# PUNISHED FOR THEIR FATHERS?
# SCHOOL DISCIPLINE AMONG CHILDREN OF THE PRISON BOOM

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Running Head: Punished for Their Fathers


## Abstract

By the late 2000s the US incarceration rate had risen to more than 4 times what it was in the mid-1970s, and school suspension rates more than doubled. Many incarcerated men are fathers, yet prior research has not examined the influence of paternal incarceration on children's risk of school discipline. Literature suggests multiple causal pathways: externalizing behaviors, lower parental involvement in school, and intergenerational stigmatization. Using data from the Fragile Families and Child Wellbeing Study, I examine the effects of recent paternal incarceration on risk of exclusionary school discipline among urban nine year-olds. Results suggest that (1) recent paternal incarceration increases children's risk of being suspended or expelled from school; (2) effects are largely due to student behavioral problems; (3) beyond behavior problems, effects are not due to lower parental involvement following incarceration; and (4) although risk is highest for blacks and boys, effects do not vary by race or gender.

> [T]oo many Americans [go] to prison for too long, and at times for no truly good public safety reason. . . One in 28 American children currently has a parent behind bars.
>
> *US Attorney General Eric Holder in a testimony before the US Sentencing Commission on March 13, 2014*

> Too many schools resort too quickly to exclusionary discipline, even for minor misbehaviors. [It] is so common that in some cases, pre-K students as young as three- and four-years old are getting suspended.
>
> *US Secretary of Education Arne Duncan at the Release of the Joint Department of Justice-Education School Discipline Guidance Package on January 8, 2014*

As incarceration has reached unprecedented levels in the United States, so have rates of school discipline. For every 100 individuals in prison or jail in 2010, there were 114 children suspended from school (Department of Education Office of Civil Rights 2014; Glaze and Herberman 2013),[1] and both systems of punishment disproportionately affect African American males (Pettit and Western 2004; Skiba, Shure, and Williams 2012). Prior research finds school discipline associated with later incarceration and other criminal justice involvement (Fabelo et al. 2011; Shollenberger 2013) but conceptualizes the relationship as a one-way "school-to-prison pipeline" (Wald and Losen 2003). This paper suggests that among families, the reverse relationship also occurs—incarceration has a causal effect on school discipline. Specifically, in line with prior research on the intergenerational consequences of the prison boom (Haskins 2014; Turney and Haskins 2014), I propose that recent paternal incarceration increases children's risk of exclusionary school discipline (i.e., suspension and expulsion). I test this hypothesis by examining the overall relationship and exploring three causal pathways: student externalizing behavior problems (i.e., hyperactivity, aggression, and delinquency) (Wakefield and Wildeman 2011), intergenerational stigmatization (Murray 2007), and lower parental involvement in school.

Prior research finds high rates of exclusionary discipline among urban middle and high school students (Balfanz, Byrnes, and Fox 2013; Losen and Skiba 2010), but few studies focus on elementary school. Risk for some children may already be high at young ages. For example, in one district more than 12% of black boys in elementary school were suspended in a single year (Mendez, Knoff, and Ferron 2002). Thus, I use data from the Fragile Families and Child Wellbeing Study, a longitudinal birth-cohort study of urban children up to age nine. Since racial-ethnic disparities in school suspension are lower in highly segregated urban areas (Eitle and Eitle 2004), I expect less of a race effect than has been documented in prior studies, most of which have been limited to a single state or district (for review see Skiba et al. 2012). I focus instead on the effects of recent paternal incarceration and the mechanisms of this relationship.

## BACKGROUND

### *Exclusionary Discipline in the United States*

Exclusionary school discipline, defined as punishment involving the removal of a student from a classroom or school, includes in-school suspension (temporary exclusion from the classroom), out-of-school suspension (temporary exclusion from school grounds), and expulsion (permanent exclusion from the school). Expulsions are rare instances reserved for the most serious offenses, but use of suspensions has increased for several decades. Political attention to rising juvenile crime rates in the 1980s (Browne et al. 2010) led schools to adapt more "zero-tolerance" approaches by increasing security measures (e.g., metal detectors, security officers, armed police) and employing harsher punishments (Gottfredson and Gottfredson 2001). School districts began mandating expulsions for violence, drugs, and gang-related activity in the early 1990s, but within a few years zero-tolerance approaches were being applied to less serious offenses (on or off campus) and even minor disruptions (California Department of Education

2013; Maag 2012; Simon 2007; Skiba 2000). For example, of the more than 155,000 incidents resulting in a suspension or expulsion in Connecticut in the 2006-2007 school year, 70% were for attendance problems, disrespect, or something other than violence, weapons, drugs, theft, or property damage (Connecticut Department of Education 2010).

These figures are worrisome given the potentially unstructured time suspended students spend out of school and the growing evidence of negative consequences Ferguson (2001:39) writes, "[Out-of-school] suspension has the potential to be the freest space of all that children can win in a state of punishment. . . In general, there is little expectation that any schoolwork will be done on the part of the school, no monitoring procedures, and plenty of TV watching." Unstructured socializing is associated with higher levels of delinquency (Osgood and Anderson 2004). Moreover, a suspension or expulsion may act as a negative label for children, prompting more deviance (Lemert 1951). It is no surprise then that prior research finds exclusionary discipline associated with poor school performance, grade retention, dropout, arrest, and incarceration (Arcia 2006; Arum and Beattie 1999; Balfanz et al. 2013; Davis and Jordan 1994; Fabelo et al. 2011; Shollenberger 2013). For elementary school children, it represents their first official sanction; for some, a precursor to criminal justice involvement.

National data from the Department of Education Office of Civil Rights suggest the rise in exclusionary discipline is disproportionately affecting children of certain demographic groups. Figure 1 presents suspension rates by race since the mid-1970s. These represent the proportion of elementary and secondary (i.e., middle and high school) students without disabilities who received at least one out-of-school suspension in the previous year. The solid line shows that from the mid-1970s up through the mid-1990s, the total suspension rate increased by more than three quarters. Since then, it has hovered around 6% of students with rates for males on average

more than 120% greater than females and rates for blacks and Hispanics continually increasing relative to whites. Disproportionality among blacks appears most dramatic; nearly 40% of all students who are suspended are black, even though they make up only 17% of the student population. Though much less frequent, similar disparities exist for expulsions. Whereas 0.2% of students were expelled in the 2009 to 2010 school year, among blacks and Hispanics the figures were 0.28% and 0.38% respectively.

*Paternal Incarceration and Childhood Behavior Problems*

As exclusion from school has become an increasingly common experience for disadvantaged children, exclusion from broader society has become increasingly common for their parents. The US incarceration rate has increased by more than 4 times what it was in 1972 (Travis, Western, and Redburn 2014). There are now nearly 2.3 million people, overwhelmingly men, in jail or prison (Glaze and Herberman 2013), and many are parents who lived with their children prior to incarceration (Mumola 2000). A disproportionate number of incarcerated men are black or Hispanic (Mauer and King 2007). Therefore, mass incarceration like the overuse of school discipline disproportionately affects minority children, especially blacks. Indeed, in a classroom of 25 white students, one will have a parent incarcerated by age 14, but in an equal-size classroom of black students, the number jumps to six (Wildeman 2009).

Several processes might account for a relationship between paternal incarceration and risk of exclusionary discipline, the most obvious of which is differences in student behavior problems. Simply put, children of incarcerated fathers may be at greater risk of suspension or expulsion because they misbehave more in class. A well-established literature finds evidence that paternal incarceration, especially recent paternal incarceration, is associated with child aggression and adolescent delinquency (Murray, Farrington, and Sekol 2012; Geller et al. 2012;

Roettger and Swisher 2011; Roettger et al. 2011; Swisher and Roettger 2012; Wakefield and Wildeman 2011; Wildeman 2010). Behavioral problems may be responses to weakened family bonds and intensified economic strain following the incarceration of a father. Prior studies find that when violence or severe addiction does not prevent fathers from already having strong bonds with their children, incarceration breaks up families and reduces father involvement (Edin, Nelson, and Paranal 2004; Geller 2013; Turney and Wildeman 2013). Family instability may increase children's behavior problems (Ackerman et al. 1999) by reducing the quality of mothering and level of supervision (Astone and McLanahan 1991; Osborne and McLanahan 2007). Moreover, more than half of fathers in state prisons are the primary breadwinners in their families (Glaze and Maruschak 2008), putting those they leave behind at greater risk of economic and material hardship (Schwartz-Soicher, Geller, and Garfinkel 2011; Sugie 2012; Wildeman 2014). Children often express economic strain emotionally through aggression or hyperactivity (Brooks-Gunn and Duncan 1997), increasing their risk of being removed from the classroom or school.

To date, research on the effects of paternal incarceration on child behavior problems generally find little or no heterogeneity by race and considerable variation by gender (for review see Travis et al. 2014). Although paternal incarceration is associated with behavior problems for both boys and girls (Geller et al. 2012), it has a stronger effect for boys, who tend to act out more in response to father absence (Malone et al. 2004; Wildeman 2010). Thus, paternal incarceration may place boys at a disproportionately higher risk of being excluded from school.

*The Impact of Incarceration beyond Behavior*

Ideally, students are disciplined for misbehavior, not background characteristics. Thus, after accounting for student behavior problems, paternal incarceration should have no influence

on the decision to discipline. Nevertheless, prior literature suggests two reasons why there might be an effect: intergenerational stigmatization and lower parental involvement. Consistent with Braithwaite's (1989:55) definition of stigmatization as shaming that produces a "class of outcasts," Uggen, Manza, and Thompson (2006) find evidence of the emergence of a "criminal class" of previously incarcerated individuals who face legal and informal barriers to their rights and responsibilities as citizens (e.g., Pager 2003). Some studies contend that children who are affiliated with this class are also stigmatized (Murray 2007; Phillips and Gates 2011).

Although virtually no research has examined such stigmatization in school, some studies offer important insights. Ferguson (2001:90-5) reports that the decisions educators make about individual students are influenced by the often distorted perceptions they have of students' families. She finds that once students are considered "at-risk," their classroom behavior becomes more visible, increasing their risk of punishment. This may be due to an increase in supervision over the student or a change in expectations about their behavior. For example, other research finds that when teachers know a parent has been incarcerated, they have lower expectations for the student (Dallaire, Ciccone, and Wilson 2010), and lower expectations lead to poorer performance, especially among younger students (Rosenthal and Jacobson 1968). Labeling theories emphasize the harmful effects of anticipated stigmatization as well (Link and Phelan 2001). Out of fear of rejection from peers or teachers, students may choose not to talk about their family circumstances at school (Nesmith and Ruhland 2008), leaving educators to make decisions based on even more limited information.

Intergenerational stigmatization may not be the same for all demographic groups. Pager (2003) finds that for job seekers racial minority status intensifies the stigma of a criminal history. Other studies find that whereas white students are more likely to receive an attention or

hyperactivity disorder diagnosis for behavior problems (Morgan et al. 2013), racial minorities are at greater risk of being punished (Skiba et al. 2012). Thus, the effects of paternal incarceration on exclusionary discipline may be greater for blacks and Hispanics.

*Lower Parental Involvement as an Alternative Explanation*

Incarceration stigma is not frequently measured in survey research. Some studies measure community attitudes toward ex-offenders (Hirschfield and Piquero 2010; Steffensmeier and Kramer 1980), but measures of children's stigmatization are scarce. Because rejection at school could lead children to act out in defiance (Sherman 1993), some of the effect would be captured by controlling for behavior problems. But to examine the impact of paternal incarceration stigma above and beyond its impact on behavior, an alternative to attitudinal measures is to rule out all other possible explanations and attribute any residual effect to stigmatization. For example, Foster and Hagan (2009:187) interpret a negative effect of paternal incarceration on children's years of schooling, net of potential confounders including the propensity for incarceration, as a "cautious and conservative confirmation of the harmful effects of stigma."

One potential alternative to stigmatization is lower school involvement among parents caught up in the criminal justice system. Prior studies suggest several reasons why parents would be less involved in their children's schooling following an incarceration. One reason is that the incapacitation a father places more demands on the mother's time and emotional capacity that limit her ability to engage in effective parenting. One recent study finds paternal incarceration associated with maternal neglect (Turney 2014). Similarly, added stressors following the incarceration of a father may limit the mother's ability to intervene when a child is faced with the threat of suspension or expulsion. Additionally, mothers may be reluctant to seek help through school resources for fear of stigmatizing their children. Henriques (1982)[2] reports:

> The school authorities had to be informed regarding children's absence due to [the parents] having to appear in court. Failure to inform school authorities could have resulted in children's being suspended or being labeled truants. Yet, some guardians feared that once the school was informed, teachers and others would come to view children differently.

"System avoidance," defined as the tendency to evade surveilling—or formal record-keeping—institutions out of fear of being tracked and apprehended, may be another reason for lower parental involvement. Brayne (2014) finds previously incarcerated individuals less involved in surveilling institutions, including schools (also see Goffman 2009). Given the influence a romantic partner's behavior has on an individual's own behavior and criminal justice involvement (Capaldi, Kim, and Owen 2008; Haynie et al. 2005), I extend Brayne's (2014) conceptualization by suggesting that previously incarcerated parents might avoid their children's schools and that mothers of children with previously incarcerated fathers may also be at risk of school avoidance as a means of protecting the father or themselves. Specifically, recently incarcerated fathers and their partners may be less likely to become involved in their children's schooling or even to respond to teachers' phone calls or emails regarding their child's behavior problems.

Whatever the reasons for lower parental involvement, it may have either negative or positive effects on discipline. The effect of lower school involvement would be negative (lower risk of exclusionary discipline) if school administrators hesitate to remove a child from school for minor disruptions because they are unable to contact the parents. For example, New York law requires schools to notify a child's parents before a suspension for minor disruptions takes place (New York State Education Department 2010). It would be positive (greater risk of discipline) if a lack of parent intervention gives students less protection from educator decision making.

*Minimizing Bias in the Study of Paternal Incarceration*

Selection bias often interferes with incarceration research due to nonrandom differences between formerly incarcerated and other individuals (Travis et al. 2014). These may be differences in individual demographic characteristics (Steffensmeier, Ulmer, and Kramer 1998), family or neighborhood dynamics (Kubrin and Stewart 2006; Sampson, Laub, and Wimer 2006), self-control (Gottfredson and Hirschi 1990), genetic traits (Wright and Beaver 2005), or something else. Although these differences cannot be completely accounted for in observational studies, their effects can be reduced by controlling for observed variables that could potentially confound results, such as early developmental processes (Moffitt 1993), hyperactivity disorders (Hutchison 2013; Morgan et al. 2013), and early exposure to violence or substance abuse (Giordano 2010). Past research has consistently stressed that such "predetermining" factors be accounted for when examining the intergenerational effects of incarceration (Hagan and Dinovitzer 1999; Murray, Loeber, and Pardini 2012). For example, Johnson (2009) controls for parent's criminality, and although not the focus of his paper, finds paternal (but not maternal) incarceration positively associated with discipline. Where criminality is not observed, an alternative approach to reducing bias would be to limit the sample to cases with similar risk of experiencing recent paternal incarceration, such as fathers with any incarceration history (e.g., Wildeman 2014).

Even when controlling for these other variables, standard regression techniques alone may be insufficient for causal inference (Freedman 1991). An alternative is propensity score matching which approaches an experimental design by matching a "treatment" group of recently incarcerated fathers to a control group with a similar probability of recent incarceration based on observed characteristics (Rosenbaum and Rubin 1983). An advantage over standard regression is that it makes no assumptions about the functional form of the relationship between the treatment

and the outcome (Harding 2003). A limitation is that like regression, it assumes all selection is on observed characteristics (Winship and Morgan 1999).

**STUDY CONTRIBUTIONS**

In examining the intergenerational relationship between two systems of punishment, the current study makes several important contributions. First, it is among the first to test the effects of a father's incarceration on his children's risk of being suspended or expelled from school. Second, it provides a systematic investigation of the causal pathways of this relationship. In doing so, it extends prior research on the effects of paternal incarceration on child behavior by considering an important consequence of behavioral problems. If children of incarcerated fathers are at greater risk of suspension or expulsion because they act out more, accounting for student behavior problems will render the effect of paternal incarceration null. However, a remaining positive effect could be the result of lower parental involvement or selection effects. If there remains an effect of paternal incarceration beyond student behavior and parental involvement after adjusting for selection effects, intergenerational stigma may be at play outside these other processes.

Third, the study advances our knowledge of the prevalence and causes of school discipline by focusing on younger children. It does this for two reasons: causal sequences of behavior problems begin early (Moffitt 1993) and discipline among younger students has received little attention, even though the most disadvantaged students are already at risk. Fourth, the study offers an improvement over prior research on the causes of school discipline by allowing for greater causal inference. Specifically, the data I use allow for the use of propensity score matching and include a wider array of control variables than have been used in prior studies. They also establish whether the father's incarceration occurred during the child's school

years, which is important because I would expect a true effect on school discipline if the father was incarcerated while the child was attending school.

## DATA AND METHODS

### *Sample*

The Fragile Families and Child Wellbeing Study is a birth cohort study of about 5,000 children born in 20 of the largest (more than 200,000) cities in the US between 1998 and 2000 (Reichman et al. 2001). Unmarried parents were oversampled and represent about three-quarters of the original sample, so the data are over-representative of socioeconomically disadvantaged families. Mothers and fathers were interviewed either in person or by telephone shortly after the birth of their child. Both parents were contacted again by telephone in follow-up waves around the time of the child's first, third, fifth, and ninth birthdays. By age nine, 76% of mothers and 59% of fathers had remained in the study. In addition to the biological mother and father surveys, the primary caregiver (92% biological mother at age nine) was interviewed at home at the age-three (79% response rate) and age-five waves (81% response rate) and by telephone at the age-nine wave (77% response rate). Children whose primary caregivers participated at age nine also took part in a short in-home interview, and the teachers of these children were invited to participate in a mail-in survey (62% of cases in which the primary caregiver participated also include data from teachers).[3] Neighborhood characteristics are based on census 2000 data from the census tract of the mother's residential address at each wave. School characteristics that are not based on teacher responses are taken from school-level public data of the National Center for Education Statistics.

My analyses rely on data from both the primary caregiver and teacher reports at the age-nine wave (2,242 cases have both). In addition, my sample is limited to non-Hispanic black

(50%), non-Hispanic white (28%), and Hispanic children (23%) who meet the following three criteria: (1) biological fathers were not deceased at any wave, (2) primary caregivers provided valid data on whether the child had been absent from school for a suspension or expulsion in the current or most recent school year, and (3) when reporting on the child's behavior, teachers were referring to the same or earlier academic year that caregivers were referring to when reporting on child's school discipline. This results in a sample size of 1,406 that is still representative of the full sample on a wide range of variables (see Table A1). By the time they reached school-age (about age five), half of the children have experienced at least one episode of paternal incarceration. Twenty-three percent have had a father incarcerated while in school (referred to here as a "recent" incarceration), between the age-five and age-nine waves. Most are in third grade and already 6.4% have been suspended or expelled in that year. Because my focus is on disadvantaged children, this suspension rate is higher than would be expected from a random sample of the population; about 2.5% of elementary students were suspended in the 2009-2010 school year (Losen and Martinez 2013).

*Variables*

*Dependent Variable*. Exclusionary discipline is a binary measure taken from primary caregiver questions about reasons for school absences in the current or most recent school year. Cases in which respondents reported that the child had been absent due to a suspension or expulsion are coded 1. By limiting the measure to discipline that results in a school absence, I do not capture in-school suspensions, which are generally less serious. Although this underestimates the extent of exclusionary discipline among these children, any statistical significance in results is likely to be biased down.

*Recent Paternal Incarceration*. The primary variable of interest is recent paternal incarceration, defined as an incarceration experienced during the child's school-age years—between the age-five and age-nine waves—but not at the time of the age-five interview. It is based on information combined from three sources: father self-reports, mother reports, and disposition data. The latter include information other than survey data gathered during data collection, such as when interviewers searching for a father's whereabouts learn he is in jail. Some but not all fathers were interviewed in prison at the age-nine wave and the language in the questions about incarceration varies slightly across waves, increasing the chances that incarceration is underreported. Thus, drawing on multiple sources increases reliability. Another limitation is that I cannot determine the length or timing of incarceration for all fathers or whether it took place in a prison or jail. It is possible that for at least some cases, the incarceration occurred recently enough that it took place after the child's suspension or expulsion in the current school year.

*Student Behavior Problems*. To minimize bias in reporting and to capture a wider array of behavior problems than has been included in prior school discipline studies, I include three measures of student behavior: (1) teacher-reported externalizing behavior, (2) parent-reported externalizing behavior, and (3) self-reported delinquency. Teacher-reports are taken from a modified version of the Social Skills Rating System (Gresham and Elliott 1990) in which teachers were asked to rate the child's behavior in the past month (0 = Never to 3 = Very often). A sum composite is constructed from six items: "fights with others," "threatens or bullies others," "argues with others," "talks back to adults when corrected," "gets angry easily," "has temper tantrums" (alpha = 0.92). Parent-reported externalizing behavior is based on a sum of 24 items from the Child Behavior Checklist, 6-18 (Achenbach and Rescorla 2001) coded on a scale

of 0 = not true to 2 = often or very true. Examples include "child physically attacks people" and "disobedient at school" (alpha = 0.90). Delinquency is based on the Things You Have Done Scale (Maumary-Gremaud 2000). Sixteen items asking "Have you ever . . ." are summed. Examples include "cheated on a school test," "had a fist fight with another person," "skipped school without an excuse," "secretly taken a sip of alcohol," and "smoked marijuana" (alpha = 0.70). Regression models use a natural log transformation of each of these measures (after adding 1) to account for nonnormal distributions.

As has been the case in prior studies (Hinojosa 2008; Peguero and Shekarkhar 2011), these measures are limited in that they do not permit me to establish whether the behavior problems took place before the school discipline. However, with parent (but not teacher or student) reports I can establish whether the behavior problems occur after the father's incarceration by controlling for the same measure (based on identical items) at the age-five wave (alpha = 0.85). As an additional safeguard, I examine my results with and without each of these measures separately before including all of them in a full regression model together.

*Lower Parental Involvement*. In line with Brayne's (2014), conceptualization of system avoidance as simply a lack of involvement in a given system, lower parental involvement is based on five dichotomous items in the teacher questionnaire regarding the parents' level of involvement in the child's schooling. Items ask whether parents "returned your phone calls," "attended parent/teacher informal meetings that you initiated," "initiated contact with you," "attended regularly scheduled conferences," "volunteered to help in your classroom or school." I sum these items and reverse code the resulting scale (alpha = 0.71) so that higher scores refer to more less parental involvement or more avoidance.

*Control Variables.* Where possible, control variables are measured before the age-nine wave to preserve the causal order. In addition to race and gender, I control for the father's incarceration history, one of the strongest predictors of recent incarceration. For current purposes, this refers to any incarceration that took place prior to the child reaching school age (age-five wave), and is taken from the same three sources of recent incarceration. I also control for whether the mother was incarcerated by the same wave. Prior studies find null effects of maternal incarceration on children's externalizing and internalizing behaviors (Wildeman and Turney 2014) and mixed effects on educational outcomes (Cho 2009, 2011). However, small-scale studies suggest that students with incarcerated mothers are stigmatized at school and at greater risk of suspension (Dallaire et al. 2010; Trice and Brewster 2004).

To ensure that my results are not confounded by other types of father absence, I control for whether the father was living with the child at the age-five wave. I also include 32 other control variables that are described in Table A2. These include biological and early developmental risk factors, family background and socioeconomic characteristics, student disability and performance, teacher characteristics and experience, school security and racial-ethnic composition, and residential neighborhood disadvantage. No two variables have a Pearson's correlation at or above 0.7 (see Table A3), which minimizes the potential for collinearity among such a large number of variables (Hoffmann 2010).

*Analytic Strategy*

Analyses are performed in four stages. First, I examine descriptive statistics of the variables in my analysis for children with recently incarcerated (during school years), distally incarcerated (before school years only), and never incarcerated fathers. Second, using logistic regression, I examine the overall relationship between paternal incarceration and school

suspension. In doing so, I include interaction terms to test for variability in the relationship by race and gender and control for a wide array of potential confounders. Then, to reduce bias due to unobserved heterogeneity between incarcerated fathers and other fathers, I perform a sensitivity check by limiting the sample to children whose fathers had ever experienced an incarceration by the age-five wave. Third, I further adjust for selection bias by matching cases in the full sample on the propensity to experience recent paternal incarceration, based on a long list of observed covariates. As a robustness check I use two matching techniques, specifically nearest neighbor and kernel matching (Leuven and Sianesi 2003). Fourth, I examine the effects of my hypothesized mechanisms, student behavior and lower parental involvement, again using both logistic regression models and propensity score matching as described above. While I have eliminated missing cases from my primary variables of interest, there are a few missing cases related to student behavior and control variables.[4] To account for these, I use multiple imputation with chained equations and perform my multivariate analyses using 20 multiply imputed datasets. Descriptive statistics are presented with non-imputed data.

## RESULTS

### *Descriptive Statistics*

Descriptive statistics for the full analytic sample as well as for children with never incarcerated (N = 650), distally incarcerated (N = 426), and recently incarcerated fathers (N = 320) are shown in Tables 1 and A4.[5] "Recently" includes children whose fathers were incarcerated during their school-age years, whether or not they were incarcerated before age five as well. "Distally" includes children whose fathers were only incarcerated before the school-age years. Shown in this way, one might expect increased disadvantage from "never" on the left of the table toward "recently" on the right. Indeed, whereas only 3% of children who never

experienced paternal incarceration were suspended or expelled from school at age nine, 14% of those with a recently incarcerated father were suspended or expelled.[6] Children in the latter category are disproportionately black, but unexpectedly not Hispanic. Only 4 in 10 lived with their father at age five. Compared to children in the other categories, their parents have lower levels of education and are much less likely to be married. On some characteristics such as income, achievement, and hyperactivity disorder diagnosis they appear to be quite similar to the distally incarcerated group. Consistent with the literature on mothers' parenting (Turney 2014), lower parental involvement is more severe with a distal incarceration and is only slightly worse for those with a recent incarceration. However, children recently exposed to paternal incarceration have somewhat higher levels of behavior problems than either of the other groups.

*Overall Effect of Recent Paternal Incarceration*

Bivariate results in Model 1 of Table 2 indicate the odds of being suspended or expelled from school are 279% ($e^{1.331}$)[7] greater for children with a recently incarcerated father. The odds of exclusionary discipline are 170% ($e^{0.993}$) greater for males than for females and 171% ($e^{0.995}$) greater than for blacks than for whites, controlling for recent incarceration in Model 2. However, Hispanic students in my sample are at no greater risk than whites (with or without controls). Non-significant interaction terms in Model 3 suggest the effects of recent incarceration do not vary by race or gender. I also checked for a three-way interaction with race, gender, and recent incarceration, but results (not shown) were similar. In Model 4 I find that even when controlling for early environmental and developmental risk factors as well as school and neighborhood characteristics, having a recently incarcerated father is associated with a nearly three-fold increase ($e^{0.985}$) in the odds of being suspended or expelled from school. When these controls are added the effect of race is no longer significant, but males remain at greater risk. Whether the

father or mother was incarcerated before the child was old enough to attend school does not appear to influence risk of school discipline net of controls.

Because results may in part be driven by selection bias or unobserved heterogeneity, I next perform a set of robustness checks that attempt to compare cases with similar risk of experiencing a recent incarceration. First, in Model 5 I limit the sample to children whose fathers had ever been incarcerated by the time the child was old enough to begin school, thus reducing the chance that results are biased due to differences between previously incarcerated fathers and other fathers. Log-odds and standard errors are similar to those of the previous model, suggesting that even among children whose fathers have been to prison or jail, an incarceration that occurs since the beginning of school is associated with increased risk of being suspended or expelled.

Next, I use propensity score matching techniques with the full sample to further minimize bias. Because fathers in the Fragile Families Study were interviewed at each wave and recent paternal incarceration is measured at the last wave, I am able to match cases on a set of father- and mother-reported covariates of incarceration. Using logistic regression in each of the 20 imputed datasets, I generate a propensity score, or predicted probability of being in the treatment group, with the list of covariates described in Table A5. I match cases with similar propensity scores using two types of matching: nearest neighbor with replacement (five control cases matched to each treatment case) and kernel (bandwidth = 0.06; kernel type = Epanechnikov). I then check for balance in each dataset by (1) confirming that for each covariate, the mean of the treatment group does not differ significantly from that of the control group after matching and (2) examining the magnitude of the reduction in bias due to matching (average of 96% for kernel matching, 94% for nearest neighbor) (see Table A6). I restrict my analyses to regions of common

support, meaning treatment cases with a propensity score higher than the maximum or less than the minimum sore of the control cases are dropped from analyses in each dataset.

Results across the 20 datasets are combined using Rubin's (1987) rules and presented in Table 3. The average treatment effect on the treated (ATT) represents the increase in risk of suspension or expulsion associated with having a recently incarcerated father. The effect is moderate and statistically significant. Among children whose fathers are equally likely to have been incarcerated since the child was old enough to begin school, 14% of those who actually experienced an incarceration are expected to be suspended or expelled at age nine compared to 6% of the control group. Consistent with results of the logistic regression models, children with a recently incarcerated father are more likely to be removed from school.

*Accounting for Student Behavior and Lower Parental Involvement*

With strong evidence of an effect of recent paternal incarceration on risk of exclusionary discipline, I now test the hypothesized mechanisms of the relationship. Using Model 4 of Table 2 as a starting point, Table 4 adds student behavior problems and lower parental involvement as mediating variables. Models 1, 2, and 3 add teacher-reported behavior problems, parent-reported behavior problems, and self-reported delinquency separately. As expected, each is individually a strong and significant predictor of school discipline. However, logistic regression coefficients "rescale" when variables are added or removed from a model (Karlson, Holm, and Breen 2012) because the residual variance is fixed; so, small changes in the coefficients do not necessarily represent mediating effects of behavior problems. Therefore, I use the "binary mediation" routine in Stata to standardize the models, and results indicate that about 10% of the effect of incarceration net of controls is explained by teacher-reported behavior problems alone. Figures for parent reports and self-reported delinquency are 18% and 2%, respectively. All together they

explain about 17% of the effect on school discipline, but only teacher reports are statistically significant. Lower parental involvement is added in Model 5 revealing a negative but not significant relationship.

With behavior accounting for less than a fifth of the relationship between recent incarceration and exclusionary discipline, much remains to be explained. Before speculating that the remaining effect is due to intergenerational stigmatization, it is again necessary to address selection bias. While the results in Table 3 adjust for bias in the overall effect of paternal incarceration on school discipline, they do not address bias that may be present in the direct effect after accounting for student behavior. Thus, to test the robustness of this direct effect, I use the same propensity scores and matching techniques employed for the results in Table 3, but I compare the treatment and control groups on the predicted probability of school discipline that is not due to student behavior. This predicted probability is estimated from a logistic regression model in which suspension or expulsion is the outcome the three behavioral problem measures are explanatory variables. An effect of incarceration beyond student behavior that is robust to the minimization of selection bias might be attributed to intergenerational stigmatization.

Results based on both types of matching are presented in Table 5 and suggest only weak evidence of a remaining effect. The average predicted probability of being removed from school is about 0.08 for children in the control group and only 0.02 higher for children experiencing a recent paternal incarceration. Results from kernel matching are more conservative than those of nearest neighbor matching, so only the latter are statistically significant. In results based on both matching types, the difference in the probability of exclusionary discipline after accounting for student behavior problems is about 77% smaller than the difference indicated in Table 3 (0.08), suggesting that student behavior accounts for a substantial portion of the effect of incarceration.

## DISCUSSION AND CONCLUSION

Three major findings emerge from these analyses. First, results provide strong evidence that children with a recently incarcerated father are at greater risk of being removed from school. This finding extends previous work in sociology and demography by highlighting an additional collateral consequence of mass incarceration (Travis et al. 2014) and establishing a link at the family level between two major systems of punishment in the US. This finding also contributes to education policy research by introducing a predictor of exclusionary discipline that has become increasingly relevant in the lives of disadvantaged students over the past several decades and may be even more salient than race to students in highly segregated urban areas (Eitle and Eitle 2004; Skiba et al. 2012). While prior research focuses on the association between school discipline and later criminal justice involvement (Fabelo et al. 2011; Shollenberger 2013), my findings suggest that the reverse may also occur, intergenerationally. Specifically, a father's criminal justice involvement may have consequences for his children's school discipline, thus continuing a cycle of punishment among disadvantaged families.

Second, after adjusting for selection bias, I find that most of this relationship is due to variation in student behavior problems as reported by teachers, and that none of the effects are due to lower parental involvement as conceptualized here. This finding is consistent with a growing number of studies documenting strong evidence of an effect of recent paternal incarceration on child behavior problems (Geller et al. 2012; Wakefield and Wildeman 2011). While I find weak evidence of an effect of intergenerational stigmatization beyond behavior, there may still be an effect that operates through behavioral problems by causing children to act out in defiance (Sherman 1993). This would be consistent with my finding that teacher- and parent-reported externalizing behavior measures, which include more defiance-related items, are

more predictive of exclusionary discipline than self-reported delinquency. Relatedly, state-level data suggest that the majority of school suspensions and expulsions are for non-violent offenses and that the vast majority of these are acts of "insubordination" or "disrespect" (Connecticut Department of Education 2010; Maryland State Board of Education 2012). Future research should examine the effects of being removed from school for non-violent offenses on academic and behavioral outcomes and whether alternative disciplinary tactics would be more appropriate.

Third, I find no evidence in my analyses that recent paternal incarceration has differential effects on risk of school discipline for males and females or for blacks, whites, and Hispanics. Contrary to prior studies (Skiba et al. 2012), I also find no evidence beyond bivariate analyses that blacks are at greater risk of school discipline. However, much of the sample is from highly segregated urban areas where race has less of an effect on school discipline that has been found in prior studies (Eitle and Eitle 2004; Skiba et al. 2012). I also use a much younger sample and a wider array of control variables than the majority of prior studies. It may be that recent paternal incarceration has a stronger effect as children approach adolescence. Given that black children are at greater risk of experiencing paternal incarceration (Wildeman 2009), future research should employ survey data from children in less segregated communities and across older age groups to investigate the extent to which paternal incarceration helps to explain racial-ethnic discipline gaps.

Several cautions regarding interpretation should be reiterated. First, although use of propensity score matching techniques substantially improves the strength of my findings, they cannot completely rule out the possibility that results are confounded by omitted variables. In other words, unique characteristics of recently incarcerated fathers in my sample may be preventing me from comparing "like with like" (Firebaugh 2008). Next, although I can establish

that the father's incarceration took place at some point between the age-five and age-nine waves and that school discipline took place in the most recent school year at the age-nine wave, a more precise causal order cannot be determined without information on the specific timing or length of these punishments. Future research should collect data that allows for the examination of the relationship between paternal incarceration (including distinctions between jail and prison incarceration) and school discipline throughout childhood and adolescence. Finally, because my focus here has been on disadvantaged urban families, readers should keep in mind that results may not generalize beyond this population.

My findings are consistent with previous studies suggesting that mass incarceration has had serious educational consequences for already disadvantaged children (Foster and Hagan 2007, 2009; Turney and Haskins 2014). Future research should continue to examine the relationship between the rise of incarceration and the overuse of exclusionary discipline at various levels of analysis. For example, more research is needed to understand the relationship between incarceration and school suspension rates at neighborhood or community levels. Given that much of the relationship appears to be due to behavior problems at the individual level, research should investigate ways schools and communities can work to curb high rates of school suspension, particularly as US incarceration rates begin to decline (Carson and Golineli 2013) and many fathers return home to their families.

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**ENDNOTES**

[1] Incarceration data are based on prison and jail population estimates for 2010. Suspension data are based on the estimated number of children (excluding children with disabilities) who received one or more out-of-school suspensions in the 2009-2010 school year.

[2] Henriques (1982) focuses on children of incarcerated mothers. However, her findings should also apply to children of incarcerated fathers, particularly residential fathers (see Dallaire et al. 2010).

[3] See http://www.fragilefamilies.princeton.edu/study_design.asp for a helpful illustration of the study design.

[4] All but five variables are missing less than 10% of cases (none more than 24%). These five are missing due to fathers' attrition or because some mothers did not participate in the in-home visit.

[5] These three categories do not sum to 1,406 because there are 10 children whose fathers were not recently incarcerated but for whom incarceration status for earlier waves is unknown.

[6] At age nine, 18% of participating children reported to have ever been suspended or expelled. Unlike parent reports, these are not limited to disciplinary acts resulting in an absence from school, so in-school suspensions are likely included. However, I use parent reports in my analysis because they reduce the likelihood that the father's incarceration occurred after the suspension or expulsion. In a separate analysis, I examined the influence of an incarceration occurring between ages three and five on child reports of suspension/expulsion by age nine but I found no significant association net of a few basic demographic characteristics.

[7] Percentage changes are calculated by exponentiating the log odds and then subtracting 1.00 from the resulting odds ratio and multiplying by 100.

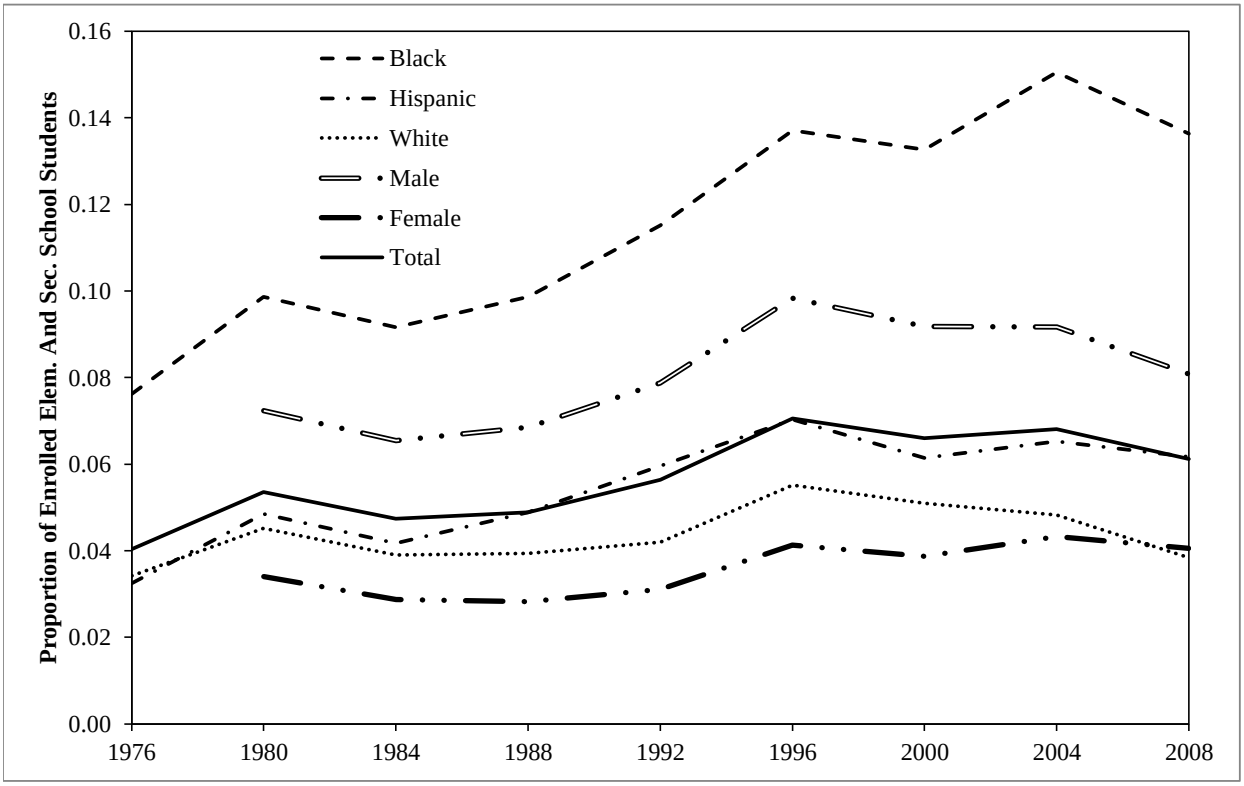


Figure 1. Proportion of Elementary and Secondary School Students who Received an Out of School Suspension
Source: Author's estimates based on data from the US Department of Education, Civil Rights Data Collection
Note: Data were also available for the following years: 1974, 1978, 1986, 1990, 1994, 1997, 1998, 2002, 2006, and 2009-2010. These years were dropped and means imputed to obtain consistent intervals between years. Gender-specific data are unavailable for 1976.

Table 1. Descirptive Statistics by Paternal Incarceration Status

| | No Recent Incarceration | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Never Incarcerated n = 650 | | | Distal Incarceration (At or before Y5 Only) n = 426 | | | Recent Incarceration (Since Y5 but not at Y5) n = 320 | | | Total N = 1,406 | | | Range | |
| Variable | *Valid N* | *Mean* | *Std Dev* | *Valid N* | *Mean* | *Std Dev* | *Valid N* | *Mean* | *Std Dev* | *Valid N* | *Mean* | *Std Dev* | *Min* | *Max* |
| *Dependent Variable* | | | | | | | | | | | | | | |
| Suspension or expulsion, Y9 | 650 | 0.03 | 0.16 | 426 | 0.06 | 0.24 | 320 | 0.14 | 0.35 | 1406 | 0.06 | 0.24 | 0.00 | 1.00 |
| *Primary Explanatory Variable* | | | | | | | | | | | | | | |
| Recent Paternal Incarceration, Y5-Y9 | 650 | 0.00 | 0.00 | 426 | 0.00 | 0.00 | 320 | 1.00 | 0.00 | 1406 | 0.23 | 0.42 | 0.00 | 1.00 |
| *Mechanisms* | | | | | | | | | | | | | | |
| TR Externalizing behavior, Y9 | 644 | 2.48 | 3.37 | 421 | 4.12 | 4.39 | 312 | 4.48 | 4.65 | 1387 | 3.43 | 4.11 | 0.00 | 18.00 |
| PR Externalizing behavior, Y9 | 615 | 5.05 | 5.12 | 398 | 6.86 | 7.04 | 305 | 8.28 | 6.90 | 1328 | 6.34 | 6.31 | 0.00 | 48.00 |
| SR Delinquency, Y9 | 630 | 0.94 | 1.55 | 414 | 1.20 | 1.66 | 315 | 1.35 | 1.80 | 1368 | 1.12 | 1.65 | 0.00 | 16.00 |
| TR Parental school avoidance, Y9 | 650 | 0.24 | 0.26 | 426 | 0.37 | 0.30 | 320 | 0.39 | 0.30 | 1406 | 0.31 | 0.29 | 0.00 | 1.00 |
| *Selected Control Variables* | | | | | | | | | | | | | | |
| Student Black NH | 650 | 0.40 | 0.49 | 426 | 0.57 | 0.50 | 320 | 0.59 | 0.49 | 1406 | 0.50 | 0.50 | 0.00 | 1.00 |
| Student Hispanic | 650 | 0.23 | 0.42 | 426 | 0.25 | 0.44 | 320 | 0.20 | 0.40 | 1406 | 0.23 | 0.42 | 0.00 | 1.00 |
| Student Male | 650 | 0.51 | 0.50 | 426 | 0.49 | 0.50 | 320 | 0.55 | 0.50 | 1406 | 0.51 | 0.50 | 0.00 | 1.00 |
| Father incarcerated by Y5 | 650 | 0.00 | 0.00 | 426 | 1.00 | 0.00 | 320 | 0.79 | 0.41 | 1396 | 0.49 | 0.50 | 0.00 | 1.00 |
| Mother incarcerated by Y5 | 645 | 0.04 | 0.19 | 387 | 0.15 | 0.35 | 312 | 0.12 | 0.32 | 1350 | 0.09 | 0.28 | 0.00 | 1.00 |
| Residential father, Y5 | 646 | 0.76 | 0.43 | 401 | 0.42 | 0.49 | 320 | 0.41 | 0.49 | 1373 | 0.58 | 0.49 | 0.00 | 1.00 |
| PR Externalizing behavior problems, Y5 | 503 | 10.14 | 5.90 | 314 | 11.68 | 6.34 | 247 | 13.55 | 7.66 | 1068 | 11.37 | 6.61 | 0.00 | 39.00 |

*Source*: Fragile Families and Child Wellbeing Study, Birth to Year 9

*Notes*: NH = non-Hispanic; PR = parent-reported; TR = teacher-reported; SR = student-reported; Y0 to Y9 = birth to year 9

Table 2. Expected Change in Odds of Suspension or Expulsion Due to Recent Paternal Incarceration among Nine-Year Old Ubran Children

| | Model 1 Recent Paternal Incarceration | | Model 2 Add Race-Ethnicity and Gender | | Model 3 Add Interactions | | Model 4 Add Controls[a] | | Model 5 Limit to Ever-Incarcerated by Year 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variable | *Logit* | *SE* | *Logit* | *SE* | *Logit* | *SE* | *Logit* | *SE* | *Logit* | *SE* |
| Recent paternal incarceration | 1.331 | 0.221 *** | 1.216 | 0.226 *** | 1.630 | 0.687 * | 0.985 | 0.275 *** | 0.996 | 0.316 ** |
| Student Black NH[b] | | | 0.995 | 0.316 ** | 1.256 | 0.452 ** | 0.117 | 0.451 | 0.109 | 0.548 |
| Student Hispanic[b] | | | 0.036 | 0.422 | 0.377 | 0.564 | -0.033 | 0.562 | 0.134 | 0.689 |
| Student Male | | | 0.993 | 0.249 *** | 0.929 | 0.336 ** | 1.014 | 0.280 *** | 0.876 | 0.329 ** |
| Recent paternal incarceration X Black NH | | | | | -0.564 | 0.636 | ---- | ---- | ---- | ---- |
| Recent paternal incarceration X Hispanic | | | | | -0.787 | 0.868 | ---- | ---- | ---- | ---- |
| Recent paternal incarceration X Male | | | | | 0.128 | 0.500 | ---- | ---- | ---- | ---- |
| Father incarcerated by Y5 | | | | | | | 0.543 | 0.320 | ---- | ---- |
| Mother incarcerated by Y5 | | | | | | | -0.178 | 0.436 | 0.065 | 0.458 |
| Residential father, Y5 | | | | | | | 0.805 | 0.285 ** | 0.950 | 0.345 ** |
| PR Externalizing behavior problems, Y5 | | | | | | | 1.048 | 0.324 ** | 1.155 | 0.388 ** |
| Constant | -3.141 | 0.152 *** | -4.331 | 0.352 *** | -4.518 | 0.477 *** | -8.157 | 1.339 *** | -7.398 | 1.535 *** |
| N | | 1,406 | | 1,406 | | 1,406 | | 1,406 | | 678 |

*Source* : Fragile Families and Child Wellbeing Study, Birth to Year 9

*Notes* : Results are based on 20 imputed datasets. SE = logit standard error; NH = non-Hispanic

[a] Other control variables include: mother/father impulsivity, mother/father substance abuse at year 3, child witnessed domestic violence by father at year 3, low birth weight, mother and father depression, mother and father married at child's birth, mother and father living with both parents at age 15, either parent an immigrant, mother/father education level, mother unemployed at year 3, mother household income between birth and year 5, child's teacher-reported academic performance, child grade level, child individualized education program (IEP), child diagnosed with attention/hyperactivity disorder, teacher race-ethnicity, teacher education, teacher tenure, school racial-ethnic composition across two years, school security level, residential neighborhood socioeconomic status between years 3 and 9.

[b] Student white non-Hispanic is reference category.

*** p < .001; ** p < .01; * p < .05

Table 3. Estimated Effect of Recent Paternal Incarceration on Risk of School Discipline among Urban Children

| | Average Treatment Effect for the Treated | | | |
|---|---|---|---|---|
| Propensity Score Matching Type | *No Recent Incarceration* | *Recent Incarceration* | *Difference* | *SE* |
| Nearest neighbor | 0.056 | 0.140 | 0.084 | 0.024 *** |
| Kernel | 0.058 | 0.140 | 0.082 | 0.031 ** |

*Source*: Fragile Families and Child Wellbeing Study, Birth to Year 9

*** p < .001; ** p < .01

Table 4. Expected Change in Odds of Suspension or Expulsion Due to Recent Paternal Incarceration among Nine-Year Old Ubran Children (N = 1,406)

| | Model 1 Recent Paternal Incarceration and TR Behavior Problems | | Model 2 Recent Paternal Incarceration and PR Behavior Problems | | Model 3 Recent Paternal Incarceration and SR Delinquency | | Model 4 Recent Paternal Incarceration and all Behavior Problems, Delinquency | | Model 5 Add TR Parental School Avoidance | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variable | *Logit* | *SE* | *Logit* | *SE* | *Logit* | *SE* | *Logit* | *SE* | *Logit* | *SE* |
| Recent paternal incarceration | 1.095 | 0.292 *** | 0.914 | 0.280 ** | 1.012 | 0.278 *** | 1.059 | 0.296 *** | 1.057 | 0.296 *** |
| Student Black NH[b] | -0.304 | 0.491 | 0.193 | 0.458 | 0.021 | 0.453 | -0.258 | 0.496 | -0.241 | 0.499 |
| Student Hispanic[b] | -0.195 | 0.610 | 0.092 | 0.576 | -0.116 | 0.566 | -0.135 | 0.618 | -0.131 | 0.619 |
| Student Male | 0.751 | 0.302 * | 1.043 | 0.287 *** | 0.827 | 0.287 ** | 0.680 | 0.309 * | 0.679 | 0.309 * |
| Father incarcerated by Y5 | 0.470 | 0.340 | 0.384 | 0.326 | 0.520 | 0.323 | 0.377 | 0.345 | 0.385 | 0.347 |
| Mother incarcerated by Y5 | -0.239 | 0.463 | -0.106 | 0.446 | -0.194 | 0.438 | -0.208 | 0.465 | -0.207 | 0.466 |
| Residential father, Y5 | 0.793 | 0.303 ** | 0.755 | 0.290 ** | 0.776 | 0.290 ** | 0.727 | 0.308 * | 0.723 | 0.308 * |
| PR Externalizing behavior problems, Y5 (log) | 0.822 | 0.338 * | 0.419 | 0.360 | 0.949 | 0.331 ** | 0.466 | 0.389 | 0.466 | 0.389 |
| TR Externalizing behavior problems, Y9 (log) | 1.456 | 0.226 *** | ---- | ---- | ---- | ---- | 1.257 | 0.236 *** | 1.258 | 0.236 *** |
| PR Externalizing behavior problems, Y9 (log) | | | 0.893 | 0.222 *** | ---- | ---- | 0.432 | 0.244 | 0.430 | 0.244 |
| SR Delinquency, Y9 (log) | | | | | 0.695 | 0.203 ** | 0.395 | 0.216 | 0.395 | 0.216 |
| TR Parental school avoidance, Y9 | | | | | | | | | -0.164 | 0.502 |
| Constant | -8.987 | 1.412 *** | -8.303 | 1.314 *** | -8.188 | 1.352 *** | -8.810 | 1.408 *** | -8.738 | 1.428 *** |

*Source* : Fragile Families and Child Wellbeing Study, Birth to Year 9

*Notes* : Results based on 20 mulitply imputed datasets; SE = logit standard error; NH = non-Hispanic; PR = parent-reported; TR = teacher-reported; SR = self-reported

[a] All models include the following control variables: mother/father impulsivity, mother/father substance abuse at year 3, child witnessed domestic violence by father at year 3, low birth weight, mother and father depression, mother and father married at child's birth, mother and father living with both parents at age 15, either parent an immigrant, mother/father education level, mother unemployed at year 3, mother household income between birth and year 5, child's teacher-reported academic performance, child grade level, child individualized education program (IEP), child diagnosed with attention/hyperactivity disorder, teacher race-ethnicity, teacher education, teacher tenure, school racial-ethnic composition across two years, school security level, residential neighborhood socioeconomic status across years 3 to 9.

[b] Student white non-Hispanic is reference category.

*** p < .001; ** p < .01; * p < .05

Table 5. Estimated Effect of Recent Paternal Incarceration on Risk of School Discipline Net of Behavioral Problems

| | Average Treatment Effect for the Treated | | | |
|---|---|---|---|---|
| Propensity Score Matching Type | *No Recent Incarceration* | *Recent Incarceration* | *Difference* | *SE* |
| Nearest neighbor | 0.075 | 0.094 | 0.019 | 0.010 * |
| Kernel | 0.075 | 0.094 | 0.019 | 0.013 |

*Source*: Fragile Families and Child Wellbeing Study, Birth to Year 9

* $p < .05$

Table A1. Comparing the Analytic Sample to the Full Sample

| | Analytic Sample (N = 1,406) | | | Full Sample (N = 4,898) | | | Mean Difference |
|---|---|---|---|---|---|---|---|
| Variable | *Valid N* | *Mean* | *Std Dev* | *Valid N* | *Mean* | *Std Dev* | |
| Suspension or expulsion, Y9 | 1406 | 0.06 | 0.24 | 3585 | 0.06 | 0.23 | 0.01 |
| Recent Paternal Incarceration, Y5-Y9 | 1406 | 0.23 | 0.42 | 3101 | 0.22 | 0.41 | 0.01 |
| TR Externalizing behavior, Y9 | 1387 | 3.43 | 4.11 | 2218 | 3.35 | 4.07 | 0.08 |
| PR Externalizing behavior, Y9 | 1328 | 6.34 | 6.31 | 3155 | 6.14 | 6.17 | 0.20 |
| SR Delinquency, Y9 | 1368 | 1.12 | 1.65 | 3283 | 1.06 | 1.59 | 0.06 |
| TR Parental school avoidance, Y9 | 1406 | 0.31 | 0.29 | 4898 | 0.70 | 0.39 | -0.38 |
| Student Black NH | 1406 | 0.50 | 0.50 | 4892 | 0.48 | 0.50 | 0.02 |
| Student Hispanic | 1406 | 0.23 | 0.42 | 4892 | 0.27 | 0.45 | -0.04 |
| Student Male | 1406 | 0.51 | 0.50 | 4897 | 0.52 | 0.50 | -0.01 |
| Father incarcerated by Y5 | 1396 | 0.49 | 0.50 | 4453 | 0.46 | 0.50 | 0.03 |
| Mother incarcerated by Y5 | 1350 | 0.09 | 0.28 | 4028 | 0.10 | 0.30 | -0.01 |
| Residential father, Y5 | 1373 | 0.58 | 0.49 | 4263 | 0.51 | 0.50 | 0.06 |
| PR Externalizing behavior problems, Y5 | 1068 | 11.37 | 6.61 | 2742 | 11.15 | 6.59 | 0.22 |
| Bio parent impulsivity (z-scores), Y1,Y3 | 1384 | 0.00 | 0.60 | 4441 | 0.01 | 0.64 | -0.01 |
| Bio parent substance abuse, Y3 | 1132 | 0.05 | 0.22 | 3163 | 0.05 | 0.22 | 0.00 |
| Child exposure to domestic violence, Y3 | 1361 | 0.02 | 0.14 | 4199 | 0.03 | 0.16 | 0.00 |
| Low birth weight | 1372 | 0.09 | 0.29 | 4759 | 0.10 | 0.30 | -0.01 |
| Mother major depression, Y3 | 1361 | 0.22 | 0.41 | 4221 | 0.21 | 0.40 | 0.01 |
| Father major depression, Y3 | 1145 | 0.14 | 0.34 | 3291 | 0.14 | 0.35 | -0.01 |
| Mother and father married, Y0 | 1406 | 0.26 | 0.44 | 4897 | 0.24 | 0.43 | 0.02 |
| Mother from two-parent family | 1406 | 2.15 | 0.88 | 4898 | 2.09 | 0.88 | 0.06 |
| Father from two-parent family | 1360 | 0.18 | 0.39 | 4217 | 0.20 | 0.40 | -0.02 |
| Either bio parent an immigrant | 1406 | 3.58 | 3.36 | 4897 | 3.38 | 3.33 | 0.20 |
| Mother and father education, Y0 | 1391 | 0.42 | 0.49 | 4855 | 0.43 | 0.50 | -0.01 |
| Mother unemployed, Y3 | 1231 | 0.45 | 0.50 | 3937 | 0.47 | 0.50 | -0.02 |
| Mother Hh income ($10,000), Y0-Y5 | 1218 | 0.14 | 0.35 | 4021 | 0.26 | 0.44 | -0.11 |
| Student achievement (z-scores), Y9 | 1402 | 0.02 | 0.90 | 2247 | 0.00 | 0.92 | 0.03 |
| Student grade 3, Y9 | 1405 | 3.04 | 0.57 | 3617 | 3.14 | 0.61 | -0.10 |
| Student grade 4-5, Y9 | 1392 | 0.12 | 0.33 | 2231 | 0.13 | 0.34 | -0.01 |
| Student IEP, Y9 | 1404 | 0.13 | 0.34 | 3624 | 0.12 | 0.32 | 0.01 |
| Student diagnosed with ADD/ADHD by Y9 | 1386 | 0.20 | 0.40 | 2222 | 0.20 | 0.40 | -0.01 |
| Teacher NH black | 1386 | 0.11 | 0.31 | 2222 | 0.11 | 0.31 | 0.00 |
| Teacher Hispanic | 1394 | 0.49 | 0.50 | 2234 | 0.50 | 0.50 | -0.01 |
| Teacher graduate degree | 1403 | 13.51 | 9.80 | 2247 | 13.04 | 9.69 | 0.47 |
| Teacher tenure (years) | 1388 | 38.16 | 37.17 | 3502 | 38.70 | 37.50 | -0.53 |
| School percent black | 1388 | 23.29 | 30.21 | 3502 | 24.17 | 30.04 | -0.88 |
| School percent Hispanic | 1342 | 3.71 | 1.38 | 2142 | 3.69 | 1.37 | 0.02 |
| School security level | 1405 | -0.04 | 0.91 | 4575 | -0.01 | 0.91 | -0.03 |
| Neigh. disadvantage (z-scores), Y3-Y9 | 320 | 0.18 | 0.81 | 1405 | 0.00 | 0.91 | 0.18 |

*Source* : Fragile Families and Child Wellbeing Study, Birth to Year 9

*Notes* : NH = non-Hispanic; Y0 to Y9 = birth to year 9; TR = Teacher-reported; PR = Parent-reported; SR = Student self-reported; IEP = individualized education program; ADD/ADHD = Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder

Table A2. Desciptions of Control Variables not Described in Text

| Variable | Description |
|---|---|
| Bio parent impulsivity (z-scores), Y1,Y3 | Standardized mean composite measure of six self-report items from Dickman (1990) measured at one-year wave for fathers and three-year wave for mothers. Higher scores signify more impulsive biological parents; alpha = 0.8. |
| Bio parent substance abuse, Y3 | Binary measure coded 1 if either parent meets the DSM-III-R criteria for drug or alcohol dependence as specified by the Composite International Diagnostic Interview—Short Form; based on mother and father self-reports |
| Child exposure to domestic violence, Y3 | Binary measure coded 1 if mother reported ever having been hit, slapped, or kicked by the child's father or another partner in front of the child or while the child was in the house. |
| Low birth weight | Binary measure coded 1 if child weighed less than 2500 lbs at birth. Multiple births (less than 2% of analytical sample) are coded as missing |
| Mother major depression, Y3 | Binary measure coded 1 if meets criteria for major depression based on Composite International Diagnostic Interview—Short Form (Kessler et al. 1998); based on mother survey |
| Father major depression, Y3 | Binary measure coded 1 if meets criteria for major depression based on Composite International Diagnostic Interview—Short Form (Kessler et al. 1998); based on father survey |
| Mother and father married, Y0 | Binary measure coded 1 if mother and father were reportedly married at the time the child was born |
| Mother from two-parent family | Binary meausre coded 1 if mother reports having lived with both biological parents at age 15 |
| Father from two-parent family | Binary meausre coded 1 if father reports having lived with both biological parents at age 15 |
| Either bio parent an immigrant | Binary measure coded 1 if either of the child's biological parents was born outside the US |
| Mother and father education, Y0 | Mean composite measure of mother and father self-reported education levels at time of child's birth. Responses range from 1 = less than high school to 4 = bachelor's degree or higher |
| Mother unemployed, Y3 | Binary measure coded 1 if mother reports looking for regular work and not currently working for regular pay |
| Mother Hh income ($10,000), Y0-Y5 | Mean of household income at birth, one-year, and three-year waves, coded in $10,000 units. Due to missing data, some cases were imputed by Fragile Families Study staff. For more information see http://www.fragilefamilies.princeton.edu/documentation/core/4waves_ff_public.pdf |
| Student achievement (z-scores), Y9 | Mean composite of three teacher-rated items about the child's performance in language/literacy, science/social studies, and mathematics. Responses range from 1 = far below average to 5 = far above average |
| Student grade, Y9 | Set of dummy variables for student grade level; categories are second grade (reference), third grade, and fourth-fifth grade |
| Student IEP, Y9 | Binary measure coded 1 if teacher reports that child is an IEP student |
| Student ADD/ADHD by Y9 | Binary measure coded 1 if primary caregiver reports that child has ever been diagnosed with ADD or ADHD |
| Teacher race-ethnicity | Set of dummy variables including non-Hispanic white (reference), non-Hispanic black, and Hispanic |
| Teacher graduate degree | Binary measure coded 1 if teacher reports having a graduate degree |
| Teacher tenure (years) | Years of experience reported by teacher |
| School percent black | Percent black, averaged across most recent school year and one year prior; based on data from the National Center for Education Statistics |
| School percent Hispanic | Percent Hispanic, averaged across most recent school year and one year prior; based on data from the National Center for Education Statistics |
| School security level | Sum scale of seven binary items describing student school as reported by teacher: security guards, metal detectors, locked doors during day, visitor sign-in requirement, limits on going to the restroom, teachers supervise hallways, hall pass requirement |
| Neigh. disadvantage (z-scores), Y3-Y9 | Standardized mean composite of census 2000 tract characteristics (poverty rate, percent without a bachelor's degree, occupational status reversed, percent on public assistaance, unemployment, household income reversed); based on mother's residence at each wave |

*Source* : Fragile Families and Child Wellbeing Study

*Notes* : NH = non-Hispanic; PR = parent-reported; TR = teacher-reported; SR = student-reported; Y0 to Y9 = birth to year 9; IEP = individualized education program; ADD/ADHD = Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder

Table A3. Pearson Correlation Matrix of All Variables Used in Logistic Regression Analyses

| | Pearson's r Coefficient (p value) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 1 Suspension or expulsion, Y9 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 Recent Paternal Incarceration, Y5-Y9 | 0.170 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 TR Externalizing behavior problems, Y9 | 0.349 | 0.138 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 PR Externalizing behavior problems, Y9 | 0.281 | 0.168 | 0.396 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 SR Delinquency, Y9 | 0.216 | 0.077 | 0.288 | 0.294 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.004) | (0.000) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 TR Parental school avoidance, Y9 | 0.055 | 0.140 | 0.142 | 0.083 | 0.069 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.040) | (0.000) | (0.000) | (0.003) | (0.011) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 Student Black NH | 0.125 | 0.104 | 0.251 | 0.041 | 0.145 | 0.164 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | (0.140) | (0.000) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 Student Hispanic | -0.067 | -0.042 | -0.113 | -0.060 | -0.113 | 0.005 | -0.541 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.012) | (0.112) | (0.000) | (0.029) | (0.000) | (0.859) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 Student Male | 0.116 | 0.039 | 0.174 | 0.108 | 0.201 | 0.045 | 0.023 | -0.031 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.149) | (0.000) | (0.000) | (0.000) | (0.089) | (0.389) | (0.245) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 Father incarcerated by Y5 | 0.128 | 0.329 | 0.195 | 0.169 | 0.088 | 0.199 | 0.159 | 0.002 | -0.004 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.941) | (0.891) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 Mother incarcerated by Y5 | 0.017 | 0.061 | 0.079 | 0.014 | 0.078 | 0.064 | 0.008 | 0.003 | 0.040 | 0.168 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.534) | (0.026) | (0.004) | (0.617) | (0.005) | (0.019) | (0.782) | (0.905) | (0.139) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 Residential father, Y5 | -0.026 | -0.184 | -0.152 | -0.104 | -0.055 | -0.118 | -0.219 | 0.064 | -0.031 | -0.341 | -0.070 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.341) | (0.000) | (0.000) | (0.000) | (0.043) | (0.000) | (0.000) | (0.018) | (0.254) | (0.000) | (0.011) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 PR Externalizing behavior problems, Y5 | 0.215 | 0.181 | 0.245 | 0.566 | 0.233 | 0.059 | 0.050 | -0.033 | 0.083 | 0.166 | 0.012 | -0.157 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.053) | (0.102) | (0.281) | (0.007) | (0.000) | (0.709) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 Bio parent impulsivity (z-scores), Y1,Y3 | 0.054 | 0.077 | 0.121 | 0.185 | 0.081 | 0.135 | 0.022 | 0.017 | 0.008 | 0.214 | 0.083 | -0.133 | 0.2312 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.043) | (0.004) | (0.000) | (0.000) | (0.003) | (0.000) | (0.411) | (0.518) | (0.770) | (0.000) | (0.002) | (0.000) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 Bio parent substance abuse, Y3 | -0.024 | 0.105 | 0.043 | 0.074 | 0.053 | 0.057 | 0.040 | -0.055 | 0.017 | 0.107 | 0.057 | -0.114 | 0.074 | 0.149 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.416) | (0.000) | (0.152) | (0.016) | (0.076) | (0.056) | (0.182) | (0.063) | (0.578) | (0.000) | (0.056) | (0.000) | (0.028) | (0.000) | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 Child exposure to domestic violence, Y3 | -0.016 | 0.120 | 0.010 | 0.035 | 0.032 | -0.012 | -0.049 | 0.007 | -0.024 | 0.121 | 0.049 | -0.088 | 0.032 | 0.061 | -0.032 | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| | (0.546) | (0.000) | (0.717) | (0.212) | (0.245) | (0.669) | (0.070) | (0.792) | (0.385) | (0.000) | (0.075) | (0.001) | (0.307) | (0.025) | (0.282) | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 Low birth weight | -0.023 | 0.028 | 0.000 | -0.010 | 0.003 | 0.001 | 0.072 | -0.043 | -0.001 | 0.053 | 0.018 | -0.043 | 0.033 | -0.016 | -0.033 | -0.006 | 1.000 | | | | | | | | | | | | | | | | | | | | | | |
| | (0.397) | (0.298) | (0.989) | (0.724) | (0.922) | (0.969) | (0.008) | (0.115) | (0.966) | (0.052) | (0.526) | (0.120) | (0.281) | (0.566) | (0.274) | (0.817) | | | | | | | | | | | | | | | | | | | | | | | |
| 18 Mother major depression, Y3 | 0.024 | -0.004 | 0.045 | 0.114 | 0.079 | 0.033 | 0.035 | -0.025 | 0.033 | 0.077 | 0.052 | -0.130 | 0.141 | 0.168 | 0.138 | 0.037 | -0.013 | 1.000 | | | | | | | | | | | | | | | | | | | | | |
| | (0.374) | (0.877) | (0.098) | (0.000) | (0.004) | (0.220) | (0.202) | (0.360) | (0.223) | (0.005) | (0.057) | (0.000) | (0.000) | (0.000) | (0.000) | (0.175) | (0.631) | | | | | | | | | | | | | | | | | | | | | | |
| 19 Father major depression, Y3 | 0.050 | 0.028 | 0.069 | 0.041 | 0.019 | 0.055 | 0.009 | -0.026 | -0.006 | 0.139 | 0.108 | -0.169 | 0.070 | 0.064 | 0.176 | 0.035 | 0.030 | 0.118 | 1.000 | | | | | | | | | | | | | | | | | | | | |
| | (0.091) | (0.338) | (0.021) | (0.175) | (0.536) | (0.064) | (0.754) | (0.377) | (0.837) | (0.000) | (0.000) | (0.000) | (0.000) | (0.036) | (0.032) | (0.000) | (0.241) | (0.308) | (0.000) | | | | | | | | | | | | | | | | | | | | |
| 20 Mother and father married, Y0 | -0.094 | -0.234 | -0.169 | -0.111 | -0.045 | -0.244 | -0.277 | -0.070 | -0.013 | -0.415 | -0.103 | 0.343 | -0.124 | -0.188 | -0.035 | -0.028 | -0.090 | -0.070 | -0.071 | 1.000 | | | | | | | | | | | | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.094) | (0.000) | (0.000) | (0.008) | (0.616) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.238) | (0.298) | (0.001) | (0.010) | (0.016) | | | | | | | | | | | | | | | | | | | | |
| 21 Mother from two-parent family | -0.088 | -0.142 | -0.152 | -0.090 | -0.092 | -0.107 | -0.229 | 0.101 | 0.002 | -0.189 | -0.079 | 0.157 | -0.084 | -0.064 | -0.039 | -0.008 | -0.011 | -0.074 | -0.077 | 0.217 | 1.000 | | | | | | | | | | | | | | | | | | |
| | (0.001) | (0.000) | (0.000) | (0.001) | (0.001) | (0.000) | (0.000) | (0.000) | (0.947) | (0.000) | (0.004) | (0.000) | (0.006) | (0.018) | (0.197) | (0.767) | (0.684) | (0.007) | (0.009) | (0.000) | | | | | | | | | | | | | | | | | | | |
| 22 Father from two-parent family | -0.080 | -0.098 | -0.104 | -0.060 | -0.048 | -0.074 | -0.229 | 0.095 | 0.034 | -0.200 | -0.006 | 0.144 | -0.065 | -0.098 | -0.069 | 0.033 | -0.062 | -0.065 | -0.052 | 0.231 | 0.159 | 1.000 | | | | | | | | | | | | | | | | | |
| | (0.005) | (0.001) | (0.000) | (0.041) | (0.097) | (0.009) | (0.000) | (0.001) | (0.236) | (0.000) | (0.835) | (0.000) | (0.046) | (0.001) | (0.028) | (0.261) | (0.031) | (0.026) | (0.096) | (0.000) | (0.000) | | | | | | | | | | | | | | | | | | |
| 23 Either bio parent an immigrant | -0.062 | -0.104 | -0.104 | -0.024 | -0.060 | 0.032 | -0.222 | 0.431 | -0.025 | -0.133 | -0.043 | 0.111 | -0.053 | -0.006 | -0.074 | 0.004 | -0.053 | 0.010 | -0.085 | 0.053 | 0.167 | 0.180 | 1.000 | | | | | | | | | | | | | | | |
| | (0.031) | (0.000) | (0.000) | (0.420) | (0.041) | (0.272) | (0.000) | (0.000) | (0.392) | (0.000) | (0.145) | (0.000) | (0.105) | (0.844) | (0.018) | (0.896) | (0.069) | (0.742) | (0.006) | (0.065) | (0.000) | (0.000) | | | | | | | | | | | | | | | | | |
| 24 Mother and father education, Y0 | -0.130 | -0.234 | -0.176 | -0.142 | -0.094 | -0.342 | -0.146 | -0.224 | -0.027 | -0.397 | -0.137 | 0.190 | -0.176 | -0.259 | -0.001 | -0.040 | -0.054 | -0.044 | -0.076 | 0.501 | 0.203 | 0.239 | -0.119 | 1.000 | | | | | | | | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.000) | (0.318) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.965) | (0.142) | (0.047) | (0.106) | (0.010) | (0.000) | (0.000) | (0.000) | (0.000) | | | | | | | | | | | | | | | | |
| 25 Mother unemployed, Y3 | 0.090 | 0.084 | 0.174 | 0.067 | 0.067 | 0.110 | 0.120 | 0.007 | -0.017 | 0.162 | 0.107 | -0.128 | 0.069 | 0.158 | 0.012 | 0.026 | 0.043 | 0.090 | 0.024 | -0.143 | -0.092 | -0.101 | -0.013 | -0.258 | 1.000 | | | | | | | | | | | | | | |
| | (0.001) | (0.002) | (0.000) | (0.016) | (0.014) | (0.000) | (0.000) | (0.793) | (0.540) | (0.000) | (0.000) | (0.000) | (0.026) | (0.000) | (0.701) | (0.338) | (0.119) | (0.001) | (0.427) | (0.000) | (0.001) | (0.001) | (0.663) | (0.000) | | | | | | | | | | | | | | | |
| 26 Mother Hh income ($10,000), Y0-Y5 | -0.126 | -0.200 | -0.208 | -0.179 | -0.125 | -0.279 | -0.265 | -0.106 | -0.034 | -0.383 | -0.136 | 0.303 | -0.170 | -0.221 | -0.043 | -0.037 | -0.029 | -0.090 | -0.062 | 0.549 | 0.261 | 0.235 | -0.024 | 0.643 | -0.225 | 1.000 | | | | | | | | | | | | | |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.207) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.151) | (0.178) | (0.290) | (0.001) | (0.036) | (0.000) | (0.000) | (0.000) | (0.400) | (0.000) | (0.000) | | | | | | | | | | | | | | |
| 27 Student achievement (z-scores), Y9 | -0.075 | -0.095 | -0.254 | -0.183 | -0.112 | -0.249 | -0.157 | -0.029 | -0.096 | -0.158 | -0.054 | 0.109 | -0.126 | -0.111 | 0.025 | -0.038 | -0.067 | -0.001 | -0.039 | 0.213 | 0.137 | 0.058 | -0.015 | 0.291 | -0.127 | 0.284 | 1.000 | | | | | | | | | | | |
| | (0.005) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.286) | (0.000) | (0.000) | (0.047) | (0.000) | (0.000) | (0.000) | (0.395) | (0.166) | (0.013) | (0.966) | (0.185) | (0.000) | (0.000) | (0.042) | (0.606) | (0.000) | (0.000) | (0.000) | | | | | | | | | | | | | |
| 28 Student grade 3, Y9 | -0.026 | -0.026 | -0.089 | -0.108 | -0.036 | -0.132 | 0.026 | -0.025 | -0.105 | -0.058 | -0.069 | -0.006 | -0.099 | -0.019 | 0.018 | 0.002 | -0.032 | 0.025 | -0.007 | 0.045 | 0.013 | -0.042 | -0.050 | 0.105 | -0.071 | 0.082 | 0.134 | 1.000 | | | | | | | | | | | |
| | (0.337) | (0.331) | (0.001) | (0.000) | (0.185) | (0.000) | (0.335) | (0.355) | (0.000) | (0.031) | (0.011) | (0.825) | (0.001) | (0.492) | (0.551) | (0.941) | (0.236) | (0.361) | (0.814) | (0.091) | (0.622) | (0.141) | (0.080) | (0.000) | (0.009) | (0.002) | (0.000) | | | | | | | | | | | | |
| 29 Student grade 4-5, Y9 | 0.001 | -0.003 | 0.024 | -0.005 | -0.023 | 0.086 | -0.022 | 0.072 | 0.017 | 0.015 | 0.041 | 0.009 | 0.035 | -0.013 | 0.015 | -0.015 | 0.005 | -0.029 | 0.029 | -0.045 | 0.001 | 0.019 | 0.141 | -0.064 | -0.011 | -0.035 | -0.019 | -0.681 | 1.000 | | | | | | | | | | |
| | (0.966) | (0.907) | (0.366) | (0.858) | (0.392) | (0.001) | (0.405) | (0.007) | (0.530) | (0.571) | (0.129) | (0.741) | (0.260) | (0.624) | (0.619) | (0.572) | (0.864) | (0.291) | (0.325) | (0.093) | (0.964) | (0.515) | (0.000) | (0.017) | (0.682) | (0.190) | (0.475) | (0.000) | | | | | | | | | | | |
| 30 Student IEP, Y9 | 0.083 | 0.094 | 0.136 | 0.213 | 0.098 | 0.052 | 0.065 | -0.007 | 0.135 | 0.074 | -0.013 | -0.101 | 0.155 | 0.074 | -0.043 | -0.021 | 0.067 | 0.051 | 0.023 | -0.066 | -0.057 | -0.049 | 0.007 | -0.072 | 0.000 | -0.080 | -0.344 | -0.112 | -0.035 | 1.000 | | | | | | | | | |
| | (0.002) | (0.000) | (0.000) | (0.000) | (0.000) | (0.051) | (0.016) | (0.803) | (0.000) | (0.006) | (0.629) | (0.000) | (0.000) | (0.006) | (0.148) | (0.440) | (0.014) | (0.061) | (0.450) | (0.015) | (0.034) | (0.087) | (0.818) | (0.007) | (0.999) | (0.003) | (0.000) | (0.000) | (0.189) | | | | | | | | | | |
| 31 Student diagnosed with ADD/ADHD by Y9 | 0.199 | 0.060 | 0.253 | 0.367 | 0.217 | 0.008 | -0.007 | -0.042 | 0.119 | 0.109 | 0.063 | -0.076 | 0.276 | 0.077 | -0.002 | 0.021 | -0.001 | 0.055 | 0.050 | -0.061 | -0.061 | -0.036 | -0.085 | -0.059 | 0.023 | -0.081 | -0.163 | -0.071 | -0.062 | 0.357 | 1.000 | | | | | | | | |
| | (0.000) | (0.024) | (0.000) | (0.000) | (0.000) | (0.778) | (0.804) | (0.114) | (0.000) | (0.000) | (0.022) | (0.005) | (0.000) | (0.004) | (0.947) | (0.443) | (0.962) | (0.041) | (0.093) | (0.023) | (0.023) | (0.206) | (0.003) | (0.026) | (0.394) | (0.002) | (0.000) | (0.008) | (0.019) | (0.000) | | | | | | | | | |
| 32 Teacher NH black | 0.082 | 0.030 | 0.079 | 0.018 | 0.072 | 0.008 | 0.303 | -0.126 | -0.038 | 0.074 | -0.007 | -0.068 | 0.022 | -0.036 | -0.049 | -0.019 | 0.045 | 0.004 | -0.012 | -0.110 | -0.078 | -0.080 | -0.081 | -0.090 | 0.077 | -0.089 | -0.010 | 0.010 | -0.012 | 0.018 | -0.022 | 1.000 | | | | | | | |
| | (0.002) | (0.260) | (0.004) | (0.527) | (0.008) | (0.781) | (0.000) | (0.000) | (0.154) | (0.006) | (0.805) | (0.013) | (0.487) | (0.179) | (0.102) | (0.492) | (0.096) | (0.888) | (0.696) | (0.000) | (0.004) | (0.005) | (0.005) | (0.001) | (0.085) | (0.001) | (0.712) | (0.707) | (0.666) | (0.514) | (0.407) | | | | | | | | |
| 33 Teacher Hispanic | -0.042 | -0.007 | -0.002 | 0.027 | -0.061 | -0.038 | -0.201 | 0.370 | -0.034 | 0.050 | 0.007 | 0.011 | 0.011 | 0.052 | 0.008 | -0.017 | -0.022 | -0.034 | -0.013 | -0.047 | 0.059 | -0.003 | 0.146 | -0.125 | 0.019 | -0.100 | -0.015 | -0.012 | 0.060 | -0.006 | -0.012 | -0.172 | 1.000 | | | | | | |
| | (0.116) | (0.805) | (0.935) | (0.338) | (0.025) | (0.162) | (0.000) | (0.000) | (0.200) | (0.066) | (0.803) | (0.685) | (0.712) | (0.056) | (0.801) | (0.529) | (0.413) | (0.213) | (0.654) | (0.081) | (0.029) | (0.905) | (0.000) | (0.000) | (0.485) | (0.000) | (0.573) | (0.660) | (0.026) | (0.831) | (0.644) | (0.000) | | | | | | | |
| 34 Teacher graduate degree | 0.027 | 0.001 | 0.004 | 0.025 | 0.010 | 0.024 | 0.082 | -0.091 | -0.008 | -0.005 | -0.038 | -0.041 | -0.002 | -0.026 | -0.013 | 0.021 | -0.004 | -0.006 | -0.014 | -0.023 | -0.006 | -0.021 | -0.007 | 0.009 | 0.011 | -0.040 | -0.036 | 0.043 | -0.036 | 0.097 | 0.018 | 0.059 | -0.063 | 1.000 | | | | | |
| | (0.315) | (0.960) | (0.884) | (0.362) | (0.704) | (0.371) | (0.002) | (0.001) | (0.760) | (0.856) | (0.163) | (0.132) | (0.960) | (0.340) | (0.655) | (0.442) | (0.893) | (0.815) | (0.636) | (0.386) | (0.812) | (0.459) | (0.810) | (0.733) | (0.699) | (0.135) | (0.175) | (0.105) | (0.181) | (0.000) | (0.502) | (0.029) | (0.019) | | | | | | |
| 35 Teacher tenure (years) | -0.040 | -0.028 | -0.050 | -0.013 | 0.005 | 0.009 | -0.063 | -0.018 | 0.036 | -0.033 | 0.000 | -0.010 | -0.049 | -0.018 | -0.036 | 0.052 | 0.012 | 0.012 | 0.025 | 0.035 | 0.023 | 0.010 | -0.058 | 0.040 | -0.049 | 0.067 | 0.022 | 0.041 | -0.063 | -0.019 | 0.025 | 0.028 | -0.037 | 0.193 | 1.000 | | | | |
| | (0.131) | (0.293) | (0.064) | (0.649) | (0.842) | (0.739) | (0.018) | (0.504) | (0.180) | (0.218) | (0.987) | (0.718) | (0.107) | (0.501) | (0.231) | (0.053) | (0.647) | (0.649) | (0.395) | (0.196) | (0.400) | (0.735) | (0.042) | (0.136) | (0.070) | (0.012) | (0.421) | (0.128) | (0.018) | (0.492) | (0.351) | (0.300) | (0.174) | (0.000) | | | | | |
| 36 School percent black | 0.154 | 0.103 | 0.178 | 0.048 | 0.139 | 0.115 | 0.675 | -0.359 | -0.002 | 0.166 | -0.024 | -0.176 | 0.090 | 0.031 | 0.014 | -0.038 | 0.085 | 0.031 | 0.038 | -0.229 | -0.203 | -0.207 | -0.180 | -0.201 | 0.118 | -0.278 | -0.082 | -0.008 | -0.004 | 0.046 | -0.027 | 0.373 | -0.184 | 0.092 | -0.077 | 1.000 | | | |
| | (0.000) | (0.000) | (0.000) | (0.080) | (0.000) | (0.000) | (0.000) | (0.000) | (0.930) | (0.000) | (0.381) | (0.000) | (0.003) | (0.247) | (0.647) | (0.169) | (0.002) | (0.260) | (0.201) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.002) | (0.778) | (0.886) | (0.087) | (0.308) | (0.000) | (0.000) | (0.001) | (0.004) | | | | |
| 37 School percent Hispanic | -0.063 | 0.008 | -0.025 | -0.003 | -0.084 | 0.034 | -0.366 | 0.627 | -0.007 | 0.064 | 0.033 | 0.041 | 0.013 | 0.055 | -0.044 | -0.001 | -0.042 | -0.033 | -0.051 | -0.108 | 0.114 | 0.077 | 0.331 | -0.245 | 0.018 | -0.172 | -0.042 | -0.065 | 0.103 | 0.010 | 0.013 | -0.155 | 0.469 | -0.097 | -0.066 | -0.442 | 1.000 | | |
| | (0.019) | (0.766) | (0.364) | (0.906) | (0.002) | (0.208) | (0.000) | (0.000) | (0.810) | (0.017) | (0.235) | (0.132) | (0.677) | (0.041) | (0.140) | (0.972) | (0.121) | (0.228) | (0.087) | (0.000) | (0.000) | (0.008) | (0.000) | (0.000) | (0.511) | (0.000) | (0.122) | (0.016) | (0.000) | (0.725) | (0.637) | (0.000) | (0.000) | (0.000) | (0.015) | (0.000) | | | |
| 38 School security level | 0.155 | 0.062 | 0.201 | 0.076 | 0.099 | 0.047 | 0.270 | -0.118 | 0.001 | 0.071 | -0.019 | -0.141 | 0.059 | 0.077 | 0.037 | -0.026 | 0.004 | -0.011 | 0.061 | -0.177 | -0.080 | -0.135 | -0.067 | -0.172 | 0.063 | -0.240 | -0.047 | 0.037 | -0.069 | 0.064 | 0.046 | 0.162 | -0.026 | 0.048 | 0.032 | 0.362 | -0.081 | 1.000 | |
| | (0.000) | (0.023) | (0.000) | (0.007) | (0.000) | (0.084) | (0.000) | (0.000) | (0.972) | (0.010) | (0.502) | (0.000) | (0.062) | (0.005) | (0.220) | (0.344) | (0.892) | (0.698) | (0.043) | (0.000) | (0.004) | (0.000) | (0.023) | (0.000) | (0.024) | (0.000) | (0.084) | (0.171) | (0.011) | (0.020) | (0.093) | (0.000) | (0.342) | (0.079) | (0.242) | (0.000) | (0.003) | | |
| 39 Neigh. disadvantage (z-scores), Y3-Y9 | 0.149 | 0.105 | 0.218 | 0.108 | 0.088 | 0.219 | 0.415 | 0.045 | 0.009 | 0.224 | 0.038 | -0.219 | 0.116 | 0.154 | 0.035 | -0.002 | 0.063 | 0.017 | 0.030 | -0.422 | -0.186 | -0.250 | -0.014 | -0.526 | 0.200 | -0.567 | -0.204 | -0.065 | 0.035 | 0.081 | 0.013 | 0.223 | 0.090 | 0.037 | -0.079 | 0.458 | 0.097 | 0.346 | 1.000 |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.096) | (0.745) | (0.000) | (0.165) | (0.000) | (0.000) | (0.000) | (0.241) | (0.931) | (0.021) | (0.538) | (0.305) | (0.000) | (0.000) | (0.000) | (0.622) | (0.000) | (0.000) | (0.000) | (0.000) | (0.015) | (0.195) | (0.003) | (0.622) | (0.000) | (0.001) | (0.170) | (0.003) | (0.000) | (0.000) | (0.000) | |

*Source :* Fragile Families and Child Wellbeing Study

*Notes:* NH = non-Hispanic; PR = parent-reported; TR = teacher-reported; SR = student-reported; Y0 to Y9 = birth to year 9; IEP = individualized education program; ADD/ADHD = Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder

Table A4. Descirptive Statistics for Other Control Variables, by Paternal Incarceration Status

| | No Recent Incarceration | | | | | | Recent Incarceration (Since Y5 but not at Y5) n = 320 | | | Total N = 1,406 | | | Range | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Never Incarcerated n = 650 | | | Distal Incarceration (At or before Y5 Only) n = 426 | | | | | | | | | | |
| Variable | *Valid N* | *Mean* | *Std Dev* | *Valid N* | *Mean* | *Std Dev* | *Valid N* | *Mean* | *Std Dev* | *Valid N* | *Mean* | *Std Dev* | *Min* | *Max* |
| Bio parent impulsivity (z-scores), Y1,Y3 | 650 | -0.13 | 0.54 | 413 | 0.13 | 0.62 | 314 | 0.08 | 0.62 | 1384 | 0.00 | 0.60 | -1.23 | 2.04 |
| Bio parent substance abuse, Y3 | 585 | 0.03 | 0.16 | 302 | 0.06 | 0.24 | 244 | 0.09 | 0.29 | 1132 | 0.05 | 0.22 | 0.00 | 1.00 |
| Child exposure to domestic violence, Y3 | 647 | 0.00 | 0.04 | 400 | 0.03 | 0.16 | 308 | 0.05 | 0.22 | 1361 | 0.02 | 0.14 | 0.00 | 1.00 |
| Low birth weight | 640 | 0.08 | 0.26 | 413 | 0.11 | 0.31 | 309 | 0.11 | 0.31 | 1372 | 0.09 | 0.29 | 0.00 | 1.00 |
| Mother major depression, Y3 | 647 | 0.19 | 0.39 | 400 | 0.27 | 0.44 | 308 | 0.21 | 0.41 | 1361 | 0.22 | 0.41 | 0.00 | 1.00 |
| Father major depression, Y3 | 588 | 0.10 | 0.29 | 309 | 0.20 | 0.40 | 247 | 0.15 | 0.36 | 1145 | 0.14 | 0.34 | 0.00 | 1.00 |
| Mother and father married, Y0 | 650 | 0.46 | 0.50 | 426 | 0.09 | 0.29 | 320 | 0.07 | 0.25 | 1406 | 0.26 | 0.44 | 0.00 | 1.00 |
| Mother from two-parent family | 640 | 0.53 | 0.50 | 423 | 0.35 | 0.48 | 318 | 0.29 | 0.45 | 1391 | 0.42 | 0.49 | 0.00 | 1.00 |
| Father from two-parent family | 597 | 0.55 | 0.50 | 362 | 0.35 | 0.48 | 270 | 0.36 | 0.48 | 1231 | 0.45 | 0.50 | 0.00 | 1.00 |
| Either bio parent an immigrant | 607 | 0.19 | 0.39 | 350 | 0.11 | 0.31 | 258 | 0.07 | 0.26 | 1218 | 0.14 | 0.35 | 0.00 | 1.00 |
| Mother and father education, Y0 | 650 | 2.56 | 0.93 | 426 | 1.82 | 0.66 | 320 | 1.78 | 0.63 | 1406 | 2.15 | 0.88 | 1.00 | 4.00 |
| Mother unemployed, Y3 | 647 | 0.11 | 0.31 | 400 | 0.25 | 0.43 | 308 | 0.24 | 0.43 | 1360 | 0.18 | 0.39 | 0.00 | 1.00 |
| Mother Hh income ($10,000), Y0-Y5 | 650 | 5.05 | 4.05 | 426 | 2.32 | 1.74 | 320 | 2.35 | 2.04 | 1406 | 3.58 | 3.36 | 0.18 | 35.85 |
| Student achievement (z-scores), Y9 | 648 | 0.20 | 0.90 | 425 | -0.12 | 0.82 | 319 | -0.13 | 0.92 | 1402 | 0.02 | 0.90 | -1.98 | 2.19 |
| Student grade 3, Y9 | 650 | 0.70 | 0.46 | 426 | 0.64 | 0.48 | 319 | 0.65 | 0.48 | 1405 | 0.67 | 0.47 | 0.00 | 1.00 |
| Student grade 4-5, Y9 | 650 | 0.18 | 0.38 | 426 | 0.19 | 0.40 | 319 | 0.18 | 0.39 | 1405 | 0.19 | 0.39 | 0.00 | 1.00 |
| Student IEP, Y9 | 641 | 0.08 | 0.27 | 423 | 0.13 | 0.34 | 318 | 0.18 | 0.38 | 1392 | 0.12 | 0.33 | 0.00 | 1.00 |
| Student diagnosed with ADD/ADHD by Y9 | 649 | 0.09 | 0.29 | 426 | 0.16 | 0.37 | 319 | 0.17 | 0.38 | 1404 | 0.13 | 0.34 | 0.00 | 1.00 |
| Teacher NH black | 641 | 0.17 | 0.37 | 420 | 0.23 | 0.42 | 316 | 0.22 | 0.41 | 1386 | 0.20 | 0.40 | 0.00 | 1.00 |
| Teacher Hispanic | 641 | 0.09 | 0.29 | 420 | 0.14 | 0.34 | 316 | 0.10 | 0.31 | 1386 | 0.11 | 0.31 | 0.00 | 1.00 |
| Teacher graduate degree | 644 | 0.49 | 0.50 | 421 | 0.49 | 0.50 | 319 | 0.49 | 0.50 | 1394 | 0.49 | 0.50 | 0.00 | 1.00 |
| Teacher tenure (years) | 648 | 14.03 | 9.96 | 425 | 13.17 | 9.68 | 320 | 13.00 | 9.65 | 1403 | 13.51 | 9.80 | 1.00 | 52.00 |
| School percent black | 634 | 30.71 | 35.14 | 425 | 43.83 | 37.73 | 319 | 45.16 | 37.55 | 1388 | 38.16 | 37.17 | 0.00 | 100.00 |
| School percent Hispanic | 634 | 21.18 | 28.60 | 425 | 25.80 | 31.99 | 319 | 23.73 | 30.22 | 1388 | 23.29 | 30.21 | 0.00 | 98.69 |
| School security level | 616 | 3.58 | 1.35 | 410 | 3.79 | 1.41 | 306 | 3.87 | 1.37 | 1342 | 3.71 | 1.38 | 0.00 | 7.00 |
| Neigh. disadvantage (z-scores), Y3-Y9 | 650 | -0.25 | 0.98 | 425 | 0.24 | 0.76 | 320 | 0.18 | 0.81 | 1405 | 0.00 | 0.91 | -2.70 | 2.46 |

*Source* : Fragile Families and Child Wellbeing Study, Birth to Year 9

*Notes* : NH = non-Hispanic; Y0 to Y9 = birth to year 9; IEP = individualized education program; ADD/ADHD = Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder

Table A5. Desciptions of Propensity Score Covariates

| Variable | Description |
|---|---|
| Father criminal justice contact by Y5 | Binary variable coded 1 if father reports having been stopped by the police but not arrested, booked or charged for an offense, or incarcerated by the age-five wave. Incarceration data based on mother and father reports. |
| Mother criminal justice contact by Y5 | Binary variable coded 1 if mother reports having been stopped by the police but not arrested, booked or charged for an offense, or incarcerated by the age-five wave. Incarceration data based on mother and father reports. |
| Father black NH | Binary variable coded 1 if father is non-Hispanic black |
| Father age | Approximate age in years in the year 2000, based on father reports and the interview year |
| Father unemployment, Y0-Y5 | Sum composite of four binary measures (one for each wave between baseline and age-five) each coded 1 if father reports looking for regular work and not currently working for regular pay at a given wave. |
| Father Hh income ($10,000), Y3-Y9 | Mean of household income at age-three, age-five, and age-nine waves, coded in $10,000 units. Due to missing data, some cases were imputed by Fragile Families Study staff. For more information see http://www.fragilefamilies.princeton.edu/documentation/core/4waves_ff_public.pdf |
| Mother Hh income ($10,000), Y3-Y9 | Mean of household income at age-three, age-five, and age-nine waves, coded in $10,000 units. Due to missing data, some cases were imputed by Fragile Families Study staff. For more information see http://www.fragilefamilies.princeton.edu/documentation/core/4waves_ff_public.pdf |
| Father neigh. disadvantage (z-scores), Y5 | Standardized mean composite of census 2000 tract characteristics (poverty rate, percent without a bachelor's degree, occupational status reversed, percent on public assistaance, unemployment, household income reversed); based on father's residence at age-five wave |
| Father married, Y5 | Binary measure coded 1 if (1) father or mother report that they are married to each other at the age-five wave or (2) father reports being married to another partner at the same wave |
| Father impulsivity (z-scores), Y1 | Standardized mean composite measure of six self-report items from Dickman (1990) measured at age-one wave. Higher scores signify more impulsivity; alpha = 0.8 |
| Father cognitive ability, Y1 | Sum of 8 word association items from the Similarities subtest of the Weschler Adult Intelligence Scale--Revised; alpha = 0.6 in the full Fragile Families sample. Some fathers were not asked until the age-three wave. |
| Father and mother education, Y0 | Mean composite measure of mother and father self-reported education levels at time of child's birth. Responses range from 1 = less than high school to 4 = bachelor's degree or higher |

*Source*: Fragile Families and Child Wellbeing Study
*Notes*: Y0 to Y9 = birth to year 9

Table A6. Common Support and Bias Reduction for Propensity Score Matching Models in 20 Imputed Datasets

| Imputed Dataset | Treatment Cases | | Bias Reduction (Percent Reduction in Median Absolute Value after Matching) | |
|---|---|---|---|---|
| | *Off-Support* | *On-Support* | *Nearest Neighbor* | *Kernel* |
| 1 | 2 | 318 | 96 | 97 |
| 2 | 1 | 319 | 91 | 96 |
| 3 | 2 | 318 | 94 | 96 |
| 4 | 0 | 320 | 93 | 98 |
| 5 | 1 | 319 | 95 | 96 |
| 6 | 0 | 320 | 98 | 98 |
| 7 | 0 | 320 | 94 | 97 |
| 8 | 7 | 313 | 89 | 97 |
| 9 | 0 | 320 | 94 | 96 |
| 10 | 0 | 320 | 94 | 95 |
| 11 | 0 | 320 | 94 | 98 |
| 12 | 1 | 319 | 96 | 94 |
| 13 | 2 | 318 | 94 | 95 |
| 14 | 0 | 320 | 97 | 99 |
| 15 | 2 | 318 | 92 | 94 |
| 16 | 1 | 319 | 97 | 95 |
| 17 | 0 | 320 | 92 | 96 |
| 18 | 3 | 317 | 96 | 96 |
| 19 | 2 | 318 | 92 | 97 |
| 20 | 1 | 319 | 95 | 97 |
| Mean | 1 | 319 | 94 | 96 |

*Source* : Fragile Families and Child Wellbeing Study, Birth to Year 9

*Note* : All covariate mean differences between treatment and control groups were statistically insignificant after matching in each of the 20 imputed datasets.