Is Achieving Equal Educational Opportunity Possible? An Empirical Study of New York State Public Schools

Anthony Francis Bruno

IS ACHIEVING EQUAL EDUCATIONAL OPPORTUNITY POSSIBLE?

AN EMPIRICAL STUDY OF NEW YORK STATE PUBLIC SCHOOLS

ANTHONY FRANCIS BRUNO*

INTRODUCTION

"[I]t is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms."[1] The United States Supreme Court spoke these words in *Brown v. Board of Education* over fifty years ago, but equal educational opportunity remains an elusive goal for many American children.[2] Following *Brown* and the "legal" victory of desegregation, education advocates began a decades-long financial litigation movement to

---

[1] Brown v. Bd. of Educ. of Topeka, 347 U.S. 483, 493 (1954).

[2] *See* Gregory C. Malhoit, *Fulfilling the Promise of Brown: The Experiences of Lawyers Challenging State School-Funding Systems*, 83 NEB. L. REV. 830, 834–35 (2005) ("For more than fifty years, the promise of 'equal educational opportunity' so simply and eloquently stated in *Brown* has proved to be elusive for millions of our nation's schoolchildren. Yet, during this time, a small group of courageous and committed lawyers, aided by thoughtful courts, have carried on the fight for equal educational opportunity."); Rachel F. Moran, *Brown's Legacy: The Evolution of Educational Equity*, 66 U. PITT. L. REV. 155, 179 (2004) (concluding that "[t]he goal of equal educational opportunity remains elusive fifty years after Brown"); Jeffrey S. Sutton, San Antonio Independent School District v. Rodriguez *and Its Aftermath*, 94 VA. L. REV. 1963, 1963 (2008) ("While *Brown* removed one obvious barrier to equal educational opportunities, it left in place another: the obstacle faced by poor school districts that wish to provide an education to their students 'on equal terms' relative to the education offered by wealthier school districts within a State."). *See generally* Gary Orfield, *Why Segregation is Inherently Unequal: The Abandonment of* Brown *and the Continuing Failure of* Plessy, 49 N.Y.L. SCH. L. REV. 1041 (2004) (discussing the failure of *Brown's* promise of "all deliberate speed" and the continued segregation of students on the basis of housing patterns and minority poverty).

achieve educational equality—or, in many cases, at least educational adequacy—by seeking more public financing for predominately poor and minority school districts.[3] Meanwhile, researchers have long debated whether increasing school resources or hiring better teachers positively impacts student achievement.[4]

This article considers the relationship between the educational "inputs" (per-pupil expenditures, teacher quality, class size, and socioeconomic factors) and "outputs" (high school graduation rates, test scores, and college-attendance rates of graduating students) of more than one hundred New York State public school districts. Section II surveys the history of the financial litigation movement, particularly in New York. Then, this article reviews previous studies that have considered the relationship between educational inputs and outputs. Section III explains the methodology for this article's statistical analysis. Section IV summarizes the findings: although socioeconomic variables overwhelmingly affect student outcomes, teacher quality factors have a meaningful relationship to high school graduation rates in New York State public school districts with the highest concentration of African-American and low-income students, and per-pupil expenditures have a meaningful relationship to high school graduation rates in those districts with the highest concentration of African-American students. Lastly, based on this article's findings and prior research, Section V discusses how school districts can achieve equal educational opportunity by hiring quality teachers and investing in innovative programs that counteract the effects of socioeconomic disadvantages.

I. BACKGROUND: PUBLIC SCHOOL FINANCING AND RESEARCH

A. School Finance Litigation

In the United States, a combination of state, local, and federal resources finance public school education.[5] Despite *Brown's* vision of equal

---

[3] *See* Martha Minow, *After Brown: What Would Martin Luther King Say?*, 12 LEWIS & CLARK L. REV. 599, 635 (2008); James E. Ryan, *Sheff, Segregation, and School Finance Litigation*, 74 N.Y.U. L. REV. 529, 547–60 (1999).

[4] *See infra* Section II.B (discussing studies on educational adequacy).

[5] *See* Campaign for Fiscal Equity, Inc. v. State (*CFE II*), 801 N.E.2d 326, 330 (N.Y. 2003); VICTORIA J. DODD, PRACTICAL EDUCATION LAW FOR THE TWENTY-FIRST CENTURY 65 (2003); N.Y. STATE EDUC. DEP'T, OVERVIEW OF THE STATEWIDE FISCAL PROFILE OF NEW YORK STATE SCHOOL DISTRICTS FOR 2006/2007, http://www.oms.nysed.gov/faru/PDFDocuments/FiscalProfileofNewYork StateSchoolDistricts0607.pdf *(last visited Aug. 19, 2010) (showing funding differences from state, local, and federal resources)*.

educational opportunity, public school finance schemes systemically disadvantage poor and minority school districts because state funding and local tax revenues are generally skewed in favor of wealthier districts—causing huge funding gaps based on socioeconomics.[6] Education advocates began challenging these school finance schemes with the initial goal of equalizing school funding, especially since poor and minority districts suffer from school funding shortfalls.[7] During the first wave of such challenges, advocates contended that school funding disparities violated the Fourteenth Amendment's equal protection clause.[8] In *Serrano v. Priest*, the California Supreme Court held that California's school funding system violated the federal equal protection clause, reasoning that because "the right to an education in our public schools is a fundamental interest which cannot be conditioned on wealth, [the court could] discern no compelling state purpose necessitating the [state's] method of financing" that disadvantaged school children from poorer communities.[9]

However, the United States Supreme Court handed down a major loss to the school funding equalization movement in *San Antonio Independent School District v. Rodriguez*.[10] In considering a challenge to the Texas public school finance scheme, the Court concluded that the state's system did not operate to disadvantage a definable suspect class of poor people and that public education is not a fundamental right protected by the Constitution.[11] The Court therefore reviewed the school financing scheme only for rational basis and held that it did not violate the equal protection clause, despite school funding disparities based on the wealth of each school district.[12]

Following *Rodriguez*, education advocates turned their efforts back to state courts—"where [the education funding fight] has remained ever since."[13] This second wave of school financial litigation challenged inequitable school funding schemes under state constitutional guarantees of

---

[6] *See* EDUC. TRUST, FUNDING GAPS 6 (2006) (reporting that in twenty-six of the forty-nine states studied, the highest poverty school districts received fewer resources than the lowest poverty districts; in twenty-eight states, high-minority districts received less state and local money for each child than low-minority districts; and in thirty states, including New York, there were significant funding gaps between the highest and lowest minority districts).

[7] *See* James E. Ryan, *Schools, Race, and Money*, 109 YALE L.J. 249, 252 (1999).

[8] *See* Gail F. Levine, Note, *Meeting the Third Wave: Legislative Approaches to Recent Judicial School Finance Rulings*, 28 HARV. J. ON LEGIS. 507, 507 (1991).

[9] 487 P.2d 1241, 1244 (Cal. 1971).

[10] *See* 411 U.S. 1 (1973).

[11] *See id.* at 28–29, 35.

[12] *See id.* at 50–55.

[13] Paul L. Tractenberg, *Using Law to Advance the Public Interest: Rutgers Law School and Me*, 51 RUTGERS L. REV. 1001, 1011–12 (1999).

equal protection and free education.[14] In *Robinson v. Cahill*, the New Jersey Supreme Court held that New Jersey's school funding scheme violated the state's constitutional provision mandating that the legislature maintain and support a thorough and efficient system of free public schools; however, the court refused to ground its decision on the state constitution's equal protection guarantee.[15] In contrast, the California Supreme Court held (in considering the *Serrano* case for a second time) that the state's scheme violated the equal protection clause of the state constitution, providing an independent basis for its decision in light of *Rodriguez*.[16]

Nevertheless, these equity challenges were mostly unsuccessful.[17] For example, the New York Court of Appeals rejected one of the first challenges to the state's school funding scheme in 1982, holding that mere inequality in school funding does not run afoul of the state constitution's equal protection guarantee.[18] As a result of numerous losses, advocates commenced a third wave of school finance litigation in the late 1980s, emphasizing that students are entitled to at least an adequate, but not necessarily equal, education pursuant to state constitutional education clauses that provide a right to a free public education.[19] Under this

[14] *See* Joseph O. Oluwole & Preston C. Green, *No Child Left Behind Act, Race, and Parents Involved*, 5 HASTINGS RACE & POVERTY L.J. 271, 291 (2008).

[15] *See* 303 A.2d 273, 287 (N.J. 1973).

[16] *See* Serrano v. Priest, 557 P.2d 929, 957 (Cal. 1976).

[17] *See* Campaign for Fiscal Equity v. State (*CFE*), 719 N.Y.S.2d 475, 481 (N.Y. Sup. Ct. 2001) (explaining that, during the second wave of school finance litigation, most courts refused to find an equal protection violation despite unequal funding of school districts).

[18] *See* Levittown Union Free Sch. Dist. Bd. of Educ. v. Nyquist, 439 N.E.2d 359, 370 (N.Y. 1982).

[19] *See, e.g.*, Rose v. Council for Better Educ., 790 S.W.2d 186, 215 (Ky. 1989) (deciding that the state legislature had failed to establish an efficient system of education, as required by the Kentucky state constitution); Helena Elementary Sch. Dist. v. State, 769 P.2d 684, 690 (Mont. 1989) (holding that Montana's system of funding violated the state's constitutional guarantee of equal educational opportunity); *see also* Ryan, *supra* note 7, at 268 (describing the third phase of school finance litigation). Almost all state constitutions contain these education clauses. *See* Deborah N. Archer, *Failing Students or Failing Schools?: Holding States Accountable for the High School Dropout Crisis*, 12 LEWIS & CLARK L. REV. 1253, 1258 n.33 (2008) (citing ALA. CONST. art. XIV, § 256; ALASKA CONST. art. VII, § 1; ARIZ. CONST. art. XI, § 1; CAL. CONST. art. IX, § 1; COLO. CONST. art. IX, § 2; CONN. CONST. art. VIII, § 1; DEL. CONST. art. X, § 1; FLA. CONST. art. IX, § 1; GA. CONST. art. VIII, § 1; HAW. CONST. art. X, § 1; IDAHO CONST. art. IX, § 1; ILL. CONST. art. X, § 1; IND. CONST. art. VIII, § 1; KAN. CONST. art. VI, § 1; KY. CONST. § 183; LA. CONST. art. VIII, § 1; ME. CONST. art. VIII, pt. 1, § 2; MD. CONST. art. VIII § 1; MASS. CONST., pt. 2, ch. V, § 2; MICH. CONST. art. VIII, § 2; MINN. CONST. art. XIII, § 1; MISS. CONST. art. VIII, § 201; MO. CONST. art. IX, § 1, cl. a; MONT. CONST. art. X, § 1; NEB. CONST. art. VII, § 1; NEV. CONST. art. XI, § 2; N.H. CONST. pt. 2, art. LXXXIII; N.J. CONST. art. VIII, § 4; N.M. CONST. art. XII, § 1; N.Y. CONST. art. XI, § 1; N.C. CONST. art. IX, § 2, cl. 1; N.D. CONST. art. VIII, § 1; OHIO CONST. art. VI, § 3; OKLA. CONST. art. XIII, § 1; OR. CONST. art. VIII, § 3; PA. CONST. art. III, § 14; R.I. CONST. art. XII, § 1; S.C. CONST. art. XI, § 3; S.D. CONST. art. VIII, § 1; TENN. CONST. art. XI, § 12; TEX. CONST. art. VII, § 1; UTAH CONST. art. X, § 1; VT. CONST. ch. 2, § 68; VA. CONST. art. VIII, § 1; WASH. CONST. art. IX, § 1; W. VA. CONST. art. XII, § 1; WIS. CONST. art. X, § 3; WYO. CONST. art. VII, § 1). For a historical perspective, see generally John Dinan,

adequacy rationale, advocates have been generally successful in obtaining greater state funding for needy districts—winning in twenty-six states.[20]

The New York State Constitution specifically mandates that "[t]he legislature shall provide for the maintenance and support of a system of free common schools, wherein all the children of this state may be educated."[21] The New York Court of Appeals has recognized that "by mandating a school system 'wherein all the children of this state may be educated,' the State has obligated itself constitutionally to ensure the availability of a 'sound basic education' to all its children."[22]

In 1993, the Campaign for Fiscal Equity (a not-for-profit educational advocacy corporation), together with parents suing on behalf of their children and other organizations and community boards (collectively, the "CFE Plaintiffs"), filed a lawsuit against New York State, contending that the state's school funding system violated the state constitution's education clause because the legislature failed to provide New York City students with the opportunity for a sound basic education.[23] The New York Court of Appeals held that the CFE Plaintiffs had a viable cause of action, and directed the trial court to hear evidence and develop a workable standard to evaluate the claims.[24] In doing so, the court recognized that the education clause mandates educational adequacy,[25] and equated a sound basic education with "the basic literacy, calculating, and verbal skills necessary to enable children to eventually function productively as civic participants capable of voting and serving on a jury."[26] Specifically, the court

---

The Meaning of State Constitutional Education Clauses: Evidence from the Constitutional Convention Debates, 70 ALB. L. REV. 927 (2007).

[20] *See* Nina L. Pickering, Note, *Local Control vs. Poor Patrol: Can Discriminatory Police Protection Be Remedied Through the Education Finance Litigation Model?*, 86 B.U. L. REV. 741, 758 & n.72 (2006) (listing court decisions from twenty-six states where plaintiffs have been successful and seventeen states where they have lost). The National Access Network at Columbia University keeps track of state-by-state developments, including victories and losses. *See* NATIONAL ACCESS NETWORK, STATE BY STATE, http://www.schoolfunding.info/states/state_by_state.php3 (tracking state-by-state developments in education finance litigation, recent events, and research and advocacy).

[21] N.Y. CONST. art. XI, § 1.

[22] *CFE II*, 801 N.E.2d at 328 (quoting Campaign for Fiscal Equity, Inc. v. State (*CFE I*), 655 N.E.2d 661, 665 (N.Y. 1995)); *see also Nyquist*, 439 N.E.2d at 369 (articulating the term "sound basic education").

[23] *See* Pls.'s Compl. for Declaratory and Injunctive Relief, Campaign for Fiscal Equity, Inc. v. State, 616 N.Y.S.2d 851 (N.Y. Sup. Ct. 1993) (No. 93/111070). The New York Court of Appeals affirmed the dismissal of a parallel complaint brought against the state by New York City and its board of education, holding that the municipal plaintiffs lacked legal capacity to sue. *See* City of N.Y. v. State, 655 N.E.2d 649, 651 (N.Y. 1995).

[24] *See CFE I*, 655 N.E.2d at 663 (holding that the non-school board plaintiffs had a valid cause of action under the education clause and Title VI implementing regulations).

[25] *See id.* at 665.

[26] *Id.* at 666.

emphasized that: (1) students are "entitled to minimally adequate teaching of reasonably up-to-date basic curricula such as reading, writing, mathematics, science, and social studies, by sufficient personnel adequately trained to teach those subject areas"; (2) students "are entitled to minimally adequate physical facilities and classrooms which provide enough light, space, heat, and air to permit children to learn"; and (3) students "should have access to minimally adequate instrumentalities of learning such as desks, chairs, pencils, and reasonably current textbooks."[27] On remand, the trial court considered evidence concerning the 1997–1998 school year based on those factors and student outcomes.[28]

Years of litigation over New York's school funding system culminated in the landmark decision *Campaign for Fiscal Equity v. State of New York* (*CFE II*), where the New York Court of Appeals held that the trial record supported the conclusion that New York City students were not receiving the constitutionally-mandated opportunity for a sound basic education due to inadequate funding for the city's public schools.[29] In *CFE II*, the court affirmed the trial court's findings and methodology, where it considered "evidence on the 'inputs' children receive—teaching, facilities and instrumentalities of learning—and their resulting 'outputs,' such as test results and graduation and dropout rates."[30] Further, the court concluded that the evidence established a "causal connection between better funding, improved inputs and better student results."[31] Thus, the court rejected the state's argument that no amount of funding could make up for the overwhelming socioeconomic factors that impact student outcomes, reasoning that it could not "accept the premise that children come to the New York City schools ineducable, unfit to learn."[32] However, the court disagreed with the trial court's broad remedial scheme, and instead directed the state to "ascertain the actual cost of providing a sound basic education in New York City."[33]

In accordance with the court's decision, Governor George Pataki established the New York State Commission on Education Reform, charged with determining what reforms would ensure that all city students

---

[27] *Id.*
[28] *See CFE*, 719 N.Y.S.2d at 549 (holding that the state legislature had to take steps to reform the state educational system).
[29] 801 N.E.2d 326, 340 (N.Y. 2003).
[30] *Id.* at 332.
[31] *Id.* at 341.
[32] *Id.*
[33] *Id.* at 348.

would have an opportunity for a sound basic education.[34] After considering the commission's proposals, the governor and the state senate estimated this would require at least $1.93 billion in additional annual operating funds for the city.[35] Following extensive litigation over the state's proposed remedy, the New York Court of Appeals concluded that the state's estimate was reasonable and instructed the trial court to defer to the state's estimate.[36] The court further acknowledged that it has "neither the authority, nor the ability, nor the will, to micromanage education financing."[37] Attempts to reform school funding for other New York State school districts have been unsuccessful,[38] and a current challenge on behalf of several upstate city school districts remains pending.[39]

B. Studies on Educational Adequacy

In *Rodriguez*, the Supreme Court pointed out that "one of the major sources of controversy concerns the extent to which there is a demonstrable correlation between educational expenditures and the quality of education[.]"[40] As the following literature review reveals, researchers have long debated this question. James Coleman and his colleagues conducted one of the first studies on this issue, known as the *Coleman Report*, concluding "[t]hat schools bring little influence to bear on a child's achievement that is independent of his [family or socioeconomic] background and general social context[.]"[41]

Following Coleman's study, researchers have continued their attempts to answer the question posed by the Court in *Rodriguez*. In the late 1980s and early 1990s, Eric Hanushek of Stanford University's Hoover Institution reviewed 187 of these studies (all of which provided regression estimates measuring the impact of inputs on student outcomes) and concluded that very few studies supported the notion that student outcomes could be positively affected by increasing school resources.[42] Based on his findings,

---

[34] *See* Campaign for Fiscal Equity, Inc. v. State (*CFE III*), 861 N.E.2d 50, 53 (N.Y. 2006).

[35] *Id.* at 55.

[36] *Id.* at 52.

[37] *Id.* at 58 (quoting *CFE II*, 801 N.E. at 345).

[38] *See, e.g.*, N.Y. Civil Liberties Union v. State, 824 N.E.2d 947, 951 (N.Y. 2005) (emphasizing that failure to plead causation is fatal to the plaintiff's claim); N.Y. Ass'n of Small City Sch. Dists., Inc. v. State, 840 N.Y.S.2d 179, 181 (N.Y. App. Div. 2007) (affirming the lower court's dismissal of the case because the plaintiffs lacked standing).

[39] *See* Pls.'s Compl. for Declaratory and Injunctive Relief, Hussein v. New York (N.Y. Sup. Ct. Oct. 30, 2008) (on file with author).

[40] 411 U.S. at 42–43.

[41] JAMES S. COLEMAN ET AL., EQUALITY OF EDUCATIONAL OPPORTUNITY 325 (1966).

[42] *See* Eric A. Hanushek, *When School Finance "Reform" May Not Be Good Policy*, 28 HARV. J.

Hanushek argued that "[t]he education of children depends directly on the ability of school districts to translate resources into student achievement. If schools are ineffective at this, simply heaping more resources on poorly performing districts will do little to improve educational equity."[43] In other words, he has claimed that school finance reform does "little more than increase tax bills."[44] Hanushek has therefore asserted that performance-based policies would be more beneficial for student improvement, including "merit pay for teachers, merit awards for schools that perform well, and a variety of plans emphasizing choice of educational institution."[45]

In the early 1990s, Larry Hedges and his colleagues examined Hanushek's work.[46] They found Hanushek's analysis to be overly simplistic—challenging his subjective selection process of previous studies and his vote counting methodology where he accorded each study equal weight.[47] As Hedges and his colleagues noticed, this method tended to have a zeroing effect, and, therefore, they used a different statistical technique, whereby they weighted each study by quality.[48] In doing so, they found that expenditures and teacher experience did, in fact, have some positive impact on student outcomes.[49] Thus, they concluded that the studies on "the relation between resource inputs and school outcomes examined by Hanushek do not support his conclusion that resource inputs are unrelated to [student] outcomes."[50]

Around the same time, Helen Pate-Bain and other academics from the Tennessee Department of Education released the initial findings of the Tennessee Student/Teacher Achievement Ratio (STAR) Project, a study designed to test the impact of class size on student success from

---

ON LEGIS. 423, 454 (1991) [hereinafter Hanushek, *School Finance*]; Eric A. Hanushek, *The Impact of Differential Expenditures on School Performance*, 18 EDUC. RESEARCHER 45, 49 (1989).

[43] Hanushek, *School Finance, supra* note 42. Hanushek reviewed the results of 187 studies he considered to be "qualified." *Id.* at 433. His statistical results found little correlation between expenditures, classroom size, or teacher education and student outcomes, and a marginal relationship between teacher experience and student outcomes. *Id.* at 435–39. He posited that teacher skill is hard to measure or teach. *Id.* at 441.

[44] *Id.* at 444.

[45] *Id.* at 450. Hanushek's proposals would require increased school funding, but of a different type than what the adequacy cases involved.

[46] *See* Larry V. Hedges et al., *Does Money Matter? A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes*, 23 EDUC. RESEARCHER 5, 5 (1994) ("This article is a reanalysis of the evidence examined by Hanushek[.]").

[47] *See id.* at 6 (discussing the methodological shortcomings of Hanushek's analysis).

[48] *Id.* at 6–7 (describing the method used by the authors to re-analyze the evidence examined by Hanushek).

[49] *See id.* at 13.

[50] *Id.*

kindergarten through third grade.[51] The results demonstrated that students in smaller classes consistently outperformed students in larger classes on the SATs and state assessment exams.[52] Further, students with socioeconomic disadvantages in smaller classes performed significantly better than any other group when compared with their peers in larger classes.[53]

Several researchers have concluded that teacher quality does positively impact student achievement, but they have differed as to what constitutes and how to measure teacher quality. Ronald Ferguson's study of 900 Texas school districts for the 1985–1986 school year found that teacher quality (measured by teachers' performance on statewide recertification exams, experience, and education background) demonstrated a relationship to student scores on statewide standardized exams.[54] His study also found that "[m]oney matters when the real inputs that it purchases matter[,]"[55] teacher salary differentials impact teacher recruiting, and those districts with a high concentration of poor and minority students had to pay even higher salaries to attract the most qualified teachers.[56] Ferguson concluded that "what the evidence [in the study] suggests most strongly is that teacher quality matters and should be a major focus of efforts to upgrade the quality of schooling. Skilled teachers are the most critical of all schooling inputs."[57] Commenting on Ferguson's research, Linda Darling-Hammond, another pioneer in this field of research, stated: "Unequal access to well-qualified teachers, a major side effect of unequal expenditures, is one of the most critical factors in the underachievement of African American students."[58] In a study using data from fifty-state surveys, Darling-Hammond found that teacher quality is the most important factor affecting

[51] *See* Jayne Boyd-Zaharias, *Project STAR: The Story of the Tennessee Class-size Study*, 23 AMERICAN EDUCATOR 1, 2 (1999), *available at* https://www.aft.org/pdfs/americaneducator/summer 1999/STARSummer99.pdf (studying the impact of class size on students in grades K–3); ELIZABETH WORD ET AL., THE STATE OF TENNESSEE'S STUDENT/TEACHER ACHIEVEMENT RATIO (STAR) PROJECT, FINAL SUMMARY REPORT (1985–1990), http://www.heros-inc.org/summary.pdf (last visited Sept. 26, 2010) (summarizing the project).

[52] *See* WORD, *supra* note 51, at 9–11, 17.

[53] *See id.* at 19 ("Small classes help low socioeconomic student achievement[.]"); Boyd-Zaharias, *supra* note 51, at 3 ("Smaller classes made the biggest difference for inner-city, low-income minority children.").

[54] *See* Ronald F. Ferguson, *Paying for Public Education: New Evidence on How and Why Money Matters*, 28 HARV. J. ON LEGIS. 465, 475–78 (1991) ("Teachers with more years of experience produce higher student test scores, lower dropout rates, and higher rates of taking the SAT.").

[55] *Id.* at 483.

[56] *Id.* at 489.

[57] *Id.* at 490.

[58] Linda Darling-Hammond, *New Standards and Old Inequalities: School Reform and the Education of African American Students*, 69 J. NEGRO EDUC. 263, 270 (2000).

student achievement and can be more influential than socioeconomic variables.[59] Eric Hanushek and his colleagues, long critical of the money-matters theory, have also concluded that quality teachers "could . . . go a long way toward closing existing achievement gaps across income groups." [60] However, Hanushek has argued that input-based policies requiring more rigorous teacher standards do not improve student outcomes; instead, he has encouraged the use of incentives and merit pay based on student performance.[61]

A landmark study published by the RAND Corporation considered the impact of educational inputs on National Assessment of Educational Progress (NAEP) tests scores from forty-four participating states.[62] David Grissmer and his colleagues who led the study concluded that, although family and socioeconomic variables explain most of the variance in test scores between states, "the level of per-pupil expenditures and how they are allocated and targeted can make significant differences in student achievement."[63] They further found "that additional resources are most effective and efficient when spent in states with higher proportions of minority and disadvantaged students."[64] In fact, the study's results "imply—even using an extremely conservative interpretation—that very significant score gains could be obtained for minority and lower-[socioeconomic status] students with additional expenditures of less than $1,000 per student if the resources are appropriately targeted."[65] However, the study's results also suggest that "states having higher average [teacher] salaries do not have higher achievement."[66]

Kristen Harknett and her colleagues at Syracuse University published a

[59] *See* Linda Darling-Hammond, *Teacher Quality and Student Achievement: A Review of State Policy Evidence*, 8 EDUC. POL'Y ANALYSIS ARCHIVES 1, 32 (2000), *available at* http://epaa.asu.edu/ojs/article/viewFile/392/515 ("[W]hile student demographic characteristics are strongly related to student outcomes at the state level, they are less influential in predicting achievement levels than variables assessing the quality of the teaching force.").

[60] Steven G. Rivkin, Eric A. Hanushek, & John F. Kain, *Teachers, Schools, and Academic Achievement*, 73 ECONOMETRICA 417, 449 (2005), *available at* http://edpro.stanford.edu/Hanushek/admin/pages/files/uploads/teachers.econometrica.pdf.

[61] *See* Eric A. Hanushek, *The Failure of Input-Based Schooling Policies*, 113 ECON. J. F64, F91–94 (2003) (discussing alternatives to input-based schooling policies).

[62] *See generally* DAVID GRISSMER ET AL., IMPROVING STUDENT ACHIEVEMENT: WHAT STATE NAEP TEST SCORES TELL US (2000), *available at* http://www.rand.org/pubs/monograph_reports/MR 924/index.html. The study explained that until recently there was no meaningful way to measure achievement scores between states since achievement tests vary from state to state and thus were not comparable. *Id.* at 3–4.

[63] *Id.* at 97.

[64] *Id.* at 102.

[65] *Id.* at 93.

[66] *Id.* at 104.

fifty-state study in 2003 on the impact of student expenditures.[67] The study's "results show[ed] that education expenditures have particularly strong and positive effects on child outcomes, especially test scores and adolescent behavior."[68] Moreover, the study concluded that "children tend to fare best in the states that spend the most on children and to fare worst in the states that spend the least."[69] In contrast, a state-specific study published by the Cato Institute found "no evidence of a positive effect of expenditures on student performance" in both urban and nonurban New Jersey public school districts.[70]

Despite decades of increased investment in public education, researchers continue to find that socioeconomic disadvantages overwhelmingly hinder student achievement.

For example, in a recent study, Russell Rumberger used a data set of ten-thousand students, from kindergarten through fifth grade, to investigate the impact of high poverty on student outcomes.[71] He found that "[s]tudents attending high-poverty public schools, where more than [seventy-five percent] of the students are poor or low-income, had much lower achievement levels than students who attended low-poverty public schools[.]"[72] Rumberger concluded that improving the quality of high-poverty schools "may be more useful than a strategy of desegregating all high-poverty, high-minority schools."[73]

II. METHODOLOGY

A. School Selection

This article's study used the education data of more than one hundred New York State public school districts to analyze the relationship between school inputs and outputs.[74] Local school officials annually submit district

---

[67] *See* Kristen Harknett et al., *Do Public Expenditures Improve Child Outcomes in the U.S.? A Comparison Across Fifty States*, 5 ANALYSES OF SOC. ISSUES & PUB. POL'Y 103 (2005), *available at* www.asap-spssi.org/pdf/0501harknett.pdf.

[68] *Id.* at 122.

[69] *Id.*

[70] Douglas Coate & James VanderHoff, *Public School Spending and Student Achievement: The Case of New Jersey*, 19 CATO J. 85, 98 (1999).

[71] *See* Russell W. Rumberger, *Parsing the Data on Student Achievement in High-Poverty Schools*, 85 N.C. L. REV. 1293, 1296 (2007).

[72] *Id.* at 1313.

[73] *Id.* at 1314. Other scholars have disagreed, contending that money can never equalize education so long as students remain in segregated schools. *See* Orfield, *supra* note 2, at 1048–49 (stating that "money cannot equalize educational opportunity").

[74] *See* N.Y. STATE TESTING AND ACCOUNTABILITY REPORTING TOOL, N.Y. STATE EDUC. DEP'T,

data to the New York State Department of Education, and the department makes this data available to the public. I assembled a random selection of New York State school districts by first sorting all districts in ascending order by per-pupil expenditure, using New York State's 2006–2007 school district fiscal profiles data.[75] Then, I selected every fifth school district at random, excluding New York City because it is too large of a district to provide meaningful data for this study's purpose. In addition to the randomly selected school districts, I included the ten most populous city school districts outside of New York City (respectively Buffalo, Rochester, Yonkers, Syracuse, Albany, New Rochelle, Mount Vernon, Schenectady, Utica, and Niagara Falls). This produced an original list of 144 school districts. This list is contained in Appendix A.[76] Using this list, I entered district data on the following input and output factors in a spreadsheet.

B.   Input and Output Factors

I gathered 2006–2007 education data based on vital "input" and "output" factors for each selected school district. School inputs factors consisted of socioeconomic and non-socioeconomic variables. The socioeconomic input variables were: (1) the percentage of total district revenue that came from state funding, local taxes,[77] and federal funding;[78] (2) the combined

---

NEW YORK STATE SCHOOL AND DISTRICT REPORT CARDS FOR SCHOOL YEAR 2006–2007, https://www.nystart.gov/publicweb/Home.do?year=2007 (stating that "[t]hese Report Cards are produced to inform the people of New York State about the performance of public schools and districts").

[75]   District fiscal information was collected from the New York State Board of Education. *See* N.Y. STATE EDUC. DEP'T, MASTER FILE FOR 2006–2007, http://www.oms.nysed.gov/faru/documents/master fileforweb.xls.

[76]   *See infra* App. A.

[77]   Since the first two factors are closely related, this article examines the effect of local wealth on student outcomes. In most states, local school district revenue from property taxes "is hopelessly intertwined with the allocation of state funds, and any change in the allocation of property tax revenue has a direct effect on the allocation of state funds." Belanger v. Madera Unified Sch. Dist., 963 F.2d 248, 252 (9th Cir. 1992). Local sources of school revenue are primarily from property taxes, a strong indicator of district wealth. *See* AUSTIN D. SWANSON & RICHARD A. KING, SCHOOL FINANCE: ITS ECONOMICS AND POLITICS 97 (Naomi Silverman ed., 1996). Further, a school district that is largely dependent on state aid tends to be socioeconomically disadvantaged. *Cf.* Albert H. Kauffman, *The Texas School Finance Litigation Saga: Great Progress, Then Near Death by a Thousand Cuts*, 40 ST. MARY'S L.J. 511, 523 (2008) (finding that those Texas districts dependent on state funding are generally low-wealth).

[78]   Federal education funding is also an indicator of local socioeconomics, because such funding is implemented through specific programs designed for disadvantaged students and is even "more strongly targeted to the highest-poverty districts than . . . state and local fund[ing][.]" JAY CHAMBERS ET AL., U.S. DEP'T OF EDUC., STATE AND LOCAL IMPLEMENTATION OF THE NO CHILD LEFT BEHIND ACT: VOLUME VI—TARGETING AND USES OF FEDERAL EDUCATION FUNDS xvii (2009), *available at* http://www.ed.gov/rschstat/eval/disadv/nclb-targeting/nclb-targeting.pdf.

wealth ratio of the district;[79] (3) the total K–12 enrollment;[80] (4) the percentage of students with limited English proficiency;[81] (5) the percentage of students eligible for free or reduced-price lunch;[82] and (6) the percentage of students who were American Indian, black or African American, Hispanic or Latino, Asian or Pacific Islander, white or Caucasian, and multiracial.[83]

The non-socioeconomic input variables were: (1) per-pupil expenditures;[84] (2) the average class size for common branch (elementary) school; (3) the average class size for eighth grade English class; (4) the average class size for eighth grade math class;[85] (5) the percentage of teachers without a valid teaching certificate; (6) the percentage of teachers teaching out of certification; (7) the percentage of teachers with less than three years of experience; (8) the percentage of teachers with a masters degree (plus thirty hours) or a doctorate degree; (9) the percentage of total core classes not taught by highly qualified teachers; and (10) the percentage of total number of classes taught by teachers lacking appropriate

[79] Combined wealth ratio ("CWR") is a measure of a school district's income and property wealth determined by a complex statutory formula. CWR is used to apportion state education aid to local districts based on each district's ability to generate tax revenue. A CWR of 1.0 is considered average, although most New York State school districts do not meet the average mark. *See* N.Y. EDUC. LAW § 3602 (McKinney 2009); *CFE II*, 801 N.E.2d at 329–30; *CFE*, 719 N.Y.S.2d at 531.

[80] This article considers total district enrollment figures because larger urban districts tend to face higher levels of socioeconomic disadvantages and inadequate education opportunities. *See* Molly S. McUsic, *The Future of* Brown v. Board of Education*: Economic Integration of the Public Schools*, 117 HARV. L. REV. 1334, 1350 & n.88 (2004); Amy J. Schmitz, Note, *Providing an Escape for Inner-City Children: Creating a Federal Remedy for Educational Ills of Poor Urban Schools*, 78 MINN. L. REV. 1639, 1642–43 (1994).

[81] A "limited English proficient" student is a student whose native or household language is other than English and "whose difficulties in speaking, reading, writing, or understanding the English language may be sufficient to deny the individual" the ability to meet state assessment requirements, successfully achieve in the classroom, or fully participate in society. 20 U.S.C. § 7801(25) (2006).

[82] This article considers the percentage of students eligible for free or reduced-price lunch as a variable because it is "an indicator of low economic status[.]" *CFE*, 719 N.Y.S.2d at 510. Free or reduced-price lunch is a federally subsidized program which provides free or low-cost lunch to needy children. *See* 42 U.S.C. §§ 1751–1769a (2006). "Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals. Those with incomes between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals[.]" NAT'L SCH. LUNCH PROGRAM, U.S. DEP'T OF AGRIC., PROGRAM FACT SHEET 2 (2009), http://www.fns.usda.gov/cnd/Lunch/About Lunch/NSLPFactSheet.pdf.

[83] This article considers racial demographics because race is generally correlated with student achievement gaps, and scholars and judges have long debated whether government policy could close such inequities. *See, e.g.*, *CFE*, 719 N.Y.S.2d at 491; Eric A. Hanushek, *Black-White Achievement Differences and Governmental Interventions*, 91 AM. ECON. REV. 24, 24–28 (2001).

[84] Per-pupil expenditures, although not a perfect measure of school investment, have often been cited as a measure of school resources. *See, e.g.*, *CFE II*, 801 N.E.2d at 330. It is generally defined as "the quotient of total expenditures divided by enrollment[.]" 8 N.Y.C.R.R. § 119.3(c)(4)(iii). As Section II.B explains, scholars have long debated the impact of student expenditures.

[85] As discussed, class size has been found by some studies to impact student performance. *See supra* notes 51–53 and accompanying text. Courts have also considered class size to be a relevant factor in determining school adequacy. *See, e.g.*, *CFE II*, 801 N.E.2d at 335.

certification.[86]

The output factors were: (1) graduation rates;[87] (2) fifth grade mean English Language Arts ("ELA") scores based on state assessment exams; (3) fifth grade mean math scores; (4) eighth grade mean ELA scores; (5) eighth grade mean math scores;[88] (6) the percentage of students scoring at or above a sixty-five on the Regents Comprehensive English exam; (7) the percentage of students scoring at or above a sixty-five on the Regents Math A exam;[89] and (8) the percentage of high school graduates reportedly going

[86] This article considers all the vital teacher-quality statistics reported by New York State public schools. In *CFE II*, the New York Court of Appeals concluded that the "first and surely most important input is teaching. . . . [U]ncertified and inexperienced teachers tend to be concentrated in the lowest performing schools." 801 N.E.2d at 333. In *CFE*, the trial court found that "teaching experience of two years or less is correlated with poor teacher quality." 719 N.Y.S.2d at 495. The No Child Left Behind (NCLB) Act defines a highly qualified teacher as one who is fully certified or passes the state teacher licensing exam, demonstrates competence in the specific subjects taught, and has at least a bachelor's degree (this last provision applies only to new teachers). *See* 20 U.S.C. § 7801(23) (2006). "The term 'core academic subjects' means English, reading or language arts, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography." 20 U.S.C. § 7801(11) (2006). The NCLB Act mandates that states receiving federal assistance must "ensure that all teachers teaching in core academic subjects within the State are highly qualified[.]" 20 U.S.C. § 6319(a)(2) (2006).

[87] In *CFE*, the trial court explained that one of the "most telling measures of student performance are the percentage of students who actually graduate[.]" 719 N.Y.S.2d at 515. Those who fail to complete high school tend to have fewer employment prospects and greater rates of incarceration. *See* Craig J. Tiedemann, Comment, *Taking a Closer Look at Massachusetts Public School Expulsions: Proposing an Intermediate Standard of Judicial Review After* Doe v. Superintendent of Schools, 31 NEW ENG. L. REV. 605, 633 (1997). Further, those who fail to complete high school are less likely to register to vote or vote based on government statistics. *See* AMIE JAMIESON ET AL., U.S. CENSUS BUREAU, U.S. DEP'T OF COMMERCE, VOTING AND REGISTRATION IN THE ELECTION OF NOVEMBER 2000, at 6 (2002), *available at* http://www.census.gov/prod/2002pubs/p20-542.pdf.

[88] This article considers a number of mean exam scores as an objective measure of student outcomes. Such scores, although a valuable measure, should be used with "caution[.]" *CFE II*, 801 N.E.2d at 339. In *CFE II*, the New York Court of Appeals agreed with the trial court's emphasis on state assessment exams as opposed to the Appellate Division's focus on Regents Competency Exams (state exams, then known as PEP and PET, have since changed). *See id.* at 338. New York public schools administer state assessment exams to measure student performance; these exams are required under NCLB Act. Students in grades three through eight take the English Language Arts (ELA) and mathematics exams annually. *See* N.Y. STATE TESTING PROGRAM, N.Y. STATE EDUC. DEP'T, GRADES 3–8 MATHEMATICS TESTS, SCHOOL ADMINISTRATOR'S MANUAL FOR PUBLIC AND NON-PUBLIC SCHOOLS 1 (2009), *available at* http://www.emsc.nysed.gov/osa/math/ei/3-8mathsam-09.pdf; N.Y. STATE TESTING PROGRAM, N.Y. STATE EDUC. DEP'T, GRADES 3–8 ENGLISH LANGUAGE ARTS TESTS, SCHOOL ADMINISTRATOR'S MANUAL FOR PUBLIC AND NON-PUBLIC SCHOOLS 1 (2009), http://www.emsc.nysed.gov/osa/english/ei/ela-sam-09.pdf. This article uses the ELA and math exams from fifth and eighth grade because ELA and math are generally considered the two most vital school subjects, and fifth and eighth grade respectively mark the culmination of a child's elementary and middle school experience.

[89] New York public high schools administer Regents exams to test for basic proficiency in a number of subject areas. A score of sixty-five is required for Regents credit, while a score of fifty-five may be considered "passing" for purposes of earning a local high school diploma as opposed to a more prestigious Regents diploma. *See* N.Y. STATE EDUC. DEP'T, REGENTS EXAMINATIONS, REGENTS COMPETENCY TESTS, AND SECOND LANGUAGE PROFICIENCY EXAMINATIONS, SCHOOL ADMINISTRATOR'S MANUAL 2 (2008), http://www.p12.nysed.gov/osa/sam/secondary/section3.html# passing. This article uses a score of sixty-five because that is the score for basic proficiency under state standards. *Id.*

to a four-year college.[90]

C. *Statistical Methodology*

This article's study used a multiple regression analysis to determine the influence that selected input factors ("independent variables") had on each output factor ("dependent variables"). The statistical numbers were generated by SPSS, a software program that uses predictive statistical analysis for a given set of data.[91] The program calculated the Pearson-product moment correlation coefficients for each statistical run. Each coefficient showed the measurable relationship that an input factor had on a specified output factor (e.g., the relationship that per-pupil expenditures had on graduation rates).[92] For each statistical run, the program excluded districts that lacked the necessary data.[93]

Coefficient numbers range from −1.0 to 1.0.[94] A value of 1.0 indicates a perfectly positive relationship, such that the output variable increases with the input variable (e.g., graduation rates increase with per-pupil expenditures).[95] A value of −1.0 indicates a perfectly negative relationship, such that the output variable decreases with the input variable (e.g., graduation rates decrease with per-pupil expenditures).[96] A value of 0.0 indicates no relationship between the two variables.[97] Coefficient results, though, rarely demonstrate a perfect relationship.[98]

Based on accepted research standards, this article defines its coefficient results as follows: coefficients below (+/−)0.3 are considered very weak and lack a meaningful relationship; coefficients at or above (+/−)0.3 to just below (+/−)0.5 are considered weak but demonstrate a somewhat

---

[90] College-attendance rates have not been considered by many previous studies, but they are considered here because a college degree is highly correlated with success and civic involvement. *See* NAT'L CTR. FOR EDUC. STATISTICS, DIGEST OF EDUCATION STATISTICS 553–54 tbl.372 (2007), http://nces.ed.gov/programs/digest/d07/tables/dt07_372.asp. According to government statistics, individuals with a bachelor's degree are more likely to vote than high school graduates. JAMIESON, *supra* note 87.

[91] SPSS was originally developed for the social sciences, but is now used in almost every major field of research. *See generally* About SPSS Inc., http://www.spss.com/corpinfo/history.htm (last visited Oct. 11, 2010).

[92] *See* DUNCAN CRAMER, INTRODUCING STATISTICS FOR SOCIAL RESEARCH 216 (1994) (explaining the test of association); *see also* Ottaviani v. State Univ. of N.Y. at New Paltz, 679 F. Supp. 288, 298–309 (S.D.N.Y. 1988) (discussing how to conduct a sound regression analysis).

[93] Some school districts provided only partial data to the State Education Department. Therefore, the number of districts slightly fluctuated for each statistical run. *See infra* App. B.

[94] *See* CRAMER, *supra* note 92 (explaining the product momentum correlation).

[95] *See id.*

[96] *See id.*

[97] *See id.*

[98] *See* LOUIS COHEN ET AL., RESEARCH METHODS IN EDUCATION 530–31 (6th ed. 2007).

meaningful relationship; coefficients at or above (+/–)0.5 but just below (+/–)0.7 are considered moderate and demonstrate a meaningful relationship; coefficients at or above (+/–)0.7 but just below (+/–)0.8 are considered strong and demonstrate a very meaningful relationship; and coefficients at or above (+/–)0.8 are considered very strong and demonstrate a near perfect relationship.[99]

In addition to considering correlation coefficients, this article takes into account whether each relationship is statistically significant. Statistical significance refers to the likelihood that the relationship is due to chance (that is, whether the demonstrated correlation is inconsequential), and the variable must be less than .05 percent to be considered statistically significant, as generally accepted among social science researchers.[100]

SPSS also produced model summaries for the statistical runs, defined in terms of R Square and Adjusted R Square. These results indicate the predictive value (or variance) that all input factors had on a specified output factor.[101] This contrasts with the coefficient results that simply measure the relationship between each individual input and output factor.

III. FINDINGS

The regression results suggest that socioeconomic variables are generally predictive of student outcomes. However, teacher quality variables demonstrate a meaningful and statistically significant relationship to high school graduation rates in New York State public school districts with the highest concentration of African-American and low-income students, and per-pupil expenditures demonstrate a meaningful and statistically significant relationship to high school graduation rates in districts with the highest concentration of African-American students. Appendix B includes the main findings in statistical form.[102]

---

[99] *See* CRAMER, *supra* note 92, at 218; COHEN, *supra* note 98, at 536.

[100] *See* CRAMER, *supra* note 92, at 50, 72; COHEN, *supra* note 98, at 146.

[101] *See* CRAMER, *supra* note 92, at 260–66; COHEN, *supra* note 98, at 538.

[102] *Infra* App. B, tbls. 1–11.

Graph 1: Pearson-product moment correlation between measures of educational inputs and high school graduation rates at 125 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Per-pupil expenditures (+0.145)

% Limited English proficiency (-0.318)

% Teachers not certified (-0.407)

% State revenue (-0.414)

% Core classes not taught by highly qualified teachers (-0.419)

% Local revenue (+0.453)

% White (+0.549)

% Federal revenue (-0.551)

% African-American (-0.651)

% Eligible free / reduced-price lunch (-0.701)
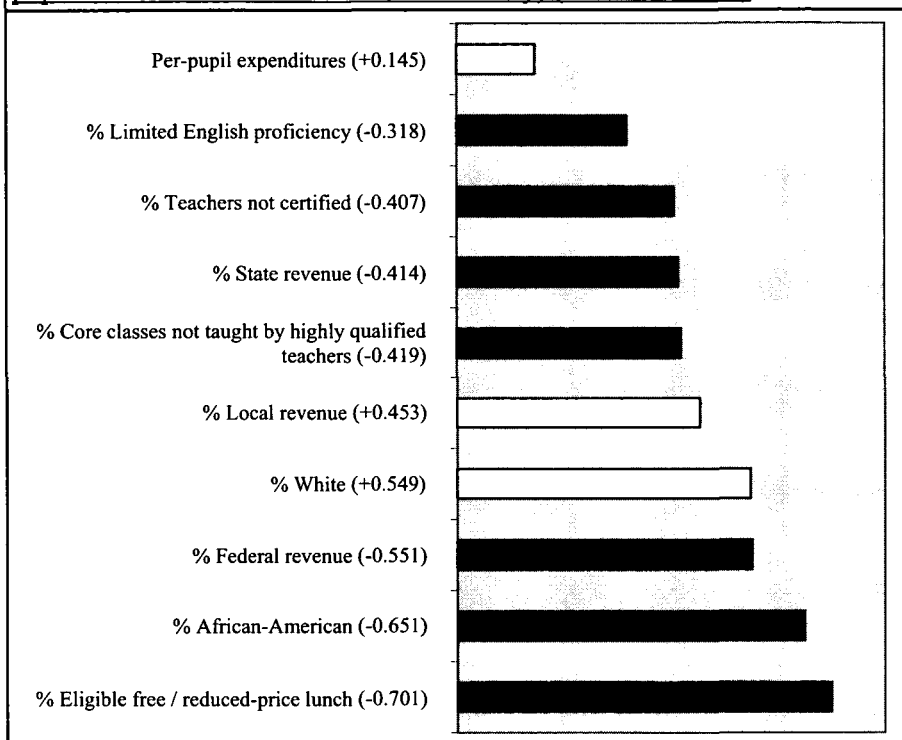
Graph 2: Pearson-product moment correlation between measures of educational inputs and high school graduation rates at the eighteen New York State public school districts with the highest African-American population (among this study's selected districts, with a concentration of ≥ 24% African-American students) (FY 2006–2007)

Per-pupil expenditures (+0.514)

Total K-12 enrollment (-0.593)

% Teachers with masters or doctorate degree (+0.639)

% Teachers not certified (-0.689)

% Core classes not taught by highly qualified teachers (-0.696)

% Classes taught by teachers without certification (-0.752)

% Teachers teaching out of certification (-0.779)
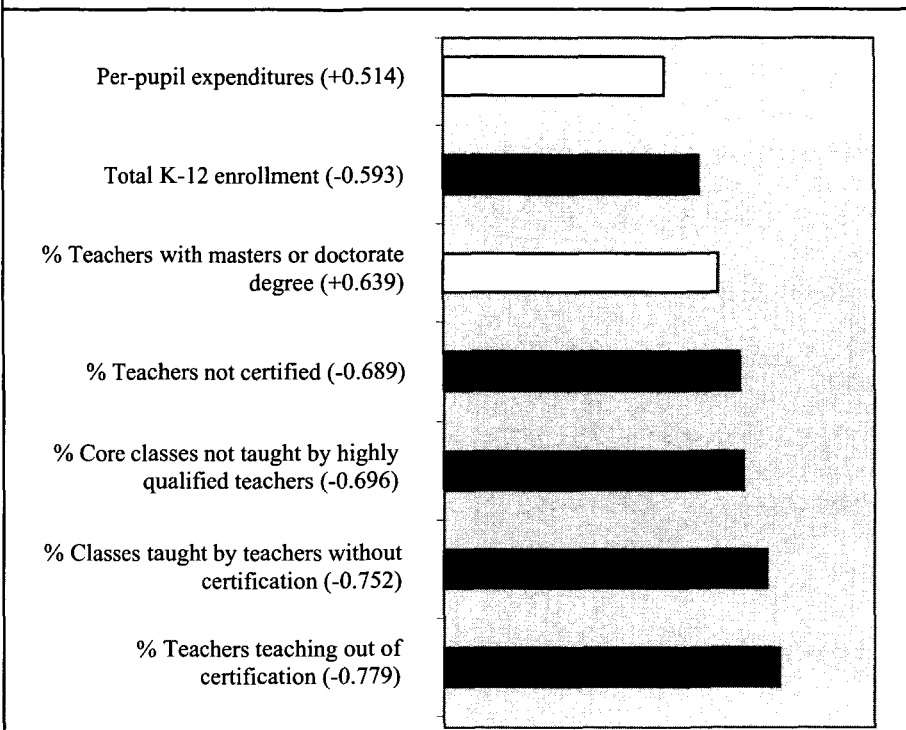
Graph 3: Pearson-product moment correlation between measures of educational inputs and high school graduation rates at the twenty New York State public school districts with the highest percentage of students eligible for free or reduced-price lunch (among this study's selected districts, with a concentration of ≥ 52% students eligible for free or reduced-price lunch) (FY 2006–2007)

Per-pupil expenditures (+0.348)

% Teachers teaching out of certification (-0.460)

Average class size (8th grade math) (-0.464)

% Classes taught by teachers without certification (-0.494)

Average class size (common branch) (-0.509)

% Teachers not certified (-0.615)

% African-American (-0.672)

% Core classes not taught by highly qualified teachers (-0.681)

Total K-12 enrollment (-0.757)
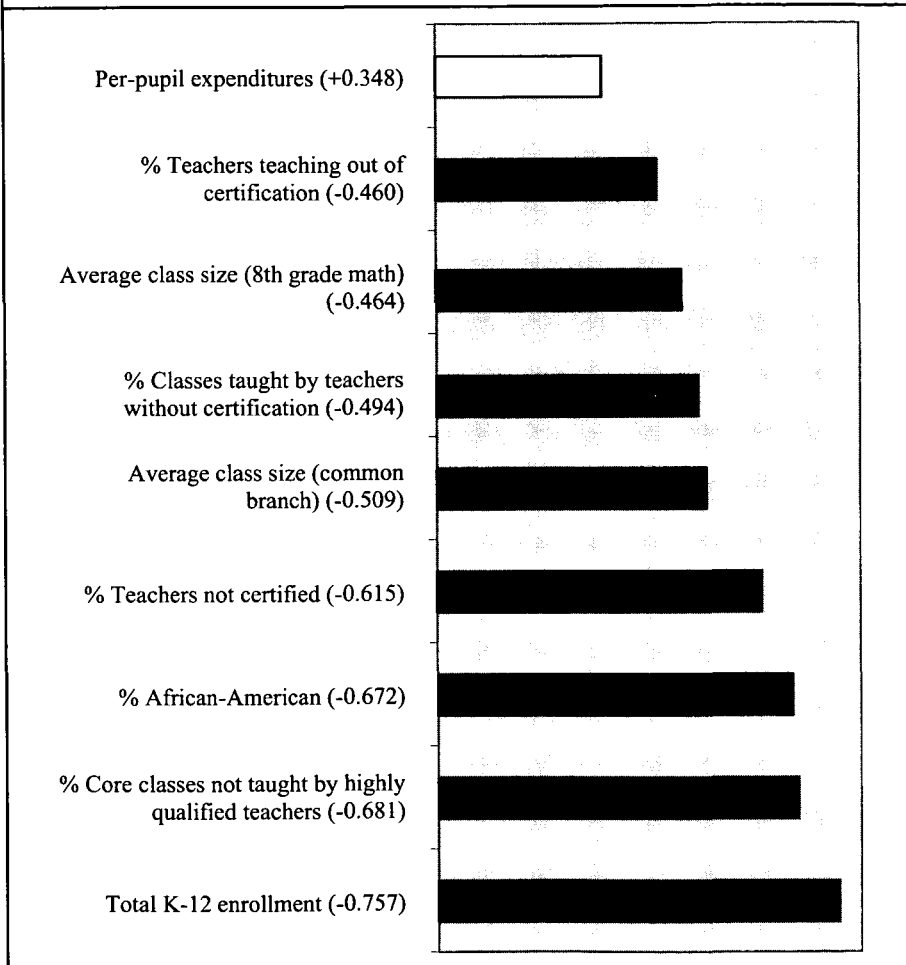
A. Summary of General Findings

The findings from the general multivariable regression analyses, which considered all the selected public school districts, suggest that socioeconomic variables have the strongest relationship to student achievement (Appendix B, Tables 1–9). The socioeconomic variables used in this study have a predictive value exceeding sixty percent (Table 9).

The percentage of students eligible for free or reduced-price lunch in a district has a strong negative relationship to *all* student output variables: high school graduation rates, test scores, and the percentage of high school graduates reportedly going to a four-year college (Tables 1–9). The percentage of district revenue from state funding has a strong negative relationship to the percentage of high school graduates reportedly going to a four-year college, a moderate negative relationship to mean fifth and eighth grade ELA scores, a moderate negative relationship to mean fifth grade math scores, and a weak negative relationship to mean eighth grade math scores (Tables 2–5, 8). The percentage of district revenue from local funding has a strong positive relationship to the percentage of high school graduates reportedly going to a four-year college, a moderate positive relationship to mean fifth and eighth grade ELA scores, and a moderate positive relationship to mean fifth and eighth grade math scores (Tables 2–5, 8).

The percentage of African-American students in a district has a moderate negative relationship to a number of student output variables, including high school graduation rates, mean eighth grade math scores, and the percentage of students scoring at or above a sixty-five on the Regents Comprehensive English and Math A exams (Tables 1, 5–7). The percentage of white students in a district has a moderate positive relationship to high school graduation rates and the percentage of students scoring at or above a sixty-five on the Regents Math A exam (Tables 1, 7). The total K–12 enrollment figure of a district has a moderate negative relationship to high school graduation rates and the percentage of students scoring at or above a sixty-five on the Regents Math A exam (Tables 1, 7). The percentage of district revenue from federal funding has a moderate negative relationship to most student output variables, except for a weak negative relationship to the percentage of students scoring at or above a sixty-five on the Regents Math A exam (Tables 1–9). In the general regression analyses, non-socioeconomic variables (including per-pupil expenditures, class size, and teacher quality) suggest a weak or no meaningful relationship to student outputs (Tables 1–9).

B. Focused Findings

The findings from this study's focused regressions suggest a different understanding of the usefulness of input-based policies, particularly in poor and minority school districts. One focused regression considered the eighteen school districts in this study with the highest percentage of African-American students (Appendix B, Table 10). Among these schools, the percentage of teachers teaching out of certification and the percentage of classes taught by teachers without certification have a strong negative relationship to graduation rates. The percentage of teachers not certified and the percentage of core classes not taught by highly qualified teachers have a moderate negative relationship to graduation rates. These results suggest that student outcomes would be better in these districts with improved teacher quality. Moreover, per-pupil expenditures and the percentage of teachers with a masters or doctorate degree have a moderate positive relationship to graduation rates. This regression model has a predictive value exceeding ninety percent, by far the best model in this study.

Another focused regression considered the twenty school districts in this study with the highest percentage of students eligible for free or reduced-price lunch (Appendix B, Table 11). Among these schools, the percentage of teachers not certified, the percentage of core classes not taught by highly qualified teachers, and average class sizes (common branch) have a moderate negative relationship to graduation rates. This suggests that targeted input-based policies would have a positive impact on high poverty districts.

C. Cautions

There are a few caveats that any study must address, particularly in the field of public education. First, a regression analysis of any given school year is just a snapshot in time, as school district resources and teacher quality may vary over a student's lifetime. One very committed first-grade teacher may positively impact a student's educational course for years— irrespective of future educational inputs, or the lack thereof. Nevertheless, a snapshot of a given school year is generally reflective of the educational experience of a school district's students. Second, a regression analysis is necessarily quantitative in its results, but a given district's success may very well depend on qualitative variables such as teacher skill and innovative programs (however, these variables are usually related to

resource availability and financial investments). The next section discusses these qualitative aspects in more detail. Future research, though, should focus specifically on these aspects and examine what programs benefit minority and low-income communities based on local experience. It may also be more useful to examine the progress of a particular school or class, as opposed to an entire aggregate school district. Third, it is difficult to assess the true meaning of resource expenditures (even if more specific data is used) due to variation in costs and living conditions by geographic region, even within any given state. Finally, no statistical study can ever claim to be comprehensive enough because there is the possibility to examine a broader (or conversely, more focused) set of data and factors.

IV. DISCUSSION

As a result of the financial litigation movement, a number of states have reformed their school finance schemes and now provide at least adequate funding for their public school districts.[103] Improving the adequacy of student education, though, is far short of *Brown's* vision. "Let's think for a moment about that notion of adequacy[,]" reflected former New York Senator Hillary Rodham Clinton in discussing *CFE II*.[104] "The term itself conveys how far we have lowered our sights. Is that what *Brown* was all about—adequacy? And yet even adequacy has not fully permeated our implementation of education policy."[105] This article's findings suggest that, although socioeconomic variables overwhelmingly affect student outcomes, teacher-quality factors have a meaningful relationship to high school graduation rates in New York State public school districts with the highest concentration of African-American and low-income students, and per-pupil expenditures have a meaningful relationship to high school graduation rates in districts with the highest concentration of African-American students. This conclusion is consistent with prior research. To achieve *Brown's* vision, there must be a collective effort by federal, state, and local leaders to invest in programs that counteract the effects of socioeconomic disadvantages and improve the quality of public school teachers.[106] Part A discusses how socioeconomic disadvantages prevent

103 *See* Michael A. Rebell, *Poverty, "Meaningful" Educational Opportunity, and the Necessary Role of the Courts*, 85 N.C. L. REV. 1467, 1500–05 (2007) (describing the history of successful legal challenges to inequalities in state education finance systems).

104 Hillary Rodham Clinton, Brown *at Fifty: Fulfilling the Promise*, 23 YALE L. & POL'Y REV. 213, 216 (2005). Clinton currently serves as Secretary of State.

105 *Id.*

106 *See infra* Section V.B–C. This article does not purport to identify the full panoply of possible

poor and minority students from educational achievement. Part B describes how two New York State school districts with a high concentration of poor and minority students have successfully improved student outcomes. Lastly, Part C discusses how input-based policies matter in achieving equal educational opportunity.

A. Socioeconomic Disadvantages: Obstacle to Student Achievement

In *CFE*, the trial court found that New York City schools have a high concentration of poor and minority students, and that these demographic groups generally suffer from low academic achievement.[107] The trial court emphasized that it is not the "amount of melanin in a student's skin" or the "amount of money in the family bank" that determines a student's success, but the negative life experiences that are generally correlated with these groups.[108] As the court explained, such life experiences typically include: having parents who work long hours and have little formal education, thus lacking the time or skills necessary to assist their children's education; starting school without basic skills such as knowledge of the alphabet or a developed vocabulary; coming from a low-income household that does not have the resources to aid their children's education with tutoring, books, or computers; having poor healthcare and living in substandard conditions; being isolated from higher achieving peers and mainstream society; and experiencing the legacy of a long-history of racial and economic injustice.[109] Even so, the court concluded that the "evidence introduced at trial demonstrate[d] that these negative life experiences c[ould] be overcome by public schools with sufficient resources well deployed."[110]

Similarly, the New Jersey Supreme Court, in finding New Jersey's funding scheme unconstitutional as applied to poor urban districts, eloquently pointed out that:

This record shows that the educational needs of students in poorer urban districts vastly exceed those of others, especially those from richer

programs and their respective merits, but simply is meant to further the discussion with specific examples.

[107]   *CFE*, 719 N.Y.S.2d at 489–91.

[108]   *Id.* at 491.

[109]   *See id.* at 490–91; *see also* Rebell, *supra* note 103, at 1471–76 (explaining how poor and minority children enter school with a clear deficit due to poor health and medical care, lack of food, substandard housing conditions, frequent residential changes, and family instability); Ryan, *supra* note 7, at 284–96 (summarizing the severe adverse affects of racial and socioeconomic isolation).

[110]   *CFE*, 719 N.Y.S.2d at 491; *see also* Rebell, *supra* note 103, at 1487 & n.94. Low-income and minority children at minimum need qualified teachers, parental support, a safe school environment, and innovative school programs to "successfully offset the severe effects of poverty." *Id.* at 1487.

districts . . . . The goal is to motivate them, *to wipe out their disadvantages* as much as a school district can, and to give them an educational opportunity that will enable them to use their innate ability.[111]

B. *Successfully Counteracting Socioeconomic Disadvantages*

How can school districts deploy input-based policies to wipe out the disadvantages faced by poor and minority students? The success of two New York State school districts may provide some answers.

a. Westbury School District

The success of students in Westbury, New York—one of the school districts included in this article's study—is a leading example of a school district that has enabled its students to overcome socioeconomic disadvantages. Westbury, a Long Island town, has what many researchers would consider some of the highest socioeconomic deficits: minimal racial integration in its public schools (forty-one percent African American, fifty-four percent Hispanic or Latino, and only three percent white); thirty-two percent limited English proficiency among its students; and seventy-nine percent of its students eligible for free or reduced-price lunch.[112] Yet, for the 2006–2007 school year, the district had a graduation rate of eighty-four percent and its African-American students had a graduation rate of eighty-nine percent[113]—both numbers higher than the state's average for the year.[114] Westbury's students have been remarkably successful due to the district's emphasis on providing a well-rounded and inclusive educational environment, the implementation of the Comer model of education to engage parental and community involvement, and quality teachers and teaching methods.

Westbury's schools are known for their inclusive environment and engaging student programs.[115] The district's middle school is safe, orderly,

---

[111] Abbott v. Burke, 575 A.2d 359, 400 (N.J. 1990) (emphasis added).

[112] *See* N.Y. STATE TESTING AND ACCOUNTABILITY REPORTING TOOL, N.Y. STATE EDUC. DEP'T, THE NEW YORK STATE DISTRICT REPORT CARD, ACCOUNTABILITY AND OVERVIEW REPORT 2006–2007, WESTBURY UNION FREE SCHOOL DISTRICT 3 (2008), http://www.nystart.gov/publicweb-rc/2007/f0/AOR-2007-280401030000.pdf.

[113] *See id.* at 14. (noting that Westbury's rates for both overall and African-American student graduation were higher than the state standard for each category).

[114] *See* N.Y. STATE TESTING AND ACCOUNTABILITY REPORTING TOOL, N.Y. STATE EDUC. DEP'T, THE NEW YORK STATE REPORT CARD, ACCOUNTABILITY AND OVERVIEW REPORT 2006–2007, NEW YORK STATE PUBLIC SCHOOLS REPORT CARD 13 (2007), http://www.nystart.gov/publicweb-external/2007statewideAOR.pdf (reporting a statewide overall graduation rate of seventy-five percent, and a statewide graduation rate of fifty-five percent for African-American students).

[115] *See generally* KATHLEEN NICKSON, JUST FOR THE KIDS N.Y., BEST PRACTICES CASE STUDY,

and well maintained.[116] In fact, the security personnel and hall monitors "all appear to know the students[.]"[117] This is critical considering that middle school is one of the most delicate stages of a student's public school experience. Furthermore, the district has inclusive programs for parents and students. For example, one of the district's greatest challenges is reaching out to immigrant parents, many of whom do not speak English, are poor, or shy away from school involvement.[118] To address these issues, the district provides English language courses to parents, as well as translation services and workshops to explain New York State's assessment requirements.[119] With the assistance of federal and state funding, the district also provides the students with extensive after-school tutoring programs, even on weekends, and extra-curricular activities.[120] The middle school has a diverse array of extended-day programs designed to keep students off the streets and engaged in learning.[121] The district also: provides an after-school homework center, funded by the 21st Century After-School program, that is staffed by teachers three days a week; and offers more than thirty clubs, extensive character building programs, and community service opportunities.[122]

Notably, Westbury has embraced the Comer model of education to engage parental and community involvement. Yale psychiatrist James Comer designed this educational model based on the core principle that "*it takes an entire village*, from teachers to parents to the community at large, to nurture a child's social, intellectual and cultural development and improve the student's chances in school."[123] Comer has emphasized that student success depends on a strong "school-family alliance" to ensure that

WESTBURY MIDDLE SCHOOL (2007), http://www.albany.edu/aire/pdf/Westbury_Case_Study.pdf (demonstrating that Westbury has taken an active approach to providing after-school activities and tutorial services, utilizing collaborative efforts among teachers in different subjects, and including principals, assistant principals, and departments chairs in the hiring process).

[116] *See id.* at 1.

[117] *Id.*

[118] *See id.* at 2 ("Without exception, those interviewed say the district's biggest challenge is helping the large influx of immigrant students. The language barrier, poverty, parents who 'shy away' from school, and interrupted education are among the many factors of this challenge.").

[119] *See id.*

[120] *See id.*

[121] *See id.* As one teacher stated: "Students need a place to be. [We can] keep students off the street and in a safe environment." *Id.*

[122] *See id.* (listing all that the district offers to its students).

[123] Maria Newman, *A New Alliance to Help Westbury Schools*, N.Y. TIMES, Oct. 18, 1998, at 14LI (emphasis added). *See generally* David A. Squires & Edward T. Joyner, *Time and Alignment: Potent Tools for Improving Achievement, in* RALLYING THE WHOLE VILLAGE: THE COMER PROCESS FOR REFORMING EDUCATION 98 (James P. Comer et al. eds., 1996); James P. Comer, *Educating Poor Minority Children*, 259 SCI. AM. 42 (1988).

all student needs are met: speech and language, physical and health, moral, social-interactive, psychological-emotional, and academic-intellectual.[124] As Michael Rebell, one of the lead attorneys in the *CFE* litigation, pointed out: "Although this approach appears highly effective, it is also resource-intensive and quite expensive. The Comer model, therefore, illustrates the obvious fact that infusions of large sums of money, if used well, can make dramatic differences in the education of poor children."[125]

In 1998, the *New York Times* reported that Westbury began to implement an ambitious district-wide program based on the Comer model.[126] One of the greatest socioeconomic disadvantages faced by students is the lack of parental involvement. Westbury has shown that through emphasis on the Comer model, districts can increase parental involvement in their children's education. For example, one of the elementary school principals established a community reading program. On one evening, the principal, parents, and students joined together—wearing bathrobes and pajamas— for a bedtime reading hour, demonstrating to parents the importance of reading with their children at night.[127] Prior to the implementation of the Comer model, the *Times* reported that the district was essentially an "urbanized suburb" with low test scores and poor student achievement.[128] To overcome low student achievement, the principal took steps to share the curriculum and disciplinary rules with parents, and formed a screening committee that includes two parents to hire new teachers.[129] Also, Westbury has implemented strong standards and expectations for its students. The district has developed "contracts that inform both students and parents of academic and behavioral expectations[,]" has accelerated courses to push its students to work harder, and uses curriculum mapping software so parents can track their child's study goals.[130]

Lastly, Westbury highly values quality teachers and quality teaching methods. For the 2006–2007 school year, highly qualified teachers taught all the core academic classes in the district, all teachers had a valid teaching certificate, no teachers taught out of certification, and fifty-two percent of

---

[124] James P. Comer, *Educational Accountability: A Shared Responsibility Between Parents and Schools*, 4 STAN. L. & POL'Y REV. 113, 113–14 (1992–1993) ("The school-family alliance is essential to a successful educational experience.").

[125] Michael A. Rebell, *Fiscal Equity in Education: Deconstructing the Reigning Myths and Facing Reality*, 21 N.Y.U. REV. L. & SOC. CHANGE 691, 698 (1994–1995).

[126] *See* Newman, *supra* note 123.

[127] *See id.*

[128] *Id.*

[129] *See id.* (outlining the program).

[130] *See* NICKSON, *supra* note 115, at 3–4.

the teachers had an advanced graduate degree.[131] In the middle school, a screening committee puts teacher candidates through an intensive interview process, during which candidates must demonstrate lessons; the district also prefers candidates with experience and advanced education degrees.[132] Westbury requires new teachers to attend monthly meetings with school administrators for their first three years of teaching, and promotes professional development with annual conference days.[133] Westbury has also implemented three important teaching innovations: (1) a team approach to education in the middle school, in which a team of teachers develops a unified curriculum for each group of students; (2) looping, a system in which the team of teachers stays with each group of students during the critical seventh and eighth grades; and (3) "student-centered learning," an approach where teachers use hands-on activities and the students "do the reading and writing[,]" instead of just having the teachers lecture.[134] Thus, Westbury's emphasis on quality teaching has been a key component of the district's overall success.

b. Niagara Falls City School District

Another district that has achieved success is Niagara Falls, one of the largest upstate urban school districts in New York. Although Niagara Falls is more integrated than some of its urban counterparts, the district still has a considerable minority population and high poverty (thirty-seven percent African-American students and sixty percent eligible for free or reduced-price lunch).[135] Yet, for the 2006–2007 school year, the district achieved an eighty-three percent graduation rate, with little difference between races (eighty-one percent graduation rate for African-American students versus eighty-five percent graduation rate for white students),[136] and a ninety-three percent passage rate on the Comprehensive Regents English exam.[137]

---

131 ACCOUNTABILITY AND OVERVIEW REPORT 2006–2007, WESTBURY UNION FREE SCHOOL DISTRICT, *supra* note 112, at 4 (charting teacher qualifications).

132 *See* NICKSON, *supra* note 115, at 5.

133 *See id.*

134 *Id.* at 6 (elaborating on the district's instructional programs, practices, and arrangements).

135 *See* N.Y. STATE TESTING AND ACCOUNTABILITY REPORTING TOOL, N.Y. STATE EDUC. DEP'T, THE NEW YORK STATE DISTRICT REPORT CARD, ACCOUNTABILITY AND OVERVIEW REPORT 2006–2007, NIAGARA FALLS CITY SCHOOL DISTRICT 3 (2008), *available at* http://www.nystart.gov/publicweb-rc/2007/e3/AOR-2007-400800010000.pdf. Of the sixty percent of students eligible for free or reduced-price lunch, forty-eight percent were eligible for free lunch. *See id.*

136 *See id.* at 14.

137 *See* N.Y. STATE TESTING AND ACCOUNTABILITY REPORTING TOOL, N.Y. STATE EDUC. DEP'T, THE NEW YORK STATE SCHOOL REPORT CARD, COMPREHENSIVE INFORMATION REPORT 2006–2007, NIAGARA FALLS HIGH SCHOOL 1 (2008), https://www.nystart.gov/publicweb-rc/2007/10/CIR-2007-400800010034.pdf (reporting regents exams passing rates).

These are noticeable improvements from the district's meager sixty-three percent graduation rate in 2002[138] and an abysmal forty-seven percent passage rate on the Regents English exam in 1998.[139] In 2007, the U.S. Department of Education took Niagara Falls off the federal "in need of improvement list" due to these steady advances.[140] Reflecting on his tenure as district superintendent from 1992 to 2008, Carmen Granto emphasized that his greatest accomplishments included "hiring hard-working teachers, administrators and staff, who helped the district exceed state graduation rates and improve test scores—despite socioeconomic challenges the district has faced."[141] As Granto explained, "Many of our kids live in poverty most of us can't imagine."[142]

Niagara Falls has steadily improved teacher quality and teaching methods over the last several years. During the 2006–2007 school year, highly qualified teachers taught ninety-eight percent of the district's classes and eighty-nine percent of its teachers had an advanced graduate degree.[143] The commitment and quality of Niagara Falls' teachers has been vital to the district's improvement. For example, Niagara middle school teachers applied for a grant so that they could assist the school's struggling students with extracurricular learning, character building, and community service activities.[144] Further, teachers follow a workshop approach in which students form smaller groups based on their individual learning needs, and teachers develop mini-lessons tailored for each group in the classroom.[145] Teachers also emphasize student discipline, thus setting clear standards of expected behavior and student attitudes.[146]

Additionally, Niagara Falls places critical emphasis on assisting struggling students. The district provides learning software for underachieving students, academic intervention classes, and a club for

[138] *See* Peter Simon, *More High School Students Earning Regents Diplomas*, BUFFALO NEWS, Mar. 18, 2004, at A3.

[139] *See* Peter Simon, *Regents Exam: Raising the Red Flag; Many Students, Schools Falling Short of New Standards*, BUFFALO NEWS, Apr. 11, 1999, at 1A.

[140] *See* Paul Westmoore, *Niagara County Schools Are Closing the Gap, 39 Are Designated 'High-Performing'*, BUFFALO NEWS, May 11, 2007, at D5.

[141] Caitlin Murray, *Falls Schools: A Tearful Falls Farewell for Granto*, NIAGARA GAZETTE, Dec. 19, 2008, *available at* http://niagara-gazette.com/local/local_story_353235511.htm.

[142] *Id.*

[143] *See* ACCOUNTABILITY AND OVERVIEW REPORT 2006–2007, NIAGARA FALLS CITY SCHOOL DISTRICT, *supra* note 135, at 4 (listing teacher qualification percentages).

[144] *See* JACQUELINE MARINO, JUST FOR THE KIDS N.Y., BEST PRACTICES CASE STUDY, NIAGARA MIDDLE SCHOOL 3 (2007), *available at* http://www.albany.edu/aire/pdf/Niagara_Case_Study.pdf (noting the Niagara School district's success despite widespread poverty and unemployment in the Niagara community).

[145] *See id.* at 8.

[146] *See id.*

students to prepare for state assessment exams.[147] Through federal grant funding, the district has provided its students with the 21st Century After-School Program, during which teachers help struggling students with their homework.[148] The program has been a key component of the district's success and juvenile crime rates have dropped since its inception four years ago; however, the downside is the district became ineligible to receive the grant after 2008 due to improved student outcomes.[149] With state funding, the district has established the 21st Century Community Learning Center, which includes extensive after school tutoring with free bus service, family counseling services, wellness and fitness programs, classes with the local police department, a summer sports camp, and programs for parents to improve their involvement in their children's education.[150] As this discussion illustrates, the district's comprehensive approach to education has significantly improved student achievement.

C. Achieving Brown's Vision

As one state trial judge pointedly warned: "Only a fool would find that money does not matter in education."[151] This article's findings suggest that this is particularly true for students who come from disadvantaged backgrounds. The examples in this discussion reveal that it is possible to improve student outcomes among poor and minority students if local leaders deploy resources well and implement engaging programs. Westbury spent over $22,000 per pupil for the 2006–2007 school year, with one-third of the funding coming from the state.[152] Niagara Falls has secured numerous grants to fund its programs.[153] Federal and state leaders

---

[147] *See id.* at 10 (explaining the resources available to underachieving students in the Niagara School District).

[148] *See id.* (explaining that the 21st Century After-School Program is designed to help struggling students with homework).

[149] *See* Caitlin Murray, *Falls Schools: Better Performance Mixed Blessing for District*, NIAGARA GAZETTE, June 2, 2008, *available at* http://www.niagaragazette.com/niagarafallshighschool/local_story _153224544.html (discussing Niagara's loss of funding due to improved student performance).

[150] Jason Murgia & Susan Ross, *The 21st Century Community Learning Center and Niagara Falls High School* 1, http://www.nfschools.net/105720103094236973/lib/105720103094236973/Good_Copy 13.doc (last visited Sept. 28, 2010) (detailing the programs offered by the 21st Century After-School program in conjunction with Niagara Falls High School).

[151] Hoke County Bd. of Educ. v. State, No. 95-cv-S1158, 2000 WL 1639686, at *57 (N.C. Super. Ct. Oct. 12, 2000), *aff'd*, 599 S.E.2d 365 (N.C. 2004); *see also* Montoy v. State, 99-C-1738, 2003 WL 22902963, at *49 (Kan. Dist. Ct. Dec. 2, 2003) ("In fact, Dr. Hanushek testified that money spent wisely, logically, and with accountability would be very useful indeed. He concluded by agreeing with this statement: 'Only a fool would say money doesn't matter.'"), *aff'd*, 112 P.3d 923 (Kan. 2005).

[152] *See infra* App. A; MASTER FILE FOR 2006–2007, *supra* note 75 (listing New York State's district fiscal information).

[153] MARINO, *supra* note 144.

should encourage innovative local programs that engage the entire community in the educational process. Furthermore, there must be a commitment to hiring and investing in quality teachers. To achieve these goals, researchers have suggested: (1) implementing professional standards for teachers that are linked to performance standards for students; (2) providing extensive teacher preparation and professional development; (3) overhauling teacher recruitment standards and putting qualified teachers in every classroom; (4) encouraging and rewarding knowledge and skill as opposed to sticking to rigid salary schedules; and (5) ensuring that schools promote parental involvement and encourage student success by setting high standards.[154]

Achieving equal educational opportunity, of course, costs money and requires some political change—but the rewards are far greater than giving up on failing schools. Investing in education is not only good policy for improving the success of poor and minority students, but good economic policy for entire communities because high school dropouts are a burden to taxpayers and contribute less to society: they have fewer job prospects, make far less taxable income, cost us billions of dollars in health care and welfare services, are incarcerated at greater rates than the rest of society, and participate less in voting than their graduating peers.[155]

There must be a collective commitment to education. As the Comer model demonstrates, it takes the commitment of all community players to improve needy schools.[156] Many of these solutions require political and community commitment, and are inherently policy-based.[157] Teachers must set clear goals and high standards for student achievement. A safe and

---

[154] *See* LINDA DARLING-HAMMOND, DOING WHAT MATTERS MOST: INVESTING IN QUALITY TEACHING 3–5 (1997).

[155] *See* JAMIESON, *supra* note 87; Roni R. Reed, Note, *Education and the State Constitutions: Alternatives for Suspended and Expelled Students*, 81 CORNELL L. REV. 582, 606–07 (1996); Tiedemann, *supra* note 87, at 633–34. *See generally* HENRY LEVIN & CLIVE BELFIELD EDS., THE PRICE WE PAY: ECONOMIC AND SOCIAL CONSEQUENCES OF INADEQUATE EDUCATION (2007).

[156] *See* Comer, *supra* note 124.

[157] *See* Rebell, *supra* note 103, at 1526–43. Michael Rebell has argued that state judges can and should engage in educational intervention and policymaking, drawing parallels to the involvement of federal judges in overseeing desegregation. It is beyond the scope of this article to fully address Rebell's argument. However, given the historical experience of the financial litigation movement and judicial precedent, state judges are unlikely to engage in educational policymaking. Therefore, education advocates probably will have to increasingly turn to the political branches to achieve *Brown's* vision. *Cf.* Sutton, *supra* note 2, at 1985 ("All else being equal, the States are more likely to address these problems [in public education] effectively through legislative and executive-branch initiatives. Just as federal courts face institutional limitations in defining rights and creating remedies in an area like this one, so do state courts, and most of those limitations do not restrict conventional policymakers."). On the other hand, given that many state legislatures failed to provide even adequate school funding until state courts required them to do so, it is difficult to conceive how the political branches will devise an effective solution without judicial oversight.

orderly learning environment, including enforced student discipline, is vital for students to learn. Further, schools should embrace innovative programs that engage disadvantaged students and their families. District leaders and parents must be committed to student success. Finally, as this article and prior research shows, quality teachers are a necessary component to student success in poor and minority school districts.

CONCLUSION

Through decades of litigation, education advocates have aimed to achieve what *Brown* envisioned: equal educational opportunity for all American children regardless of their background. With significant success, and some setbacks, school funding has increased in many states, but major student achievement gaps still remain. Researchers have struggled to determine whether input-based policies can improve student outcomes. This article's findings suggest that, although socioeconomic variables are the greatest barrier to student achievement, an investment in teacher quality and counteracting socioeconomic barriers can improve student outcomes in poor and minority school districts. Specifically, Westbury and Niagara Falls have already demonstrated that a focus on recruiting quality and committed teachers, along with securing funding for innovative programs that engage students and their families, can significantly improve student achievement. The truth is, we can achieve *Brown's* vision—it just takes time, effort, commitment, and, of course, a well-deployed investment in our children's future.

Appendix A

New York State School Districts Selected (in ascending order of expenditure per pupil)

School DistrictPer-pupil Expenditures (FY 2006–2007)

School District	Per-pupil Expenditures
WAVERLY	$ 10,510.00
WATERTOWN	$ 11,541.00
CLARENCE	$ 12,005.00
IROQUOIS	$ 12,139.00
QUEENSBURY	$ 12,343.00
MAPLEWOOD	$ 12,582.00
WILLIAMSVILLE	$ 12,728.00
STILLWATER	$ 12,809.00
CAZENOVIA	$ 12,971.00
NORTH SYRACUSE	$ 13,026.00
WYNANTSKILL	$ 13,150.00
GRAND ISLAND	$ 13,241.00
UTICA	$ 13,320.00
FALCONER	$ 13,372.00
NIAGARA WHEATFIELD	$ 13,409.00
PULASKI	$ 13,552.00
SCHENECTADY	$ 13,585.00
DUNDEE	$ 13,602.00
NORWICH	$ 13,724.00
ONEIDA CITY	$ 13,747.00
NEWFANE	$ 13,780.00
ALFRED-ALMOND	$ 13,837.00
WEST CANADA VALLEY	$ 13,866.00
HUDSONFALLS	$ 13,920.00
BALDWINSVILLE	$ 13,959.00
KINDERHOOK	$ 14,015.00
OSWEGO	$ 14,043.00
KENMORE	$ 14,076.00
NISKAYUNA	$ 14,136.00
INDIANRIVER	$ 14,195.00
OLEAN	$ 14,237.00
WYOMING	$ 14,253.00
KENDALL	$ 14,328.00
BINGHAMTON	$ 14,372.00
CHENANGO VALLEY	$ 14,416.00
TUPPERLAKE	$ 14,462.00

PINE BUSH	$ 14,523.00
HONEOYE	$ 14,570.00
ARLINGTON	$ 14,613.00
BROCKPORT	$ 14,670.00
THOUSAND ISLANDS	$ 14,739.00
FLORAL PARK	$ 14,754.00
WATERLOO CENT	$ 14,784.00
CATO-MERIDIAN	$ 14,852.00
GENESEO	$ 14,895.00
LAURENS	$ 14,954.00
RED CREEK	$ 14,981.00
HARTFORD	$ 15,035.00
MANCHSTR-SHRTS	$ 15,100.00
COHOES	$ 15,146.00
WHITEHALL	$ 15,199.00
POTSDAM	$ 15,241.00
RENSSELAER	$ 15,259.00
SKANEATELES	$ 15,319.00
PHOENIX	$ 15,332.00
ONONDAGA	$ 15,451.00
AVON	$ 15,503.00
MORAVIA	$ 15,543.00
NEWARK VALLEY	$ 15,604.00
TRUMANSBURG	$ 15,665.00
CATTARAUGUS-LIT VAL	$ 15,749.00
LIVERPOOL	$ 15,795.00
EAST BLOOMFIELD	$ 15,911.00
LITTLEFALLS	$ 15,954.00
MCGRAW	$ 16,098.00
BUFFALO	$ 16,120.00
PITTSFORD	$ 16,129.00
HAMMOND	$ 16,217.00
PAVILION	$ 16,247.00
MIDDLETOWN	$ 16,307.00
VALLEY STREAM 13	$ 16,353.00
SCHOHARIE	$ 16,390.00
BRADFORD	$ 16,434.00
NIAGARA FALLS	$ 16,440.00
UNION SPRINGS	$ 16,471.00
SYRACUSE	$ 16,505.00

ROCHESTER	$ 16,530.00
BERLIN	$ 16,543.00
LAKE GEORGE	$ 16,631.00
HIGHLAND	$ 16,690.00
OGDENSBURG	$ 16,793.00
FABIUS-POMPEY	$ 16,858.00
BATAVIA	$ 16,928.00
GERMANTOWN	$ 16,968.00
ISLANDTREES	$ 17,007.00
FORT ANN	$ 17,051.00
MENANDS	$ 17,106.00
HUDSON	$ 17,182.00
CANASERAGA	$ 17,278.00
SHOREHAM-WADIN	$ 17,348.00
FRANKLINVILLE	$ 17,393.00
FLORIDA	$ 17,425.00
BROOKFIELD	$ 17,532.00
ALBANY	$ 17,627.00
WILLIAM FLOYD	$ 17,647.00
OCEANSIDE	$ 17,722.00
NEW PALTZ	$ 18,016.00
AFTON	$ 18,052.00
CHESTER	$ 18,131.00
EAST MORICHES	$ 18,369.00
MONTICELLO	$ 18,518.00
MOUNT VERNON	$ 18,518.00
HAMPTON BAYS	$ 18,610.00
DEPOSIT	$ 18,668.00
SALMON RIVER	$ 18,767.00
STAMFORD	$ 18,867.00
NEW LEBANON	$ 18,953.00
LYNBROOK	$ 18,998.00
MILLBROOK	$ 19,048.00
LONGWOOD	$ 19,215.00
NEW ROCHELLE	$ 19,356.00
S. HUNTINGTON	$ 19,372.00
SOUTH SENECA	$ 19,495.00
LAKELAND	$ 19,545.00
YONKERS	$ 19,614.00
BELLMORE	$ 19,642.00

RONDOUT VALLEY	$ 19,702.00
MARGARETVILLE	$ 19,827.00
RIPLEY	$ 20,025.00
BAYPORT BLUE POINT	$ 20,396.00
BABYLON	$ 20,632.00
LEVITTOWN	$ 20,821.00
HERRICKS	$ 20,948.00
MOUNT MORRIS	$ 21,110.00
LA FAYETTE	$ 21,277.00
PEEKSKILL	$ 21,455.00
HASTINGS ON HUDSON	$ 21,885.00
MALVERNE	$ 22,028.00
OSSINING	$ 22,424.00
WESTBURY	$ 22,783.00
CHAPPAQUA	$ 22,952.00
TUCKAHOE	$ 23,141.00
AMITYVILLE	$ 23,572.00
IRVINGTON	$ 23,885.00
NORTH SHORE	$ 24,161.00
PORT JEFFERSON	$ 24,219.00
HARRISON	$ 24,534.00
KEENE	$ 24,831.00
MONTAUK	$ 25,957.00
LOCUSTVALLEY	$ 26,877.00
SOUTHAMPTON	$ 28,649.00
SAG HARBOR	$ 30,458.00
AMAGANSETT	$ 36,855.00
BRIDGEHAMPTON	$ 65,104.00

Appendix B

Table 1: Pearson-product moment correlation between measures of educational inputs and high school graduation rates at 125 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)		
Educational input factors	**High school graduation rate** Correlation	Significance
% State revenue	-.414	.000
% Local revenue	.453	.000
% Federal revenue	-.551	.000
Expenditure per pupil	.145	.053
Combined wealth ratio	.282	.001
Total enrollment	-.529	.000
Average class size (common branch)	.049	.295
Average class size (8th grade English)	.047	.300
Average class size (8th grade Math)	.043	.318
% Teachers not certified	-.407	.000
% Teachers teaching out of certification	-.393	.000
% Teachers with less than 3 years of experience	.045	.309
% Teachers with a masters or doctorate degree	.125	.083
% Core classes not taught by highly qualified teachers	-.419	.000
% Classes taught by teachers without certification	-.395	.000
% American Indian students	.000	.498
% Black or African-American students	-.651	.000
% Hispanic or Latino students	-.346	.000
% Asian or Pacific-Islander students	.139	.061
% White students	.549	.000
% Multiracial students	.068	.226
% Students with limited English proficiency	-.318	.000
% Students eligible for free or reduced-price lunch	-.701	.000

Table 2: Pearson-product moment correlation between measures of educational inputs and fifth grade mean English Language Arts scores at 132 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Educational input factors	Fifth grade mean ELA score Correlation	Significance
% State revenue	-.541	.000
% Local revenue	.580	.000
% Federal revenue	-.635	.000
Expenditure per pupil	.206	.009
Combined wealth ratio	.306	.000
Total enrollment	-.364	.000
Average class size (common branch)	.023	.398
Average class size (8th grade English)	.089	.154
Average class size (8th grade Math)	.126	.075
% Teachers not certified	-.226	.005
% Teachers teaching out of certification	-.237	.003
% Teachers with less than 3 years of experience	-.066	.228
% Teachers with a masters or doctorate degree	.227	.004
% Core classes not taught by highly qualified teachers	-.293	.000
% Classes taught by teachers without certification	-.324	.000
% American Indian students	-.127	.073
% Black or African-American students	-.454	.000
% Hispanic or Latino students	-.197	.012
% Asian or Pacific-Islander students	.205	.009
% White students	.352	.000
% Multiracial students	.083	.172
% Students with limited English proficiency	-.128	.071
% Students eligible for free or reduced-price lunch	-.764	.000

Table 3: Pearson-product moment correlation between measures of educational inputs and fifth grade mean math scores at 132 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Educational input factors	Fifth grade mean math score	
	Correlation	Significance
% State revenue	-.586	.000
% Local revenue	.621	.000
% Federal revenue	-.637	.000
Expenditure per pupil	.262	.001
Combined wealth ratio	.331	.000
Total enrollment	-.268	.001
Average class size (common branch)	.051	.281
Average class size (8th grade English)	.082	.175
Average class size (8th grade Math)	.123	.079
% Teachers not certified	-.211	.008
% Teachers teaching out of certification	-.217	.006
% Teachers with less than 3 years of experience	-.067	.223
% Teachers with a masters or doctorate degree	.391	.000
% Core classes not taught by highly qualified teachers	-.253	.002
% Classes taught by teachers without certification	-.305	.000
% American Indian students	-.048	.292
% Black or African-American students	-.318	.000
% Hispanic or Latino students	-.073	.202
% Asian or Pacific-Islander students	.267	.001
% White students	.191	.014
% Multiracial students	.022	.401
% Students with limited English proficiency	-.013	.440
% Students eligible for free or reduced-price lunch	-.735	.000

Table 4: Pearson-product moment correlation between measures of educational inputs and eighth grade mean English Language Arts scores at 132 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Educational input factors	Eighth grade mean ELA score	
	Correlation	Significance
% State revenue	-.597	.000
% Local revenue	.628	.000
% Federal revenue	-.616	.000
Expenditure per pupil	.047	.296
Combined wealth ratio	.140	.055
Total enrollment	-.267	.001
Average class size (common branch)	.255	.002
Average class size (8th grade English)	.161	.033
Average class size (8th grade Math)	.179	.020
% Teachers not certified	-.329	.000
% Teachers teaching out of certification	-.324	.000
% Teachers with less than 3 years of experience	-.002	.490
% Teachers with a masters or doctorate degree	.256	.002
% Core classes not taught by highly qualified teachers	-.359	.000
% Classes taught by teachers without certification	-.393	.000
% American Indian students	-.045	.303
% Black or African-American students	-.483	.000
% Hispanic or Latino students	-.184	.017
% Asian or Pacific-Islander students	.328	.000
% White students	.333	.000
% Multiracial students	.056	.261
% Students with limited English proficiency	-.124	.078
% Students eligible for free or reduced-price lunch	-.796	.000

Table 5: Pearson-product moment correlation between measures of educational inputs and eighth grade mean math scores at 132 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Educational input factors	Eighth grade mean math score Correlation	Significance
% State revenue	-.465	.000
% Local revenue	.505	.000
% Federal revenue	-.591	.000
Expenditure per pupil	.031	.361
Combined wealth ratio	.125	.076
Total enrollment	-.297	.000
Average class size (common branch)	.183	.018
Average class size (8th grade English)	.181	.019
Average class size (8th grade Math)	.179	.020
% Teachers not certified	-.363	.000
% Teachers teaching out of certification	-.334	.000
% Teachers with less than 3 years of experience	-.008	.464
% Teachers with a masters or doctorate degree	.237	.003
% Core classes not taught by highly qualified teachers	-.369	.000
% Classes taught by teachers without certification	-.391	.000
% American Indian students	.023	.396
% Black or African-American students	-.503	.000
% Hispanic or Latino students	-.273	.001
% Asian or Pacific-Islander students	.293	.000
% White students	.383	.000
% Multiracial students	.072	.205
% Students with limited English proficiency	-.194	.013
% Students eligible for free or reduced-price lunch	-.781	.000

Table 6: Pearson-product moment correlation between measures of educational inputs and the percentage of students scoring at or above a 65 on the Regents Comprehensive English exam at 126 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Educational input factors	Percentage of students scoring ≥ 65 on the Regents Comprehensive English exam	
	Correlation	Significance
% State revenue	-.410	.000
% Local revenue	.447	.000
% Federal revenue	-.531	.000
Expenditure per pupil	.088	.165
Combined wealth ratio	.226	.006
Total enrollment	-.387	.000
Average class size (common branch)	.030	.370
Average class size (8th grade English)	.037	.339
Average class size (8th grade Math)	.048	.295
% Teachers not certified	-.368	.000
% Teachers teaching out of certification	-.352	.000
% Teachers with less than 3 years of experience	-.019	.416
% Teachers with a masters or doctorate degree	.191	.016
% Core classes not taught by highly qualified teachers	-.367	.000
% Classes taught by teachers without certification	-.405	.000
% American Indian students	-.030	.368
% Black or African-American students	-.535	.000
% Hispanic or Latino students	-.289	.001
% Asian or Pacific-Islander students	.147	.050
% White students	.452	.000
% Multiracial students	.046	.305
% Students with limited English proficiency	-.260	.002
% Students eligible for free or reduced-price lunch	-.685	.000

Table 7: Pearson-product moment correlation between measures of educational inputs and the percentage of students scoring at or above a 65 on the Regents Math A exam at 128 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Educational input factors	Percentage of students scoring ≥ 65 on the Regents Math A exam	
	Correlation	Significance
% State revenue	-.173	.025
% Local revenue	.224	.006
% Federal revenue	-.485	.000
Expenditure per pupil	-.139	.059
Combined wealth ratio	-.062	.244
Total enrollment	-.528	.000
Average class size (common branch)	.011	.451
Average class size (8th grade English)	.037	.338
Average class size (8th grade Math)	-.006	.472
% Teachers not certified	-.223	.006
% Teachers teaching out of certification	-.156	.039
% Teachers with less than 3 years of experience	-.018	.420
% Teachers with a masters or doctorate degree	-.104	.121
% Core classes not taught by highly qualified teachers	-.241	.003
% Classes taught by teachers without certification	-.225	.005
% American Indian students	.050	.287
% Black or African-American students	-.674	.000
% Hispanic or Latino students	-.529	.000
% Asian or Pacific-Islander students	.039	.333
% White students	.653	.000
% Multiracial students	.058	.256
% Students with limited English proficiency	-.543	.000
% Students eligible for free or reduced-price lunch	-.631	.000

Table 8: Pearson-product moment correlation between measures of educational inputs and the percentage of high school graduates reportedly going to a four-year college at 122 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)

Educational input factors	Percentage of high school graduates reportedly going to a four-year college	
	Correlation	Significance
% State revenue	-.717	.000
% Local revenue	.729	.000
% Federal revenue	-.539	.000
Expenditure per pupil	.181	.023
Combined wealth ratio	.221	.007
Total enrollment	.015	.436
Average class size (common branch)	.317	.000
Average class size (8th grade English)	.228	.006
Average class size (8th grade Math)	.285	.001
% Teachers not certified	-.208	.011
% Teachers teaching out of certification	-.238	.004
% Teachers with less than 3 years of experience	-.150	.050
% Teachers with a masters or doctorate degree	.438	.000
% Core classes not taught by highly qualified teachers	-.187	.019
% Classes taught by teachers without certification	-.268	.001
% American Indian students	-.083	.183
% Black or African-American students	-.165	.035
% Hispanic or Latino students	-.023	.403
% Asian or Pacific-Islander students	.430	.000
% White students	.036	.348
% Multiracial students	.084	.179
% Students with limited English proficiency	-.011	.454
% Students eligible for free or reduced-price lunch	-.723	.000

Table 9: Pearson-product moment correlation between measures of socioeconomic educational inputs on high school graduate rates at 132 New York State public school districts (randomly selected, including the state's ten most populous districts other than New York City) (FY 2006–2007)		
Socioeconomic educational input factors	**High school graduation rate** Correlation	Significance
% State revenue	-.411	.000
% Local revenue	.447	.000
% Federal revenue	-.526	.000
Combined wealth ratio	.286	.000
Total enrollment	-.524	.000
% American Indian students	-.049	.287
% Black or African-American students	-.645	.000
% Hispanic or Latino students	-.340	.000
% Asian or Pacific-Islander students	.140	.055
% White students	.545	.000
% Multiracial students	.071	.208
% Students with limited English proficiency	-.313	.000
% Students eligible for free or reduced-price lunch	-.691	.000
Model Summary R Square: .646 Adjusted R Square: .610		

Table 10: Pearson-product moment correlation between measures of educational inputs and high school graduation rates at the eighteen New York State public school districts with the highest African-American population (among this study's selected districts, with a concentration of ≥ 24% African-American) (FY 2006–2007)

Educational input factors	High school graduation rate	
	Correlation	Significance
Expenditure per pupil	.514	.015
Combined wealth ratio	.575	.006
Total enrollment	-.593	.005
Average class size (common branch)	-.206	.206
Average class size (8th grade English)	-.103	.342
Average class size (8th grade Math)	-.018	.471
% Teachers not certified	-.689	.001
% Teachers teaching out of certification	-.779	.000
% Teachers with less than 3 years of experience	-.180	.238
% Teachers with a masters or doctorate degree	.639	.002
% Core classes not taught by highly qualified teachers	-.696	.001
% Classes taught by teachers without certification	-.752	.000
% Students eligible for free or reduced-price lunch	-.373	.064

Model Summary
R Square: .986
Adjusted R Square: .940

Table 11: Pearson-product moment correlation between measures of educational inputs and high school graduation rates at the twenty New York State public school districts with the highest percentage of students eligible for free or reduced-price lunch (among this study's selected districts, with a concentration of ≥ 52% free or reduced-price lunch) (FY 2006–2007)

Educational input factors	High school graduation rate	
	Correlation	Significance
Expenditure per pupil	.348	.066
Combined wealth ratio	.210	.187
Total enrollment	-.757	.000
Average class size (common branch)	-.509	.011
Average class size (8th grade English)	-.194	.206
Average class size (8th grade Math)	-.464	.020
% Teachers not certified	-.615	.002
% Teachers teaching out of certification	-.460	.021
% Teachers with less than 3 years of experience	.010	.484
% Teachers with a masters or doctorate degree	.165	.243
% Core classes not taught by highly qualified teachers	-.681	.000
% Classes taught by teachers without certification	-.494	.013
% Black or African-American students	-.672	.001

Model Summary
R Square: .874
 Adjusted R Square: .600