

Analysis of the Milwaukee Parental Choice Project Attainment Study



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*What the latest School Choice Demonstration
Project's Study says about vouchers and
student attainment in Milwaukee*

Background

In February 2012, the School Choice Demonstration Project (SCDP) at the University of Arkansas released a study aimed at discerning whether Milwaukee Parental Choice Program (MPCP; voucher) school students in Milwaukee, who were enrolled in 8th and 9th grade in 2006, had higher graduation rates and college attainment rates than matched peers in Milwaukee Public Schools (MPS).¹ The study has served as the foundational reference for voucher advocates who tout higher graduation rates and college attainment in voucher schools.^{2 3}

In February 2013, an updated version of the study was published in the Policy Studies Journal (PSJ).⁴ The updated study used a different method of statistical analysis.⁵ While this more valid statistical approach⁶ resulted in minimal change in the magnitude of the results⁷, there were specific variables which saw changes in statistical significance. Most importantly, the 2013 report's conclusions ignored the statistically significant demographic characteristics, parental factors, and test scores that positively affected graduation rates and college attainment, while at the same time overstated the non-significant effect of voucher schools. The non-significant results are being used by voucher advocates as evidence of success in the voucher school program⁸, placing ideology over evidence in the ongoing debate over voucher schools.

Summary Analysis

The 2013 SCDP study begins with an abstract which highlights the results. Relevant portion is highlighted:

"In this article we examine educational attainment levels for students in Milwaukee's citywide voucher program and a comparable group of public school students. Using unique data collected as part of a state-mandated evaluation of the program, we consider high school graduation and enrollment in postsecondary institutions for students initially exposed to voucher schools and those in public schools at the same time. We show that exposure to voucher schools was related to graduation and, in particular, to enrollment and persistence in a 4-year college. These differences are apparent despite controls for student neighborhoods, demographics, early-career test scores and—for a subsample of survey respondents—controls for parental education, income, religious behavior, and marital status. We conclude by stressing the implications for future scholarship and policy, including the importance of attainment outcomes in educational research."

¹ http://www.uark.edu/ua/der/SCDP/Milwaukee_Eval/Report_30.pdf

² <http://www.jsonline.com/news/opinion/milwaukee-school-choice-beats-the-alternative-p68doeu-187369091.html>

³ <http://www.wpri.org/Commentary/2013/3.13/Fo3.21.13/Fo3.21.13.html>

⁴ *The Policy Studies Journal, Vol. 41, No. 1, 2013*

⁵ Logistic regression instead of a linear probability model to determine factors significantly associated with the binary dependent variables (high school graduation, 4 year college enrollment, etc.)

⁶ <http://www3.nd.edu/~rwilliam/xsoc63993/l81.pdf>

⁷ Overall Marginal Effects

⁸ <http://www.jsonline.com/news/opinion/school-choice-helps-taxpayers-as-well-as-pupils-jb9a4h5-200134211.html>

This summary is academically misleading. While technically correct (nowhere does the summary claim the difference in outcomes are significantly better for voucher students), the inference being drawn by voucher school advocates is that exposure to voucher schools does have a positive effect on graduation and attainment rates. This conclusion is not supported by the data.

The summary also states that when controlling for parental characteristics (education, income, etc.), the difference is still apparent. The summary ignores the fact that under this more robust analysis controlling for parental characteristics, the effect of voucher school attendance on graduation and attainment becomes insignificant.

The summary completely ignores the most significant findings of the analysis that controls for parental factors. The most statistically significant variables in *high school graduation* are female gender students, Asian students, having high reading scores, and parents with some college education.

The most significant factors in 4-year college *enrollment* are female gender, high math and reading scores, and parents with some college or a college degree. The most significant factors in 4-year college *persistence* are female gender, high math and reading scores, and parents with a college degree. **When controlling for parental factors, exposure to voucher schools becomes insignificant.**

The summary and highlights presented by the authors omit the most significant and important findings of the study. The most important factors in attainment to the students in the study are being a female student, having high math and reading scores, and having parents with a college degree. **Exposure to a voucher school is insignificant, and the findings strongly suggest that the students who had higher educational attainment did so largely because of parental education and gender.**

Study Analysis

Matching MPCP and MPS Samples

One of the fundamental statements in the 2013 study raised some concern over a pre-conceived bias on the part of the authors. On page 4, paragraph 3 the authors explain one of the reasons for creating a complex matching system to control for non-random selection of voucher school attendance:

“In the case of this study, we were particularly worried that students who chose to participate in the MPCP at baseline may be more likely to graduate high school and enroll in college naturally, regardless of the school they attend.” (Emphasis added)

There is no evidence, particularly in this study, to support this belief. It does, however, point to a belief amongst parents and advocates of voucher schools that create an educational “placebo effect.” Parents participating in the voucher program have such strongly-held beliefs in the correctness of their “choice,” they will often overlook evidence that is contrary to their belief, and persist in the belief of the success of their “choice.” Evidence of this effect will be presented below.

The following table is presented on page 6 of the study, showing the demographics of the matched sets:

	MPCP in 2006	MPS in 2006
Black	0.70	0.70
Hispanic	0.19	0.18
Asian	0.03	0.04
White	0.07	0.07
Female	0.57	0.53
Math 2006	-0.04*	0.04
Reading 2006	0.15**	0.02
N	1,091	1,091

Notes: Significantly different from Milwaukee Public School (MPS) at ** $p < 0.05$, * $p < 0.10$

There are two inconsistencies with this table. First, the authors judge mathematics scores to be significant at $p < 0.10$. This is not only a liberal interpretation of statistical significance, it is improper based on the National Council of Education Statistics (NCES), which sets technical standards for collection and reporting of education data under Congressional mandate.⁹ According to NCES Standard 5-1-3:

“The criterion for judging statistical significance in all reported hypothesis tests will be $\alpha = 0.05$ (0.95 for confidence intervals). Reports will indicate an observed difference as statistically significant when an appropriate hypothesis test rejects the null hypothesis at $\alpha = 0.05$.”¹⁰

This is an important standard, and there are many instances in this study (and previous SCDP studies) where $p < 0.10$ is judged to be significant. The result is over reporting of significant effects. Even if we accept this liberal standard for significance, the above table also contains a second important inconsistency. In the previous version of the study from 2012 (cited above), the authors stated the female covariate was “significant” at $p < 0.10$ (4% higher in MPCP than MPS). That indication of “significance” is omitted in the current version of the study. An email from the author confirmed the same level of significance ($p < 0.09$) as in the previous study, yet is omitted in this updated version.

The author’s comments on Table 1 from page 8, paragraph 1:

“The table indicates no significant demographic differences, but MPCP students scored higher on math test scores and lower on reading scores in 2006. These differences are accounted for in models below, but we note that together they provide no clear pattern of exceptional performance favoring one sector of our match over the other...” (Emphasis added)

This statement is not accurate. If we are consistent in accepting the author’s threshold of $p < 0.10$ as significant, the MPCP sample has a higher female population. Only if we reject at $p < 0.10$ is the female demographic not significant, and the authors are being inconsistent in their acceptance of $p < 0.10$ as significant. In addition, the MPCP students actually scored LOWER on math and HIGHER on reading tests. While the authors state the differences are controlled for in the analysis, it is noteworthy that in

⁹ <http://nces.ed.gov/about/>

¹⁰ http://nces.ed.gov/statprog/2002/std5_1.asp

the most robust analysis, female demographic and reading scores were more significant factors than exposure to voucher schools.

High School Graduation and College Attainment

Table 2 on page 8 displays the basic analysis for High School Graduation and Post-Secondary enrollment:

	MPCP	MPS	Difference
On-time graduates			
2006–07 9th graders	76.0	69.0	7.1***
2006–07 8th graders	73.7	71.6	2.1
Five-year graduates (2006–07 9th graders only)	5.4	9.5	-4.1***
Ever graduated	79.0	76.0	3.0
Postsecondary enrollment			
Two years	12.1	14.0	-1.9
Four years	25.8	21.5	4.2**
Persist in 4-year (baseline 9th grade only)	21.0	17.9	3.1

Notes: *** $p < 0.01$, ** $p < 0.05$.

On time graduation is only significant for voucher schools ($p < 0.01$) for 2006-07 9th graders. For 2006-07 8th graders, voucher schools have a very small and non-significant effect. This contradicts the inference that “exposure to voucher schools” is important (from the abstract cited above). While MPCP exposure is significant in this basic analysis for 9th grade, it is not for 2006-7 8th graders. Postsecondary four year enrollment is significant for the MPCP sample ($p < 0.05$).

Table 4 on page 12 shows the Predicted Attainment Outcomes controlling for demographics and test scores. The variables which are significant in this 2013 table are different from the 2012 report, due to the more valid statistical analysis used in the current, updated study. This has a direct impact on the claims of voucher school advocates:

Variables	Graduate from High School	2-Year College	4-Year College	Persist in 4-Year College
MPCP in 2006	0.13 + (0.081)	-0.13* (0.075)	0.20*** (0.065)	0.20** (0.081)
Black	0.07 (0.144)	0.22 (0.145)	0.00 (0.127)	-0.19 (0.151)
Hispanic	0.04 (0.149)	0.01 (0.161)	-0.14 (0.140)	-0.26 (0.166)
Asian	0.99*** (0.274)	0.23 (0.214)	0.17 (0.207)	0.19 (0.250)
Female	0.24*** (0.079)	0.04 (0.080)	0.39*** (0.066)	0.34*** (0.088)
Math 2006	0.19*** (0.056)	0.09* (0.055)	0.17*** (0.049)	0.18*** (0.062)
Reading 2006	0.17*** (0.047)	0.04 (0.046)	0.40*** (0.051)	0.35*** (0.059)

Notes: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$; + $p < 0.15$ two-tailed. Estimates are probit coefficients. Standard errors are clustered by 2006 census tract.

First, comparing any effect of voucher schools on high school graduation rates between Table 2 and Table 4, the magnitude of the effect becomes smaller and the p-value changes from $p < 0.01$ to $p < 0.15$ (non-significant even by the authors liberal standard). The decrease in the size of any previous effect of voucher schools is most likely due to now controlling for the original differences between the matched sets in gender and reading scores. As is noted below, the strong association of female gender and reading scores with high school graduation, and the higher proportion of females and higher mean reading score in the MPCP students, made it appear as though it was the voucher school that had the positive effect on graduation. However, once you statistically control for those two factors, any “effect” of voucher schools disappears.

Second, Table 4 also demonstrates an important change from the 2012 study version in that the effect of voucher schools on “Graduate from High School” changes from a $p < 0.10$ to a $p < 0.15$ with the new statistical method, becoming even less statistically significant. While the effect of voucher schools on 4-year college enrollment and persistence in college is still significant in Table 4, there are additional significant variables:

Graduate from High School – Asian (over 7x the voucher effect), Female gender (over 1.5x the voucher effect), Math and Reading test scores.

4-year College – Female gender (nearly 2x the voucher effect), Math and Reading test scores.

Persist in 4-year College – Female gender (nearly 2x the voucher effect), Math and Reading test scores.

Table 6 shows the same analysis as the above Table 4, with additional control for parental characteristics (Two parent homes, Income, High School/College attainment, church attendance). **This is the most insightful and significant analysis in the study, and its results are often overlooked:**

Variables	Graduate from High School	2-Year College	4-Year College	Persist in 4-Year College
Student characteristics				
MPCP in 2006	0.16* (0.095)	-0.05 (0.090)	0.14* (0.080)	0.16 (0.106)
Black	-0.03 (0.176)	0.11 (0.173)	0.01 (0.150)	-0.14 (0.172)
Hispanic	0.18 (0.206)	0.11 (0.191)	-0.06 (0.169)	-0.20 (0.205)
Asian	1.05** (0.443)	0.06 (0.423)	0.29 (0.291)	0.11 (0.393)
Female	0.30*** (0.099)	0.01 (0.094)	0.48*** (0.089)	0.50*** (0.117)
Math 2006	0.11* (0.068)	0.02 (0.066)	0.14** (0.059)	0.17** (0.068)
Reading 2006	0.19*** (0.055)	0.05 (0.060)	0.36*** (0.065)	0.30*** (0.071)
Parent characteristics				
Two-parent home	0.16 (0.131)	0.02 (0.127)	0.08 (0.104)	-0.00 (0.128)
Inc. > \$50 K	0.26 (0.200)	0.20 (0.173)	-0.12 (0.139)	0.04 (0.183)
Inc. \$35–49 K	0.13 (0.148)	0.13 (0.137)	0.06 (0.121)	0.15 (0.145)
Inc. \$25–34 K	-0.14 (0.124)	-0.08 (0.147)	-0.06 (0.118)	0.04 (0.143)
High school degree	0.14 (0.135)	0.23 (0.141)	0.25* (0.130)	0.06 (0.166)
Some college	0.28** (0.132)	0.37*** (0.142)	0.28** (0.121)	0.05 (0.167)
College degree	0.30 (0.199)	0.38** (0.182)	0.58*** (0.157)	0.39** (0.192)
Attend church	-0.13 (0.101)	0.07 (0.098)	-0.02 (0.097)	0.10 (0.121)
Constant	0.44** (0.207)	-1.51*** (0.226)	-1.29*** (0.186)	-1.33*** (0.250)
N	1,012	1,200	1,200	842
Marginal MPCP effect	0.041	-0.009	0.038	0.043

Notes: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$, two-tailed. Estimates are probit coefficients. Standard errors are clustered by 2006 census tract

When controlling for parental characteristics, any voucher school (MPCP) significant association with postsecondary enrollment now disappears using the NCES standard. Noteworthy also is that both math and reading scores are significant in this revised 2013 study. In the 2012 version, math scores were not significant. Again, the following significant results are omitted from the summary when accounting for parental characteristics:

Graduate from High School – Asian (over 7x the voucher effect), Female gender (over 1.5x the effect), Reading scores, parents with some college (nearly 2x the effect).

4-year College – Female gender (over 3x the voucher effect), Math and Reading scores, parents with some college (2x the effect), parents with college degree (over 4x the effect).

Persist in 4-year College – Female gender (over 3x the effect), Math and Reading scores, parent with college degree (over 2x the effect).

The analysis is consistent in its results. There is no significant effect of MPCP schools on graduation or attainment. What does stand as significant are parental college attainment, female gender, and math/reading test scores. These important results remain unreported and omitted from any discussion of voucher school policy and potential expansion. Based on this analysis, students in the sample succeeded due to their gender, reading proficiency, and the fact that their parent(s) hold a college degree. As a side note, neither a two-parent household or church attendance was a significant factor.

Examining Parental Factors

Both versions of the SCDP study (2012, 2013) reference a 2008 longitudinal study conducted by the SCDP¹¹ that surveyed parental attitudes regarding their respective schools, MPCP or MPS. Again, there is a great deal unreported from the collected data that point to a “placebo” effect towards MPCP schools. This would imply that parents’ belief in the correctness of their “choice” in voucher schools is stronger than any academic effects that take place at the school level. As evidenced by the above analysis, measurable parental factors are much stronger than any school effects.

The table on page 25 in the 2008 study shows parental reporting of student grades¹² which demonstrates an interesting comparison between MPCP and MPS:

What is the average grade your child received in school this past year?

Grade	MPCP	MPS
A	30.4%	22.5%
B	45.1%	41.5%
C	19.3%	26.6%
D	2.3%	4.4%
F	0.9%	1.6%

MPCP students’ parents report 11% more A and B grades than MPS parents. In addition, MPCP students’ parents report 10% less C and below grades. This is an interesting comparison, given that in the same 2008 study analysis, the matched sets of students show no significant difference in test scores. Further, the most recent Department of Public Instruction data show that MPCP students score lower than MPS students on the whole on the Wisconsin Knowledge Concepts Examinations (WKCE).¹³ While the parents believe that their students are higher performing in MPCP schools, this begs the question, is this perception a true result of educational performance, or parental attitudes about the “choice” school? Again, further study of this question is warranted.

¹¹ http://www.uark.edu/ua/der/SCDP/Milwaukee_Eval/Report_05.pdf

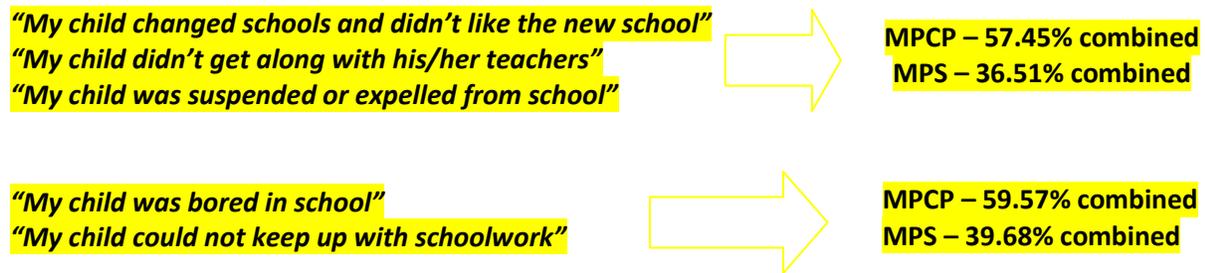
¹² http://www.uark.edu/ua/der/SCDP/Milwaukee_Eval/Report_05.pdf

¹³ http://winss.dpi.wi.gov/winss_dm-acadachmt

Table 3 on page 10 of the 2013 SCDP study shows survey responses to “Reasons for Leaving High School Prior to Graduation”:

	MPCP	MPS
“My child didn’t like school”	38.30	34.92
“My child thought it would be easier to get a GED”	34.04	31.75
“My child was bored in school”	31.91	20.63
“My child could not keep up with the schoolwork”	27.66	19.05
“My child needed to take care of or support his/her family”	21.28	17.46
“My child changed schools and didn’t like the new school”	21.28	12.70
“My child didn’t get along with his/her teachers”	19.15	9.52
“My child was suspended or expelled from school”	17.02	14.29
“My child didn’t get along with other students”	8.51	9.52
“Child incarcerated”	6.38	11.11
“Child was too ill to attend school” or “Child has mental health issues”	6.38	7.94
“Child is/was pregnant” or “Child got married” or “Child had a baby”	6.38	6.35
Number of respondents	47	63
Number of responses	95	106

There are noteworthy differences that are very under reported. While the “didn’t like school” is fairly equal between MPS/MPCP, there are some large differences in other *attitudes* about school:



The SCDP report sums up the above findings:

“Overall, it appears that the most important reasons for dropping out of high school were relatively common in both sectors. Dropping out was most clearly related to a general dislike of school, and/or problems that could be related to learning difficulties or even underlying ability.”

The important factors may be common, but the occurrences in each sector show substantial differences in the level of dissatisfaction between sectors. This raises serious question about MPCP schools’ ability to address diverse student needs, from high achieving (who may be “bored”) to challenged students (who would have trouble “keeping up”). Further study of this question would appear to be warranted.

The table on page 18 in the 2008 report shows the education attainment of the parents of MPCP and MPS students in the matched sets:

	MPCP	MPS
Eighth grade or below	10.0	5.6
Some high school	12.6	17.4
GED	3.0	3.8
High school graduate	25.2	30.3
Post graduate (technical school)	4.0	2.8
Some college	30.0	26.3
4 year college degree	10.8	7.8
Post-graduate work	3.2	3.3
Other/Refused/Don't Know	1.2	2.7

Nearly 7% more parents in the MPCP sample report some college or a 4-year college degree than MPS parents (40.8% - 34.1% respectively). As noted above in Table 6, the strong association of parental college education and student graduation and college attainment rates, and the higher proportion of parental college education in the MPCP students, made it appear as though it was the voucher school that had the positive effect on graduation. However, once you statistically control for parental college education, any “effect” of voucher schools disappears.

It is probable that the higher female gender population, reading scores, and parental college attainment levels in the MPCP sample act as confounders in the analysis, giving the appearance of positive impact in voucher school exposure. When these factors are controlled for, any “positive impact” of voucher schools disappears, and the actual significant factors (female gender, reading scores, parental college attainment) are apparent.

Conclusion

The SCDP study authors acknowledge the studies shortcomings. First, that the ideal study involving a randomized trial is not practical. Second, the study is only able to examine exposure to the voucher schools, as students who started in an MPCP school at 8th grade may have switched to an MPS school prior to graduation. That student would be counted as an MPCP graduate, and vice versa. There is no accounting for which students switched at what point and to/from what school. Third, only 44% of the MPCP sample remained in a voucher school through grade 12. Again, we have no way of determining where those students went and when they went to their school of graduation.

It is important to underscore the most significant findings of this study that have gone unreported and omitted to advance the ideology of voucher school expansion. There is no significant effect (at NCES standards) of voucher school exposure on high school graduation rates when controlling for demographics and test scores. In addition, when factoring in parental characteristics, the effect of voucher school exposure on high school and college attainments disappear completely. What is maintained is the high significance of gender (female), math and reading scores, and parental college education. It should be made clear that based on this study, voucher schools have no impact on educational attainment when factored with demographics and parental factors. It is not accurate to conclude that voucher school students have higher graduation and attainment rates than MPS students. The data do not support that conclusion.