



# Making the Case? Unpacking Family Case Management Effects and School Effects in Neighborhood Redevelopment Initiatives

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Mixed-income initiatives provide critical investments in neighborhoods, including investments to improve schools, and provide case management and family support services to low-income families. The Choice Neighborhoods Initiative (CNI) is one of the largest and most comprehensive mixed-income neighborhood redevelopment initiatives to date; however, research has yet to examine the CNI's impacts on educational outcomes. We applied an advanced difference-in-difference method to dynamically estimate the effect of attending a CNI partner school and receiving CNI family case management services on student performance in math and reading, as well as attendance and behavior. We found that attending a CNI school significantly decreased punishment, while case management services significantly increased reading performance. However, dynamic modeling revealed that the effects on academics were short-lived, while the effects on punishment were more durable. Moreover, the effects differed across both gender and age, representing substantial heterogeneity.

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# Making the Case? Unpacking Family Case Management Effects and School Effects in Neighborhood Redevelopment Initiatives

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**Abstract.** Mixed-income initiatives provide critical investments in neighborhoods, including investments to improve schools, and provide case management and family support services to low-income families. The Choice Neighborhoods Initiative (CNI) is one of the largest and most comprehensive mixed-income neighborhood redevelopment initiatives to date; however, research has yet to examine the CNI's impacts on educational outcomes. We applied an advanced difference-in-difference method to dynamically estimate the effect of attending a CNI partner school and receiving CNI family case management services on student performance in math and reading, as well as attendance and behavior. We found that attending a CNI school significantly decreased punishment, while case management services significantly increased reading performance. However, dynamic modeling revealed that the effects on academics were short-lived, while the effects on punishment were more durable. Moreover, the effects differed across both gender and age, representing substantial heterogeneity.

**Keywords:** Housing; Neighborhood Effects; Choice Neighborhood Initiative; Mixed-Income

## INTRODUCTION

While public investments have tended to treat neighborhood, school, and family interventions separately, new strategies seek to leverage mixed-income neighborhood redevelopment initiatives to address systemic inequalities across neighborhood, school, and family contexts. The Choice Neighborhoods Initiative (CNI) is one of the largest and most comprehensive mixed-income neighborhood redevelopment initiatives to date. The CNI aims to decrease neighborhood racial/ethnic segregation and concentrated poverty by developing mixed-income housing units and attracting economically diverse residents, while also providing original residents with housing relocation assistance to move to a neighborhood of their choice during the redevelopment process. Additionally, unlike previous housing initiatives, high-performing schools are an explicitly stated goal of the CNI; indeed, revitalization efforts seek to build new partnerships across community organizations, local businesses, and schools, from early childhood to, and through, college. Finally, given that neighborhood effects are often multigenerational (Sharkey & Elwert, 2011) and that providing multigenerational services to families can have positive impacts on children's educational outcomes, the CNI employs a comprehensive and coordinated case management system in order to connect families to wrap-around services.

Despite CNI's explicit focus on schools and students, research efforts have yet to investigate the impact of the CNI on educational outcomes (Jabbari et al., 2024), resulting in a knowledge gap regarding the degree to which mixed-income neighborhood redevelopment initiatives affect students, how these effects occur (i.e., treatment mechanisms), and who is most likely to experience these effects (i.e., treatment-effect heterogeneity). As noted by Harding et al. (2011), unpacking these mechanisms and heterogeneities is an important step in the design of effective neighborhood policies, programs, and practices, yet is often underdeveloped in neighborhood-effects research. Through a unique partnership with Urban Strategies, Inc. (USI)—one of the largest implementation partners of the CNI—we merged family case management data with student-level administrative data from Shelby County Schools (SCS) to understand and unpack the effects of the CNI in Memphis, TN. Specifically, we used an advanced

difference-in-difference method to estimate the effect of receiving CNI family case management services and attending CNI partner schools on student performance in math and English language arts (ELA), as well as attendance and behavior, while also exploring heterogeneities across gender and age.

## **BACKGROUND**

### **Mixed-Income Redevelopment Initiatives and Educational Outcomes**

In 1993, the Housing Opportunities for People Everywhere (HOPE VI) program emerged as the recommended plan for revitalization of severely distressed public housing units. In addition to revitalizing these public housing units, HOPE VI also sought to revitalize the sites in which these units were located, while also providing support services and housing assistance to original residents during the redevelopment process through efforts such as the Housing Choice Voucher program (Popkin et al., 2004). Through this program, the educational opportunities of HOPE VI residents—previously limited by poverty concentration—could be improved by an influx of mixed-income neighbors or by the increased mobility of original residents. However, obstacles arose during the implementation of HOPE VI that posed challenges to achieving the program’s objectives and ultimately improving educational opportunities. Chief among these obstacles were challenges that the original residents faced in finding suitable housing during the redevelopment phase. For example, while children of families who utilized Housing Choice Vouchers during relocation attended schools that were less poor and tended to report fewer problems with school quality and violence, on average, not all HOPE VI families received and used Housing Choice Vouchers (Popkin et al., 2004). Moreover, education was not a central focus in many of the HOPE VI projects. As a result, it is unsurprising that positive education outcomes were not widely observed for HOPE VI residents.

The CNI replaced HOPE VI in 2009, expanding HUD’s focus to include substantial neighborhood investment strategies by providing funding for critical community improvements and requiring public housing authorities to collaborate with local stakeholders to permanently increase

services and engagement throughout the neighborhood. Unlike HOPE VI, the CNI creates and strengthens partnerships among organizations, agencies, and institutions working throughout the neighborhood to build affordable housing, provide social services, care for and educate children and youth, ensure public safety, and revitalize the neighborhood's commercial opportunities and infrastructure (Pendall & Hendeey, 2013).

The CNI also includes several policy mechanisms that attempt to incorporate the lessons learned from HOPE VI, particularly as they relate to resident return rates and housing unit replacement. Specifically, the CNI includes a unique right-to-return policy for original residents and requires a "one-for-one" housing unit replacement, meaning that any housing units slated for demolition must be replaced on-site or in the surrounding neighborhood. At the same time, through the provision of housing choice vouchers and individualized case management services, the CNI helps to address the difficulties original residents face in finding suitable housing during the redevelopment process, while also recognizing that some families may not want to return to the redeveloped housing site. Finally, CNI case managers help residents locate housing and help coordinate wraparound services that support social and economic mobility, while also locating opportunities that facilitate thriving for families and their children (Turner & de Souza Briggs, 2008). As CNI residents have access to the benefits of redevelopment regardless of their relocation, high-quality services can be maintained throughout the redevelopment process.

Much of what we know about the CNI and its relationship to education is based on two reports outlining baseline conditions and early progress of the first five CNI Implementation Grantees, which included sites in Boston, Chicago, New Orleans, San Francisco, and Seattle (Urban Institute, 2014; Pendall et al., 2015). The first report published by the Urban Institute (2014) describes the requirements and goals of the CNI that were outlined in the Notice of Funding Availability (NOFA) and provides an in-depth account of neighborhood conditions, planning processes, strategies, progress, and challenges for the first five implementation sites. Unlike HOPE VI, the NOFA identified education equity and improving K-12 education as explicit goals of the program, which could be expected to be achieved through (1)

*place-based strategies*, by ensuring a “*safe and welcoming environment in the schools within the neighborhood...that...have test scores as good or better than the state average or are implementing reforms to raise student achievement over time, graduating students from high school ready for college and a career*” (p. 15), and (2) *people-based strategies*, including greater access to high-quality early learning programs and better access to high-quality nearby schools. For example, USI,<sup>1</sup> who acts as the implementation partner for a variety of school districts in multiple CNI projects, including Memphis, provides a National Education Pathway model that highlights each of these types of interventions (**Supplemental Figure 1**). In addition to early childhood education initiatives, after school programming, and adult education, this model includes specific interventions geared towards improving school attendance, performance, and behavior, such as math and ELA tutoring and restorative justice programming. It is important to note that, while many of these interventions are strategies for partnering schools within the CNI footprint, case management services often help connect families to these interventions.

## **Mechanisms**

### *School Partnerships*

While education was not a central focus in many HOPE VI sites, analyses of sites that had a central focus on improving school quality during their redevelopment efforts revealed promising impacts on school outcomes (Turbov & Piper, 2005). For example, the HOPE VI site in Louisville actively engaged with public schools throughout the planning and implementation process and was successful in attracting middle-income families (Varady et al., 2005). Further, Comrie (2018) used a mixed-methods design to compare the MLK Plaza HOPE VI site in Philadelphia, where public school performance increased during redevelopment, to the Capitol Gateway site in Washington, D.C., where the opposite trend was observed and found that increased school performance in Philadelphia could be attributed to local

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<sup>1</sup> Urban Strategies Inc. is one of the largest implementation partners of the CNI, offering case management services to residents across multiple sites.

community organizations that linked housing officials with school administrators during the planning and implementation processes. Moreover, a review of four HOPE VI sites in Atlanta, Louisville, Pittsburgh, and St. Louis found that the sites that focused their efforts on improving school quality through investments in technology, management, and public-private partnerships, while also leveraging schools as sites for community-based activities, experienced greater educational improvements (Turbov & Piper, 2005).

### *Case Management*

Case managers can help parents connect their children to various educational resources and learning opportunities by helping them navigate bureaucracies and structure learning opportunities for their children (Derian, 2016), which can ultimately improve student outcomes. While most of the research on case management has focused on adults (Nguyen et al., 2016), some research has focused on children and youth. For example, Evans et al. (1996) found that case management services helped support children with emotional distress. However, case management services alone may not be sufficient to improve outcomes for low income children. Goodson et al. (2000) conducted a five-year randomized study to examine the effects of the Comprehensive Child Development Program (CCDP), a two-generation program in which case managers helped to connect low-income children and their parents with a range of education, health, and social services, and found no positive effects on cognitive and socio-emotional development or health for participating children.

In addition to helping families locate resources in their current neighborhoods, Kleit et al. (2015) noted that case managers can also help families locate new neighborhoods during the redevelopment process. Indeed, the use of case management services has been found to increase the rate of relocation to higher opportunity neighborhoods in previous mobility studies (Cunningham & Sawyer, 2005; Bergman et al., 2020). More recently, Chun et al. (2024) reported that greater involvement in CNI case management services was associated with an increased probability of moving to a higher income



neighborhood during the redevelopment process, as well as increased probability of returning to the revitalized neighborhood afterward.

Customized family support may help increase knowledge and awareness of educational opportunities among low-income parents to better inform school enrollment decisions, similar to the knowledge and awareness gained through the social networks of middle- and upper-class parents (Roda & Wells, 2013). In essence, case managers within neighborhood redevelopment initiatives can act as connectors to valuable resources and information, as well as connectors to broader communities, both of which can help individuals solve problems and seize opportunities (de Souza Briggs, 1998).

## **Heterogeneities**

Recent research has demonstrated the importance of considering heterogeneous treatment effects—different outcomes for youth in the same context—when studying the relationship between neighborhoods and education (Harding et al., 2010). For example, in their long-term follow-up study on the Moving to Opportunity (MTO) experiment, Chetty et al. (2016) found positive long-term effects on college attendance and earnings for children who moved to a lower poverty neighborhood, but only younger children (i.e., children under age 13). Here, age may signal a particular “dose” or exposure level to a given neighborhood. Similarly, Kling et al. (2007) found that the educational benefits for female youth in the MTO were offset by adverse effects for male youth.

## **Current Study**

In the current study, we investigated the relationship between CNI interventions and educational outcomes through the following research questions:

1. What are the effects of family case management on student performance in math and ELA, as well as attendance and behavior?
  - a. Do these impacts differ across dimensions of age and gender?

2. What are the effects of attending a partnering CNI school on student performance in math and ELA, as well as attendance and behavior?
  - a. Do these effects differ across dimensions of age and gender?

## **METHODS**

### **Study Context: The South City Choice Neighborhoods Initiative (CNI) in Memphis, TN**

As noted by Chun et al. (2024), the South City neighborhood in Memphis, TN, known for its African American heritage and proximity to downtown, has faced challenges such as concentrated poverty, deteriorated housing, high unemployment rates, and violent crime, which have curbed social mobility and communal prosperity. Foote Homes, a public housing development built in the 1940s, received a \$29.75 million grant in 2014–2015 through the CNI to revitalize the site (Chun et al., 2024). The plan aimed to provide 712 new housing units, thereby attracting mixed-income families. This plan included 600 on-site units, with a majority being affordable, and 112 offsite units in the surrounding community (Chun et al., 2024). The revitalization plan also included neighborhood-level developments, such as retail and grocery stores, a small business microlender, improved transit, historic preservation initiatives, an early education center, and education and job opportunities for residents (Chun et al., 2024). Unlike other similar projects, Foote Homes employed a one-shot relocation strategy, completing the relocation of all families in December 2016 and beginning reconstruction in 2017. Former residents started moving into 114 redeveloped units in September 2019 (Chun et al., 2024).

### **Data**

This empirical analysis draws data from two primary sources. First, USI, an implementation partner and case management provider for the South City CNI in Memphis, supplied the student roster for those who have received USI case management services as part of the CNI. Second, Shelby County School District (SCSD) of Memphis TN, provided comprehensive student information, including demographic factors (race, gender, grade, and economic disadvantage status), school enrollment, attendance, behavioral

indicators (such as in-school and out-of-school suspensions), and two national academic assessment data sets (MAP and i-Ready tests). Through a collaboration with Seeding Success, a local non-profit organization in Memphis, these data were merged, de-identified, and shared back with the research team.

### *Outcome measures*

This study focuses on three student outcomes—academic performance, attendance, and punishment. To measure **academic outcomes** in Math and Reading, we utilize two widely adopted computer-adaptive assessments: the Measures of Academic Progress (MAP), developed by NWEA, and the i-Ready Diagnostic, developed by Curriculum Associates. Both assessments are designed to evaluate student achievement and growth in mathematics and reading. They adjust the difficulty of test items in real time based on student responses, providing individualized data on student performance and instructional needs (NWEA, 2020; Curriculum Associates, 2022).<sup>2</sup>

In SCSD, MAP assessments were administered from the 2016/17 school year through 2018/19. Beginning in the 2019/20 school year, the district transitioned to the i-Ready assessment system. To construct a longitudinal panel dataset spanning both the pre- and post-intervention periods, we incorporate data from both assessments. To ensure comparability between the two testing systems, Math and Reading scores are standardized within each school year and grade level by calculating z-scores. This standardization allows for consistent measurement of student academic outcomes across different assessment platforms and time periods.

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<sup>2</sup> Although MAP and i-Ready use different scoring systems—MAP reports Rasch Unit (RIT) scores, while i-Ready provides scale scores—both assessments serve similar purposes. They are commonly used for universal screening, progress monitoring, and informing instruction, and both align with college- and career-readiness standards, including the Common Core State Standards (NWEA, 2020; Curriculum Associates, 2022). Additionally, district- and state-level reports have indicated that data from MAP and i-Ready can be used interchangeably for tracking student growth, grouping students for interventions, and informing instructional decisions (Louisiana Department of Education, 2019).

In addition to these two academic achievement indicators, we construct two additional outcome measures: the **attendance rate**, and the number of **suspension days** (both in-school and out-school suspension).

### *Sample Group Assignments*

Our empirical analysis focused on students in SCSD, who were in 3rd to 8th grade at any point during our study period (from the 2016/17 school year to the 2021/22 school year). We limited our sample to those with repeated MAP or I-Ready scores measures for panel data analysis. This study examined two policy interventions within the CNI projects: CNI school treatment and USI case management treatment.

- CNI school treatment. Defined as attending one of the partnering schools within the CNI footprint that receives additional services as part of their agreement and involvement with the CNI (e.g., career counselors and family engagement specialists). As part of the CNI plan, the multiple strategies were described that directly involved SCSD, including comprehensive student and youth educational services (e.g., through a family resource center), programs to support student health (e.g., health education, nutrition, school counseling), and after-school programming (e.g., tutoring, technology education, cultural arts).
- USI case management treatment. Defined as receiving one or more of the following case management services: asset building; basic and emergency services; adult education; employment services; health and family services; early childhood services; youth services; legal services; and senior and disability services. Regular contact with case managers occurred at least once quarterly, with service frequency and intensity tailored to individual family needs (Chun et al., 2024).

Of the 123,912 students attending a school in Shelby County during the study period, we identified 2,792 students who received CNI school treatment by attending one of the four CNI schools

anytime between the 2017/18 and 2020/21 school years.<sup>3</sup> We also identified 621 students who received USI case management treatment during the same period.<sup>4</sup> Of the 621 USI recipient students, 216 have also attended a CNI school during the study period. The final analytical sample included 59,277 students (187,730 observations across all study years). **Table 1** provides summary statistics of the variables in use at the individual level (**A**) and the individual-time level (**B**).

### **Empirical model design**

To estimate the CNI and USI impacts on student's outcome, we employed the Callaway and Sant'Anna Difference-in-Differences (CSDID) model (Callaway & Sant'Anna, 2021). The CSDID approach is designed to evaluate treatment effects in contexts where individuals may receive different treatments at different time points (staggered treatment effects). Callaway and Sant'Anna's method can be viewed as an advanced DID design that addresses several limitations inherent in traditional two-way fixed effects (TWFE) estimators, such as handling staggered treatment adoption and heterogeneous treatment effects across cohorts and calendar years, as well as over time (dynamic effects). The CSDID model estimates the average treatment effect on the treated group (ATT) for all treatment cohorts across all periods. It also accommodates heterogeneous treatment effects and staggered treatments, which are essential in complex scenarios. This approach decomposes the overall ATT effect into effects by temporal dynamics—how much time has passed after treatment, by cohort—when people received the treatment at different times, and by calendar year—what the effects are at a specific time.

In this study, we applied the Callaway and Sant'Anna Difference-in-Differences (CSDID) model to examine the impacts of CNI school treatment and USI case management interventions. Given that the CSDID framework can estimate only one type of treatment at a time, we implemented a series of CSDID

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<sup>3</sup> According to the USI sub-agreement with SCS for CNI education services, four Shelby County Schools—Booker T. Washington Middle/High School, Downtown Elementary School, LaRose Elementary School, and Veritas College Preparatory Charter School—were named as official school partners of the Memphis CNI project, from the 2017/18 to the 2020/21 school years.

<sup>4</sup> The CNI school treatment and USI case management treatment are not mutually exclusive; a substantial number of USI students also attended CNI schools during the study period

models for each of CNI, USI, and the combination of CNI and USI treatments. The treatment and comparison samples systematically differ in their racial and financial characteristics. While 93.8% of CNI students and 97.9% of USI students are Black, only 71% of the comparison group identifies as Black. Additionally, 77.6% of CNI students and 92.9% of USI students have experienced financial distress at some point during the study period, compared to just 60% of the comparison group. To ensure greater homogeneity between the treatment and comparison groups, we restrict our analytic sample to students who are Black and have experienced any financial hardship during the study period to make the analytic sample relatively homogenous. Also, to control for the systematic differences between the treated and the comparison students, we adopt a doubly robust (DR) estimation method for CSDID analyses, which combines the Inverse Propensity Weighting (IPW) and Ordinal Regression (OR) methods.<sup>5</sup> In addition to the DR approach with the restricted sample, we also employed another DR model without the sample restriction (See Appendix A).<sup>67</sup> The results were slightly weaker than our restricted model, but the results were mostly similar, suggesting stronger treatment effects with more similar control participants.

Each CSDID model provides estimates of the overall treatment effect (ATT) as well as lagged effects (dynamic ATT), capturing the prolonged impact of educational attainment on income over time. These dynamic treatment effects enable us to assess whether the financial returns to education persist, increase, or diminish as individuals progress in their careers. In addition to the CSDID model estimates

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<sup>5</sup> The Inverse Probability Weighting (IPW) approach balances treated and control groups by weighting observations based on their estimated probability of treatment and is most reliable when the treatment assignment model is correctly specified. The Outcome Regression (OR) method, by contrast, models the outcome directly using observed covariates, assuming the outcome model is correctly specified. The Doubly Robust (DR) estimator combines both approaches and is considered the most robust, as it yields consistent estimates if either the propensity score model or the outcome model is correctly specified. Among the three, the DR method is typically preferred in applied research due to its greater resilience to model misspecification (Callaway and Sant’Anna, 2021).

<sup>6</sup> The indicator for students’ financial distress can be considered endogenous to the CNI/USI intervention and, therefore, should not be included as a control variable. Instead, we address this issue by restricting the sample based on students’ financial distress status in the DR model.

<sup>7</sup> Additionally, the “never-treated” option was applied instead of the “not-yet-treated” approach, which designates individuals who have not yet received a certain treatment (e.g., degree or certificate) as the control group. This decision was made because members of the earliest CNI/USI cohorts—primarily original residents of the CNI neighborhoods—are systematically different from later cohorts, who relocated to the CNI neighborhood after the redevelopment process began.

for entire analytic sample, we also conduct two sets of subsample analyses by gender and by age group, to explore heterogeneous CNI/USI treatment effects on student outcomes by students' demographic characteristics.

## **Findings**

### **Impacts of CNI and USI interventions**

#### *Overall Average Treatment Effects on Treated*

Table 2 summarizes the estimated average treatment effects on the treated (ATT) for three intervention groups—CNI school interventions, USI case management interventions, and the combined CNI+USI interventions—on four student outcomes: Math and Reading scores (standardized Z-scores), attendance rate and behavioral outcomes measured by in-school and out-of-school suspension days. **CNI interventions** did not change students' academic achievements in math (ATT=-0.037, not significant) or reading (ATT=0.009, not significant). However, participation in CNI schools was associated with a statistically significant reduction in attendance rate (ATT = -0.005,  $p < 0.05$ ), as well as suspension days (ATT = -0.486,  $p < 0.01$ ).

For students receiving USI case management services, we found an improvement in reading among the treated students (ATT=0.110,  $p < 0.05$ ). The intervention was also not associated with a significant change in the other three outcome measures. Lastly, the combined CNI+USI intervention was not associated with statistically significant effects on any of the outcomes examined. The estimated effects on Math (ATT = 0.024) and Reading (ATT = 0.095) were small and non-significant. The estimated reduction in suspension days (ATT = -0.961) was larger in magnitude compared to the CNI-only or USI-only groups but did not reach statistical significance.

**\*\*\* Table 2 is about here \*\*\***

### **Subsample Analyses**

In addition to the ATT estimates for the entire analytic sample, we conduct a series of subsample analyses by students' gender and age cohorts. These estimates assess whether the impacts of CNI school interventions, USI case management interventions, and the combined CNI+USI interventions differ by gender and age across the four student outcomes.

#### *By Students' Gender*

Table 3 presents the subsample analysis results by gender. For male students (Panel A), the CNI school intervention was significantly associated with changes in both attendance and behavioral outcomes. Specifically, attendance rates declined by an average of 0.8 percentage points ( $p < 0.05$ ), while suspension days decreased by 0.6 days (ATT = -0.598,  $p < 0.05$ ). For the USI case management intervention, we observe a statistically significant improvement in Reading scores, with an increase of 0.163 standard deviations ( $p < 0.05$ ). The combined CNI+USI intervention did not produce statistically significant effects on any outcome for male students.

Among female students (Panel B), the CNI school intervention had no significant effect on Math scores (ATT = -0.006), but a marginally significant positive effect on Reading scores (ATT = 0.077,  $p < 0.10$ ). Additionally, suspension days decreased significantly (ATT = -0.379,  $p < 0.05$ ), indicating improved behavioral outcomes, consistent with the pattern observed among male students. Neither the USI intervention nor the combined CNI+USI intervention produced statistically significant effects for female students across any of the outcomes.

Taken together, the gender-disaggregated analyses indicate that male students experienced a significant decline in attendance but also meaningful reductions in suspensions following CNI exposure. They also benefited academically in reading under the USI intervention. Female students, in contrast, showed significant reading gains from the CNI school intervention and similarly experienced improved behavioral outcomes—although to a lesser extent. The combined CNI and USI interventions did not yield significant results for either gender. These findings suggest that both male and female students benefited behaviorally from the CNI intervention, while academic impacts varied by gender and intervention type.



**\*\*\* Table 3 is about here \*\*\***

*By Students' Age Cohort*

Table 4 presents the results of the subsample analysis by students' age cohort at the time of intervention initiation. The analysis distinguishes between older students (those in sixth grade or above as of SY2018) and younger students (those in fifth grade or below in SY2018). Among older students (Panel A), the CNI school intervention was associated with positive and statistically significant improvements in reading scores, with an increase of 0.096 standard deviations ( $p < 0.05$ ). In addition, attendance rates declined slightly ( $ATT = -0.009$ ,  $p < 0.05$ ), while behavioral outcomes improved significantly, as reflected by a substantial reduction in suspension days ( $ATT = -0.787$ ,  $p < 0.01$ ). Neither the USI case management intervention nor the combined CNI+USI treatment produced statistically significant effects on any outcome for older students.

Among younger students (Panel B), a different pattern emerged. The CNI school intervention was associated with a marginally significant negative impact on math scores, which declined by 0.065 standard deviations ( $p < 0.10$ ). Behavioral outcomes improved meaningfully, with suspension days decreasing by 0.473 days on average ( $p < 0.05$ ). Under the USI case management intervention, younger students showed a marginal improvement in reading scores ( $ATT = 0.130$ ,  $p < 0.10$ ), though math and behavioral outcomes were unaffected. As with the older cohort, the combined CNI+USI intervention did not yield statistically significant impacts on any of the four outcomes for younger students.

In sum, the age-disaggregated analyses reveal distinct differences in how the interventions affected students based on their age at the time of treatment. Older students benefitted more academically from the CNI intervention, particularly in reading, and also experienced significant improvements in behavioral outcomes. Younger students, on the other hand, faced academic setbacks in math but still demonstrated meaningful behavioral improvements. Across both age groups, the USI and combined CNI+USI interventions did not produce consistently significant effects, suggesting that age and timing of intervention play a critical role in shaping program impacts.

**\*\*\* Table 4 is about here \*\*\***

*Dynamic Average Treatment Effects on the Treated Over Time*

Figure 1 presents ATT estimates by relative time, capturing the dynamics of treatment effects from two years before treatment ( $t-2$ ) to four years after ( $t+4$ ). For the CNI school intervention (Panel A), math outcomes showed a modest gain in the treatment year ( $t_0$ ;  $ATT = 0.048$ ,  $p < 0.10$ ), followed by significant declines at  $t+1$  ( $ATT = -0.095$ ,  $p < 0.01$ ) and  $t+2$  ( $ATT = -0.114$ ,  $p < 0.05$ ). These patterns suggest an initial boost in academic performance that was not sustained over time. Reading outcomes followed a similar trajectory. A short-lived gain was evident at  $t_0$  ( $ATT = 0.074$ ,  $p < 0.05$ ), followed by a significant drop at  $t+1$  ( $ATT = -0.103$ ,  $p < 0.05$ ), indicating only temporary improvements. Attendance declined significantly in the treatment year ( $t_0$ ;  $ATT = -0.007$ ,  $p < 0.05$ ) and again at  $t+2$  ( $ATT = -0.010$ ,  $p < 0.05$ ), showing some erosion in school attendance following treatment. By contrast, behavioral outcomes improved more persistently. Reductions in suspension days were statistically significant at  $t+2$  ( $ATT = -0.692$ ,  $p < 0.01$ ),  $t+3$  ( $ATT = -0.945$ ,  $p < 0.01$ ), and  $t+4$  ( $ATT = -1.684$ ,  $p < 0.01$ ), suggesting that CNI's most durable effects were on student behavior rather than academics.

For the USI case management intervention (Panel B), reading outcomes gradually improved. A decline just prior to treatment ( $t-1$ ;  $ATT = -0.145$ ,  $p < 0.05$ ) was followed by significant gains at  $t+2$  ( $ATT = 0.207$ ,  $p < 0.05$ ), reflecting an accumulation of benefits over time. No consistent or statistically significant patterns emerged for math or behavior. However, attendance dropped significantly at  $t+2$  ( $ATT = -0.016$ ,  $p < 0.01$ ), suggesting possible disengagement in later years. For the combined CNI+USI intervention (Panel C), academic impacts were inconsistent. Math scores increased in the treatment year ( $t_0$ ;  $ATT = 0.108$ ,  $p < 0.10$ ), but subsequent estimates were not statistically significant. No consistent reading gains were observed post-treatment. Attendance fell at  $t+1$  ( $ATT = -0.013$ ,  $p < 0.10$ ), and again at  $t+4$  ( $ATT = -0.049$ ,  $p < 0.10$ ), indicating a gradual decline in school attendance. In terms of behavior, suspension days declined significantly at  $t+4$  ( $ATT = -3.044$ ,  $p < 0.05$ ), although estimates between  $t+1$  and  $t+3$  remained statistically insignificant.

Overall, the CNI intervention yielded short-term academic gains that faded, while behavioral improvements were strong and sustained. USI case management contributed to incremental reading improvements over time, and the combined intervention showed limited academic effects, with isolated behavioral gains emerging in later years. These findings underscore the importance of tracking outcomes longitudinally, as treatment effects evolve across different domains and cohorts.

**\*\*\* Figure 1 is about here \*\*\***

*Average Treatment Effects on the Treated by Calendar Year*

Figure 2 disaggregates the ATT estimates by calendar year for each of the four student outcomes. Similar to the dynamic analysis, the year-by-year analysis of the CNI school intervention (Panel A) reveals a pattern of early academic gains followed by deterioration. In 2018, students in CNI schools experienced a significant increase in both math (ATT = 0.098,  $p < 0.01$ ) and reading scores (ATT = 0.122,  $p < 0.001$ ). However, these gains reversed in subsequent years. Math scores declined significantly in 2019 (ATT = -0.081,  $p < 0.05$ ), 2020 (ATT = -0.126,  $p < 0.01$ ), and 2022 (ATT = -0.160,  $p < 0.01$ ). Reading scores also declined in 2019 (ATT = -0.097,  $p < 0.10$ ). These trends suggest that the CNI intervention was initially effective for academic outcomes among the first cohort, who are more likely to be original residents in the CNI site. However, the effects weakened over time. In contrast, behavioral outcomes under CNI showed sustained improvements. Suspension days declined significantly in 2019 (ATT = -0.533,  $p < 0.05$ ), 2020 (ATT = -0.583,  $p < 0.01$ ), and 2022 (ATT = -0.771,  $p < 0.01$ ), suggesting that the intervention had a more durable effect on student behavior than on academic performance.

For the USI case management intervention (Panel B), reading scores improved modestly but consistently. Gains in 2020 (ATT = 0.135,  $p < 0.10$ ) and 2021 (ATT = 0.196,  $p < 0.05$ ) point to gradual and accumulating benefits over time. Although most effects on math, attendance, and behavior were not statistically significant, the reduction in suspension days in 2020 (ATT = -0.746,  $p < 0.10$ ) is notable and suggests some potential for behavioral impacts in later years. The combined CNI+USI intervention (Panel C) did not yield consistently significant academic effects. However, there was a modest improvement in

math in 2018 (ATT = 0.148,  $p < 0.05$ ) and a notable reduction in suspension days in 2020 (ATT = -1.657,  $p < 0.10$ ). Meanwhile, a significant decline in attendance was observed in 2018 (ATT = -0.022,  $p < 0.05$ ) and again in 2022 (ATT = -0.049,  $p < 0.01$ ). These results suggest that while the joint intervention did not amplify academic gains beyond those of individual programs, it may have supported behavioral improvements for certain cohorts.

Overall, the strongest academic effects appeared early in the implementation period, likely among original residents. In contrast, behavioral improvements under CNI were more persistent, and USI case management contributed to incremental gains in reading over time.

**\*\*\* Figure 2 is about here \*\*\***

## **DISCUSSION**

While public investments have often treated neighborhood, school, and family contexts separately, new place-based initiatives, like the CNI, seek to combine mixed-income neighborhood redevelopment with local school partnerships and intensive family case management to improve the outcomes of children and youth. However, despite over \$1 billion in CNI grant funding being awarded, and the subsequent development of over 30,000 new mixed-income housing units across 40 cities, we have little evidence of the effects of these initiatives on the educational outcomes of children and youth. Although studies in previous initiatives, like HOPE VI, have explored the outcomes of children and youth, these studies often relied on surveys, which limit our ability to understand specific educational outcomes and how they change over time. Through a unique partnership with one of the largest implementation partners of the CNI, we merged family case management data with student-level administrative data from SCS and leveraged advanced difference-in-difference methods to understand the educational effects of the CNI in Memphis, TN.

### **Summary of Findings**

In general, we found that attending a CNI partnering school substantially decreased suspensions and that receiving case management services marginally increased ELA performance. To put these findings into context, suspensions were cut by roughly one-third and ELA performance increased by nearly one-tenth of the standard deviation unit. Leveraging the publicly available CNI documents (Shelby County Board of Education, 2015), we found plans for school-based initiatives, as well as concrete financial investments in partnering schools, including school programming that seeks to improve behavioral health. These investments may explain the decrease in suspensions, while the role of literacy in USI's case management services may explain the increase in ELA performance (Appendix B). Although the effect was quite small, we also found that attending a CNI partnering school marginally decreased school attendance, which may be a general product of neighborhood and family disruption that could be inherent in redevelopment projects.

Furthermore, we observed substantial differences across gender and age. In particular, the effect of attending a CNI partnering school on behavioral problems was considerably larger for boys. As boys are often suspended more than girls, boys may have had more room to improve in this area. We also noticed that attending a CNI partnering school increased girls' ELA performance, while receiving case management services increased boys' ELA performance. Here, it appears that girls are more prone to school effects when it comes to ELA performance, while boys are more prone to case management effects. There is some evidence to support girls' superior performance more generally in schools and specifically in reading (e.g., Mickelson, 1989), which may explain their response to school effects. Boys, on the other hand, may experience particular difficulties in managing peer dynamics and social relationship in changing neighborhood and school contexts (Harding, 2010). Indeed, boys appear to be at greater levels of risk in urban neighborhoods (Noguera, 2003), which may explain why other researchers found positive neighborhood effects for girls and negative neighborhood effects for boys (Kling, Liebman, & Katz, 2007). These risks may also explain why boys respond more positively to individualized supports that are often embedded in case management services.

Furthermore, when considering age, older students experienced significant increases in reading from attending CNI schools, while younger students experienced marginal increases in reading from receiving case management services, as well as marginal declines in math from attending CNI schools. While younger students may be more responsive to individualized supports—especially in reading, the marginal decrease in math for younger students runs counter to some of the more recent research on neighborhood effects that found younger children fared better in changing neighborhood contexts, potentially because of prolonged exposure to improved neighborhood conditions, representing a “dosage” effect (Chetty et al., 2016). While more research is needed to unpack these findings, it is important to note that the prior research on neighborhood “dosage” effects for children focused on long-term neighborhood outcomes (e.g., college attendance), while our findings represent medium-term outcomes (academic performance from 3<sup>rd</sup> to 8<sup>th</sup> grade). Thus, our findings may reflect a greater emphasis on academic performance in middle school, as well as the ability of older, more mature students to academically adapt to changing neighborhood and school contexts.

Moreover, we observed substantial differences across time. For students that attended CNI schools, we observed significant positive effects in reading in the first year of the CNI initiative that dropped in the second year of the initiative and slowly increased over time. We also observed marginally positive effects in math in the first year of the CNI initiative that dropped in the second year of the initiative, but unlike ELA, math performance did not increase over time. These fluctuations were not present in suspensions trends, which dropped in the first year of the initiative and further decreased over time. As improvements in math and reading were a stated goal of the CNI, these effects are not surprising. It is also not surprising that these effects were strongest at the start of the CNI project, which is when a greater influx of resources may be present. Nevertheless, their dissipation over time suggests that continual investments and supports are needed to maintain growth over time, which may have been particularly important during the COVID-19 pandemic. Punishment outcomes, on the other hand, may have been easier to maintain over time due to changes in school practices or policies that do not

necessarily rely on continual investments and supports. The effects of case management were more stable, at least directionally, as we did not observe substantial fluctuations over time. However, with the exception of reading, these effects were often non-significant, which may be due to increased standard errors given a relatively small sample of students receiving these services. We also observed synergistic effects, such that attending a CNI school *and* receiving case management services was associated with a decrease in suspensions in year five that was greater than the effects of only attending a CNI school, suggesting that individualized support—when coupled with school changes—can have a greater impact on punishment outcomes.

## **Limitations**

Despite the novelty of our study, it is not without limitations. Concerning internal validity, it is possible that students who attend CNI partnering schools and receive case management services are systematically different from their counterparts in both observed and unobserved characteristics. Indeed, partnering schools have been “selected” by CNI planners and implementers, while case management services are ultimately “selected” by participants. While our difference-in-difference models leverage doubly robust estimators—including inverse probability weighting and outcome regression—to ensure similar pre-treatment trends, we cannot rule out the possibility of other, unobserved confounders that may bias our results. Future research should consider leveraging non-awarded CNI applicant sites as appropriate comparison groups and discontinuities in applicant scores as sources of random variation to further remove sources of potential bias. Concerning external validity, given the unique context of each CNI site, our findings may not be generalizable to all other CNI sites. In this regard, future research should consider leveraging data across multiple CNI sites to improve generalizability.

## **Implications**

Concerning policy, our findings suggest that the expansion of housing redevelopment initiatives to include broader neighborhood institutions, such as schools, can be effective at improving educational

outcomes. While future research is needed to understand how these mechanisms operate, the contribution of CNI financial resources to SCS, as well as the stated metrics of success, should not be overlooked in this regard. Additionally, concerning practices, our findings demonstrate that case management services can be a powerful tool for improving the educational outcomes of children involved in mixed-income redevelopment initiatives. Future research should leverage additional sources of data, such as surveys and qualitative interviews, to better understand the specific school initiatives and case management strategies that are most effective in improving educational outcomes so that policy-makers and practitioners can consider additional opportunities for scaling up these initiatives and strategies. Finally, when considering that the majority of students attending CNI partnering schools and receiving CNI case management services are Black and low-income, our findings demonstrate the potential for mixed-income redevelopment initiatives to reduce racial inequalities in educational outcomes.

## **CONCLUSION**

In this first study of the effects of CNI on educational outcomes, we leveraged a unique combination of family case management data and school administrative records from the CNI in Memphis, TN. We demonstrate that neighborhood redevelopment initiatives that work directly with schools positively impact student outcomes, suggesting substantial school effects. We also observed substantial family effects through the utilization of case management services. While future research is needed to further understand these effects, we demonstrated the promise of comprehensive place-based initiatives in improving educational outcomes for students who have historically been removed from opportunity—those previously living in distressed public housing units. These units quite literally represent the structures of racism in urban neighborhoods, and their redevelopment can suggest a dismantling of these structures.



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## TABLES AND FIGURES

**Table 1. Summary Statistics**

*Panel A. Covariates in controls (at the baseline)*

	CNI school intervention						USI case management intervention					
	Comp	2018 cohort	2019 cohort	2020 cohort	2021 cohort	2022 cohort	Comp	2018 cohort	2019 cohort	2020 cohort	2021 cohort	
<u>Race</u>												
Prop(Black   school)	0.837 (0.166)	0.951 (0.078)	0.933 (0.107)	0.925 (0.120)	0.910 (0.116)	0.919 (0.129)	0.839 (0.166)	0.955 (0.061)	0.866 (0.145)	0.901 (0.148)	0.906 (0.076)	
<u>Financial status</u>												
Prop(Distressed   school)	0.682 (0.157)	0.744 (0.142)	0.724 (0.151)	0.699 (0.166)	0.711 (0.149)	0.683 (0.157)	0.683 (0.157)	0.755 (0.131)	0.716 (0.128)	0.747 (0.144)	0.755 (0.115)	

Note: Standard deviation in parenthesis

*Panel B. Outcomes of interests (treated only, by relative time)*

	CNI school intervention							USI case management intervention						
	t-2	t-1	t0	t+1	t+2	t+3	t+4	t-2	t-1	t0	t+1	t+2	t+3	t+4
Math (z-score)	-0.432 (0.945)	-0.414 (0.942)	-0.310 (0.936)	-0.286 (0.921)	-0.312 (0.954)	-0.262 (0.871)	-0.187 (0.933)	-0.274 (0.977)	-0.310 (0.888)	-0.258 (0.944)	-0.132 (0.872)	-0.267 (0.854)	-0.217 (0.857)	-0.064 (0.789)
Reading (z-score)	-0.459 (0.923)	-0.394 (0.913)	-0.316 (0.981)	-0.320 (0.974)	-0.339 (0.965)	-0.245 (0.935)	-0.165 (0.952)	-0.307 (0.910)	-0.465 (0.990)	-0.299 (0.892)	-0.286 (0.902)	-0.288 (0.931)	-0.252 (0.895)	-0.224 (0.775)
Attendance rate	0.074 (0.072)	0.076 (0.091)	0.071 (0.085)	0.070 (0.078)	0.063 (0.072)	0.062 (0.079)	0.074 (0.103)	0.059 (0.060)	0.057 (0.065)	0.066 (0.080)	0.058 (0.059)	0.062 (0.086)	0.089 (0.131)	0.075 (0.087)
ISS/OSS days	1.310 (5.000)	1.078 (4.202)	0.919 (3.621)	1.092 (4.537)	0.652 (3.117)	0.712 (3.871)	0.983 (4.063)	0.973 (3.468)	0.959 (4.298)	1.172 (4.346)	0.982 (3.573)	0.752 (3.407)	0.540 (2.149)	4.478 (11.826)

Note: Standard error in parenthesis; Treated students only

**Table 2. Average Treatment Effect on Treated (ATT) estimates (CSDID)**

	Math (z score) (1)	Reading (z score) (2)	Attendance rate (3)	ISS/OSS days (4)	
<i>CNI</i>	-0.037 (0.026)	0.009 (0.031)	-0.005 (0.003)	* -0.486 (0.153)	***
<i>USI</i>	0.006 (0.041)	0.110 (0.053)	* -0.002 (0.005)	-0.326 (0.356)	
<i>CNI+USI</i>	0.024 (0.052)	0.095 (0.091)	-0.004 (0.008)	-0.961 (0.792)	

**Note:** + < 0.10; \* < 0.05; \*\* < 0.01; \*\*\* < 0.001  
Standard error in parenthesis

**Table 3. Average Treatment Effect on Treated (ATT) estimates (CSDID, by gender)***Panel A. Male students*

	Math (z score) (1)	Reading (z score) (2)	Attendance rate (3)	ISS/OSS days (4)
<i>CNI</i>	-0.062 (0.042)	-0.061 (0.047)	-0.008 (0.004)	* -0.598 (0.251)
<i>USI</i>	0.056 (0.055)	0.163 (0.081)	* -0.009 (0.006)	-0.675 (0.680)
<i>CNI+USI</i>	0.029 (0.086)	0.130 (0.115)	-0.005 (0.010)	-2.163 (1.624)

*Panel B. Female students*

	Math (z score) (1)	Reading (z score) (2)	Attendance rate (3)	ISS/OSS days (4)
<i>CNI</i>	-0.006 (0.030)	0.077 (0.039)	* -0.003 (0.003)	* -0.379 (0.169)
<i>USI</i>	-0.037 (0.061)	0.067 (0.069)	0.004 (0.007)	-0.033 (0.190)
<i>CNI+USI</i>	0.024 (0.066)	0.071 (0.135)	-0.004 (0.013)	-0.021 (0.297)

**Note:** + < 0.10; \* < 0.05; \*\* < 0.01; \*\*\* < 0.001  
Standard error in parenthesis

**Table 4. Average Treatment Effect on Treated (ATT) estimates (CSDID, by age group)***Panel A. Older students (as of 6<sup>th</sup> grade or older SY2018)*

	Math (z score) (1)	Reading (z score) (2)	Attendance rate (3)	ISS/OSS days (4)
<i>CNI</i>	0.039 (0.039)	0.096 (0.049)	* -0.009 (0.004)	* -0.787 (0.277)
<i>USI</i>	-0.011 (0.050)	0.054 (0.078)	0.001 (0.006)	-0.300 (0.407)
<i>CNI+USI</i>	0.003 (0.073)	0.104 (0.146)	0.008 (0.010)	-0.091 (0.563)

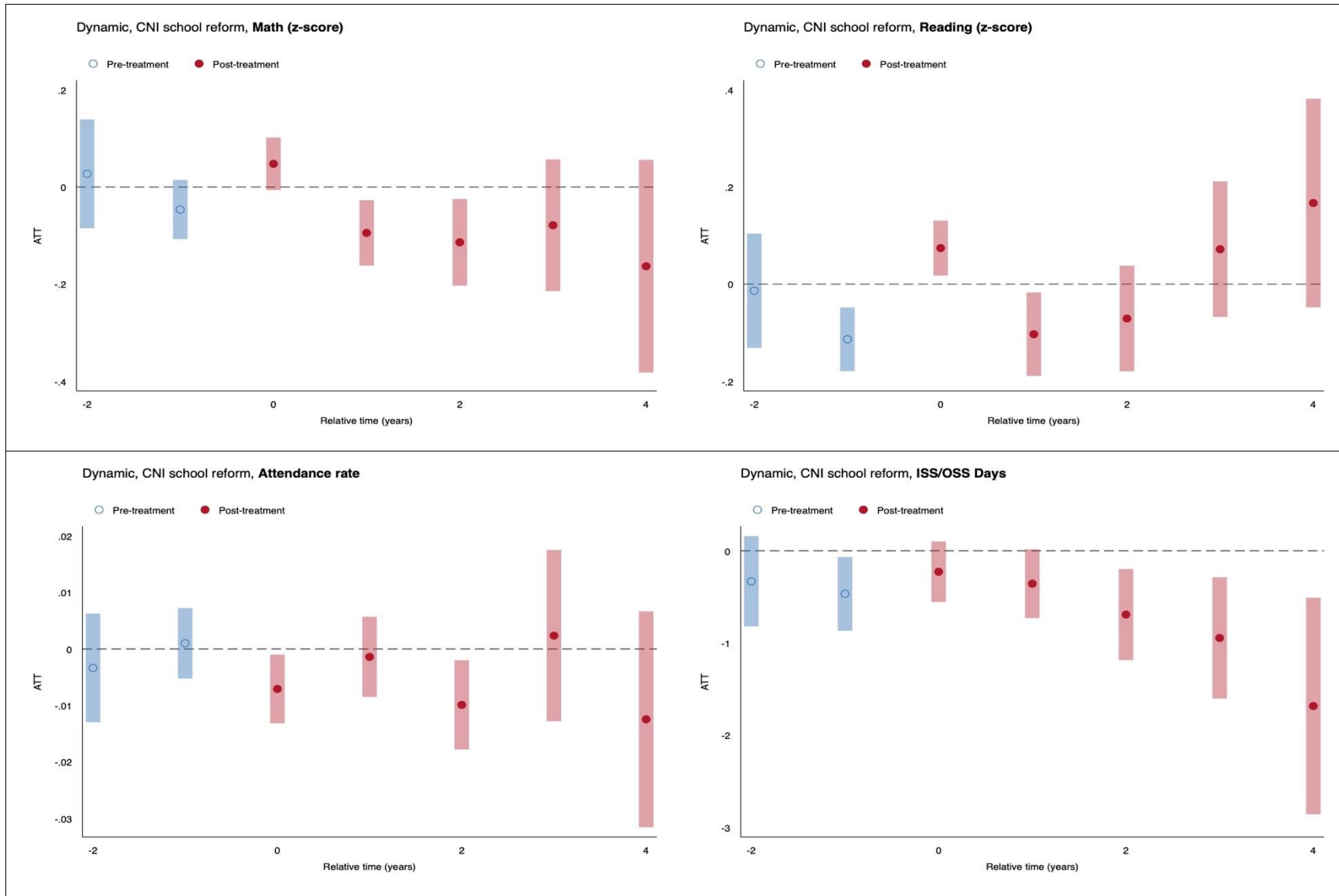
*Panel B. Younger students (as of 5<sup>th</sup> grade or younger SY2018)*

	Math (z score) (1)	Reading (z score) (2)	Attendance rate (3)	ISS/OSS days (4)
<i>CNI</i>	-0.065 (0.036)	+ -0.023 (0.044)	-0.001 (0.003)	* -0.473 (0.209)
<i>USI</i>	0.005 (0.057)	0.130 (0.070)	+ -0.006 (0.007)	-0.418 (0.520)
<i>CNI+USI</i>	0.050 (0.072)	0.140 (0.121)	-0.004 (0.012)	-1.583 (1.257)

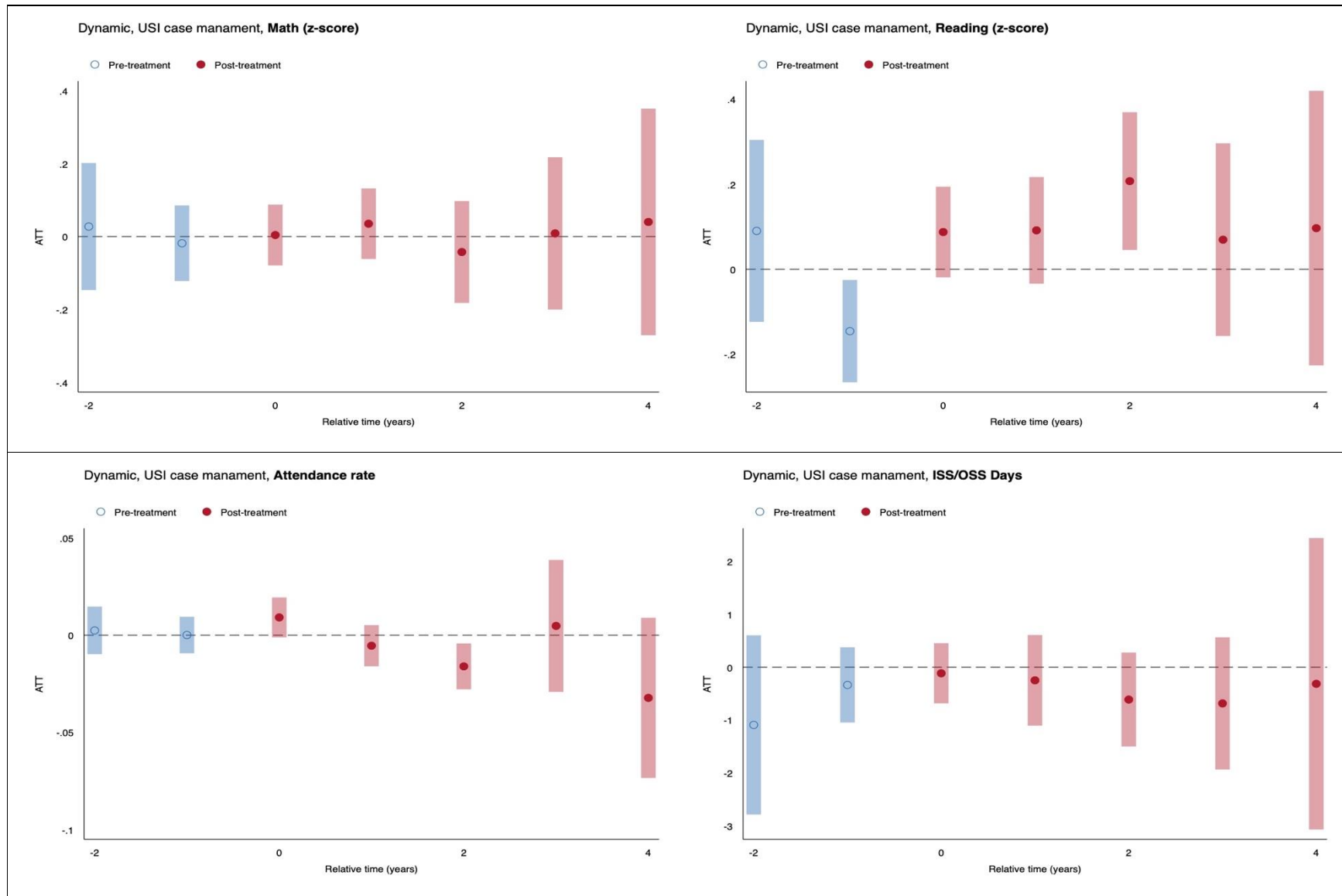
**Note:** + < 0.10; \* < 0.05; \*\* < 0.01; \*\*\* < 0.001  
Standard error in parenthesis

**Figure 1. Average Treatment Effect on Treated (ATT) estimates (CSDID, by relative treatment year)**

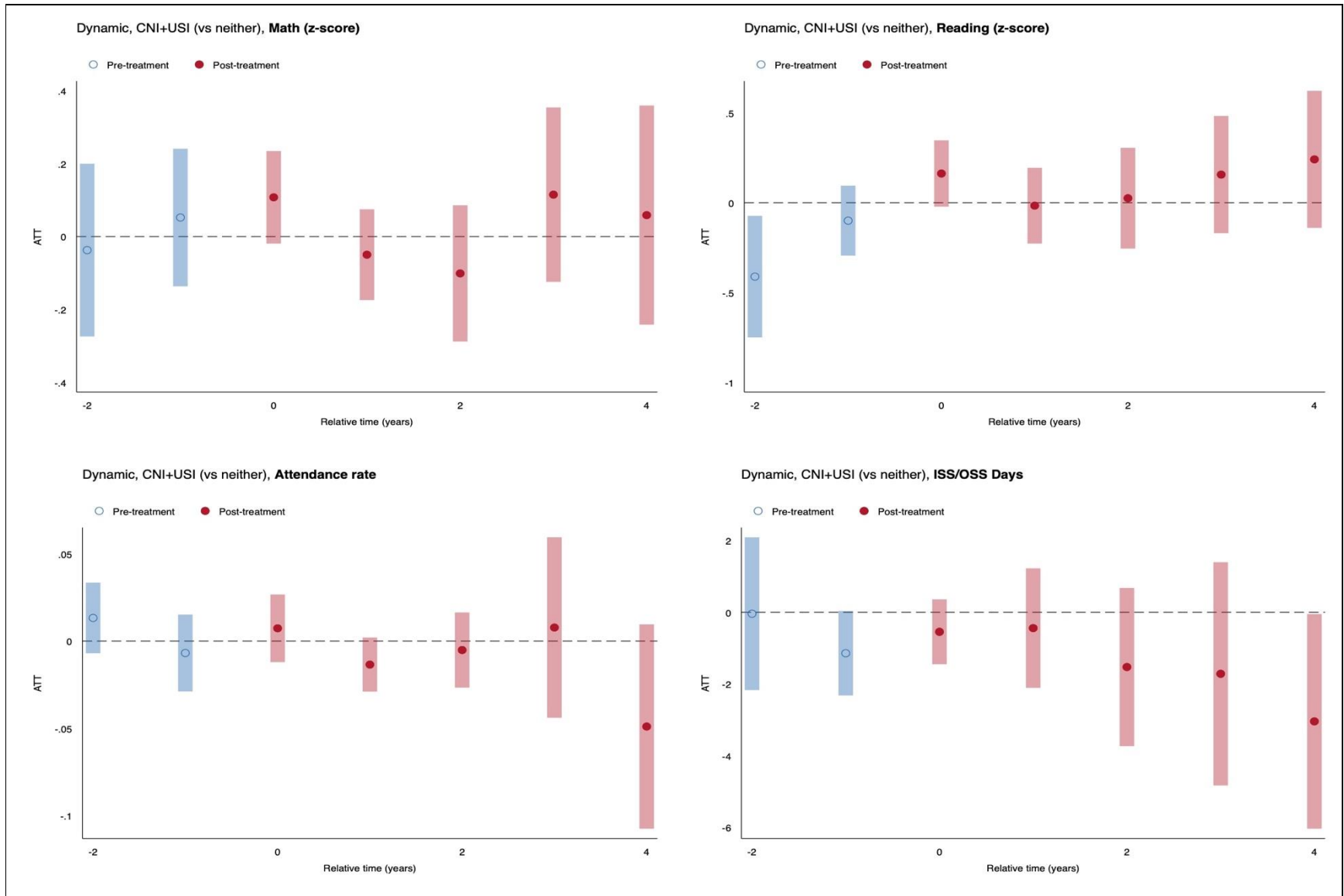
*Panel A. CNI school effects (Top left: Math; Top right: Reading; Bottom left: ISS/OSS days)*



Panel B. USI case management effects (Top left: Math; Top right: Reading; Bottom left: ISS/OSS days)



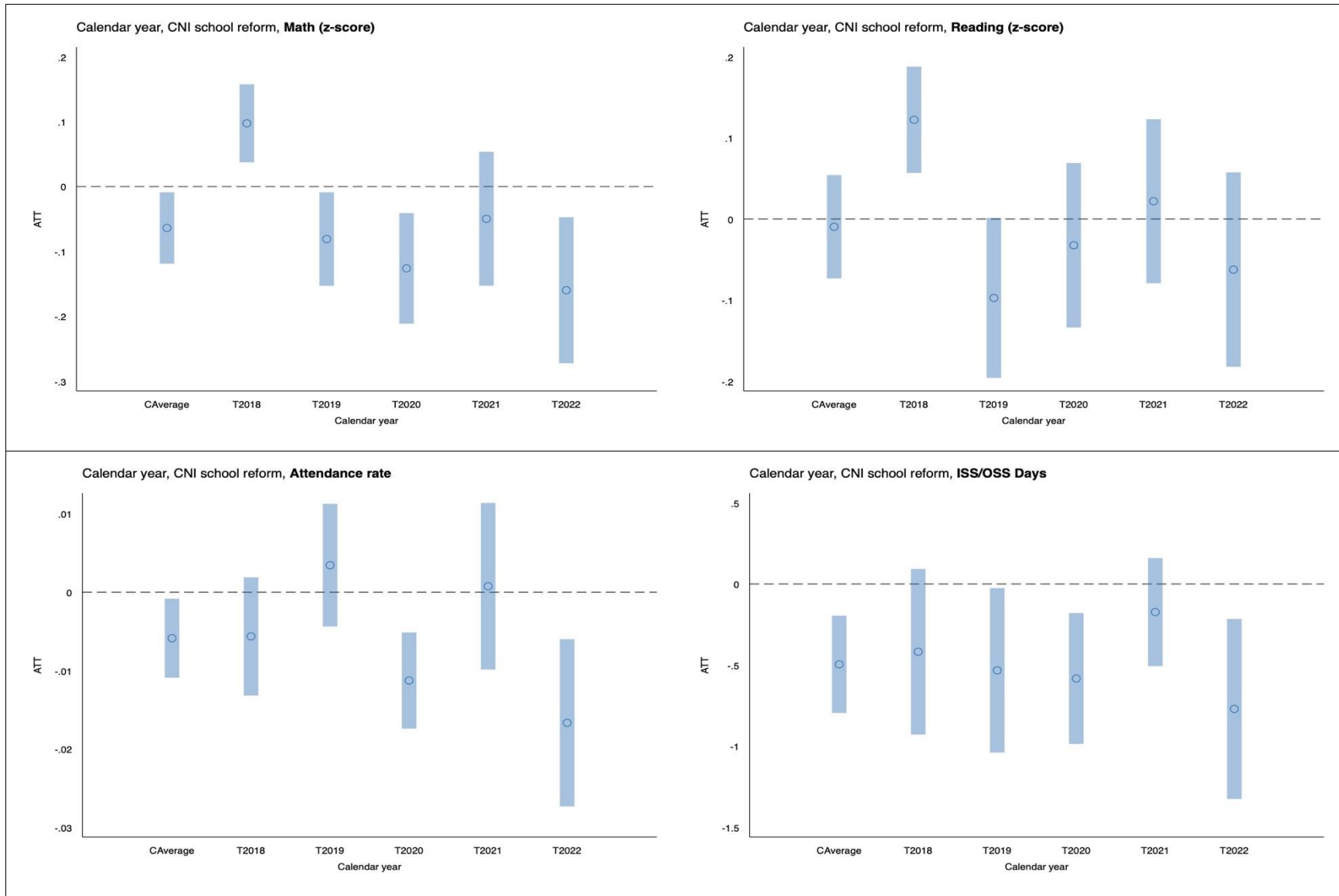
Panel C. CNI+USI effects (Top left: Math; Top right: Reading; Bottom left: ISS/OSS days)



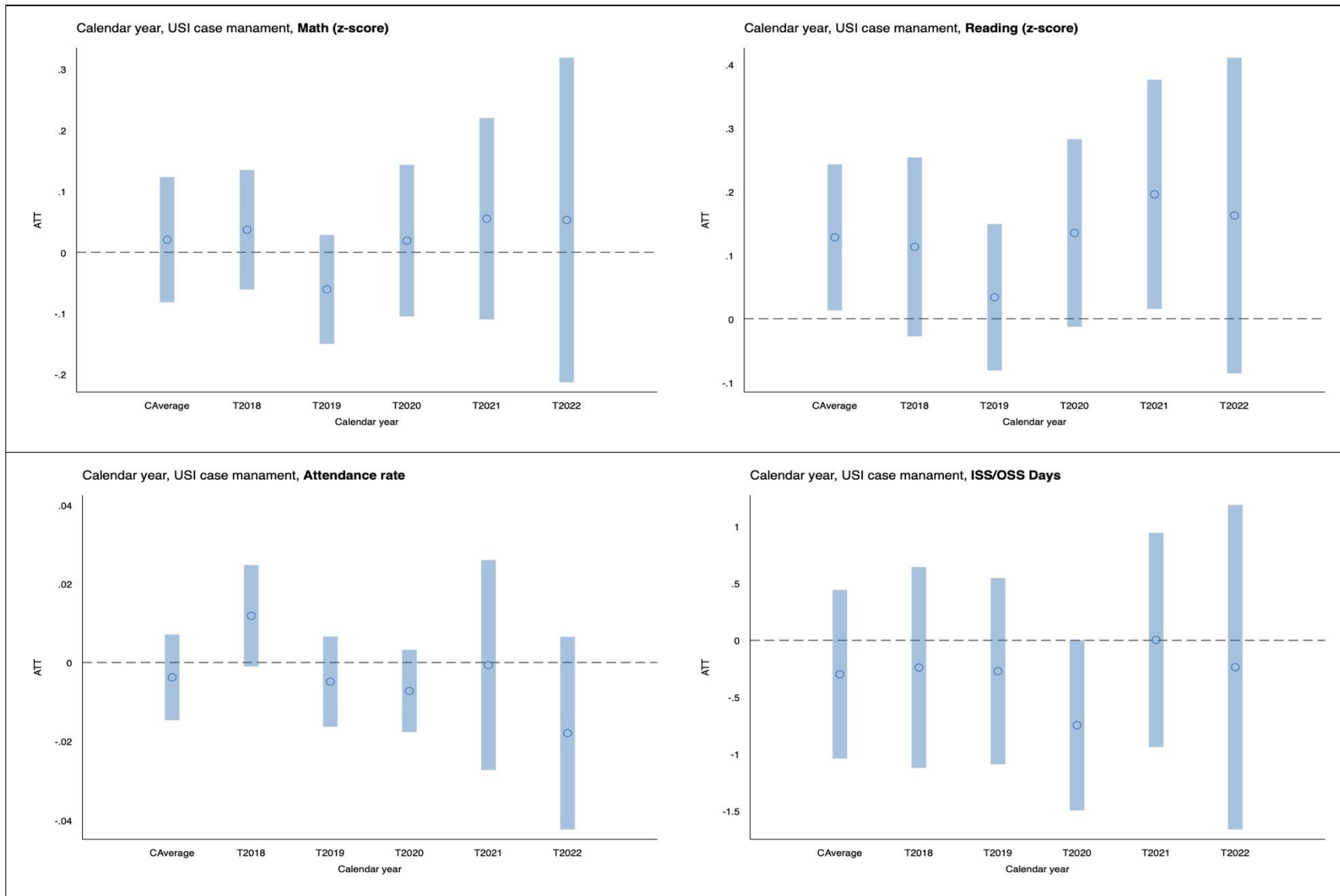


**Figure 2. Average Treatment Effect on Treated (ATT) estimates (CSDID, by calendar year)**

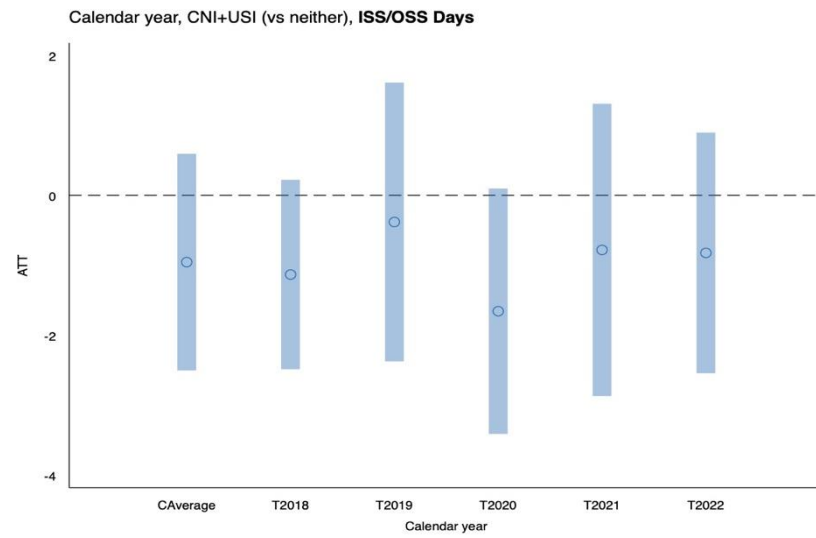
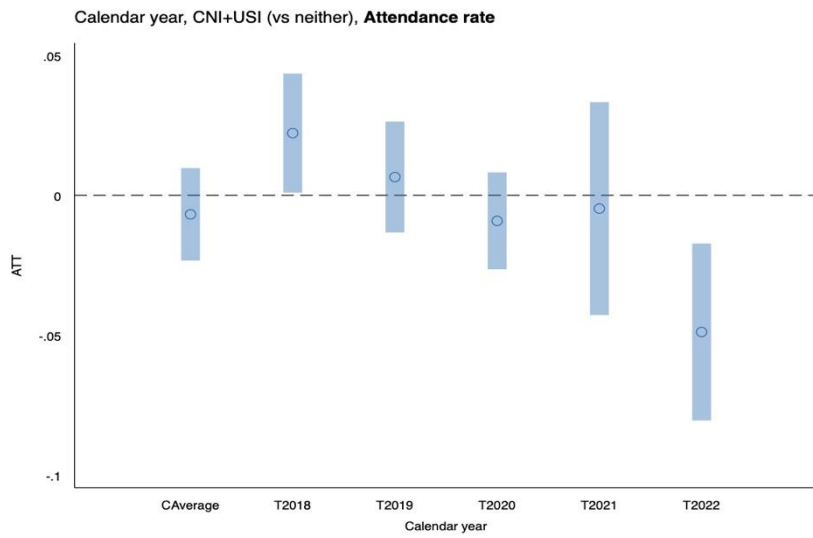
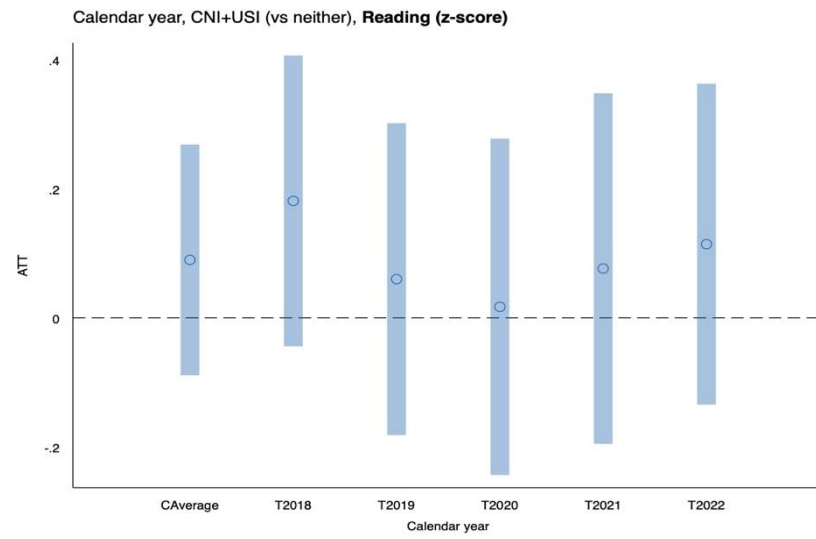
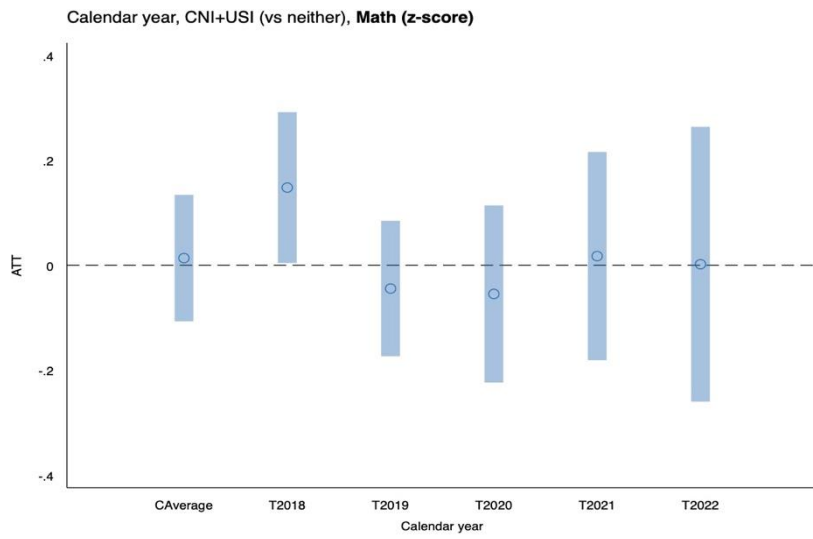
*Panel A. CNI school effects (Top left: Math; Top right: Reading; Bottom left: ISS/OSS days)*



Panel B. USI case management effects (Top left: Math; Top right: Reading; Bottom left: ISS/OSS days)



Panel C. CNI+USI effects (Top left: Math; Top right: Reading; Bottom left: ISS/OSS days)



# APPENDICES

## Appendix A. Urban Strategies Inc.’s National Education Pathway

### National **EDUCATION** Pathway



**Appendix B. Robustness check (with DR estimation methods)**

	Math (z score)		Reading (z score)		Attendance rate		ISS/OSS days	
	(1)		(2)		(3)		(4)	
<i>CNI</i>	-0.050	*	0.000		-0.005	*	-0.450	***
	(0.024)		(0.028)		(0.002)		(0.131)	
<i>USI</i>	0.037		0.098		-0.001		-0.169	
	(0.043)		(0.070)		(0.004)		(0.325)	
<i>CNI+USI</i>	0.024		0.110		-0.009		-1.202	
	(0.077)		(0.123)		(0.011)		(0.995)	

**Note:** + < 0.10; \* < 0.05; \*\* < 0.01; \*\*\* < 0.001  
Standard error in parenthesis