

Examining the Relationship between Paternal Incarceration, Maternal Stress, and Harsh  
Parenting Behaviors

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### Abstract

In response to rise of incarceration, there is a burgeoning literature examining the consequences of incarceration on families. Research has suggested that incarceration negatively impacts the well-being of partners connected to men with an incarceration history. However, research examining the effects of imprisonment on partners of former offenders remains underdeveloped. This area of research has yet to adequately address the methodological challenges associated with selection bias. This paper uses data from the Fragile Families and Child Wellbeing Study (N= 2,819) to examine the effect of paternal incarceration on maternal stress and harsh parenting behaviors. Using multiple methods and accounting for a rich set of covariates associated with incarceration, results run counter to existing literature. More specifically, after accounting for selection processes, the results suggest no relationship between paternal incarceration, maternal stress and harsh parenting behaviors. Research needs to address preexisting disadvantages that select partners to associating with criminal offenders.

Over the twentieth century, incarceration has dramatically increased in the United States. In 2009, over 7.3 million men and women were under some form of correctional supervision (Glaze 2010). Approximately 12 million adults have served time in prison, representing 5.4% of adults and 9.2% of adult males (Uggen et. al 2006). According to an analysis by Western and Petit (2010), African-American men are seven times more likely to be incarcerated than white males and three times more likely than Hispanic males. Disparities in imprisonment by educational attainment are also notable. Individuals who lack a high school diploma are far more likely to be incarcerated than those who have received a high school education or above (Western and Petit 2010).

In response to the growing risk of imprisonment, a burgeoning academic literature has examined the patterns and implications of men's incarceration. Incarceration has a variety of unintended consequences for individuals and families and—given its associations with low socioeconomic status—may exacerbate cumulative disadvantages for particular groups. For example, incarceration is associated with a reduction in employment opportunities and wages for ex-offenders (Pager 2003; Western 2006) and negatively impacts marital stability (Lopoo and Western 2005).

Beyond affecting the inmate's future life chances, incarceration has been shown to adversely affect their children. Approximately 55 percent of men in state and federal prisons are fathers, and 43 percent of these fathers report having lived with their children prior to incarceration (Glaze and Maruschak 2008). Over half of fathers in prison provided the primary financial support for their children prior to incarceration (Glaze and Maruschak 2008). This is particularly important because with the loss of financial support, children whose fathers were incarcerated are more likely to experience material hardship (Schwartz-Soicher et. al 2009) and

demonstrate a greater risk of homelessness (Wildeman 2011). Research suggests that imprisonment of a partner can be an emotionally devastating experience (Comfort 2008). Parental incarceration may also affect other family members who are called upon to provide greater care for children of incarcerated individuals. This burden of care giving mostly falls upon the inmate's partner.

Yet, in spite of growing attention to the broader social consequences of incarceration, little research examines the effects of imprisonment on partners of offenders. Incarceration removes a parent from a household and adds a unique set of strains to a family's life. Indeed, evidence indicates that, higher levels of parenting stress are associated with negative parenting behaviors (Taylor et. al 2009). Empirical research finds that paternal incarceration increases a mother's risk of experiencing depression and life dissatisfaction (Wildeman et. al 2012). This suggests that families face a host of social and emotional challenges when a parent is incarcerated. The link between fathers' incarceration and maternal stress and parenting capacity is particularly important because this may be one pathway through which the parents' imprisonments impacts child well being over the life course.

Although prior literature finds that incarceration has negative ramifications for the family members attached to men with an incarceration history, studies of the effects of incarceration on behavioral patterns have not adequately addressed two important methodological problems (Johnson and Easterling 2012). First, research in this area has been hampered by selection bias, that is, women who are attached to men with an incarceration history may differ from women whose partners were not incarcerated in a variety of ways, such as socioeconomic status, family background characteristics, mental and cognitive abilities. Perhaps more problematically, those who are incarcerated likely differ in ways—criminal propensity, work ethic, views on marriage

or raising children—that are difficult to measure with conventional survey instruments. Because of this, it is difficult to determine whether the consequences of incarceration arise from the experience of incarceration itself or from other preexisting characteristics, which poses a barrier to producing unbiased estimates on the effects of incarceration. Second, in those studies where a causal effect of incarceration has been identified, heterogeneity in that effect across individuals obscures complexity in these analyses (Wildeman and Muller 2012). For example, on one hand, incarceration may remove a destabilizing influence on the family from the household. On the other hand, if the incarcerated parent provided financially for the family, then the loss of economic and social support can also cause strain to the family.

In this paper, I use data from the Fragile Families and Child Wellbeing Study to examine how paternal imprisonment is associated with maternal stress and harsh parenting behaviors. More specifically, I examine the association between paternal incarceration, maternal stress, and harsh parenting behaviors: physical assault, psychological aggression, and neglect. I also examine whether stress mediates the relationship between paternal incarceration and harsh parenting behaviors. In addition, I pay particular attention to the variation in these relationships across racial and ethnic groups.

## Background

Given that incarceration represents one type of father absence, one might be able to draw parallels between the impact of imprisonment on the family and the vast literature on single parenthood. According to McLanahan and Sandefur (1994:3), living in a single parent household “deprives children of important economic, parental and community resources.” Single parents must often fulfill two obligations, the role of the primary caretaker and breadwinner. Because of the responsibilities of these roles, single mothers experience more stress and psychological

distress in comparison to married mothers (Avison et. al 2007). Additionally, parents facing economic hardships are less able than other parents to provide sufficient levels of support for and control of their children (Thomson et. al 1994; Whitbeck et. al 1991).

Partners of imprisoned offenders not only must cope with the challenges of single parenthood, but they must also manage the difficult logistics of imprisonment. For example, Ferraro et. al (1983) describes how families may suffer because they lack information about visiting and contact procedures. Added burdens associated with maintaining contact with prisoners include inadequate transportation to prisons, long traveling distances, and inaccessible visiting hours (Hounslow et. al 1982; Arditti et. al 2003). Incarceration adds to the economic strain on families because the father not only no longer provides financial support but families must pay for calls and visitation (Travis and Waul 2003). Moreover, prisons are not hospitable to children, creating reluctance in mothers to visit prisons (Peart and Asquith 1992).

The incarceration of a partner additionally compromises individual well-being because family members, especially romantic partners, must also adjust to negative responses from people. Some wives of the imprisoned face stigma and hostility from individuals in their social networks and communities (Fishman 1990). The social stigma of incarceration may prompt partners of incarcerated men to withdraw from social networks (Braman 2004), reducing the networks available for support. Additionally, Fishman's (1990) ethnographic account of prisoners' wives shows negative judgments from society can lead to feelings of anger and rejection.

#### Incarceration as a Primary Stressor

In order to explain the relationship between incarceration and stress I draw on Pearlin's (1989) conceptualization of stress, which describes primary and secondary stressors. According

to Pearlin, a primary stressor can be seen as an undesired event—such as the unexpected death of a loved one or involuntary job loss—which produces other stressful events, termed secondary stressors. Incarceration can be seen as the primary stressor, particularly because of the series of events that lead up to and follow imprisonment, while the stigma of incarceration and the challenges associated with readjustment back into the family can be viewed as secondary stressors.

Research suggests that the partners of incarcerated individuals are likely to experience distress during imprisonment (Fishman 1990; Arditti 2003). Not only stress but the separation brought on by imprisonment can cause household instability (Geller et. al 2009), and families are at an increased risk for divorce and relationship problems (Hairston 1998). In addition to managing their own difficulties, parents must care for the emotional needs of their children, who are more likely to demonstrate behavior problems (Wildeman 2010).

The secondary stressors and strain of paternal imprisonment may cause the mother to externalize her parenting behaviors. Social psychological research has suggested that in response to negative life conditions, caregivers may react with hostility and aggression in both marital and parent-child interactions (Berkowitz 1989; McKinley 1964). In fact, family studies find a relationship between maternal aggravation/stress and impaired parenting (Cohn et. al 1992). Evidence also links economic pressures with parents' depressed mood leading to hostile parenting (Conger et. al 1994). Also, poverty and low income are strongly associated with child neglect (Coulton et. al 1999). Taken together, both economic strain and parenting stress may result in less effective parenting (McLoyd 1990; Conger et. al 1994).

Racial Differences in the Effect of Paternal Incarceration on Maternal Stress and Parenting

Given the racial differences in the rate of imprisonment and economic effects of paternal incarceration, it is important to examine how paternal incarceration may affect partners across racial and ethnic groups. On the one hand, extending the “double jeopardy hypothesis” from Dowd and Bengston (1978), suggests that having multiple marginalized statuses, such as the stigma of incarceration and racial or socioeconomic disadvantage, render such relationships stronger and more negative for disadvantaged populations (Haskins 2011). On the other hand, social stress theory would indicate that paternal incarceration would be less stressful when incarceration is more common or predictable and a strong support system is available (Mineka and Kihlstrom 1978; Osborne and McLanahan 2007). Some evidence indicates that black and single mothers have more supportive kin networks (McLoyd et. al 2000). Moreover, research has indicated that incarceration reduces paternal engagement and coping ability among white fathers in comparison to minority men, so there may be a similar pattern for mothers (Swisher and Waller 2008; Nurse 2002).

#### Previous Research on the Effects on Incarceration on Partners

Prior research on the effects of imprisonment on partners is sparse, but the literature in this area has contributed a great deal to the understanding of prison families. Much of the research in this area focuses on married or intact couples, which may not be an accurate description of the relationships of many contemporary offenders. Nevertheless, the overarching theme that emerges is that incarceration may have detrimental effects on the well-being of the partner, but has little to say about how imprisonment will affect the parenting of these partners.

In contrast to previous literature which examined families who were intact prior to incarceration, Megan Comfort (2008) used a sample of partners of imprisoned inmates from San Quentin Prison, including couples who reported casually dating. Her work indicates that partners

of inmates undergo a process of “secondary prisonization,” whereby they become socialized to the activities and culture of imprisonment. She argues that this process transforms the women’s social lives and therefore impacts their conduct with others. This process may create conflict and resentment among the loved ones of the imprisoned. More directly relevant, a developing literature using the Fragile Families data suggests that paternal incarceration increases maternal depression and life dissatisfaction (Wildeman et. al 2012), decreases maternal perceived instrumental support (Turney et. al 2012), and increases receipt of food stamps and Medicaid/SCHIP (Sugie 2012). This research has not yet taken the step of connecting maternal well-being to her harsh parenting behaviors.

#### Research Questions

This paper builds on the prior research on the effects of men’s incarceration on the wellbeing of partners by addressing three research questions: 1) What is the relationship between paternal incarceration, maternal stress and harsh parenting behaviors? 2) Is maternal stress a mechanisms through which paternal incarceration impacts harsh parenting behaviors? 3) Is there variation in the association between paternal incarceration, stress and parenting behaviors by race and ethnicity?

This study extends prior research on the consequences of paternal incarceration for families in variety of ways. It connects the previous research on the well-being of mothers in the wake of paternal incarceration to the extent that maternal stress leads to harsh parenting behaviors, this would constitute a mechanism reducing child well-being. Despite the literature which suggests that incarceration negatively harms family members, research has not adequately overcome selection bias. I used several analytic methods, including techniques designed to account for unobserved heterogeneity in observational data, namely, propensity scores and fixed

effects models to differentiate the effects of incarceration and selection. The Fragile Families Study is uniquely suited to examine these empirical research questions because it provides a robust set of longitudinal demographic and social characteristics associated with incarceration.

#### Data

This study comes from the Fragile Families and Child Wellbeing Study (FFCWS), a longitudinal survey intended to provide information about unmarried and married parents and their children. The study includes 4,897 children born between 1998 and 2000 in 20 metropolitan areas with populations over 200,000 (for a complete description of the sample and design, see Reichman et al 2001). The survey contains an oversample of nonmarital births and a comparison group of married parents. Mothers were interviewed in the hospital within 48 hours after giving birth. Fathers were interviewed in the hospital or as soon after the birth as possible. Both mothers and fathers were interviewed at this baseline year, and at the child's first, third and fifth birthdays. I use these waves to focus on parenting behaviors in early childhood.

Additionally, at years three and five, FFCW researchers conducted an in-home assessments of approximately 3,000 households (78% of three-year core respondents and 73% of five-year core respondents) designed to assess the physical environment and parenting through direct observation. By the five-year interview, approximately 87 percent of the mothers and 70 percent of the fathers were still participating in the core survey, with a 79 and 81 percent response rate, respectively, for the three- and five- in-home surveys.

The analytic sample for this paper includes 2,819 biological mothers. The in-home survey was administered to the caregiver who was at home during the interview. If the respondent indicated that their relationship to the child was anything other than the biological mother, I dropped these observations from my analysis ( $n=154$ ). Observations are also excluded when the

mother reports that the father was unknown ( $n=51$ ). I also dropped observations with dependent variables that were missing at either the three- or five-year in-home interview. In order to maximize the number of observations for my outcome measures, I allowed the number of observations to vary across my dependent variables.

A non-negligible portion of fathers and mothers failed to report whether the father has a prior or recent history of incarceration at the five-year interview. Therefore in cases where it was missing paternal incarceration was imputed, consistent with prior research (Geller et. al 2009). There were a few cases missing data on the covariates, and multiple imputation was also used to supplement this missing information. I used the *ice* (imputation by chained equations) command in Stata yielding five datasets (Royston 2004). My findings are substantively similar when allowing for listwise deletion on both the independent and dependent variables.

## Measures

*Parenting Stress.* Maternal parenting stress was measured at Waves 3, and 5 during the in-home interview. At each wave mothers indicated agreement (0=*strongly disagree* to 4=*strongly agree*) with some of the following statements: “you often have the feeling that you cannot handle things very well”; “you gave up more of your life to meet children’s needs than you expected”; “you feel trapped by your responsibilities as a parent”; “since having child you have been unable to do new and different things” (See Appendix for full questions). Likert-style response categories were reverse-coded so that a higher score indicated greater parenting stress. The sum of the 11 items served as the final scale (Wave 3,  $\alpha=0.86$ ; Wave 5,  $\alpha=0.87$ ).

This analysis includes three self-reported parenting measures: use of psychological aggression, use of physical assault, and child neglect drawn from the in-home survey at Waves 3 and 5. These measures originated from subscales of the Conflict Tactic Scales (CTS) (Straus et.

al 1998). The CTS collects information on the mother's use of these behaviors during the 12 months prior to the interview. For each subscale, individuals were assigned a score of 0= *this has never happened* or *yes, but not in the past year* for an item. Caregivers were assigned a score of 1 if they reported that the event occurred once in the year prior to the interview; 2, for twice in the year prior to the interview; 4, for 3-5 times in the prior year interview; 8, for 6-10 times in the prior year interview; 15, for 11-20 times in the prior year interview; and 25, for more than 20 times in the year prior to the interview (Straus et. al 1998). After recording each item, scores were summed to compute total yearly frequency scores for each subscale (cf. Berger et. al 2005). For all the subscales, higher scores indicate greater prevalence of these behaviors.

*Psychological Aggression* was assessed with these five items: shouted, yelled, screamed; swore or cursed; said you'd send child away or kick out; threatened to spank; and called dumb, lazy, or something similar (Wave 3,  $\alpha=.56$ ; Wave 5,  $\alpha=.61$ ) (See Appendix for full questions).

*Physical Assault* was measured by five items including the following: shook, hit on the bottom with object, spanked, slapped, and pinched (Wave 3,  $\alpha=0.60$ ; Wave 5,  $\alpha=0.60$ ) (See Appendix for full questions).

*Neglect* was measured by five items including the following: had to leave child alone, too caught up to tell child you loved him or her, unable to feed, unable to get child medical care when needed, and too drunk or high to care for child (Wave 3,  $\alpha=0.52$ ; Wave 5,  $\alpha=0.36$ ). The neglect measure is highly skewed. I recoded into two categories (0=*none* to 1=*any reported act in the past year*). (See Appendix for full questions).

*Paternal Incarceration*. The key independent variable, paternal incarceration, is a construction of indirect and direct reports based on both the fathers' and mothers' responses to questions about the fathers' criminal history, beginning with the first-year follow-up survey. I

separated paternal incarceration into two categories—prior and recent incarceration—in order to differentiate between the long- and short-term effects of imprisonment. One limitation of the survey design is that I am unable to distinguish the timing of incarceration spells because it is not recorded exactly when incarceration occurred. However, mothers are asked at different times to identify if the father ever spent time in prison or jail. If either parent reported that the father was incarcerated, he is considered to have served time in jail/prison. Also, my measures are not mutually exclusive. Some fathers respond in the affirmative for both measures of incarceration. My first measure, prior paternal incarceration, is based on mother and father reports if the father was ever incarcerated by the three-year interview. My second measure, recent incarceration, is based on the mothers' report of the father being incarcerated between the three- and five-year interviews, or if either parent reported that the father was currently in jail at the five-year interview.

*Controls.* Because the relationship between incarceration, maternal stress, and parenting behaviors, may be due to differences across a variety of confounding factors, I control for observable characteristics that are associated with both incarceration and the outcome variables. In order to ensure that the associated observable characteristics are measured before paternal incarceration, I used measures from the baseline and one-year surveys. I used the mother and/or father reports to measure these characteristics. The first set of covariates reflects the parents' background characteristics that are associated with the likelihood of criminal activity and harsh parenting behaviors. The father's race/ethnicity is specified by a series of dummy variables: white (reference category), African-American, Hispanic, and 'other' race measured at the baseline survey. Whether the mother and father identified as a mixed-race couple is a dummy variable (0=no, 1=yes). Childhood family structure for the parents was measured by a dummy

variable indicating whether each parent lived with both biological parents at age 15. Immigrant status is a dummy variable, scored one if either parent was born outside of the United States. The father's education is comprised of a series of dummy variables measured at the baseline survey: less than high school diploma (reference category), high school diploma (includes fathers with a GED), some college, and college degree or higher. Ages of the child and of the parents are continuous measures taken from the one-year survey. The child's gender is identified by a dummy variable (0=*female*, 1=*male*) measured at the baseline interview.

The next set of covariates describes the mother and family's general life circumstances. I include dummy variables indicating if the father is more educated than the mother, and if a grandmother was present in the household at one-year interview (0=*no*, 1=*yes*). Parents' relationship status at the one-year interview is also indicated by a series of dummy variables: married (reference category), cohabiting, in a non-residential romantic relationship, and not romantically involved. The number of children in the mother's household is a continuous indicator measured at the one-year interview. Family socioeconomic status is measured by several variables at the one-year interview. Dummy variables for each parent represent whether they responded in the affirmative to question that they did regular work for pay in the last week (0=*no*, 1=*yes*). The household income-to-poverty ratio is a continuous variable (a household's yearly income divided by the relevant U.S. poverty threshold adjusted for the number of children and total members in the household).

I also control for measures of family functioning and social support. I coded mothers' religious attendance at the year-one interview as a dummy variable (0=*all other attendance*, 1=*once a week*). Mothers' depression from the Composite International Diagnostic Interview Short Form (CIDI-SF). Also, this analysis includes a variable for the mother's self-rated health

(1=*Excellent* to 5=*Poor*). Using a series of questions from mothers' interviews, such as did drinking or drugs interfere with your personal relationships, I created a dummy variable for the mother's substance abuse. Child temperament is measured by a sub-scale of the Emotionality, Activity, and Sociability Temperament Survey of Children (Buss and Plomin 1984). Mothers were asked to respond to a series of questions about their child: "child tends to be shy;" "child often fuses and cries;" "child reacts strongly when very upset;" "child gets upset easily;" "child is very sociable;" (reverse coded), "child is very friendly with strangers" (reverse coded). The child temperament variable was constructed by summarizing responses to the six questions with higher scores indicating a more difficult temperament (Wave 1,  $\alpha=0.51$ ).

Finally, I control for the father's adult behavioral traits, such as anti-social characteristics, that research suggests are associated with incarceration. I use self-report measures from the one-year survey (Gottfredson and Hirschi 1990). The Dickman scale of dysfunctional impulsivity measures impulsivity by a summation of six questions on a Likert scale, reverse-coded when necessary, including (1=*strongly disagree*, 4=*strongly agree*): "often, I don't spend enough time thinking over a situation before I act;" "I often say and do things without considering the consequences;" "I often get into trouble because I don't think before I act;" "many times, the plans I make don't work out because I haven't gone over them carefully enough in advance;" "and I often make up mind without taking the time to consider the situation from all angles" (Wave 1,  $\alpha=.80$ ). The father is coded as having engaged in domestic violence if the mother reports he: "hit the mother with his fist or dangerous object;" "slapped or kicked the mother;" "and insulted or criticized the mother." Fathers are considered to have had a substance abuse problem if the mother reported that he has problems keeping job or getting along because of drugs or alcohol measured at the one-year interview.

## Methods

Given that it is difficult to disentangle the relationship between paternal incarceration, maternal stress and parenting behaviors, I used various modeling strategies to estimate this relationship. First, I used OLS regression models to estimate the association between paternal incarceration, maternal stress, and parenting behaviors (Model 1a). In order to establish a benchmark estimate of the relationship between paternal incarceration and my dependent variables of interest, I adjusted for characteristics associated with paternal incarceration and harsh parenting behaviors (Model 2a). I included maternal stress as a mediator in the association between paternal incarceration and harsh parenting behaviors in order to see if this relationship is attenuated (Model 3a). Following the work of others in this area, I then limited my sample to women attached to men who have ever been incarcerated by the three-year interview, and estimate the relationship between these dependent variables and recent paternal incarceration controlling for the associated covariates (Model 1b) (Wildeman 2012). Limiting my sample to women who are attached to men with a history of incarceration by the three year interview, reduces unobserved heterogeneity, thereby strengthening causal inference (LaLonde 1986; Wildeman 2012). In the final step using the OLS, I again include maternal stress as mediator in the relationship between paternal incarceration and harsh parenting behaviors on this limited sample (Model 2b). I present these OLS regression results to show how not addressing selection bias with more stringent models can attribute causal effect of paternal incarceration on my outcomes of interests rather than preexisting or unmeasured characteristics.

Second, I used propensity score models to examine the relationship between recent paternal incarceration and maternal stress and parenting behaviors. In this propensity score analysis, all individuals are given a propensity score based on observed covariates, which

include: paternal and maternal age, race and ethnicity of the father, whether the parent's are a mixed-race couple, parents' nativity, relationship status, education, parents family structure at age 15, maternal depression, maternal physical health, the number of kids in the household, whether the father had been incarcerated by the three-year interview, impulsivity, parents substance abuse, domestic violence, household income-to-poverty ratio, parents' employment status, child age, child gender, and child temperament. Those fathers who have been incarcerated are matched to a similar group who have the same probability of incarceration based on these measured factors, but have not, in fact, been incarcerated (Rosenbaum et. al 1983).

In order to construct treatment and comparison groups, I used a probit regression to predict the probability of recent paternal incarceration. After the propensity score models are estimated, I checked covariate balance, and this condition is properly met. Covariate balance is necessary component of recreating a natural experiment. I used the kernel matching technique with a Gaussian kernel and a bandwidth of 0.06 to estimate the average treatment effect. Kernel matching compares the outcome of each treated person to a weighted average of the outcomes of all the untreated persons, with the highest weight being placed on those with scores closest to the treated individual (Heinrich et. al 2010). The advantage of using propensity score models compared to OLS regression for estimating casual effects is that once matched, the treated and the control groups should only randomly differ from one another on all background covariates.

Third, even with the host of covariates I included, the association between paternal incarceration, maternal stress and parenting behaviors could be driven by stable unmeasured differences in the mother's characteristics. In order to better account for such unmeasured heterogeneity, I estimate fixed-effects regression models. The strength of fixed-effect models is that they estimate variation only within individuals over time, taking advantage of the multiple

waves of the Fragile Families survey. This more conservative technique allows me to examine selection and how a change in paternal incarceration between waves is linked to change in maternal stress and parenting behaviors, net of time-varying observed characteristics as well as all time-invariant characteristics. By comparing individuals with themselves over time, the fixed-effect model accounts for unobserved heterogeneity across individuals and therefore, provides a stronger estimate of the relationship between paternal incarceration, maternal stress and harsh parenting behaviors than either the OLS or propensity score models. I also test whether maternal parenting stress is a mechanism in the relationship between paternal incarceration and parenting behaviors.

#### Sensitivity Analysis

Finally, I test the robustness of my findings to alternative model specifications. For my dependent variables of interest I performed a falsification test, which examined whether recent incarceration at Wave 5 was associated with earlier maternal stress and parenting behaviors at the Wave 3 interview. The logic behind this falsification test is that the future could not predict the past and that if such an association existed, this would be evidence that unobserved selection might be driving this relationship. This means a null finding in the backwards link between paternal incarceration, maternal stress, and harsh parenting behaviors indicates that the association found in the time-appropriate order may be a causal relationship.

#### Bivariate Results

Table 1 shows descriptive statistics for all variables used in the analysis by paternal incarceration history. Approximately 44% of fathers had ever spent time in prison by the three-year interview, and 20% were recently incarcerated (i.e. between years 3 and 5). As the table demonstrates, women who are attached to men who have a history of incarceration are more

likely to be disadvantaged on a variety of social indicators. For example, women who have a child with a father with a history of incarceration are more likely to be racial and ethnic minorities, less likely to have grown up with both biological parents, are in poorer physical health, and more likely to report depression and substance abuse problems. Additionally, mothers with a partner who has ever been incarcerated are less likely to be employed and have a lower household income to poverty ratio. These mothers are also younger, less educated, have more children living in the household, and less likely to be married or living with the partner after the birth of the child. Also, these mothers are more likely to be attached to men who have engaged in anti-social behaviors such as substance abuse.

Examining the means of the outcome variables of interests (Table 1), substantive differences by the father's incarceration history emerge. The results indicate that mothers' average stress level is moderate at the five-year interview (11 out of 44), but women who were coupled with a man with a history of recent paternal incarceration have an average stress score that is almost 3 units significantly higher in comparison to mothers who are connected to men have not been recently incarcerated when the child is five years old. The analysis reveals that in regards to parenting behaviors, mothers' report on average 26 acts of psychological aggression and 13 acts of physical assault at the five-year interview. The maternal neglect indicator is highly skewed, with only 11 percent of the sample reporting to have engaged in at least one form of child neglect in the previous year. There are substantive differences in these parenting behaviors by paternal incarceration history. At the five-year survey, for example, mothers connected to men who have a history of recent incarceration indicate statistically significantly and higher number of acts of psychological aggression and physical assault than mothers associated with a father who was not recently incarcerated. Also, the prevalence of acts of child neglect is

significantly higher among women who are attached to men who have recently served time in jail or prison.

### Multivariate Results

As a preliminary overview, the OLS regression show significant relationships between paternal incarceration, maternal stress and harsh parenting behaviors. In Table 2, Model 1a shows that prior and recent incarceration are both significantly related to maternal stress. For example, a woman attached to a man with a history of incarceration by the three-year interview has a 1.48-unit higher level in stress in comparison to women associated with a man who was not ever incarcerated by the three-year interview. The magnitude of this coefficient translates to about one-fifth of a standard deviation on the maternal stress scale. In Model 2a, I introduce characteristics associated with both prior and recent incarceration. Adjusting for characteristics associated with paternal incarceration and maternal stress, prior incarceration is no longer significant. Moreover, the size of the coefficient on recent incarceration declines but is still statistically significant and is associated with 1.22-unit higher level or almost one-fifth standard deviation on the maternal stress scale. In the earlier models, women attached to never-incarcerated men were the reference group, but many of these women were not at risk of experiencing this event. In order to deal with selection bias, I limited the sample to women attached to men with a history of incarceration by the three year interview in Model 1b. This model shows that net of observed characteristics, recent paternal incarceration is associated with a statistically significant 1.31-unit increase in stress. The magnitude of this coefficient translated into about one-sixth standard deviation on the maternal stress scale.

In Table 2, I also examine the association between paternal incarceration, psychological aggression, physical assault, and neglect using OLS regression. In the simple association

between paternal incarceration and these parenting behaviors, there is a statistically significant link in this relationship. More specifically, women attached to a man with a recent incarceration history are 4.72-units and 2.87-units more psychologically aggressive and physically abusive, respectively toward their children. These convert to about a one-fifth standard deviation increase in these harsh parenting behavioral scales. Net of observable characteristics in Model 2a, recent incarceration is associated with a statistically significant 3.25-unit and 1.71-unit increase in psychological aggression and physical assault. The magnitude of the relationship declines for both dependent outcomes of interests, however and translated to about one-seventh and one-tenth standard deviation increase in psychological aggression and physical assault, respectively. After adjusting for controls in Model 2a, Table 2, there is not a significant relationship between paternal incarceration and child neglect. In Models 3a, maternal stress does not substantively reduce the association between harsh parenting behaviors and paternal incarceration. When the sample is limited to women attached to men with a history of incarceration by the three year interview, there is a significant association between recent incarceration, psychological aggression, physical assault, and child neglect. This suggests that by reducing unobserved heterogeneity, net of observed characteristics, paternal incarceration negatively impacts mother's parenting.

Although limiting the sample helps address selection, I turn to propensity score methods to address this more directly in my analysis. Propensity score models allow me to compare the effects of paternal incarceration on maternal stress and parenting behaviors to a "control group" at similar risk of demonstrating these behaviors. Table 3 shows the results of the relationship between paternal incarceration and maternal stress and parenting behaviors using propensity score models. The results indicate that there is a 1.12-unit increase in maternal stress as a result

of recent father incarceration, but this is a statistically insignificant relationship. However, there is a four-unit and three-unit statistically significant increase in psychological aggression and physical assault, respectively. These effect sizes are similar in comparison to the OLS regression models, which suggest that for two evenly matched groups on observed behaviors, paternal incarceration increases these behaviors above and beyond pre-existing characteristics. Generally, these models are confirmed by Model 1b, which limits the sample to women attached to men with a history of prior incarceration by the three-year interview. Further, there is no relationship between recent incarceration and neglect.

#### Racial Differences in the Relationship of Stress and Parenting Behaviors

To examine how the relationship between paternal incarceration history and stress and parenting behaviors is differentiated by race and ethnicity, I constructed propensity score models for Non-Hispanic whites, blacks, and Hispanics separately. Table 4 shows these relationships by race and ethnicity. Generally, the results suggest that there are not major differences in these effects by race and ethnicity. For Non-Hispanic whites, there are not statistically significant effects of paternal incarceration for maternal stress and parenting behaviors. However, for women connected to Hispanic men there is a statistically significant 5-unit or 0.30 standard deviation increase in physical assault on children when the father is recently incarcerated.

#### Fixed Effect Results

The prior models have emphasized observable characteristics in the relationship between paternal incarceration, maternal stress and harsh parenting behaviors. But, stable individual traits may be driving this relationship. In order to account for this, I used fixed effect models to estimate the relationship between incarceration and maternal stress and parenting behaviors (Table 4). Under these more conservative parameters, the relationships between incarceration

and maternal stress and parenting behaviors mostly do not hold under these parameters. For example, mothers attached to men who have been recently incarcerated exhibit a 0.68-unit or almost a 0.08 standard deviation decrease in stress, net of unobserved time-invariant characteristics, but this result is statistically insignificant. When I control for time varying characteristics, the relationship continues to be insignificant and the coefficient declines. The simple association between a change in incarceration and a change in psychological aggression is statistically significant, but when time-variant characteristics are added, the relationship no longer holds. Taken together, these models suggest if there is a relationship between paternal incarceration, maternal stress and parenting behaviors, it may be driven by unobserved characteristics. Table 7 examines the estimated effects of paternal incarceration on parenting behaviors including maternal parenting stress as a mechanism in this relationship. Maternal parenting stress is a statistically significant factor in these associations but does not substantively change these relationships. For example, including maternal stress in the relationship between a change in incarceration and harsh parenting results in a 5 percent decline for psychological aggression. Using the fixed-effect models confirms that selection forces are driving the significant association between paternal incarceration, maternal stress and harsh parenting behaviors.

### Sensitivity Analyses

Finally, I performed falsification tests on the relationship between paternal incarceration, maternal stress and parenting behaviors. The temporal ordering of paternal incarceration, maternal stress and harsh parenting behaviors in this longitudinal data set offer the opportunity to test for suggest an effect of later incarceration on prior outcomes. A statistically significant effect in these reversed models would indicate that the observed relationship between maternal stress

and these outcomes must be driven by unobserved selection, since it cannot reach back to change a prior behavior. Table 8 shows that maternal stress and psychological aggression, at Wave 3 are significantly “predicted” by paternal incarceration in the following two years. Again, this further strengthens my argument that the relationship between paternal incarceration and these outcomes are driven by unobserved variables. This model generally offers support for the fixed effects model, which shows that once stable characteristics are controlled, there is no statistically significant effect in these relationships.

## Discussion

Because of the increase in incarceration, there are a greater number of partners connected to men with a history of incarceration, especially among African-Americans and those of all races with less education. Academic research has begun to examine the consequences of incarceration on the family. Generally, prior research has indicated that paternal incarceration has negative consequences on the well-being of the loved ones attached to incarcerated men. This study extends this research by examining how paternal incarceration is associated with maternal stress and parenting behaviors using data from the Fragile Families and Child Wellbeing Study. This is one of the first papers to quantitatively assess how paternal incarceration might have a direct causal effect on mothers’ parenting of partners. The goal was to disentangle selection factors that are associated with maternal stress, parenting behaviors and incarceration.

Overall, results from the multiple strategies I employed to test this pathway generally suggests that any effect of paternal incarceration, maternal stress, and parenting behaviors is driven by unobserved characteristics, rather than the experience of incarceration. Results from the OLS regression suggest that net of observed characteristics paternal incarceration directly increases maternal stress, psychological aggression, and physical assault. Controlling for stress,

there is still a statistically significant increase in psychological aggression, but the magnitude of the relationship declines for women connected to a man with a recent incarceration history. The magnitude of the relationship between recent incarceration, physical assault, and child neglect declines also, but is no longer statistically significant. Treating the risk factor of prior incarceration as selective condition for looking at the effects of recent incarceration indicates that there are larger effects of recent incarceration for this group, suggesting that incarceration above and beyond preexisting characteristics increases maternal stress and harsh parenting behaviors. These results are generally consistent with research suggesting that incarceration causes emotional strain on the family (Comfort 2008).

Using propensity score matching to more directly address such risk factors, there is a positive association in the relationship between recent paternal incarceration, psychological aggression, and physical assault, but the effects are similar to those found in OLS models that do control for prior incarceration by only considering this subpopulation to be at risk. These findings are congruent with prior literature which suggests that paternal incarceration is associated with generally negative outcomes among partners. Furthermore, results indicate that there are not distinct differences in the effects of paternal incarceration on maternal stress and parenting behaviors, by race and ethnicity. In the fixed-effects regression, there is not a relationship between paternal incarceration and stress and parenting behaviors, which suggest that unobserved time-invariant characteristics might be driving the relationship. This nonsignificant relationship suggests that selection factors play a role in the significant association in the OLS models. Hence, using more stringent models in this area of inquiry is a necessity for researchers.

There are important limitations when examining these findings. First, there are methodological challenges with my paternal incarceration variables. Prior incarceration and recent incarceration are not mutually exclusive and I can not adequately measure the timing or duration of the experience of incarceration. Also, research suggests that the effect of incarceration depends on the context in which it occurs in the family. Because of data limitations it is difficult to decipher the experiences of families before incarceration. Finally, addressing selection bias is a key methodological challenge in this area of research. The OLS regression results confirm the negative impact of incarceration on behavioral outcomes, but under more stringent assumptions, this effect becomes null. This suggest that future research needs to pay close attention to addressing unobserved heterogeneity when examining particular research questions on the consequences of incarceration for individuals and families. More practically, researchers need to adequately address methodological problems with incarceration measurement.

Maternal stress and parenting behaviors have consequences for the social outcomes of children. This research has vast implications on the well-being of women and children attached to men with an incarceration history. It appears that socially underprivileged women are at a greater risk of being attached to men with an incarceration history, which can cause the intergenerational transmission of inequality, both directly and indirectly, by putting men at more risk of additional incarceration and by disadvantaging the men from early in their life course. This research contributes to a growing body of research that suggests that incarceration has detrimental consequences for families. Future research needs to examine whether as a result of the father's incarceration are challenges transmitted to children.

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Table 1. Means and Standard Deviations of Variables

Key Variables	Full Sample		Recently Incarcerated Fathers		Not Recently Incarcerated Fathers	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
<b>Dependent Variables</b>						
Mother Parenting Stress (y3)	9.93	(8.51)	11.95	(9.11)	9.40***	(8.21)
Mother Parenting Stress (y5)	11.39	(7.54)	13.57	(8.20)	10.67***	(7.25)
Mother Psychological Aggression (y3)	25.22	(20.06)	28.96	(20.91)	24.02***	(19.56)
Mother Psychological Aggression (y5)	26.05	(21.08)	31.73	(23.58)	24.40***	(19.85)
Mother Physical Assault (y3)	16.20	(18.61)	19.14	(19.78)	15.03***	(17.63)
Mother Physical Assault (y5)	12.61	(16.32)	15.52	(17.63)	11.57***	(15.29)
Mother Neglect of Child (y3)	0.11	(0.31)	0.19	(0.39)	0.08***	(0.28)
Mother Neglect of Child (y5)	0.11	(0.31)	0.15	(0.35)	0.09***	(0.29)
<b>Controls</b>						
Father ever incarcerated by 3 year survey (y3)	0.44		0.85		0.31***	
Father recently incarcerated between 3 and 5 year (y5)	0.20		1.00		0.00	
Parents not same race (b)	0.13	(0.34)	0.14	(0.35)	0.12***	(0.33)
Mother foreign-born (b)	0.13	(0.34)	0.05	(0.22)	0.16***	(0.36)
Mother age (y1)	26.30	(5.99)	23.67	(4.81)	27.11***	(6.06)
Mother lived with both biological parents at 15 (b)	0.41	(0.49)	0.29	(0.45)	0.46	(0.49)
Mother relationship status with father (y1)						
Married	0.29		0.09		0.35***	
Cohabiting	0.27		0.24		0.28*	
Non-residential relationship	0.11		0.14		0.09**	
Separated	0.33		0.45		0.22***	
Mother report social father present (y5)	0.26		0.42		0.17***	
Mother employment status (y1)	0.54	(0.49)	0.50	(0.50)	0.56**	(0.49)
Mother income-to-poverty-ratio (y1)	1.79	(2.07)	1.12	(1.21)	2.06***	(2.28)
Grandmother in Household (y1)	0.19		0.25		0.16***	
Number of children in Household (y1)	2.32	(1.33)	2.52	(1.41)	2.26***	(1.29)
Frequency of Religious Attendance						
Once a week	0.21	(0.41)	0.20	(0.40)	0.22	(0.41)
Mother depression (y1)	0.12		0.16		0.10***	
Mother self-reported physical health (y1)	2.22	(1.04)	2.31	(1.08)	2.19*	(1.03)
Mother reported substance abuse (y1)	0.02	(0.14)	0.03	(0.17)	0.01	(0.13)
Father's race (b)						
White	0.19		0.09		0.22***	
Black	0.53		0.66		0.47***	
Hispanic	0.25		0.19		0.26**	
Other race	0.03		0.02		0.03	
Father foreign-born (b)	0.30	(0.46)	0.28	(0.45)	0.28	(0.45)
Father age (y1)	29.06	(7.25)	25.78	(9.09)	29.87***	(7.29)
Father lived with both biological parents at 15 (b)	0.43	(0.49)	0.28	(0.45)	0.48***	(0.49)
Father education (y1)						
Less than high school	0.32		0.47		0.26***	

High school diploma or GED	0.37		0.36		0.35	
Some college	0.21		0.12		0.23***	
College or above	0.10		0.00		0.13***	
Father more educated than mother (y1)	0.24	(0.42)	0.21	(0.41)	0.22	(0.42)
Father employment status (y1)	0.78	(0.41)	0.53	(0.49)	0.84***	(0.36)
Father Impulsivity (y1)	2.03	(0.68)	2.27	(0.76)	1.97***	(0.65)
Father reported substance abuse (y1)	0.07	(0.26)	0.18	(0.38)	0.03***	(0.18)
Father engaged in domestic violence (y1)	0.25		0.21		0.28**	
Paternal engagement (y1)	2.53	(2.14)	1.79	(2.02)	2.91***	(2.08)
Child is male	0.51	(0.49)	0.58	(0.49)	0.50**	(0.50)
Child age (months) (y1)	15.03	(1.87)	15.24	(3.60)	14.88**	(3.32)
Child temperament (y1)	2.59	(0.76)	2.69	(0.75)	2.55***	(0.75)
N	2829		508		1996	

Source: Fragile Families and Child Wellbeing Study

Notes: b: measured at baseline survey; y1: measured at 1-year survey; y3: measured at 3-year survey; y5: measured at 5-year survey. Asterisks for significance tests comparing fathers recently incarcerated to fathers not recently incarcerated.

\*\*\*p<.001 \*\*p<.01\* p<.05 †p<.10

Table 2. Paternal Incarceration effects on Maternal Stress and Harsh Parenting (OLS Regression)

<i>Maternal Stress</i>	M1a		M2a		M3a		M1b		M2b	
Covariates	<i>b</i>	( <i>S.E.</i> )	<i>b</i>	( <i>S.E.</i> )	<i>b</i>	( <i>S.E.</i> )	<i>b</i>	( <i>S.E.</i> )	<i>b</i>	( <i>S.E.</i> )
Prior Incarceration	1.48***	(0.31)	0.22	(0.34)			---	---		
Recent incarceration	1.97***	(0.40)	1.22**	(0.40)			1.31*	(0.51)		
N	2676		2676				1140			
<i>Psychological Aggression</i>										
Prior Incarceration	4.17***	(0.89)	1.98*	(0.99)	1.86†	(0.98)	---	---	---	---
Recent incarceration	4.72***	(1.20)	3.25*	(1.31)	2.58*	(1.28)	4.42*	(1.56)	3.64*	(1.54)
Maternal Stress					0.55***	(0.58)			0.59***	(0.09)
N	2725		2725		2725		1136		1136	
<i>Physical Aggression</i>										
Prior Incarceration	2.15**	(0.70)	0.40	(0.84)	0.34	(0.83)	---	---	---	---
Recent incarceration	2.87**	(0.91)	1.71†	(0.99)	1.34	(0.98)	2.16†	(1.24)	1.78	(1.24)
Maternal Stress					0.29***	(0.44)			0.29***	(0.06)
N	2758		2758		2758		1157		1157	
<i>Child Neglect</i> <sup>1</sup>										
Prior Incarceration	0.30***	(0.14)	0.95	(0.15)	0.65	(0.16)	---	---	---	---
Recent incarceration	0.32***	(0.18)	0.27**	(0.19)	0.17	(0.20)	0.39†	(0.22)	0.27†	(0.22)
Maternal Stress					0.07	(0.00)			0.07***	(0.01)
N	2774		2774		2774		1163		1163	

Source: Fragile Families and Child Wellbeing Study

Notes: Models 2a -2b adjusts for controls listed in Table 1. Model 1b and 2b represents women attached to men with a history of incarceration history by 3 year-interview. Robust standards in parentheses.

<sup>1</sup> The sample size makes it difficult to estimate the of child neglect by educational attainment. I collapsed high school education, some college, and college into one category.

\*\*\* $p < .001$  \*\* $p < .01$  \* $p < .05$  † $p < .10$

Table 3. Effects of Recent Incarceration on Maternal Stress and Harsh Parenting Behaviors (Propensity Score Matching)

Outcome	Difference	(S.E.)	Treatment N	Control N
Maternal Stress	1.12	(0.61)	592	2084
Psychological Aggression	4.08*	(1.72)	595	2130
Physical Assault	2.72†	(1.33)	607	2151
Neglect	0.02	(0.02)	609	2165
<i>Black</i>				
Maternal Stress	1.32	(0.78)	399	1054
Psychological Aggression	3.72†	(2.12)	398	1041
Physical Assault	1.12	(1.81)	406	1061
Neglect	0.03	(0.03)	409	1063
<i>Hispanic</i>				
Maternal Stress	2.16	(1.35)	116	497
Psychological Aggression	5.45	(4.04)	120	554
Physical Assault	4.95**	(2.24)	124	559
Neglect	0.00	(0.67)	123	566
<i>White</i>				
Maternal Stress	2.12	(2.49)	59	460
Psychological Aggression	3.28	(6.28)	59	459
Physical Assault	3.44	(4.04)	59	456
Neglect	0.03	(0.09)	58	462

Source: Fragile Families and Child Wellbeing Study

Notes: Kernel matching model estimates shown.

\*\*\*p<.001 \*\*p<.01 \*p<.05 †p<.10

Table 4. Effects of Recent Incarceration on changes in Maternal Stress and Harsh Parenting Behaviors (Fixed Effects Models)

Outcome	<i>b</i>	( <i>S.E.</i> )	<i>N</i>
<i>Maternal Stress</i>			
Recent Incarceration	-0.68	(0.41)	4894
Recent Incarceration + covariates	0.14	(0.46)	4894
<i>Psychological Aggression</i>			
Recent Incarceration	2.91*	(1.12)	4990
Recent Incarceration + covariates	1.18	(1.39)	4990
<i>Physical Assault</i>			
Recent Incarceration	-3.45***	(0.96)	5031
Recent Incarceration + covariates	-0.16	(1.16)	5031
<i>Neglect</i>			
Recent Incarceration	-0.20	0.18	734
Recent Incarceration + covariates	-0.36	0.26	734

Source: Fragile Families and Child Wellbeing Study

Notes: Time-varying covariates include the following: father has more education than the mother, mother, father, and child ages, mother and father family background, relationship status, mother and father employment status, mother income-to-poverty-ratio, grandmother in household, number of children in household, religious attendance, mother depression, mother physical health, mother and father substance abuse, father education, and domestic violence. Robust standard errors in parentheses.

\*\*\* $p < .001$  \*\* $p < .01$  \* $p < .05$  † $p < .10$

Table 5. Effects of Recent Incarceration on changes in Harsh Parenting Behaviors including Maternal Stress as a Mechanism (Fixed Effects Models)

Outcome	<i>b</i>	( <i>S.E.</i> )	<i>N</i>
<i>Psychological Aggression</i>			
Recent Incarceration + covariates	1.12	(1.35)	4990
<i>Physical Assault</i>			
Recent Incarceration + covariates	-0.22	(1.15)	5031
<i>Neglect</i>			
Recent Incarceration + covariates	-0.39	0.25	734

Source: Fragile Families and Child Wellbeing Study

Notes: Models includes all time-varying covariates listed in Table 4.

\*\*\* $p < .001$  \*\* $p < .01$  \* $p < .05$  † $p < .10$

Table 6. Results from Falsification tests

Key Variable	<i>b</i>	( <i>S.E.</i> )
Maternal Stress (y3)	1.14*	(0.54)
Psychological Aggression (y3)	2.22†	(1.28)
Physical Assault (y3)	1.34	(1.22)
Neglect (y3)	0.73**	(0.21)

Notes: Predictor of interests is incarceration between years 3 and 5. Robust standard errors are shown in parentheses. This model adjusts for the full set of controls listed in Table 1.

\*\*\* $p < .001$  \*\* $p < .01$  \* $p < .05$  † $p < .10$

## Appendix. Description of Key Outcomes of Interests

	3-year $\alpha$	5-year $\alpha$
<i>Maternal Parenting Stress(0-44)</i>	0.86	0.87
You cannot handle things very well		
You feel trapped by your responsibilities as a parent		
You gave up more of your life to meet child's needs than you expected		
Since having child you have been unable to do new and different things		
Since having child you almost never able to do things you like to do		
There are quite a few things that bother you about your life		
Having child has caused more problems than you expected in relationships with men		
You feel alone and without friends		
When you go to a party, you usually expect to have a bad time		
You are less interested in people than you used to be		
You enjoy things less than you used to		
<i>Psychological Aggression (0-125 points)</i>	0.56	0.61
Shouted, yelled, or screamed at child		
Threatened to spank or hit child but didn't actually do it		
Swore or cursed at child		
Called child dumb or lazy or some other name like that		
Said you would send child away or would kick child out of the house		
<i>Physical Assault (0-125 points)</i>	0.61	0.60
Spanked child on the bottom with your bare hand		
Hit him or her on the bottom with something like a belt, hairbrush, a stick or some other hard object		
Slapped child on the hand, arm, or leg		
Pinched child		
Shook child		
<i>Neglect(0-125 points)</i>	0.52	0.36
Had to leave child home alone		
Were so caught up in own problems, not able to show child love		
Were not able to make sure child got food he or she needed		
Were not able to make sure child goes to a doctor or hospital		
Were so drunk or high that you had a problem taking care of child		

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Source: Fragile Families and Child Wellbeing Study