Explaining the Consequences of Paternal Incarceration for Children’s Behavioral Problems

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Paternal incarceration has consistently been linked with aggression and acting-out in children, yet mechanisms underlying these behavioral problems remain unclear. Identifying these paths is essential for understanding how incarceration contributes to intergenerational disadvantage and determining how best to mitigate these collateral consequences for children. This article tests the extent to which changes incarceration imposes on children’s families after incarceration fill this important gap. Two key findings emerge from structural equation models using the longitudinal Fragile Families study. First, changes occurring within the child’s family account for nearly half of the total association between recent paternal incarceration and aggressive or externalizing behavior. Second, the father’s disengagement from the family and increased material hardship are the strongest and most consistent mechanisms. These findings suggest that targeting these two co-occurring hardships that families face when an incarceration occurs may be valuable for addressing child behavior.

Keywords: paternal incarceration, child behavior, father involvement, maternal parenting stress, intergenerational disadvantage
Introduction

A large proportion of U.S. children experience their father’s incarceration with profound implications for their future. An estimated 1.5 million children had a father in prison in 2007 (Glaze & Maruschak, 2010), though the cumulative risk of experiencing paternal incarceration is as high as one in four for black children (Wildeman, 2009). For children across a range of ages, having a father spend time in jail or prison is associated with more aggressive or acting-out behavior (Haskins, 2015; Murray & Farrington, 2005; Roettger & Swisher, 2011; Wildeman, 2010). Due in part to these repercussions, incarceration has emerged as an important contributor to the transmission of disadvantage across generations (Wakefield & Wildeman, 2011). Identifying how a father’s incarceration translates into child behavior is crucial for disrupting this cycle, yet relatively little is known about the underlying mechanisms.

Paternal incarceration is simultaneously associated with a host of changes for children and their families, some of which may help to explain children’s behavioral reactions. Most directly, incarceration separates fathers from their children. In contrast to other forms of father absence, paternal incarceration may be particularly ambiguous and stressful for children given the stigma surrounding incarceration (Geller et al., 2012; Wildeman, 2010). This separation can only partially explain aggressive, delinquent, or externalizing behavior (Geller et al. 2012; Murray & Farrington 2005), however. Incarceration is associated with a host of other changes in children’s families including disrupted relationships, resources, and stress that can indirectly link incarceration to behavior (Turney et al., 2012; Turney, 2015; Schwartz-Soicher et al., 2011).

Qualitative research on families’ experiences of incarceration has documented that hardships of strained family relationships, reduced material resources, and personal stress are often co-occurring (Braman, 2004; Comfort, 2008). With some exceptions, however, these challenges
families face have been modeled as isolated outcomes unrelated to one another or to child behavior in quantitative studies. The few studies that have engaged both family context and behavior found that family engagement, father involvement, or parent stress may individually mediate the relationship between paternal incarceration and at least some forms of adolescent delinquency (Murray et al., 2012; Porter & King, 2015). Even these studies, however, only consider a single mediating variable at a time. While much is known about the implications of paternal incarceration for families and child behavior, studying each hardship and behavioral outcome in isolation has left a gap in our understanding of how the co-occurring challenges families face after an incarceration matter collectively for child behavior.

This article addresses the lingering question of why a father’s incarceration is associated with acting-out in children living with their biological mothers. Using structural equation modeling (SEM) and the longitudinal Fragile Families and Child Wellbeing Study, this article makes two contributions toward identifying these mechanisms: testing proposed mechanisms of changes in family relationships, financial wellbeing, and maternal stress, and importantly testing them together to reflect the co-occurring nature of these changes. Two key findings emerge that clarify the mechanisms underlying the link between paternal incarceration and externalizing or delinquent behavior in nine-year-olds. First, changes in the fathers’ engagement with the family, material hardship, and maternal parenting stress account for half the relationship between incarceration and behavioral problems. The remaining association is no longer statistically significant after accounting for these family level changes. Second, these family-level mechanisms are not equally consequential or robust when modeled together; decreased father family engagement and increased material hardship following the fathers’ incarceration accounted for the largest share of children’s behavioral problems and did so even after controlling for both selection and other theoretically
motivated mechanisms. These findings are an important step toward understanding and ultimately targeting the underlying components of the incarceration experience most harmful for children.

**Background**

Paternal incarceration has been consistently associated with higher levels of aggressive, delinquent, or antisocial behavior across a range of rigorous studies. A father’s recent incarceration is associated with higher levels of aggression in preschoolers (Geller et al., 2012; Wildeman, 2010) and externalizing and delinquent behavior in both school age children (Geller, 2010; Haskins, 2015) and young adults (Murray et al., 2012; Murray & Farrington, 2005; Porter & King, 2015; Roettger & Swisher, 2011; Wakefield and Wildeman, 2011). This association is consistently stronger for sons, with daughters only showing smaller or statistically non-significant behavior changes (Geller et al. 2012; Haskins 2015; Wildeman, 2009, 2010). The theory of same-sex role models suggests sons may be more sensitive to the influence of their fathers and thereby more affected by paternal incarceration (Foster & Hagan, 2013), and that acting-out behavior among sons may be particularly consequential for intergenerational criminal justice involvement (Roettger & Swisher, 2011).

Concerns over the appropriate comparison group and methodology to isolate the effects of incarceration from these selection factors have prompted debate over the implications for child behavior (Johnson & Easterling, 2012, 2013; Wildeman et al., 2013). There is good reason for this focus, as the men who experience incarceration also experience other risk factors that may also account for behavior problems in children. Incarceration disproportionately affects young minority men from disadvantaged backgrounds (Pettit & Western 2004; Western & Wildeman 2009). Many of these men also have histories of anti-social or impulsive behavior or mental health problems (Braman, 2004; Hagan & Dinovitzer 1999; Pettit & Western 2004) The association between incarceration and children’s aggressive or externalizing behavior is robust to modeling strategies.
including regression adjustments, propensity score matching, fixed effects, and placebo models (see Wildeman et al. 2013 for a review of methodology). In studies varying the comparison group, children whose fathers are incarcerated exhibit more aggressive or delinquent behavior than those whose parents are convicted but not incarcerated (Murray et al. 2012), are incarcerated later (Porter & King 2015), or are absent for reasons like parent separation, hospitalization, or death (Geller et al., 2012; Murray & Farrington 2005). The robustness of the association regardless of the model specification implies that there are mechanisms beyond selection at play.

**Links Between Family and Behavior**

Identifying the relevant mechanisms linking incarceration and behavior is an important step for both focusing future research and developing policies to address the issue. Researchers have drawn on trauma theory, parental modeling, and family-level risk factors like instability to frame the question. Most theories proposed to link incarceration to behavior emphasize changes in the child’s relationship with their parent, resources within the family, caregiver stress, parents’ ability to monitor the child, or increased scrutiny from institutions external to the family (see Hagan & Dinovitzer, 1999; Murray & Farrington, 2005; Murray et al., 2012). Combining this theoretical foundation with the large body of research documenting the collateral consequences of incarceration for families suggests family-level changes to be a potentially fruitful place to search for mechanisms.

Children are embedded in families, and their families face co-occurring challenges when an incarceration occurs. Two complementary approaches have been taken to examine the implications of incarceration for these families. First, qualitative researchers have provided detailed description documenting the multifaceted challenges faced by families when a father or partner is incarcerated (see Braman, 2004; Comfort, 2008). The nature of this research, however, limits the ability to draw
population-level estimates of the hardships faced by families or measure their relevance for children. Second, quantitative researchers have used representative data to model the extent to which incarceration affects specific aspects of family life like father involvement or instrumental support. These have largely modeled outcomes in isolation from one another and focused more on isolating effects than mechanisms. Three consistent changes within the family have emerged from these complementary approaches: father disengagement from the family, material hardship, and caregiver stress. Furthermore, each of these three changes is also a stressor found to contribute to behavior problems in children in non-incarceration samples.

In one of the few studies that explicitly incorporated family process measures as mediators, Porter and King (2015) find that father attachment mediates the relationship between paternal incarceration and delinquent behavior in adolescents. Incarceration, however, is associated with a broader array of changes in father engagement with their families on the outside. Incarceration can impose direct strains on family relationships through physical separation, the cost of maintaining contact through calls or visits, and the stress faced by the family members on the outside (Braman, 2004; Comfort, 2008). During incarceration, children may not have contact with their father based on their age, the location and regulations of their father’s facility, the state of their parent’s relationship, and family resources (Braman, 2004; Nurse, 2002). Even after release, fathers with incarceration histories have more limited, sporadic, and lower quality interactions with their children (Geller, 2013; Swisher & Waller, 2008), though these changes may be particularly acute for coresident fathers (Geller, 2013; Turney & Wildeman, 2013).

Father engagement is also tied to the quality and form of the father’s relationship with his child’s mother. Parents who sustain a romantic relationship through the period of incarceration report lower quality relationships (Turney, 2015), and declines in father involvement may be
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particularly acute for these couples (Turney & Wildeman, 2013). Romantic relationships with incarcerated men are particularly prone to dissolution (Edin, 2000; Western et al., 2004), in part due to the physical separation incarceration imposes on families (Massoglia et al., 2011) The disengagement of the father can be particularly acute if the mother has a new romantic partner (Nurse, 2002). Within the broader family literature, child behavior problems have been strongly linked to family experiences characteristic of paternal incarceration including father absence (McLanahan et al., 2013), high conflict relationships between parents (Goldberg & Carlson 2014), and instability (Fomby & Cherlin, 2007; Fomby & Osborne, 2010).

Second, exposure to material hardship is similarly associated with externalizing behavior in children (Zilanawala & Pilkauskas, 2012; Duncan & Brooks-Gunn, 1997), and incarceration imposes both direct and indirect financial costs on families. Families are typically responsible for absorbing the costs of court fees, telephone calls, visitation, and necessities for the incarcerated individual while also coping with a loss of the father’s income or contributions to the support of the child (Braman, 2004; Comfort, 2008; Geller et al., 2011). Following release, men with a history of incarceration face long-term disadvantages in employment (Pager, 2003; Pettit & Western, 2004), and may be more of a drain than a boon to family resources (Edin et al., 2004). The financial strain of incarceration may make families less able to securely provide basic needs like food, comfortable housing, and utilities (Braman, 2004; Schwartz-Soicher et al., 2011). One manifestation of this hardship is increased housing insecurity, which can exacerbate the family’s situation by making the employment of remaining adults precarious, disrupting existing support systems, and potentially exposing children to poor living conditions (Comfort 2008; Geller & Walker Franklin, 2014). Families may also have more limited ability to reach out to friends and family for help meeting basic needs, which may place these families in a particularly vulnerable position (Braman, 2004;
Turney et al., 2012). Limited instrumental support from friends and family is directly linked to behavior problems beyond families with incarcerated fathers (Ryan et al., 2009).

Finally, a father’s incarceration can exacerbate caregiver stress, a change that Murray and colleagues (2012) found to be a potential mediator of delinquency in adolescents. Incarceration is associated with mental health problems like anxiety, stress, and depression for the non-incarcerated parent (Wildeman et al., 2012). This strain experienced may be detrimental to the caregiver’s ability to parent effectively (Turney 2014) or manage resources effectively (Schwartz-Soicher et al., 2011). These reduced capacities may influence how well the child copes with the package of hardships associated with incarceration, and may mediate the relationship between incarceration and child behavior (Murray et al., 2012). Moreover, poor maternal mental health is a predictor of externalizing behavior in children who have not experienced incarceration (see Turney, 2012), strengthening the theoretical path through this mechanism.

The link between incarceration, family-level changes, and child behavior suggest that these paths may be relevant mechanisms. This theoretical link is supported by a small number of studies that have found some family-level variables to reduce the magnitude of the relationship between incarceration and behavior in adolescents (Porter & King, 2015; Murray et al., 2012). These studies, however, do not reflect the co-occurring nature of these changes and cannot adjudicate between the relevance of different mechanisms linking family experiences of incarceration to child behavior. This article uses data from the longitudinal Fragile Families and Child Wellbeing Study and structural equation models to test the extent to which the changes incarceration imposes on families mediate the relationship between paternal incarceration and behavior problems in children. This analysis accounts for the co-occurring nature of hardships faced by many families by modeling changes in father engagement, material hardship, and caregiver stress simultaneously.
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Methods

This article uses data from the Fragile Families and Child Wellbeing Study, a birth cohort study of unmarried parents in large urban areas with a comparable sample of married parents. The majority of respondents are socioeconomic disadvantaged and racial minorities (Reichman et al., 2001), the same population most likely to experience paternal incarceration (Wildeman, 2009). Core surveys were conducted with both parents at the birth of the focal child, and follow up interviews occurred when children were approximately 1, 3, and 9 years old. The response rate for the Year 9 survey was 70%, though this wave provides two key advantages over previous waves. First, at Year 9 children were also interviewed. The ability to use both mother- and child-reports reduces the risk of reporting bias resulting from the mothers’ reaction to the father’s incarceration. Second, behavior in nine-year-olds is potentially more consequential. School-aged children should have more personal control and are more likely to face repercussions for their behavior.

The analytic sample includes children from the Year 9 survey for whom information on paternal incarceration and the key outcome variables are available, who primarily live with their mothers, and whose mothers do not have a history of incarceration. Of the full sample, 163 were dropped due to having a non-maternal primary care giver. This population is necessarily excluded from the analysis since measures family wellbeing are drawn from both the primary care giver and mother surveys and only meaningful measures capture the child’s family wellbeing if the mother is the primary caregiver. Maternal incarceration and the incarceration of both parents may expose children to a different set of risk factors than paternal incarceration (Foster & Hagan, 2013; Zhang & Dwyer Emory, 2015), and these 33 observations are also dropped in the interest of isolating paternal incarceration. The small sample size experiencing either maternal incarceration or non-maternal care precludes modeling this population separately to identify points of divergence.
Finally, 90 observations were dropped due to missing values on the key dependent variable. The analytic sample is 2936 children. Previous research and existing theory suggest that sons may be particularly vulnerable to their father’s incarceration. To test whether mechanisms are similarly gendered, the models are run separately on the subsample of families in which the focal child is a boy. The sample of sons is 1,554 for these models, approximately 52% of the analytic sample. Models were fit using full information maximum likelihood estimation with missing values. This method uses information on all variables in the sample, and assumes that missing values on specific variables are either random or a function of observed variables.

The degree to which the family-level implications of incarceration mediate the association between paternal incarceration and child behavior is tested using structural equation modeling (SEM). SEM provides two key advantages. First, SEM is able to create latent variables that incorporate of multiple variables measuring a single construct that would otherwise be too highly correlated to include simultaneously. Latent variables within SEM are similar to variables constructed from loadings in a factor analysis. This allows for more multifaceted measures of underlying constructs that more closely reflect the theoretical motivation for inclusion. Second, SEM lends itself to a straightforward interpretation of mediation through simple calculations of direct and indirect paths. The association between incarceration and behavior is represented as both a direct (or unmediated) relationship and a set of indirect relationships through father engagement, material hardship, and caregiver stress. In the SEM context, the terms “total effect”, “direct effect”, and “indirect effect” are used to refer to these different paths and do not claim a causal interpretation.

Control variables adjusting for selection into incarceration and child aggression levels at the start of the incarceration window are included on each of the structural paths. The structural paths modeling father engagement, economic hardship, and parenting stress also include measures of
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each construct at Year 3 to adjust for pre-existing levels of hardship and model change between waves.

Goodness-of-fit is determined using three strategies, though the large sample size and number of variables included complicates the interpretation. The chi-squared value is the main fit standard for SEM, testing the difference between a saturated model with all paths and the fitted model. A good fit is indicated by a chi-squared value that is not significant, though with a sample size above 400 this measure of fit is nearly always non-significant (Bentler & Bonnett, 1980). The comparative fit index (CFI), ranging from 0 to 1, measures how well the fitted model compares to a baseline model that assumes no relationships among the variables. CFI values should fall at or above .90 for a good fit (Hu & Bentler, 1999), though this index pays a penalty for each parameter estimated, declining with the inclusion of more variables, and is also sensitive to large sample size (Kenny & McCoach 2003; Chau & Hocevar, 1995). The final and most reliable goodness-of-fit measure given the sample size and number of variables included in this article is the RMSEA, a measure of how closely the model fits the data based on the ratio of the chi square to the degrees of freedom (Hu & Bentler, 1999; Browne & Cudeck, 1993). This measure should fall at or below .08 for a reasonable fit, with the threshold of .05 for a good fit (MacCallum et al., 1996).

**Sensitivity Analyses**

Two sensitivity analyses are included varying the timing of incarceration. In a strategy similar to that of Geller (2011), models are rerun using different specifications of the incarceration variable to test variation in treatment. First, currently incarcerated fathers are removed from the sample, limiting it to recent incarceration only. This analysis focuses on the challenges families continue to face after release, distinct from the immediate implications of incarceration and physical separation. Second, the treatment of incarceration is limited to fathers whose first ever incarceration
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occurred after Year 3. This specification both ensures that all controls predate the incarceration and highlights families’ first experience of incarceration. Each sensitivity model includes the same set of control, mediating, Year 3 variables, and specifications as the full SEM model.

**Measures**

The dependent variable is behavior in nine-year-olds. Child behavior is measured as a latent variable comprised of standardized measures of mother-reported externalizing behavior, child self-reported externalizing behavior, and child self-reported delinquent behavior. Higher scores indicate a worse outcome (i.e. more of the acting-out behavior), which reflects the direction of the underlying items. Findings robust to modeling each measure separately, but underlying theory and the measurement model supports using a latent measure. Mother reported externalizing is a scale measure ($\alpha = .67$) based on Achenbach’s Child Behavior Checklist as modified by the Fragile Families Study (Achenbach & Rescorla, 2001). Behaviors measured include rule breaking, not feeling guilty after misbehaving, drinking alcohol without approval, tantrums, physical aggression, and cruelty to others. Child externalizing is a scale based on the Self-Description Questionnaire (Marsh, 1990). Children are asked how true it is that they get in trouble for fighting, get in trouble for disturbing others, have difficulty finishing schoolwork, have difficulty paying attention, are easily distracted, or argue with other kids ($\alpha = .76$). Finally, child delinquent behavior is a scale ($\alpha = .70$) modeled after the Things That You Have Done scale (Maumary-Gremaud, 2000), and includes 17 questions about whether the child has done things like steal, fight, use drugs or alcohol, cheat, or damage property. This delinquency scale is an alternative measure of acting-out behavior, and should not be interpreted as contact with the legal system.

**Incarceration**

Recent paternal incarceration is the key independent variable. This article uses a combined
measure of whether either parent reported the father to be incarcerated at the time of the survey or between waves to mitigate underreporting (Geller et al., 2012). Fathers are considered to have been recently incarcerated if either parent reported an incarceration after the Year 3 survey, including both between survey waves or at Year 5 or 9. Those incarcerated at Year 3 are included if a later incarceration was also reported.

**Mediating Variables**

Each mechanism is measured at both the Year 9 and Year 3 surveys and is based on mother reports. Both fathers’ family engagement and hardship are latent variables, while preliminary analyses found that maternal parenting stress was best modeled as an observed variable. Specifications of the latent measurement models are available upon request.

Five measures comprise the latent measure of the father’s family engagement: how many days the father saw the child in the last month, the father involvement scale ($\alpha=0.92$), the cooperative parenting scale ($\alpha=.96$), parent relationship quality, and maternal repartnering. These measures were selected to measure the construct of father disengagement identified in the existing literature on incarceration: direct declines in father involvement with the child or indirect disengagement through a more strained relationship with the child’s mother particularly exacerbated by repartnering. Father involvement measures how often in the past month (0=not once, 4=every day) the father and child did the following 10 activities together: household chores, sports or outdoor activities, watch TV or videos, play video or computer games, read or talk about books, do crafts or games, talk about current events, talk about the child’s day, and check on or help with homework. Cooperative parenting, on the other hand, measures how well the child’s parents work together by determining the extent to which the mother trusts, respects, and collaborates with the father on matters regarding their child. The parents’ reported relationship quality ranges from 1
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(excellent) to 5 (poor). The father involvement, relationship quality, and cooperative parenting scales were comparably measured at Year 3 using age-appropriate items, and these two scales are included in the model to adjust for father engagement before the father’s incarceration.

The latent measure of material hardship includes 11 items measuring material hardship, housing instability, and perceived instrumental support. These three measures of economic wellbeing reflect the key material hardships documented in both qualitative and quantitative studies of incarceration. Mothers reported whether the family experienced the following circumstances in the previous year: received free food, went hungry, did not pay the full rent or mortgage, were evicted for nonpayment, did not pay the full utility bill, had utilities cut off, borrowed money to pay bills, moved in with others because of finances, or stayed at a shelter or place not meant for housing. These items of the material hardship scale are included as separate components to create the latent measure of hardship in SEM. As an additional measure of housing insecurity, the mother reported how many residential moves were made per year. In conjunction with the measures of eviction or nonpayment of rent or mortgage, mothers who move more than once per year have been considered housing insecure in prior literature (see Geller & Walker Franklin, 2014; Geller & Curtis, 2011). Finally, perceived access to instrumental support is a scale ($a$=.81) ranging from 0 (no support) to 1 (maximum support) in which mothers reported whether they had someone who could provide a loan of $200 or $1000, a place to live, emergency childcare, pay for the cost of the child’s activities, or cosign a $1000 or $5000 bank loan. The instrumental support scale, times moved, and economic hardship scales were comparably measured at Year 3 and are included in the model to adjust for pre-existing economic hardship.

Caregiver stress is operationalized using the parenting aggravation scale ($a$=.66) (Abidin, 1995). The scale ranges from 1 (least stress) to 4 (most stress), and includes whether the mother is
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feeling trapped by parenting responsibilities, finds childcare more work than pleasure, finds taking care of the child is harder than she thought it would be, and is feeling worn out by raising a family. The maternal parenting stress scale was also measured at Year 3 and is included to adjust for underlying stress.

Selection Variables

Variables adjusting for selection into incarceration are included on each structural path of the model. Direct measures at Year 3 of the father’s age, fathers’ education, couple race, whether the father had ever been incarcerated before, and whether the parents were romantically involved are included. Models also adjust for whether the mother reported the father having been physically abusive toward her or having a substance use problem at the Year 3 survey. To adjust for prior child behavior, mother reported child aggression at Year 3 is also included as a control. Mother reports of father impulsivity ($\alpha = .84$) are asked in the Year 5 survey as a measure of the father’s general stability. This list of variables is concise, which is necessary given the sensitivity of SEM to the number of parameters estimated, but accounts for the most salient and consistently identified selection factors (e.g. Haskins, 2014; Turney et al., 2012; Wildeman, 2010). Findings were robust to the inclusion of a wider array of controls, though these variables were ultimately excluded in the interest of parsimony and model fit.

Findings

Children whose fathers were recently incarcerated exhibit observable disadvantage with respect to child behavior, mother stress, father family engagement, and material hardship as presented in Table 1. Children who recently experienced paternal incarceration report about 20\% of a standard deviation more externalizing behavior and 10\% of a standard deviation more delinquent behavior at Year 9. Mother-reported externalizing, child-reported externalizing, and child-reported
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delinquent behavior load significantly into a single latent measure of child behavior, where higher values indicate worse behavioral outcomes. The CFI and RMSEA indices for the latent measurement model indicate good fit (specifications available on request).

On average, children with recently incarcerated fathers have less cooperative parents with poorer relationships, less engaged and present fathers, and are more likely to have a step or social father. These five measures of the father’s role in the family load significantly and relatively equally into a latent measure termed family engagement in this article. Higher values on this measure indicate that the father is more engaged with the child’s family as indicated both direct involvement and a relationship with the child’s mother more conducive to involvement. The CFI and RMSEA indices for the latent measurement model indicate a good fit allowing the error terms for contact and repartnering as well as for cooperative parenting and relationship quality to covary.

Mothers of children with recently incarcerated fathers also report higher levels of material hardship. A larger proportion reported trouble paying for necessities like food and utilities, as well as problems with housing insecurity. Despite these hardships, these mothers reported significantly less perceived instrumental support, but were also more likely to report borrowing money or moving in with others to make ends meet. These measures of material and instrumental hardship significantly contribute to the latent measure of hardship, and the CFI and RMSEA indices indicate a good model fit. Measures of material distress load positively onto the latent variable while instrumental support loads negatively, indicating that higher values of the latent variable signal more material hardship. The error terms are allowed to co-vary among measures of housing instability and among measures of support provided by family and friends.

[Table 1 Around Here]

Structural Equation Models of Child Behavior

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The SEM of child behavior is shown in Figure 1, and the standardized coefficients are reported in Table 2. In a model not shown, the unmediated association between recent incarceration and the latent measure of behavior was estimated to be .20 \((p<.001)\), though the total effect of incarceration declines to \(.07(p<.01)\) after adjusting for prior aggression and selection variables. The SEM in Figure 1 demonstrates that just over half of this association, \(.05 (p=.08)\), is a direct or unmediated effect and is only marginally significant. The indirect paths linking paternal incarceration to child behavior are significant \(.03, (p<.001)\), however, indicating that the association between acting-out behavior and paternal incarceration is mediated by changes in family processes.

Indirect paths include two components: the association between recent paternal incarceration and the mediating variable after adjusting for controls, and the association between the mediating variable and child behavior after making the same adjustments. The magnitude and significance of these paths indicates the salience of the indirect path for understanding behavioral problems after paternal incarceration.

The indirect path through maternal parenting stress accounts for only 3\% of the total effect and 6\% of the indirect effect. This path is by far the weakest of the mediators tested in this model and is only marginally significant at the .07 level. While there is a significant and positive association between caregiver stress and child behavior, the association between recent incarceration and changes in maternal stress is small after adjusting for both child aggression and maternal stress at Year 3.

Both hardship and father family engagement constitute robust mediating paths. The indirect path through hardship accounts for 14\% of the total effect of recent incarceration and nearly half the
indirect effect. Recent paternal incarceration is associated with 11% of a standard deviation more material hardship in families after taking hardship at year three into account. This hardship, in turn, plays a relatively large role in explaining variation in child behavior (.12, p<.001). Father family engagement accounts for another 14% of the total effect of paternal incarceration on behavior and just under half of the indirect effect. Paternal incarceration is associated with decreased family engagement by .15 standard deviations (p<.001), which is magnified by the negative association of this latent variable with child behavior problems (-.09, p<.05).

As expected given the large sample size, the SEM does not meet the chi-squared goodness-of-fit standard but is within the parameters of both the CFI and RMSEA thresholds for acceptable model fit. The RMSEA (.04) indicates a close fit to the data at a level that would reject model misspecification (Hu & Bentler, 1999; Browne & Cudeck, 1993). The CFI (.87) falls just shy of the threshold for good fit (Hu & Bentler, 1999), though this measure is also sensitive to the sample size and number of parameters estimated. Together, these two indices suggest the model parameters fit the data reasonably well for the purposes of testing theory, or in this case, testing mediation, rather than perfectly modeling child behavior.

**Behavior in Sons**

Both the existing research on aggression and gendered theoretical paths suggests that sons may be differently impacted by paternal incarceration. Limiting the sample to boys changes the model only slightly, as shown in Figure 2. The total relationship between paternal incarceration and negative behavior in sons is larger, .10 (p<.01). As in the full model, the inclusion of mediating variables reduces the direct path of incarceration to marginal significance (.07, p <.10). The indirect association is comparable to the full model (.03, p<.01), though it accounts for a smaller proportion of the total effect. Changes in hardship constitute the most robust path and only significant indirect
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path for sons, accounting for 17% of the total effect and nearly 51% of the indirect effect. Father family engagement accounts for 14% of the total effect, though is not significant due in part to the non-significant association between father engagement and behavior in boys. Finally, while maternal parenting stress is associated with negative behavior, this path is also not significant due to a limited association between incarceration and stress. While the patterns of significance for sons are distinct, notably lacking significant paths through either father family engagement or maternal parenting stress, the magnitude and direction of the coefficients are comparable to the full model.

[Figure 2 Around Here]

Sensitivity to the Relative Timing of Incarceration

Two alternative incarceration specifications are considered in Table 3 to test the robustness of the models: recent but not current incarceration, and first incarceration ever. While the primary consideration is the timing of incarceration, these alternative specifications may reflect other differences such as the severity of the offense or sentence length that are not easily distinguished. The sample sizes vary in these models as different individuals fall into the treated and comparison samples under each specification.

Limiting the treatment of incarceration to fathers were recently, but not currently, incarcerated at Year 9 distinguishes between the physical separation and costs of current incarceration and implications that can linger after release. In this model, the total effect of incarceration on behavior is smaller than the full sample. Neither the direct path nor the indirect path through maternal parenting stress is statistically significant. Indirect paths through both material hardship and father family engagement are statistically significant, though family engagement accounts for a smaller proportion of the total effect than in the full model. The exclusion of the most affected fathers, those physical separated from their fathers by current
incarceration at Year 9, likely accounts for the reduced relevance of this indirect path.

Limiting the treatment of incarceration to those who experienced their first incarceration after the Year 3 survey both isolates the time ordering of the incarceration and isolates the treatment to family’s first experience of incarceration to preclude concerns about cumulative or diminishing implications for children. In this model, the total effect of incarceration is slightly higher than in the full model (.09, p<.01), though the non-significant direct effect comparable (.04, p>.10). In this model, the indirect path through economic hardship accounts for a quarter of the total effect and half of the indirect effect, while father disengagement accounts for 16% and 29% respectively and maternal stress is not a significant path. The larger indirect paths are attributable to stronger associations between incarceration and changes in family-level mediating variables. These findings suggest that the nature of the incarceration experience may be relevant for the magnitude of the change, and therefore for the indirect paths, influencing behavior.

[Table 3 Around Here]

Discussion

This article confirms that children whose fathers have histories of incarceration are more likely to act out themselves. Aggressive or rule-breaking behavior in 9-year-olds, especially boys, is especially important to understand as this behavioral reaction to incarceration may have serious consequences for other outcomes like academic achievement, discipline in school, and even later criminal justice involvement (Geller et al., 2012; Murray & Farrington, 2005; Roettger & Swisher, 2011; Wildeman, 2010). This article uses a latent measure of behavior that incorporates both mother and child reports, which may mitigate bias in mother reports induced by the incarceration itself. Using this distinct measure precludes direct comparisons to previous work measuring aggression or externalizing alone, though there are relevant points of comparison. The magnitude of the association is smaller than has been found in research on younger children (see Geller et al., 2012;
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Wildeman, 2010), though the proportion of variation in behavior explained by Haskins (2015) also found smaller effect sizes in nine-year-olds. Part of this difference may be attributable to older children being either less reactive or more able to regulate their own behavior. In these models, incarceration accounts for about 15% of the variation in behavior. This magnitude is comparable to Geller et al.(2011), who attribute a 25% decrease in father contributions to incarceration.

This article makes two contributions toward understanding how paternal incarceration shapes child behavior and establishes a foundation for mitigating the negative implications of incarceration for children. First, the incarceration of a child’s father co-occurs with changes in father family engagement, household resources, and maternal parenting stress; and accounting for these changes mediates just under half of the total effect of incarceration on child behavior. In each of the models, the direct path linking paternal incarceration to behavior is non-significant or marginally significant after taking these family-level changes into account. For children experiencing their father’s first incarceration, these indirect paths play an even more important role. These findings are consistent with theories of incarceration as contributing to strain (see Murray et al., 2012) or stress (see Foster & Hagan 2009) for children. Identifying the mediating role of by material hardship and father engagement allows a glimpse inside the black box of incarceration and provides insight into component sources of strain contained within a child’s experience of incarceration. Moreover, conceptualizing incarceration as a package of family stressors ties this body of research into parallel literatures on the implications family stress more broadly for children.

Second, not all family level changes are equally consequential for child behavior after incarceration. As prior research has consistently emphasized, incarceration is associated with a broad set of co-occurring family hardships. The challenges of father disengagement, material hardship, and caregiver stress are both 1) consistently associated with incarceration using a variety
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methodologies and 2) independently associated with child behavior in both incarceration and broader family research. Only two of these measures consistently and significantly mediated the implications of incarceration. While maternal mental health has been linked with the father’s incarceration (Wildeman et al., 2012), this association is not consistent in these models.

The changes in father family engagement and material hardship associated with paternal incarceration are more consistently consequential for child behavior. Together, these paths account for over a third of the relationship between recent incarceration and child behavior. Recent incarceration is associated with decreased family engagement on the part of fathers and increased material hardship. Each of these constructs is, in turn, significantly associated with more acting-out behavior in nine-year-olds. While the indirect path through hardship is most consistently observed across all models and is larger in magnitude, it is difficult to assess how these two constructs may differ in real terms due to the incorporation of multiple measures into latent variables. The relevant finding, rather, is that each construct constitutes an independent path between paternal incarceration and behavior even when modeled simultaneously. Additional research is needed to add precision to these findings and ensure equivalency in the qualitative meaning of the measures.

The association between paternal incarceration and acting-out behavior in sons was larger in magnitude, as observed in prior research (see Geller et al., 2012; Haskins, 2015), but indirect paths account for a smaller proportion of the total association. Notably, decreased father engagement did not constitute a significant indirect path for boys. While incarceration decreases father engagement, consistent with the full model, father engagement was not significantly associated with behavior. This finding suggests a nuanced interpretation of the role fathers play in sons’ behavior. The same-sex role model suggests that sons may be particularly attuned to their father’s experiences (see discussion in Foster & Hagan 2013). While boys are to be more responsive to paternal
incarceration, the mechanism is necessarily directly linked to the fathers’ engagement. Qualitative work suggests that fathers who are criminally involved may or may not support positive behavior (Braman, 2004). These divergent reactions may even be masked in mean-based models. The boys’ model suggests that the link between father family disengagement and behavior may be more complicated for sons, and future research should focus on understanding these nuances.

**Limitations**

There are several important limitations of this study. First, measurement of the nature and timing of incarceration is imprecise. Despite the likely relevance for child experience, the data do not currently allow an accurate disaggregation of jails and prisons, pretrial status, sentence length, distance from family, visitation within the facility, the nature of the charges, or the number of incarcerations. Furthermore, children may be influenced by the incarceration experiences of extended family members (Braman, 2004), but such experiences are not measured in the present data. The models are robust to the variation in incarceration introduced in the sensitivity checks: excluding current incarceration sets an upper limit to sentence length, while isolating those who were not incarcerated before Year 3 excludes fathers with chronic histories of incarceration. These models, however, speak broadly to the average experience of paternal incarceration and may mask important distinctions between diverse incarceration experiences.

Second, this article only examines family-level mechanisms, mechanisms external to family such as increased scrutiny from institutions or authorities may also influence child behavior after incarceration but are difficult to measure accurately in the current data. The combination of mother and child reports of behavior mitigates the possibility that measured behavior reflects changes in detection alone. Additional questions were asked on a broader set of issues in the Year 9 survey, but were not asked at the Year 3 making measuring change impossible.
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This study speaks to the average experience of incarceration for relatively disadvantaged urban families given the sampling frame of the Fragile Families Study. These families reflect the characteristics of families most likely to experience paternal (see Wildeman, 2009), but are not necessarily representative of all criminal justice involved families. Just as incarceration is not a single treatment, nor is the experience of incarceration universal for different communities and populations. The study limitations preclude drawing a strong causal conclusion from the models. Most conservatively, the analyses highlight that incarceration and the changes in the mediating variables co-occurred over the same window and are associated with one another. Future research should engage wherever possible with nuanced experiences of incarceration to diversify our understanding of how mechanisms may vary by context.

**Implications**

This study takes an important step toward identifying the mechanisms linking paternal incarceration to child behavioral outcomes. Developing a comprehensive understanding of these mechanisms is essential for using scarce resources efficiently for disrupting cycles of intergenerational disadvantage. Nearly half of the total relationship between children’s behavior and their father’s incarceration can be accounted for by changes within the child’s family. While the unmediated half suggests that at least some of the mechanisms linking paternal incarceration to child behavior may be external to the family, this association was only marginally significant while the indirect paths were consistently relevant for child behavior. Changes in material hardship and father disengagement were the most consistent indirect paths. These findings are suggestive that addressing the declines in family resources and relationship strain that occur when a child’s father is incarcerated may help mitigate the collateral consequences children face.

The importance of both father family disengagement and material hardship for child
behavioral responses to incarceration suggest that two approaches may be most productive in interrupting the cycle of intergenerational disadvantage. First, maintaining relationships through incarceration is difficult, both due to the separation and difficulty and cost often associated with either supporting relationships through communication or visits (Braman, 2004; Comfort, 2008; Nurse, 2002). Programs aimed at supporting or strengthening positive relationships between incarcerated men and their families on the outside may be a productive strategy for minimizing this indirect path. Second, addressing changes in material hardship that families face during and after a paternal incarceration would address the largest and most consistent indirect path. While families are called upon almost immediately to provide for incarcerated family members (see Braman, 2004, Comfort, 2008), there are few, if any, automatic systems in place to provide support to families. Incarceration can be a sudden change, as well as one associated with both stigma and a host of other co-occurring financial hardships. Many services already exist in the community to assist families facing financial hardship, including formal support programs like TANF and SNAP. Families facing incarceration may qualify for these programs, possibly for the first time. These families may require additional support to identify and access community resources to mitigate the financial and thus behavioral toll of incarceration.

References


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http://crcw.princeton.edu/workingarticles/WP12-11-FF.pdf


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Table 1: Descriptive Statistics of Analytic Sample

<table>
<thead>
<tr>
<th>Variables</th>
<th>Comparison Sample</th>
<th>Recently Incarcerated</th>
<th>N</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>2212</td>
<td>724</td>
<td>2936</td>
<td></td>
</tr>
<tr>
<td>Child is boy</td>
<td>.51</td>
<td>.55</td>
<td>2936</td>
<td>.50</td>
</tr>
</tbody>
</table>

**Behavioral Outcomes**

- Mother Reported Externalizing Scale (α .67)  
  - .05  
  - 0.15***  
  - 2936  
  - 0.62
- Child Reported Externalizing Scale (α .76)  
  - .05  
  - 0.15***  
  - 2936  
  - 0.68
- Child Reported Delinquency Scale (α .72)  
  - .03  
  - 0.08***  
  - 2936  
  - 0.43

**Family Wellbeing (Year 9)**

- Cooperative Parenting Scale a  
  - 2.15  
  - 1.28***  
  - 2812  
  - 1.16
- Poor Relationship Quality d  
  - 2.89  
  - 3.88***  
  - 2815  
  - 1.46
- Father Involvement Scale a  
  - 1.39  
  - 0.52***  
  - 2844  
  - 1.14
- Contact (Days)  
  - 18.10  
  - 6.49***  
  - 2885  
  - 13.88
- Repartnering (%)  
  - 27.98  
  - 49.03***  
  - 2929  
  - 4.7
- Maternal parenting stress a  
  - 1.99  
  - 2.13***  
  - 2936  
  - 0.68
- Moves Per Year  
  - 0.24  
  - 0.36***  
  - 2931  
  - .31
- Instrumental Support b  
  - 0.74  
  - 0.65***  
  - 2933  
  - 0.29
- Received Free Food or Meals  
  - .09  
  - .17***  
  - 2932  
  - .31
- Went Hungry  
  - .05  
  - .11***  
  - 2933  
  - .25
- Not Pay Full Rent/Mortgage  
  - .16  
  - .25***  
  - 2931  
  - .39
- Evicted for Nonpayment  
  - .02  
  - .04**  
  - 2932  
  - .16
- Not Pay Full Utilities Bill  
  - .28  
  - .40***  
  - 2932  
  - .46
- Utilities Turned Off for Nonpayment  
  - .09  
  - .15***  
  - 2933  
  - .31
- Borrow Money for Bills  
  - .27  
  - .41***  
  - 2933  
  - .46
- Move in with Others for Finances  
  - .06  
  - .14***  
  - 2934  
  - .27
- Temporary Homelessness  
  - .01  
  - .03***  
  - 2934  
  - .11

**Selection Variables (Year 3)**

- Child Aggression d  
  - -.04  
  - .11***  
  - 2049  
  - .74
- Paternal Age  
  - 37.80  
  - 33.98***  
  - 2672  
  - 7.09
- Parents Romantically Involved (%)  
  - 63.97  
  - 38.95***  
  - 2741  
  - .49
- History of domestic violence (%)  
  - 11.15  
  - 24.79***  
  - 2928  
  - .35
- Prior Incarceration (%)  
  - 31.69  
  - 60.61***  
  - 2933  
  - .49
- History of Substance Use (%)  
  - 12.53  
  - 28.61***  
  - 2923  
  - .37
- Father Impulsivity Scale (Year 5) a  
  - 1.95  
  - 2.86***  
  - 2601  
  - 1.02
- Paternal Education (%)  
  - Less than HS  
    - 24.18  
    - 38.96***  
    - 816
  - HS or equivalent  
    - 32.91  
    - 40.05***  
    - 1019
  - Some College  
    - 27.17  
    - 17.17***  
    - 740
  - College or More  
    - 12.48  
    - 0.07***  
    - 281
- Couple Race (%)  
  - White  
    - 18.17  
    - 7.90***  
    - 459
  - Black  
    - 41.37  
    - 61.72***  
    - 1361
  - Hispanic  
    - 23.69  
    - 14.44***  
    - 630
  - Mixed/Other  
    - 16.77  
    - 15.94  
    - 486

*a Range 1 to 4  
*b Range 0 to 1  
*c Range 0 to 4  
*d Standardized Scale with mean of 0 and standard deviation of 1  
*p<.05  **p<.01  ***p<.001  Significance of difference to reference group determined using linear regression, logistic regression, or multinomial regression of incarceration on the descriptive variable based on the nature of the descriptive variable.
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Table 2: Standardized Coefficients, Standard Errors, and Significance levels for Models in Figure 1 and Figure 2

<table>
<thead>
<tr>
<th>Parameter Estimate</th>
<th>Full Sample</th>
<th>Boys Subsample</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
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<tr>
<td><strong>Structural Model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incarceration → Behavior</td>
<td>.05</td>
<td>.02</td>
</tr>
<tr>
<td>Hardship → Behavior</td>
<td>.11</td>
<td>.03</td>
</tr>
<tr>
<td>Family engagement → Behavior</td>
<td>-.09</td>
<td>.04</td>
</tr>
<tr>
<td>Maternal parenting stress → Behavior</td>
<td>.09</td>
<td>.02</td>
</tr>
<tr>
<td>Incarceration → Family engagement</td>
<td>-.15</td>
<td>.02</td>
</tr>
<tr>
<td>Incarceration → Maternal parenting stress</td>
<td>.04</td>
<td>.02</td>
</tr>
<tr>
<td>Incarceration → Hardship</td>
<td>.11</td>
<td>.03</td>
</tr>
<tr>
<td><strong>Measurement model estimates of Behavior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavior → Mother reported externalizing</td>
<td>.44</td>
<td>.02</td>
</tr>
<tr>
<td>Behavior → Child reported externalizing</td>
<td>.67</td>
<td>.02</td>
</tr>
<tr>
<td>Behavior → Child reported delinquency</td>
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<td>.02</td>
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<tr>
<td><strong>Equation Error Variances</strong></td>
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<td></td>
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<tr>
<td>Behavior</td>
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<td>.01</td>
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<tr>
<td>Family Engagement</td>
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<td>.01</td>
</tr>
<tr>
<td>Hardship</td>
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<td>.02</td>
</tr>
<tr>
<td>Maternal parenting stress</td>
<td>.79</td>
<td>.01</td>
</tr>
<tr>
<td><strong>Goodness of Fit</strong></td>
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<tr>
<td>$\chi^2$(515) =3034.51</td>
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</tr>
<tr>
<td>p &lt; .001; CFI = .87; RMSEA = .04</td>
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<td></td>
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<tr>
<td>$\chi^2$(515) =1960.81</td>
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<tr>
<td>p &lt; .001; CFI = .87; RMSEA = .04</td>
<td></td>
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</tbody>
</table>

+ p<.10 * p<.05 **p<.01 ***p<.001. Standardized coefficients presented. Behavior, Hardship, and Family engagement are latent measures. Models controls for prior incarceration, father education level, father race, father impulsivity, father prior drug use, father age, prior child aggression, parent relationship at Year 3, and whether the father was ever abusive toward the mother. Paths from incarceration to the mediating variable control for select component variables measured at Year 3 to isolate change during the period over which incarceration is observed.
Table 3: Sensitivity Test for Timing of Incarceration

<table>
<thead>
<tr>
<th>Parameter Estimate</th>
<th>Full Sample Model</th>
<th>Recent Incarceration</th>
<th>No Prior Incarceration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>p</td>
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<tr>
<td><strong>Total Effect of Incarceration on Behavior</strong></td>
<td>.07</td>
<td>.02</td>
<td>**</td>
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<tr>
<td><strong>Structural Model</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incarceration → Behavior</td>
<td>.05</td>
<td>.02</td>
<td>+</td>
</tr>
<tr>
<td>Hardship → Behavior</td>
<td>.11</td>
<td>.03</td>
<td>***</td>
</tr>
<tr>
<td>Family engagement → Behavior</td>
<td>-.09</td>
<td>.04</td>
<td>*</td>
</tr>
<tr>
<td>Maternal parenting stress → Behavior</td>
<td>.09</td>
<td>.02</td>
<td>***</td>
</tr>
<tr>
<td>Incarceration → Family Engagement</td>
<td>-.15</td>
<td>.02</td>
<td>***</td>
</tr>
<tr>
<td>Incarceration → Maternal Stress</td>
<td>.04</td>
<td>.02</td>
<td>*</td>
</tr>
<tr>
<td>Incarceration → Hardship</td>
<td>.11</td>
<td>.03</td>
<td>***</td>
</tr>
<tr>
<td><strong>Goodness of Fit</strong></td>
<td>( \chi^2(515) = 3034.51 )</td>
<td>p &lt; .001; CFI = .87; RMSEA = .04</td>
<td>( \chi^2(499) = 2754.77 )</td>
</tr>
<tr>
<td>Treated N/Untreated N</td>
<td>724/2212</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < .05 ** p < .01 *** p < .001. Standardized coefficients presented. Behavior, Hardship, and Family engagement are latent measures. Models controls for prior incarceration, father education level, father race, father impulsivity, father prior drug use, father age, child temperament, parent relationship at Year 3, aggression at Year 3 and whether the father was ever abusive toward the mother. Paths from incarceration to the mediating variable control for that variable measured at Year 3. Prior incarceration is not included as a control in the model for no prior incarceration.
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Figures
Figure 1: Structural Equation Model of Paternal Incarceration’s Association with Child Behavior (Standardized Solution)

Model controls for prior incarceration, father education level, father race, father impulsivity, father prior drug use, father age, prior aggression, parent relationship at Year 3, and whether the father was ever abusive toward the mother. Paths from incarceration to the mediating variable control for that variable measured at Year 3. Measurement components of latent variables not shown.

Figure 2: Structural Equation Model of Paternal Incarceration’s Association with Child Behavior For Sons Only (Standardized Solution)

Model controls for prior incarceration, father education level, father race, father impulsivity, father prior drug use, father age, prior aggression, parent relationship at Year 3, and whether the father was ever abusive toward the mother. Paths from incarceration to the mediating variable control for that variable measured at Year 3. Measurement components of latent variables not shown.
abusive toward the mother. Paths from incarceration to the mediating variable control for that variable measured at Year 3. Measurement components of latent variables not shown.