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Review of *The Effect of Co-locations on Student Achievement in NYC Public Schools*

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Summary of Review

The Effect of Co-locations on Student Achievement in NYC Public Schools argues that co-locations of charter schools with traditional public schools have no statistical impact on traditional public school student achievement in New York City. However, the report omits important details about its analyses, which leaves readers unable to judge the validity of its methods and ultimate claims. Also, the report does not build on existing research or background knowledge on co-locations or related topics, and it expressly neglects to consider important outcomes related to students' socio-emotional development, safety, health, and broader academic experiences, thus perpetuating an overly narrow focus on standardized test scores as the ultimate outcome of schooling. The report ultimately serves more as a marketing tool for the continued growth of charter schools in New York City than as a carefully presented research study. As a result, it does little to help policymakers and practitioners evaluate the effects of co-location on students' educational experiences and outcomes, both of which are inextricably linked with their opportunities for and access to high-quality conditions for teaching and learning.

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Review of *The effect of Co-locations on Student Achievement in NYC public schools*

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I. Introduction

The Manhattan Institute's recent report, *The Effect of Co-locations on Student Achievement in NYC Public Schools*,[1] authored by senior fellow Marcus Winters, primarily focuses on attempting to determine whether co-locations of charter schools with traditional public schools has any discernible impact on traditional public school student achievement in New York City. Co-locations—where two or more schools share a single building's space—are common in many cities. In NYC, co-locations between charters and traditional public schools are particularly contentious. This report is timely in that new charter co-locations for the 2014-2015 school year have featured prominently in the popular media as the subject of a lawsuit by the teachers union and the subject of a public battle between Bill de Blasio, the City's new mayor, and Eva Moskowitz, the former city councilwoman who runs the Success Academy charter network.[2] The report examines the effect of co-locations on public school academic outcomes, as measured by standardized exams in English Language Arts (ELA) and math. The central claim is that co-locations have no significant impact on student achievement in traditional public schools.

Unfortunately, the report suffers from three major limitations. First, it does not adequately build on existing research or background knowledge on co-locations or related topics. Second, the analysis is poorly documented, lacking sufficient methodological detail and transparency to demonstrate that it measures what it purports to measure. Third, it perpetuates an overly narrow focus on standardized test scores as the ultimate outcome of schooling, to the detriment of other important outcomes related to students' socio-emotional development, safety, health, and broader academic experiences.

II. Findings and Conclusions of the Report

The report looks at various types and measures of co-location, including the introduction and removal of co-locations, co-locations between traditional public schools with each other and with charters, as well as the number of schools in a building and the percent of

students in the building attending the traditional public school. The outcome of interest was academic growth in traditional public schools before and after a change in co-location as measured by student test scores in two subject areas. The report's main finding is simple:

> Models utilizing each definition of colocation find no statistically significant relationship between colocation and student academic achievement in a traditional public school. There is no significant impact of colocations with any school, no particular impact of colocations with charter schools, and no impact of increasing the number of schools operating in the facility (p. 5, internal footnote omitted).

In other words, co-location was not found to have a significant impact on students' test scores. The report looks only at ELA and math standardized assessment gains among fourth- through eighth-graders and minimizes the consideration of all other "nuisances" (p. 6) that might be affected by co-location:

> Policymakers who are considering ending the practice of colocations, then, must weigh the costs of nuisances for the receiving public school against the potential benefits provided by the charter school entering the building. Such a calculation does not appear to require consideration of any losses to actual student academic achievement in the receiving school as a result of any changes imposed by the colocation (p. 6).

III. The Report's Rationale for Its Findings and Conclusions

The report's rationale for its findings and conclusions is quite narrow. It utilizes both descriptive evidence and regression analysis to reach its conclusion that co-location has no significant impact on student test scores in ELA or math for fourth- through eighth-graders in NYC from the 2006-07 through the 2010-11 school years. The descriptive results test the "theory that new colocations—particularly, new charter school colocations—are harmful to student achievement in the traditional public schools that are already operating in a given facility" (p. 3). However, the report provides no rationale, conducts no analyses, and provides no examples concerning the premise that charter school co-locations might have more of an impact on traditional public school students' academic outcomes than co-locations in general. It makes no attempt to explain why operating or introducing a new charter school, as opposed to a traditional public school, in a building with an existing school would be any different in terms of inputs or outcomes.[3] Missing throughout the report is any clear distinction between when the report is focusing on co-locations in general and when it is addressing specifically co-location arrangements between charters and traditional public schools. Nor is there any discussion of why this distinction matters.

For the descriptive analysis, the report looked at differences in test score gains before and after co-locations were introduced or removed from a school, although the report never

indicates which specific statistical tests were run. Finding no significant differences, it concludes, ". . . the results of this descriptive analysis provide little reason to suspect that colocations lead to meaningful differences in student achievement in a traditional public school" (p. 4).

The empirical regression analysis provides a similarly limited rationale for its findings and conclusions. The report briefly describes the model used for 16 separate regressions looking at multiple types of co-locations, arguing that the lack of significant results indicates no impact of co-locations on student academic achievement in traditional public schools. Yet, after stating that there were no significant relationships, the report points out that there was one small significant result in *math*, but interprets the result as having an impact on *English Language Arts* scores (see p. 5).

The results, discussion, and conclusion sections are limited to a few paragraphs that cursorily describe the variables contained in the model. The report never reports an R-squared, which describes the correlation between the actual and predicted values of the dependent variable. The report then asserts in the conclusion, "Neither new colocations entering a building nor losing space within the building over time has a significant impact on student academic growth in a traditional public school" (p. 6). It does not describe in any detail how "losing space" within a building over time was measured or modeled. In the introduction, the report also discusses measuring the "magnitude of colocation," though it is not clear whether "magnitude of colocation" and "losing space" are defined in the same way. Nor is it clear whether these terms are represented by "percent of capacity," a term set forth in the regression results table and which is measured by the percent of students in the building who attend the traditional public school. If the latter is the case, then the report equates *number of students* with *space* and does not consider *space* to represent square feet, number of classrooms, or other important measures that would typically be considered to measure the term *space*. Consequently, and as discussed below, there is a lack of clarity in the overall conclusion that co-location has no impact on academic achievement.

IV. The Report's Use of Research Literature

One of the primary limitations of this report is its failure to use the abundant research literature available. Although the report refers to an "emerging body of empirical research" (p. 1), it relies only on a single chapter[4] as support:

> A fair reading of the empirical research is that the introduction of charter schools—and the resulting competition for students through school choice programs—has either a small, positive effect or no discernible effect (though not a negative one) on student achievement in local traditional public schools (pp. 1-2).

In the chapter cited for support, which reviews the evidence on the effects of competition on student achievement, authors Gill and Booker emphasize the importance of investigating not just test-based outcomes, as the Manhattan Institute's report does, but other non-test-based social and civic outcomes of public education:

> This chapter does not address the productivity of market-based schools (e.g., voucher schools, charter schools, or privately managed schools) as measured by the math and reading achievement of their own students. . . Instead, we address issues related to the effects of competition on conventional public schools *and* on the traditional public purposes of education, including student integration and the education of citizens[5] [emphasis added].

Regrettably, the report never avails itself of the conceptually and empirically rich bodies of research related to the topics at hand, including the effects of school facilities on educational outcomes,[6] the effects of charter schools on student achievement,[7] and the research on charter school facilities in general.[8] It even neglects to reference recent work on co-location from other groups and think tanks,[9] limiting the extent to which it can build on prior findings.

The report's methods and analysis are too poorly documented for the reader to determine whether the research was designed and carried out in an empirically sound manner. Readers therefore cannot know the quality of the analysis or the accuracy of the conclusions.

First, the report does not fully describe the data or context regarding the number of students included in the analysis or any other basic student or school demographics and characteristics. The data are also limited to fourth through eighth grade student test scores in ELA and math from the 2006-07 through 2010-11 school years. This means that high school co-locations are completely absent in this analysis, and the report does not acknowledge that there can be systematic differences for older or younger students or students from different racial or socioeconomic backgrounds. It also does not consider important contextual factors, such as whether there are more shared buildings in poorer or wealthier neighborhoods, or whether students of color are more likely to attend school in a co-located building. While the purpose of the report is not to take on these more contextualized investigations, such questions are vital to assessing the potential effects of co-location on educational equity.

Additional characteristics of the data are insufficiently explained. The report acknowledges that because many schools in New York City operate in multiple facilities, it was not possible to determine the specific facility in which students attended school. What this means is, in some cases, students might be included in the co-located data even if they never shared a building with students from another school. While the report attempts to address this issue by using two different methods (one where students were simply matched to their main campus and another where analyses were run only including traditional public schools with one building), important unanswered questions remain. First, it is unclear how much of the data was affected by this issue. Though the report

indicates that both methods yielded similar results, the extent of the similarity is not described, which leaves readers unable to construct informed judgments from the results.

More importantly, this omission raises a larger, unaddressed flaw of the study: the methods, as designed, lack sufficient detail to take into account the extent to which students in co-located schools interact with one another (whether schools are separated by floor, have separate entrances or exits, etc.). It is a plausible hypothesis that co-locations separating students throughout the day affect students differently than co-located schools in which students pass each other in the hallways or interact before and after school every day. Aggregating all co-located schools together masks the variation, or the impact that only certain co-located schools might have, on student scores. In concrete terms, if a policymaker wanted to know if a co-location that involved a great deal of daily interaction was likely to have an impact on the educational achievement of existing students at the school, the data and analyses presented in the current study would provide little guidance. This limitation is never addressed in the report.

Another problematic feature of the methods is found in the report's calculated percent of capacity. One element of co-location that the report measures is the percent of students in the building who attended the traditional public school. In the discussion section, the report states that "losing space within the building over time" did not have a significant impact on student academic growth. However, it is unclear how the author accounted for this change over time. Did he look at every student's growth every year, given the percentage of traditional public students in the school? Or did the analysis assume that the mix of traditional public schools students versus charter students remained constant from year to year even after charter schools entered the building? Given that many new charter schools gradually expand their enrollment over time by adding certain grade levels each year, it would be reasonable to expect that an analysis purporting to take capacity into consideration would address this issue. Instead, the report apparently sidesteps this common feature of charter schools altogether.

Readers and policymakers are asked to trust, with little or no ability to evaluate the report's accuracy and the rigor behind its analysis.

Additionally, while the analysis looks at student-level data, the report does not attempt to address how co-location could change the overall scores of the school. This is a major oversight given that the introduction of new schools to a neighborhood or building can change the student population, leading to an overall change in the school's test scores. In the current standards-based accountability regime, fluctuations in school scores can have important implications for a school's performance grades (based on the NYC school ratings system), leading to possible sanctions. Unfortunately, these school-level policy contexts are not addressed in the analysis.

Finally, the report explains that it employed a regression model that used school fixed effects, which

> forces the model to compare the achievement of students in a traditional public school as the measure of sharing facilities changes for that school over time. This approach statistically accounts for all features of a school that do not change over time (p. 5).

However, the report never explains which unobservable variables were assumed to represent "all features of a school." Some features of a school, such as heavy teacher turnover, may be much more of a problem at some schools but not others, and they may change over time and so not be captured by this fixed effect. Because the report includes so little information, the reader is not able to evaluate whether it is fair to assume that the unobservable variables that the author had in mind will in fact not change over time. In other words, the reader cannot make an independent judgment as to whether it is fair to assume that the estimated effects are not biased. The report also neglects to include pre-existing trends with regard to student academic growth, which limits readers' ability to determine whether changes in student scores were related to the introduction or removal of a co-location, or simply the continuation of the students' performance trajectory over time. The report also never reports the R-squared across the regressions—a standard practice when reporting regression results. These omissions considerably undermine the report's rigor.

This report takes on complicated research questions that are not easily answered. Such questions require researchers to systematically design and execute a sophisticated study that, like all studies, entails certain methodological and analytical trade-offs. Even in the ideal case, particular limitations are likely to remain. Yet the report is written in a manner that assumes a degree of trustworthiness about the full rationale behind the design and each analytical procedure. Its lack of transparency requires readers to take a significant leap of faith in their confidence about the data and methods—an expectation that undermines any research study's potential validity.

VI. Review of the Validity of the Findings and Conclusions

The lack of detail with regard to the data as well as the absence of any meaningful methods discussion or methodological appendix leaves the reader unable to judge the validity of the report's analyses, claims and findings. For example, variables are only defined in vague terms, such as a "series of observed characteristics" and "one of several potential measures." Given the lack of analytical detail provided, it is impossible to discern whether the findings and conclusions are legitimate. Even if the report's analyses are methodologically sound, the findings—that co-location has no impact on student academic outcomes in NYC—are overstated given the limited subject matter, grade level, and background data available to the author (and, to a much starker extent, the reader). Based on these limitations, the report serves more as a marketing tool for the continued growth

of charter schools in New York City than as a rigorously designed and carefully presented research study.

VII. Usefulness of the Report for Guidance of Policy and Practice

The Manhattan Institute and the author have published what they call a "Civic Report." It may very well be that they see this genre as not calling for much more than a "trust us" message to readers—that the sort of transparency of rigor expected in the research community does not apply. But the author published an op-ed in the *New York Daily News* along with the release of this report, and the op-ed and the report together make strong policy claims that require a high degree of trustworthiness.[10] Unfortunately, readers and policymakers in this case are asked to trust, with little or no ability to evaluate the report's accuracy and the rigor behind its analysis.

Beyond the methods concerns are issues of scope and usefulness. The analysis in this report emphasizes only one educational outcome—standardized test scores—while dismissing other results as mere "inconveniences," "nuisances," or "discomfort" that students and educators can, presumably, choose to eschew. It does not specifically analyze or even mention the extent to which co-locations can have an impact on important school-level outcomes related to the safety of students, school climate, and even student health, as co-located schools in NYC are forced to share limited gym and outdoor space. The report also cannot offer guidance for co-locations at the high school level, because no test-score data were available. Given these and other limitations discussed above, neither policymakers nor practitioners can use this report to make informed decisions about the effects of co-location on students' educational experiences and outcomes, both of which are inextricably linked with their opportunities for and access to high-quality conditions for teaching and learning.

Notes and References

1 Winters, M. A. (2014, February). *The effect of co-locations on student achievement in NYC public schools*. New York, NY: Center for State and Local Leadership at The Manhattan Institute. Retrieved March 15, 2014, from http://www.manhattan-institute.org/html/cr_85.htm#.U0xbyfldXTo.

2 See for example:

Bellafonte, G. (2014, March 6). How de Blasio's narrative got hijacked. *The New York Times*. Retrieved March 15, 2014, from http://www.nytimes.com/2014/03/09/nyregion/de-blasio-and-cuomos-tangled-narratives.html;

Hernandez, J. C. (2014, March 23). Gentler words about charter schools from de Blasio. *The New York Times*. Retrieved March 24, 2014, from http://www.nytimes.com/2014/03/24/nyregion/de-blasio-strikes-conciliatory-tone-on-charter-schools.html.

3 An endnote claims: "Results on charter school colocations are similar if charter school colocation is included as an interaction term in a model that accounts for any school colocations" (p. 6). That is, readers are told that co-location plays out similarly whether the co-locator is a charter or not. But as discussed elsewhere in this review, readers are not given sufficient information to evaluate that claim.

4 Gill, B. & Booker, K. (2008). School competition and student outcomes. In H.F. Ladd and E.B. Fiske (eds.) *Handbook of Research in Education Finance and Policy*, 183-200. New York: Routledge.

5 Gill, B. & Booker, K. (2008). School competition and student outcomes. In H.F. Ladd and E.B. Fiske (eds.) *Handbook of Research in Education Finance and Policy*, 183-200; 183. New York: Routledge.

6 Research on the relationship between the quality of school facilities and student achievement is mixed. While some scholars have found no relationship between the quality of school facilities and student performance, others have argued that the value of school facilities is not captured in test scores alone, but may be evident when considering outcomes such as community housing prices after school facilities are improved. Research has also documented that, despite large investments in school construction in the early 2000s, low-income and minority students have had far less investment in their school facilities than their more affluent, white counterparts. For examples of this literature, see:

21st Century School Fund. (2011). *PK-12 Public School Facility Infrastructure Fact Sheet*. Washington, DC: Author. Retrieved March 16, 2014, from http://www.21csf.org/csf-home/Documents/FactSheetPK12PublicSchoolFacilityInfrastructure.pdf;

Bowers, A. J. & Urick, A. (2011). Does high school facility quality affect student achievement? A two-level hierarchical linear model. *Journal of Education Finance, 37*(1), 72-94;

Cellini, S. R., Ferreira ,F., & Rothstein, J. (2008). *The value of school facilities: Evidence from a dynamic regression discontinuity design* (Working Paper No. 14516). Cambridge, MA: National Bureau of Economic Research;

Filardo, Mary & Vincent, J. (2006) *Growth and Disparity: A Decade of US Public School Construction*. Washington, DC: 21st Century School Fund. Retrieved April 14, 2014, from http://www.21csf.org/csf-home/publications/best-growth-disparity-2006.pdf;

Kozol, J. (1991). *Savage inequalities: Children in America's schools*. New York, NY: Crown Publishers, Inc.;

Picus, L. O., Marion, S. F., Calvo, N., & Glenn, W. J. (2005). Understanding the relationship between student achievement and the quality of educational facilities: Evidence from Wyoming. *Peabody Journal of Education, 80*(3), 71-95;

Uline, C. & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational Administration, 46*(1), 55-73.

7 See for example:

Center for Research on Education Outcomes (CREDO) (2009, June). *Multiple choice: Charter school performance in 16 states*. Palo Alto: CREDO, Stanford University;

Lubienski, S. T., & Lubienski, C. (2006). School sector and academic achievement: A multilevel analysis of NAEP mathematics data. *American Educational Research Journal. 43*(4), 651-698;

Lubienski, C., & Weitzel, P. C. (Eds.). (2010). *The charter school experiment: Expectations, evidence, and implications*. Cambridge, MA: Harvard Education Press;

Braun, H., Jenkins, F. & Grigg, W. (2006). *A Closer Look at Charter Schools Using Hierarchical Linear Modeling* (NCES 2006-460). Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education;

Gleason, P., Clark, M., Tuttle, C. C., & Dwoyer, E. (2010). *The evaluation of charter school impacts: Final report* (NCEE 2010-4029). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved August 25, 2011, from http://www.mathematica-mpr.com/publications/PDFs/education/charter_school_impacts.pdf;

Scott, J. T. (Ed.). (2005). *School choice and diversity: What the evidence says*. New York: Teachers College Press.

8 Scholars have documented that charter schools do not have access to the same funding sources for facilities as traditional public schools. Government reports have argued for more transparency when providing charter schools with facilities resources and for the need for more affordable charter school facilities. For examples of this literature, see:

Huerta, L.A., & d'Entremont, C. (2010). Charter school finance: Seeking institutional legitimacy in a marketplace of resources. In C. A. Lubienski & P.C. Weitzel (Eds.), *The charter school experiment: Expectations, evidence, and implications* (121-146). Cambridge, MA: Harvard Education Press;

Krop, C., & Zimmer, R. (2005). Charter school type matters when examining funding and facilities: Evidence from California. *Education Policy Analysis Archives, 13*(50), 1-27;

Making charter school facilities more affordable: State-driven policy approaches. innovations in education (2008). Washington, DC: U.S. Department of Education;

Scott, G. A. (2011). *District of Columbia charter schools: Criteria for awarding school buildings to charter schools needs additional transparency. Report to congressional committees. GAO-11-263*. Washington, DC: U.S. Government Accountability Office;

Shaul, M. S. (2000). *Charter schools: Limited access to facility financing. report to congressional requesters* (GAO/HEHS-00-163). Washington, DC: U.S. Government Accountability Office (formerly U.S. General Accounting Office.);

Smith, N. (2012). Whose school buildings are they, anyway? *Education Next, 12*(4);

Smith, K. & Willcox, J. (2004). A building need: Charter schools in search of good homes. *Education Next, 4*(2), 44-51.

9 Reports referring to co-locations from think tanks and other nonprofits have documented how various schools are sharing space around the country. Other work has highlighted the details that schools should take into account when determining whether and to what extent to co-locate. For examples, see:

Allen, L. & Steinberg, A. (2004). *Big buildings, small schools: Using a small schools strategy for high school reform*. Boston: Jobs for the Future. Retrieved April 14, 2014, from http://www.brown.edu/academics/education-alliance/sites/brown.edu.academics.education-alliance/files/publications/bgbld_smschl.pdf;

Filardo, M. (2010, April 13). *Utilization of PS 15*. Washington, DC: 21st Century School Fund. Retrieved April 14, 2014, from http://www.21csf.org/csf-home/publications/AnalysisUtilizationPS-15SchoolBuildingBrooklynNewYork_May2010.pdf;

Miller, L. J., Gross, B., & Ouijdani, M. (2012). *Getting down to dollars and cents: What do school districts spend to deliver student-centered learning?* Seattle, WA: Center on Reinventing Public Education, University of Washington;

Nathan, J. (2002). Small schools: The benefits of sharing. *Educational Leadership, 59*(5), 71-75;

Sazon, M. C. (2011). *Making room for new public schools: How innovative school districts are learning to share public education facilities with charter schools.* Washington, DC: National Alliance for Public Charter Schools.

10 Winters, M. (2014, February 25). Charter co-location: A phantom threat. *New York Daily News*. Retrieved April 14, 2014, from http://www.nydailynews.com/opinion/charter-co-location-phantom-threat-article-1.1700257.

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