Mass imprisonment and racial disparities in childhood behavioral problems

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Introduction

The sevenfold increase in the incarceration rate between the early 1970s and 2010 is implicated in race differences in, among others, health (Massoglia, 2008), marriage rates (Western and Wildeman, 2009), earnings (Western, 2006), and civic engagement (Manza and Uggen, 2006). In this article, we suggest that the prison boom also likely transfers some share of these disparities to the next generation. More than 3% of the adult population in the United States is under correctional supervision (Glaze and Bonczar, 2009; Sabol, West, and Cooper, 2009), and roughly the same percentage of children have a parent incarcerated on any given day (Western and Wildeman, 2009: 236), with the number of children experiencing parental incarceration at some point during childhood much larger (Western and Wildeman, 2009; Wildeman, 2009). As with incarceration more generally, the likelihood of experiencing parental incarceration at any point in childhood is staggeringly disparate with respect to parental race and educational attainment.

Although early studies of the effects of parental incarceration suggested children, on average, were harmed by the experience (Kampfner, 1995; Phillips, Erkanli, Keeler, Costello,

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and Angold, 2006; Sack, 1977), many reasons exist to think that children should benefit (or at least not suffer) from the loss of a criminally active parent. First, myriad criminological studies highlight similarities between parents and children in antisocial behavior and mental health problems (Bijleveld and Wijkman, 2009; Farrington, Coid, and Murray, 2009; Kerr, Capaldi, Pears, and Owen, 2009; Smith and Farrington, 2004). These associations and several theories of crime causation (Gottfredson and Hirschi, 1990; Nye, 1958; Sutherland, 1939) suggest that children would benefit (or at least not suffer) from the loss of a criminally involved parent. Second, even when harm is associated with parental incarceration, netting out the mechanisms through which parental incarceration might influence children is no small task. These mechanisms are often difficult or impossible to measure and might result from numerous environmental and genetic factors or an interaction between the two (Caspi, 2005; Guo, Roettger, and Cai, 2008). Thus, although the removal of criminally active parents should affect children (Hagan and Dinovitzer, 1999; Hagan and Palloni, 1990), it remains unclear whether and to what extent the incarceration of parents *causes* poor outcomes for their children (Murray and Farrington, 2008; Wakefield and Uggen, 2010; Wildeman and Western, 2010).

These difficulties were drawn out in great detail in this volume not long ago. The November 2006 issue of *Criminology & Public Policy* included a special section on parental criminal justice involvement. The message taken from that forum was that studies of the effects of parental incarceration on children suffered from the lack of longitudinal data as well as from the use of biased samples (Johnston, 2006). Thus, the difficulty associated with providing something resembling a causal estimate remained a substantial obstacle to understanding the effects of mass imprisonment on racial inequities among American children. Yet if we are interested in the macrolevel consequences of large increases in the American imprisonment rate since the mid-1970s, then we also need to know how many Black and White children can expect to have a parent go to prison and how the disparities in these risks have changed over time. Research at the time of publication of the November 2006 issue of *Criminology & Public Policy* could have told us little about these risks except that more children experienced parental incarceration at that time than in the 1970s and that large inequities in the daily risk of parental incarceration existed (Mumola, 2000).

That we did not know roughly 5 years ago how having a parent go to prison influenced the outcomes of already marginalized children or what share of children could expect to have a parent imprisoned was troubling in large part because it meant that we had only a vague idea of what the consequences of mass imprisonment for future inequality would be. Research showed that the lifetime risk of imprisonment for adult men increasingly was distributed unequally (Pettit and Western, 2004) and that these inequities had substantial implications for inequities among adult men in various domains (e.g., Western, 2006). However, we had little sense of how these inequities would play out in the next generation.

A lot can happen in 5 years. Although obstacles persist in identifying a causal relationship between parental incarceration and child outcomes, researchers have made

great strides in identifying how having a parent go to prison influences child outcomes (Geller, Garfinkel, Cooper, and Mincy, 2009; Murray and Farrington, 2008; Wakefield and Uggen, 2010; Western and Wildeman, 2009; Wildeman and Western, 2010). Findings from this new generation of research suggest that having a parent go to prison exacerbates preexisting behavioral problems (and other poor outcomes) among children. New estimates of the risk of paternal imprisonment also emerged. These estimates show that the risk of paternal imprisonment for Black children is large and has grown tremendously in recent decades, whereas the risk of paternal imprisonment for White children remains modest (Wildeman, 2009).

In this article, we build on some of this new research to answer the following question: How much might mass imprisonment influence racial inequities not just among adult men but also among their children? In doing so, we extend current research by providing the first insight into how large the long-term consequences of mass imprisonment might be for the intergenerational transmission of racial inequality. This information is especially important because it suggests that the prison boom might have long-term consequences for racial inequities even if the imprisonment rate were to return to its 1970s level today. To do so, we combine three existing studies in a novel way. The first two studies provide estimates across two excellent longitudinal data sets of how much having a father go to prison harms children's behavioral and mental health problems (Wakefield, 2007; Wildeman, 2010). The third study provides estimates of the risk of paternal imprisonment for White and Black children born in 1978 and 1990 (Wildeman, 2009).[1] By combining these causal and demographic estimates, we gain insight into the possible long-term consequences of mass imprisonment for racial inequality among children.

We highlight the influence of paternal incarceration on childhood well-being. We focus on broad measures of mental health and behavioral problems for several reasons. First, childhood mental health and behavioral problems are common to both data sets and allow causal estimates for a wide age range of vulnerable children and adolescents. Second, although many observers point to the number of current inmates with parents who also served time (Hagan and Palloni, 1990; Uggen and Wakefield, 2005), not all (or even most) children of inmates will be incarcerated. A narrow focus on criminal justice involvement therefore obscures significant social harm as well as relegates the experiences of female children to the background. Third, although they are strong predictors of crime and delinquency later in the life course (Moffitt, 1993; Nagin and Tremblay, 2001), mental health and behavioral problems also predict a variety of other outcomes, including

1. We confine our analysis to a comparison of Black and White children for two reasons. First, the contrast in incarceration rates is most stark between Blacks and Whites, with incarceration rates for Hispanics (and most other racial groups) falling between the two. Second, as a practical matter, Hispanics are inconsistently counted in historical incarceration data, making it difficult to calculate the risk of parental incarceration for this group. We anticipate that the results we discuss here would apply in much the same direction (if not magnitude) to Hispanic children.

educational and occupational attainment as well as family formation (Foster and Hagan, 2007, 2009; Hagan and Wheaton, 1993; McLeod and Kaiser, 2004; South, 2002). Our analysis thus offers broad insight into how the children of today's inmates might fare in the future.

We close by discussing the implications of our results for public policy. In doing so, we focus on three issues. First, because the effects of parental imprisonment on children might vary by offense type and level of domestic violence, we suggest that policies focusing on the low-hanging fruit of nonviolent offenders who have not engaged in domestic violence might diminish the effects of mass imprisonment on childhood well-being. This discussion is not to suggest, of course, that we should lock up everyone else and throw away the key but that removing nonviolent offenders might hurt families most. Second, our results suggest that the children of the prison boom now coming of age might have additional behavioral (and attendant) problems that represent unanticipated (and often invisible) consequences of the prison boom as well as that racial inequities in these problems might be larger than previously recognized. Thus, we propose a strengthening of the social safety net—especially as it applies to the poorest children. We close by drawing attention to the possible spillover effects of incarceration. Specifically, although we focus our attention on the effects of paternal incarceration, the demographic concentration of mass incarceration also suggests strong effects within families and high-imprisonment rate communities. We argue, therefore, that imprisonment influences not just the lives of children who have imprisoned parents but also the lives of marginalized American children who do not.

Data Sources, Measures, and Analytic Strategy

Data Sources

For the analyses of individual-level outcomes, we use data from the Project on Human Development in Chicago Neighborhoods (PHDCN) (Earls, Brooks-Gunn, Raudenbush, and Sampson, 2002) and the Fragile Families and Child Wellbeing Study (FFCW) (Reichman, Teitler, Garfinkel, and McLanahan, 2001). Both studies are longitudinal surveys of young children, adolescents, and their primary caregivers. The PHDCN followed roughly 6,000 children, adolescents, and young adults in Chicago over three waves of data collection from 1994 to 2002. The FFCW followed roughly 5,000 children born between 1998 and 2000 in 20 large cities. The initial interviews for the FFCW were conducted with parents in hospitals shortly after they gave birth. Parents were interviewed again approximately 12, 36, and 60 months later.

We focus on the PHDCN and the FFCW data because we think that they strike the best balance among available data sets between representing the experiences of the children of the prison boom and providing a variety of high-quality, repeated measures of childhood disadvantage, childhood behavioral and mental health problems, and paternal incarceration. Thus, although some other studies, such as the Cambridge Study in Delinquent Development, include more nuanced measures of criminal justice contact (and

a substantially longer follow-up period) and others, such as the National Longitudinal Study of Adolescent Health, are more broadly representative, the PHDCN and the FFCW offer both representativeness (which allows our point estimates to apply to a broad range of the population) and a high quality of repeated measures (which makes us confident that our point estimates are as close to representing causal estimates as possible using observational data).

Measures

In PHDCN analyses, well-being indicators are measured with the Child Behavior Checklist (CBCL) (Achenbach, 1991). The CBCL can be scaled in a variety of ways; we focus here on the summary scales measuring internalizing problems (such as depression or somatic complaints[2]), externalizing problems (such as aggression or delinquency), and total behavioral problems. In the FFCW analyses, the measure is a narrower gauge of children's physically aggressive behaviors, which includes how often the child destroys things that belong to other people, gets into fights, and physically attacks people. Although narrow, this measure corresponds closely with measures thought to be intimately tied with criminality in adolescence and adulthood (Nagin and Tremblay, 2001). The control variables differ slightly across data sets, but both include controls for demographic characteristics (race, gender, and age), socioeconomic circumstances, and family structure.

The PHDCN and the FFCW do not allow for sophisticated analyses of mother incarceration because of small sample sizes, and they do not provide information on the length of the prison sentence or a detailed criminal history.[3] The analyses therefore estimate the average effects of *paternal* incarceration on children and include men who served a few days in jail as well as those with lengthy prison sentences.[4] Despite these weaknesses, the PHDCN and the FFCW represent the best available survey data to study the effects of paternal incarceration on children for several reasons. First, the incarceration of a father can be fixed at a particular point in time, limiting the extent to which preexisting disadvantages are conflated with the effects of paternal incarceration.[5] Second, the sampling frames, although different across data sources, ensure a large and diverse sample of children of incarcerated fathers and similarly situated peers for comparison. Third, these sources taken

2. Somatic complaints are physical complaints, such headache or upset stomach, that are unexplained by an underlying medical problem and generally thought to be caused by stress.

3. This fact does not suggest that maternal incarceration is unimportant. Several studies link maternal incarceration to harm, most notably in increases in social-service caseloads (Johnson and Waldfogel, 2002; Kruttschnitt, 2010; Wakefield, 2007).

4. Because our measures of paternal *incarceration* using individual-level data do not align perfectly with our measures of paternal *imprisonment* using macrolevel data, it might introduce bias. Nonetheless, if one assumes that the effects of paternal prison incarceration (imprisonment) are at least as large as the effects of paternal jail incarceration, then the results presented here are somewhat conservative.

5. See Appendix A for a discussion of the selection effects and modeling strategies and Appendix B for descriptive statistics on the PHDCN.

together provide estimates of the average effect of paternal incarceration on children across a broad range of ages from young children to adolescents. Finally, and most notably, the estimates of paternal incarceration effects are similar across the two sources, even though the sampling frames, control variables available, and age ranges differ.

Analytic Strategy

The central challenge of the microlevel analysis is that assignment into prison is nonrandom. Entry into prison is predicted by many factors (age, race, income, employment status, low self-control, broken or weak social bonds, etc.), most of which likely are causally related to behavioral problems for children. Our analysis proceeds by prioritizing repeated measures of the independent and dependent variables and subjecting the analyses to successively more restrictive models.[6]

After presenting estimates of the effects of paternal incarceration on children's behavioral and mental health problems, we then combine them with demographic estimates of the risk of paternal imprisonment (Wildeman, 2009) to describe the effects of mass imprisonment on racial inequities in childhood behavioral and mental health problems. In choosing point estimates of the effects of paternal incarceration on children's total, externalizing, and internalizing behaviors, we opted for the mean of the high and low estimates shown in Table A1. Relying on other point estimates led to somewhat altered effects on inequities. Nonetheless, the tenor of results remained consistent regardless of the estimate used. Simply put, the effects of mass imprisonment on racial inequities in child behavioral and mental health problems are too large to ignore regardless of the point estimate used.

Empirical Results

How Much Harm Does Paternal Incarceration Cause?

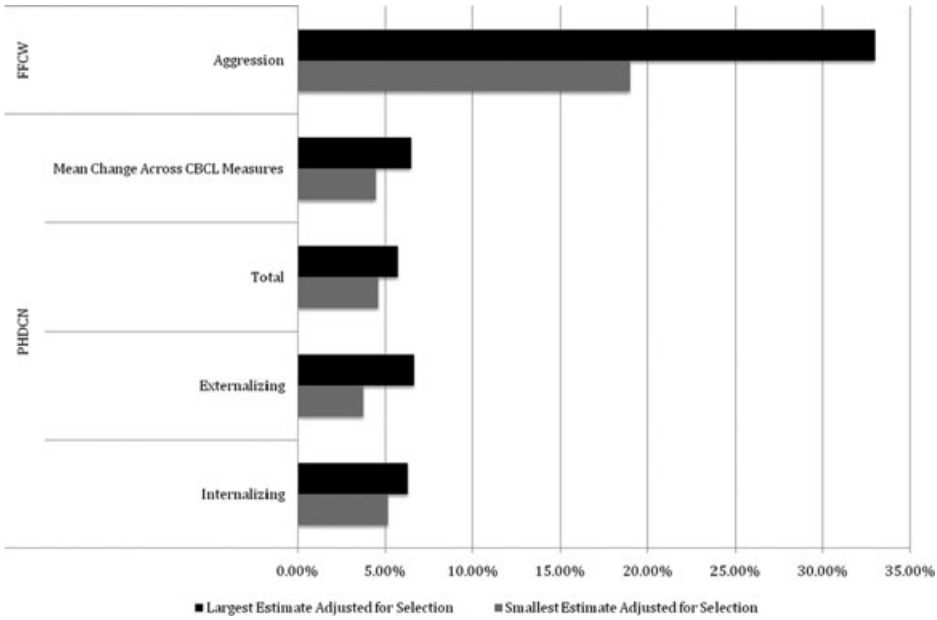
It should come as little surprise that, in both the PHDCN and the FFCW, children of incarcerated fathers were worse off (on many dimensions) than their similarly situated peers who had no father incarcerated even before experiencing the event. The fact that incarceration draws primarily from disadvantaged segments of the population and that the children of the incarcerated experience a host of deficits (and would even in the absence of contact with the penal system) are both well known. Thus, the bar for assessing whether paternal incarceration caused any of the gap between children of incarcerated and other children is exceptionally high.

In Figure 1, we present the average effect of paternal incarceration on children's mental health and behavioral problems based on multiple modeling strategies (see Appendix A).

6. The average effect of paternal incarceration on children is drawn from propensity score, lagged dependent variable, and difference-in-differences (or fixed-effects) models. The estimates are substantively similar across all modeling strategies in both the PHDCN and the FFCW. All models and results are described in Appendices A and B. See Wildeman (2010) for models using the FFCW data. In Figures 3 and 4, we use the average parental incarceration effect (across all modeling strategies).

FIGURE 1

Percentage Change in CBCL Scores Across Modeling Strategies



The FFCW result refers to young boys, whereas the PHDCN results reflect older children and adolescents of both sexes. Across all age groups, the effect of father incarceration is in the direction of increasing aggression and other behavioral problems. The effects of father incarceration seem to be global, increasing both externalizing problems (such as aggression and delinquency) as well as internalizing problems (such as anxiety and depression). Although young boys are especially prone to aggression after the incarceration of a father (Wildeman, 2010) and although adolescent girls are more likely to exhibit internalizing problems (Wakefield, 2007), across all models and data sources, the effects of father incarceration are in the direction of increasing mental health and behavioral problems. Paternal incarceration results in approximately a one-third to one-half standard deviation increase in difficulties in all four problems considered (standardized results not shown; see Appendix A for details). It is also worth noting that the differences shown here were statistically significant at the .05 level or better in all cases.

The results shown in Figure 1 indicate that paternal incarceration worsens well-being across all outcomes, but how big are the effects? The most conservative estimates show that father incarceration is harmful for children across a variety of measures of well-being. The magnitude of the effects, however, is relatively small once preexisting disadvantages are taken into account. Applying the smallest effect sizes across all models using the PHDCN data, father incarceration results in an approximately 4% increase in mental health and

behavioral problems. The most stringent models, however, might underestimate the true causal effect of paternal incarceration (by "overcontrolling" for risk factors possibly caused by incarceration), so it also is worth noting that the largest effect sizes suggest an approximately 6% increase in mental health and behavioral problems.[7] In the FFCW data, the percent change in physically aggressive behaviors attributable to having a father incarcerated is also substantial, increasing the level of physical aggression between 19% and 33%.[8]

Although certainly not overwhelming, these effects are not inconsequential. When considering the relative importance of mental health and behavioral problems that result from paternal incarceration, it is useful to recall that children of incarcerated fathers typically were having difficulty prior to their father's incarceration. Father incarceration has the effect of additionally burdening already vulnerable children; for some, the increase in mental health problems reaches clinical levels. For example, Achenbach, Howell, Quay, and Connors (1991) found that 18% of all children were in need of medical or therapeutic intervention based on their internalizing problem behavior scores. In the PHDCN sample, approximately 50% of the children who had a father incarcerated had internalizing problem scores that suggested intervention might be needed, and more than one third of these children had CBCL scores at or above the clinical level. Because CBCL scores are highly predictive of future life outcomes, both the increase in problems and the starting point for children of incarcerated fathers are important. Paternal incarceration therefore burdens children who already have significant problems; as a result, a 4–6% increase in the CBCL renders these problems clinically significant for many children of incarcerated fathers.[9]

Who Does Paternal Incarceration Harm?

The previous analysis demonstrates substantial and statistically significant harmful effects of paternal incarceration on children. We next investigate the meaning of these results in light of racial disparities in the risk of paternal imprisonment. Figure 2 compares the risk of paternal imprisonment by age 14 years for Black and White children born in 1978 relative to those born 12 years later (Wildeman, 2009),[10] showing stark racial disparities in the risk of paternal imprisonment. According to these estimates, Black children born in 1990 had a 25.1% risk of having their father imprisoned. This figure is staggering when compared with

7. Also, although fixed-effects models cannot address unobserved changes that might predict behavioral problems and propensity score models cannot account for unobserved heterogeneity, the robustness of the results is reassuring.

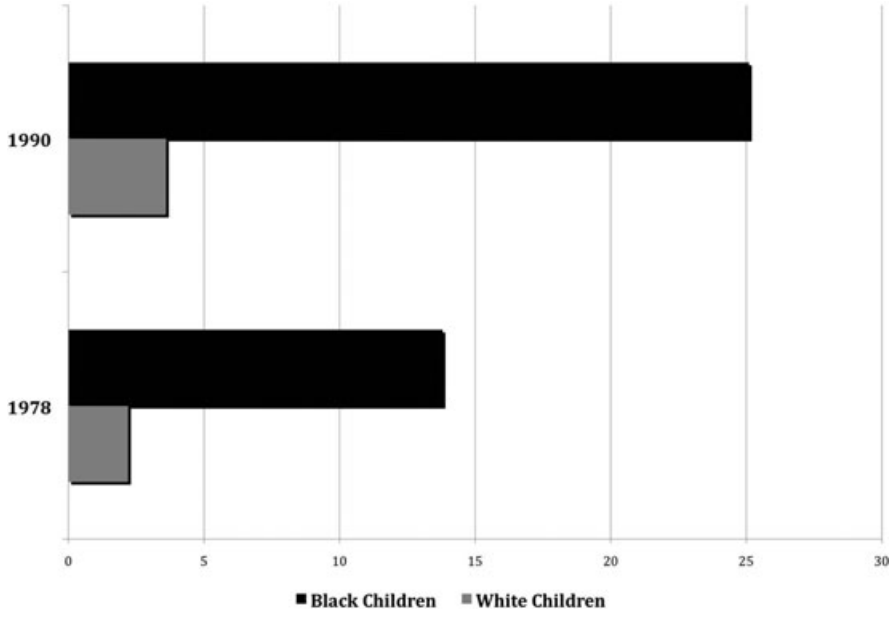
8. Although this result might seem like a much larger effect than the results demonstrated using the PHDCN data, this larger percent change reflects the lower mean level of physical aggression in these data rather than a much larger effect of paternal incarceration.

9. Because no clinically recognized cut points are available for children's physical aggression, this section of the article focuses only on the outcomes from the PHDCN.

10. Although the analysis on which Figure 2 is based also focuses on class disparities (Wildeman, 2009), we focus only on racial disparities because these estimates better fit our interest in the effects of mass imprisonment on racial inequities in child well-being.

FIGURE 2

Racial Disparities in the Risk of Paternal Imprisonment by Age 14 Years for the 1978 and 1990 Birth Cohorts



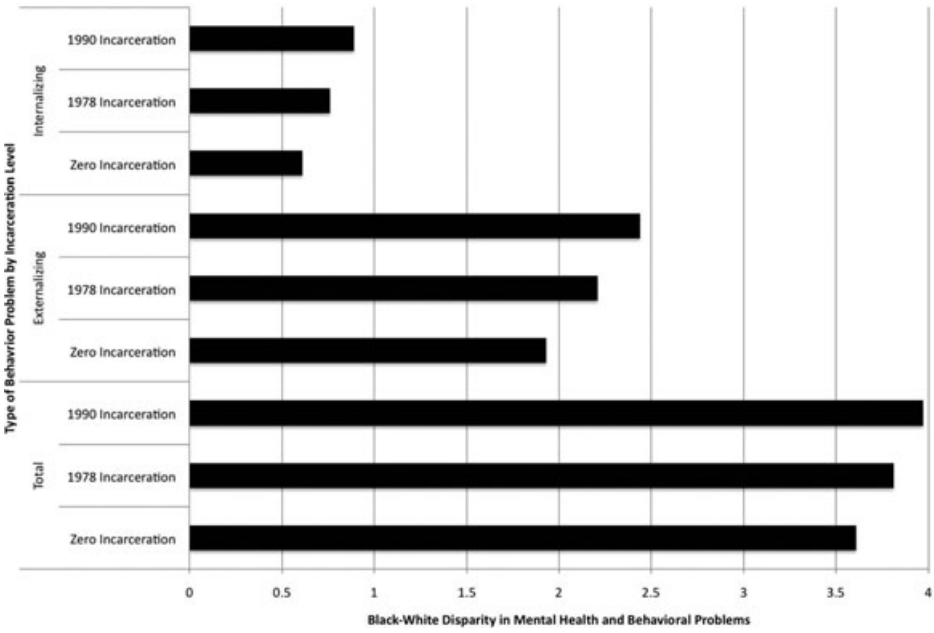
the risk for White children born in that same year. For those children, the risk of paternal imprisonment was just 3.6%. Thus, dramatic increases in the risk of paternal imprisonment have been concentrated heavily among Black children, suggesting that mass imprisonment might have substantial implications for racial inequities in childhood behavioral and mental health problems, as speculated earlier.

How Much Does It Matter for Racial Inequities in Childhood?

For mass imprisonment to have substantial consequences for racial inequities in children's behavioral and mental health problems, it must be (a) increasingly common, (b) unequally distributed by race, and (c) have negative effects. It also must have either a similar effect on White and Black children or more negative effects on Black children relative to White children to cause substantial racial inequities in childhood mental health and behavioral problems. In analyses (not presented here but available from the authors), we tested to see whether the effects of paternal incarceration on children's behavioral problems differ by race. In no case were the paternal incarceration–race interactions statistically significant; more often, they were in the direction of larger effects for Black children than for White children. In light of these findings, we feel comfortable assuming uniform effects for Black and White children—at least for these outcomes—in this stage of the analysis.

FIGURE 3

Growth in the Racial Disparity of Childhood Well-Being by Changing Levels of Incarceration



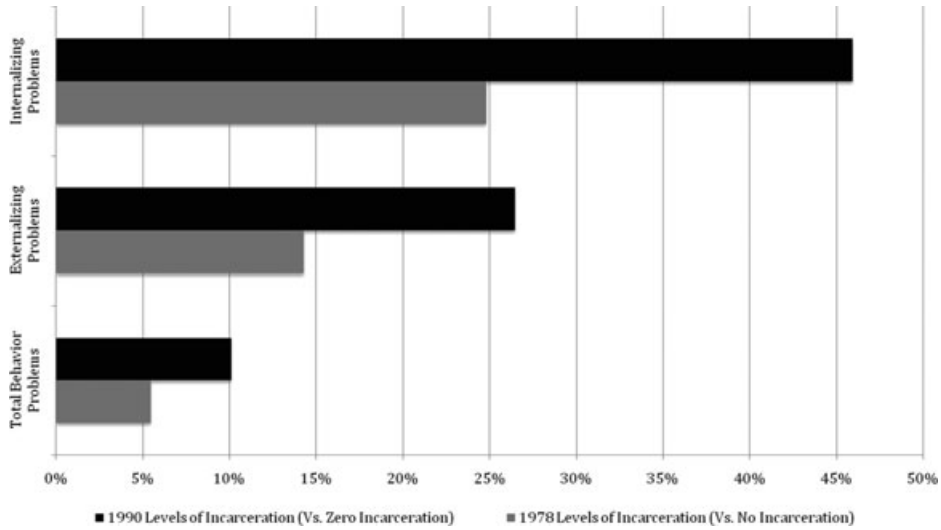
Figures 3 and 4 provide insight into how much the prison boom might have influenced racial inequities in child behavioral and mental health problems. Figure 3 shows, possibly most importantly, that racial inequities in these behavioral problems likely would be substantial even absent mass imprisonment.[11] This finding is important to note because it suggests that programs that seek to diminish racial disparities in these problems should not focus solely on the penal system (Wildeman and Western, 2010). Nonetheless, increases in the risk of paternal imprisonment have taken their toll on Black children in discernible ways. According to the estimates presented here, the disparities between Black and White children in behavioral problems are much larger as a result of the huge increase in the risk of paternal imprisonment than they would have been otherwise.

Figure 4 converts the estimates in Figure 3 into the percentage change in Black–White gaps in childhood behavioral problems potentially attributable to mass imprisonment by comparing racial disparities assuming zero incarceration, incarceration risk for the 1978 birth cohort (reflecting the midpoint of the prison boom), and incarceration risk for

11. We generated estimates of racial disparities in these problems by using the estimated differences between Black and White children whose parents had never been incarcerated in the PHDCN data. (See Wakefield, 2007 for more information.)

FIGURE 4

Percentage Increase in Racial Disparities in Childhood Well-Being by Levels of Incarceration (PHDCN)



the 1990 birth cohort (reflecting the high end of the prison boom). The estimates thus provide a range of estimates of the effect of mass incarceration on Black–White differences in childhood well-being. The results from this exercise again demonstrate that racial differences in total, externalizing, and internalizing behavioral problems all would have been substantially smaller absent increases in the risk of paternal imprisonment. The effects on externalizing and internalizing behavioral problems are especially pronounced. According to our estimates, Black–White disparities in internalizing behavioral problems would have been 25–45% less in the absence of incarceration; Black–White gaps in externalizing behaviors would have been approximately 14–26% smaller. These substantial effects suggest that mass imprisonment will likely increase racial (and class) inequities for years to come.

Discussion and Public Policy Implications

During the past 15 years, a burgeoning research literature has defined the scope (Blumstein and Beck, 1999), causes (Beckett, 1997; Garland, 2000; Greenberg and West, 2001), and consequences (Wakefield and Uggen 2010; Western 2006) of mass incarceration. Our analysis expands these findings to include effects on an often-neglected group—the children of incarcerated fathers. We suggest that the problems associated with mass incarceration extend far beyond those observed for individual inmates and are unlikely to abate soon because of their intergenerational and long-term influence even if incarceration were scaled back to 1970s levels.

Because most inmates are parents (Mumola, 2000), the influence of criminal punishment on children is an important area of study. We have shown that the overall effect of paternal incarceration on children is harmful and that these effects are disproportionately borne by children who are already disadvantaged. Children of incarcerated parents were not doing well prior to the imprisonment of their father, and they are worse off as a result of it. Moreover, the resulting harm is likely to include several other critical domains of adjustment—school success, occupational attainment, and family formation, to name a few—because childhood mental health and behavioral problems tend to accumulate and spread over time.

Having described numerous recent studies that document the negative effects of mass incarceration on children, it is useful to ask what might explain these effects. Before doing so, however, it is worth noting that recent research also suggests that, for some children, having a father incarcerated does enhance their well-being. Qualitative interviews, for example, with children of incarcerated fathers highlight considerable complexity and variability in their experiences (Wakefield, 2007). Most notably, the children of violent sex offenders and those with a history of domestic violence might benefit from the removal of a father to prison. Wildeman (2010) showed the same effect with quantitative data; paternal incarceration harms children only in the absence of a history of domestic violence and only when the father was not incarcerated for a violent crime. Of course, some children and families benefit substantially from paternal incarceration, and we do not dispute this fact. Nonetheless, the overwhelming evidence is that paternal incarceration is a net harm for children. As such, the substantial costs of incarceration for children should not be ignored—especially in an era of fiscal stress and growing evidence that further increases in the incarceration rate will yield little return for public safety (Raphael and Johnson, 2006; Western, 2006).

If we assume that most fathers who are incarcerated were involved in criminal activity at some point, then how it is that mass incarceration is so bad for children? We believe that an analysis of the sorts of offenders who most contributed to the massive incarceration rate explain why children, on average, *do not* benefit from paternal incarceration (and why continuing to increase the incarceration rate also is not a boon for public safety). Several studies show that the prison boom resulted largely because of increases in the likelihood that nonviolent drug and property offenders would receive a prison sentence (Blumstein and Beck, 1999). Mass incarceration has not resulted from greater efficiency on the part of police in catching violent offenders (Blumstein and Beck, 2005), nor is the incarceration rate a response to ever-increasing crime rates (Blumstein and Beck, 1999; Garland, 2000). Instead, sentencing policy shifts and the politicization of crime resulted in the imprisonment of those who might not have been incarcerated in the past and in longer sentences for those who would have been. Similar shifts in the monitoring of former inmates and a greater risk of reincarceration resulted in significant "churning" of offenders from prison to community (Clear, 2007; Petersilia, 2003). Imprisonment today might be characterized better as a cycle of experiences, creating sustained individual-, familial-, and community-level disruptions.

The reason that the average effect of paternal incarceration on children is harmful is because the average inmate incarcerated today is much less likely to be a serious, high-rate, and violent offender than in the past.

It is also notable that the negative effect of paternal incarceration is observed *only* for the children of fathers with no domestic-abuse history. A pure selection interpretation of our findings (and the findings of others) would predict just the opposite. In other words, if all observed effects of paternal incarceration were solely the result of selection bias, then we might expect the children of violent fathers to exhibit the highest level of behavioral problems. Instead, we observe little harm for these children after the incarceration of their fathers. Moreover, just as most inmates are not abusive and neglectful, neither is the average incarcerated father. Rates of domestic violence in the FFCW, for example, are generally higher than in the general population but certainly not the norm, even among couples in this high risk group that includes many incarcerated fathers (Wildeman, 2010: 291). Similarly, in a study of nonresident fathers, for example, Garfinkel, McLanahan, and Hanson (1998: 8; first quoted in Hagan and Dinovitzer, 1999) remarked that "while many young fathers have trouble holding a job and may even spend time in jail, most have something to offer their children" and that "the overwhelming impression of these young men conveyed by the literature is one of immaturity and irresponsibility rather than pathology or dangerousness." Current and classic criminological research supports this view of today's incarcerated parent, noting that even parents who are greatly involved in crime rarely share this information with their children (Hirschi, 1969; Nye, 1958), have good parent–child relationships despite their criminal involvement (Garfinkel et al., 1998), and contribute economically to the maintenance of the family (Edin and Lein, 1996; Hagan and Coleman, 2001).

The policy implications of our results (and those of other research on mass incarceration) are simply that the ever-increasing push for imprisonment yields significant (and often unrecognized) social costs; chief among these costs is the harm for children and the intergenerational transmission of inequality. Future research must do more to distinguish "helpful" incarcerations for children from the more typical effect of harm. For example, although Comfort (2008) described spells of incarceration as a useful "time-out" and suggested that some spells might strengthen romantic relationships (and, by extension, families), Western (2006) showed that incarceration might worsen relationships and increase the risk of domestic violence as a result of added strain. We find that at least some types of offenders have children who would benefit from their return home. The absence of a domestic violence history represents one such contextual influence (Wildeman, 2010), but surely more exist, and the heterogeneity of effects is a critical guide for policy makers.[12] We also know little about the long-term effects of paternal incarceration on children. Our

12. For example, the relative harm for children that is associated with short spells in jail versus long prison sentences is not known and the data to address the question do not yet exist.

analysis implies long-term harm because behavioral problems are linked to outcomes in other important domains (e.g., educational attainment or family formation), but the effects described are still short term in nature. In addition, relatively little clarity is available with respect to the effects of maternal incarceration (Kruttschnitt, 2010). Our research represents a vital but tentative step, and we hope that our results underscore the importance of the research area.

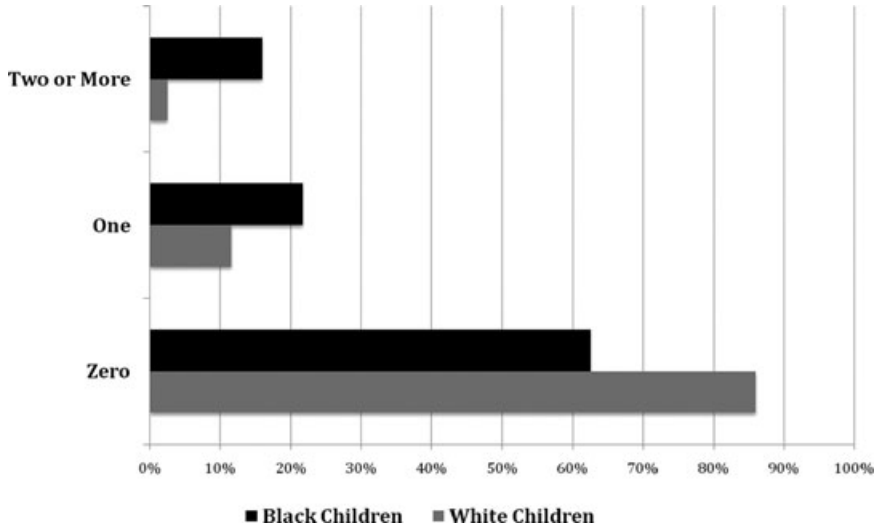
The best evidence produced thus far links paternal incarceration to childhood mental health and behavioral problems, problems that are strongly linked to difficulty in school, trouble finding work, and becoming involved in crime. Paternal incarceration increases behavioral problems by one third to one half a standard deviation and is global in nature, influencing both externalizing behaviors and internalizing behaviors in roughly equal measure. Not surprisingly, criminologists emphasize the relationship between aggression in childhood and later criminal behavior (and incarceration), but the effects detailed here for internalizing behaviors also should be alarming to policy makers. Dekovic, Buist, and Reitz (2004), for example, argued that, although externalizing problems might be more visible or have more direct negative consequences for the community, internalizing problems such as depression are a strong predictor of later suicidal ideation, which is a leading cause of death among adolescents. Even if most children of incarcerated parents do not end up in prison themselves, they are unlikely to avoid significant and long-lasting difficulty. Put succinctly, the problems we describe have broad implications for entrenched racial disparities in educational and occupational attainment, as well as for well-being, in adulthood.

Although the estimates regarding behavioral problems generally should attract the attention of policy makers, we believe that the racial disparity in these effects is potentially more important (as well as the effect of mass incarceration that remains by far the least understood by the general public). Using conservative estimates and a variety of stringent modeling strategies, we show that the influence of mass incarceration has increased racial disparities in externalizing problems by up to 26% and in internalizing problems by up to 45%. Although our estimates are necessarily approximations, they are best conceived of as a thought experiment on the effects of mass incarceration for a host of significant social outcomes for years to come. More importantly, even if our estimates are inflated to some degree, in few cases do we find that incarceration is beneficial for children and they remain an important and consequential facet of the mass incarceration era.

The results we present regarding racial disparities are large, disconcerting, and consequential, and yet, paternal incarceration is just one facet of the influence of the prison boom on children. Incarceration is heavily concentrated, and its influence extends far beyond parents to entire families and neighborhoods. As a result, although our estimates are large, they are almost certainly an *underestimate* of the effect of mass incarceration on children and inequality. Figure 5 compares Black and White children with respect to the

FIGURE 5

Racial Disparities in the Concentration of Incarceration in Families (PHDCN)



number of family members incarcerated at the final wave of the PHDCN.[13] Although most observers highlight the difference between Black and White children in the experience of the incarceration of one family member (37% vs. 14%, respectively), Black children are much more likely to experience the incarceration of multiple family members. For example, just 2% of White children had two or more family members incarcerated relative to more than 16% of Black children. The racial disparity in incarceration coupled with high racial residential segregation also means that imprisonment is concentrated in places. The disruptive influences of mass incarceration are conferred on all children in high incarceration neighborhoods, not just those who are related to an inmate. Although most current research (including this article) is focused on racial differences with respect to father incarceration, the concentration of incarceration in the most disadvantaged families and communities (Clear, 2007; Gonnerman, 2004; Sampson and Loeffler, 2010) is likely to affect well-being not only for the children of the incarcerated but also for all marginalized children.

Taken together, our analysis coupled with those on other effects of the prison boom show that incarceration is less efficient and more costly than previously realized. Research

13. These estimates are likely an undercount of the differences in familial incarceration for several reasons. First, they represent cross-sectional differences and do not account for the number of family members ever incarcerated. Unfortunately, it is not possible to distinguish all family members who were incarcerated at some point throughout the entire data series because an "uncle" jailed at Wave 3 might not be the same "uncle" who was in jail at Wave 1 or Wave 2. Second, children with two or more family members might be especially likely to have entered foster care (a population not followed in the PHDCN) or to have dropped out of the survey for other reasons.

detailing the costs of mass incarceration coincides with growing public discussion about the use of imprisonment in the United States. The Great Recession, for example, has exacerbated preexisting capacity and budgetary constraints in many states and several cost-saving initiatives target punishment policy. California, a state with a crushing budgetary crisis and high unemployment as well as incarceration rates, recently shifted to nonrevocable parole for nonviolent offenders to reduce returns to prison as a result of technical violations (and the attendant "churning" that prior monitoring systems encouraged). In another example, federal sentencing disparities for crack versus cocaine possession were reduced recently largely as a cost-saving measure. This change is expected to reduce both overall prison populations and racial disparities in punishment. Although public discussion of incarceration is focused on its direct costs, our research addresses concerns about the prison boom by rendering visible its substantial indirect costs.

Incarceration rates recently stabilized after decades of unencumbered growth, and recent commentary suggests that the costs of mass incarceration have become too high to bear (Economist, 2010; Pew Center on the States, 2008). The costs to children add to a growing list of concerns about continued reliance on a punishment strategy that incarcerates such a large percentage of the American population. Beyond the direct costs of mass incarceration to already strained state budgets, the indirect costs of incarceration to the labor market, to communities, and to children are significant. The importance of these indirect costs relative to public safety and other interests is for policy makers to decide; our research urges policy makers to consider the substantial and often invisible harms and disparities that are produced by mass incarceration, especially those that are transmitted to the next generation, as they seek to reduce the direct costs of imprisonment now and in the future.

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Appendix A: Description of Methods, Model Results, and Robustness Tests

Estimating the effect of paternal incarceration is difficult because fathers are not randomly assigned to prison and the factors that predict paternal incarceration also predict poor child outcomes. The results discussed in this article are based on several methods to estimate the effect of imprisonment; similarity in the direction and magnitude of paternal incarceration effects across varying modeling strategies, data sets, and measures represents one important robustness test. Here, we briefly describe the analytic methods used to produce our estimates and provide a much more detailed description of results for interested readers (Tables A1 and A2).

Selection Bias, Temporal Ordering, and Observational Data

A simple ordinary least-squares (OLS) regression analysis of paternal incarceration and mental health is inappropriate for several reasons. First, OLS regression using cross-sectional survey data suffers from the fact that causal ordering of mental health outcomes and paternal incarceration is unclear. Second, many factors that predict paternal incarceration are also likely to affect mental health outcomes for children. OLS regression approaches might include "controls" for factors such as age, gender, race, employment, or social class. However, important variables might be omitted (or unmeasured in the survey data), and this omission can seriously bias the estimates of incarceration effects. We first begin with a simple bivariate model that estimates the baseline effect of paternal incarceration on mental health and behavioral outcomes.[14] We then include controls for important factors influencing selection into prison and proceed to more complicated estimation procedures, including lagged dependent variable, difference-in-differences, and propensity score models. Each of these strategies represents a substantial (although imperfect) advance in the estimation of causal effects using observational data over simple regression models.

Lagged Dependent Variable Models

The simplest strategy to address the issues detailed earlier is to use longitudinal data and to include a prior measure of the dependent variable. In this way, the method provides estimates for the effect of paternal incarceration on the change in behavioral problems and accounts for preexisting differences among children prior to experiencing paternal incarceration.

Difference-in-Differences (or Fixed-Effects) Models

Difference-in-differences and fixed-effects models follow a similar logic as lagged dependent variable models. The difference-in-differences estimator takes advantage of longitudinal data by measuring mental health outcomes for both treatment (father in prison) and control groups (father not in prison) and then compares the difference between the treatment and control groups in terms of change (or difference) from time 1 to time 2 (hence, the difference-in-differences model). (Fixed-effects models work in a similar way, so the two are virtually interchangeable.) The major contribution of the model is that all variables that are related to selection into treatment and mental health that remain stable over time are netted out. It is important to note, however, that any variable that changes over time and is related to paternal prison entry and child mental health outcomes still will bias the results. The major assumption of these sorts of models, then, is that the average change in mental health for both groups would be the same in the absence of treatment.

14. The baseline model does establish temporal ordering in which parental incarceration precedes the measure of mental health and behavioral problems.

Propensity Score Models

Propensity score models are designed to ensure an appropriate comparison among children by adjusting the sample to eliminate comparisons between children whose fathers had no chance of incarceration with those whose fathers had a high chance of incarceration (Rosenbaum and Rubin, 1983; Winship and Morgan, 1999). Propensity score models were developed to improve on previous matching methods designed to compare similar groups. Previously, a researcher could match persons in the treatment and control groups on a characteristic (such as race, age, gender, employment status, etc.) in an effort to compare "apples to apples" in which the only difference between the two persons was their treatment status. Propensity score models improve on this method by directly estimating a probability for each person in the sample of being in the treatment group. These probabilities then are used as covariates directly in a regression model or to create treatment (father incarcerated) and control (father not incarcerated) groups across which behavioral outcomes are compared. Put simply, propensity score models more appropriately compare the mental health of children with fathers who have a high (or low) likelihood of entering prison *and actually did* with children whose fathers had a high (or low) likelihood of entering prison *and did not*.

Once the propensity scores are estimated, a variety of matching methods can be used to compare the mental health and behavioral outcomes of the children of fathers with similar propensity scores but differential exposure to treatment (in this case, imprisonment). Treated and untreated participants who have no match are dropped from the analysis so that the outcomes of unmatched persons do not bias the estimates of the treatment effect.[15] To the extent that propensity score models create a matched set of treated and untreated participants, the estimate of the treatment effect of paternal incarceration on children can be generalized to the population level, and the remaining differences between treated and untreated cases in actually experiencing prison is assumed to be random (the "ignorable treatment assumption") (Morgan and Harding, 2006; Rosenbaum and Rubin, 1983; Winship and Morgan, 1999). This finding is particularly important with respect to more dynamic factors that might change over time as well as might be related to paternal incarceration and children's mental health outcomes. For example, suppose that a major difference between children of incarcerated fathers and other children concerns the parenting styles of their caregivers (some research in this area indeed suggests that this situation is likely to be the case). In other modeling specifications, this difference (unmeasured in the survey data) is accounted for only when differences in parenting styles remain stable over time. If, however, the arrest and incarceration of a father contribute to deteriorating parenting and poorer mental health outcomes, then the estimates of other models will be biased.

15. The PHDCN results presented here used kernel marching. We estimate the treatment effect on the treated using the ATTK module in Stata (StataCorp, College Station, Tex; Becker and Ichino, 2002) as well as the more conservative Hodges–Lehman estimates (Rosenbaum, 2002). Results are robust across nearest-neighbor and caliper methods, with and without replacement, as well as with and without a common support restriction.

In contrast, however, to the extent that the propensity model is balanced across measured covariates and appropriate matches are made, dynamic differences among children can be treated as random.

TABLE A1

Comparison of Paternal Incarceration Effects Across Models Types (PHDCN)

CBCL Scales	1: OLS Bivariate Model	2: OLS Model with Controls	3: Lagged Dependent Variable Models	4: DID Models	5: Average Treatment Effect on the Treated (Becker and Ichino, 2002)
Total internalizing problems	2.64**	3.44***	3.29***	3.21**	2.69*
	(.96)	(1.00)	(.84)	(1.31)	(1.70)
Total externalizing problems	3.49***	3.44***	1.97**	1.47†	2.60**
	(.83)	(.88)	(.67)	(1.16)	(.98)
Total behavior problems	7.26***	8.24***	5.85***	4.86*	6.04*
	(2.10)	(2.21)	(1.72)	(2.93)	(3.07)

Notes. All models except Model 1 include controls for child race and gender, parental education and employment, household income, parental criminal history, baseline CBCL score, and relationship to primary caregiver. For models on which these estimates are based, see Wakefield (2007). For models using FFCW data, see Wildeman (2010: 294–295, 297, and 300). †$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

TABLE A2

Rosenbaum Bounds Sensitivity Analysis of Propensity Score Treatment Effect Estimates

Odds of Differential Assignment Due to Unobservables	Internalizing Behavior Problems	Externalizing Behavior Problems	Total
Equal odds Hodges–Lehman Estimate	1.94*	3.23***	5.64**
10%			
Lower bound	1.63†	2.94**	4.80**
Upper bound	2.37*	3.47***	6.36**
20%			
Lower bound	1.39	2.69**	4.06**
Upper bound	2.70**	3.72***	7.15***
30%			
Lower bound	1.14	2.39**	3.58*
Upper bound	2.98**	3.94***	8.06***
40%			
Lower bound	.87	2.18*	2.98#
Upper bound	3.36**	4.13***	8.82***
50%			
Lower bound	.63	1.96*	2.56
Upper bound	3.52***	4.39***	9.21***

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

Appendix B: Descriptive Statistics

TABLE B1

Wave 1 and 2 Descriptive Statistics for Cohorts 6–15 (PHDCN)

Variables	n	Mean/Percent (SD)
Child well-being		
CBCL: internalizing behavior problems at Wave 2	2,467	8.85 (7.88)
CBCL: externalizing behavior problems at Wave 2	2,467	7.90 (6.83)
CBCL: total behavior problems at Wave 2	2,467	22.38 (17.24)
Paternal incarceration		
Father currently in jail at Wave 2	64	1.97
Father incarcerated since Wave 1	73	2.79
Father incarcerated since Wave 2	60	2.36
Father incarcerated in Waves 1, 2, or 3	174	5.23
Age		
Biological mom at Wave 1	3,089	35.89 (6.65)
Biological dad at Wave 1	3,646	39.12 (7.95)
Subject child at Wave 2	3,324	10.27 (3.36)
Race of child		
White	475	14.32
Black	1,165	35.13
Hispanic	1,547	46.65
Other race	129	3.73
Gender of child		
Male	1,660	49.94
Female	1,664	50.06
Education of biological mother at Wave 1		
Less than high school	1,427	45.27
High-school diploma	432	13.71
Some college	1,028	32.61
College degree or more	265	8.41
Education of biological father at Wave 1		
Less than high school	1,335	46.92
High-school diploma	535	18.80
Some college	692	24.32
College degree or more	283	9.95
Employment of primary caregiver at Wave 2		
Employed (FT/PT)	1,886	89.85
Unemployed	213	10.15

(Continued)

TABLE B1

(Continued)

Variables	n	Mean/Percent (SD)
Household income at Wave 2		
Less than $5,000	292	10.20
$5,000–$9,999	310	10.83
$10,000–$19,999	576	20.12
$20,000–$29,999	550	19.21
$30,000–$39,999	398	13.90
$40,000–$49,999	269	9.40
$50,000 or more	468	16.35
Per capita income	3,078	6,131 (5,084)
Biological parents divorced since Wave 1	67	2.02
PC is biological mom or dad	3,045	92.41
Paternal incarceration		
Father currently in jail	64	1.97
Father incarcerated since Wave 1	73	2.79
Father incarcerated since Wave 2	60	2.36
Father incarceration Wave 1 to Wave 3[a]	174	5.23

Notes. [a] A few fathers were incarcerated multiple times throughout the data series. The comparison table for the FFCW data can be found elsewhere (Wildeman, 2010: 291).