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The Effect of Paternal Incarceration on Material Hardship

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Abstract

High rates of incarceration among American men, coupled with a high prevalence of fatherhood among the incarcerated, have led to millions of children and families whose fathers are, or have been, in the nation's jails and prisons. This study uses data from the Fragile Families and Child Wellbeing Survey to estimate the extent to which paternal incarceration increases family material hardship. Analyses from a series of longitudinal regression models suggest that material hardship is statistically significant and positively associated with paternal incarceration. These hardships are found to reflect not only a reduction in fathers' income and financial contributions but also an increase in financial and other family strains. The findings underscore the challenges facing families with incarcerated fathers. They also emphasize the need for efforts by criminal justice agencies and social service providers to help mitigate the risks associated with paternal incarceration.

The sharp and unprecedented increase in incarceration rates over the past 30 years raises serious concerns about collateral damage that incarceration may inflict on prisoners' families and communities (Arditti, Lambert-Schute, and Joest 2003; Lynch and Sabol 2004). The consequences for families have the potential to be particularly troubling, as the majority of incarcerated individuals are parents to children under 18 (Glaze and Maruschak 2010). In 2007, more than 1.7 million children, representing 2.3 percent of the population under the age of 18, had a parent, most of whom were fathers, in prison (Glaze and Maruschak 2010). Millions more had parents in local jails or under other correctional supervision (Herman-Stahl, Kan, and McKay 2008).

One way in which incarceration may threaten family well-being is through a reduction in material resources. The damaging effects of incarceration on men's labor market performance are well-documented (see Western, Kling, and Weiman 2001; Western 2002; Pager 2003; Kling 2006; Lewis, Garfinkel, and Gao 2007). A growing body of literature suggests that incarceration also strains the finances of the partners and children of incarcerated men (Hairston 1998; Geller, Garfinkel, and Western 2011). To the extent that this strain leads to the deprivation of basic necessities such as food and shelter, children's

health and development might be compromised (McLoyd 1998; Alaimo, Olson, and Frongillo 2001; Slack and Yoo 2005; Whitaker, Phillips, and Orzol 2006; Gershoff et al. 2007; Raver, Gershoff, and Aber 2007).

Despite the demonstrated links between paternal incarceration and family income, little is known about the effects of incarceration on other measures of economic well-being (Arditti 2005; Western and Wildeman 2009). Previous research suggests that the relationship between current income and material hardship is weak (Mayer and Jencks 1989; Beverly 2001; Sullivan, Turner, and Danziger 2008), since material hardship is a consumption-based measure that reflects the availability of resources as well as families' ability to manage these resources and meet basic needs. Income and hardship might thus be better conceptualized as alternative or complementary measures of economic well-being (Beverly 2001; Ouellette et al. 2004).

This article examines incarceration's effects on a consumption-based measure of family material hardship. It investigates hardship among families with incarcerated fathers, estimating the extent to which the association between paternal incarceration and family hardship is causal. It also considers whether the association, instead, reflects heterogeneity between families with recent paternal incarcerations and those without such incarcerations. The analyses test the extent to which incarceration's effects on material hardship exist above and beyond its effects on income, and they identify aspects of family functioning that might moderate or mediate observed relationships.

Background

There are a number of mechanisms by which paternal incarceration might compromise families' material well-being. Incarcerated fathers are largely unable to contribute household income or child support to their families (Geller et al. 2011). Having a father in prison may also impose other financial burdens upon a family (Western and Wildeman 2009). Maintaining contact is costly; Creasie Finney Hairston (1998) finds that collect phone calls from inmates to their families are three times more expensive than collect calls placed from a pay phone outside of prison and five times more expensive than collect calls placed from residential phones. The costs of legal representation and visits to prison facilities, many of which are located far from the areas where prisoners' families live, may also add to families' financial strains (Comfort 2008; Western and Wildeman 2009).

Incarceration of a family member may compromise the ability of other members to manage household resources, and the earning power of the other family members may diminish because they must perform tasks previously performed by the incarcerated member (Lynch and Sabol 2004). These challenges may elevate the level of stress for mothers partnered with an incarcerated father (Center for Research on Child Wellbeing 2009), diminish the mothers' mental health (Fishman 1990), and therefore reduce their ability to manage their families' financial resources.

Ecological theory suggests that incarcerated individuals and their families function within several layers of social systems. They interact with each other, their communities, and the prison institutions, which regulate visitation and the fathers' conditions of confinement

(Arditti 2005). The community's interpretation of the incarceration and any resulting family hardship might stigmatize mothers (Edin, Nelson, and Paranal 2004) in ways that other family loss does not (Arditti 2005). Stigmatization may leave these mothers ostracized at the very time when they need both financial and emotional support.

The risks posed to the family by paternal incarceration do not end when the father is released from prison or jail. Amanda Geller, Irwin Garfinkel, and Bruce Western (2011) find that incarceration both substantially and statistically significantly reduces fathers' financial contributions to their families, destabilizes family relationships, and hinders men's postincarceration labor-market performance (Lynch and Sabol 2004; see Western 2006 for a detailed discussion). So too, the stigma associated with incarceration may persist after the period of incarceration (Petersilia 2003). For example, families of men with an incarceration history may face difficulties in finding housing because landlords may be reluctant to rent out if they find out that the fathers have a criminal record (Petersilia 2003). As a result families of incarcerated men may remain isolated from their communities even after the fathers are released. The negative effects of fathers' incarceration on family economic well-being may thus persist long after the period of their sentence.

The empirical literature says little about the effects of men's incarceration on their families' material hardship, or about how they might differ from established effects on income. However, two recent studies invite further exploration. Susan Phillips and associates (2006) examine data from the Great Smoky Mountain Study, a population-based sample of youth in 11 rural counties. Their sample includes families in which a mother, father, or other parental figure has an incarceration history; the majority of sampled parents (88 percent) with criminal justice system contact are biological fathers. The study finds that parental incarceration has a statistically significant association with family economic strain, a measure that assesses changes in the family's standard of living and the family's ability to meet children's basic needs. Geller and colleagues (2009) use data from the Fragile Families and Child Wellbeing Survey (FFCWB) to examine parental incarceration's relationships with several measures of well-being among 3-year-old children. They find that children with incarcerated or previously incarcerated fathers face more economic, family, and residential instability than do children whose fathers have no incarceration history. In fact, fathers with an incarceration history are less likely to be employed when their child is 3 years old than those with no such history. If employed, they earn lower wages and contribute less cash support to their partners and children. The study also finds that children of incarcerated parents are more likely to experience material hardship than are children whose parents were never incarcerated.

The studies by Phillips and colleagues (2006) and Geller and associates (2009) examine associations between incarceration and families' material hardship, but neither examines the causal nature of these relationships. Associations may not be causal, as they may result from between-group differences in areas other than paternal incarceration (e.g., differences in mothers' physical or mental health, or unobserved differences between fathers who are incarcerated and those who are not). The observed relationships may also reflect reverse causality; for example, family hardship may lead fathers to engage in illegal activity as a way to supplement family resources that are insufficient. This activity may, in turn, lead to

incarceration. The current study therefore builds upon these findings by examining the potential causal relationship between fathers' incarceration and the hardship experienced by the families they leave behind. It analyzes a population-based, longitudinal data set and controls for a rich set of family circumstances that might confound the relationship between incarceration and hardship. The authors leverage the longitudinal nature of this data to reduce the likelihood of reverse causality or selection effects. Finally, the study examines the extent to which incarceration effects on material hardship exceed those predicted by reductions in household income, and it assesses a number of other potential mechanisms through which effects might occur.

Data and Methods

Data Source

The current analyses use data from the FFCWB study to examine incarceration's relationships with two measures of material hardship. The survey follows a cohort of nearly 5,000 couples with children born between 1998 and 2000 in 20 large U.S. cities. Unmarried parents are systematically over-sampled in the study. While the data may be weighted or regression-adjusted to create a nationally representative sample of urban families with children, the oversample provides data on a highly disadvantaged group of families at great risk of parental incarceration. Both mothers and fathers were initially interviewed at the time of their child's birth. Follow-up interviews were conducted when the children were 1, 3, and 5 years old. (See Reichman et al. [2001] for information about the FFCWB sample and study design.)

The FFCWB study was initially designed to assess the effects of nonmarital childbearing, fathers' role, and welfare reform on family formation and children's well-being. It subsequently expanded to investigate the roles of social and material disadvantage. Rates of incarceration are high in this sample, perhaps reflecting the oversample and socioeconomic disadvantage of unmarried parents. By the time of the 5-year follow-up interview, almost 50 percent of fathers are reported to have a period of incarceration at some point in their lives. The FFCWB study is unique in its ability to connect data from these incarcerated fathers to data from their families; most family surveys do not include information on parents' incarceration, and inmate surveys do not usually follow families of survey participants.

The survey data are well-suited for the analysis of material hardship, as they allow the examination of different aspects of disadvantage, including lack of medical care and inability to pay bills. Questions about these distinct forms of disadvantage are asked at every follow-up wave and allow a longitudinal evaluation of changes in hardship. The data set also contains indicators of mothers' mental health and other long-standing characteristics that are likely to affect their ability to manage household resources. Such characteristics are not measured in most social surveys. Finally, the data allow the examination of the effects of incarceration on hardship, net of incarceration's effects on poverty. The importance of the ability to draw such distinctions is noted by Sondra Beverly (2001) and Tammy Ouellette and colleagues (2004).

The analysis sample consists of 3,834 families for which complete information is available from the material hardship measures at both the 1-year (hereafter Y1) and the 5-year (hereafter Y5) follow-up interviews. 892 families in the sample report that they experienced a paternal incarceration in the interval between the two surveys. Among those, 33 percent report an increase in the number of hardships during this time interval, 25 percent report a decrease in the number of hardships, and 42 percent report no change. Among families that report no paternal incarceration between Y1 and Y5, the proportions of families that report a change in the number of hardships are much lower: 25 percent report an increase, 19 percent report a decrease, and 56 percent report no change.

The most disadvantaged families in the FFCWB data are those most likely not to be found in data from the follow-up surveys. Those families are also more likely to experience a paternal incarceration. Therefore, the analyses may be under-estimating the effect of paternal incarceration on families' circumstances. This may limit the generalizability of this study's findings.

Measures

Material hardship—The dependent variable, material hardship, is an index that examines the extent to which families face difficulties in meeting their basic needs. Despite the recent interest in material hardship as a measure of well-being, there is no standard measure of material hardship in the United States, and decisions about the items included in a hardship index are left to individual researchers (Short 2005). The measure used in this study is modeled after one employed by Susan Mayer and Christopher Jencks (1989). It uses mothers' self-reports of whether, in the 12 months prior to the interview, they could not pay their full rent or mortgage, were evicted from their home due to nonpayment of rent or mortgage, could not pay the full amount of their utilities bill, needed to go to a doctor or a hospital but could not afford it, had a telephone service disconnected due to nonpayment, had electricity or gas service turned off or could not afford to have heating oil delivered, or received free food or meals ($\alpha = .66$). Affirmative responses are coded as 1, and negative responses are coded as 0. The sum of the codes comprises a material hardship index that ranges from 0 to 7.

To examine incarceration's effects on this material hardship index, the analyses use data from the Y5 follow-up survey. Fifty-nine percent of families in the sample report that they experienced no hardship in the 12 months prior to the Y5 follow-up. Among those who report a hardship, over 50 percent (841) report more than one at that interview. The most commonly reported hardship at Y5 is inability to pay utility bills (60 percent), followed by disconnection of telephone service (46 percent). Severe hardships are less common: 14 percent report having to forego medical treatment, and 6 percent report that they were evicted. The correlation ($r = .4$) between the measures of hardship Y1 and Y5 suggests that there is variability in the level of hardship experienced by families over time.

Incarceration—The FFCWB survey uses multiple data sources to identify fathers who have incarceration histories. To guard against the tendency of survey respondents to underreport illegal and stigmatizing behavior (Groves 2004), and incarceration in particular

(Golub et al. 2002), the survey explicitly asks both parents about the fathers' incarceration and notes other indicators of paternal incarceration that affect family life (for details on these indicators, see below). This study considers a father to have been incarcerated if either parent or another examined source indicates his incarceration.

Fathers are asked at each survey wave to self-report whether they have been charged with a crime in the years leading up to the interview; if they report that they have, they are asked whether they were convicted and, if so, whether they were incarcerated.¹ Father self-reports are enhanced with disposition data recorded by the survey subcontractors. These data indicate whether a father was incarcerated at the time he was contacted for follow-up.² The disposition data expand upon information from mothers' and fathers' reports to identify 121 additional fathers incarcerated between baseline and the Y3 interview, as well as another 122 fathers incarcerated between Y3 and Y5. At Y1 and Y3, mothers are asked to report whether the father was ever incarcerated. At Y5, they are asked to report whether he was incarcerated within 2 years of the interview. A father is considered to have an incarceration history even if his partner's report is the only indicator of incarceration. Parents' direct reports and the disposition data are supplemented with indirect reports of incarceration. A father's incarceration is indicated in an indirect report if he or the mother cites his incarceration as a reason the father was separated from their child or unable to find a job, or if she reports other ways in which his incarceration affected family members' lives. Few incarceration histories were identified only from indirect reports. Indirect reports are the only indicator of incarceration for 6 percent of those for whom incarceration is reported before Y5 and for 19 percent of those reportedly incarcerated between Y3 and Y5. In total, 2,043 fathers in the FFCWB data were incarcerated at some point before Y5. This includes 1,040 fathers reported as incarcerated between the Y1 and Y5 surveys, as well as 821 reportedly incarcerated between the Y3 and Y5 surveys.

Of the 3,834 families in the analysis sample, there are 2,390 couples in which both partners provide information on the father's criminal history. Among these 2,390 couples, the mother's reports agree with the father's in more than 80 percent of the cases (in 31 percent, both parents report incarceration; in 53 percent, both report no incarceration.) As the authors expected, most discrepancies between mothers' and fathers' reports involve situations in which the mother reports incarceration but the father does not (among the 391 couples whose report do not agree, 90 percent of the cases involve a mother's report of incarceration which is not reported by the father.) This discrepancy could result from deliberate underreporting or from the survey skip pattern; fathers are asked to self-report arrest and conviction, but they are only asked about incarceration if they report that they were convicted. Mothers, however, are simply asked if the father spent time in jail or prison. As a result, mothers might report time that the father spent in jail awaiting trial; such time would

¹Due to an error in survey development, parents are asked to self-report whether they were charged and convicted between Y3 and Y5, but they are not asked to self-report incarceration. The vast majority (2,930) of fathers report that they were not charged or convicted in that period, implying a report of no incarceration. Convictions are reported by 209 men. Partners' reports, disposition data, and indirect reports indicate that 165 of these were incarcerated. Partner reports indicate that another 30 were not incarcerated. Only 14 are left with an ambiguous incarceration status.

²Further details on the disposition data are available from the authors upon request.

not be included in a father's report if he were not ultimately convicted. The current analyses focus on fathers' incarceration using the time interval between Y1 and Y5.

Maternal organization and resource management—One of the important distinctions between measures of material hardship and those of other forms of financial instability is that financial measures capture the level of resources available to a household, but consumption-based measures, such as material hardship, also reflect a family's ability to manage available resources. This study therefore includes covariates for management skills to isolate the effect of paternal incarceration from that of mothers' long-standing ability to manage resources.

For example, mental health disorders are associated both with partners' incarceration (King 1993) and with material hardship (Sullivan et al. 2008). The study therefore considers whether having such a problem may affect mothers' decision-making ability. Mothers' mental health is measured at Y1 with section A of the Composite International Diagnostic Interview-Short Form (Kessler et al. 1998). Mothers are screened to determine whether in the past 12 months they experienced a major depressive episode.

Substance use, likely more common in families experiencing paternal incarceration than among families without such an experience, may drain family resources. It also may have other effects on mothers' ability to manage resources (Sullivan et al. 2008). The measure of mothers' substance use is based on self-reports of whether they used drugs or alcohol during the month prior to Y1.

In addition to isolating the effects of paternal incarceration from those of mothers' preincarceration resource management abilities, the analyses also examine the extent to which mothers' resource management abilities change following their partner's incarceration. Models described below include controls for maternal depression at Y5. They also include 5-year measures of family structure and, in particular, a measure to identify the presence of a new romantic partner.

Confounding covariates—To avoid confounding incarceration effects with the effects of other social factors, the authors examine several other dimensions on which families facing fathers' incarceration are likely to differ from their counterparts. Assortative mating theory suggests that women are likely to partner with men who share similar characteristics and preferences (Vanyukov et al. 1996). Analyses therefore focus on maternal characteristics likely to be correlated with both the incarceration of the father of the mother's child and with her subsequent report of material hardship.

In addition to demographic characteristics, such as race, ethnicity, age, nativity, and family history, the models control for such behavioral traits as cognitive ability and impulsivity.³ These traits are associated with decision-making ability (Frederick 2005; Fagerlin et al. 2007). The analyses also control for mothers' level of education, employment status, and self-reported health, all of which are measured in the baseline interview. Research identifies

³Family history is defined as whether the mother reports that she lived with both of her biological parents at age 15.

marriage as a protective factor against both criminal behavior (Sampson and Laub 1990) and material hardship (Mayer and Jencks 1989). Therefore, the models include a control for parents' relationship status (married or cohabiting and noncohabiting) by the time of Y1. Finally, Geller and colleagues (2009) find that men with incarceration histories are more likely to partner women who have also been incarcerated than women with no such history. To isolate the effect of fathers' experiences, the models control for maternal incarceration at the time period of interest in all analyses.

Sample Description

Table 1 describes the financial circumstances of families in the sample. Descriptive statistics in tables 1 and 2 are weighted to represent the population in the survey's 20 cities. In each table, families whose fathers have never been incarcerated are compared to those whose fathers have an incarceration history. In addition, the sample is stratified into three categories: families whose fathers were incarcerated only before Y1, those with fathers incarcerated between Y1 and Y5 only, and those with fathers incarcerated both before Y1 and between Y1 and Y5. Three measures of material hardship are presented in table 1. Each is measured both at Y1 and at Y5. The first "material hardship" is an index of the number of hardships families experience and ranges from 0 to 7. Most families in the sample do not report experiencing any hardship. The second, "any hardship", is an indicator of whether families report at least one hardship. The third, "material hardship if any", is the number of hardships reported among families who report at least one hardship. The results in table 1 suggest that families whose fathers have an incarceration history are more likely to experience material hardship than families whose fathers were never incarcerated. Families of incarcerated men are also much more likely to be in deep poverty than are those of fathers with no incarceration history.

Table 2 describes the demographic and socioeconomic characteristics of sampled mothers. The results suggest that the mothers in families whose fathers have an incarceration history are different in many other ways from those in families whose fathers have no incarceration history. These differences may explain increased hardship even in the absence of an incarceration history. Mothers in families whose fathers have an incarceration history are estimated to be much younger, less educated, in poorer health, more likely to use drugs and alcohol, and more likely to suffer depression or anxiety than are their counterparts in families with fathers who have no incarceration history. They are also less likely to be married or cohabiting with their child's father and more likely to repartner with someone other than the child's father. So too, mothers in these families score higher on a scale of impulsivity and lower on a test of cognitive ability than counterparts in families whose fathers have no incarceration history. Differences between the two groups are statistically significant and suggest the need for multivariate analysis to isolate the effects of incarceration on hardship.

Modeling Strategy

Negative binomial models are employed to examine the effect of paternal incarceration on material hardship. These models predict the number of events (hardship) and take into

account the overdispersion (i.e., sample variance is greater than its mean) of the data. City indicators are included in all analyses. To reduce the risk of bias due to item nonresponse, missing-data indicators are included in all of the models.

The analysis aims to distinguish the effects of incarceration from the effects of other confounding factors by controlling for lagged dependent variables and for individual fixed effects. Lagged dependent variable models control for family and maternal characteristics, as well as for hardship prior to the period of the father's incarceration. Examining family hardship before and after a paternal incarceration increases the likelihood that observed differences in hardship at Y5 are due to the incarceration experience itself rather than to preincarceration family circumstances. Individual fixed effects models serve as an even stricter test of causality by limiting the analysis to within-family changes. Use of these models eliminates the influence of unobserved time-invariant heterogeneity across families. Although fixed effects estimates may also suffer from omitted variable bias, particularly if unmeasured changes in family circumstance between waves cause both incarceration and a change in hardship levels, these models eliminate the majority of threats to causal inference.

Both the lagged dependent variable models and the fixed effects models allow the identification of incarceration effects on hardship that extend beyond effects on income. Model 2, for example, includes a series of controls for mothers' household income at Y5, and particularly for the extent to which that income exceeds or falls below the poverty line (adjusted for household size). These controls, included in model 2 and all models that follow, help to distinguish hardship driven by reductions in income from that driven by increases in expenses and by a reduction in mothers' management capability. To the extent that fathers' incarceration is associated with increases in mothers' material hardship, model 3 tests the extent to which this association is moderated by the parents' preincarceration relationship status. Geller, Garfinkel, and Western (2011) suggest that cohabiting fathers contribute more to family finances than noncohabiting fathers do. They also find that the incarceration of a cohabiting father represents a greater hardship than the incarceration of a noncohabiting father. To test these assertions, model 3 examines the interaction between incarceration status (incarceration between Y1 and Y5) and fathers' cohabitation with the family prior to or at Y1. In this model, the coefficient for fathers who are incarcerated between Y1 and Y5 represents the relationship between incarceration and hardship for families in which the father was not cohabiting before his incarceration. For formerly cohabiting families, the relationship between incarceration and hardship is represented by the linear combination of the incarceration coefficient and the interaction coefficient.

Next, the analyses examine the extent to which observed relationships between paternal incarceration and material hardship might be spurious or reflect reverse causality. As noted earlier, material hardship may lead a father to engage in illegal activity in order to supplement family income, and such activity may result in his incarceration. The likelihood of this is tested with a placebo model, which uses the father's incarceration status in the interval between Y1 and Y5 to predict the family's experience of hardship at Y1 (see, e.g., Kaushal 2007). In this model, the temporal ordering of hardship and incarceration precludes a causal relationship between incarceration and prior hardship; a statistically significant association in this model would instead suggest a relationship driven at least in part by

selection or reverse causality. However, a null relationship in the placebo model would strengthen confidence that relationships observed earlier in the study are actually causal.

As a further test of the causal relationship between paternal incarceration and families' material hardship, the authors estimate a series of models with functional forms similar to those above. These models focus exclusively on the 1,775 sampled families whose fathers are reported at Y1 not to have an incarceration history. Focusing on this subsample of families allows the authors to estimate the change in material hardship levels following a father's change in incarceration status (i.e., from never-incarcerated to incarcerated or to formerly incarcerated). This also allows the authors to guard against the possibility that an observed incarceration or material hardship, at either Y1 or Y3, is driven by incidents that precede the survey period.

Most fathers with an incarceration history reportedly experienced their first incarceration prior to the birth of the focal child. Only 314 of the fathers in the full sample are reported to experience their first incarceration after their child's first birthday, and men experiencing their first incarceration as adults may differ systematically from those first incarcerated as adolescents or at other times before the focal child's birth. Despite the limited generalizability of these analyses, the results produce a cleaner estimate of incarceration's effects than do models that examine repeat incarcerations as well as first incarcerations.

Finally, the analyses examine mediating mechanisms through which incarceration may affect hardship. Although one cannot assume that an association between incarceration and postincarceration covariates signifies a causal mechanism (Gelman and Hill 2007), identifying family circumstances correlated with both incarceration and subsequent hardship has the potential to provide direction for research and policy meant to improve family stability and well-being.

Diminished labor market performance following an incarceration (Western et al. 2001; Western 2002) may limit fathers' ability to provide financial support to their families. This, in turn, may exacerbate hardship. To test this hypothesis the authors estimate a model that controls for fathers' monetary contributions to their families at the time of the Y5 follow-up. To assess whether the association of fathers' financial contributions with families' hardship extends beyond the relationship of those contributions with household income, the model is expanded to include family income-to-poverty ratios from the time of the Y5 follow-up.

To the extent that incarceration differences persist in the experience of hardship, these differences may be driven by increases in expenses and by changes in mothers' ability to manage family resources. Additional analyses therefore examine the role of factors other than financial circumstance changes in predicting material hardship.

To test whether mothers' mental health condition might be related to fathers' prior incarceration and the family's subsequent material hardship, the authors estimate a model that controls for mothers' mental health. One might expect that a recent mental health problem (which may be associated with a fathers' incarceration) would have a larger effect than a long-term one. To better isolate these effects, the authors control for maternal mental

health at the time of Y5 and estimate a term for the interaction between mental health at Y1 and that at Y5.

As previously mentioned, incarceration has the potential to destabilize family relationships (Braman 2004; Western 2006). However, research also questions whether a father returning from prison is a support to or a drain upon the household (Edin et al. 2004). If a father is violent or has a drug problem that drains family resources, his return might exacerbate family hardship rather than alleviate it. Mothers also may form new relationships while their partner is incarcerated (Braman 2004). A new relationship may reduce financial burdens (by introducing new resources into the household), decrease the mother's feelings of loneliness, and reduce depression; all of these effects may diminish material hardship. However, stressors and tensions associated with the new relationship may compromise mothers' ability to manage family resources, thereby exacerbating material hardship. To test the role of postincarceration relationship status in explaining family hardship, a set of analyses estimates a model that includes indicators for parents' cohabitation and mothers' repartnering at Y5. To further understand the reunification effect, the authors separate families that report cohabitation at Y5 according to their domestic violence history. A father is considered to have a domestic violence history if the mother reports either at baseline or Y1 that the father hits or slaps her sometime or often as opposed to never.

Results

Table 3 presents incidence rate ratios from the negative binomial regression models, which predict the experience of material hardship for families of fathers with an incarceration history. Results in model 1, which controls for reported experience of hardship at the time of the Y1 interview, suggest that families of fathers incarcerated between Y1 and Y5 experience an 18 percent higher count of hardships than do families of fathers not incarcerated during that period. The statistically significant rate ratio for hardship at Y1 (1.41) suggests that hardship persists; families experiencing hardship at one wave remain disadvantaged in subsequent waves, even when the analysis controls for other factors. This suggests that hardship levels associated with paternal incarceration exceed those predicted by preincarceration socio-demographic characteristics.

The second model of table 3 includes income-to-poverty ratios. This addition reduces incarceration's estimated effect on Y5 hardship by 5 percentage points (from 1.18 in model 1 to 1.13 in model 2), though the estimated relationship remains substantial and statistically significant. This result suggests that paternal incarceration's effect on material hardship comes in part through an increase in family poverty but that a substantial portion of incarceration's effects come through other mechanisms. In the third model, the term for the linear combination of incarceration and the interaction between incarceration and preincarceration cohabitation (incarceration between Y1 and Y5 $\times$ cohabitation by Y1) suggests that observed effects vary statistically significantly by families' preincarceration living arrangements. The rate ratio for incarceration (.98) in model 3 represents incarceration's effect on families whose fathers reportedly never lived with the focal child. It is estimated to be substantially smaller than the rate ratio in model 2 (1.13) and is not statistically significant. The rate ratio for the interaction (1.26), which represents the effects

of incarceration on the group that reported some prior cohabitation at Y1, is much larger. Moreover, tests for the statistical significance of linear combination confirm the hypothesis that incarceration's effects differ to a statistically significant degree for the two groups. These results support the hypothesis that incarceration is particularly disruptive for families whose fathers were more involved with the family before going to jail or prison. The finding that incarceration's relationships with material hardship extend beyond its association with household income, particularly among families in which parents previously cohabited, suggests that the financial and emotional stressors associated with the fathers' removal undermine families' ability to meet their basic needs.

Results from individual fixed-effects models, which focus on within-family changes, are presented in table 4. These estimates further strengthen the authors' confidence in the likelihood that the relationship between paternal incarceration and family material hardship is causal. The results suggest that families whose fathers are incarcerated between Y1 and Y5 experience a substantial increase in hardship; families with paternal incarceration during that period experience an estimated increase of 66 percent in their material hardship level. In the table's second model, the addition of income-to-poverty ratios is estimated to decrease the magnitude of the incarceration effect only slightly (from 1.66 in the first model to 1.63 in the second); it remains strong and statistically significant. In the third model, the estimated term for the interaction between incarceration and preincarceration cohabitation status provides additional support of the assertion that incarceration has a disruptive effect on families that previously cohabited with the fathers.

Results from placebo tests (top panel of table 5) provide no evidence of reverse causality for material hardship. Although incarceration is estimated to have statistically significant effects on the outcomes at Y5, the placebo test's results indicate that family material hardships in the years prior to the father's incarceration are not statistically significantly predicted by the father's subsequent incarceration between Y1 and Y5. This further suggests that observed differences reflect a causal relationship rather than unobserved selection.

Models in the bottom panel of table 5 focus on the small number of families whose fathers experienced their first incarceration during the 4-year interval between Y1 and Y5. The results support the finding that families experiencing a paternal incarceration face greater hardship than those with no paternal incarceration. As in earlier models, the results suggest that mechanisms other than increased poverty may have a large effect on hardship, particularly among families that cohabited with the fathers prior to their incarceration.

Table 6 presents results from models examining factors that may explain the effect of paternal incarceration on family material hardship. Estimates from the basic model, which does not control for income, suggest that incarceration aggravates material hardship for families whose fathers cohabited by Y1, but not for families whose fathers did not cohabit by Y1. Results in the second column suggest that fathers' monetary contributions have a statistically significant and inverse association with material hardship. Although the incarceration coefficient for the never-cohabiting fathers remains unchanged from those in the basic model, the incarceration coefficient for the cohabiting group diminishes substantially (from 1.30 to 1.16). This change suggests that loss of income from fathers'

earnings has an important effect on families' ability to meet their needs. However, the relationship between incarceration and hardship remains sizeable. The third model in table 6 includes income-to-poverty ratios. The addition of these ratios is estimated to slightly reduce the incarceration effect for families who cohabited prior to incarceration. This suggests that factors other than loss of fathers' income may explain hardship. The fourth column in table 6 (Mothers' Mental Health Mediator) presents results from analyses that control for a recent maternal mental health problem, as such a problem may be associated with the father's incarceration. Incarceration is statistically significantly associated with families' hardship in this model. The addition of the mental health mediator is estimated to slightly reduce (by 10 percent) the size of the coefficient for the formerly cohabiting families. Results in the table's final column come from a model that controls for mothers' relationship status following the incarceration of their child's father. These estimates suggest that the addition of a control for relationship status decreases the estimated hardship among formerly cohabiting families by 17 percent but does not affect the never-cohabiting group. The results further suggest that reunification has a stabilizing effect for families if the returning father has no history of domestic violence; neither reunification with a violent father nor repartnering has a similar effect.

In each of the models presented in tables 3 through 6, predictors other than incarceration suggest additional circumstances that might contribute to material hardship. The experience of hardship is strongly, positively, and statistically significantly associated with high scores on the impulsivity scale and with the presence of a maternal mental health disorder. However, high educational attainment (college or more) and good physical health are inversely related to material hardship. These findings suggest that material hardship may reflect poor organizational and resource management skills as well as inadequate resources. Mothers who were working at the time of their children's birth report less hardship than non-working mothers and mothers who lived with both of their biological parents at age 15 report less hardship than mothers who did not live with both biological parents at age 15. However, these estimated relationships are statistically significant only in some of the models. Finally, the experience of hardship varies to a statistically significant degree across cities. This suggests that measures of hardship may reflect such between-city differences as relative costs of living. Conventional measures of poverty do not account for these differences.

Summary of Findings

This study finds that paternal incarceration has substantial and damaging consequences for affected families. A series of longitudinal and individual fixed-effects regression models suggest that a father's incarceration history is associated with his family's experience of hardship, as measured by a general index of material hardship. The hardship is explained only partially by poverty, and hardship's effect is pronounced for families that cohabited with the father prior to his incarceration. Furthermore, the effect is unlikely to be driven by other family characteristics.

The findings suggest that mothers' organizational and resource management abilities are significant predictors of material hardship. However, the estimated effect of paternal

incarceration is large, even when compared to families whose mothers display similar levels of abilities but have no history of paternal incarceration. Mothers' relationship status, whether they remain involved with the fathers of their children, and whether they repartner with someone else appear to have a small effect on hardship experienced by previously cohabiting families. However, the reunification effect may be limited to families not reporting domestic violence.

Limitations and Implications for Research and Policy

The results of this study suggest that material hardship is much more intense for families experiencing a paternal incarceration than for those with no such experience. This finding is unlikely to be explained by unobserved heterogeneity between the two types of families; however, threats to causal inference remain. As noted, biased results may even emerge from a fixed effects model that focuses on changes in within-family hardship following a father's incarceration, as unobserved family changes may increase both the likelihood of incarceration and the experience of hardship. For example, changes in local labor market conditions may lead to a father's job loss, which may expose his family to hardship and drive him to earn money illegally. These events would increase his risk of incarceration. Fixed effects estimates that do not reflect these changes will misstate the effects of incarceration on family material hardship.

The analysis is limited by the binary nature of the incarceration measure (fathers who experience incarceration during the study interval or those who do not). Additional details about the timing of incarceration and its length might help to further disentangle the incarceration effect. Therefore, this and other studies of parental incarceration would benefit from data that supplement survey information on criminal history with administrative reports of respondents' criminal records.

The outcome of interest in this analysis is a financial measure of families' ability to meet their basic needs. Although the study examines the effect of families' reunification on hardship, it does not consider whether return of a criminally involved father may affect families in other ways.

Nonetheless, the findings strongly suggest that families are adversely affected by the incarceration of the father and that this effect begs attention from policymakers as well as from social service providers. The hardships experienced by such families underscore the importance of social services provision. Incarceration may represent a serious disruption in family life, and social service involvement can help to ameliorate family hardship by ensuring continuity of resources.

Families of incarcerated men are negatively affected not only by diminished income but also by reduced capacities of the mothers, whose mental health and ability to manage family resources efficiently may be compromised by their partners' incarceration. These families may benefit from support groups or from guidance in building resource management skills. Such supports may help them endure the hardship during the father's incarceration. Reunification is only found to benefit families with nonviolent fathers. Although fathers with an incarceration history may not be able to make financial contributions to their family,

their presence may alleviate hardship. Ethnographic research (Comfort 2008) finds that mothers look forward to their partners' return so that they can work more hours while the fathers care for the children at home..

The concentration of effects among families with previously cohabiting fathers suggests that incarceration's disruption of family life may impose both tangible and emotional burdens on the partners and the children of incarcerated individuals. Several small-scale interventions have attempted to alleviate the financial burdens of phone calls and to facilitate other forms of family contact (New York Times 2009; Piehl 2009). These programs have the potential to be implemented on a larger scale and, if so implemented, may reduce the hardships associated with a family member's incarceration.

Finally, the prevalence of material hardship among the families of incarcerated men suggests that incarceration imposes a social cost beyond the material costs associated with the legal and prison systems. The extent to which this cost is offset by public safety benefits is unclear. Further research is needed to comprehensively examine the costs and benefits of current incarceration policies and of alternatives to the current regime.

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Table 1
Incarceration History, Material Hardship, and Financial Resources, Fragile Families

Variable	Full Sample	Father Inc.				
		Never	Ever	Before Y1 Only	Between Y1 and Y5 Only	Before Y1 and Between Y1 and Y5
Father inc. between Y1 and Y5	18.6	0	65.9***	0	79	100
Mother ever inc.	4.4	2.7	8.6*	8.3	7.3	10.8
Mother inc. between Y1 and Y5	4.4	2.7	8.5*	8.3	7.1	10.8
Material hardship index ^c (mean)	.55 (.07)	.44 (.09)	.82** (.09)	.80 (.11)	1.02 (.19)	.81 (.11)
Material hardship index ^b (mean)	.53 (.03)	.46 (.38)	.69* (.08)	.70 (.17)	.73 (.25)	.75 (.12)
Any material hardship ^c	29.0	24.0	41.6**	39.6	54.9	41.0
Any material hardship ^b	31.7	29.2	38.2	36.2	41.3	43.3
Material hardship index if >=1 ^c (mean)	1.88 (.06)	1.80 (.12)	2.00 (.06)	1.88 (.15)	2.05 (.24)	1.94 (.13)
Material hardship index if >=1 ^b (mean)	1.70 (.06)	1.60 (.90)	1.91 (.13)	1.83 (.10)	1.92 (.23)	1.87 (.15)
Household income: ^c						
<50% of poverty line	17.7	11.1	34.5**	14.7	37.7	48.8
>50% and 99% of poverty line	17.8	17.4	18.9	18.9	15.2	22.8
100% and <200% of poverty line	17.4	15.5	22.3*	24.9	29.3	18.1
200% and <300% of poverty line	14.9	13.9	17.4	28.1	12.2	6.2
>300% of poverty line	32.2	42.1	6.9***	14.1	5.6	4.1
Any incarceration between Y1 and Y5 × ever cohabiting	11.5	0	37.6***	0	62.7	59.8
Fathers' contributions (mean, \$1,000s) ^c	8.04 (.72)	10.18 (.97)	2.61*** (.52)	5.78 (.95)	1.73 (.54)	1.16 (.38)

Note.—Inc. = incarcerated; Y1 = 1-year follow-up interview; Y5 = 5-year follow-up interview. Unless otherwise specified, results are percentages; standard deviations are presented in parentheses. Missing data indicators are included in models but not in table.

^a Measured at the baseline interview.

^b Measured at Y1.

^c Measured at Y5.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 2

Mothers' Demographic, Socioeconomic, and Resource Management Characteristics

	Full Sample	Father Incarcerated			
		Never	Ever	Before Y1 Only	Between Y1 and Y5 Only
Age (mean; years) ^a	27.2 (.16)	28.5 (.27)	24.0*** (.34)	25.2 (.79)	24.5 (1.06)
Mar. or cohab. with child's father ^b	85.4	93.3	65.3***	87.1	79.6
Race or ethnicity:					
White non-Hispanic	31.8	37.5	17.1***	16.8	17.3
Black non-Hispanic	32.6	24.9	52.3***	44.7	44.4
Hispanic	28.1	28.8	26.4	30.6	33.8
Other race	7.5	8.8	4.1	6.8	4.5
Education: ^a					
Less than high school	26.6	20.8	41.5**	33.2	43.3
HS graduate or some college	52.0	50.2	56.3	60.6	55.8
College or more	21.4	29.0	2.3***	6.2	.9
Immigrant	26.1	31.0	13.6***	16.0	19.6
Lived with both parents at age 15	54.8	62.3	35.8**	45.9	40.0
Self-reported very good health ^a	71.8	75.3	63.1*	62.5	72.3
Employment status ^a	37.8	40.4	31.3	38.4	25.3
Impulsivity score (mean)	1.25 (.11)	1.09 (.13)	1.66* (.17)	1.33 (.24)	1.80 (.28)
Cognitive score (mean)	6.83 (.17)	7.08 (.23)	6.21* (.26)	6.73 (.37)	6.13 (.60)
Anxious or depressed ^b	9.1	7.6	12.8**	10.8	7.2
Substance use ^b	3.8	3.0	5.8*	7.7	4.0
Anxious or depressed ^c	7.8	6.8	10.3	7.1	9.7
Mar. or cohab. with a violent father ^c	3.8	4.0	3.3	6.7	1.4

	Full Sample	Father Incarcerated			
		Never	Ever	Before Y1 Only	Between Y1 and Y5 Only
Mar. or cohab. with a nonviolent father ^c	60.9	74.0	27.7***	55.4	23.6
Repartner ^c	9.4	4.2	22.4***	13.2	22.8
					17.2
					27.3

Note.—Mar. = married; Cohab. = cohabiting; HS = high school; Y1 = 1-year follow-up interview; Y5 = 5-year follow-up interview. Missing data indicators included in models but not in the table. Unless otherwise specified, results are presented in percentages and standard deviations are presented in parentheses.

^a Measured at the baseline interview.

^b Measured at Y1.

^c Measured at Y5.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 3

Rate Ratios from Negative Binomial Regression Models Predicting Material Hardship following Paternal Incarceration

	Model 1		Model 2		Model 3	
	Coef.	SE	Coef.	SE	Coef.	SE
Father inc. between Y1 and Y5	1.18**	.07	1.13**	.07	.98	.10
Father inc. between Y1 and Y5 $\times$ cohab. by Y1					1.26	.15
Inc. effect for formerly cohab. families					1.23**	
P-value linear combination					.01	
Material hardship at Y1	1.41**	.03	1.40***	.03	1.39***	.03
Mother inc. between Y1 and Y5	1.17	.11	1.11	.10	1.09	.10
Father inc. before Y1	1.04	.06	.99	.06	.96	.06
Mother inc. before Y1	.87	.14	.89	.14	.93	.17
Ever mar. or cohab. Y1	1.01	.06	1.06	.06	1.01	.08
<50% of poverty line ^c			2.52***	.26	2.51***	.27
50%–99% of poverty line ^c			2.65***	.26	2.61***	.28
100%–199% of poverty line ^c			2.22***	.21	2.21***	.22
200%–299% of poverty line ^c			1.62***	.17	1.62***	.18
Mother's characteristics:						
Age ^d	1.00	.00	1.00	.00	1.00	.00
Race:						
Black non-Hispanic	1.18*	.09	1.06	.08	1.08	.08
Hispanic	1.00	.09	.88	.08	.89	.09
Other race	1.24	.19	1.17	.18	1.05	.17
Education: ^d						
Less than high school	1.01	.06	.94	.05	.93	.06
College or more	.56***	.06	.79*	.09	.80	.10
Immigrant	.84	.08	.82*	.08	.82*	.08
Self-reported very good health	.85**	.04	.88**	.04	.85**	.05
Employment status ^d	.87*	.05	.94	.05	.94	.06

	Model 1		Model 2		Model 3	
	Coef.	SE	Coef.	SE	Coef.	SE
Impulsivity score	1.05***	.02	1.05**	.02	1.05***	.02
Cognitive score	1.01	.01	1.02	.01	1.01	.01
Lived with both parents at age 15	.88*	.05	.91	.05	.88*	.05
Anxious or depressed ^b	1.32***	.09	1.30***	.09	1.27***	.09
Substance use ^b	1.16	.10	1.15	.10	1.20	.11
Observations	3,834		3,834		3,317	

Note.— Model 1 - Lagged dependent variable Y1 Y5; Model 2 - Model 1 with the addition of income-to-poverty ratios; Model 3 - Model 2 with the addition of interaction term between incarceration and cohabitation

Inc. = incarceration; mar. = married; cohab. = cohabiting; Y1 = 1-year follow-up interview; Y5 = 5-year follow-up interview. Standard errors are presented in parentheses.

^a Measured at the baseline interview.

^b Measured at Y1.

^c Measured at Y5.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 4

Rate Ratios from Individual Fixed-Effects Models Predicting Material Hardship following Paternal Incarceration

	Individual Fixed Effects		
	Model 1	Model 2	Model 3
Father inc. between Y1 and Y5	1.66*** (.18)	1.63*** (.17)	1.52 (.34)
Father inc. between Y1 and Y5 × cohab. by Y1			1.09 (.28)
Inc. effect for formerly cohab. families			1.66***
P-value linear combination			(.00)
<50% of poverty line ^a		2.12*** (.32)	2.08*** (.32)
50%–99% of poverty line ^a		2.44*** (.35)	2.44*** (.36)
100%–199% of poverty line ^a		1.88*** (.24)	1.89*** (.25)
200%–299% of poverty line ^a		1.40* (.19)	1.39*** (.19)
Observations	2,054	2,054	1,916

Note.— Model 1 includes a lagged dependent variable (Y1); Model 2 - Model 1 with the addition of income-to-poverty ratios; Model 3 - Model 2 with the addition of interaction term between incarceration and cohabitation

Inc. = incarceration; Y1 = 1-year follow-up interview; Y5 = 5-year follow-up interview; cohab. = cohabiting. Standard errors are presented in parentheses.

^a Measured at Y5.

*
 $p < .05$;

**
 $p < .01$;

 $p < .001$.

Table 5

Rate Ratios from Negative Binomial Regression Models Predicting Material Hardship following Paternal Incarceration

	Model 1		Model 2		Model 3	
	Coef.	SE	Coef.	SE	Coef.	SE
Placebo test:						
Father inc. between Y1 and Y5	1.12	.08	1.13	.08	.95	.12
Father inc. between Y1 and Y5 $\times$ cohab. by Y1					1.27	.18
Inc. effect for formerly cohab. families					1.20	
P-value linear combination					.03	
Mother inc. between Y1 and Y5	1.44***	.14	1.41***	.14	1.41***	.15
Father inc. before Y1	1.26***	.08	1.18*	.08	1.15*	.08
Mother inc. before Y1	1.07	.19	1.16	.21	1.18	.24
Mar. or cohab. by Y1	1.04	.07	1.03	.07	.90	.09
<50% of poverty line ^a			1.45***	.15	1.46***	.17
50%–99% of poverty line ^a			1.57***	.16	1.63***	.18
100%–199% of poverty line ^a			1.60***	.15	1.64***	.16
200%–299% of poverty line ^a			1.51***	.16	1.47***	.16
Observations	4,076		3,619		3,118	
First inc.:						
Father inc. between Y1 and Y5	1.39***	.13	1.33**	.12	1.00	.18
Father inc. between Y1 and Y5 $\times$ cohab. by Y1					1.46	.31
Inc. effect for formerly cohab. families					1.45	
P-value linear combination					.00	
Material hardship at Y1	1.52***	.05	1.50***	.05	1.50***	.05
Mother inc. between Y1 and Y5	1.21	.18	1.15	.17	1.12	.17
Mother inc. before Y1	.82	.29	.80	.28	.82	.29
Mar. or cohab. by Y1	1.00	.10	1.09	.10	.98	.11
<50% of poverty line ^a			2.64***	.38	2.64***	.38
50%–99% of poverty line ^a			2.81***	.38	2.82***	.38

	Model 1		Model 2		Model 3	
	Coef.	SE	Coef.	SE	Coef.	SE
100%–199% of poverty line ^a			2.39***	.30	2.40***	.30
200%–299% of poverty line ^a			1.60***	.22	1.60***	.22
Observations		2,089		2,089		2,089

Note.— Model 1 includes a lagged dependent variable (Y1); Model 2 - Model 1 with the addition of income-to-poverty ratios; Model 3 - Model 2 with the addition of interaction term between incarceration and cohabitation

Mar. = married; Inc. = incarceration; Cohab. = cohabiting; Y1 = 1-year follow-up interview; Y5 = 5-year follow-up interview. Standard errors are presented in parentheses within the table's body.

^a Measured at Y5.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 6
Potential Mediating Factors of the Effect of Paternal Incarceration on Family's Material Hardship

	Fathers			Mothers		
	Basic Model	Contrib. +	Contrib. Poverty	Mental Health Mediator	Mar., Cohab., or Rep. at Y5	
Father inc. between Y1 and Y5	.97 (.10)	.97 (.10)	.97 (.10)	.95 (.10)	.97 (.10)	
Father inc. between Y1 and Y5 $\times$ cohabiting by Y1	1.34* (.17)	1.20 (.15)	1.17 (.14)	1.35* (.17)	1.29* (.16)	
Inc. effect for formerly cohab. families	1.30 (.00)	1.16 (.06)	1.14 (.09)	1.27 (.00)	1.25 (.00)	
P-value linear combination						
Material hardship at Y1	1.41*** (.03)	1.38*** (.03)	1.37*** (.03)	1.39*** (.03)	1.40*** (.03)	
Mar. or cohab. by Y1	.93 (.08)	1.07 (.09)	1.10 (.09)	.91 (.07)	1.01 (.09)	
Fathers' contributions (\$1,000s) ^b	.95*** (.01)	.97*** (.01)	.97*** (.01)			
<50% of poverty line ^b		2.33*** (.27)	2.33*** (.27)			
50%–99% of poverty line ^b		2.45*** (.28)	2.45*** (.28)			
100%–199% of poverty line ^b		2.04*** (.22)	2.04*** (.22)			
200%–299% of poverty line ^b		1.58*** (.18)	1.58*** (.18)			
Mother anxious or depressed ^a				1.69*** (.15)		
Mother anxious or depressed ^{a,b}				.81 (.13)		
Mar. or cohab. Y5, domestic violence by Y1					1.09	

	Basic Model	Fathers		Mothers	
		Contrib. + Poverty	Contrib. + Poverty	Mental Health Mediator	Mar., Cohab., or Rep. at Y5
Mar. or cohab. Y5, no domestic violence by Y1					(.16)
					.82**
					(.06)
Mother rep. ^b					.90
					(.07)
Observations	3,317	3,071	3,017	3,317	3,288

Results in the table are rate ratios from negative binomial regression models.

Note.—Contrib. = contributions; Inc. = incarceration; Mar. = married; Cohab. = cohabiting; Rep. = repartnered; Y = year; Y1 = 1-year follow-up interview; Y5 = 5-year follow-up interview. Standard errors are presented in parentheses within the table's body.

^a Measured at Y1.

^b Measured at Y5.

* $p < .05$;

** $p < .01$;

*** $p < .001$.