

USA Math Outcomes Analysis 2016/17

Grade Levels: 3, 4, 5

ST Math Program: Gen-4

Analysis Type: Z-score of math proficiency

Treatment-Years: 2015/16, 2016/17

Baseline-Year: 2014/15

Subgroup: All



Jessica Guise

© 2024-07-24

Abstract

This analysis evaluates grades using ST Math in the USA in 2016/17. It identifies those grades with nominal or better implementation of the ST Math program, and matches them to randomly selected, similar math-performance comparison grades. The nominal ST Math users are an aggregation of 274 grades, consisting of grades 3, 4, and 5 at 145 schools, with an average baseline z-score of -0.06. Refer to Figures 2 and 3 for the math performance and demographic distributions. They were matched to 274 similar, randomly selected control grades at 259 schools that never used ST Math. Grade-wise growth in math proficiency was evaluated (i.e. growth in same grade, same school, from 2014/15 to 2016/17) on the mean z-scores of percent Proficient or Advanced (see Section 3.1). Grades 3, 4, and 5 aggregated showed an ST Math effect of 0.14 z-score points.

Contents

1	Introduction	5
1.1	Background	5
1.2	Program Description	5
2	Data Collection	6
2.1	Treatment Grades Pool and Selection	6
2.1.1	Enrollment Filter	6
2.1.2	Content Coverage Filter	6
2.2	Control Grades Pool and Selection	6
3	Data Analysis	8
3.1	Z-scores	8
3.2	Percentile Ranking	8
3.3	Final Treatment and Control	9
3.3.1	ST Math Grade-Aggregated Implementation ($\geq 85\%$ Enrollment Grades Only)	9
3.3.2	Filtering Treatment and Controls	10
3.3.3	Match of Controls to Treatment	11
3.4	Grade-Aggregated Analysis	13
3.5	Grade-Level Analysis	15
3.5.1	Grade Level Result Tables	15
3.5.2	Grade-Level Analysis of Changes in Z-scores of Proficient or Advanced . . .	16
4	Effect Size	17
5	Findings Summary	17
6	Confounders	17
7	Reference Tables Grouped By School Year	18
8	Lists of Schools	19
8.1	Treatment Schools	19
8.2	Control Schools	22

List of Figures

1	Histogram of ST Math Percent Progress for $\geq 85\%$ Enrollment Grades 2016/17	9
2	Baseline Year Density Plots Showing Math Scores and Percent Student Need Match between TRT and CTRL - 2014/15	11
3	Changes in z-scores (See Section 3.1) for Grade-Aggregated TRT and CTRL datasets between 2014/15 and 2016/17	13
4	Changes in Percentile Ranking for TRT and CTRL Datasets between 2014/15 and 2016/17	14
5	Changes in Grade-Mean Z-score (See Section 3.1) for TRT and CTRL Datasets between 2014/15 and 2016/17	16

List of Tables

1	Descriptive Statistics of ST Math Percent Progress for ≥ 85 percent Enrollment Grades	9
2	Number of ST Math Grades with ≥ 85 percent Enrollment and with ≥ 40 percent progress	9
3	Treatment Pool Filtering and Controls: Counts of Grades, Schools, and Students	10
4	Matching TRT and CTRL	12
5	All Grades Together Growth	13
6	Statistics for the Differential Changes in Math Scores Growth (TRT - CTRL)	14
7	Grade 3 - Yearly Math Performance and Counts for TRT and CTRL Datasets	15
8	Grade 4 - Yearly Math Performance and Counts for TRT and CTRL Datasets	15
9	Grade 5 - Yearly Math Performance and Counts for TRT and CTRL Datasets	15
10	Statistics for the Differential Changes in Z-scores (See Section 3.1) Growth, (TRT - CTRL)	16
11	Cohen's d Effect Size	17
12	TRT Grades Detail Sorted by Year	18
13	CTRL Grades Detail Sorted by Year	18
14	Treatment Schools (TRT Dataset)	19
15	Treatment Schools (TRT Dataset)	20
16	Treatment Schools (TRT Dataset)	21
17	Matched Control Schools (CTRL Dataset)	22
18	Matched Control Schools (CTRL Dataset)	23
19	Matched Control Schools (CTRL Dataset)	24
20	Matched Control Schools (CTRL Dataset)	25
21	Matched Control Schools (CTRL Dataset)	26

1 Introduction

1.1 Background

This is a quasi-experimental analysis at the grade-mean level. Entire grades represent the units of analysis, and outcome measures are the 2-year changes in grade-mean z-score of Proficient or Advanced. The treatment grades used the ST Math program for 2 years, beginning in the 2015/16 school year. The study hypothesis is treatment grades using ST Math will outperform similar matched control grades, using their “business as usual” conditions of instructional content and professional development. The control grades were selected to have similar demographic and math attributes (See Figures 2 and 3) to the treatment grades during the baseline year (2014/15), and did not use ST Math in 2015/16 or 2016/17. The treatment grades’ selection pool was all schools using ST Math in grades 3, 4, and 5 in the USA. The control grades’ pool was all schools not using ST Math in grades 3, 4, and 5 in the USA. This study method measures effectiveness of the ST Math program when nominally implemented.

1.2 Program Description

Spatial-Temporal Math (ST Math) is game-based, instructional software for K–12 students, created by the MIND Research Institute (MIND). The purpose of the program is to boost math comprehension through visual learning. The ST Math software games begin without language or symbol abstractions by posing math problems as purely visual puzzles. In this way, three objectives are accomplished: i) language proficiency prerequisites to engage with the program are minimal, ii) non-mathematical distractions (e.g. back-stories for word problems) are minimized or eliminated – thereby reducing load on working memory, and iii) the actual math in the problem can be represented clearly, simply, and unambiguously. Interactive, animated visual manipulatives provide informative feedback on student solutions. A score of 100 percent on a game level comprised of 4-12 puzzles is required for progression through the levels. Failure requires a re-play of the level, via a new quasi-random set of puzzles. In this way, progression is self-paced.

Besides the self-paced progress made by students in their one-to-one environment, the program is designed to be referenced by teachers during their regular math instruction. It is supplemental to core or basal math instruction and instructional materials. As the great majority of grade-level math standards are covered in the ST Math digital curriculum, completion of 100% of the entire ST Math curriculum (i.e. completing every Game) is required to cover all grade-level math standards. Teachers receive initial training, either face to face or through self-guided online instruction. The training covers account startup, as well as math learning and growth mindset goals, the pedagogical approach to learning in a visual experiential game, monitoring and intervention of the student 1:1 game play, and connecting of ST Math content to classroom content and pacing.

For students to achieve nominal progress through the program, there is a recommended time-on-task requirement of 90 minutes per week over about 30 weeks. Consistent application of 90 minutes per week throughout the school year is normally sufficient to result in a grade’s average ST Math content coverage exceeding 50% by year-end. In this study, we include grades that have achieved 40% or more content coverage (Progress) by April 15th.

This is a passive study with no experimental setup or extraordinary communications to any schools. All schools in this study therefore received normal program implementation support through the year from MIND support managers. This support includes bundled startup services of approximately 2-4 hours of training either in-person or online, access to live webinars, regular online and push reports on usage and progress, email/phone helpdesk, and proactive monitoring for gaps or issues by MIND support representatives.

MIND Research Institute initiated, funded, and exercised editorial control over this study.

2 Data Collection

Since this analysis uses grades as the unit of analysis, and states publish grade-mean state standardized test scores, the data for student math outcomes is collected from each state education agency's research files (retrieved from state websites). The treatment students use ST Math student accounts served by MIND. Student ST Math usage data is aggregated to grade-level means by MIND.

2.1 Treatment Grades Pool and Selection

The Treatment grades pool originated with all schools and grades using ST Math in the USA. From these schools, every grade that had used the ST Math program only for the year 2016/17 was identified. They comprise the Treatment grades pool for this evaluation of 2-year usage.

2.1.1 Enrollment Filter

Because the analysis uses grade-mean data, such as grade-mean scale scores or grade-mean proficiency level percentages, it is necessary that the program also be a grade-wide treatment, with the great majority of students in each grade receiving treatment. Otherwise, the grade-means reported by the state of 100% of *tested* students would not be valid measures of a smaller fraction of *treatment* students. MIND's site implementation requirement is that an entire grade, including all teachers and all classes within that grade, use the ST Math program. We validate how closely this is the case for each individual treatment grade by comparing the number of ST Math student accounts at a grade level to the reported enrollment at that grade level. We discard from the Treatment pool any grade with a ratio of ST Math student accounts to reported grade enrollment lower than 85%.

2.1.2 Content Coverage Filter

Furthermore, the outcomes measure is a summative year-end test, i.e. the standardized math assessment of that state. The math assessment thus covers all the math standards for that entire grade level. Meanwhile, the ST Math program curriculum (arranged into Learning Objectives) is also aligned to each state's math standards. To infer that the ST Math content is having a valid effect on student outcomes on the summative assessment, we discard any grade with grade-mean of ST Math Progress for its students lower than 40% by April.

Progress is a percentage, and is defined as Levels completed by the student, divided by the total number of Levels in the grade-level curriculum. Note that student achievement of at least 40% progress in ST Math is accomplished primarily by teacher assignment of computer session time to students. With sufficient time on task, students make progress. The program helps them self-pace through providing real-time informative feedback for each puzzle.

2.2 Control Grades Pool and Selection

The control grades are randomly selected from a control pool of schools in the USA. Though they are randomly selected, they are also matched to be similar to the Treatment grades' math attributes and demographics during the baseline 2014/15 year. The matched attributes include:

- z-score of percent Proficient or Advanced
- percentage of students receiving free or reduced lunch (using the demographic data from MDR).

To mitigate the risk of randomly picking a set of Control grades that generates an outlier for effect, a Monte Carlo approach is used to perform many random picks. The control pool's size is large enough that there are many possible "picks" of closely matched control grades.

One hundred randomly matched picks are made and sets of matched control grades are generated. For each set, the quality of the match as well as the math growth of the potential control set is evaluated. Some picked sets have high average math growth, some have low average math growth. From the set of all picks, a median pick is chosen. This avoids either an unlikely overestimate, or underestimate, of the Control grades' growth. When multiple median picks exist, the control set with the minimal math score differences in the baseline year is chosen.

3 Data Analysis

The set of all schools and grades using ST Math in the USA is evaluated for Enrollment percentage and Progress percentage parameters. A filtered Treatment set (TRT) of all ST Math grades with $\geq 85\%$ Enrollment and $\geq 40\%$ Progress is identified. State math assessment data is tabulated. A matching set of Control grades based on baseline year state math assessment is selected.

Changes in math performance, i.e. the difference in math performance of a grade from a baseline year to the final year, are evaluated and tabulated. Statistical tests of the significance of the difference in math performance changes between Treatment grades and Control grades are performed. Finally, a grade-by-grade disaggregation is performed.

3.1 Z-scores

In order to analyze across all states with different math assessments, a new z-score of that test's math proficiency is calculated. For each year being analyzed, by grade, a z-score takes the difference of the grade mean percent proficient and the mean of all percent proficient statewide for that year, and then divides it by the standard deviation of all percent proficient statewide for that year. Here is a fictional example to illustrate the calculation of a z-score for the 2015/16 exam:

$$\begin{aligned} &\text{School A, Grade 3, Percent Proficient: } 70 \\ &\text{Average across all schools statewide, Grade 3: } 50 \\ &\text{Standard deviation across all schools statewide, Grade 3: } 20 \\ \text{Z-score} &= \frac{(\text{School A, Grade 3, Percent Proficient}) - (\text{Average across all schools, Grade 3})}{(\text{Standard deviation across all schools, Grade 3})} \\ \text{Z-score} &= \frac{70 - 50}{20} = 1 \end{aligned}$$

The z-score is calculated for every grade across all years being analyzed, using the full state data set of schools for the averages and standard deviations. The use of z-scores is a valid statistical method to normalize any dataset and to enable analysis across otherwise uncomparable exams. In this report, we only analyze z-scores.

3.2 Percentile Ranking

These newly calculated z-scores can then be converted into a percentile ranking. Each percentile ranking shows the grade's performance relative to the others in that year and grade. For example, for a specific grade 3, a percentile ranking of 50 shows that this grade 3 performed at the average of all third grades in the state for that testing year.

3.3 Final Treatment and Control

3.3.1 ST Math Grade-Aggregated Implementation ($\geq 85\%$ Enrollment Grades Only)

ST Math Percent Grade Mean Progress Distribution – 2016/17

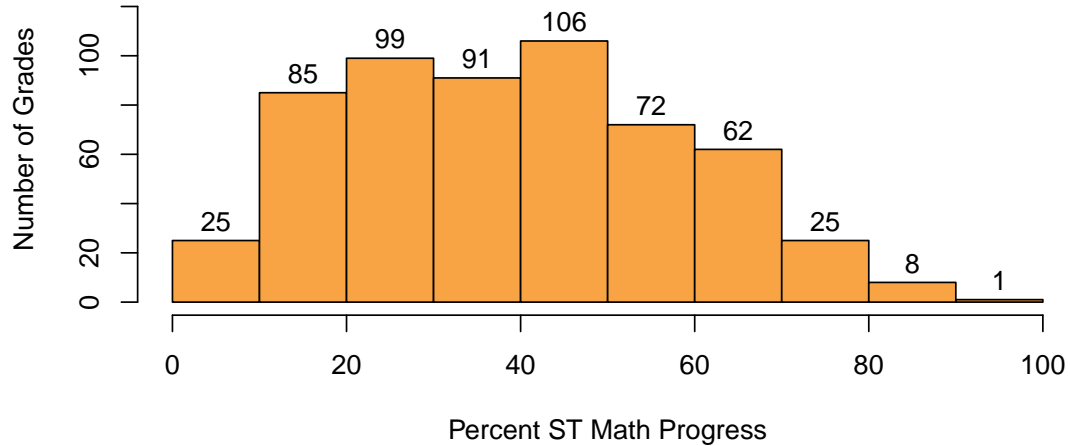


Figure 1: Histogram of ST Math Percent Progress for $\geq 85\%$ Enrollment Grades 2016/17

For all ST Math grades with Enrollment $\geq 85\%$, Figure 1 shows the frequency distribution of grade-average Progress percentage through the program. Note that we will only be using grades with $\geq 40\%$ Progress as the Treatment Group.

Table 1 provides descriptive statistics of the Progress distribution. Table 2 shows the number of remaining treatment grades after applying enrollment and progress filters.

	Min.	Max.	Average	S.D.
ST Math % Progress	3.9	96.2	39.2	19.1

Table 1: Descriptive Statistics of ST Math Percent Progress for $\geq 85\%$ Enrollment Grades

Grades with $\geq 85\%$ Enrollment:	574
Grades with in addition $\geq 40\%$ Progress:	274

Table 2: Number of ST Math Grades with $\geq 85\%$ Enrollment and with $\geq 40\%$ percent progress

3.3.2 Filtering Treatment and Controls

Table 3 shows the total number of grades in the Treatment pool, the number of grades that exceeded the 85% Enrollment figure, and also the 40% Progress filter. Other rows in the table indicate counts of numbers of students (2016/17 from state testing count) and counts of number of schools represented. The number of matched Control (CTRL) grades, students, and schools is also shown.

	Grade 3	Grade 4	Grade 5	Total
ST Math Using Grades	329	260	251	840
ST Math Using Schools	329	260	251	405
ST Math Students	24262	19913	19623	63798
ST Math Grades (Enroll \geq 85%)	217	189	168	574
TRT Grades (Enroll \geq 85% & Prog \geq 40%)	97	93	84	274
TRT Schools (Enroll \geq 85% & Prog \geq 40%)	95	92	84	145
TRT Students (Enroll \geq 85% & Prog \geq 40%)	7708	7217	7205	22130
CTRL Grades	97	93	84	274
CTRL Schools	97	93	84	259
CTRL Students	6718	7391	6171	20280

Table 3: Treatment Pool Filtering and Controls: Counts of Grades, Schools, and Students

3.3.3 Match of Controls to Treatment

Figure 2 shows the density plots of the baseline z-score of percent students at state assessment Proficient or Advanced (left plot) and the percentage of students needing free or reduced lunch (right plot) for treatment grades overlaid on control grades, showing the closeness of the match obtained between Treatment and Control sets of grades in the baseline year, 2014/15.

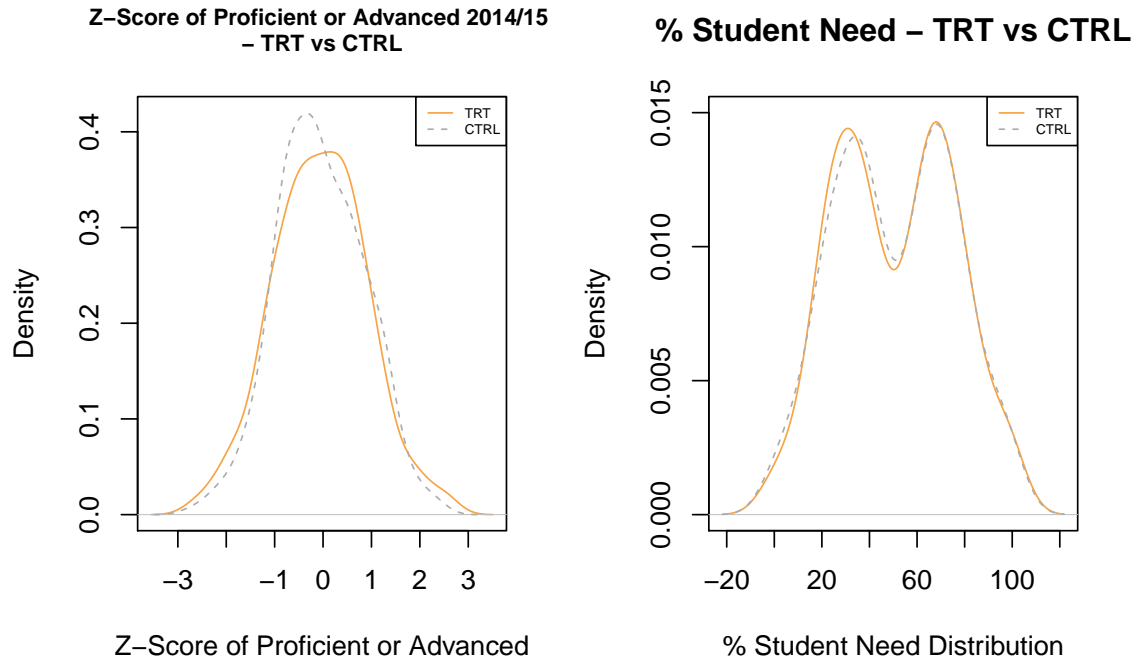


Figure 2: Baseline Year Density Plots Showing Math Scores and Percent Student Need Match between TRT and CTRL - 2014/15

Table 4 shows the difference of the means of Treatment versus Control in the baseline year, with accompanying p-values, for mean z-score of percent Proficient or Advanced and for percent of students receiving free or reduced lunch. The large p-values show the differences between the Treatment and Control grades are not statistically significant.

	Mean(TRT)	SD(TRT)	Mean(CTRL)	SD(CTRL)	Estimate	P-Value	Effect Size
Z-Score of Proficient or Advanced - 2014/15	-0.06	0.98	-0.06	0.90	-0.01	0.93	-0.01
Percent Free or Reduced Lunch	50.95	24.74	50.95	24.79	0.00	1.00	0.00

Table 4: Matching TRT and CTRL

3.4 Grade-Aggregated Analysis

Table 5 shows for both Treatment (TRT) and Control (CTRL) aggregation across grades of z-score distributions. The far right column also shows the average ST Math Progress for the TRT set.

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Comp.
TRT.14.15	274	145	20324	-0.06	48.14	-
TRT.16.17	274	145	19760	0.11	53.50	56.02
TRT.Delta	-	-	-	0.17	5.36	-
CTRL.14.15	274	259	20533	-0.06	48.14	-
CTRL.16.17	274	259	20280	-0.03	49.62	-
CTRL.Delta	-	-	-	0.03	1.48	-

Table 5: All Grades Together Growth

Figure 3 shows the changes in mean z-scores of percent Proficient or Advanced for the grade-aggregated Treatment and Control sets.

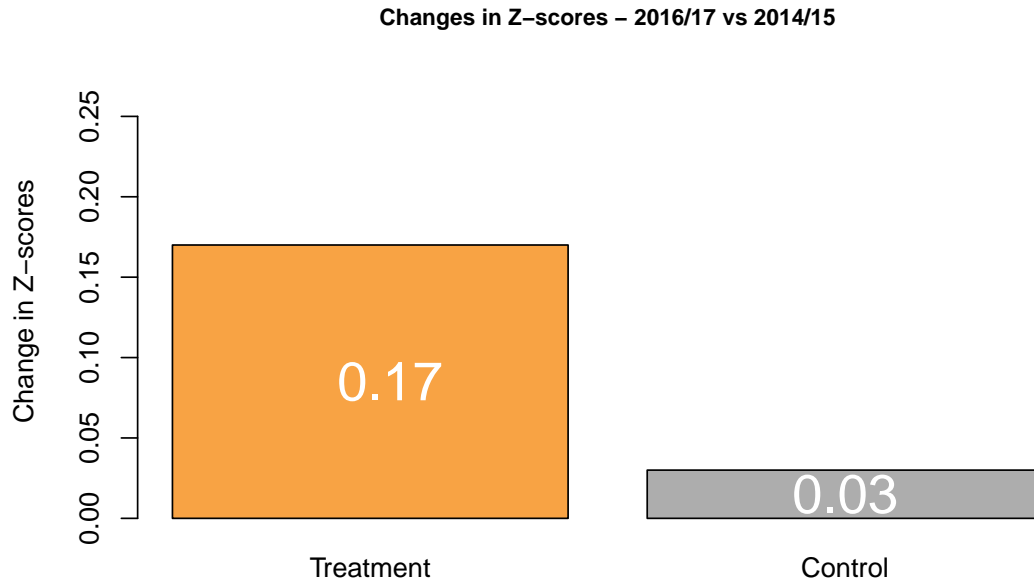


Figure 3: Changes in z-scores (See Section 3.1) for Grade-Aggregated TRT and CTRL datasets between 2014/15 and 2016/17

Further, Table 6 shows the statistics for the *differences* in changes between TRT and CTRL (Treatment - Control) for these same z-score changes as in the above figure. ¹

	Estimate	P-Value	Int.Low	Int.High
Z-Score	0.14	0.02*	0.02	0.27

Table 6: Statistics for the Differential Changes in Math Scores Growth (TRT - CTRL)

Finally, Figure 4 shows the changes in mean percentile ranking between TRT and CTRL.

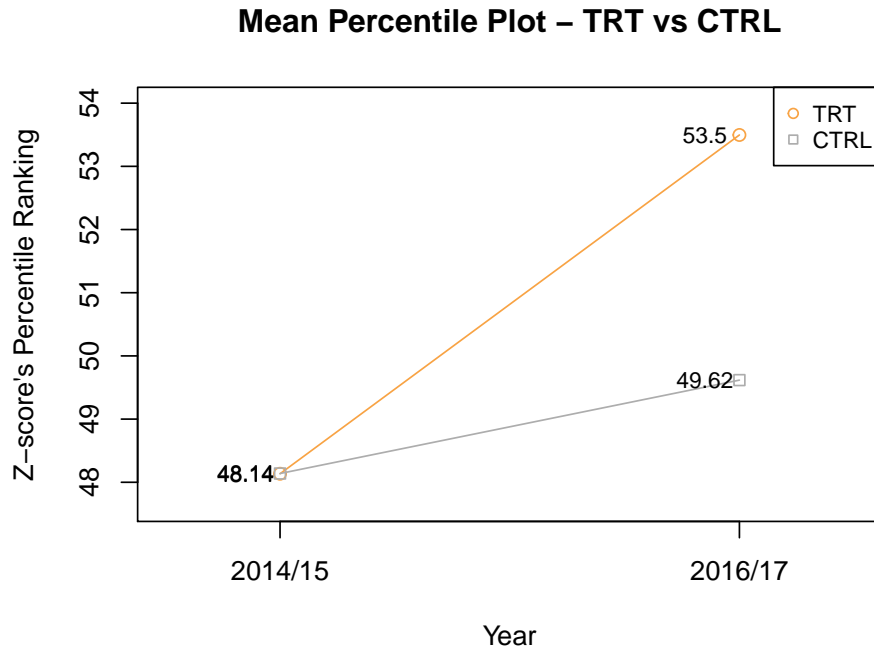


Figure 4: Changes in Percentile Ranking for TRT and CTRL Datasets between 2014/15 and 2016/17

¹* statistically significant $p < 0.05$

3.5 Grade-Level Analysis

3.5.1 Grade Level Result Tables

The following tables (Table 7, 8, and 9) present a disaggregation of results by grade level. The far right column in each table also shows the average ST Math Progress for the TRT set.

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Prog.
TRT.14.15	97	95	6878	-0.06	48.32	-
TRT.16.17	97	95	6832	0.09	52.88	56.29
TRT.Delta	-	-	-	0.16	4.56	-
CTRL.14.15	97	97	6921	-0.15	45.65	-
CTRL.16.17	97	97	6718	-0.14	45.65	-
CTRL.Delta	-	-	-	0.01	0.00	-

Table 7: Grade 3 - Yearly Math Performance and Counts for TRT and CTRL Datasets

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Prog.
TRT.14.15	93	92	6774	-0.11	46.57	-
TRT.16.17	93	92	6502	0.03	51.90	56.75
TRT.Delta	-	-	-	0.14	5.33	-
CTRL.14.15	93	93	7361	-0.05	48.43	-
CTRL.16.17	93	93	7391	0.05	51.69	-
CTRL.Delta	-	-	-	0.10	3.26	-

Table 8: Grade 4 - Yearly Math Performance and Counts for TRT and CTRL Datasets

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Prog.
TRT.14.15	84	84	6672	-0.01	49.65	-
TRT.16.17	84	84	6426	0.22	55.98	54.91
TRT.Delta	-	-	-	0.23	6.32	-
CTRL.14.15	84	84	6251	0.05	50.69	-
CTRL.16.17	84	84	6171	0.02	51.90	-
CTRL.Delta	-	-	-	-0.02	1.21	-

Table 9: Grade 5 - Yearly Math Performance and Counts for TRT and CTRL Datasets

3.5.2 Grade-Level Analysis of Changes in Z-scores of Proficient or Advanced

Figure 5 shows the changes in the grade-mean z-scores of students for the TRT and CTRL datasets, disaggregated by grade:

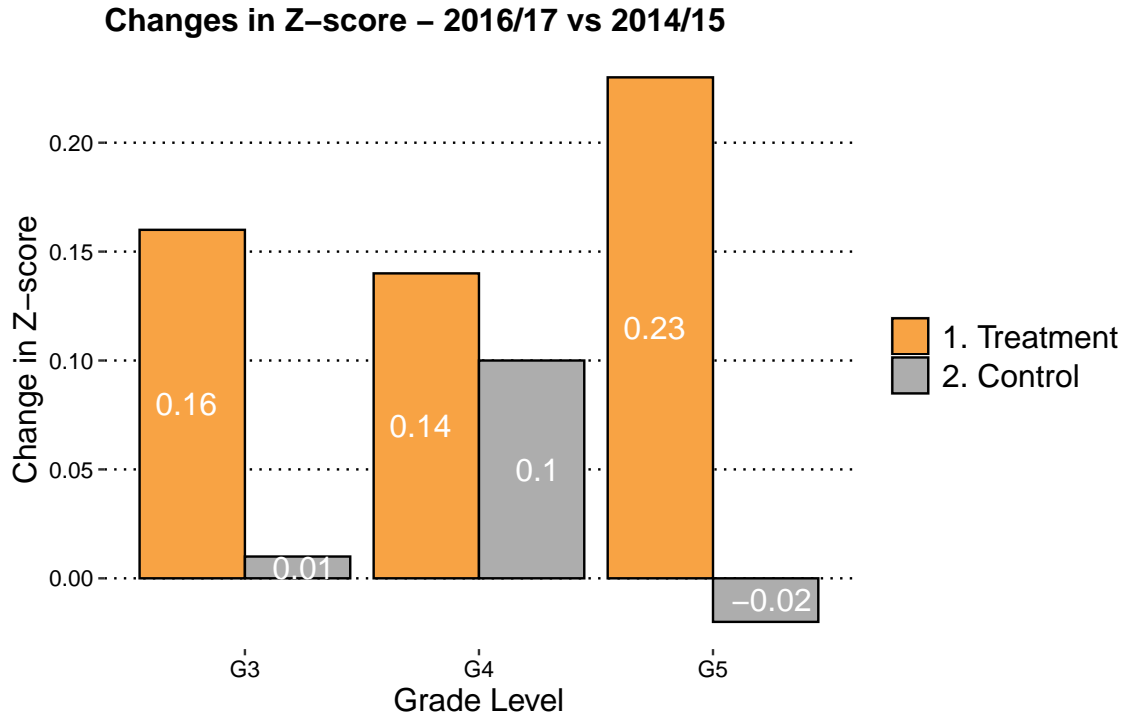


Figure 5: Changes in Grade-Mean Z-score (See Section 3.1) for TRT and CTRL Datasets between 2014/15 and 2016/17

Table 10 shows the statistics for the differences between TRT and CTRL (Treatment - Control) for these same z-score changes as shown in Figure 5.

	Estimate	P-Value	Int.Low	Int.High
Grade 3	0.15	0.14	-0.05	0.35
Grade 4	0.04	0.73	-0.19	0.27
Grade 5	0.25	0.03*	0.03	0.48

Table 10: Statistics for the Differential Changes in Z-scores (See Section 3.1) Growth, (TRT - CTRL)

4 Effect Size

The following table shows the effect sizes for z-score of Proficient or Advanced.

Z-Score of Proficient or Advanced Effect Size	
Grade 3	0.17
Grade 4	0.04
Grade 5	0.28
All Grades	0.16

Table 11: Cohen's d Effect Size

5 Findings Summary

USA grades 3, 4, and 5 using ST Math for the year 2016/17 averaged 34% ST Math Progress. 327/840 grades (39%) averaged covering more than 40% of ST Math content. Statistically significant differences were found in this analysis for both grade-aggregated and individual grade levels. Looking at Table 6, a statistically significant difference was found for grade-aggregated z-score, with an estimate of 0.14 points favorable for the ST Math treatment set. Looking at Table 10, grade 5 ST math treatment set outperformed their matched controls for state assessment z-scores with a statistically significant difference of 0.25.

6 Confounders

Despite best efforts in minimizing confounders to the results of this analysis, there still remain a few input variables that could be significant in affecting differences of state test score outcomes between the Treatment and Control sets. One issue is the lack of randomization of grades chosen to receive the ST Math treatment. Instead of randomized selection, Treatment grades are self-selected. Self-selection can be an indication of districts or schools with a focus on math, an appetite for change, and with a spotlight on math training. Furthermore, not all grades using the ST Math program are chosen for analysis. Each grade must pass two specific filters to be considered for the Treatment set: the first being an enrollment filter of at least 85% of students in each grade using the program, and the second being a progress filter of at least 40% of the program completed on average by students in that grade. These filters might indicate relatively high-functioning schools with a team of relatively effective teachers in that grade, thus resulting in better instruction overall. A mitigation of this possible confounder is our selection of treatment groups on the grade level, rather than the teacher level, so there is no cherry picking of teachers: the full range of teachers in each grade is included. Moreover, the specific teachers may often be the same in the baseline year as in the current year, so the Treatment growth is not due to teacher differences. Finally, a possible confounder lies in the "business as usual" conditions at the matched control grades chosen for each analysis. It's unknown whether these control grades used other programs that could affect the comparison of the two sets of grades. The Monte Carlo Method is used to mitigate the possibility of control picks being favorable or unfavorable (see Section 2.3).

7 Reference Tables Grouped By School Year

The following tables show grade-level details, grouped by school year and for treatment (Table 12) and controls (Table 13) separately.

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Comp.
Grade 3 (14.15)	97	95	6878	-0.06	48.32	-
Grade 4 (14.15)	93	92	6774	-0.11	46.57	-
Grade 5 (14.15)	84	84	6672	-0.01	49.65	-
All Grades (14.15)	274	145	20324	-0.06	48.14	-
Grade 3 (16.17)	97	95	6832	0.09	52.88	56.29
Grade 4 (16.17)	93	92	6502	0.03	51.90	56.75
Grade 5 (16.17)	84	84	6426	0.22	55.98	54.91
All Grades (16.17)	274	145	19760	0.11	53.50	56.02

Table 12: TRT Grades Detail Sorted by Year

	# Grades	# Schools	# Students	Z-Score	Percentile	ST Math Per Comp.
Grade 3 (14.15)	97	97	6921	-0.15	45.65	-
Grade 4 (14.15)	93	93	7361	-0.05	48.43	-
Grade 5 (14.15)	84	84	6251	0.05	50.69	-
All Grades (14.15)	274	259	20533	-0.06	48.14	-
Grade 3 (16.17)	97	97	6718	-0.14	45.65	-
Grade 4 (16.17)	93	93	7391	0.05	51.69	-
Grade 5 (16.17)	84	84	6171	0.02	51.90	-
All Grades (16.17)	274	259	20280	-0.03	49.62	-

Table 13: CTRL Grades Detail Sorted by Year

8 Lists of Schools

8.1 Treatment Schools

The following tables list the treatment schools and grades (after 85% enrollment and 40% progress filtering) used in the analysis.

State	PID	IID	District	School Name	GRADE
VA	1069035	STO1RN	Albemarle County	Stone Robinson Elementary	5
OH	798867	AMA3BR	Amanda-Clearcreek Local	Amanda-Clearcreek Elementary School	3
IL	300410	OAK4MS	Antioch CCSD 34	Oakland Elementary School	3, 5, 4
VA	1069671	RAN1PO	Arlington County	Randolph Elementary	3
TX	1001552	APB5ZG	BRAZOSPORT ISD	A P BEUTEL EL	3
TX	1001564	BES5ZG	BRAZOSPORT ISD	BESS BRANNEN EL	3
TX	3316729	MAD5ZD	BRAZOSPORT ISD	GRIFFITH EL	4
TX	1001681	TWO5ZD	BRAZOSPORT ISD	T W OGG EL	3
KY	379461	FLO360	Boone County	Florence Elementary School	4, 5
KY	379497	OCK360	Boone County	Ockerman Elementary School	5, 3, 4
NH	662115	BOW096	Bow	Bow Memorial School	5
CA	137639	BUR771	Burton Elementary	Burton Elementary	5, 4, 3
UT	2855942	CRE6IQ	CARBON DISTRICT	CREEKVIEW SCHOOL	4, 5, 3
MO	555976	FAI514	COLUMBIA 93	FAIRVIEW ELEM.	5
MO	556059	RID514	COLUMBIA 93	JOHN RIDGEWAY ELEM.	5, 3, 4
MO	556205	MID514	COLUMBIA 93	MIDWAY HEIGHTS ELEM.	4, 3
MO	3247817	MIL514	COLUMBIA 93	MILL CREEK ELEM.	4, 5
MO	556061	ROC515	COLUMBIA 93	ROCK BRIDGE ELEM.	4, 5
MO	556085	RUS514	COLUMBIA 93	RUSSELL BLVD. ELEM.	5, 4
IA	243226	JOH41K	Cedar Rapids Community School District	Johnson Elementary School	5, 3, 4
IA	234433	CEN40K	Central Community School District	Central Elementary School	3, 4, 5
CA	3399551	CLE73B	Chula Vista Elementary	Clear View	5, 4
IL	277382	EVE4OC	City of Chicago SD 299	Everett Elem School	4
IL	279562	FAR4OE	City of Chicago SD 299	Faraday Elem School	3
VA	1072173	BOY1QU	Clarke County	Boyce Elementary	3, 4, 5
VA	1072197	DGC1QT	Clarke County	D. G. Cooley Elementary	3, 4, 5
MI	481430	GRA3U5	Crawford AuSable Schools	Grayling Elementary School	5, 4, 3
IA	236297	DAN426	Danville Community School District	Danville Elementary School	4, 3, 5
IA	250542	FIL42O	Davenport Community School District	Fillmore Elementary School	3, 5, 4
IA	250619	HAY42O	Davenport Community School District	Hayes Elementary School	4, 5, 3
IA	250657	JEF42O	Davenport Community School District	Jefferson Elementary School	5
IA	250683	MAD42O	Davenport Community School District	Madison Elementary School	5, 3, 4
IA, OH	250712, 819540	MON42O, MON3BU	Davenport Community School District, Jonathan Alder Local	Monroe Elementary School	3, 3, 4
OH	798245	ERV3BH	Delaware City	Ervin Carlisle Elementary School	3
OH	798269	JAM3BH	Delaware City	James Conger Elementary School	3
OH	4428595	ROB3BH	Delaware City	Robert F Schultz Elementary School	3
IA	10902892	GEO4OG	Dubuque Community School District	Carver Elementary School	3, 4, 5
IA	236730	SAG4OG	Dubuque Community School District	Sageville Elementary School	3
UT	1063823	HUN6IS	EMERY DISTRICT	HUNTINGTON SCHOOL	4
IA	244311	EAR3V3	Earlham Community School District	Earlham Elementary School	4
IA	235932	EDG4OJ	Edgewood-Colesburg Community School District	Edgewood-Colesburg Elementary School	3, 4, 5
CA	4287975	ALI7CV	Empire Union Elementary	Alice N. Stroud Elementary	5, 3, 4
CA	119027	FAR7CJ	Escalon Unified	Farmington Elementary	4
IL	269373	LIN4N8	Evanston CCSD 65	Lincolnwood Elem School	5
NJ	666563	FOLOMB	FOLSOM BORO	FOLSOM ELEMENTARY SCHOOL	3
PA	909298	EDI19L	GENERAL MCLANE SD	EDINBORO EL SCH	3, 4
UT	1064499	ACA6HO	GRANITE DISTRICT	ACADEMY PARK SCHOOL	3, 4
UT	1064736	HIL6HN	GRANITE DISTRICT	HILLSDALE SCHOOL	3
UT	1064970	PHI6HO	GRANITE DISTRICT	PHILO T. FARNSWORTH SCHOOL	3
CO	5274323	ANN67Y	GREELEY 6	HEIMAN ELEMENTARY SCHOOL	5, 4
CO	1484708	MEE67Z	GREELEY 6	MEEKER ELEMENTARY SCHOOL	3
IL	5303572	RIV4MR	Gurnee SD 56	River Trail School	5, 4
IA	239043	GUT3V7	Guthrie Center Community School District	Guthrie Center Elementary School	5
IA	236479	HAR3YM	Harris-Lake Park Community School District	Harris-Lake Park Elementary School	4, 5
MA	421832	DRA053	Haverhill	Consentino Middle School	4

Table 14: Treatment Schools (TRT Dataset)

State	PID	IID	District	School Name	GRADE
IA	240391	CRE40T	Howard-Winneshiek Community School District	Crestwood Elementary School	5
IA	11558224	BUF41B	Iowa City Community School District	Buford Garner Elementary	4
WV	1153844	BEL1XH	Kanawha	Belle Elementary School	3
WV	1153909	BRI1XN	Kanawha	Bridge Elementary School	3, 4, 5
WV	1154393	BRI1YA	Kanawha	Bridgeview Elementary School	3, 4, 5
WV	1153997	CHE1YB	Kanawha	Chesapeake Elementary School	3, 4, 5
WV	4950263	DUN1XN	Kanawha	Dunbar Intermediate Center	4, 5
WV	1154331	HOL1YB	Kanawha	Holz Elementary School	5
WV	1154367	KAN1YA	Kanawha	Kanawha City Elementary School	3, 4
WV	1154381	KEN1YB	Kanawha	Kenna Elementary School	3, 4, 5
WV	1154458	MAL1YA	Kanawha	Malden Elementary School	3, 4, 5
WV	1154460	MARIYB	Kanawha	Marmet Elementary School	3, 4
WV	1154484	MARIY0	Kanawha	Mary Ingles Elementary School	3, 4, 5
WV	1154525	MON1YA	Kanawha	Montrose Elementary School	3, 4, 5
WV	1154549	NT1XU	Kanawha	Nitro Elementary School	3, 4
WV	1154587	OVE1YB	Kanawha	Overbrook Elementary School	3, 4, 5
WV	1154616	PIE1YA	Kanawha	Piedmont Year-Round Education	5
WV	1154630	PIN1XN	Kanawha	Pinch Elementary School	3, 4, 5
WV	1154678	RIC1YA	Kanawha	Richmond Elementary School	3, 4, 5
WV	1154771	SHO1YA	Kanawha	Shoals Elementary School	3, 4
WV	1154991	WEB1YA	Kanawha	Weberwood Elementary School	3, 4, 5
WV, IA	1154410, 253477	LAK1XX, LAK3VH	Kanawha, Norwalk Community School District	Lakewood Elementary School	3, 4, 5, 4, 3
PA	916045	HAN1CP	LAMPETER-STRASBURG SD	HANS HERR EL SCH	5
MA	2907076	COM054	Lawrence	Community Day Arlington	3, 4
CA	5345776	CES708	Long Beach Unified	Chavez Elementary	5, 3, 4
CA	3248342	INT709	Long Beach Unified	Jenny Oropeza Elementary	3, 4
CA	71918	JAM755	Long Beach Unified	Madison Elementary	4
CA	72144	DAN709	Long Beach Unified	Webster Elementary	5, 3, 4
CA	76011	ALD6Y4	Los Angeles Unified	Aldama Elementary	4, 5
CA	10908432	GEO702	Los Angeles Unified	George De La Torre Jr. Elementary	3
CA	72780	HAR6Z0	Los Angeles Unified	Harbor City Elementary	5
CA	73239	HEL6YR	Los Angeles Unified	Heliotrope Avenue Elementary	5
CA	76396	LOS6Y5	Los Angeles Unified	Los Feliz Science/Tech/Engineer/Math/Medicine Magn	5, 4, 3
CA	73526	STA6Y5	Los Angeles Unified	Stanford Avenue Elementary	3, 4, 5
CA	11562653	STA71M	Los Angeles Unified	Stanley Mosk Elementary	4
CA	73588	VER6Y5	Los Angeles Unified	Vernon City Elementary	3
NJ	4019962	MIL0LG	MANALAPAN-ENGLISHTOWN REG	MILFORD BROOK SCHOOL	5
NJ	691843	TAY0LG	MANALAPAN-ENGLISHTOWN REG	TAYLOR MILLS SCHOOL	4, 3
VA	1078414	CLA1UG	Mecklenburg County	Clarksville Elementary	3, 4, 5
VA	1078426	LAC1UJ	Mecklenburg County	LaCrosse Elementary	4, 5
VA	1078476	SOU1UL	Mecklenburg County	South Hill Elementary	3, 4, 5
IA	245975	FRA42K	Muscatine Community School District	Franklin Elementary School	5, 4, 3
AL	13588	TUS2S8	NA	Tuskegee Public Elementary	5
GA	211120	DAV2DF	NORTHWEST GEORGIA	DAVIS ELEMENTARY SCHOOL	4
MA	1846651	NAN073	Nantucket	Nantucket Elementary	3
IA	234079	NEW3WQ	New Hampton Community School District	New Hampton Elementary School	4, 3
CA	4875895	REA75A	Newport-Mesa Unified	Everett A. Rea Elementary	3
FL	3400045	CLA2IV	ORANGE	CLAY SPRINGS ELEMENTARY	3, 4
CA	50380	THO7AT	Oakland Unified	Thornhill Elementary	3
IA	237978	WIN3WQ	Oelwein Community School District	Wings Park Elementary School	4, 3, 5
IA	245420	LIN3W6	Osage Community School District	Lincoln Elementary Schoo	4, 3
CA	80347	LOS701	Paramount Unified	Los Cerritos	5
CA	121006	BAU77K	Paso Robles Joint Unified	Arts Academy At Bauer Speck Elementary	4, 5, 3
CA	120997	GEO77K	Paso Robles Joint Unified	Georgia Brown Dual Immersion Magnet Elementary	3
CA	4941054	KER77K	Paso Robles Joint Unified	Kermit King Elementary	4, 5, 3

Table 15: Treatment Schools (TRT Dataset)

State	PID	IID	District	School Name	GRADE
CA	121020	WIN77K	Paso Robles Joint Unified	Winifred Pifer Elementary	5
CA	53148	ARB7EF	Pierce Joint Unified	Arbuckle Elementary	5
CA	98435	GLE75S	Placentia-Yorba Linda Unified	Glenview Elementary	3, 5
MO	4795128	REE52N	REEDS SPRING R-IV	REEDS SPRING INTERMEDIATE	5
OH	801660	HER3BM	Reynoldsburg City	Herbert Mills Elementary School	3, 4
NJ	689955	DW10OL	SAYREVILLE BORO	DWIGHT D. EISENHOWER ELEMENTARY SCHOOL	3
NJ	689967	ARL0OL	SAYREVILLE BORO	EMMA ARLETH ELEMENTARY SCHOOL	3
NJ	689979	HAR0OL	SAYREVILLE BORO	HARRY S. TRUMAN ELEMENTARY SCHOOL	3
NJ	5341603	SAM0OL	SAYREVILLE BORO	SAMSEL UPPER ELEMENTARY SCHOOL	5, 4
NJ	690045	WIL0ON	SAYREVILLE BORO	WOODROW WILSON ELEMENTARY SCHOOL	3
AR	4015655	GEO5M4	SPRINGDALE SCHOOL DISTRICT	GEORGE ELEMENTARY SCHOOL	5
AR	11713943	SON5M4	SPRINGDALE SCHOOL DISTRICT	SONORA ELEMENTARY SCHOOL	3, 5, 4
NH	665105	DRL08J	Salem	Dr. L. F. Soule School	5, 3
NH	665117	MAR08J	Salem	Mary A. Fisk Elementary School	4
NH	665131	NOR08J	Salem	North Salem Elementary School	5, 3
NH	665090	WIL08K	Salem	William E. Lancaster School	4
NH	665088	WIL08J	Salem	William T. Barron Elementary School	4, 3
VA	1080742	EAS1V3	Salem City	East Salem Elementary	3, 4
VA	1080950	GWC1V3	Salem City	G.W. Carver Elementary	3, 4
CA	113205	HAW73V	San Diego Unified	Hawthorne Elementary	5, 4
CA	1524047	BAY77G	San Luis Coastal Unified	Baywood Elementary	3, 4
CA	4013853	MON77G	San Luis Coastal Unified	Monarch Grove Elementary	4, 3, 5
WA	1102869	DUN7KJ	Seattle Public Schools	Dunlap Elementary School	4
IA	238570	SID3ZH	Sidney Community School District	Sidney Elementary School	4, 3, 5
IA	254524	SOU40W	South Winneshiek Community School District	South Winneshiek Middle School	5
IA	234641	STA3WK	Starmont Community School District	Starmont Elementary School	5, 4, 3
CA	5278678	STE6Y1	Stella Middle Charter Academy	Stella Middle Charter Academy	5
UT	5097539	WIL6HE	TOOELE DISTRICT	WILLOW SCHOOL	5
CA	82644	TOR6ZF	Torrance Unified	Torrance Elementary	4
CA	103987	PIO7E8	Twin Rivers Unified	Pioneer Elementary	4, 3
NJ	683858	EVE0MH	WOODBURY CITY	EVERGREEN AVENUE ELEMENTARY SCHOOL	3
NJ	683860	WAL0MH	WOODBURY CITY	WALNUT STREET SCHOOL	3, 5
NJ	683872	WES0MH	WOODBURY CITY	WEST END MEMORIAL ELEMENTARY SCHOOL	4, 3, 5
IA	246137	WES42L	West Liberty Community School District	West Liberty Elementary School	3, 4
MA	3389958	PAP030	Westfield	Paper Mill	5

Table 16: Treatment Schools (TRT Dataset)

8.2 Control Schools

The following tables list the control schools and grades (matched control grades to treatment grades) used in the analysis.

State	PID	District	School Name	GRADE
UT	12033148	ALPINE DISTRICT	DRY CREEK SCHOOL	5
MO	558277	ARCHIE R-V	CASS CO. ELEM.	3
NJ	672902	AUDUBON BORO	MANSION AVENUE SCHOOL	3
TX	1056301	AUSTIN ISD	JOSLIN EL	4
OH	834007	Akron City	Firestone Park Elementary School	3
MA	418067	Attleboro	Wamsutta Middle School	5
VA	4879152	Augusta County	Guy K. Stump Elementary	4
NJ	684034	BAYONNE CITY	MARY J DONOHOE COMMUNITY SCHOOL	3
NJ	684072	BAYONNE CITY	WASHINGTON COMMUNITY SCHOOL #9	5
NJ	677328	BLOOMFIELD TWP	FRANKLIN ELEMENTARY	4, 3
UT	1062647	BOX ELDER DISTRICT	DISCOVERY SCHOOL	4
CA	130679	Bella Vista Elementary	Bella Vista Elementary	5
CA	121472	Belmont-Redwood Shores Elementary	Nesbit Elementary	5
WV	1150206	Boone	Ashford-Rumble Elementary	3
IA	251534	Boyden-Hull Community School District	Boyden-Hull Elementary School	5
CA	139613	Briggs Elementary	Olivelands Elementary	3
WV	1150713	Brooke	Lauretta B Millsop Primary School	3
WV	4012081	Brooke	Wellsburg Primary School	3
OH	790114	Bucyrus City	Bucyrus Elementary School	3
KY	11552452	Bullitt County	Crossroads Elementary	3
AR	3007198	CLARKSVILLE SCHOOL DISTRICT	KRAUS MIDDLE SCHOOL	5
NJ	667567	CLIFFSIDE PARK BORO	SCHOOL #5	3
AR	2127458	CONWAY SCHOOL DISTRICT	FLORENCE MATTISON ELEM. SCHOOL	4
IL	11079539	CUSD 308	Southbury Elem School	5
WV	1151107	Cabell	Martha Elementary School	3
IA	253051	Cardinal Community School District	Cardinal Elementary School	4
MI	514582	Caro Community Schools	Schall Elementary School	3
VA	1071492	Caroline County	Madison Elementary	4
CA	123808	Carpinteria Unified	Canalino Elementary	4
VA	1071569	Carroll County	Hillsville Elementary	4
MI	4353988	Carson City-Crystal Area Schools	Carson City-Crystal Upper Elementary/Middle School	4
IL	289206	Cass SD 63	Cass Jr High School	5
IA	230176	Centerville Community School District	Lakeview Elementary	3
IA	3388813	Central City Community School District	Central City Elementary School	4
IA	238192	Central Springs Community School District	Central Springs Elementary School - Nora Springs	3
VA	1071753	Charlotte County	Phenix Elementary	4
MA	441753	Chelsea	Frank M Sokolowski Elementary	3
VA	1397129	Chesapeake City	Camelot Elementary	4
VA	1071909	Chesterfield County	C.E. Curtis Elementary	5
CA	110617	Chula Vista Elementary	Juarez-Lincoln Elementary	3
IA	234213	Clay Central-Everly Community School District	Clay Central-Everly Elementary	3
CA	2131057	Clovis Unified	Mickey Cox Elementary	4
CA	2884199	Coalinga-Huron Unified	Sunset Elementary	4
CA	107488	Colton Joint Unified	Abraham Lincoln Elementary	3
OH	800551	Columbus City	Maize Road Elementary School	3
IA	249323	Council Bluffs Community School District	Bloomer Elementary School	5
TX	4282779	DALLAS ISD	GEORGE BANNERMA	3
UT	1063380	DAVIS DISTRICT	LINCOLN SCHOOL	4
TX	10909137	DENTON ISD	PALOMA CREEK EL	3
AR	24044	DUMAS SCHOOL DISTRICT	REED ELEMENTARY SCHOOL	5
FL	189163	DUVAL	GREGORY DRIVE ELEMENTARY SCHOOL	3
IA	250530	Davenport Community School District	Eisenhower Elementary School	5
KY	382248	Daviess County	Tamarack Elementary School	5
IA	235762	Davis County Community School District	Davis County Middle School	5
IL	10002337	Decatur SD 61	Hope Academy	4

Table 17: Matched Control Schools (CTRL Dataset)

State	PID	District	School Name	GRADE
IA	247741	Des Moines Independent Community School District	Cattell Elementary School	4
IA	247947	Des Moines Independent Community School District	Hillis Elementary School	3
IA	248094	Des Moines Independent Community School District	Madison Elementary School	5
IA	248109	Des Moines Independent Community School District	Morris Elementary School	3
IA	248240	Des Moines Independent Community School District	Park Ave Elementary School	4, 3
IA	248331	Des Moines Independent Community School District	Stowe Elementary School	5
IA	236663	Dubuque Community School District	Irving Elementary School	3
IL	312334	Dunlap CUSD 323	Dunlap Grade School	3
NJ	671594	EDGEWATER PARK TWP	MIDRED MAGOWAN ELEMENTARY SCHOOL	3
AR	28533	ENGLAND SCHOOL DISTRICT	ENGLAND ELEMENTARY SCHOOL	3
CO	144125	ENGLEWOOD 1	CHERRELYN ELEMENTARY SCHOOL	3
IL	11136632	Edwardsville CUSD 7	Albert Cassens Elementary	5
CA	103171	Elk Grove Unified	Samuel Kennedy Elementary	3
CA	10976453	Etiwanda Elementary	Perdew Elementary	5
TX	1052733	FORT WORTH ISD	MCRAE EL	3
CO	155526	FOWLER R-4J	FOWLER ELEMENTARY SCHOOL	5
MO	569032	FOX C-6	ANTONIA ELEM.	4
VA	4290128	Fairfax County	Deer Park Elementary	3
VA	1074559	Fauquier County	James G. Brumfield Elementary	3
WV	1152010	Fayette	Mount Hope Elementary	5
KY	1527427	Fayette County	Julius Marks Elementary School	4
KY	2056031	Fayette County	Millcreek Elementary School	4
IA	253972	Fort Dodge Community School District	Butler Elementary School	3
IA	254005	Fort Dodge Community School District	Duncombe Elementary School	4
VA	1074858	Franklin County	Burnt Chimney Elementary	4
UT	1063990	GRAND DISTRICT	HELEN M. KNIGHT SCHOOL	4
VA	2857213	Galax City	Galax Middle	5
CA	96607	Garden Grove Unified	Rosita Elementary	3
CA	96671	Garden Grove Unified	Susan B. Anthony Elementary	3
NH	662141	Goffstown	Maple Avenue School	3
MA	427563, 446959	Granby, Southbridge	West Street	3, 4
WV	1152266	Grant	Maysville Elementary School	4
VA	11555686	Grayson County	Grayson Highlands School	5
VA	1075462	Grayson County	Independence Elementary	5
WV	1152369	Greenbrier	Crichton Elementary	5
IA	238879	Grundy Center Community School District	Grundy Center Middle School	5
NJ	674168	HADDON TWP	STRAWBRIDGE ELEMENTARY SCHOOL	4
WV	1152606	Hampshire	Augusta Elementary School	3
WV	1153155	Harrison	Johnson Elementary School	3, 5
WV	1153246	Harrison	Nutter Fort Intermediate School	4, 5
WV	1153325	Harrison	Simpson Elementary School	4
IL	270138	Harvey SD 152	Bryant Elem School	3
NH	661692	Haverhill Cooperative	Woodsville Elementary School	3
CA	10007648	Hesperia Unified	Mission Crest Elementary	4
CA	4285111	Hesperia Unified	Topaz Preparatory Academy	3
NH	4749832	Hollis	Hollis Upper Elementary School	5
CA	139730	Hueneme Elementary	Fred L. Williams Elementary	4
IL	4914283	Huntley Comm Sch Dist 158	Martin Elementary School	4
IA	232069	Independence Community School District	West Elementary School	4
IA	241759	Iowa City Community School District	Grant Wood Elementary School	5
IA	241852	Iowa City Community School District	Mark Twain Elementary	3
IA	240937	Iowa Valley Community School District	Iowa Valley Elementary School	4
MO	557819	JACKSON R-II	NORTH ELEM.	4
NJ	695540	JACKSON TWP	HOWARD C. JOHNSON ELEMENTARY SCHOOL	5
PA	921454	JERSEY SHORE AREA SD	AVIS EL SCH	3
WV	1153454	Jackson	Cottageville Elementary School	5
WV	11552373	Jefferson	Driswood Elementary School	5, 3
KY	386517	Jefferson County	Blake Elementary	5
CA	101874	Jurupa Unified	Van Buren Elementary	3
NJ	695617	LACEY TWP	FORKED RIVER ELEMENTARY SCHOOL	3

Table 18: Matched Control Schools (CTRL Dataset)

State	PID	District	School Name	GRADE
MO	567278	LEE'S SUMMIT R-VII	MASON ELEM.	5
MO	11447168	LEE'S SUMMIT R-VII	SUNSET VALLEY ELEM.	4
MO	4867070	LIBERTY 53	LILLIAN SCHUMACHER ELEM.	4
CA	59659	Lake Elementary	Lake Elementary	5
CA	101616	Lake Elsinore Unified	Machado Elementary	4
OH	840185	Lake Local	Lake Elementary School	3
IA	254653	Lawton-Bronson Community School District	Bronson Elementary School	5, 4
OH	2890590	Lebanon City	Donovan Elementary School	3
WV	1842837	Lewis	Jane Lew Elementary School	3
IA	5279086	Lewis Central Community School District	Titan Hill Intermediate School	4
OH	810025	Liberty-Benton Local	Liberty-Benton Elementary School	3
CA	119156	Lincoln Unified	Lincoln Elementary	5
IA	243628	Lisbon Community School District	Lisbon Elementary School	3
CA	71504	Long Beach Unified	Burbank Elementary	4
OH	816366	Lorain City	Admiral King Elementary School	4
CA	73100	Los Angeles Unified	Ascot Avenue Elementary	5
CA	77182	Los Angeles Unified	Kester Avenue Elementary	5
CA	73318	Los Angeles Unified	Liberty Boulevard Elementary	4
CA	74556	Los Angeles Unified	Nora Sterry Elementary	5
CA	74544	Los Angeles Unified	Short Avenue Elementary	4
CA	73007	Los Angeles Unified	Taper Avenue Elementary	3, 5
CA	11454733	Los Angeles Unified	Ucla Community K-12	4
CA	75122	Los Angeles Unified	Wilshire Crest Elementary	5
NJ	676623	MAURICE RIVER TWP	MAURICE RIVER TOWNSHIP SCHOOL	5
IA	251601	MOC-Floyd Valley Community School District	Hospers Elementary School	3
FL	195904	MONROE	KEY LARGO SCHOOL	4
UT	1066459	MONTICELLO ACADEMY	MONTICELLO ACADEMY	3
NH	662517	Manchester	Highland-Goffes Falls School	5
CA	119687	Manteca Unified	Nile Garden Elementary	4
CA	4362422	Maricopa Unified	Maricopa Elementary	4
WV	1156810	Marshall	Cameron Elementary School	5
IA	245171	Marshalltown Community School District	Woodbury Elementary School	4
NH	661733	Mascoma Valley Regional	Enfield Village School	4
IA	233544	Mason City Community School District	Hoover Elementary School	4
IA, MI	233556, 1524683	Mason City Community School District, Warren Consolidated Schools	Jefferson Elementary School	4, 5
WV	1157486	Mercer	Melrose Elementary School	5
IA	253673	Mid-Prairie Community School District	Wellman Elementary School	5
NH	662804	Milford	Heron Pond Elementary School	4
CA	135497	Modesto City Elementary	Enslin Elementary	3
CA	135540	Modesto City Elementary	John Fremont Elementary	3
CA	135655	Modesto City Elementary	Robertson Road Elementary	5
WV	4018889	Monongalia	Cheat Lake Elementary School	5, 4
WV	1158739	Monongalia	Suncrest Elementary School	3
WV, IA	2043541, 235827	Monongalia, Central Decatur Community School District	North Elementary School	4, 5
WV	1158870	Monroe	Mountain View Elementary & Middle School	3
IA	230255	Moravia Community School District	Moravia Elementary School	5
CA	3011852	Moreno Valley Unified	Sugar Hill Elementary	5
WV	1159020	Morgan	Paw Paw Elementary School	3
CA	54336	Mt. Diablo Unified	Silverwood Elementary	4
CA	102036	Murrieta Valley Unified	Murrieta Elementary	4
AL	4948935	NA	Loachapoka Elementary School	5
UT	1876967	NEBO DISTRICT	LARSEN SCHOOL	3
UT	4944410	NEBO DISTRICT	SPANISH OAKS SCHOOL	5
NJ	692433	NEPTUNE TWP	SHARK RIVER HILLS ELEMENTARY SCHOOL	3
NJ	672158	NEW HANOVER TWP	NEW HANOVER TOWNSHIP SCHOOL	4
NJ	689682	NORTH BRUNSWICK TWP	PARSONS	3
GA	219392	NORTHEAST GEORGIA	NORTH JACKSON ELEMENTARY SCHOOL	4
NH	662983	Nashua	Charlotte Ave Elementary School	3
NH	663066	Nashua	New Searles School	3
CA	49410	New Haven Unified	Guy Jr. Emanuele Elementary	4

Table 19: Matched Control Schools (CTRL Dataset)

State	PID	District	School Name	GRADE
VA	1086368	Newport News City	T. Ryland Sanford Elementary	3
IA	4027945	North Iowa Community School District	North Iowa Elementary Buffalo Center	3
IA	244490	North Mahaska Community School District	North Mahaska Elementary School	4
CA	127646	Oak Grove Elementary	Del Roble Elementary	5
WV	1159472	Ohio	Steenrod Elementary School	5, 4
WV	1159513	Ohio	West Liberty Elementary School	3
WV	1401627	Ohio	Woodsdale Elementary School	5
CA	108224	Ontario-Montclair	Bon View Elementary	5
VA	11742578	Orange County	Locust Grove Elementary	5
MO	575055	PARK HILL	UNION CHAPEL ELEM.	3
MO	10022040	PLEASANT HILL R-III	PLEASANT HILL INTERMEDIATE	5
NJ	695980	POINT PLEASANT BORO	NELLIE F. BENNETT ELEMENTARY SCHOOL	3
CA	5342059	Parlier Unified	S Ben Benavidez Elementary	3
CA	80660	Pasadena Unified	Roosevelt	5
CA	54685, 123119	Pittsburg Unified, San Mateo-Foster City	Parkside Elementary	4, 5
WV	1160201	Pleasants	St. Marys Elementary School	4
CA	10904711	Plumas Lake Elementary	Cobblestone Elementary	4
WV	1160263	Pocahontas	Marlington Elementary School	4
NH	664838	Portsmouth	Mary C. Dondero Elementary School	5
VA	10750625	Portsmouth City	Victory Elementary	3
VA, IA	3251777, 3321566	Prince William County , West Des Moines Community School District	Westridge Elementary	4, 5
WV	2104951	Putnam	Eastbrook Elementary School	4
WV	1160691	Putnam	Scott Teays Elementary	5
WV	2104987	Putnam	West Teays Elementary	3, 4
PA	900046	RICHLAND SD	RICHLAND ELEM SCH	5
MO	580024	ROCKWOOD R-VI	KELLISON ELEM.	4
MO	3322168	ROCKWOOD R-VI	UTHOFF VALLEY ELEM.	5
WV	1161231	Raleigh	Sophia-Soak Creek Elementary	4
WV	1161504	Randolph	George Ward Elementary School	3
WV	1523873	Randolph	Midland Elementary School	4
WV	1161542	Randolph	Pickens Elementary/High School	3
CA	1168198	Redding Elementary	Bonny View Elementary	4
CO	145923	SANFORD 6J	SANFORD ELEMENTARY SCHOOL	4
MO	4745472	SPARTA R-III	SPARTA MIDDLE	5
PA	943361	SPRING GROVE AREA SD	PARADISE EL SCH	4
MO	563117	SPRINGFIELD R-XII	HICKORY HILLS ELEM.	5
CA	122828	San Bruno Park Elementary	Rollingwood Elementary	5
CA	128547	San Jose Unified	Willow Glen Elementary	4
CA	50768	San Leandro Unified	Wilson Elementary	3
CA	81913	Saugus Union	Skyblue Mesa Elementary	3
IA	246345	Sheldon Community School District	East Elementary School	4
IA	254926	Sioux City Community School District	Leeds Elementary School	4
IA	254902	Sioux City Community School District	Spalding Park Elementary	3
IA	254964	Sioux City Community School District	Unity Elementary School	3
CA	134522	Sonoma Valley Unified	Flowers Elementary	3
IA	239249	South Hamilton Community School District	South Hamilton Elem	4
VA	1082063	Southampton County	Nottoway Elementary	3
WA	1112149	Spokane School District	Holmes Elementary	4
MA	426210	Springfield	Sumner Avenue	4
IA	232344	Storm Lake Community School District	Storm Lake Middle School	5
VA	1082740	Tazewell County	Tazewell Elementary	3
OH	817372	Toledo City	Burroughs Elementary School	4
IA	1830535	Tri-Center Community School District	Tri-Center Elementary School	5
CA	60919	Trinidad Union Elementary	Trinidad Union	5
UT	1067104	UINTAH DISTRICT	EAGLE VIEW SCHOOL	3
IA	252332	Union Community School District	Dysart-Geneseo Elementary School	3
WV	1162326	Upshur	French Creek Elementary	4
WV	1162340	Upshur	Hodgesville Elementary	3
CA	133023	Vallejo City Unified	Mare Island Health And Fitness Academy	3
VA	1089138	Virginia Beach City	Creeds Elementary	5

Table 20: Matched Control Schools (CTRL Dataset)

State	PID	District	School Name	GRADE
VA	1089437	Virginia Beach City	Seatack Elementary an Achievable Dream Academy	3
MO	562395	WASHINGTON	AUGUSTA ELEM.	5
UT	1068550	WEBER DISTRICT	ROOSEVELT SCHOOL	3
NJ	683808	WESTVILLE BORO	PARKVIEW ELEMENTARY SCHOOL	5
CA	55603	Walnut Creek Elementary	Walnut Heights Elementary	3
IA	231766	Wapsie Valley Community School District	Readlyn Elementary School	3
CA	4801480	Washington Unified	Southport Elementary	3
IL	11563932	Waterloo CUSD 5	Gardner Elementary School	4
IA	231039	Waterloo Community School District	Fred Becker Elementary School	5
IA	231194	Waterloo Community School District	Lowell Elementary School	3
IA	231223	Waterloo Community School District	Orange Elementary School	5
IA	4286232	Waukee Community School District	Eason Elementary	4
IA	231883	Waverly-Shell Rock Community School District	West Cedar Elementary School	4
WV	1162443	Wayne	Buffalo Elementary School	4
WV	1162508	Wayne	Crum Elementary School	5
WV	1162649	Wayne	Wayne Elementary School	4
WV	1162728	Webster	Webster Springs Elementary School	4
IA	248927	West Des Moines Community School District	Western Hills Elementary School	5
IA	244268	West Lyon Community School District	West Lyon Elementary School	4
WV	1832375	Wetzel	Long Drain School	5
WV	1163150	Wood	Kanawha Elementary School	4
IA	240145	Woodbine Community School District	Woodbine Elementary School	3
WV	1163605	Wyoming	Herndon Cons Elementary & Middle School	3
CA	136661	Yuba City Unified	Park Avenue Elementary	5

Table 21: Matched Control Schools (CTRL Dataset)