

# EFFECTIVENESS OF PRIVATE AND PUBLIC SCHOOLING: ANALYZING THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

KEITH ZIMMERMAN

This paper was written by Keith Zimmerman in the spring of 2017, while he was still a student at Patrick Henry College. The paper has not been substantively revised since May 1, 2017. The final product published in this journal does not include any information that the author gained access to during employment following the composition of the paper.

## **Abstract**

*This study performs secondary qualitative analysis on several studies that measured effectiveness of private schools in comparison to public schools by using the 2000 and 2003 National Assessment of Educational Progress (NAEP). The two studies analyzed most in-depth are the well-known Lubienski study and the National Center for Education Statistics study. The studies use mean NAEP reading and mathematics scores to measure this effectiveness. In addition to this, some of the tests weight and adjust their results to reflect student socioeconomic status (SES). These assumptions and factors affect whether the study shows public or private schools in a positive light. This study finds that, while many studies of the National Assessment of Educational Progress (including the Lubienski study and the National Center for Education Statistics study) claim that public schools are just as effective or more effective than private schools, their assumptions and methods are likely flawed. Additionally, this study finds that because the NEAP is cross-sectional, studies based off it may not be representative.*

---

## Introduction

The state of Ohio spent over \$400 million to help fund private schools during the 2016/2017 school year. Many were horrified by how much public money went to fund private institutions, with State Representative Teresa Fedor articulating: “If we were to put that same amount of money into those [urban] public schools, we would have the resources to do even better” (Sparling & Balmert, 2017, para. 9). She later lamented that private schools in Ohio receive public funding but do not have to submit to public records laws.

Others in Ohio found the \$414 million funding private schools to be a reasonable number since it was a small portion of the \$7.6 billion fund for public education in the state (Sparling & Balmert, 2017). Cy Smith, the superintendent of Mansfield Christian School explained, “Our parents see these programs as a way to recover some of those taxes they’re already paying” (McNaull, 2017, para. 6). Jon Blazak, business manager of St. Peter’s School, added that “from a statewide standpoint it makes a lot of sense” because it costs the state less for a student to attend a private school than a public school (McNaull, 2017, para. 8).

At the core of the disagreement was the question: are private schools better than public schools for America? In fact, one of the major reasons that Democrats did not like President Trump’s choice for Secretary of Education, Betsy DeVos, was that neither she nor any of her children had attended any public schools (Hurst, 2017). DeVos, however, comes from a different background than her Democrat opponents. She sees her position as Secretary of Education as an opportunity to sell the idea of school choice to America (Hefling & Wermund, 2017). The first step would thus be to prove that private schools are more effective at educating students than public schools. To do so, many studies examine national testing, such as the National Assessment of Educational Progress, using the scores to make general statements about the outcomes of private and public schooling. This study found that, while many studies of the National Assessment of Educational Progress (including the Lubienski study and the National Center for Education Statistics study) claim that public schools are at least equally as effective as private schools, their assumptions and methods are likely flawed. When studying the National Assessment of Educational Progress with alternative models, private schools appear to perform better than public schools. However, because the National Assessment of Educational Progress is cross-sectional, any study based off it may not be representative; therefore, a longitudinal study should be performed to provide more accurate results.

## Literature Review

There is a plethora of academic literature concerning comparative statistics between public and private schools. The first serious study of a “private school effect” was conducted by James Coleman, Thomas Hoffer, and Sally Kilgore in 1982 (p. 72). They concluded that even when controlling for socioeconomic status, students at private schools performed better than their public school counterparts. Almost immediately after being published, Coleman’s study was widely criticized on methodological grounds. An article in the *Sociology of Education* published in 1983 summarized these criticisms well by saying, “The concerns that most trouble us about Coleman, Hoffer and Kilgore’s analysis are their reliance upon cross-sectional data and their inability to deal satisfactorily with the issue of selection biases” (Alexander & Pallas, p. 170). James Coleman and Thomas Hoffer responded to the criticisms by reanalyzing the national data they used in their 1982 study, this time conducting a longitudinal study instead of a cross-sectional study. While following students from 10th to 12th grades, they found that private school students experienced growth more rapidly than their public school counterparts (Coleman & Hoffer, 1987). There were many other studies concerning this comparison in the decade after Coleman’s first study, culminating in a high profile study that concluded that Catholic schools produced better educational results because of better academic and social environments (Bryk, Lee, & Holland, 1993).

During the 1990’s, research generally turned from comparing private and public schools directly to focusing on the effectiveness of school vouchers. While many of the studies conducted found gains in academic achievement for voucher students, the results are far from conclusive. In 1998, Cecilia Rouse evaluated the Milwaukee Parental Choice program to determine whether vouchers led to improved test scores. While she did conclude that those enrolled in the Milwaukee Parental Choice Program scored an average of 1.5-2.3 more percentile points per year in math than those in public schools (the results for reading scores were mixed), Rouse eventually declared that “the results using the quasi-experimental applicant control group and the random sample of students from the Milwaukee public schools as a comparison group are remarkably similar” (Rouse, 1998, p. 592). Rouse’s entire study was based on data collected by University of Wisconsin-Madison professor John Witte in his study two years earlier (1996). Witte found similarly mixed results. Another study initially seemed to find vouchers having a positive effect on minority students (Peterson & Howell, 2001), but a follow-up study found mixed results and no real effect (Howell & Peterson, 2002).

A Florida study took a much different approach, claiming that voucher systems actually had a positive effect on public schools in the area. The study found that the prospect of vouchers being instituted for schools with poor test scores raised

math and writing test scores by statistically significant amounts (Greene, 2001). The researchers concluded that it was likely a result of the prospect of competition creating positive marketplace-like effects on public schools. An accountability system of vouchers for failing schools caused Florida public schools to take the necessary steps to keep their students (Greene, 2001).

Early studies comparing public and private schools and analyzing voucher programs tend to support the excellence of private schools. However, the data is far from conclusive, and many of the studies have a number of methodological issues that undercut the legitimacy of their findings.

## **Data and Methods**

This study performs secondary qualitative analysis on studies analyzing the effectiveness of private high schools at educating students in comparison to the effectiveness of public schools. It also relies on quantitative analysis conducted by other researchers. The analyzed studies were selected because they were all high profile national studies that used data from the 2000 and 2003 National Assessment of Educational Progress (NAEP). NAEP is a “cross-sectional survey that assesses what America’s students know and can do in various subject areas” (National Assessment of Educational Progress, 2017, para. 1).

This study operationalizes the abstract concept of “effectiveness” as mean NAEP reading and mathematics scores, as compared between public and private schools. Different studies analyzed effectiveness in relation to the students’ socioeconomic status. Each study defined socioeconomic status differently, which contributed to much of the differences in findings. The term “public school” is defined in this study as “a free tax-supported school controlled by a local governmental authority” (Merriam-Webster, n.d.). The term “private school” is defined as “a school that is established, conducted, and primarily supported by a non-governmental agency” (Merriam-Webster, n.d.).

## **Research**

### *The National Assessment of Educational Progress*

The National Assessment of Educational Progress (NAEP), also known as “The Nation’s Report Card,” is “the largest nationally representative and continuing assessment of what America’s students know and can do in various subject areas” (“An overview,” 2018, p. 1). It is run by the Commissioner of Education Statistics, who serves as the head of the National Center for Education Statistics. The National Assessment Governing Board, which is appointed by (but independent

of) the Secretary of Education, sets the specifications for the assessments (“NAEP Overview,” 2016).

The assessment applicable to this study is the NAEP Long-Term Trend Assessment. The long-term trend assessment measures are nationally administered tests for 9, 13, and 17 year olds (4th, 8th, and 12th grade) that have used substantially the same assessments since 1973 (“More About the NAEP,” 2013). The assessments measure mathematics through a variety of age-appropriate questions designed to measure students’ knowledge of mathematical facts and basic formulas, their ability to carry out computations using paper and pencil, and their ability to apply mathematics to daily-living skills (“More About the NAEP,” 2013). The assessments also measure reading through a variety of age-appropriate questions designed to measure students’ ability to “locate specific information in the text provided,” “identify the main idea in the text,” and “make inferences across a passage to provide an explanation” (“More About the NAEP,” 2013, para. 12). The questions are multiple-choice, and just over 26,000 students took the assessments in 2012. Finally, the sample is selected “using a complex multistage sampling design that involved sampling students from selected schools within selected geographic areas across the country” (“More About the NAEP,” 2013, para. 22). The long-term trend data is restricted and only available for licensed researchers, so this paper will focus on analyzing studies conducted using restricted-use data from 2000 and 2003 by licensed researchers.

### *The Studies*

The first major study released using data from the NAEP to compare public and private schools, “A New Look at Public and Private Schools: Student Background and Mathematics Achievement,” was conducted by Sarah Theule Lubienski and Christopher Lubienski and published in May 2005. The study used survey data from the 2000 NAEP assessment from a restricted-use CD-ROM because it was the most recent assessment with raw data available to researchers. The study focused solely on mathematical achievement in fourth graders and eighth graders. The Lubienskis explained that they stumbled upon the idea for this study while undertaking a broader study of mathematics instruction and equity. As a result, the socioeconomic status (SES) variable used in this study was actually created for a broader study, reducing the chance of bias when it came to creating the SES variable. Under their statistical models, mathematics achievement in public schools appeared higher than in private schools (Lubienski & Lubienski, 2005).

For fourth grade students, they formed one student-level SES variable by combining six SES-related variables: “reading material in students’ homes, computer access at home, internet access at home, extent to which a student’s

studies are discussed at home, school lunch eligibility, [and] Title I eligibility" (all self reported, save the school lunch and Title I eligibility, which were from school records) (Lubienski & Lubienski, 2005, p. 697).

For eighth grade students, variables of "mother's education level" and "father's education level" were added to create the one student-level SES variable. According to the Lubienskis, this SES variable was much stronger than the previously used school lunch variable (which only had three levels: free, reduced, and ineligible). Instead, four quartile groups were created: "low SES," "low-mid SES," "mid-high SES," and "high SES" (Lubienski & Lubienski, 2005, p. 698).

Their examination of overall, unweighted mathematics achievement was not surprising at all, since it is fairly common knowledge in the United States that private school students score better than public school students on standardized tests. The mean mathematics achievement of private schools was significantly superior to the achievement of public schools. On average in fourth grade, private schoolers scored a 233, while public schoolers only scored 227 (see Figure 1). In eighth grade, the difference increased slightly, with private schoolers scoring an average of 281, compared to the public school average of 274 (see Figure 2) (Lubienski & Lubienski, 2005).

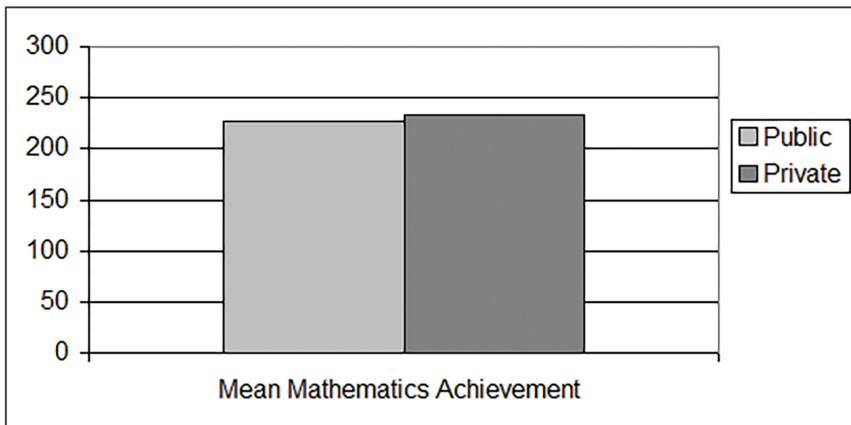


Figure 1. Fourth-grade mean mathematics achievement by school sector (Lubienski & Lubienski, 2005, p. 698).

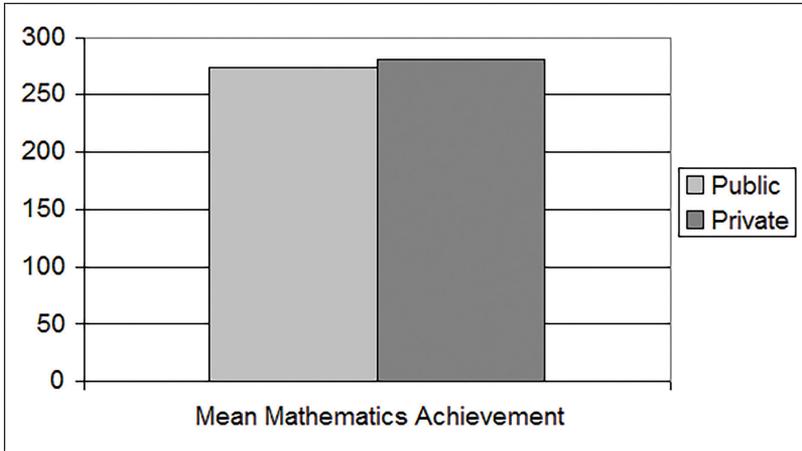


Figure 2. Eighth-grade mean mathematics achievement by school sector (Lubienski & Lubienski, 2005, p. 698).

Instead of stopping at this conclusion, the Lubienskis decided to take a route that would make their study more influential than they could have ever imagined:

However, we also found, not surprisingly, that private schools enrolled larger concentrations of high-SES students. For example, at each grade level, while less than 40% of the public schools were of high SES (meaning that their SES was above the median for all schools sampled), over 80% of private schools were of high SES. So we wondered whether the public-private school achievement difference was due simply to SES differences, or if the private school advantage would persist within each SES group. In order to examine this, we compared the mean mathematics achievement of public and private schools within each of the four SES quartiles (Lubienski & Lubienski, 2005, p. 698)

Figures 3 and 4 show the results of the new results (see next page):

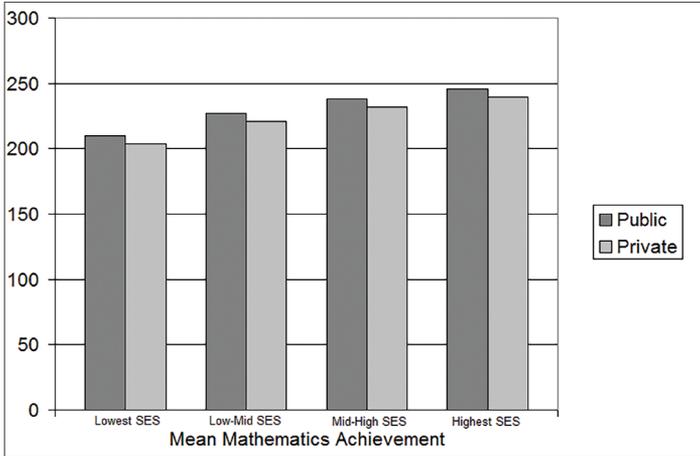


Figure 3. Fourth-grade mean mathematics achievement within each SES quartile by school sector (Lubienski & Lubienski, 2005, p. 699).

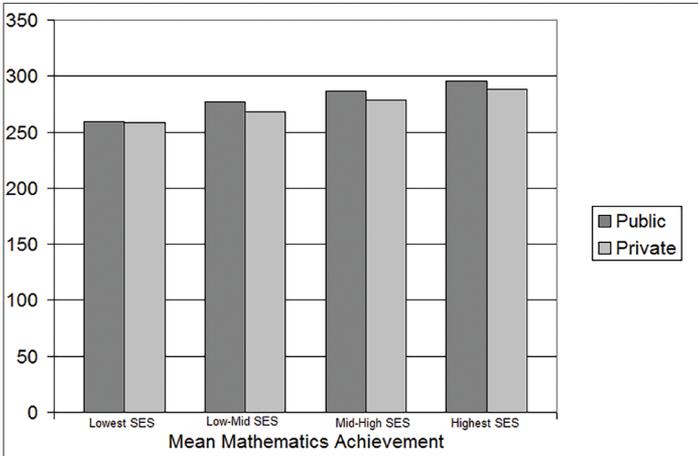


Figure 4. Eighth-grade mean mathematics achievement within each SES quartile by school sector (Lubienski & Lubienski, 2005, p. 699).

Interestingly, the Lubienskis (2005) found that the public school mean was actually higher than the private school mean in each SES quartile. This is called Simpson's Paradox: although each subgroup shows the public school mean as higher than the private school mean, the overall private school mean is higher than the public school mean because they have a larger proportion of high-SES students than the public schools have.

While the Lubienskis (2005) noted that the data is cross-sectional and mostly self-reported, meaning that the correlations between the type of school and the achievement earned are not necessarily causal, it sparked a number of other studies and critical responses.

The second major study to come out using data from NAEP to compare public and private schools, "Comparing Private Schools and Public Schools Using Hierarchical Linear Modeling," was conducted by Henry Braun, Frank Jenkins, and Wendy Grigg and published in July 2006 by the National Center for Education Statistics (NCES). The study used survey data from the 2003 NAEP assessment from a restricted-use CD-ROM because it was the most recent assessment with raw data available to researchers, and it focused on both reading and mathematical achievement (Braun, Jenkins, & Grigg, 2006).

Like the Lubienski study, the NCES study examined results from Grade 4 and Grade 8. It also adjusted the private and public school test scores based on socioeconomic status (SES). However, it used different variables to measure SES. While the Lubienski study used six student-level variables to determine SES, the NCES study split the standard NAEP weight into a student factor and a school factor. The variables used are listed in Table 1 (see next page).

Braun, Jenkins, and Grigg (2006) found similar results to the Lubienskis (2005). The unadjusted mean reading achievement of private schools was significantly superior to the achievement of public schools. On average in fourth grade, private schoolers scored 14.7 points higher than public schoolers. In eighth grade, the difference increased slightly, with private schoolers scoring an average of 18.1 points higher than public schoolers. When adjusted for SES, the difference in means was near zero and not significant for Grade 4. However, in Grade 8, the difference in means was 7.3 points after adjusting for SES, meaning that private schools still performed better than public schools (Braun, Jenkins, & Grigg, 2006, pp. iii-iv).

The unadjusted mean mathematic achievement of private schools was also significantly superior to the achievement of public schools. On average in fourth grade, private schoolers scored 7.8 points higher than public schoolers. In eighth grade, the difference increased slightly, with private schoolers scoring an average of 12.3 points higher than public schoolers. When adjusted for SES, the difference in means was -4.5 for Grade 4, meaning that public schools actually performed

<b>Student-level Variables</b>	<b>School-level variables</b>
Gender	Teacher experience
Race/ethnicity	Teacher certification
Students with disabilities	Student absenteeism
English language learners	Percentage of students excluded
Computer in the home	Percentage of students by race/ ethnicity
Eligibility for free/reduced-price school lunch	Student mobility
Participation in Title I	School location
Number of books in the home	Region of the country
Number of absences	Percentage of students eligible for free/reduced-price lunch
	Percentage of students with a disability
	Percentage of English language learners
	Percentage of students in the Title I program
	School size

*Table 1.* NCES student and school variables (Braun, Jenkins, & Grigg, 2006, p. 7).

better than private schools. In Grade 8, the difference in means was nearly zero and not significant (Braun, Jenkins, & Grigg, 2006, pp. iii-iv).

Braun, Jenkins, and Grigg (2006) concluded that private schools generally tested higher than public schools, but when the scores were adjusted for SES, the public schools performed just as well as private schools. In three out of the four areas studied, public schools performed just as well or better than private schools. In addition, “the combination of selected student and school characteristics accounted for about one-third of the total variance for grade 4 and about two-fifths of the total variance for grade 8” (Braun, Jenkins, & Grigg, 2006, p. iv).

Other recent but less high profile studies using NAEP data have come to similar conclusions (Lubienski & Lubienski, 2014; Wenglinsky, 2007). However, this group of studies has attracted a wide amount of criticism.

*Criticisms of Studies Based on NAEP Data*

In 2014, the Cato Institute summarized four criticisms of these studies, specifically focusing on Sarah and Christopher Lubienski's most recent book, "The Public School Advantage: Why Public Schools Outperform Private Schools," which built on data from their first study. First, Patrick Wolf, a professor in the department of education reform at the University of Arkansas, pointed out:

[T]he Lubienskis ignore numerous performance measures—including graduation rates, college matriculation, future income, parental satisfaction—that give a decided advantage to private schools, even after controlling for student characteristics. They narrowly define performance as math scores on two national tests, ignoring the reading data that also show higher private-school performance. (Bedrick, 2014, para. 4)

Even for the NCES study, which includes reading data as well, performance measures outside the test scores are not examined, despite the researchers bringing in other factors to measure SES.

Second, Wolf revealed that prior to the NAEP data collection, the math tests were altered to more closely align with the way math is taught in public schools as opposed to private schools. The Lubienskis admit that "the professional development of math teachers changed in the late 1980s to emphasize math reasoning and problem solving and de-emphasize math facts and computations" (Bedrick, 2014, para. 3). In general, public schools embraced the new curriculum, while private schools emphasized more traditional math content. As such, the NAEP tests studied how well private and public schools learned the new brand of math, rather than truly measuring math skills.

Third, Jay P. Greene, head of the Department of Education Reform at the University of Arkansas, noted that the Lubienskis and NCES ignored evidence from randomized controlled trials:

The net effect of these three methodological choices, plus the fact that standardized math results are more closely aligned with how the subject is taught in public than private schools, strongly skew the results in favor of public schools. The beauty of randomized experiments is that their results are not so easily manipulated by bizarre choices of what is controlled. But the Lubienskis don't like randomized experiments. Advocates for quack medicine also tend not to like randomized experiments. They don't let you selectively

control for things until you get the answer you want. (Bedrick, 2014, para. 5)

Fourth, none of the studies bring up the question of monetary efficiency (academic achievement per dollar spent per pupil). For example, while the test scores of students in the Milwaukee voucher program mentioned in the literature review were not statistically superior to the control group of public school students, the private schools achieved these results at approximately half the cost per pupil of the public school (Rouse, 1998, pp. 592-593). An article in the *Journal of School Choice* found that “[t]here are only 13 statistically insignificant findings among market [private school] versus monopoly [public school] comparisons, and every finding comparing the efficiency of market and monopoly schooling is both statistically significant and favors markets” (Coulson, 2009, p. 48).

Mark Dynarski, a Senior Fellow at the Brookings Institution, also commented on the fact that costs were not mentioned in the studies in his article, “Public or Private School? It Shouldn’t Matter” (2014). He added that the findings are disconnected from the choices that parents actually have to make. Dynarski (2014) explained that “[p]arents see real schools, not hypothetical ones,” so they would prefer to send their children to schools with better test scores and graduation rates even if those statistics are largely a result of the SES of the students at these schools (para. 7).

Dr. Paul E. Peterson and Dr. Elena Llaudet, professors of government at Harvard University and Suffolk University, respectively, published a paper “On the Public-Private School Achievement Debate” that pointed out a number of issues with the NCES study (that also apply to the Lubienski study). First, they argued that

[i]nstead of making use of information provided by the students themselves, the report relies heavily upon administrative data collected for other purposes. As a result, the study, in its statistical analysis, “under-counts” the incidence of low income and educationally disadvantaged students within the private sector while “over-counting” the frequency of the same in the public sector. (Peterson & Llaudet, 2006, pp. 2-3)

Second, they claimed that while taking an NAEP test, some students are allowed special accommodations like extended time, one-on-one administration, and use of magnifying equipment. According to Peterson and Llaudet (2006), such accommodations were used much more frequently in the public schools being tested than in the private schools being tested.

Third, Peterson and Llaudet said that classification decisions were not made consistently for both sides of the comparison. Many of the background characteristics of students were inferred from their participation in the Title I program for disadvantaged students, the National School Lunch Program, programs for Limited English Proficient students, and the Individualized Education Program. However, many private schools do not use these federal government funded programs, and public and private school officials have differing incentives to classify students in these programs (Peterson & Llaudet, 2006).

Finally, the NCES study suffers from post-treatment bias, which is when “one controls for a factor that is itself a consequence of the intervention one is studying” (Peterson & Llaudet, 2006, p. 14). Peterson and Llaudet (2006) focused on three variables in the NCES study which may be affected by the type of school the student attended (and thus are affected by post-treatment bias): the students’ absenteeism rate, number of books in a student’s home, and availability of a computer in the home.

### *Alternative Models*

In response to this laundry list of issues with the NCES and Lubienski studies, Peterson and Llaudet created a number of alternative models that relaxed the questionable assumptions made in the aforementioned studies. The models they created are as follows:

Alternative Model I uses as its measure of family background the parental education and school location (region and urban/suburban/rural) variables in lieu of NCES’s Title I and Free Lunch variables. Model II also excludes the LEP and IEP variables, replacing them with variables based on student reports of the frequency with which a language other than English is spoken at home and teacher reports of whether the child suffers from a profound or moderate disability. Model III resembles Model II, except that it eliminates the potential for post-treatment bias by deleting the absenteeism, computer, and books in the home variables. Some may think that Model III suffers from omitted variable bias, as it does not include sufficient indicators of the student’s family background. Those for whom this is a concern should place greater weight on Model II, which contains these variables, despite the risk of post-treatment bias. (Peterson & Llaudet, 2006, p. 22)

After replicating the NCES study, Peterson and Llaudet applied the alternative models to the data. For Eighth Grade Math, Model I (introducing Parental

Education as a substitute for Title I and Free Lunch variables) showed students at private schools outperforming their public school peers by 3 points. Model II (replacing the LEP and IEP variables with Language Spoken at Home variable and Severe or Moderate Disability indicator) showed private schools outperforming public schools by 5 points. For Model III (removing post-treatment bias), the private sector advantage was 6.5 points. All three of these models represent a stark contrast to the parity between public and private schools that the NCES study found (Peterson & Llaudet, 2006).

For Fourth Grade Math, Model I showed students at private schools performing at approximately the same level as their public school peers. Model II showed private schools outperforming public schools by 2 points. For Model III, the private sector advantage is 3 points. All three of these models contradict the 4.5 point advantage for public schools that NCES reported (Peterson & Llaudet, 2006, p. 44).

For Eighth Grade Reading, Model I showed students at private schools outperforming their public school peers by 9 points. Model II showed private schools outperforming public schools by 11 points. For Model III, the private sector advantage is 12.5 points. All three of these models have significantly higher results than even the 7 point private sector advantage that the NCES study revealed (Peterson & Llaudet, 2006).

For Fourth Grade Reading, Model I showed students at private schools outperforming their public school peers by 7 points. Model II showed private schools outperforming public schools by 8 points. For Model III the private sector advantage is 10 points. All three of these models call into question the parity between public and private schools that the NCES study found (Peterson & Llaudet, 2006).

In the end, Peterson and Llaudet concluded that while their data seemed to indicate that private schools are superior to public schools, the NAEP data is too fragile to serve as the foundation for any inferences about school sector effects. However, it can be concluded that the conclusions by the Lubienski and NCES that public schools perform statistically better than private schools are ultimately unfounded (Peterson & Llaudet, 2006).

## **Conclusion**

Studies that use national data, such as the National Assessment of Educational Progress, are attractive because they feel comprehensive and final; however, in actuality, they are riddled with flaws. It is difficult to draw any meaningful conclusions from the Lubienski study, the National Center for Education Statistics study, or the alternative models presented by Peterson and Llaudet because of two

major flaws: the NAEP is a cross-sectional study, and the variables chosen to adjust for socioeconomic status will always be influenced by researcher bias.

Two routes could be taken to remove these problems. To remove the first flaw, a longitudinal study should be performed to provide more accurate results. For the second flaw, instead of adjusting data on a national level for socioeconomic status, a study should be done comparing data between schools of comparative socioeconomic status. Comparing the test scores of poor private schools with the test scores of poor public schools, and doing the same with rich private and public schools, will provide a much better comparison than adjusting the scores of poor students and giving rich students a handicap for their socioeconomic status.

## Reference List

- Alexander, K. L., & Pallas, A. M. (1983). Private schools and public policy: New evidence on cognitive achievement in public and private schools. *Sociology of Education*, 56(4), 170-182.
- Alt, M. N., & Peter, K. (2002). Private schools: A brief portrait. *National Center for Education Statistics*. Retrieved from <https://nces.ed.gov/pubs2002/2002013.pdf>
- An overview of NAEP. (2018). Retrieved from [https://nces.ed.gov/nationsreportcard/subject/about/pdf/NAEP\\_Overview\\_Brochure\\_2018.pdf](https://nces.ed.gov/nationsreportcard/subject/about/pdf/NAEP_Overview_Brochure_2018.pdf)
- Bedrick, J. (2014, March 28). Yes, private schools beat public schools. *The Cato Institute*. Retrieved from <https://www.cato.org/publications/commentary/yes-private-schools-beat-public-schools>
- Braun, H., Jenkins, F., & Grigg, W. (2006). Comparing private schools and public schools using hierarchical linear modeling. *National Assessment of Educational Progress*. Retrieved from <https://nces.ed.gov/nationsreportcard/pdf/studies/2006461.pdf>
- Bryk, A. S., Lee, V. E., & Holland, P. (1993). *Catholic schools and the common good*. Cambridge, MA: Harvard University Press.
- Coleman, J. S., & Hoffer, T. (1987). *Public and private high schools: The impact of communities*. New York, NY: Basic Books.
- Coleman, J. S., Hoffer, T., & Kilgore, S. (1982). *High school achievement*. New York, NY: Basic Books.
- Coulson, A. J. (2009). Comparing public, private, and market schools: The international evidence. *Journal of School Choice*, 3(1), 31-54. doi:10.1080/15582150902805016
- Dynarski, M. (2014, June 12). Public or private school? It shouldn't matter. *The Brookings Institution*. Retrieved from <https://www.brookings.edu/research/public-or-private-school-it-shouldnt-matter/>

- Peterson, P. E., & Llaudet, E. (2006). *On the public-private school achievement debate* (Working Paper No. RWP06-036). Program on Education Policy and Governance. Retrieved from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=902389](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=902389)
- Peterson, P., & Howell, W. (2001). Exploring explanations for ethnic differences in voucher impacts on student test scores. In T. Loveless & J. E. Chubb (eds.), *Ending the test-score gap*. Washington, DC: Brookings Institution.
- Private school. (n.d.). In *Merriam-Webster*. Retrieved from <https://www.merriam-webster.com/dictionary/private+school>
- Public school. (n.d.). In *Merriam-Webster*. Retrieved from <https://www.merriam-webster.com/dictionary/public%20school>
- Rouse, C. E. (1998). Private school vouchers and student achievement: An evaluation of the Milwaukee Parental Choice Program. *Quarterly Journal of Economics*, 113(2), 553-602.
- Sparling, H., & Balmert, J. (2017, March 9). Private schools \$400M public check. *The Enquirer*. Retrieved from <https://www.cincinnati.com/story/news/politics/2017/03/08/private-schools-400m-public-check/97659884/>
- Wenglinsky, H. (2007). Are private high schools better academically than public high schools? *Center on Education Policy*. Retrieved from <https://www.cep-dc.org/displayDocument.cfm?DocumentID=121>
- Witte, J. F. (1996). Who benefits from the Milwaukee choice program? In B. Fuller, R. Elmore & G. Orfield (eds.), *Who chooses? Who loses? Culture, institutions and the unequal effects of school choice*. New York, NY: Teachers College Press.