a specific set of programs and reforms, including intensive early literacy programs in the elementary grades mandated the State pursuant to Abbott v. Burke are effective for at-risk students in Abbott districts. This study answers a question of great import as one commentator stated that "There is no high-quality, rigorous longitudinal evaluation of the impact of New Jersey's K-12 level school reform efforts in the Abbott districts."[4] (Mead, 2009, p. 22).

Finally, this study focuses on the efficient use of resources. The efficient use of resources will provide a meaningful educational opportunity for economically disadvantaged students, which is the cornerstone for: their participation in a democracy; competing for jobs; and contributing to society. Brown v. Board Education, 349 US 294 (1954); Parents Involved in Community Schools v. Seattle School District No 1, 551 U.S.701 (2007). In Hancock v. Commissioner of Education, the Massachusetts Supreme Court held that the State took reasonable, appropriate action to "cherish the interests" of public school education under the Massachusetts constitution by establishing objective, data driven assessments of student performance and specific performance goals; and raising the levels of student performance in the poor districts and statewide. 443 Mass. 428 (2005). (emphasis added)[5]

II. Research Questions

The research questions are:

1. Have increased resources from the equity and adequacy court decisions reached the students in the classroom?

2. Have equity and adequacy court decisions such as Abbott v. Burke and ensuing State reform policies improved the education of economically disadvantaged students?

[4] If data becomes available, the association between Abbott v. Burke and the academic achievement of economically disadvantaged students in Jersey City will be compared to a non-Abbott district.[4]

[5] The state also dramatically increased funding; closed the gap between high property-value-districts and low-property values districts by ½; and created and implemented standardized State-wide criteria of funding and oversight. 443 Mass. 428 (2005).

3. Has the academic performance of Abbott students improved as compared to student achievement from analogous low socioeconomic and middle class districts that are not covered by Abbott v. Burke?[6]

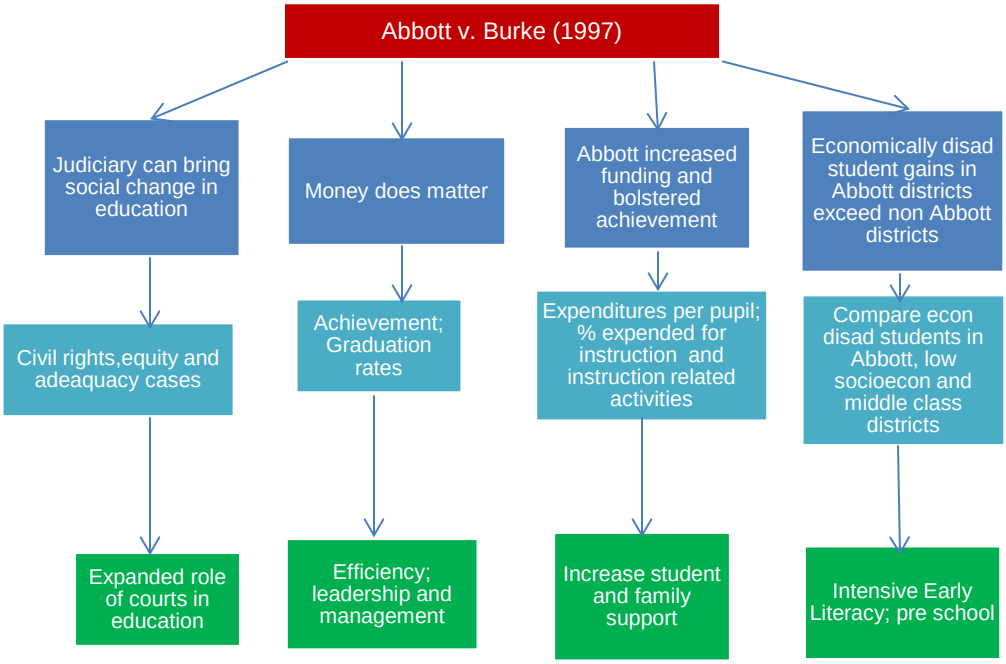
III. Theoretical Framework and Previous Literature

There is a raging controversy as to whether the increased funding pursuant to Abbott v Burke is associated with improved academic achievement. While the Abbott districts enroll 21 percent of New Jersey children, they consume nearly one half of the state spending on elementary and secondary education. (Mead, 2009, p. 24). The leading newspaper states, "It is abundantly clear by now that money is not the root problem in New Jersey's schools. We have pumped billions upon billions into struggling districts, and we've seen only modest improvements…The problem is not money. It is leadership and management." Star Ledger, January 7, 2011.

A framework for interpreting the literature on equity in funding, academic achievement, and school quality can be summarized by four theoretical propositions. Proposition 1 is that the judiciary can bring about social and policy change in education. Proposition 2 is that money does matter to improve the education of economically disadvantaged students. Proposition 3 is that the leading case of Abbott v. Burke and subsequent reform policies increased funding and bolstered achievement of economically disadvantaged children in NJ. Proposition 4 is that Abbott v. Burke, the resultant increases in State spending, and specific policies such as the Intensive Early Literacy program, and Abbott pre-school initiatives have a positive association with the academic achievement and learning development of economically disadvantaged students in Abbott districts.

[6] The study also examines whether a specific set of programs and reforms, including intensive early literacy programs in the elementary grades mandated the State pursuant to Abbott v. Burke are effective for at-risk students in Abbott districts.

Figure 1.



Proposition 1: The judiciary can bring about social and policy change in education

Can the Courts influence social and policy change? From Alexis De Tocqueville to Alexander Hamilton the question of whether courts can be the impetus of social change has provoked a controversial and far reaching debate.

There are several scholars who assert that the courts have little real impact on social reform. (Rebell, 2009, p. 87). As far back as 1957, Robert Dahl found that the US Supreme Court played at best a secondary role in shaping public policy after following court decisions that declared an act unconstitutional. Gerald Rosenberg has argued that "the perception that courts have been powerful, vigorous and potent proponents of change is an overstatement of the role of the courts, and a mystification of the judiciary." (Rosenberg, 1991, p. 2). Rosenberg cites Alexander Hamilton for calling the judiciary the "least dangerous" branch of government. Hamilton stated that since the judiciary lacks power over the "sword or the purse" their ability to produce political or social change is limited. (Rosenberg, 1991, p. 3). Rosenberg terms this the constrained view, as the judiciary "can do little more than point out how actions have fallen short of constitutional or legislative requirements and hope that appropriate action is taken." Ibid.

In stark contrast, the dynamic view is that with the advent of civil rights cases, women's rights, environmental, political reform, American courts seemingly have become important producers of political and social change. Rosenberg states that "part of what makes American

Democracy exceptional is that it includes the world's most powerful court system protecting minorities and defending liberty, in the face of opposition from democratically elected branches. American look to activist courts, then as fulfilling an important role in the American scheme… [This view] sees courts as powerful, vigorous, and potent proponents of change." (Rosenberg, 1991, p. 2). Recently two commentators from the Center for American Progress supported the dynamic view, stating that "No matter the issue-whether it's marriage equality, voting rights. health care, or immigration-the US federal courts play a vital role in the lives of all Americans (Jawango and Wright 2015).

Rosenberg argues that "a closer examination reveals that before Congress and the executive branch acted, courts had virtually no direct effect on ending discrimination in the key fields of education, voting, transportation, accommodations and public places and housing…Only when Congress and the executive branch acted in tandem with the courts did change occur in these fields. Brown and its progeny stand for the proposition that courts are impotent to produce significant social reform. (Rosenberg, 1991, p. 71).

Several professors support Rosenberg's view that the courts have had little impact on social and policy change. One commentator went as far as to say that "The actions of the political branches of government ultimately determine whether society changes or not. The courts, acting alone, change almost nothing." (Carter 1992, p.1221-22). Carter argues that with the exception of two decades when Brown and Roe were decided, Justices on the US Supreme Court have been indifferent to social change or have worked to prevent it.

Although Murray indicated that his findings offered some support for Rosenberg's model that a dynamic court can play an important role in social change, he ultimately concluded that "Courts have accomplished little. The ineffectiveness of the courts does not stem from their inability to institute important change, but instead from their unwillingness to pursue reform." (Murray, 1998, p.791). Some commentators also insinuate that the courts are infringing upon the province of educators stating "Some educators claim that the involvement by the courts in is an unwarranted intrusion on their legitimate professional authority." (Jensen 1983).

Rosenberg's position provoked a swift response from many scholars. David Schultz cited Alexis De Tocqueville for the proposition that, "There is hardly a question in the United States which does not sooner or later turn into a judicial one." (Schultz, 1998, p. 201) De Tocqueville stated that, "Americans have given their courts immense political power." David Schultz and Stephen Gottlieb argue that De Tocqueville recognized and Rosenberg hinted that "the judiciary's real power and efficacy lies in how its decisions influence our political language and the way we think about political and social issues. The court's decisions have tremendous sway over the way we think about politics, providing the opportunity and impetus for action." Ibid.

Many commentators also assert that sometimes the courts are the only game in town. "At a time when other social institutions were perhaps deaf to the needs of minorities, women, prisoners, or others, the judiciary did its best to address the grievances with which it was presented and to provide legitimacy to both claims and claimants in public discussion." Id. at 202.

Pursuing social change through the courts demands patience. A myriad of scholars have argued that social and policy change is incremental at best, and was designed to be that way. (Dahl, 1965, pg. 4-34.). State courts can be effective catalysts for reform because they provide a 'shield' that allows legislators to solve the problems in the educational system without the usual political constraints, specifically those against raising taxes. (Bosworth, _____).

Bradley Canon's analysis of Rosenberg's writings argue that US Supreme Court justices were largely successful on establishing four or five of the seven court generated policy reforms, without much assistance from the other branches of government.[7] In Baker v. Carr (369 U.S 186, 1962) and follow up cases, the Supreme Court clearly commanded a major political reform through imposition of the "one person, one vote" rule on state legislatures and national House of Representative districts. Canon points out that the criminal due process decisions of Mapp v. Ohio (367 U.S. 643) in 1962, Gideon v. Wainwright (372 U.S. 335) in 1963, Miranda v. Arizona (384 U.S. 436) in 1966, and In re Gault (387 U.S. 1) in 1967 clearly required implementation, mostly by police, prosecutors, and trial court judges. The Court found formal prayers or Bible reading in public schools to be unconstitutional, which required implementation at the school level.[8] Canon asserts that "Desegregating schools and other public facilities required the assistance of other governmental actors, most notably Congress in the 1960's and the Departments of Justice and Education subsequently…To some considerable extent these actors assistance resulted from political pressure inspired by Brown." In Roth v U.S., the Supreme Court held that sexually oriented material was protected by the First Amendment unless the dominant theme of the work, taken as a whole, appealed to prurient interests and lacked social redeeming value. Canon argues that the "Roth decision enabled social reform to take place on a pervasive basis."[9] When Roe v. Wade removed the legal prohibitions against early term abortions and allowed a woman to choose whether to terminate the pregnancy, Canon states the decision inspires "acceptance of abortion as personal-choice possibility by women who previously would not have considered it." Finally, the Virginia Board of Pharmacy v. Virginia Consumers Council ended the prohibition on advertising by professionals resulted in numerous

[7] The court generated policy reforms include (1) legislative reapportionment; (2) criminal justice; (3) Schoolhouse religion; (4) desegregation; (5) greater availability of sexually oriented material; (6) advertising by professional, and (7) abortion.
[8] Engel v. Vitale (370 U.S. 421, 1960); Abington Twp. V. Schempp (373 U.S. 203, 1960).
[9] Canaon argues the court "did this without any implementation or imposition of costs on other actors by non-judicial government agencies, and the reform was achieved within a few years of the decision."

pitches for lawyers, accountants, dentists, and managed health care on television, radio and in print media.

Commentators have been most vocal in asserting the US Supreme Court paved the way for school desegregation. Mark Tushnet argues that Brown established a fundamental principle of constitutional law, stating that "Government decisions relying on race (or relying on race to subordinate) rapidly became unconstitutional, and arguments that such decisions were acceptable rapidly became discredited." (Tushnet, 1994, p. 176). Tushnet further stated that "We can wonder whether the participants would have been so persistent [in the Montgomery bus boycott] had they not known that one of the nation's major governing institutions had endorsed the principle for which they were contending." (Tushnet, 1994, p. 179). Schultz also argues that Rosenberg undervalues direct and positive effects of Brown on the Montgomery bus boycott, stating that "Brown put something on the agenda and made it acceptable and legitimate to criticize segregation. (Shultz, 1998, P. __).

Finally, several state supreme courts have dramatically altered the school finance landscape. In Serrano v. Priest (1976), the California Supreme Court held that the state's system of school finance violated both the 14th amendment and the equal protection clause of the California constitution. Serrano v. Priest, 557 P.2d 929 (Cal. 1976).

In 1973, the New Jersey Supreme Court held in Robinson v. Cahill that the school funding statute violated the "thorough and efficient education" requirement in the State constitution and rejected the Legislature's suggested remedies. Robinson v. Cahill, 62 N.J. 473 (1973). In the seminal case of McDuffy v. Secretary of the Executive Office of Education ,the Massachusetts Supreme Court held that the education clause of the Massachusetts Constitution, Part II, c.5, §2, imposes an enforceable duty on the magistrates and Legislatures of this Commonwealth to provide education in the public schools for the children there enrolled, whether they be rich or poor and without regard to the fiscal capacity of the community or district in which such children live." 415 Mass. 545, 621, 615 N.E.2d 516 (1993)[10].

In Rose vs. Council for Better Education, 790 S.W.2d 186 (Ky. 1989), the leading adequacy case in the country, the Kentucky Supreme Court held that an 'efficient' education is one that has as its goal the development in each and every child seven capacities, including understanding of governmental processes to enable the student to understand the issues that affect his or her community, state, and nation. Since Rose was handed down, "adequacy efforts have been the hallmark of school finance suits." [11]

[10] The court further stated that the "Commonwealth has a constitutional duty to prepare all its children to participate as free citizens as free citizens of a free State to meet the needs of a free state to meet the needs and interests of a republican government. 415 Mass. at 606.

[11] The shift towards adequacy in school finance litigation provides educators and policymakers with an unprecedented opportunity to blend equality concerns with ongoing school improvement efforts stressing quality,

Courts are well situated to impose remedies in equity and adequacy cases. The courts have a common set of goals, including a greater state definition of educational requirements, adoption of performance standards, greater monitoring of and accountability for educational outcomes; requiring states to cost-out the price of an adequate education and assure funding necessary to provide an adequate education is provided; movement towards a partial equalization of financing aimed more at bringing up the bottom than holding down the top; and a special concern with the needs of educationally at-risk students or the poorest districts.

Michael Rebell points out that, "The court's ability to impose significant sanctions has repeatedly overcome resistance from other branches. Courts have the power to find public officials in civil contempt for failing to comply with judicial orders and to fine or even jail these officials until compliance is forthcoming…They can also mandate the closing down of the entire state's public school system until the unconstitutionality of the states' education finance system has been cured." (Rebell, 2009, p. 92).[12]

Proposition 2: Money does matter to improve the education of economically disadvantaged students

"Should we or should we not spend more money on schools?' (Hanushek, 1994, p. 8). The question of whether increased funding improves the education of economically disadvantaged students sparks a lively and spirited debate.

One researcher noted that the issue of "does money matter" has been "difficult to study" and "no consensus on the answer has yet emerged." (Dinan, 2009, p.105) That is quite an understatement as the battle lines are clearly drawn with vitriolic statements emanating from either side. It is peculiar that the clash on the "does money matter" issue is so charged in the face of lack of evidence, comprehensive data, and substantive research. John Yinger stated that "Although some of the evidence indicates that state aid reform can boost student performance, none of the findings are definitive, and some of them are quite ambiguous." (Yinger, 2004, p.39)

The discussion of "does money matter" originally emanated from the Coleman report. James S. Coleman stated that the largest determinants of student achievement are not school resources but the "educational backgrounds and aspirations of other students in the school."

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accountability and higher academic standards. (Durfee, 2005). Some commentators have argued that the Rose "adequacy" standard is actually "equity plus" that provides a basis for more state funds if they are needed in some districts to provide an adequate education. This could also be described as "vertical equity" in which differently situated children "require different amounts of public school dollars in light of their differing needs, in contrast to the traditional "horizontal equity approach which has sought to provide different districts with relatively equal dollars per child."[11] (Briffault, 2005)

[12] Courts in Kansas, New Jersey, Arizona, and Texas threatened to shutdown the schools statewide, and each time that threat has resulted in prompt compliance by the other branches.

(Coleman, 1966, p. 22). After the Coleman report the conventional wisdom became the belief that additional resources play no role in producing better-educated students.

Since the advent of the Coleman report researchers have vigorously advanced their arguments on both sides of the issue. On one hand, Eric Hanushek asserts that "Research has not shown a clear causal relationship between the amount schools spend and student achievement." (Hanushek, 2006, p. 6). He argues that the "key resources-ones that are the subject of much policy attention-are not consistently or systematically related to improved student performance." (Hanushek, 1996, p. __). W. Norton Grubb states that "The link between spending per pupil and outcomes has always been very weak." (Grubb, 2009, Education Week, March 18, 2009, p __). Linda Darling-Hammond acknowledges that "proponents of the status quo argue that low-cost attitudinal and administrative changes contribute more to educational equity within districts than financial resources, and that no definitive correlation has been shown between money spent and educational quality." (Darling-Hammond, 2010, p. 100).

On the other hand, Michael Rebell, one of leading education finance attorneys in the country, believes that the basic consensus of the academic literature and the courts is that money matters-if it is spent well." (Rebell, 2009, p. 34). He states the critical question is "whether the extra resources are being spent well and are being used in ways that actually provide students the sound basic education guaranteed by their state constitution." (Rebell, 2009, p. 35). Various commissions have echoed this view. In a 2013 report to the Secretary of the US Department of Education, the Equity and Excellence Commission states that, "The time has come for bold action by the states-and the federal government-to redesign and reform the funding of our nation's public schools. Achieving equity and excellence requires sufficient resources that are distributed based on student need, not zip code, and that are efficiently used." (The Equity and Excellence Commission, 2013, p. 17).

Bruce Baker states that, "On average, aggregate measures of per pupil spending are positively associated with improved or higher student outcomes." (Baker, 2012_p. iv). In 2015 Jackson, Johnson, and Persico reported that "Event-study and instrumental variable models reveal that a 10 percent increase in per-pupil spending each year for all twelve years of public school leads to 0.27 more completed years of education, 7.25 percent higher wages, and a 3.67 percentage-point reduction in the annual incidence of adult poverty; effects are much more pronounced for children from low-income families."

It is worthwhile to briefly review the history of the "does money matter" issue. The public outcry over the issue has substantially diminished in recent years, compared to decade ago. Hanushek conducted a meta-analysis on 38 studies conducted between 1967 and 1987, and found that there was no statistically significant relationships between class size or teacher educational attainment and student outcomes. (Hanushek, E.A. 1989).

In response to the Hanushek study, Hanushek, Hedges, Laine and Greenwald reanalyzed the same data and found substantially positive effects for overall spending per pupil and teacher experience. Hedges, et al. stated that "the data are more consistent with a pattern that includes at least some positive relation between dollars spend on education and output, than with a pattern of no effects or negative effects." (Hedges, et al 1994, p. 12).[13] Hedges found that the pattern of effect sizes was most persuasive for global resource variables such and per such as pupil expenditure and teacher experience the median effects were positive for most resource variables, with the exception of teacher education.

Hedges indicated that they were not arguing that "throwing money at schools is the most efficient method of increasing educational achievement." However they concluded the when they relied on data most often to deny that resources are related to achievement, they found that "money does matter after all. (Hedges, et al, 1994, p. 13)

In Hanushek's response to Hedges' critique of his work, he focused on how the money is expended, rather than on the effects of increased spending. Hanushek stated that "The evidence is consistent with some districts finding effective ways to use resources and others following very ineffective policies. (Hanushek, 1994, p. 8). Hanushek responded that increased spending by 10% suggested by Hedges would result in uniform salary increases for teachers, and would not increase the correlation between salaries and student performance.

The controversy and discussion of "does money matter" catapulted again to the forefront in the face of the economic meltdown of 2009. W. Norton Grubb calls the issue the "money myth-the belief that the question of sufficient revenue lies back of almost every other problem and the faith that more money might resolve a variety of educational problems-is often wrong, or at best incomplete." (Grubb, 2009, p. 267). He points out that "this period [of economic turbulence] provides an opportunity to rethink the relationship of money to effective school resources, and to develop new approaches." (Grubb, 2009, p__, Education Week, March 18, 2009).

Rather than debate whether money matters, some researchers appear to subscribe to the view that it is more important to examine how the money is used. Indeed Grubb asserts that the most critical question is whether increasing expenditure per student-the conventional measure of high and low spending-increases various effective school resources. (Grubb, 2009, p.77)

[13] Wenglinsky faulted both the Hanushek and Hedges study as not being nationally representative, not providing SES measures on students, not distinguishing types of spending, and did not control for variations in cost between regions. He found that funding allocation to create/ preserve a lower teacher-student ratio had a statistically significant positive effect on student performance. He also found that spending at the district of central administration level was most successful in increasing teacher-student ratios amd impacted achievement.

Grubb argues that "very often money is necessary in conjunction with other resources to create compound resources-new curricula (for computers or class size reduction) plus professional development…the creation of more ambitious "pathways" counselors pus student initiative. Bruce Baker lends support to this view, stating "Schooling resources which cost money, including class size reduction or higher teacher salaries, are positively associated with student outcomes." (Baker, 2012_p. iv).

He also indicates that some effective resources cannot be bought…..complex and abstract resources must be constructed by teachers and leaders working collectively at the school level without much money but with certain other resources (leadership, collaboration, and vision)." (Grubb, 2009, p. 88).

State courts have also considered the question of whether money matters in education. Since McDuffy the Massachusetts legislature enacted the Massachusetts Education Reform Act (MERA) a two phase reform that prioritized finance overhaul, standards, testing and accountability, the students' academic performance has steadily improved. In Hancock v. Commissioner of Education, the Massachusetts Supreme Court held that the State took reasonable, appropriate action to "cherish the interests" of public school education under the Massachusetts constitution by establishing objective, data driven assessments of student performance and specific performance goals; and raising the levels of student performance in the poor districts and statewide. 443 Mass. 428 (2005). (emphasis added)[14]

Even the harshest critics of adequacy lawsuits stated that "Massachusetts is the brightest spot among the states that have implemented substantial adequacy remedies." (Hanushek and Linseth, 2009, p. 166). Massachusetts 4th and 8th graders ranked first or tied for first on all four examinations of the NAEP and have held this unique position since 2005. (Reville 2007). Notwithstanding the positive results, even in Massachusetts the achievement gap persists between African American and Hispanic students with White and Asian students. In 2007, 39 percent of white students and 43 percent of Asian students scored 'proficient' or better on MCAS in fourth grade language arts, while only 8 percent of African American and 7 percent of Hispanic students scored 'proficient.' (Reville 2007). Paul Reville, director of the Massachusetts department of education, stated that "We have such a long way to go." Campaign for Educational Equity Conference, November 13, 2007, Teachers College, Columbia University.

Recently scholars have been analyzing NAEP data to chart the performance of students who are the intended beneficiaries of adequacy and equity reforms. However there are inherent

[14] The state also dramatically increased funding; closed the gap between high property-value-districts and low-property values districts by ½; and created and implemented standardized State-wide criteria of funding and oversight. 443 Mass. 428 (2005).

problems in relying on NAEP data, including the fact that school and district locations where the tests are administered are not disclosed by the National Center for Education Statistics (NCES).

Hanushek and Lindseth reviewed NAEP scores in New Jersey and asserted that "Over the entire fifteen year period of the [Abbott] remedy, New Jersey's fourth grade black students improve only slightly more than black students in the rest of the nation, while its black eighth graders did slightly worse." (Hanushek and Linseth, 2009, p. 162). Hanushek and Lindseth rely on the fact that "Abbott districts educate half of the black and Hispanic students in the state." (Hanushek and Lindseth, 2009) In responding to Rebell's assertion that the fourth grade math and reading scores of students in the Abbott districts surged over the past couple of years, Hanushek and Lindseth retorted "Quite surprisingly he cites New Jersey's tortured 35-year old Abbott litigation as an example of success, but neglects to mention that the state's black students, the principal beneficiaries of the remedy, are still scoring at about the same relative levels on the NAEP tests as in 1992." (Hanushek, Lindeseth, and Rebell, 2009, p.__.)

Hanushek and Lindseth further stated that "Even if we fully credit the extraordinary uptick in fourth grade scores from 2005 to 2007 to the Abbott remedy, black student performance in New Jersey is not materially different from what it was in 1992, when the remedy commenced." (Hanushek and Linseth, 2009, p. 164). However they acknowledged that Hispanic scale scores on the NAEP fourth grade reading test increased by 19 points from 1992 to 2007, compared to a 10-point increase nationally for Hispanic students. Ibid.

NAEP does not report scores separately for the thirty-one districts. The NAEP scores may or may not be from Abbott districts. Therefore it is impossible to determine whether the NAEP scores are even measuring the performance of students in the thirty-one Abbott districts.

Some commentators have asserted the Rose litigation in Kentucky "did fundamentally succeed."[15] (Weston and Sexton (2007). Kentucky's free and reduced lunch students outscored students from similar backgrounds nationally by seven points in fourth grade reading, and by five points in eighth grade reading on the 2007 NAEP tests. (Rebell, 2009, p. 35).

Going forward, it will be interesting to note that if states follow the advice of commentators to the effect that if states require all students to meet the same educational standards, they must assume responsibility to provide adequate resources to allow students a reasonable opportunity to achieve those standards, including a curriculum that fully reflects those

[15] The indicators of success cited by Watson include 13.9% after inflation increases in average state and local per pupil funding from 1990 to 1991 and smaller increases thereafter, the creation of standards, assessment, and accountability for a full curriculum of seven subjects, and improved academic performance. Watson, Susan and Sexton, Robert, Substantial and Yet Not Sufficient, Kentucky's Effort to Build Proficiency for Each and Every Child, pg. 16 (2007).

standards; a teacher well qualified to teach the curriculum; and the materials, texts, supplies, and equipment needed to support this teaching. (Darling-Hammond, 2010, p. 100).

Proposition 3: The leading case of Abbott v. Burke and subsequent reform policies increased funding and bolstered achievement of economically disadvantaged children in NJ.

A. Why analyze equity in New Jersey?

New Jersey has been involved with school finance litigation for decades. In 1973, the New Jersey Supreme Court held in Robinson v. Cahill that the state constitution called for a "thorough and efficient system of education of free public schools for all children between the ages of 5 and 18."

In 1976, the high court shut down New Jersey's public schools for eight days after the lawmakers failed to raise taxes to pay for the new funding formula that was mandated by Robinson v. Cahill.[16] In 1990, the New Jersey Supreme Court in Abbott II significantly expanded Robinson's scope, but targeted its efforts on the poor "special needs" districts. The court stated that:

> In order to provide a thorough and efficient education in these poorer urban districts, the State must assure that their educational expenditures per pupil are substantially equivalent to those of the more affluent suburban districts, and in addition, their special disadvantages must be addressed (Abbott v. Burke, 119 N.J.287, 575 A2d 359, 385 (1990)).

In 1996, the New Jersey Department of Education developed a "costing out model" intended to determine the cost of a "thorough and efficient education" for each student.[17] However the legislature did not adequately address the lower spending levels in poverty stricken districts. The failure of the legislature to address the equity issue for economically disadvantaged students led to Abbott IV decision.

[16] The failure of the legislature to allocate equity funding resulted in the implementation of the state's first income tax. www.schoolfunding.info/states/nj/lit on March 10, (2006).

[17] The costing model concluded that the state's poorest urban districts had sufficient funding and that high-performing suburban school districts were spending wastefully. In response, numerous suburban superintendents testified before the legislature that the impact of funding cuts would be severe on their programs and students. Later that year, the legislature grandfathered the suburban spending into its education funding bill. www.schoolfunding.info/states/nj/lit on March 10,2006

B. Why analyze Abbott v Burke?

Abbott v. Burke is the watershed case on equity. The Abbott case has been acknowledged by one of the nation's leading newspapers as "maybe the most significant education case since the Supreme Court's desegregation ruling nearly 50 years ago." (New York Times, February 9, 2002).

As of 2005, the Abbott students represented roughly 1 out of 5 students (20%) of all K-12 students in New Jersey.[18] The Abbott districts have highest child poverty rate in the State. In 2005 Abbott districts educated 51% of all New Jersey Students eligible for free and reduced lunches.[19]

1. Initial Relief Granted by Abbott IV in 1997

In Abbott IV, the New Jersey Supreme Court held that the regular education funding provisions of the Constitutional Educational Improvement and Financing Act (CEIFA) were unconstitutional as applied to the special needs districts. The court reasoned that the CEFIA does not adequately address the unique educational disadvantages facing children attending schools in the poor urban districts Abbott v. Burke, 149 N.J. 145 (1997). The court directed the legislature to assure by the commencement of the 1997-1998 school year that per-pupil expenditures in the poor districts (which were to be referred to as Abbott districts) were equivalent to the average per pupil expenditures in the wealthy suburban districts.

New Jersey utilizes District Factor Groups[20] (DFGs), which represent an approximate measure of a community's relative socio-economic status (New Jersey Department of Education, 2005). The Court held that as a form of interim relief to the Abbott districts, the state must provide enough aid to those districts such that they are able to spend as much as the districts classified as district factor groups "I" and "J."

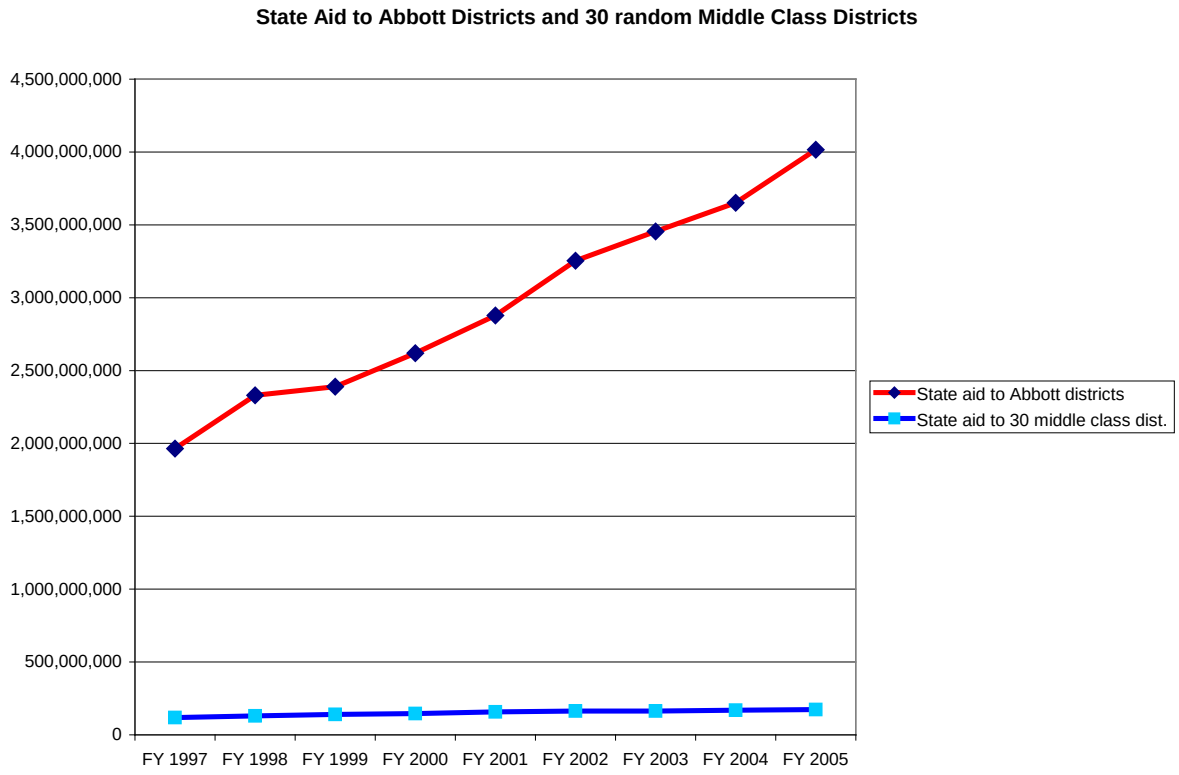
[18] Testimoney of Gordon McInnes before N.J. Senate Education Committee, Assistant Commissioner for Abbott Implementation, New Jersey N.J. Senate Education Committee, February 3, 2005).
[19] Testimoney of Gordon McInnes before Senate Education Committee, Assistant Commissioner for Abbott Implementation, New Jersey Senate Education Committee, February 3, 2005).
[20] The DFG factor groups were first created in 1975 and were recalculated with the information gathered by the 2000 census. To calculate these groups New Jersey concentrates on three steps: first they calculate the SES score (socio-economic statistic) for each student, then they calculate the weighted amount for each student using 6 indicators about their origin and then New Jersey concentrates on how many students with these SES weighted scores are in each district. Subsequent to the Abbott IV ruling, the DFGs were also used to define the group of school districts in which the Abbott v. Burke parity remedy would be based (New Jersey Department of Education, 2007).

At the time of the Abbott IV decision in New Jersey there were twenty-eight districts identified as Abbott; there are currently thirty-one Abbott districts.[21] The state legislature added Neptune and Plainfield in 1998 and Salem City in 2004. All thirty-one of the Abbott districts are the subject of this study.

2. The Early Stages of Education Funding Following the Abbott v. Burke (1997)

State aid in the Abbott districts increased over 100% between FY 1997 and FY 2005, from approximately $1.96 billion to approximately $4 billion in FY 2005. Between FY 1997 and FY 2005, the Abbott districts received State aid increases at a far greater rate than the middle class districts.[22] During this timeframe, state aid to 30 randomly chosen middle class districts only increased 32%, from approximately $118 million to approximately $174 million. See graph below.

Figure 2



[21] The Abbott districts include Asbury Park, Bridgeton, Burlington, Camden, Orange, East Orange, Elizabeth, Garfield, Gloucester, Harrison, Hoboken, Irvington, Jersey City, Keansburg, Long Branch, Millville, Neptune, New Brunswick, Newark, Passaic, Paterson, Pemberton, Perth Amboy, Phillipsburg, Plainfield, Pleasantville, Salem, Trenton, Union, Vineland, and West New York (New Jersey Department of Education, 2005).

[22] New Jersey State Department of Education, Office of School Funding (2005)

3. School Funding Reform Act of 2008

The School Funding Reform Act of 2008 (SFRA) allocates state resources to school districts, while also requiring certain levels of funding at the local level. At the core of SFRA is the Adequacy Budget. The Adequacy Budget is wealth equalized, which means that it is based on the community's wealth and ability to provide funding through local resources. Under SFRA, the base per-pupil amount for 2008-09 is $ 9,649, which will be adjusted by the Consumer Price Index (CPI) each year over the next two years. Once the base per-pupil amount is determined, it is adjusted upward using specific weights. The formula includes additional weights for students with the special needs.

4. NJ Supreme Court modifies Abbott in 2009, holding that funding should be based on the socioeconomic needs of each individual student, rather than geography

The disparity between the amount expended per student by the Abbott districts and lower socioeconomic non- Abbott districts as well as middle class districts is very profound. The disparity in expenditures per pupil raises the issue whether lower socioeconomic non Abbott districts and middle class districts are receiving an equitable share of state aid to education?

In 2009, the New Jersey Supreme Court responded to this issue and purported to end the twenty-year Abbott litigation. The court held that the School Funding Reform Act of 2008 (SFRA) satisfied the "thorough and efficient clause" of the New Jersey constitution and that the State was released from the Court's prior remedial orders concerning funding for students in Abbott districts, including the requirement that Abbott districts be provided parity aid and supplemental funding. Abbott v. Burke, 199 NJ 140 (2009).[23] The funding scheme of SFRA based on the socioeconomic needs of each individual student, rather than geography, satisfied the requirements of the thorough and efficient clause of the New Jersey constitution. The legislature was mandated to fully fund 31 urban Abbott districts and 200 districts under the "adequacy" level pursuant to SFRA. The State was relieved from the Court's prior remedial orders concerning funding to the Abbott districts.

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[23] Although the Special Master at the lower court recommended continuing supplemental funding continue to Abbott districts, during and until the three year look-back review of SFRA. The NJ Supreme Court stated that

> "This funding formula was designed to operate as a unitary whole and, in order to achieve its beneficial results, it must be allowed to work as it was intended. The many layers of costs that were factored into the base per-pupil amount, the added weights, and the many types of additional aid that are provided in order to transition districts to SFRA's funding levels, are all designed to provide sufficient resources and at the same time to incentivize fiscal efficiency. Abbott, 199 N.J. at ___ (2009).

The court cited the fact that the Abbott districts would receive Title I funding, Individuals with Disabilities Education Act (IDEA), and funds under the Federal American Recovery & Reinvestment Act of 2009.

The court held that the SFRA funding formula may be applied in the Abbott districts along with two caveats. Abbott v. Burke, 199 N.J. 140 (2009). The finding of "constitutionality is premised on the expectation that the State will continue to provide school funding aid during this and the next two years at levels required by SFRA's formula each year. Our holding further depends on the mandated review of the formula's weights and other operative parts after three years after implementation." Abbott, 199 N.J. at 145 (2009).

The Governor and state legislature did not adhere to the first caveat. The State asked for "elimination of the requirements that Abbott districts be provided parity aid and supplemental funding. The court stated that "The legislative and executive branches of government have enacted a funding formula that is designed to achieve a thorough and efficient education for every child, regardless of where he or she lives." Abbott, 199 N.J. at 145 (2009). The court further stated that, "The State shall not be required to continue separate funding streams mandated under past remedial orders."

The rationale for the court's decision included shifting demographics across the state. The court stated that, "There have been significant demographic changes among school districts in terms of the distribution of at-risk pupils and changes in the level of State-provided education funding." Abbott, 199 N.J. at 145 (2009). Although the 2009 Abbott decision equalized the expenditures for economically disadvantaged students whether they reside in Abbott or non-Abbott districts, it did not augment funding for middle class students.

The court stated that "The Court's one goal has been to ensure that the constitutional guarantee of a thorough and efficient system of public education becomes a reality for those students who live in municipalities where there are concentrations of poverty and crime. Every child should have the opportunity for an unhindered start in life--an opportunity to become a productive and contributing citizen to our society." Abbott, 199 N.J. at ___ (2009). The court ultimately concluded that SFRA is constitutional and designed to achieve a thorough and efficient education for every child, regardless of where he or she lives.

5. In 2011 the NJ Supreme Court ordered the Governor to provide funding for Abbott Districts in accordance with the School Funding Reform Act of 2008

The cuts to education budgets are front and center on the current public policy agenda. Even prior to the court's reversal of Abbott v. Burke in 2009, the Supreme Court had issued an order that allowed the state to freeze funding to Abbott districts. The New Jersey annual state budget was reduced from 33.9 billion in 2009 to 28.4 billion in 2011. (N.J. State Department of Treasury). In 2010, Governor Christie cut state aid to school districts. In the current economic climate, Governor Christie signaled further education cuts may be imminent, by stating "he will continue to examine the amount and structure of municipal and school aid programs."

The Abbott decision in May of 2011 reignites the battle between residents of low and middle non-Abbott districts and the Abbott districts for education dollars. The low and middle income non-Abbott districts argue that they lack substantial property tax wealth and do not receive special state assistance. Professor Tractenberg, one of the original attorneys who brought the Abbott case, stated that "The (2011 Abbott) ruling threatens to resurrect the old suburban-urban 'our money is going to their children split…Whatever deficiencies the (SFRA) funding formula had, it did unify all at-risk children in the state." (Education Week, June 8, 2011).

Governor Christie's first education budget was $1.6 billion short of what the new law considered "adequate" for about 1/3 of the 591 districts in the 2010-11 school year. In May, 2011, the New Jersey Supreme Court ordered New Jersey to provide $500 million more to only the urban Abbott districts in the 2011-12 school year. Abbott v. Burke, 206 N.J. 332 (2011). The court held that the funding to the Abbott districts in FY 2012 must be calculated and provided in accordance with the School Funding Reform Act of 2008. The relief was limited to the plaintiff class of children from Abbott districts for whom the Court has a historical finding of constitutional violation and for whom the court has had specific remedial orders in place through Abbott XX. Abbott v. Burke, 206 N.J. 332 (2011).

The Abbott litigation is bound to continue as sixteen rural school districts sued New Jersey in October, 2011, asserting Governor Chris Christie illegally cut their state funding. This disparity between non Abbott districts and Abbott is a politically explosive equity issue that could re-ignite at any time which pits both lower socioeconomic non-Abbott districts and middle class districts against the urban Abbott districts.

Proposition 4: Abbott v. Burke, the resultant increases in State spending, and specific policies such as the Intensive Early Literacy program, and Abbott pre-school initiatives have a positive association with the academic achievement and learning development of economically disadvantaged students in Abbott districts

A. Specific Programs to Implement Abbott v. Burke

Over the course of the Abbott litigation, the court ordered that the State implement a specific set of programs and reforms, including preschool programs; intensive early literacy programs in the elementary grades; smaller class size for high-poverty students, social and health services; new facilities; and a series of required supplemental programs such as full day kindergarten; health and social service referral; alternative education and dropout prevention; violence prevention; early math instruction; as well as school-to-work and college transition programs. (Grubb, 2009, p. 265 citing the Abbott Indicators Projects 2006). Grubb argues that

"Abbott seems more promising as a starting point than the lawsuits that create remedies focused on revenues alone. (Grubb, 2009, p. 266).

In Abbott V the court held that in part that the Commissioner of Education shall implement whole-school reform and full-day kindergarten and half day pre-school programs for three and four year olds as expeditiously as possible. 153 N.J. 480 (1998).[24]

1. Intensive Early Literacy (IEL) Program Commencing in 2003

In 2003, the state petitioned the New Jersey Supreme Court to replace Abbott remedies with a new approach focused on early literacy. The state planned to continue preschool, full day kindergarten, and class size reduction. Under a mediation agreement, up to one half of Abbott elementary schools could receive a waiver from the Abbott V to implement Whole School Reform (WSR) models. (Mead, 2009, p. 20). This agreement allowed districts to replace WSR models with district wide implementation of Intensive Early Literacy (IEL) standards, which is a uniform and consistent approach to early literacy instruction.[25] This agreement enabled New Jersey to work with 12 districts to implement interventions based on IEL. (Mead, 2009, p. 20).

In 2003, New Jersey mandated the IEL comprehensive reading model by promulgating regulations for "Improving Standards-driven Instruction and Literacy in Abbott Districts." N.J.A.C. 6A:10 A. In 2007, the Department of Education provided clarity on the IEL program by issuing "rules …to implement the Abbott v Burke decisions and … ensure that all students in poor urban districts receive educational entitlements guaranteed them by the New Jersey Constitution."[26] N.J.A.C. 6A:10A-1.1 (2007). In 2007, the NJ Department of Education defined IEL as a "means program for children age three through grade three to ensure that all students read at grade level by the end of third grade. The core program includes curriculum and instruction that address the CCCS and the expectations, continuous assessment of students' need; an emphasis on small group instruction in designated learning centers; at least 90 minute uninterrupted literacy block for K to grade three; and a classroom library." N.J.A.C. 6A:10A-1.1 (2007).[27]

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[24] The court also held that the Commissioner implement school to work and college transition programs, alternative schools, secure funds to cover the cost of remediating infrastructure deficiencies in Abbott schools, and initiate effective managerial responsibility over school construction. 153 N.J. 480 (1998).

[25] The mediation agreement under Abbott X required New Jersey to intervene in 42 low performing schools where fewer than one half of fourth graders were reading on grade level.

[26] The rules apply to Abbott districts and are adopted to ensure that the provision of a through and efficient system of education as guaranteed by the New Jersey Constitution and defined by the Supreme Court in the Abbott decisions.

[27] In high needs districts where less that 85% of total students have achieved proficiency in language arts literacy on the NJ ASK 3 shall provide an intensive early literacy program for preschool to grade three to ensure that all students achieve proficiency. The IEL shall include the following components:

1. An emphasis on small group instruction in at least reading, writing and technology;
2. A comprehensive early assessment program;

The IEL ingredients included classroom libraries, small learning centers, frequent assessments, uninterrupted time and "process writing."[28] The philosophy of IEL included adherence to five essentials of scientifically based reading research according to the US Department of Education including phonemic awareness, phonics, fluency, vocabulary, and comprehension. The NJ Department of Education added motivation and background knowledge, and emphasized Language Arts Literacy. The structure of IEL included a classroom library, a reading center and a writing center for preK-3rd grade and a technology center for K-3rd grade. The class size were not to exceed 21 in grade K=3rd and 15 in pre K. IEL also requires specific time to small group instruction during the reading block.[29]

IEL also served as the vehicle to implement Reading First, a federal program that provided $100 million from 2002-2007 to employ research-based approaches to reading instruction in the early elementary grades. New Jersey used Reading First funds to implement IEL in 10 Abbott districts. (Mead, 2009, p. 20).

DOE found in introducing IEL to the Abbott districts and providing professional development, many districts were not teaching to the core standards. According to Gordon MacInnes, the Abbott Division Assistant Commissioner, "Little emphasis was given to standards

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3. At least a daily 90 minute uninterrupted language arts literary block in grades kindergarten through three with guidance in the use of that that may include the following instructional strategies:
   i. Use of a reading measure to differentiate student needs;
   ii. Small group instruction;
   iii. Direct instruction;
   iv. Guided reading; and
   v. Shared reading
4. instructional materials that include concepts and themes form other content areas;
5. Professional development opportunities for teachers that focus on the elements of intensive early literacy…
6. consistent and adequate opportunities for teachers to discuss and analyze student work, interim progress measures and assessment results…
7. A classroom library…
8. Use of a highly skilled literacy coach or certified teacher to coordinate professional development and collaboration…
9. Methods to involve parents and family members in student learning." N.J.A.C.:6A: 13-3.4 (2008).

[28] Ibid. at 9.

[29] The IEL curriculum included a comprehensive reading program consistent with the WSR developer and recommended adherence to the Reading First model. IEL required differentiated materials and multiple entry points for special populations and required native language and ESL reading according to state law. The IEL strategies included direct, small group, guided, shared and scientifically based reading research among other techniques. IEL also called for professional development in scientifically based reading research and five components of reading, curriculum and mapping; approved strategies and assessment.

based instruction by DOE or by the parties involved in Abbott."[30] MacInnes further stated "We have learned that the standards based educational movement had largely by-passed the Abbott districts." [31]

The IEL regulations called for an assessment of English language proficiency including annual testing in K-3rd grade. One of the main assessment tools was the NJ ASK test in 3rd grade.

2. Abbott Pre-school Program

New Jersey was the first state to require early education, starting at age three, for children "at risk" of entering kindergarten or primary school cognitively and socially behind their more economically advantaged peers. The Abbott decisions that focus on preschool include Abbott V, Abbott VI, Abbott VIII and Abbott XII. In 2002, the New Jersey Supreme Court the court provided direction on the preschool program on such issues as teacher qualifications, class size, enrolments, facilities and procedure for determining funding. Abbott VIII,

The Abbott preschool program has reached higher proportion of children-at-risk than any other state. Over 40,000 three and four year old children are now enrolled in preschool in the 31 Abbott districts.

When the Abbott V decision was handed down in 1998, the Abbott districts concentrated on how to decentralize decisions about curriculum and instruction to the school-level, create new school councils, set up school based budgets and to ensure each elementary school selected a national model of Whole School Reform. In 2003, the New Jersey Attorney general petitioned the New Jersey Supreme Court to replace the remedies of Abbott V with a district by district approach based on pedagogy and early literacy. In a compromise, the New Jersey DOE and the Education Law Center reconfirmed the Supreme Court mandates for preschool, early literacy, and smaller classes.

3. Why analyze whether Abbott policy initiatives such as the Intensive Early Literacy Program and mandatory pre-school are effective?

As W. Norton Grubb argues that "Abbott seems more promising as a starting point than the lawsuits based on revenues," the inquiry should turn to whether the specific policies mandated by the New Jersey Supreme Court are effective for economically disadvantaged students. (Grubb, 2009, p. 266). One of the best methods to determine whether specific policies

[30] Closing the Achievement Gap: Two Year Plan on Instructional Priorities, New Jersey Department of Education, p. 3, 2006
[31] Ibid at 15.

generated by Abbott are effective for economically disadvantaged students is to chart student level performance of students in districts that emphasize IEL.

The approach to the IEL definition of "a program to ensure that all students read at grade level by the end of grade" with a core curriculum that addresses the CCCS and places an emphasis on small group instruction will vary across the districts. Although the provision of a core curriculum can be readily evaluated across districts, small group instruction will vary widely among the districts.

Gordon MacInnes characterized IEL in this manner: "Start early, connect preschool experiences to instruction from kindergarten through third grade, expand the time for literacy instruction, keep careful track of student progress, adjust instruction to reflect individual needs, surround students with books and words, focus on small groups for most instruction, spend extra time with struggling readers, and support teachers and engage them in making necessary changes." (MacInnes, 2010). MacInnes further stated that, "Since New Jersey's Intensive Early Literacy program is really a set of practices and habits built around classroom support and tailored help for struggling students, there is no ready formula of simple answer to the question of which districts are most fully implementing it." (MacInnes 2009, p.80).

In Abbott X, the New Jersey Supreme Court directed twelve districts to work with NJDOE to improve instruction in 42 low-performing schools. Gordon MacInnes grouped these twelve districts by their priority in adopting early literacy as a priority, in cooperating with NJDOE, and in using the professional development opportunities offered by the department.

Four districts-Orange, Pleasantville, Elizabeth and Jersey City are judged by commentators to be "high" implementers of IEL. "Jersey City focused on how to intensify small-group instruction and to give more time to the needs of struggling readers." (MacInnes 2009, p.84). "Five districts—Asbury Park, Bridgeton, East Orange, Irvington, and Newark— are judged to be medium implementers…Three districts—Camden, Paterson, and Trenton—are characterized as "low" implementers. (MacInnes 2009, p.85).

Traditionally, the IEL program has been measured by the results of the state fourth grade language arts tests, stated as a percentage of students who are proficient of advanced proficient. New Jersey tested fourth-graders in literacy for the first time in 1999. One commentator states that "The Abbott districts that most enthusiastically embraced IEL strategy–Elizabeth, Orange, and Union City, where it originated have made significant student learning gains and are narrowing–in some cases closing–the gap between the disadvantaged students they serve and statewide average in fourth grade reading achievement." (Mead, 2009, p.22).

In 1999, only one-third of Union City's fourth-graders were proficient, a gap of 31 percentage points with students in non Abbott districts. The general problems were a lack of writing (which counts for half the score on the 3rd and 4th grade tests) and over reliance on reading textbooks without providing supplemental reading opportunities. Union City was 11th among the 31 *Abbott* districts. By 2008, 77.7 percent of Union City fourth-graders were proficient, the gap with non-*Abbott* districts closed to eight percentage points.

At the middle school levels, the key recommendation of DOE was to focus on reading beyond textbooks and anthologies, with frequent writing and more time allotted to both (80 uninterrupted minutes versus typical class time period of 40-45 minutes). In 2005-06, the DOE Department of Urban Literacy focused on expanding the Literacy is Essential to Adolescent Development and Success (LEADS), which emphasized working across disciplines, using more interesting and contemporary literature, frequent writing, diverse texts, and targeted interventions for students reading two or more years below grade level. In the few districts that have not instituted IEL across its schools, the Office of Urban Literacy committed to help teachers work in small groups, utilize guided reading, and evaluate writing. This approach has even greater import when considered in the context of the shifts toward the Common Core and the anticipated shifts to more sophisticated assessments of analytical and thinking skills

I have the opportunity to examine the relationship between the stepped up small group instruction and performance on standardized achievement tests over time.

IV. Methodology

Introduction to the District Model

This is the first study in the United States to chart the academic progress of economically disadvantaged students on a longitudinal basis following an equity decision rendered by a state Supreme Court. Sara Mead pointed out that, "a high-quality, rigorous longitudinal evaluation of the impact of New Jersey's K-12 level school reform efforts" has not been conducted on the Abbott districts. (Mead, 2009, p. 22).

Subsequent to Abbott v. Burke in 1997, I am examining the effects on the academic achievement, graduation rates, teacher-pupil ratio, and school climate of economically disadvantaged students. All thirty-one of the Abbott districts[32] are compared to 502 New Jersey districts in a comprehensive New Jersey data base created for this study.

The "lions share" of school finance research to date focuses on district wide academic performance after equity and adequacy court decisions were adjudicated by state supreme courts My study builds upon this district-analysis approach. I vastly expand the number of variables in play and evaluate the effects of Abbott v. Burke and the ensuing policy initiatives on Abbott districts, low-income non-Abbott districts, middle class districts, upper middle class districts, and the highest socio-economic districts. Tukey's 1962 maxim that "it is better to have an approximate answer to the right question than an exact answer to the wrong question" applies to examining whether equity court decisions improve academic performance.

A. Has the money from the equity and adequacy court decisions reached the students in the classroom?

The first research question is "Have increased resources from the equity and adequacy court decisions reached the students in the classroom?"

In order to answer this question several sub-questions must be asked:

S (1) Have expenditures per pupil in Abbot districts increased since Abbott v. Burke (1997)?
S (2) Have instruction and instruction related expenditures increased?
S (3) How does funding for Abbott districts compare to low income non-Abbott districts and middle class districts?
S (4) What is the share of state funding for Abbott districts as compared to low income non-Abbott districts and middle class districts?

[32] The Abbott districts include Asbury Park, Bridgeton, Burlington, Camden, Orange, East Orange, Elizabeth, Garfield, Gloucester, Harrison, Hoboken, Irvington, Jersey City, Keansburg, Long Branch, Millville, Neptune, New Brunswick, Newark, Passaic, Paterson, Pemberton, Perth Amboy, Phillipsburg, Plainfield, Pleasantville, Salem, Trenton, Union, Vineland, and West New York (New Jersey Department of Education, 2005).

1. Expenditures per pupil since Abbott v. Burke (1997)

Following the Abbott v. Burke decision in 1997 and ensuing policy initiatives to up until 2013, I am tracking revenue and expenditure data for the thirty-one (31) Abbott districts in comparison to 502 districts contained in a comprehensive New Jersey data base.[33]

I have separated the districts into quintiles according to the District Factor Group (DFG) classification scheme established by the Department of Education[34]:

1. Abbott districts (31 districts)

2. Low socioeconomic districts (A and B "DFG" group) non-Abbott districts (68 districts)

3. Middle-class districts (C, D, E, and F "DFG" group) (131 districts)

4. Upper middle-class districts (G and H "DFG" group) (144 districts)

5. Highest socioeconomic districts (I and J "DFG" group) (113 districts)

There is a sensitive equity issue that juxtaposes lower socioeconomic non-Abbott districts against the urban Abbott districts because the disparity between expenditures per student is very profound. Therefore, I am carefully tracking expenditures per pupil in the lower socioeconomic non-Abbott districts in comparison to Abbott districts prior and subsequent to the 1997 Abbott v. Burke decision.

All but six of the Abbott districts fall within DFG group A. Approximately sixteen non-Abbott districts fall in DFG group A, including Perth Amboy, Atlantic City, Dover, Penns Grove-Carney's Point, and Wildwood City. These sixteen districts have a large number of economically disadvantaged students.

The districts in the DFG group B also have a significant number of socio-economically disadvantaged students.[35] As the chart below indicates, approximately 56% of students in the B district factor group are classified as economically disadvantaged.

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[33] The data base contains 533 districts after removing the regional service agencies, the county service agencies, and charter school districts wherein data was not available.

[34] To calculate DFG groups New Jersey concentrates on three steps: first they calculate the SES score (socio-economic statistic) for each student, then they calculate the weighted amount for each student using 6 indicators about their origin and then New Jersey concentrates on how many students with these SES weighted scores are in each district. The DFG factor groups were first created in 1975 and were recalculated with the information gathered by the 2000 census. Subsequent to the Abbott IV ruling, the DFGs were also used to define the group of school districts in which the Abbott v. Burke parity remedy would be based (New Jersey Department of Education, 2007).

[35] The districts from DFG group B include North Bergen, Plainfield, Linden, Long Branch, Kearney, Carteret, Lodi, Roselle, Cliffside Park, and Harrison.

Table 1.

District Factor Group	Total Students	Econ Disad students	% Econ Disad	Advantaged students	% Advantaged stud
A	18,469	14,773	79.99%	3,696	20.01%
B	10,715	5,993	55.93%	4,722	44.07%

(Source: New Jersey Department of Education website (2006)

a. Funding for Abbott districts in comparison to low income non-Abbott districts following enactment of the School Funding Reform Act (SFRA) in 2009

The School Finance Reform Act (SFRA), enacted in January 2008 and declared constitutional by the State Supreme Court in May 2009, eliminated special funding and other remedial orders for the urban (Abbott) districts and provides significantly more funding to non-urban districts that have growing numbers of poor and ELL students. I am especially interested in tracking expenditures per pupil for high poverty districts subsequent to the passage of SFRA. I briefly study whether the reversal of Abbott in 2009 and the enactment of SFRA has a negative association with the funding and academic achievement of economically disadvantaged students in Abbott districts.

b. Funding for Middle Class Districts, Compared to Abbott Districts

I track expenditures per pupil in middle class districts[36] and the Abbott districts prior and subsequent to the 1997 Abbott v. Burke decision and the enactment of SFRA. The middle class districts are the home to some of the most politically powerful jurisdictions in the state, including West Orange[37], Cherry Hill, Parsippany-Troy Hills, Morris, Lawrenceville, and Middletown.

c. Funding for Upper Middle Class Districts, Compared to Abbott Districts

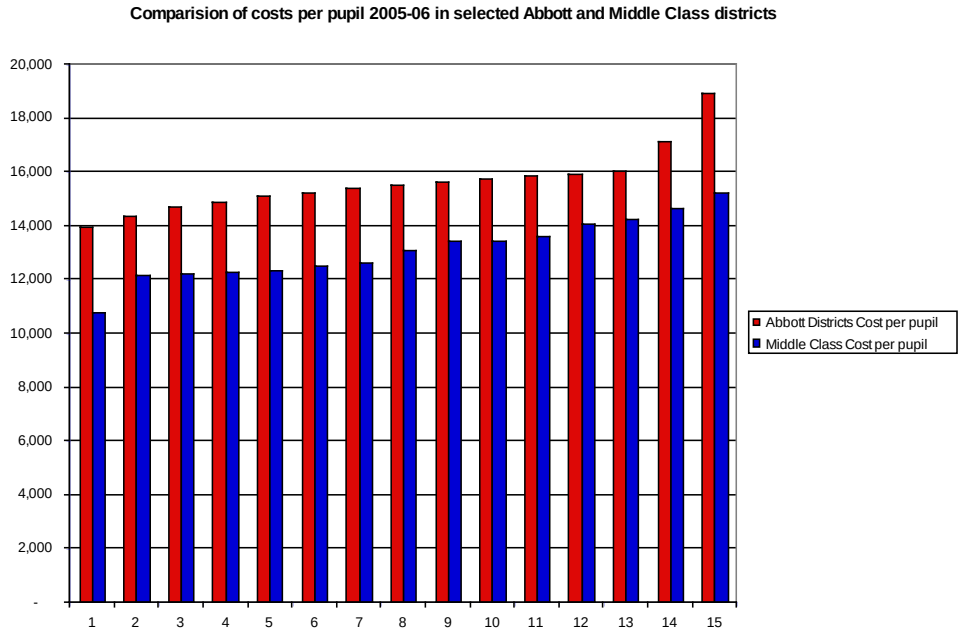
I track expenditures per pupil in middle class districts and the Abbott districts prior and subsequent to the 1997 Abbott v. Burke decision and the enactment of SFRA. Even prior to the increase of almost $100 million allocated to Abbott districts in FY 2004-05, education spending in the Abbott districts was equalized with middle class districts as far back as 2001-02.

The Abbott districts were spending more per pupil than all fifteen randomly chosen districts from the upper middle class category (GH "DFG" group) in 2005-06. The graph below shows the disparity in spending per pupil in 2005-06 between the Abbott and fifteen randomly chosen districts in the GH "DFG"group.

[36] The middle class districts include Manalapan-Englishtown, Cherry Hill, Edison, Piscataway, Middleton, Green Brook, High Bridge, East Windsor, Fairlawn, Cedar Grove, Springfield, Paramus, Parsippany-Troy Hills, West Orange and Morris.

[37] West Orange is the home of the Richard Cody, former Governor, who is also President of the New Jersey State Senate.

Figure 3. Comparison of expenditure per pupil selected Abbott and Middle Class districts



d. Funding for the Highest Socio-Economic Districts, Compared to Abbott Districts

Finally, I also track expenditures per pupil the highest socio-economic districts and the Abbott districts prior and subsequent to the 1997 Abbott v. Burke decision and the enactment of SFRA.

In summary, I am comparing expenditures per pupil in middle class districts[38], upper middle-class districts, and the highest socioeconomic districts with those of Abbott districts prior and subsequent to the 1997 Abbott v. Burke decision and the enactment of SFRA.

2. Expenditures for instruction and instruction related expenditures since Abbott v. Burke (1997)

NCES reports that in FY 11, school districts reported $520.6 billion in current expenditures for all educational functions, which included $341.1 billion or 65.5 percent for instruction and instruction-related expenditures.

[38] The middle class districts include Manalapan-Englishtown, Cherry Hill, Edison, Piscataway, Middleton, Green Brook, High Bridge, East Windsor, Fairlawn, Cedar Grove, Springfield, Paramus, Parsippany-Troy Hills, West Orange and Morris.

In response to the question of whether the Abbott funding made it into the classroom I am tracking instruction and instruction related expenditures per pupil for the thirty-one (31) Abbott districts in comparison to districts that are very similar in terms of socio-economic status, middle class districts, upper middle class districts, and the highest socio-economic districts.[39]

3. Share of State Aid in Abbott districts, low socioeconomic, middle class, upper middle class, and the highest socioeconomic districts

The disparity in expenditures per pupil raises the issue of whether lower socioeconomic non-Abbott districts are receiving an equitable share of state aid to education? I track the levels of State aid to Abbott districts and all New Jersey districts form 1997 to 2012.

As previously mentioned, between FY 1997 and FY 2005, the Abbott districts received State aid increases at a far greater rate than the middle class districts. I also propose to track the levels of State aid to Abbott districts in comparison to all districts in the state.

4. Effect of Abbott v. Burke (1997) on Expenditures per Pupil

The district model analyzes the relationship between expenditures per pupil and Abbott districts and various dependent variables while controlling for poverty, race, and urbanicity.

The dependent variables include:

- Expenditures per pupil, separate variables for every year from 1995-2012
- Instruction Expenditures per pupil
- Expenditure per pupil minus federal revenue weighted 40% for poverty (To calculate the weighted value, the number of number of children 5-17 year olds in poverty in each district was multiplied by the weighting factor (e.g. 40%) and added to the total enrollment of the district).
- School administration expenditures
- General administration expenditures
- State Aid
- Revenue from state sources
- Revenue from local sources

The independent variables include the following:

- Abbott District 0=No; 1=Yes
- Poverty rate for each district
- High Minority (>60% minority) 0=No; 1=Yes

[39] The middle class districts include Manalapan-Englishtown, Cherry Hill, Edison, Piscataway, Middleton, Green Brook, High Bridge, East Windsor, Fairlawn, Cedar Grove, Springfield, Paramus, Parsippany-Troy Hills, West Orange and Morris.

- Percentage of ELL students
- City locale code 0=No; 1=Yes
- Rural local code 0=No; 1=Yes
- Town locale code 0=No; 1=Yes
- Pupil teacher ratio

B. Academic performance of Abbott students since Abbott v. Burke compared to students from low socioeconomic, middle class districts, upper middle class and the highest socioeconomic districts

The general research question is: Has the academic performance of Abbott students improved as compared to student achievement from analogous low socioeconomic districts that are not covered by Abbott v. Burke?

As Haertal points out, it is easy to calculate the time of an individual runner, but it is harder to do so for a group of runners or to compare one group of runners to another. (Haertal, 2009). This metaphor applies to the comparing the academic performance of Abbott students to students in similar socio-economic positions throughout the State.

1. Effects of Abbott v. Burke (1997) on Standardized Test Scores, SAT scores, Graduation Rates, Student-Teacher Ratio, Teacher Experience, and School Climate of economically disadvantaged students

I am analyzing the effects of Abbott v. Burke (1997) and the enactment of SFRA (2008) on economically disadvantaged students in Abbott districts as compared to student performance in low income non-Abbott districts, middle class districts, upper middle class districts, and the highest socio-economic districts. All thirty-one of the Abbott districts[40] are compared to 502 New Jersey districts in a comprehensive New Jersey data base created for this study. The dependent variables include measures of standardized test scores, graduation rates, school characteristics such teacher per pupil ratio, and school climate.

Students in Abbott districts showed demonstrable improvement from 2001 to 2005 on fourth grade math and reading tests, with the result that the Abbott to non-Abbott achievement gap seems to be closing in the 4th grade. (Goertz and Weiss 2007). Alexandra Resch used district level averages on the 1994-2001 New Jersey High School Proficiency Test to analyze Abbott v.

[40] The Abbott districts include Asbury Park, Bridgeton, Burlington, Camden, Orange, East Orange, Elizabeth, Garfield, Gloucester, Harrison, Hoboken, Irvington, Jersey City, Keansburg, Long Branch, Millville, Neptune, New Brunswick, Newark, Passaic, Paterson, Pemberton, Perth Amboy, Phillipsburg, Plainfield, Pleasantville, Salem, Trenton, Union, Vineland, and West New York (New Jersey Department of Education, 2005).

Burke. She found a significant positive impact of the Abbott policy on 11th grade achievement for minority students in the Abbott districts. (Resch, 2009, p, 94).

Standardized Test Scores as Dependent Variable

I compare the aggregate standardized test scores of Abbott students on fourth and eighth grade Language Arts and Math prior and subsequent to Abbott v. Burke as compared to standardized test scores of students from low socioeconomic, middle class, upper middle class, and the highest socioeconomic districts. Specifically, regression techniques are used to examine the association between increased resources from Abbott v Burke (1997) and the average children's literacy and mathematics scores during the 4th and 8th grades prior to the court decision, before SFRA in 2007, and in 2012. Four models using hierarchial regression are summarized by table 2 below. The dependent variables for the first and second models are standardized[41] test scores, commonly known as Z scores. The algebraic form of the second model is:

Scaled Test Score (Z score)= $\beta o + \beta_1$ Abbott District $+\beta_2$ Expenditures per pupil + β_3 low socioecon non-Abbott + β_4 middle class + β_5 upper middle class + β_6 Pupil/Teacher ratio $+\beta_7$ percentage ELL + β_8 high minority + β_9 urbanicity (City, rural, town), and **Suburbs**+ ϵ

[41] A set of data is converted into standard units by subtracting from each value the mean of the data and then dividing by their standard deviation. In standard units the mean of any set of data is zero and its standard deviation is equal to 1. (Freund and Williams, 2010).

Table 2. Regression Models

	Dep. Var. Aggregate Achievement Tests: 4th and 8TH grade reading/math (Z scores)	**Dep. Var.** Aggregate Achievement Tests: 4th and 8th grade reading/math (Z scores)	**Dep. Var.** SAT scores	**Dep. Var.** SAT scores
Independent variables				
Abbott District 0=No; 1=Yes	X	X	X	X
Low socioeconomic non Abbott 0=No; 1=Yes	X	X	X	X
Upper Middle Class 0=No; 1=Yes	X	X	X	X
Highest Socioeconomic Districts 0=No; 1=Yes	X	X	X	X
High Minority (>60% minority) 0=No; 1=Yes (Black, Hispanic Native American/Alaskan Asian, Pacific Islander)		X		X
Median Income Level in Districts from ACS		X		X
City locale code 0=No; 1=Yes		X		X
Rural local code 0=No; 1=Yes		X		X
Town locale code 0=No; 1=Yes		X		X
Percentage of women with BA in districts from ACS		X		X

Regression techniques are also used to examine the association between increased resources from Abbott v. Burke (1997) and the following dependent variables:

- Average SAT scores in 1995, 1996, 1997, 1999, 2000, 2001, 2002
- SAT scores in 2012;
- Graduation rates in 1996, 2007, 2012, 2015;
- Student-teacher ratio in 1996, 2007, and 2012;
- School climate variables in 2012
  - Algebra I enrollment and passing by grade 7 or 8,9; or 10,11,12

- AP Courses, test taking, and test passing
- Suspensions: in school and out-of-school
- Expulsions
- Bullying/harassment on the basis of sex, national origin, and disability

➢ Teachers level of experience in 2012

C. Are Abbott policy initiatives such as the Intensive Early Literacy Program and mandatory pre-school effective?

One of the best methods to determine whether specific policies such as IEL generated by Abbott are effective for economically disadvantaged students is to chart performance of students in districts that emphasize IEL. It would be more difficult to measure the impact of this malleable policy on all Abbott school districts, rather than just zero in on a few districts that emphasized the policy. I am focusing the lens on nine districts that emphasized IEL—those nine districts that have been characterized as "high implementers" or "medium implementers" of IEL.

D. Data Sources

A. 2010-2013 American Community Survey 3-Year Estimates
Percentage of families whose income in past 12 months is below poverty level

B. Common Core of Data (CCD) School District Finance Survey (F-33)

C. CCD Local Education Agency Universe

D. CCD School Universe

E. School Performance Reports, New Jersey Department of Education

F. American Community Survey (ACS) U.S. Census Bureau

V. Results

a. The relationship between current expenditures per pupil and Abbott districts

Prior to the landmark Abbott v. Burke decision in 1997, there was a 1.2 percentage difference between mean current expenditures per pupil in the Abbott districts ($9,324) and the highest socio-economic districts in the state ($9,214). By FY 13, the percentage difference in mean expenditures per pupil had grown to 16.3 percent between the Abbott districts ($20,231) and the highest socio economic districts ($16,943).

Figure 3.

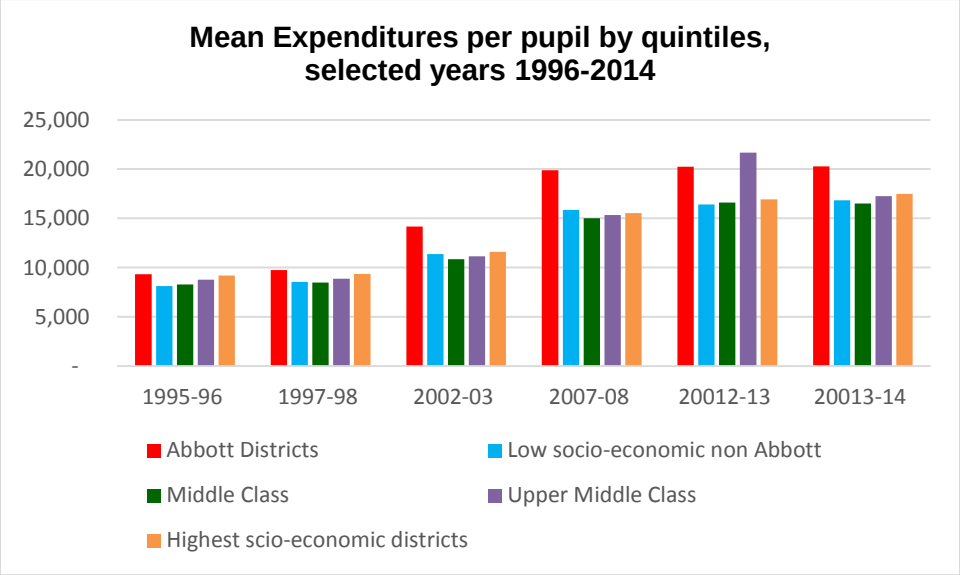


Table 3.

Expenditures per pupil by quintiles selected years 1995-2014							
	Districts	1995-96	1997-98	2002-03	2007-08	20012-13	20013-14
Abbott Districts	31	$ 9,324	$ 9,740	$ 14,170	$ 19,877	$ 20,231	$ 20,278
Low socio-economic non Abbott	68	8,125	8,544	11,382	15,844	16,411	16,820
Middle Class	131	8,281	8,481	10,859	15,026	16,613	16,523
Upper Middle Class	144	8,765	8,862	11,134	15,331	21,678	17,259
Highest socio-economic districts	113	9,214	9,350	11,609	15,544	16,943	17,470
Source: School District Finance Survey (F-33) FY96, FY98, FY03, FY08, FY13, FY14							

In FY 14, mean expenditures per pupil in Abbott districts were an astounding 18.5 percent higher than in middle class districts. Mean expenditures per pupil in Abbott districts were also 17.1 percent higher than in low socioeconomic districts. However, it is interesting to note that in FY 13 mean expenditures per pupil in Abbott districts were 7.2 percent less than in upper middle class districts ($21,678).

Table 4.

Percentage Difference in Mean Expenditures per Pupil by Quintiles Seleced Years 1995-2014						
	1995- 96	1997-98	2002-03	2007-08	20012-13	20013-14
Percent difference Abbotts & low socio-economic non-Abbotts	12.9	12.3	19.7	20.3	18.9	17.1
Percent difference Abbotts & Middle Class	11.2	12.9	23.4	24.4	17.9	18.5
Percent difference Abbotts & Upper Middle Class	6.0	9.0	21.4	22.9	-7.2	14.9
Percent difference Abbotts & Highest socio-economic Districts	1.2	4.0	18.1	21.8	16.3	13.8
Source: School District Finance Survey (F-33) FY96, FY98, FY03, FY08, FY13, FY14						

By 2012, there is a strong positive association between expenditures per pupil and Abbott districts, as compared to middle class districts (ES .291, p<.001). This effect size is markedly higher than in 1996 (ES .129, p<.05).

This effect size for the Abbott districts in 2012 exceeded the positive relationship between expenditure per pupils and the highest socio-economic districts (ES .142, p<.01). This result stands in stark contrast to the very strong relationship between expenditures per pupil and the highest social economic districts that existed prior to Abbott in 1996 (ES .253, p<.001).

There is also a slight positive association between expenditures per pupil and districts in city areas (ES .09, p<.05) in 2012. There is a slight positive association between expenditures per pupil and districts in town areas (ES .129, p<.01).

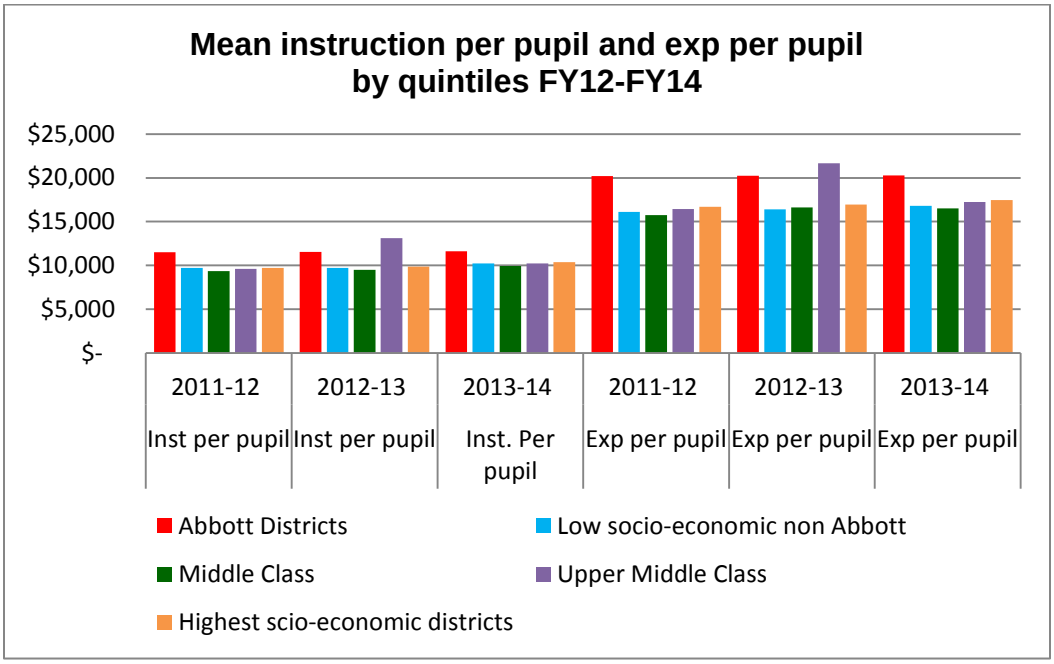
In 2014, the strong positive association between persists expenditures per pupil and Abbott districts, as compared to middle class districts (ES .259, p<.001). This effect size continues to exceed the positive relationship between expenditure per pupils and the highest socio-economic districts (ES .135, p<.05).

It is unequivocal that Abbott v. Burke has increased resources for students in Abbott districts. However, low socioeconomic districts and middle class districts have not experienced this increase in expenditures per pupil.

b. The relationship between instruction current expenditures per pupil and Abbott districts

The Abbott districts are increasing the amount of share of expenditures allocated for instruction. In 2012, there is a strong positive association between instruction expenditures per pupil and Abbott districts, compared to middle class districts (ES .177, p<.001).

Figure 4



Although expenditures per pupil in Abbott districts exceed $20,000 in FY 12 thorough FY 14, instruction expenditures per pupil hovered around $11,500, which only slightly exceeds the amount expended on instruction in the other quintiles.

Table 5.

Mean Instruction Expenditures Per Pupil and Expenditures Per Pupil by Quntiles							
	# Dist	Inst per pupil	Inst per pupil	Inst. Per pupil	Exp per pupil	Exp per pupil	Exp per pupil
		2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
Abbott Districts	31	$ 11,516	$ 11,553	$ 11,627	$ 20,219	$ 20,231	$ 20,278
Low socio-economic non Abbott	68	9,727	9,730	10,215	16,108	16,411	16,820
Middle Class	131	9,339	9,506	9,940	15,748	16,613	16,523
Upper Middle Class	144	9,599	13,127	10,227	16,443	21,678	17,259
Highest scio-economic districts	113	9,733	9,849	10,361	16,707	16,943	17,470
Source: School District Finance Survey (F-33) FY12, FY13, FY14							

Although the percentage difference in expenditures per pupil between Abbott districts and middle class district was 18.5 percent in FY 14, the difference in money that actually made it into the classroom, e.g. instruction expenditures per pupil, was only 14.5 percent. Similarly, the percentage difference in expenditures per pupil between Abbott districts and low socioeconomic

district was 17.1 percent in FY 14, which the percentage difference in expenditures for insertion per pupil was only 12.1 percent.

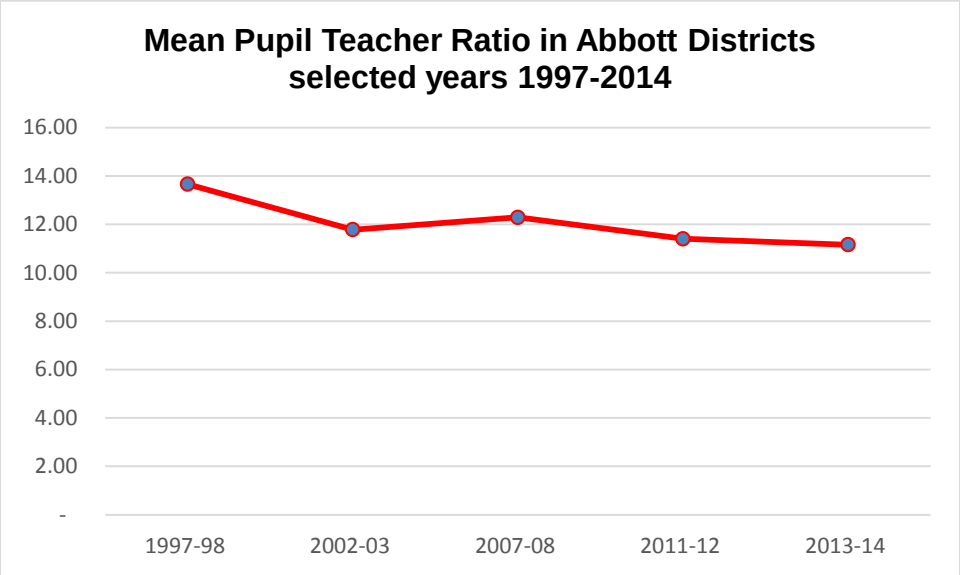
Table 6.

Percentage Difference in Instruction Expenditures per Pupil and Exp per Pupil by Quintiles Selected Years 1995-2014							
		Inst per pupil	Inst per pupil	Inst. Per pupil	Exp per pupil	Exp per pupil	Exp per pupil
		2011-12	2012-13	2013-14	2011-12	2012-13	2013-14
Percent difference Abbotts & low socio-economic non-Abbotts		15.5	15.8	12.1	20.3	18.9	17.1
Percent difference Abbotts & Middle Class		18.9	17.7	14.5	22.1	17.9	18.5
Percent difference Abbotts & Upper Middle Class		16.6	-13.6	12.0	18.7	-7.2	14.9
Percent difference Abbotts & Highest socio-economic Districts		15.5	14.7	10.9	17.4	16.3	13.8
Source: School District Finance Survey (F-33) FY12, FY13, FY14							

c. The relationship between the teacher/pupil ratio and Abbott districts

Since the Abbott decision in 1997 the pupil/teacher ratio has steadily declined in the Abbott districts.

Figure 5.



In a comparison of the pupil/teacher ratio in Abbott districts to other districts across the State, Abbott districts consistently have the lowest Student/Teacher ratio between 1997 and 2014.

Figure 6

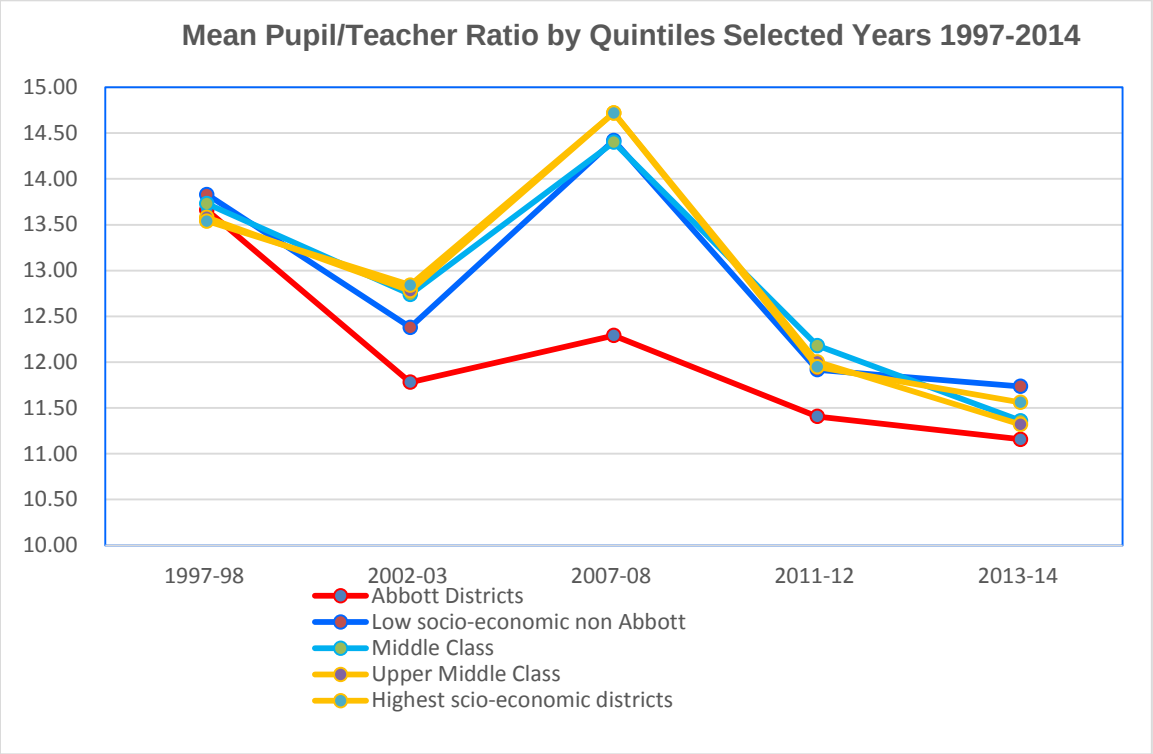


Table 7.

Mean Pupil Teacher Ratio by quintiles selected years 1997-2014					
	1997-98	2002-03	2007-08	2011-12	2013-14
Abbott Districts	13.66	11.78	12.29	11.41	11.16
Low socio-economic non Abbott	13.83	12.38	14.42	11.92	11.73
Middle Class	13.73	12.74	14.40	12.18	11.36
Upper Middle Class	13.58	12.78	14.72	12.00	11.32
Highest scio-economic districts	13.54	12.84	14.72	11.95	11.56
Source: Common Core of Data (CCD) Local Education Agency (LEA) Survey FY98, FY03, FY08, FY12, and FY14					

The relationship between the pupil teacher ratio and Abbott districts has slightly improved since Abbott v. Burke was adjudicated by the New Jersey Supreme Court in 1997. The pupil teacher ratio and the Abbott districts are closely related. In 2012, there is a positive association between the pupil teacher ratio and the Abbott districts, compared to middle class districts (ES .107, p< 01). In FY 08, there was also a positive association between the pupil teacher ratio and the Abbott districts (ES .100, p< 01). By FY 2003, there was also a positive relationship between pupil teacher ratio and the Abbott districts (ES .114, p< 01). There was not a statistically significant relationship between pupil teacher ratio and the Abbott districts in 2007.

d. The relationship between the pre-school programs and Abbott districts

There is a strong positive association between pre-Kindergarten programs being offered and Abbott districts (ES .205, p< 001). This strong positive relationship carries over to low socioeconomic non-Abbott districts (ES .232, p< 001).

Table 8. Pre-Kindergarten Programs Offered FY 2012

Abbott Districts[1]	0.211	***	0.217	***	0.205	***	0.208	***	0.205	***
Low socioeconomic districts	0.252	***	0.255	***	0.243	***	0.236	***	0.232	***
Upper middle class	-0.068		-0.07		-0.037		-32		-0.024	
Highest Socio economic class	-0.131	*	-0.133	*	-0.058		-0.045		-0.034	
High Minority			-0.015		-0.031		-0.005		-0.002	
Median Income ACS 2012-13					-103		-0.113		-0.089	
City							-0.036		-0.036	
Rural							0.102	*	0.1	*
Town							-0.021		-0.02	
% female with BA ACS 2012-13									-0.04	

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts

Source: Civil Rights Data Collection 2012, U.S. Department of Education

B. Academic performance of Abbott students since Abbott v. Burke compared to students from low socioeconomic, middle class districts, upper middle class and the highest socioeconomic districts

1. Effects of Abbott v. Burke (1997) on Standardized Test Scores, SAT scores, Graduation Rates, Student-Teacher Ratio, Teacher Experience, and School Climate of Economically Disadvantaged Students

a. The relationship between student achievement and Abbott districts

1. 4th Grade Standardized Test Scores

Since the Abbott v. Burke decision in 1997, the Abbott students have consistently performed better according to the State measure of "advanced proficiency" and "proficiency" on the 4th grade language arts test as compared to middle class districts. There is a statistically significant relationship between student achievement in Language Arts in Abbott districts and increased funding. Although the coefficients for Abbott students negative as compared to middle class districts, the value of the negative coefficients gradually increase over time, showing improvement.

Figure 7.

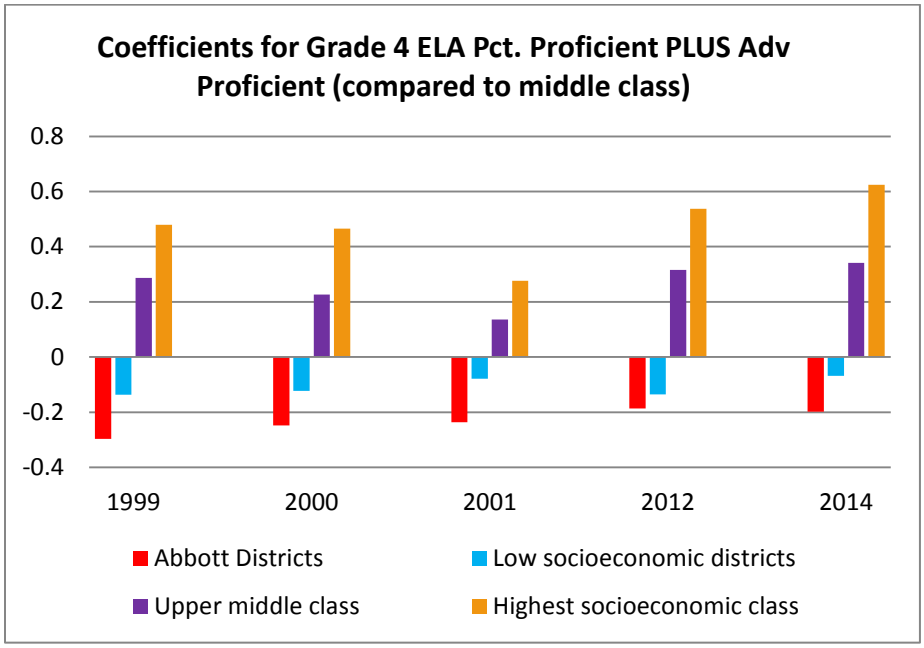


Table 9. Grade 4 Percent Proficient PLUS Adv Proficient ELA, Selected Years 1999-2014

	1999		2000		2001		2012		2014	
Abbott Districts	-0.297	***	-0.248	***	-0.236	***	-0.187	***	-0.198	***
Low socioeconomic districts	-0.136	***	-0.123	**	-0.078		-0.135	**	-0.068	**
Upper middle class	0.287	***	0.227	***	0.136	**	0.316	***	0.341	***
Highest socioeconomic class	0.479	***	0.466	***	0.277	***	0.538	***	0.625	***

***<.001

**<.01

*<.05

When the control variables of high minority districts, median income, urbanicity, and the percentage of women with a BA are applied to 2012 data, there is a slight negative association between Abbott districts and "advanced proficiency" plus "proficiency" scores on the 4th grade language arts test as compared to middle class districts (ES -.124, p<.01). By 2014, students in Abbott districts improved in language arts, as the coefficient size as compared to middle class districts dissipates even more (ES -.084, p<.05).

In 2012, there is a negative association between Abbott district and mean ASK scores (Zscored) on 4th grade language arts as compared to middle class districts (ES -.134, p<.001), applying those same control variables. The Abbott districts performed on relatively the same level as their counterparts from low socioeconomic districts (ES -.114, p<.001). However, there was a much stronger positive relationship between 4th grade language arts standardized test scores and the highest socio-economic districts (ES .394, p<.001); as well as the upper middle class districts (ES .228, p<.001), compared to middle class districts.

Table 10. **ASK 4 2012 Mean Scale ELA (Z scored)**

Abbott districts	-0.248	***	-213	***	-0.168	***	-0.151	***	-0.134	***
Low socioeconomic districts	-0.206	***	-0.189	***	-0.142	***	-0.132	***	-0.114	**
Upper middle class	0.336	***	0.329	***	0.272	***	0.27	***	0.228	***
Highest Socio economic class	0.633	***	0.619	***	0.462	***	0.454	***	0.394	***
High Minority			-0.087	***	-0.076	**	-0.094	**	-0.109	**
Median Income ACS 2013					0.23	***	0.225	***	0.106	*
City							-0.042		-0.042	
Rural							-0.092	**	-0.079	**
Town							-0.062		-0.06	*
% female with BA ACS 2013									0.203	***

***<.001

**<.01

*<.05

When the same control variables are applied to 2014 data, the slight negative relationship persists between mean scores on 4th grade language arts (Z scored) and Abbott districts as compared to middle class districts (ES -.125, p<.001).

Table 11. **ASK 4 2014 Mean Scale ELA (Z scored)**

Abbott districts	-0.270	***	-0.219	***	-0.152	***	-0.138	***	-0.125	***
Low socioeconomic districts	-0.152	***	-0.128	***	-0.062	***	-0.058	***	-0.044	
Upper middle class	0.343	***	0.333	***	0.248	***	0.249	***	0.216	***
Highest Socio economic class	0.676	***	0.658	***	0.425	***	0.425	***	0.379	***
High Minority			-0.122	***	-0.11	***	-0.116	***	-0.128	***
Median Income ACS 2013					0.334	***	0.33	***	0.24	***
City							-0.028		-0.028	
Rural							-0.035		-0.025	
Town							-0.044	*	-0.045	*
% female with BA ACS 2013									0.154	**

***<.001

**<.01

*<.05

Since 1997 Abbott students have also consistently improved on the 4th grade math test as compared to middle class districts based on the "advanced proficiency" and "proficiency" measure. The coefficients have steadily increased through 2014 as compared to middle class districts.

Table 12. **Grade 4 Percent Proficient PLUS Adv Proficient Math, Selected Years 1999-2014**

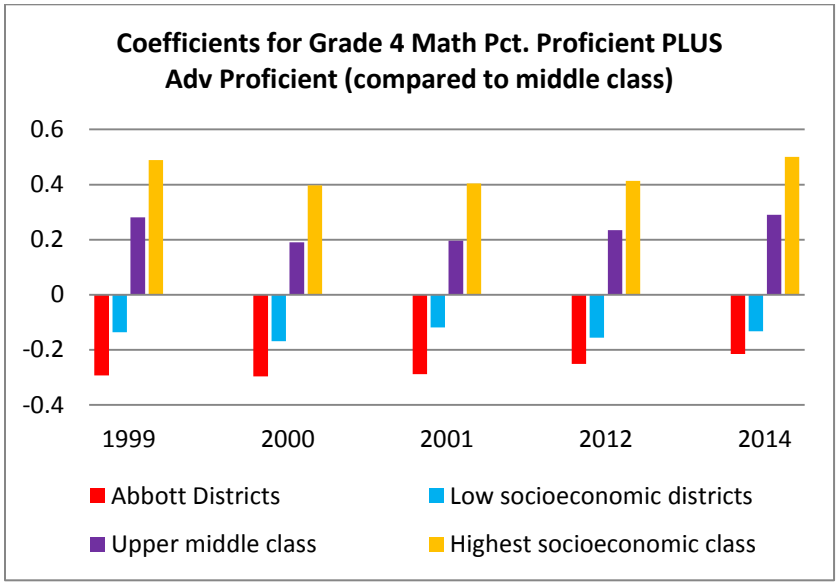
	1999		**2000**		**2001**		**2012**		**2014**	
Abbott Districts	-0.293	***	-0.296	***	-0.288	***	-0.251	***	-0.215	***
Low socioeconomic districts	-0.136	**	-0.168	***	-0.119	**	-0.156	***	-0.133	**
Upper middle class	0.281	***	0.19	***	0.196	**	0.235	***	0.29	***
Highest socioeconomic class	0.489	***	0.397	***	0.404	***	0.413	***	0.5	***

***<.001

**<.01

*<.05

Figure 7.

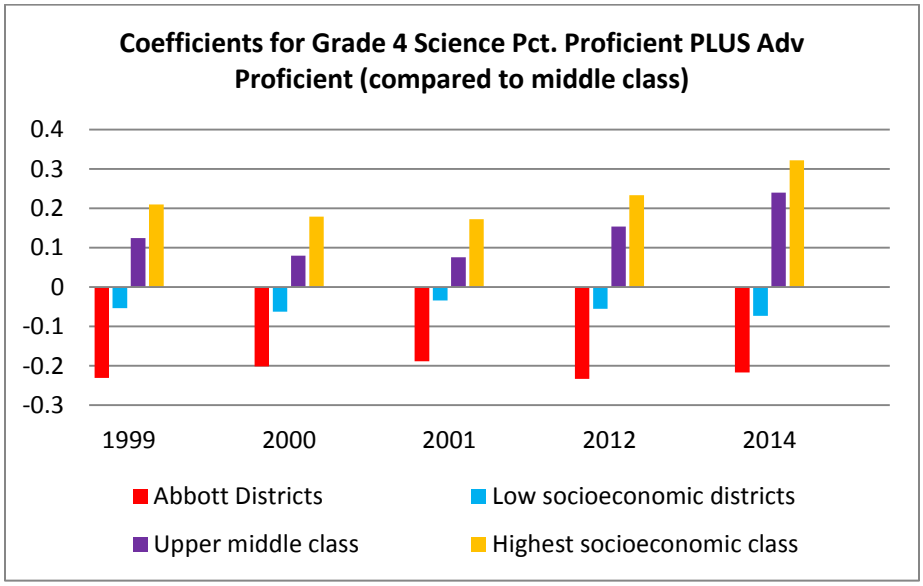


When the control variables are included with 2012 data, a negative association persists between Abbott districts and "advanced proficiency" plus "proficiency" measures on the 4th grade math test as compared to middle class districts (ES -.168, p<.001). By 2014, student academic achievement in Abbott districts improved to an even greater degree as compared to middle class students. (ES -.093, p<.05). Abbott students performed as well as their counterparts from low socioeconomic districts, although that relationship was not statistically significant.

In 2012, the Abbott districts performed almost on the same level as low socioeconomic districts and slightly below middle class districts on the 4th grade math ASK test scores (Z scored) (ES -.145, p<.001). As in language arts, there was a positive relationship between 4th grade math standardized test scores and the highest socio-economic districts (ES .350, p<.001), compared to middle class districts. There was also a positive relationship between 4th grade math standardized test scores and upper middle class districts (ES .191, p<.001).

Between Abbott in 1997 and 2011, the Abbott students have consistently performed better in Science according to the State measure of "advanced proficiency" and "proficiency" as compared to middle class districts. By 2012 and 2014, that improvement in achievement waned (ES-.217, p<.001).

Figure 8.



By 2014, although there is a negative association between Abbott districts and 4th grade science ASK test scores (Z scored) (ES -.182, p<.001), they almost performed on the same level as low-socio economic districts (ES -.109, p<.005). As in the language arts and math, there is a strong positive association between the 4th grade science standardized test scores and the highest socio-economic districts (ES .284, p<.001); as well as the upper middle class districts (ES .170, p<.001), compared to middle class districts.

Thus, it appears that students in Abbott districts are performing on the relatively the same level of low socio-economic districts on 4th grade science and math standardized test scores, and to a lesser degree in science.

The academic achievement of economically disadvantaged fourth grade students in Abbott districts has improved as a result of Abbott v. Burke.

2. 8th Grade Standardized Test Scores

Although the coefficients steadily increase for 8th graders in Abbott districts for scoring "proficient" and "advanced proficient" on ASK language arts standardized tests from 1999-2012, as compared to middle class districts, the relationship is not statistically significant. In 2014, there is a positive statistically significant relationship between Abbott districts and ASK 8th scores on language arts, as compared to middle class districts (ES .106, p<.05). The low socioeconomic districts improve from 1999-2012 as compared to middle class districts, with a slight decline in 2014. In 2014, as expected there is strong positive relationship between the highest socioeconomic class districts (ES .237, p<.001).

Table 13. **Grade 8 ASK Percent Proficient PLUS Advanced Proficient ELA, Selected Years 1999-2014**

	1999		2000		2001		2002		2012		2014	
Abbott Districts[1]	0.026		0.016		0.041		0.043		0.072		0.106	*
Low socioeconomic districts	0.106	*	0.121	*	0.114	*	0.114	*	0.225	***	0.083	*
Upper middle class	0.033		0.05		0.047		0.038		0.357	***	0.008	
Highest socioeconomic class	0.067		0.086		0.072		0.065		0.505	***	0.237	***

***<.001

**<.01

*<.05

[1] All districts are compared to middle class districts.

In 2014, there is a positive statistically significant relationship between Abbott districts and "proficient" and "advanced proficient" ASK 8th grade scores on language arts, as compared to middle class districts (ES .129, p<.05).

Table 14. **Grade 8 ASK Percent Proficient PLUS Adv Proficient Math, Selected Years 1999-2014**

	1999		2000		2001		2002		2012		2014	
Abbott Districts[1]	0.082		0.062		0.053		-0.07		0.032		0.129	**
Low socioeconomic districts	0.106	*	0.121	*	0.122	*	-118	*	0.205	***	-0.86	*
Upper middle class	0.092	*	0.125	*	0.09	*	0.087		0.368	***	0.042	
Highest socioeconomic class	0.169	**	0.198	***	0.143	**	0.164	**	0.557	***	0.293	***

***<.001

**<.01

*<.05

[1] All districts are compared to middle class districts.

In 2012, there is a slight negative association between Abbott district and mean ASK scores (Zscored) on 8th grade language arts as compared to middle class districts (ES -.189, p<.001), applying control variables. The Abbott districts were only slightly outperformed by their counterparts from low socioeconomic districts (ES -.095, p<.01). In contrast, there was a much stronger positive relationship between 4th grade language arts standardized test scores and the highest socio-economic districts (ES .356, p<.001).

There is also slight negative association between Abbott districts and mean ASK scores (Zscored) on 8th grade math as compared to middle class districts (ES -.186, p<.001). As in language arts, Abbott districts almost performed on the same level of their counterparts from low socioeconomic districts (ES -.09, p<.05). Finally, there is a negative association between Abbott district and mean ASK scores (Zscored) on 8th grade science as compared to middle class districts (ES -.235, p<.001).

The performance of Abbott students in 8th grade remains relatively level in language arts between 2012 and 2014. By 2014, the slight negative association continues between Abbott district and mean ASK scores (Zscored) on 8th grade language arts as compared to middle class districts (ES -.185, p<.001).

The performance of 8th grade Abbott students in Math also remained stable between 2012 and 2014. There is miniscule negative relationship between Abbott districts and ASK scores on 8th grade math (ES -.185, p<.001).

Abbott students did improve in Science between 2012 and 2014, as compared to middle class districts. The size of the coefficient connoting a small negative relationship between Abbott districts and ASK Science scores decreases between 2012 and 2014 (ES -.185, p<.001).

3. High School Standardized Test Scores

There is a modest improvement in Abbott districts in high school language arts (HSPA) scores between 2012 and 2014. Although there is a negative association between Abbott districts and high school language arts (HSPA) scores (Z scored) in 2014 (ES -.234, p<.001) as compared to middle class districts, that is a slight improvement since 2012 (ES -.254, p<.001). In 2014, the gap between Abbott Districts and the highest socioeconomic districts and the upper middle class is closing, as there is less strong association between the highest socioeconomic districts and HSPA (ES .209, p<.01); as well as upper middle class districts (ES .106, p<.05).

Table 15. **HSPA 2014 Mean Scale ELA (Z score)**

Abbott Districts[1]	0.453	***	0.355	***	-0.273	***	-0.265	***	-0.234	***
Low socioeconomic districts	0.094		0.057		-0.01		-0.101		0.018	
Upper middle class	0.297	***	0.273	***	0.177	***	0.178	***	0.106	*
Highest Socio economic class	0.551	***	0.505	***	0.257	***	0.263	***	0.209	**
High Minority			-0.237	***	-0.201	***	-0.184	***	-0.23	***
Median Income ACS 2013					0.345	***	0.346	***	0.148	
City							-0.02		-0.021	
Rural							0.009	*	0.012	*
Town							0.031		0.037	
% female with BA ACS 2013									0.292	***

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts.

Between 2012 and 2014, Abbott high school students improved in Math HSPA scores, as compared to middle class districts (ES -.184, p<.001). In contrast, in 2012, there is a more pronounced negative association between Abbott districts and the Math HSPA scores (ES -.252, p<.001).

Table 16. **HSPA 2014 Mean Scale Math (Z score)**

Abbott Districts[1]	-0.405	***	-0.308	***	-0.215	***	-0.215	***	-0.184	***
Low socioeconomic districts	-0.062		-0.025		0.03		0.028		0.055	
Upper middle class	0.271	***	0.247	***	0.143	**	0.143	**	0.072	
Highest Socio economic class	0.59	***	0.544	***	0.271	***	0.274	***	0.221	**
High Minority			-0.233	***	-0.191	***	-0.185	***	-0.22	***
Median Income ACS 2013					0.385	***	0.346.389	***	0.196	*
City							0.005		0.005	
Rural							0.013		0.015	*
Town							0.03		0.285	
% female with BA ACS 2013									0.285	**

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts.

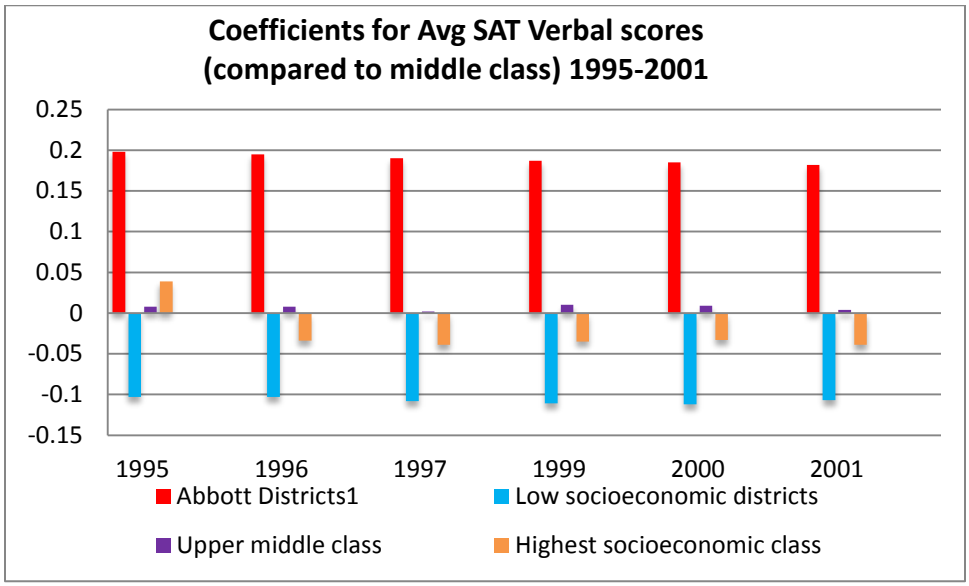
Overall, the academic progress exhibited by Abbott students in 4th and 8th grade between 2012 and 2014 slightly attenuates in high school. Although there appears to be modest improvement for Abbott students in 4th and 8th grade standardized test scores over time, in high school there the negative association between Abbott districts and high school language arts (HSPA) scores (Z scored) if of greater degree in high school, as compared to middle class districts.

c. The relationship between SAT scores and Abbott districts

The average Verbal SAT scores in Abbott districts remained level from two years prior to the time Abbott was adjudicated in 1997 by the highest court in NJ through 2001. In 2001, there is a

positive association between average SAT verbal scores and Abbott districts, as compared to middle class districts (ES .182, p <.001). In 2001, there is negative association between average SAT verbal scores and the low socioeconomic districts that do not have Abbott funding.

Figure 9.



In 2001, it is interesting to note that there is a slight negative relationship between average SAT verbal scores and the highest socioeconomic districts (ES -.039, p<.001).

Table 17.**SAT Verbal Average Scores, Selected Years 1995-2012**

	1995		1996		1997		1999		2000		2001	
Abbott Districts[1]	0.198	***	0.195	***	0.19	***	0.187	***	0.185	***	0.182	***
Low socioeconomic districts	0.103	*	0.103	*	0.108	*	0.111	*	-0.112	*	-0.107	
Upper middle class	0.008		0.008		0.002		0.01		0.009		0.004	**
Highest socioeconomic class	0.039		-0.034		-0.039		-0.035		-0.033		-0.039	***

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts.

When the control variables of high minority districts, median income, urbanicity, and percentage of women with a BA are applied to 2012 data, there was a modest negative association between the SAT critical reading scores and Abbott districts, compared to middle class districts (ES -.186, p<.01). Low socioeconomic districts performed on practically the same level as middle class districts, but the relationship was not statistically significant. As in prior analyses of various indicators, there was a strong relationship` between SAT critical reading scores and the highest socio-economic districts (ES .297, p<.001). Upper middle class districts did not fare as well as the highest socioeconomic districts on SAT critical reading (ES .117, p<.001).

Table 18	**SAT 2012 Critical Reading Stepwise Regression**									
Abbott Districts[1]	-0.359	***	-0.257	***	-0.195	***	-0.199	***	-0.186	**
Low socioeconomic districts	-0.077		-0.031		0.017		0.016		0.026	
Upper middle class	0.264	***	0.24	***	0.159	**	0.152	**	0.117	
Highest Socio economic class	0.600	***	0.557	***	0.338	***	0.330	***	0.297	***
High Minority			-0.263	***	-0.236	***	-0.241	***	-0.254	***
Median Income ACS 2012-13					0.294	***	0.304	***	0.229	*
City							0.025		0.023	
Rural							-0.021		-0.019	
Town							0.166		0.01	
% female with BA ACS 2012-13									0.123	

***<.001

**<.01

*<.05

[1]All districts are compared to middle class districts.

The average Math SAT scores in Abbott districts slightly decreased from two years prior to the time Abbott was adjudicated in 1997 through 2002. In 2002, there is a substantial positive association between average SAT Math scores and Abbott districts (ES .185, p<.001). In contrast, there is a minute negative association between average SAT Math scores and low socioeconomic non-Abbott districts (ES -.106, p<.001).

Figure 10.

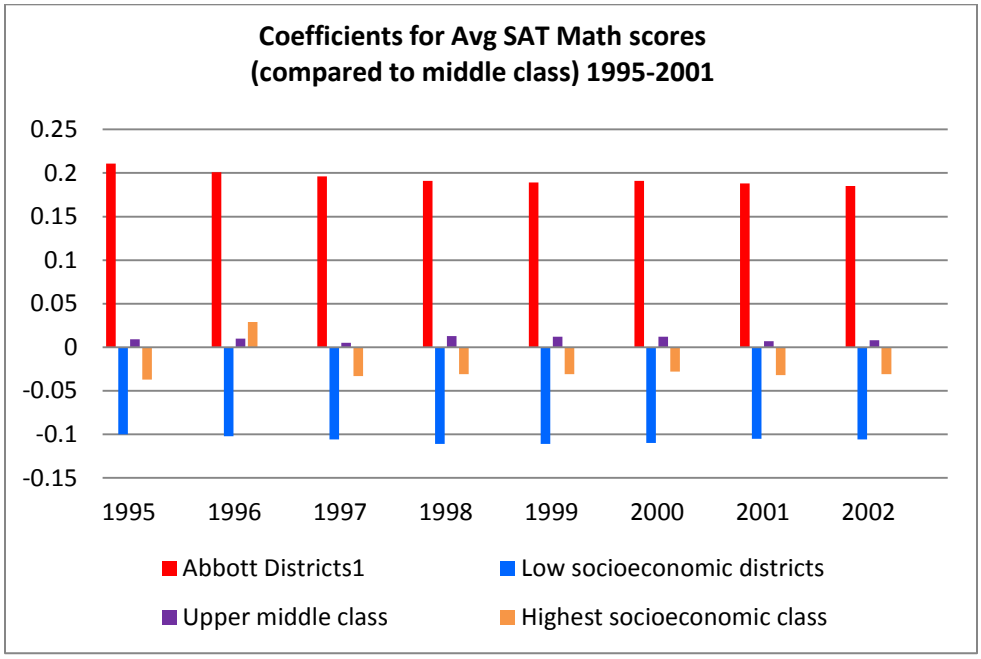


Table 19. **SAT Math Average Scores, Selected Years 1995-2002**

	1995		1996		1997		1998		1999		2000		2001		2002	
Abbott Districts[1]	0.211	***	0.201	***	0.196	***	0.191	***	0.189	***	0.191	***	0.188	***	0.185	***
Low socioeconomic districts	-0.1	*	0.102	*	0.106	*	-0.111	*	-0.111	*	-0.11	*	-0.105	*	-0.106	*
Upper middle class	0.009		0.01		0.005		0.013		0.012		0.012		0.007		0.008	
Highest socioeconomic class	-0.037		-0.029		-0.033		-0.031		-0.031		-0.028		-0.032		-0.031	

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts.

When the control variables of high minority districts, median income, urbanicity, and percentage of women with a BA are applied, there is a minimal negative association between the SAT math scores and Abbott districts, compared to middle class districts (ES -.182, p< 01). As expected, the very positive relationship between SAT math scores and the highest socio-economic districts continues (ES .310, p<.001). In contrast, the association between SAT math scores and upper middle class districts is not as strong. (ES .136, p<.001). The Abbott districts are closing the gap with upper middle class districts.

Table 20. **SAT 2012 Math Stepwise Regression**

Abbott Districts[1]	-0.343	***	-0.252	***	-0.192	***	-0.196	**	-0.182	**
Low socioeconomic districts	-0.049		-0.007		0.039		0.037		0.049	
Upper middle class	0.278	***	0.257	***	0.180	**	0.175	**	0.136	*
Highest Socio economic class	0.595	***	0.556	***	0.350	***	0.346	***	0.31	***
High Minority			-0.234	***	-0.207	***	-0.217	***	-0.231	***
Median Income ACS 2012-13					0.281	**	0.282	**	0.201	
City							0.023		0.021	
Rural							-0.028		-0.026	
Town							-0.023		-0.02	
% female with BA ACS 2012-13									0.134	

***<.001

**<.01

*<.05

[1]All districts are compared to middle class districts

Abbott districts appear to be making strides in writing in 2012, as there is a minute negative association between the SAT Writing scores and Abbott districts, compared to middle class districts (ES -.111, p< 01).

Table 21. **SAT 2012 Writing Stepwise Regression**

Abbott Districts[1]	-0.173	*	-0.158	*	-0.168	*	-0.134		-0.111	
Low socioeconomic districts	-0.111		-0.104		-0.111		-0.091		-0.072	
Upper middle class	0.149		0.146		0.158		0.175		0.108	
Highest Socio economic class	0.048		0.042		0.068		0.102		0.037	
High Minority			-0.038		-0.041		-0.028		-0.054	
Median Income ACS 2012-13					-0.044		-0.089		-0.232	
City							-0.187	**	-0.190	**
Rural							0.034		0.039	
Town							-0.036		-0.03	
% female with BA ACS 2012-13									0.238	

***<.001

**<.01

*<.05

[1]All districts are compared to middle class districts

d. The relationship between graduation rates and Abbott districts

The graduation rates of students in Abbott districts improved from 2012 to 2015 as compared to middle class districts. In 2012, there is a sizeable negative association between 2012 high school graduation rates and Abbott districts compared to middle class districts (ES -.319, p<.001). In contrast, there is a minimal positive relationship between graduation rates and the highest socio-economic districts (ES .117, p<.001). There is also a minute positive relationship between graduation rates and upper middle class districts (ES .104, p<.001).

Table 22. **Adjusted Cohort Graduation Rate 2012**

Abbott Districts[1]	0.488	***	0.377	***	-0.342	***	-0.338	***	-0.319	***
Low socioeconomic districts	0.149	**	0.104	*	-0.077		-0.074		-0.053	
Upper middle class	0.255	***	0.215	***	0.168	*	0.168	**	0.104	
Highest Socio economic class	0.349	***	0.288	***	0.17		0.17		0.117	
High Minority			-0.316	***	-0.299	**	-0.294	***	-0.32	***
Median Income ACS 2012-13					0.164		0.168		0.027	
City							-0.024		-0.027	
Rural							0.012		0.015	
Town							0.017		0.023	
% female with BA ACS 2012-13									0.225	*

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts

By 2015, there is an improvement in Abbott districts in graduation rates. Although the coefficient is still negative as compared to middle class districts, the size of the coefficient increases, showing an improvement in high school graduation rates and Abbott districts (ES -.284, p<.001). There is also a positive relationship between districts with city locale codes and graduation rates (ES .155, p<.001).

Table 23. **Adjusted Cohort Graduation Rate 2015**

Abbott Districts[1]	0.522	***	0.408	***	0.342	***	-0.3	***	0.284	***
Low socioeconomic districts	0.172	***	0.121	**	-0.08	**	0.069		0.057	
Upper middle class	0.211	***	0.187	***	0.115	*	0.123	*	0.088	
Highest Socio economic class	0.378	***	0.323	***	0.12		0.144		0.114	
High Minority			-0.29	***	-0.259	***	-0.237	***	-0.253	***
Median Income ACS 2013					0.284	**	0.261	**	0.161	
City							-0.154	***	-0.155	***
Rural							0.037		0.041	
Town							0.04		0.048	
% female with BA ACS 2013									0.515	

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts

Although graduation rates in Abbott districts improved between 2012-14, Abbott students do not appear to be performing as well as in 1997. When an alternative measure of graduation—the average freshman graduation rate is utilized, ten years after the seminal Abbott decision there is a strong relationship between the AFGR 2007 and the Abbott districts (ES .209, p<.001), compared to middle class districts.

Table 24 **Average Freshman Graduation Rate 2007**

Abbott Districts[1]	0.184	***	0.091		0.114	*	0.111	*	0.111	*
Low socioeconomic districts	-0.057		-0.104		-0.079		-0.061		-0.061	
Upper middle class	0.027		0.045		0.011		-0.001		-0.001	
Highest Socio economic class	-0.029		0.003		-0.106		-0.142		-0.143	
High Minority			0.222	***	0.244	***	0.19	***	0.19	***
Median Income ACS 2013					0.152	*	0.158		0.157	
City							-0.005		-0.005	
Rural							-0.223	***	-0.223	***
Town							-0.081		-0.081	
% female with BA ACS 2013									0.003	

***p<.001

**p<.01

*p<.05

[1]All districts are compared to middle class districts.

C. Are Abbott policy initiatives such as the Intensive Early Literacy Program and mandatory pre-school effective?

a. The relationship between policy initiatives such as the Intensive Early Literacy (IEL) and academic achievement

As previously mentioned in the literature review, in Abbott X, the New Jersey Supreme Court directed twelve districts to work with NJDOE to improve instruction in 42 low-performing schools. These twelve districts expended varying degrees of effort in implementation of the IEL program. According to Gordon MacInnes, "Four districts-Orange, Pleasantville, Elizabeth and Jersey City are high implementers of IEL… Five districts─Asbury Park, Bridgeton, East Orange, Irvington, and Newark─ are judged to be medium implementers…Three districts─Camden, Paterson, and Trenton─are characterized as "low" implementers. (MacInnes 2009, p. 84-85). I can analyze the effectiveness of the policy initiative focusing in particular on the academic achievement of the nine districts that emphasize IEL.

The districts mandated by the New Jersey Supreme Court in Abbott X to work with NJDOE to improve instruction fared well in comparison to Abbott districts and low socioeconomic districts that do not receive Abbott funding. In FY 2014, there is a minute negative association between the 12 districts ordered to work with DOE and the mean scale scores on 4th grade language arts, as compared to middle class districts (ES -.087, p<.05). In contrast, the coefficient for Abbott districts is higher (ES -.217, p<.001) as well as low socioeconomic districts (-.155, p<.001).

In FY 2014, there is also a small negative association between the 12 districts ordered to work with DOE and the mean scale scores on 4th grade math , as compared to middle class districts (ES -.109, p<.01).

Finally, in FY 2014 there is tiny negative association between the 12 districts ordered to work with DOE and the mean scale scores on 4th grade science, as compared to middle class districts (ES -.116, p<.01). In contrast, the coefficient for Abbott districts is much higher (ES -.288, p<.001) as well as low socioeconomic districts (ES -.222, p<.001).

More importantly, the districts who have been grouped in the "medium implementers" range of IEL have performed on virtually the same level as middle class districts on the 4th grade math

and science ASK tests. There is a razor-thin negative relationship between districts that are "medium implementers" of IEL and 2014 mean scale Math scores, as compared to middle class districts (ES -.076, $p<.05$). There is also an inappreciable negative relationship between districts that are "medium implementers" of IEL and 2014 mean scale Science scores, as compared to middle class districts (ES -.069, $p<.05$).

In a comparison of the "high implementers" and medium implementers" against the "low implementers" of IEL, as expected there is a more negative association between the "medium implementers" and 4th grade standardized test scores. For example, there is a slight negative association between "high implementers" of IEL and 4th grade 2014 ASK ELA scores (ES -.140, $p<.01$). In contrast there is a more pronounced negative association between medium implementers and 4th grade ELA scores (ES -.201, $p<.001$).

Similarly there is a modest negative association between "high implementers" of IEL and 4th grade 2014 ASK Math scores (ES -.115, $p<.01$), as opposed to the negative association between medium implementers and 4th grade Math scores (ES -.208, $p<.001$). Finally, there is a small negative association between "high implementers" and 4th grade 2014 ASK Math scores (ES -.159, $p<.01$), in contrast to the sizeable negative association between medium implementers and 4th grade Science scores (ES -.238, $p<.001$).

VI. Discussion and Implications

There are some very mixed responses to the research questions posed in the beginning of this paper.

The question of whether increased resources from the equity and adequacy court decisions reached the students in the classroom is confounding in that although expenditures per pupil in on average exceeded $20,000 in the Abbott districts between FY 12 and FY 14, expenditures per pupil for instruction on average hover around $11,500 per pupil. Further research is necessary to determine if a greater percentage of the Abbott funding should be directly allocated to the instruction and instruction-related functions.

The question of whether equity and adequacy court decisions such as Abbott v. Burke and ensuing State reform policies improved the education of economically disadvantaged students provokes a positive response. In New Jersey, increased funding pursuant to equity and adequacy court decisions has improved academic performance of economically disadvantaged student in the Abbott districts, particularly at the 4th and 8th grade level. However, this academic achievement in the Abbott districts attenuated through high school.

Finally, the question of whether the academic performance of Abbott students improved as compared to student achievement from analogous low socioeconomic and middle class districts that are not covered by Abbott v. Burke sparks a mixed response. There has been a steady gradual improvement in academic achievement in Abbott districts since Abbott v. Burke was adjudicated by the New Jersey Supreme Court in 1997. However, the analogous low socioeconomic districts that do not have benefits of increased funding and resources appear to be more efficient as they have been consistently out-performing the Abbott districts.

VII. Scholarly Significance of Study

Court decisions such as Abbott v. Burke in New Jersey[42] mandated the shift of billions of dollars from upper and middle class districts into economically disadvantaged districts. What results are being obtained for redistribution of billions of dollars into poverty stricken districts?[43]

[42] See also McDuffy v. Secretary of the Executive Office of Education and Hancock v. Commissioner of Education in Massachusetts.

[43] The efficient use of resources will provide a meaningful educational opportunity for economically disadvantaged students, which is the cornerstone for their participation in a democracy; competing for jobs, and contributing to society. Brown v. Board Education, 349 US 294 (1954); Parents Involved in Community Schools v. Seattle School District No 1, 552 U.S. __(2007).

In the landmark case of Abbott v. Burke, the New Jersey Supreme Court held that students in 28 "special needs" districts must receive the same funding per pupil as students in the two highest socio-economic district factor groups in the State. 149 N.J. 145 (1997).

The question of whether increased funding pursuant to equity and adequacy court decisions has improved academic performance sparks a lively and spirited debate. On one hand commentators such as Hanushek, Lindseth, Evers, and Clapton assert that even the most adamant supporters of the Abbott "would be hard-pressed to claim that it has been very successful in improving academic achievement." (Hanushek and Lindseth, 2009, p. 165) In stark contrast scholars such as Goertz, Rebell, MacInnes, Resch, Sciarra, and Baker, cite evidence that the fourth grade reading and math scores for students on state standardized tests in Abbott districts consistently improved over the past four years.

This is the first study in the United States to chart the academic progress of economically disadvantaged students on a longitudinal basis following an equity decision rendered by a state Supreme Court. This study responds to one commentators statement that "There is no high-quality, rigorous longitudinal evaluation of the impact of New Jersey's K-12 level school reform efforts in the Abbott districts."[i] (Mead, 2009, p. 22).

This study contributes to the equity research field in that it is the first rigorous longitudinal evaluation of the impact of New Jersey's K-12 level school reform efforts subsequent to the 1997 Abbott v. Burke decision.

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