Does a Commonly-Implemented Court Diversion Strategy Improve Attendance in Elementary School?

Evaluation of the Family Truancy Intervention Program

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Motivation and relevance

- Chronic absenteeism is widespread (USED, 2016)
  - Over 7 million students missed 15 or more days of school in 2015-16
  - Hidden educational crisis
- Increasing demand for evidence-based interventions.
- Increasing demand for the rigorous evaluation of the truancy programs in the literature (Fantuzzo et al., 2005; Stephen et al., 2010)
- Most common type of truancy intervention program: Court-diversion programs (McNeely & Carpenter, 2018)

Introduction:

- Chronic absenteeism is defined as:
  - Missing 15 or more school days in a school year
  - 2.4 million elementary students are chronically absent (DOE 2016)
- Chronic Absenteeism is correlated with:
  - For individuals:
    - Lower academic performance (Kobrin, 2009; Maynard et al., 2012)
    - Anti-social behaivior (Claes et al., 2009; Kearney, 2008a)
    - Substance abuse (Hirschfield & Gasper, 2011; Vaughn et al.,2013)
    - Negative labor market outcomes (Halfors et al., 2002; Stuit & Springer., 2010)
  - For Community:
    - Lower tax revenue (Tyler & Lofstrom, 2009; Stuit & Springer, 2010)
    - Higher crime rates (Tyler & Lofstrom, 2009; Stuit & Springer, 2010)

Previous & current efforts to reduce absenteeism

- Treatment Vs. Punishment
  - Compulsory education laws (1852)
  - The pre-2010 correctional model
    - Direct referral to court
  - Court + Community-based service model:
    - Based on better theoretical grounds
  - But, little progress has been made (Jacob & Lovett, 2017; Maynard et al., 2017)
    - Between 2002 - 2014, truancy rate constant at 11%
- Prior evaluations suffer from (Maynard et al., 2013; Sutphen et al., 2010):
  - Small sample size
  - Short-term follow-up
  - Sample attrition
  - Dissimilar comparison groups

This study

- Evaluate the effectiveness of a large-scale truancy intervention program:
  - Implemented in an urban county since the early 2000s
  - Focuses on referral between 2006-2009
  - Approximately 500 referral annually
  - Low-cost, but involves participation of parents, schools, community partners and legal strategy

Description of the program

- The intervention program consists of three steps:
  - Step 1. Referral to large-group parent meeting
    - After 5 or more unexcused absences
    - Explains the legal and social consequences of continuing chronic absenteeism
  - Step 2. Referral to small-group school attendance review team (SART)
    - After 5 additional unexcused absences
    - Small group creates constructive formalized plan to improve attendance
  - Step 3. referral to child welfare/Petition to family court
    - Court-ordered to comply with a case plan developed by child protection office

Data

- Department of Education & Department of Human Services:
  - Student-year level data (2004-2015)
    - Yearly attendance rate
    - Socio-demographic variables
    - Standardized test scores, math and reading
    - Child welfare involvement
- Absenteeism data from school districts in program county:
  - Student-day level data (2004-2015)
  - Unexcused vs. excused absence information
- Program data from county attorney's office:
  - Referral dates by stages

Identification strategy

- Primary concern of program evaluation studies: Problem of selection

1. Matching on pre-treatment characteristics:
    - Comparison pool come from adjacent County that did not have the county-wide absenteeism program
    - Matching process ensures that the comparison group is characteristically similar to the treatment group
2. Difference-in-differences method:
    - Leverages panel data, further eliminates time invariant unobserved characteristics that might have affected the selection process

Descriptive characteristics of program Students

Table. Mean difference T-test: Never-referred vs. Ever-referred

	Mean(Never-referred)	Mean(Ever-Referred)	T-stat	P-value
Attendance rate	0.95	0.89	34.87	0.00
Number of schools	1.63	2.04	-21.69	0.00
Disability	0.18	0.29	-9.68	0.00
Free-lunch eligible	0.43	0.87	-56.83	0.00
Female	0.49	0.43	4.09	0.00
Grade	4.06	3.84	7.47	0.00
Grade retention (ever)	0.14	0.29	-12.99	0.00
Child welfare involvement (ever)	0.10	0.36	-20.88	0.00
Out-of-home replacement (ever)	0.05	0.18	-13.20	0.00
English learner	0.31	0.24	6.04	0.00
White	0.48	0.19	27.81	0.00
Black	0.20	0.51	-23.99	0.00
Hispanic	0.10	0.14	-4.32	0.00
Asian	0.20	0.12	8.98	0.00
American Indian	0.02	0.03	-3.69	0.00
N	59,875	1,532		

→ Unit of observation is student; Sample includes students in grades 2 - 5 between school years 2006-2009.

Matching pool

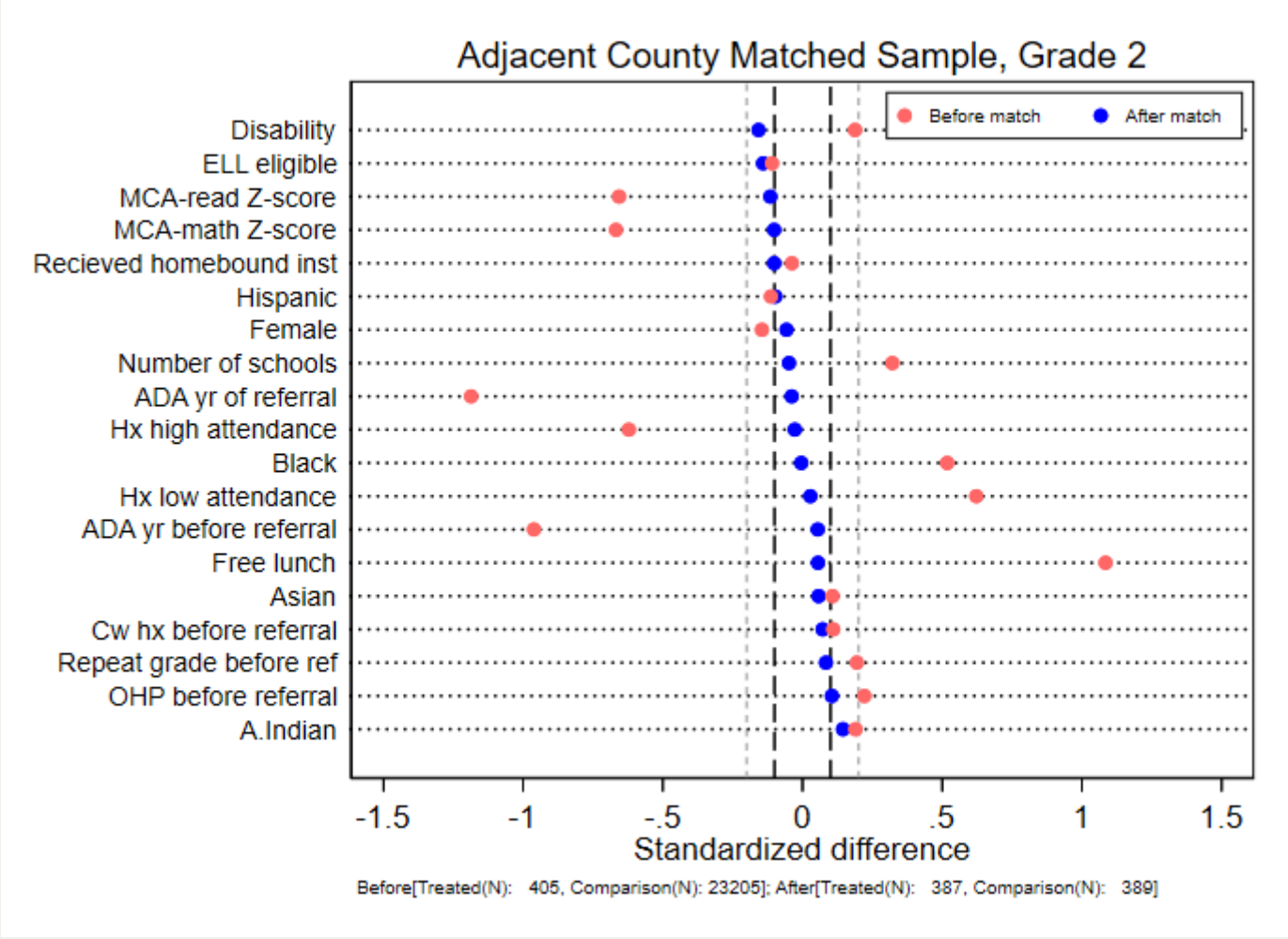
- Students enrolled in an adjacent metro county [not affected by the county-wide truancy intervention program]
  - Total number of students (Enrolls about 80,000 students)
  - Share of minority
  - Share of free lunch eligible
  - Share of non-native English speakers
- Matching conducted on individual-level characteristics by grade, by school year
  - Socio-demographic status
  - Standardized test scores
  - Child welfare involvement

Descriptive characteristics of program vs. comparison county

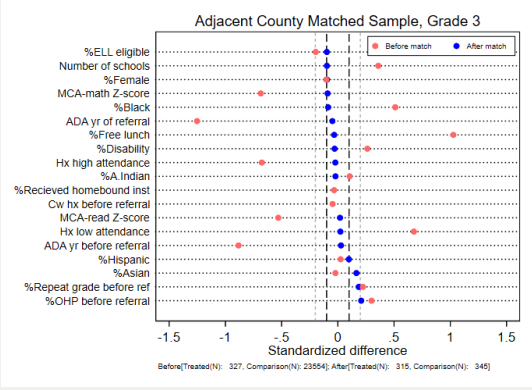
	Comparison County	Program County
Attendance rate	0.92	0.93
Number of schools	1.64	1.72
Disability	0.18	0.17
Free-lunch eligible	0.47	0.47
Female	0.49	0.48
English learner	0.25	0.29
White	0.42	0.47
Black	0.32	0.30
Hispanic	0.13	0.10
Asian	0.10	0.21
American Indian	0.03	0.02
N	78,852	81,501

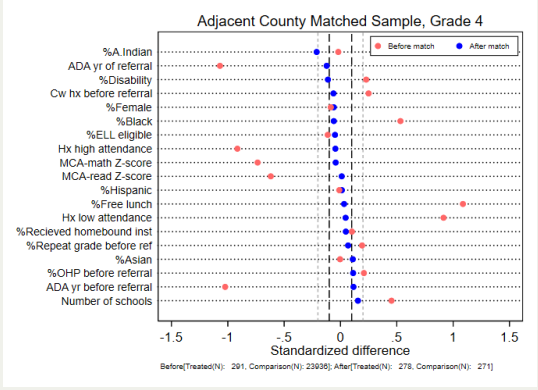
→ Unit of observation is student; Sample includes all grades in 2010 school year.

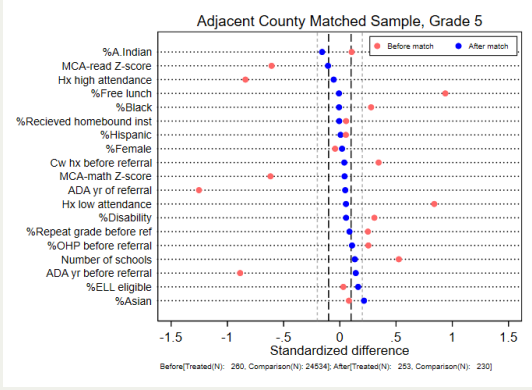
Matching covariate balance: Grade 2 referral group



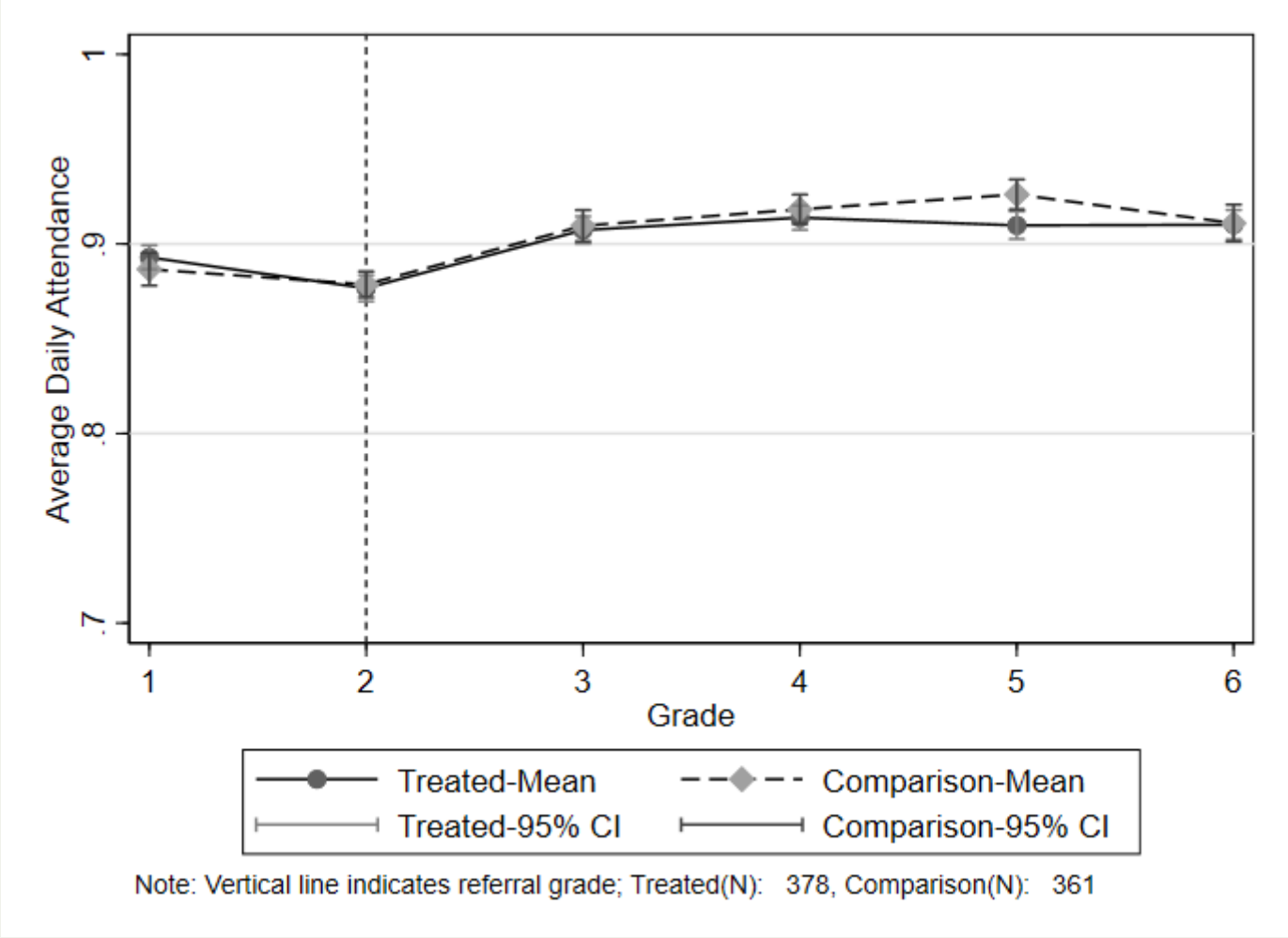
Matching Covariate Balance: Grade 3 - 5 referral group



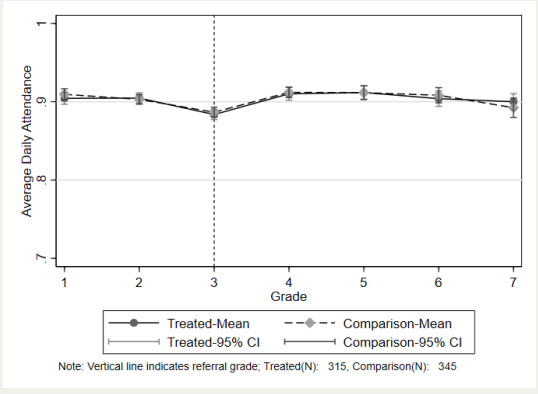


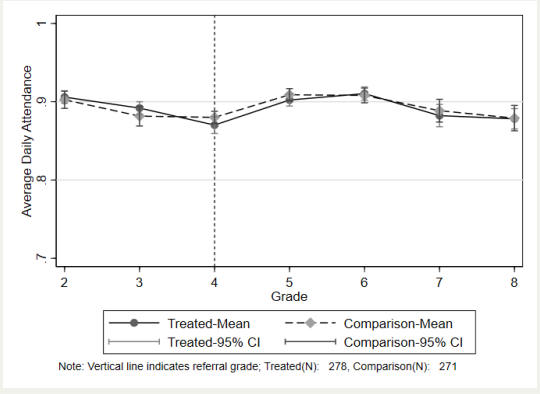


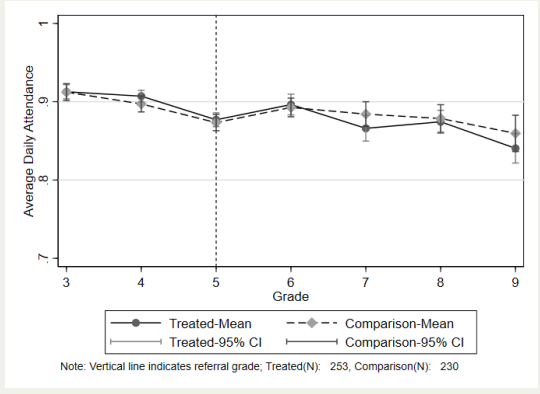
Trends in yearly attendance rate: Treated vs. comparison group



Trends in yearly attendance rate
Treated vs. comparison group







Difference-in-differences

We estimate following generalized DD basic model:

$$y_{it} = \alpha + \beta P_{it} + X_{it}\gamma + \rho_t + \gamma_i + \varepsilon_{it}$$

- P_{it} is a binary indicator for pre- and post-program referral for student i where we set t=0 (a year of the referral) as the reference category
- X_{it} are the vector of time-varying student characteristics
- ρ_t is grade dummies that captures time-trends
- γ_i controls for the time-constant unobserved individual level characteristics
- ε_{it} is an error term assumed to be i.i.d.

Pre-post mean difference estimates: Naive OLS estimates

	Dep.Var: Yearly Attendance Rate			
	Grade at the referral			
	grade2	grade3	grade4	grade5
	(1)	(2)	(3)	(4)
Treatment Effect	0.026***	0.010***	0.006	-0.028***
	(0.003)	(0.003)	(0.004)	(0.005)
R-squared	0.101	0.050	0.067	0.075
N	2188	2114	1874	1695

Note: Standard errors clustered at the school-level are in parentheses.

Controls include Gift and Talent Participation, Free-lunch eligibility, Disability status, Social welfare involvement, Mobility indicators.

* p<.1, ** p<.05, *** p<.01

Main results: Difference-in-differences estimator

	Dep.Var: Yearly Attendance Rate			
	Grade at the referral			
	Grade 2	Grade 3	Grade 4	Grade 5
	(1)	(2)	(3)	(4)
Treatment Effect	0.002	0.008	0.008	-0.012
	(0.005)	(0.005)	(0.008)	(0.011)
	[-0.008,0.013]	[-0.003,0.018]	[-0.007,0.024]	[-0.033,0.008]
Pre-trend dummy	0.013**	-0.004	0.010	0.003
	(0.006)	(0.005)	(0.007)	(0.008)
Grade-FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R-squared	0.518	0.414	0.436	0.474
N	4296	4419	3640	3211

Note: Standard errors clustered at the student-level are in parentheses.

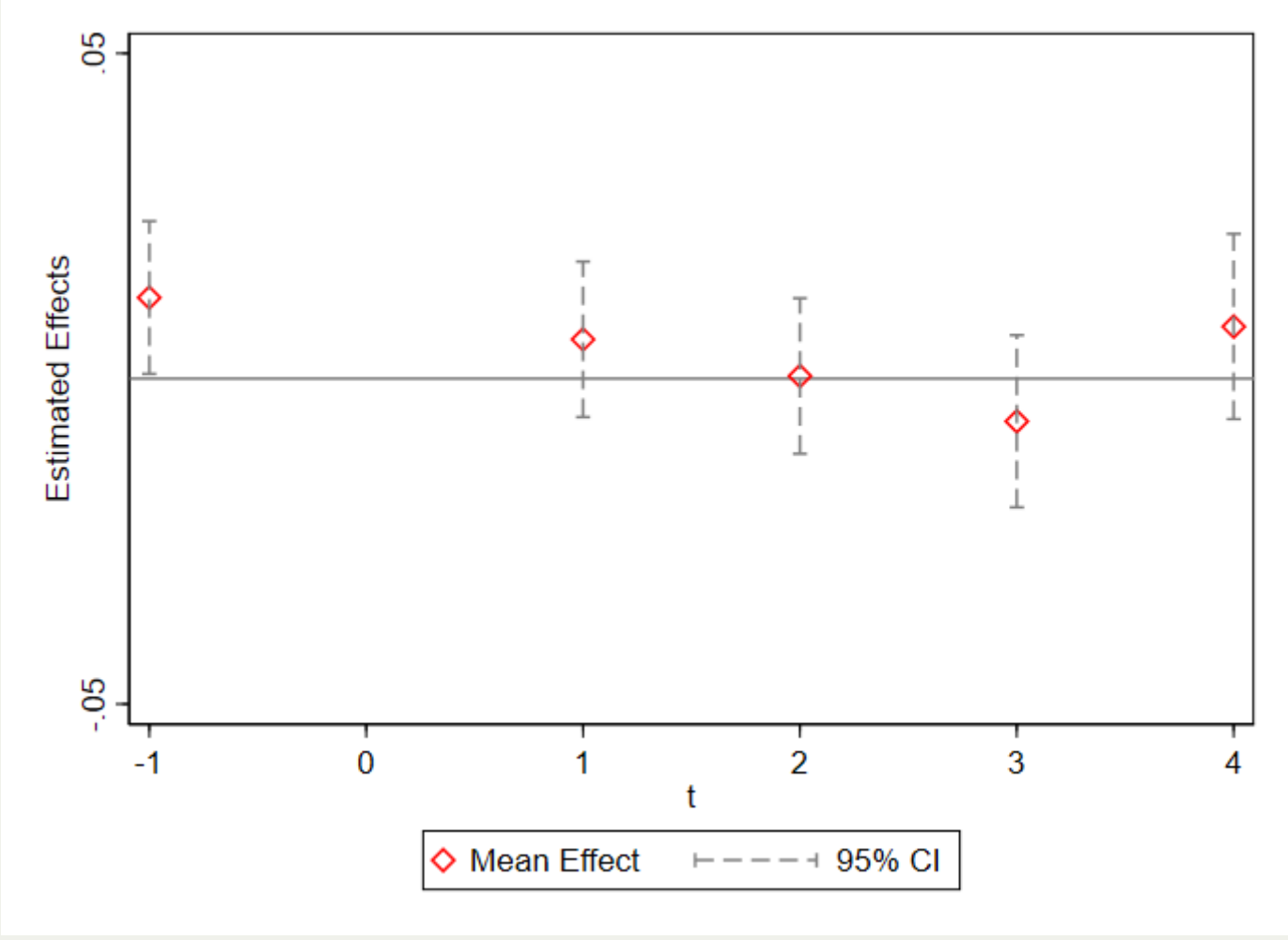
95% Confidence interval is in brackets.

Controls include Gift and Talent Participation, Free-lunch eligibility,

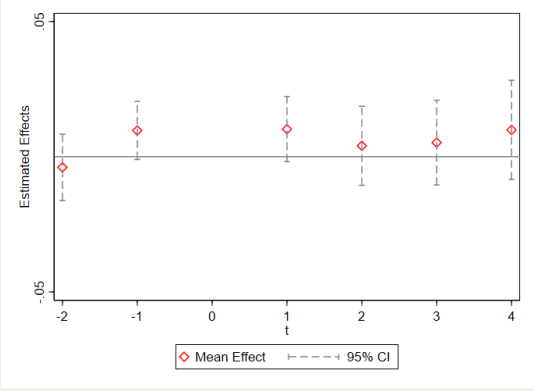
Disability status, Social welfare involvement, Mobility indicators.

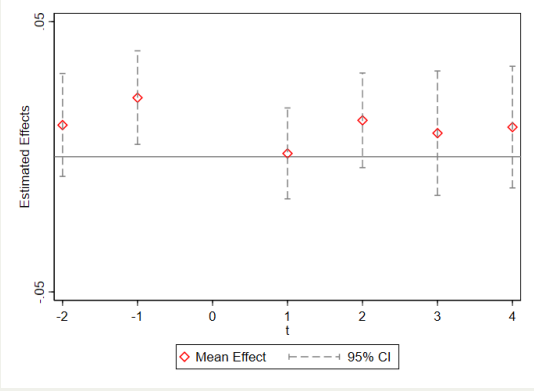
* p<.1, ** p<.05, *** p<.01

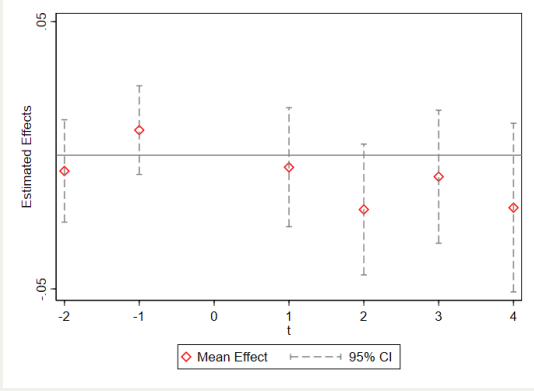
Program effect estimate (DD): Grade 2 referral group



Program effect estimate (DD): Grade 3 - 5 referral group



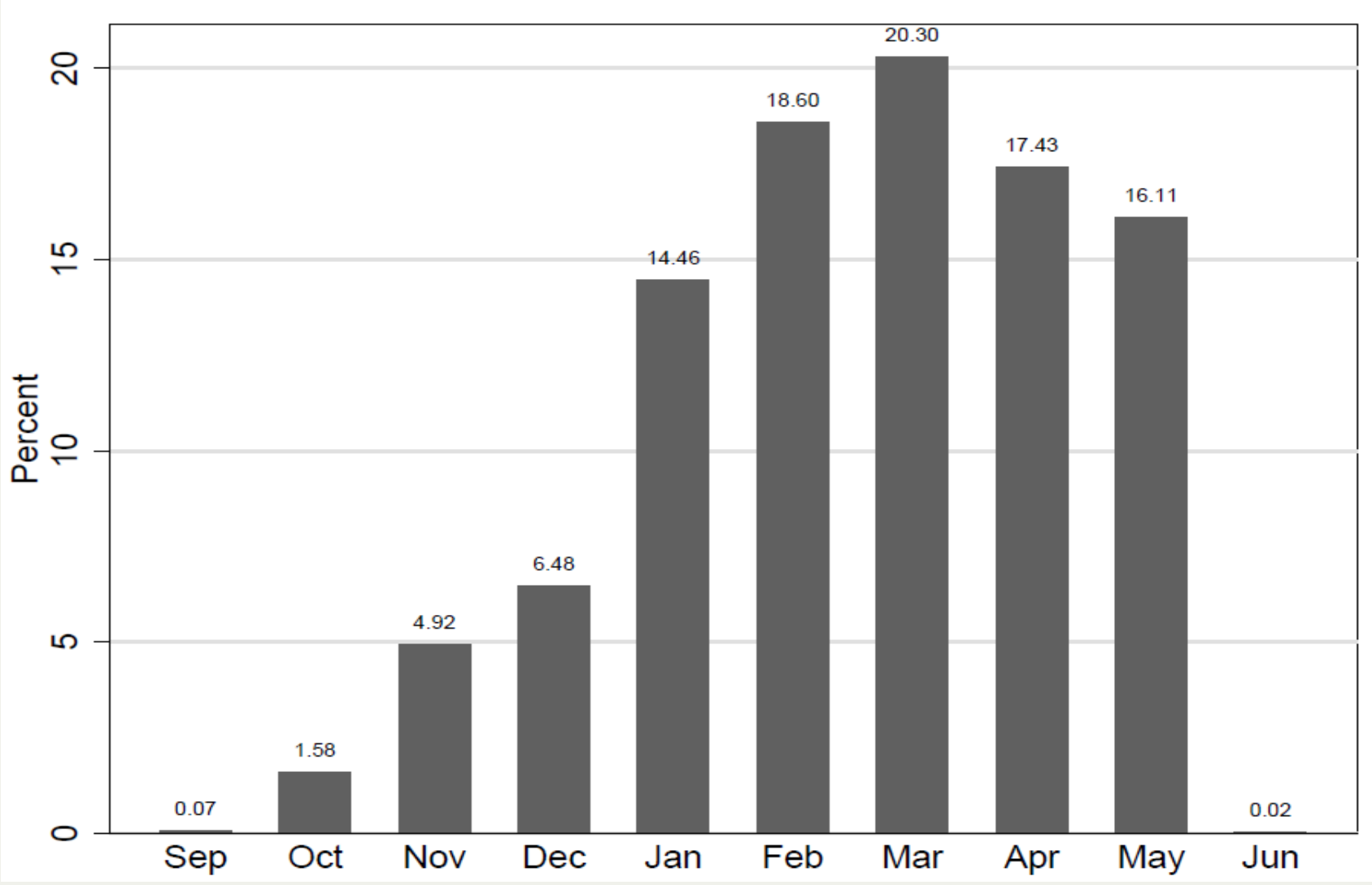




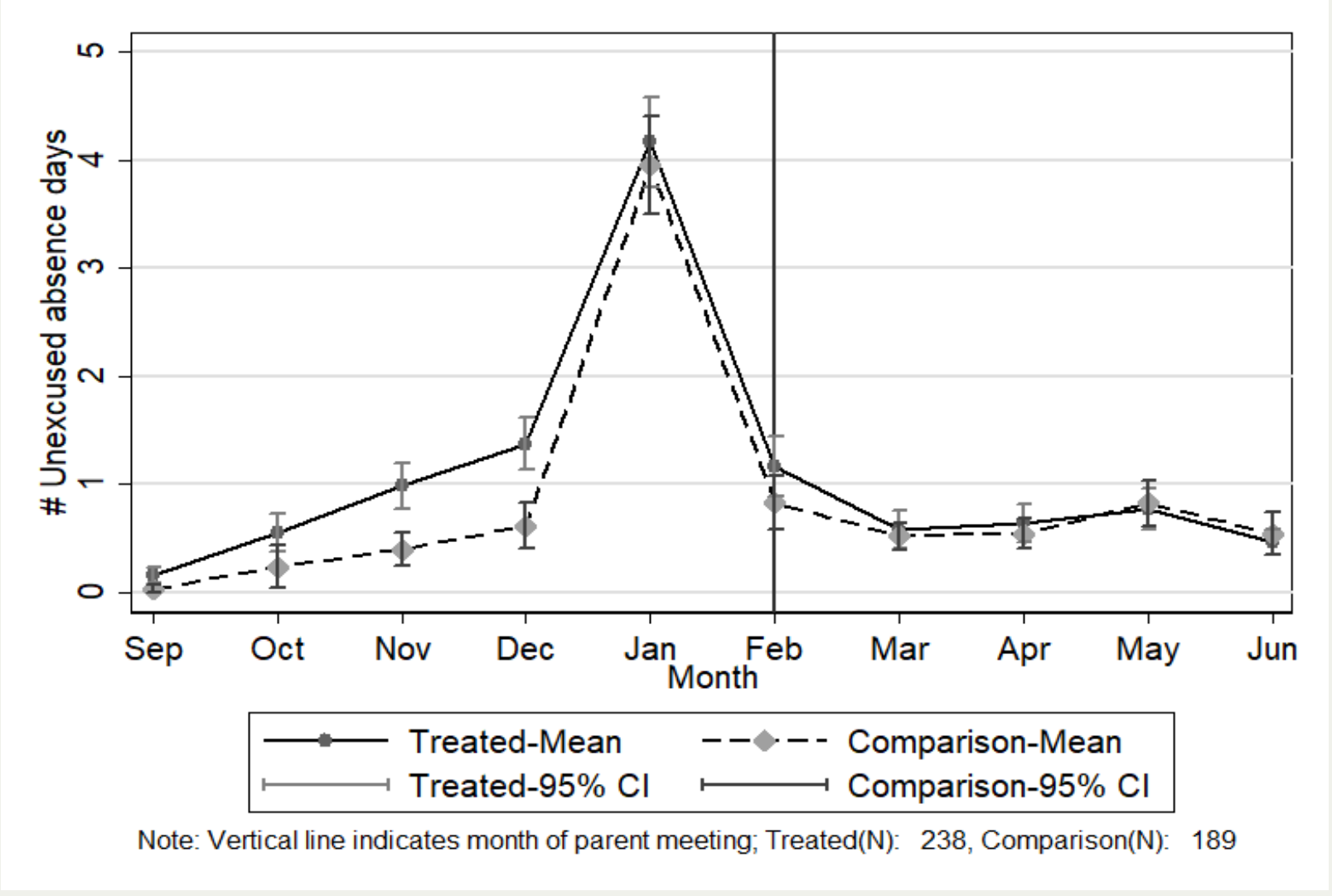
Robustness check

- Concern of the main analysis
  - Attendance rate doesn't distinguish between excused/unexcused absence
- For the robustness check
  - Estimated short-term program effects using daily attendance data

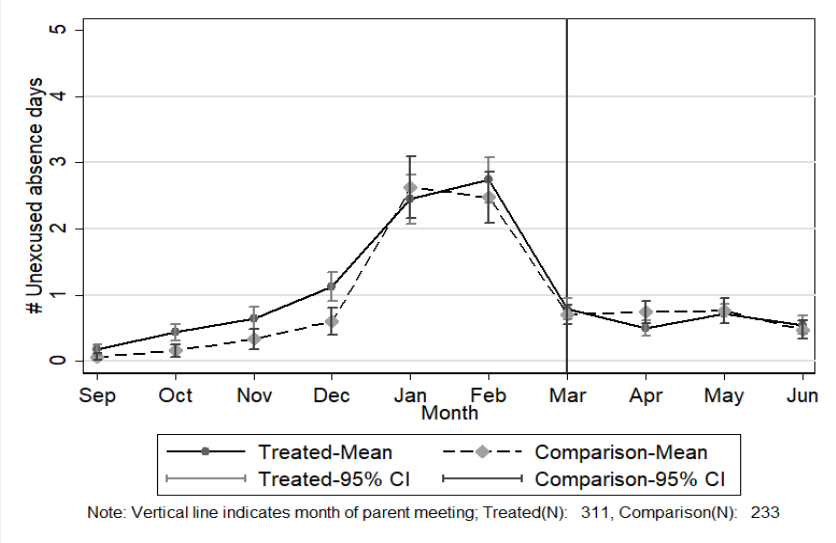
Distribution of month of referral

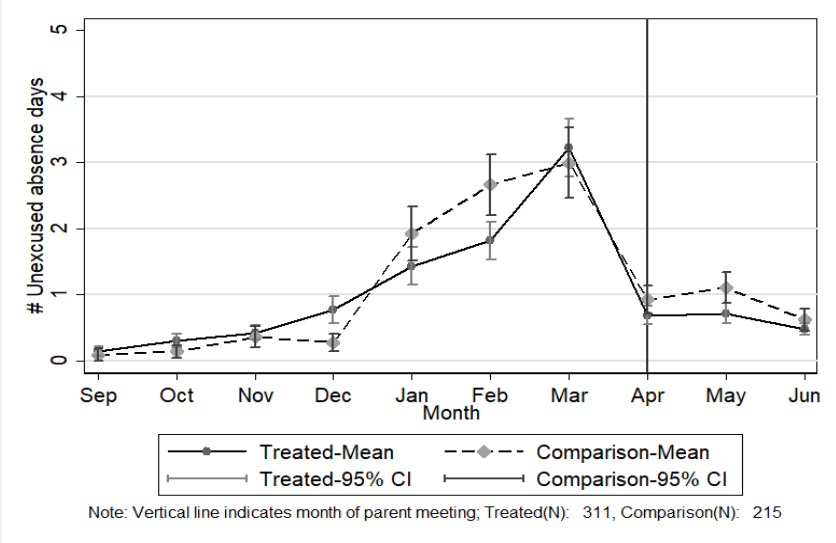


Trends in average number of unexcused absence days Before and after referral, February referral group



Trends in average number of unexcused absence days Before and after referral, March and April referral group





Conclusion

- Failed to find evidence that the program has a statistically positive effect on attendance.
  - No effect in the long-term
  - No effect in the short-term
- Regression to the mean/transitory nature of absence
  - Emphasizes importance of comparison group
  - Bias can be larger in studies that examines short-term effect of the program

Limitation

- No measure of implementation
- Does not account for long-term effect on the unexcuse absence

Policy implication - I

based on the findings and the literature

- Need frequent evaluation of programs to identify best practices
  - Quality of implementation seems critical
  - Strive to collect data on program implementaion, fidelity
    - Automate the part of management work (web-based apps)
    - Real-time activity monitoring and reporting

Policy implication - II

based on the findings and the literature

Quote from a superintendent of a school district in the program county:

> *"It's all about relationship. We need ways to better engage with these kids."*

- Bring in the interpersonal component to the existing program:
  - Maximize personal contact and opportunities to build trusting relationships
  - Mentor-mentee (program staff, teacher, police officers)

Thank you!