

# **Associations of Parental Incarceration with Delinquency and Arrest among Black, White, and Hispanic Males in the U.S., Ages 12-25<sup>α</sup>**

Michael E. Roettger<sup>1,2</sup>

Raymond R. Swisher<sup>1</sup>

---

<sup>α</sup> This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (<http://www.cpc.unc.edu/addhealth>). No direct support was received from grant P01-HD31921 for this analysis. This project was supported with a grant to the National Center for Family and Marriage Research from the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, grant number 1 U01 AE000001-01. The opinions and conclusions expressed herein are solely those of the author(s) and should not be construed as representing the opinions or policy of any agency of the Federal government. Please direct all correspondence to [meroettger@alumni.unc.edu](mailto:meroettger@alumni.unc.edu)

<sup>1</sup> National Center for Family and Marriage Research, Bowling Green State University

<sup>2</sup> Institute of Behavioral Sciences, University of Colorado at Boulder

## Abstract

In the last four decades, the U.S. incarcerated population has increased by over 900%. Accompanying this increase has been a dramatic rise in the number of Americans who report a parent who has served time in jail or prison. Due to lack of nationally representative data, almost no studies have examined the relationship between parental imprisonment and adult criminal justice involvement in the contemporary U.S. Using longitudinal data from the National Longitudinal Study of Adolescent Health, this study examines whether mother's and father's imprisonment is associated with respondent's criminal justice involvement. Using event history analysis, we examine if these associations are robust to a wide range of controls, while testing for variation by (1) respondent's race and ethnic status and (2) timing of parental incarceration in the life course. We find parental incarceration substantially increases a respondent's risk for arrest and incarceration through their early 30s.

## Introduction

In the last four decades, the U.S. jail and prison population has increased exponentially, growing from 250,000 in 1970 to 2.25 million in 2008 (Pastore and MacGuire 2010). With incarceration rates 5-10 times that of other developed nations (Mauer 2003; Western 2006; Western and Wildeman 2009), the U.S. has an unprecedented number of individuals who have undergone incarceration. At current incarceration rates, 5% of white, 17% of Hispanic and one-third of all black men in the U.S. are expected to spend one or more in state or federal prison (Bonczar 2003). Less-educated blacks are particularly at risk, with nearly 60% of black high school dropouts and 30% of black high school graduates experiencing incarceration by their mid-thirties (Pettit and Western 2004).

With rising incarceration rates, children have increasingly been exposed to parental incarceration (Hagan and Dinovitzer 1999; Johnson and Waldfogel 2004; Western and Wildeman 2009). At a given point in time, the Bureau of Justice Statistics reports that nearly 1.7 million children have a parent in state or federal prison (Glaze and Maruschak 2008), and nearly 7.5 million children have a parent either incarcerated or on probation/parole (Herman-Stahl, Kan, and McKay 2008). Cumulatively, parental incarceration is experienced by an increasingly large percentage of children, with minority youth disproportionately affected (Glaze and Maruschak 2008). For children born in 1990, Wildeman (2009) has estimated that 24% of African American children and 4% white children report their biological father has spent at least one year

in state or federal prison by age 14. Cumulatively 13% of all young adults report their father had served time in jail or prison (Foster and Hagan 2007).

As a recent literature review by Murray and Farrington (2008) has noted, parental incarceration is associated with a number of adverse outcomes, including delinquency and criminal justice involvement. Intergenerational cycles of delinquency and criminal justice involvement have been observed across a number of small-scale datasets and countries (Glueck and Glueck 1950; Murray and Farrington 2008; Murray et. al 2009; Murray et. al 2007; Robins 1966; Rowe and Farrington 1997; Thornberry et. al 2003; Thornberry 2005; West and Farrington 1973). However, as Murray et. al (2009) and Wildeman (2010) have noted, relatively little research has focused on intergenerational patterns of criminal justice involvement in the general U.S. population. One recent study in the U.S. examined intergenerational patterns of criminal justice involvement, but was restricted to a small sample of mothers (Huebner and Gustafson 2007). Using data from the longitudinal survey of adolescent health (Add Health), this paper will examine the extent to which parental imprisonment is associated with increased risk of arrest and incarceration among males in the U.S. Incorporating survival analysis with nationally representative weights, we will examine how mother's and father's incarceration are associated with both the timing and cumulative risk of arrest and imprisonment from adolescence through the mid-thirties.

Given the extent of racial disparities in incarceration (Pettit and Western 2004; Bonczar 2003) this study will also examine if variation in these associations is observed by both race and ethnic status and gender of the parent. A life course approach suggests that effects of parental incarceration may vary by timing, or the age at which it occurs in the respondents life. For example, given that parental incarceration is associated with poverty and family instability (Braman 2004; Giordano 2010; Nurse 2002), early exposure to parental incarceration may have a greater effect on cumulative probabilities of arrest and incarceration.

## Background

In recent reviews of the literature, Murray, Farrington and colleagues (2008, 2009) have noted that parental incarceration is a “strong risk factor” for a variety of negative outcomes, including delinquency and criminal justice involvement well into adulthood (Murray et. al 2009; Roettger and Swisher 2010), illegal drug use (Giordano 2010; Roettger et. al 2011), childhood aggression (Wildeman 2010), depression and other mental health issues (Phillips et al 2002; Wakefield 2009), romantic relationship issues (Giordano 2010), family instability (Braman 2004; Johnson and Waldfogel 2004), and social exclusion (Foster and Hagan 2007, 2009). With most children experiencing some form of adversity (Giordano 2010), children who have experienced parental incarceration will likely face a number of these issues,, including increased risk of arrest and incarceration within the U.S. criminal justice system.

The associations between parental incarceration and delinquency and arrest are frequently noted in literature on delinquency, but, as Murray et al (2009) point out, data quality issues, sample sizes, and lack of control groups have limited the generalizability of the results. Nonetheless, these studies do suggest a strong association between parental incarceration, delinquency, and arrest. Murray and Farrington (2008) found parental imprisonment linked to children’s antisocial behavior from as early as age 10 to as old as age 48. Using a longitudinal Swedish sample, Murray et al. (2007) similarly observed an association between parental imprisonment and child criminal behavior. Associations between parental imprisonment and child antisocial behavior have also been observed in Australian (Bor, McGee, and Fagan, 2004;

Kinner et al. 2007), Swedish & U.K. (Murray et al 2007) and Danish samples (Kandel et al. 1988). Ethnographic research (Braman 2004; Giordano 2010), and single-city studies (Thornberry et. al 2003; Thornberry 2005; Wakefield 2009) also provide compelling evidence that parental incarceration is associated with delinquency and adult imprisonment among U.S. children. However, these studies have not examined the impact of parental incarceration for the full U.S. population, where issues such as heterogeneity of family and socioeconomic circumstances, and racial and ethnic diversity may lead to differential associations.

Nor has research adequately examined the long-term consequences of parental incarceration. Whereas research using national samples by Wildeman (2009) and Johnson (2009) suggests that parental incarceration is associated with aggression and problem behaviors in children, relatively little research has examined the long term consequences for children's criminal justice involvement as adults. One partial exception is a study by Huebner & Gustafson (2007), who observed that maternal incarceration increased the risk of incarceration by a factor of three among adult children ages 18-24, but their analysis was restricted to a small number of mothers (n=26) and children (n=31). Thus the extent to which parental incarceration is associated with increased risk of arrest and incarceration among a national sample of males in the U.S. remains an open question.

#### *Potential Confounding and Mediating Variables*

A number of socioeconomic, parental, familial, and individual characteristics that increase the risk of parental incarceration may represent competing explanations of the association between parental incarceration and son's criminal justice involvement. In other cases they may serve as mediators that help to elaborate the relationship. Low socioeconomic status and race significantly increase the likelihood of having an incarcerated parent (Western and

Wildeman 2009; Wildeman 2009). Incarcerated parents are often drawn from impoverished and racially segregated neighborhoods (Clear 2007; Clear et al. 2003; Wilson 1996). Thus it is important to control for family socioeconomic status, racial segregation, and neighborhood poverty.

Parental incarceration may influence adolescents through its associations with family structure and family processes. Father's incarceration, in particular, is associated with diminished parent relationship quality, parent relationship dissolution, and decreased involvement and closeness with children (Harper and McLanahan, 2002; Johnson and Waldfogel, 2004; Waller and Swisher, 2006; Western, Lopoo, and McLanahan, 2004). Research also suggests that access to children is dependent on mothers who facilitate visits and other contacts with children (Arditti, Smock, and Parkaman, 2005; Nurse 2002, 2004; Roy and Dyson, 2005; Waller and Swisher, 2006). While a substantially smaller population, mother's incarceration is an increasingly common phenomenon, with similar if not greater consequences for children (Bloom 1995; Giordano 2010). The fact that parental incarceration and involvement plays an important role in child development is suggested by previous research on resident and non-resident father involvement and youth problem behavior and well-being (Amato and Rivera 1999; Amato 1998; Cabrera et al. 2000; Coley and Medeiros 2007).

Parental incarceration may also influence criminal justice involvement through its effects on child well-being and other early risk factors for antisocial behavior. When a mother or father is incarcerated, attachment to the parent is likely to be disrupted (Johnston and Gabel, 1995; Boswell and Wedge, 2002). On the other hand, iff the father has no contact with the child, incarceration may have little effect at all. Maternal incarceration, in particular, may be most disruptive of child attachment. Previous research has found parental incarceration (i.e., either

mother's or father's) to be associated with negative emotional outcomes, behavioral problems, and academic struggles (Bloom, 1995; Johnston, 1995; Kampfner, 1995; Wildeman, 2010).

Given the range of negative outcomes in childhood associated with mother's or father's incarceration, it is plausible that they may also influence the development of low self-control (Hirschi and Gottfredson, 1983; Hay and Forrest, 2006), a well-known risk factor for anti-social behavior.

Life course theories emphasize sources of informal control within the family, at school, and that is provided by other structured pro-social activities (Sampson and Laub 1993; Laub and Sampson 2003; Thornberry 2005). Petts (2009), for example, finds religious involvement to be associated with trajectories of delinquency in adolescence and young adulthood. Foster and Hagan (2007, 2009) suggest that the stigma associated with father's incarceration may discourage youth from being involved in school and other community activities, and may be related to a larger process of intergenerational social exclusion.

#### *Variations by Race and Ethnicity*

As noted earlier, incarceration disproportionately falls on poorly educated black and Hispanic men. As Western and Wildeman (2009) have pointed out, by the start of the 21<sup>st</sup> century, "over a third of young black non-college men were incarcerated." Furthermore, they note that African American men under 40 are almost twice as likely to have obtained a prison record as to have received a bachelor's degree. The magnitude of these inequalities have made incarceration a common and often expected transition within the life courses of these men (Pettit and Western, 2004; Swisher and Waller, 2008).

While racial and ethnic disparities in incarceration are well documented, there is little consensus regarding the likely consequences of paternal incarceration across racial and ethnic

groups. On the one hand, as incarceration becomes increasingly common, it might be perceived as less stigmatizing within groups that are disproportionately affected. Swisher and Waller (2008) found suggestive evidence to this effect among unmarried black and Hispanic mothers in the Fragile Families project, who were more likely to entrust their children to fathers with a history of incarceration than were comparable white mothers. Qualitative research by Hirschfield (2008) similarly suggests that juvenile arrests may carry little stigma within disadvantaged communities where arrest and incarceration have become commonplace. Distrust of the criminal justice system (Hagan, Shedd, and Payne, 2005; Sampson and Bartusch, 1998) may also contribute to external attributions of blame, and reduced stigma. Other research suggests similar associations across racial and ethnic groups. Qualitative research by Braman (2004) suggests that the stigma of incarceration remains strong within communities that are disproportionately affected, with diminished quality of relationships with extended kin, friends, teachers, coworkers, and members of religious congregations. In a longitudinal study of Ohio juvenile delinquents, Giordano (2010) finds that a ‘constellation of risk factors’ associated with incarceration leads to similar intergenerational patterns of persistent delinquency and arrest across racial groups. Finally, theories of racial discrimination suggests that the consequences of paternal incarceration are likely greatest for black and other minority families. In support of this perspective is work by Pager (2007), who found a criminal record to carry a strong “mark” in the minds of potential employers, particularly for African Americans. Pager’s research suggests that the stigma of incarceration is accentuated for African Americans by its generalization with other negative racial stereotypes. The criminal justice system may also disproportionately incarcerate children of minorities. Prior research suggests that African American juvenile offenders are more likely to be treated more harshly than whites (Bishop and Frazier 1988; Bridges and Stern,

1998. Additionally, some social theorists, such as Wacquant (2001) and Collins (2005), have argued that the U.S. criminal justice system is a mechanism for suppression of minorities by a white majority.

Given lack of prior research on how mother or father's incarceration may differentially effect criminal justice involvement by race and ethnicity, our examination of such differences is somewhat exploratory. To the extent that father incarceration may result from stigma and negative interactions between minority youth and the larger U.S. society, we would expect at least as strong, if not stronger, associations for black and Hispanic youth relative to whites. However, stigma and racial bias are just two of many potential mechanisms linking father's incarceration and youth delinquency and arrest. Thus, overall we tentatively predict that father's incarceration will be positively associated with delinquency and arrest for all groups.

#### *Variations by Age at Father Incarceration*

As ethnographic studies by Braman (2004) and Giordano (2010) suggest, parental incarceration is both severely disruptive to children and a marker for a myriad of related problems such as family instability, exposure to violence, poverty, and reduced parental involvement. However, as noted above, research also suggests that incarceration in childhood and early adolescence creates severe disruption in family structure, parental involvement, & economic well-being. As such, incarceration occurring either before birth or in later adolescence and adulthood may be less disruptive to children (Murray and Farrington 2008).

In our analysis we will examine the extent to which parental incarceration may vary by age. If similar effects for periods prior to adolescence are found, we will examine the effects of mother and father incarcerations occurring prior to Wave I interviews. By doing so, we will

address issues of temporal ordering arising from cases where parental incarceration occurs after measurement of control variables.

## Data

Data are taken from the National Longitudinal Study of Adolescent Health (Add Health). The Add Health in-home sample consists of 20,700 respondents enrolled in grades 7-12 at Wave I. Follow-up interviews were conducted in 1996, 2001-2002, and 2007-2008, with approximately 14,700 (71%), 15,200 (73%), and 15,700 (75.5%) of respondents, respectively, completing interviews at Waves II, III, and IV. Answers to sensitive questions in Add Health, including youth offending and arrest, were obtained using audio-CASI technology to increase reliability of self-reports (Harris et al. 2009).

For this study, we examine white, black and Hispanic males who: (1) had completed interviews at Waves I and IV, and (2) had valid sampling weights. Our requirement of completion of the Wave I and IV interviews arises from using multiple items from the Waves I & IV questionnaires, including the timing of both mother and father's incarceration. Our resulting sample contains 6872 males, with 3718 white, 1378 black, and 1107 Hispanic males with valid and non-zero weights. We restrict our analysis of race and ethnicity to white, black and Hispanic males, due to small cell counts<sup>3</sup> for Asians, Native Americans, and 'others' who report a parent undergoing incarceration. Use of the longitudinal weights addresses sample selection issues arising from differential probabilities of sampling, the school-based design, and survey attrition. Nonetheless, the school-based sampling frame and other issues suggest that delinquency, arrest, and father's history of incarceration are somewhat under-represented within Add Health. Thus, estimates of overall prevalence are likely downwardly biased.

---

<sup>3</sup> For example, 19 of 491 Asians report their biological father was incarcerated.

To handle observations with missing data, our analysis makes use of multiple imputation for missing values (Allison 2001; Horton and Kleinman 2007). Using the STATA ‘ice’ procedure outlined by Royston (2005), we impute missing values for fifty datasets. To make use of these imputed data, the STATA add-on ‘mim’ is used in conjunction with regression analysis to produce estimates consistent with complete values. Our analysis assumes that data are missing at random contingent upon the variables used in analysis.

As a check on reliability, we have compared results presented below with results based on case-wise deletion (i.e., using cases with no missing data), finding similar results. This suggests results from imputation are reliable, while enabling us to make optimal and more efficient use of our Add Health sample.

## **Variables**

To complete analysis, we analyze age of first arrest and age of first incarceration data for males in Add Health. To measure mother and father incarceration, we draw on respondent’s self-reports of the age at which their biological mother or father was first incarcerated. Measures for demographic characteristics of individuals, neighborhood characteristics, family structure and processes, and individual characteristics are drawn from in home interviews of parents and children. Detailed descriptions of these variables, along with descriptive statistics, are provided in Table 1.

## **Table 1 About Here**

## **Methods**

To examine the cumulative risks of arrest and incarceration within our sample, we will make use of Cox models. The Cox regression model allows for use of the complex survey weights needed for analysis of Add Health, while using a semi-parametric approach to more

flexibly fit the hazard of arrest. To assess the validity of the proportional hazards assumption, we will examine plots of survival curves and analyze Schoenfeld residuals. We follow methods and procedures outlined by Allison (1995) and Cleves et al (2008). To simultaneously deal with missing data and make use of survey weights, we conduct our analysis using the combined ‘mim’, ‘svy’ & ‘stcox’ commands in STATA 11.

## **Results**

### **Timing of Parental Incarceration**

To fulfill one goal of this study, we attempt to ascertain how timing of parental incarceration is associated with arrest and incarceration of sons. To accomplish this, we examine variation in relative risks associated with the age at which respondents report their biological mother or father was first incarcerated. These results are presented in Table 2. We report the relative hazard ratios for father’s and mother’s incarcerations that first occurred (1) before birth, (2) between birth and Wave I, and (3) between Wave I and Wave IV.

### **Table 2 About Here**

Among all males, father incarceration before birth is associated with increased risks of arrest and incarceration by factors, respectively, of 1.99 ( $p < 0.01$ ) and 2.53 ( $p < 0.001$ ). For white, black, and Hispanic males reporting their father was incarcerated before birth, their hazard ratios for arrest have values greater than one & lie within two standard deviations of results for all males; the notable exception is for black males for incarceration, whose hazard ratio of 1.10 suggests that they face no increased risk of incarceration compared to black males whose father’s were never incarcerated. It should be noted that small cell sizes for minority groups increases standard errors for hazard ratios, and contribute to statistically insignificant increased hazard ratios greater than 1.

Similar hazard ratios are observed for males reporting a father's incarceration after birth & prior to Wave I. Among all males, father's incarcerations between birth and Wave I are associated with increased risks of arrest and incarceration by factors of 1.92 ( $p < 0.001$ ) and 2.53 ( $p < 0.001$ ), respectively. The reported hazard ratios are similar across racial and ethnic subgroups and highly significant ( $p < 0.001$ ). While of similar statistical significance, the estimated hazard ratio for arrest of black males is lower than white and Hispanic males.

In supplemental analysis (available upon request), we also examined if incarceration during early childhood increased hazard ratios for arrest and incarceration, but found results similar to those presented. Hazard ratios for males reporting a father incarcerated between birth and Wave I are generally lower point estimates than in periods of childhood and early adolescence. Among all males, father incarceration between birth and Wave I is associated with increased risks of arrest and incarceration by factors, respectively, of 1.52 ( $p < 0.01$ ) and 1.85 ( $p < 0.001$ ). Among black, white, and Hispanic males reporting their father was incarcerated after Wave I interviews, we observed similar hazard ratios for arrest and incarceration.

While mother's incarceration was associated with similarly increased patterns of arrest & incarceration among sons, timing seemed to differ from father incarceration.

For respondents who reported their mother was first incarcerated prior to birth, no hazard ratios were significant at the  $p < 0.05$  level. However, mother incarceration before birth was associated with a marginally significant and increased hazard ratio ( $HR = 2.22$ ,  $p < 0.10$ ) for all males. Lack of significance may be partially due to relatively small numbers of respondents reporting their mother was incarcerated prior to birth. Hazard ratios were more highly significant for males reporting their mother was incarcerated between birth and Wave I. Among all males, mother incarceration between birth and Wave I is associated with increased risks of

arrest and incarceration, by factors of 2.34 ( $p < 0.001$ ) and 3.20 ( $p < 0.001$ ), respectively. The reported hazard ratios among blacks and whites were similar and highly significant ( $p < 0.001$ ). Interestingly, mother's incarceration for Hispanic males was associated with a much higher risk for arrest (HR=5.48,  $p < 0.001$ ) and incarceration (HR=3.97,  $p < 0.01$ ). In supplemental analysis (available upon request), we also examined if incarceration during early childhood increased hazard ratios for arrest and incarceration, and found a similar pattern of results.

Compared to father's incarceration, mother's incarcerations between Waves I and IV were associated with higher hazard ratios for arrest (HR=2.45,  $p < 0.001$ ) and incarceration (HR=3.23,  $p < 0.01$ ) among all males. Among black, white, and Hispanic males, mother's incarceration in this period is much more significantly associated with increased risk of arrest (HR=2.73,  $p < 0.001$ ) and incarceration (HR=3.78,  $p < 0.001$ ).

To summarize the findings regarding timing, we find that hazard ratios associated with parental incarceration do not differ appreciably for youth whose parents were first incarcerated in childhood versus adolescence. Therefore, a broader categorization of incarcerations between birth and wave I seems sufficient. In the next section we thus focus on mother's and father's incarcerations that occurred prior to Wave I. We also examine the robustness of findings to controls for potential confounding factors and mediators of the associations between parental incarceration, arrest, and incarceration, including socioeconomic conditions, family structure, family processes, and individual characteristics. The focus on incarcerations prior to Wave I also serves to preserve temporal ordering between parental incarceration and these other factors.

## **Father's Incarceration**

Here we examine associations of father's incarceration prior to Wave I on the risks of son's arrest and incarceration. Using survival analysis techniques, we explore the cumulative

hazard of paternal incarceration on the likelihood of ever being arrested and incarceration for males into their early thirties. Results of Cox Regression and associated survival curves are presented below.

### **Table 3 About Here**

#### **Arrest**

Models 1-4 in Table 3 examine the associations of father's incarceration prior to Wave I with age of arrest among all males, and for subgroups of white, black, and Hispanic males in the U.S. Controlling for demographic variables, family socioeconomic status, family processes, and adolescent characteristics, father's incarceration prior to Wave I was associated with an increased hazard of arrest of 1.54 ( $p < 0.001$ ). At 1.83 ( $p < 0.001$ ) and 2.29 ( $p < 0.001$ ), hazard rates for arrest are higher among blacks and Hispanics, respectively, relative to whites (HR=1.48,  $p < 0.001$ ).

#### **Figures 1A-1D About Here**

Figures 1A-1D provide the survival curves for arrest associated with father incarceration, controlling for other covariates in Table 3. Among all males, and among racial and ethnic groups, father's incarceration is associated with an increased risk of arrest. As figures 1A and 1B suggest, father's incarceration prior to Wave I is associated with similar cumulative risks for arrest among all males and whites. Approximately 40 - 45% of sons with an incarcerated father had not been arrested by their early thirties, compared with about 55% of those not reporting an incarcerated father.

Risks of arrest and incarceration given an incarcerated father are found to differ for white, Black, and Hispanic subgroups of males. By their early 30s, roughly 75% of African Americans with an incarcerated father had been arrested, compared to 50% of those not reporting

an incarcerated father. Similarly, among Hispanics, more than 70% of those who report their father was incarcerated are arrested by their early 30s, compared to 40% of males without an incarcerated father. Even though arrest is a common event among males, these figures suggest that father's incarceration in childhood or early adolescence is linked to significantly increased risk of arrest, particularly among black and Hispanic males.

### **Incarceration**

The hazard ratios for incarceration associated with having a father incarcerated prior to Wave I are, generally, lower than those reported above for arrest. Models 5-8 in Table 3 contain the associations of fathers incarceration with age of arrest among all males, and for white, black, and Hispanic subgroups in the U.S. Controlling for demographic, family socioeconomic, family process, and adolescent characteristics, father's incarceration prior to Wave I was associated with an increased hazard of incarceration of 1.91 ( $p < 0.001$ ). At 2.05 ( $p < 0.001$ ) and 2.40 ( $p < 0.001$ ), respectively, hazard rates for incarceration associated with father incarceration are higher among whites and Hispanics, relative to blacks ( $HR = 1.71$ ,  $p < 0.01$ ). This may result from the fact that black males are more likely to be arrested, regardless of father incarceration, relative to whites and Hispanics. **Figures 2A-2D About Here**

Figures 2A-2D plot the survival curves for incarceration associated with father incarceration, controlling for other co-predictors presented in Table 3. Among males and racial and ethnic groups, father incarceration is associated with increased risk of arrest. As Figures 1A and 1B suggest, father incarceration prior to Wave I is associated with similar cumulative risks for arrest among all males and whites; in contrast, approximately 40% of sons who have experienced father incarceration are arrested by their early thirties, compared with 25% for those not reporting father incarceration prior to Wave I. Among white males, the corresponding

survival curves in Figure 2B, based on father's history of incarceration, are nearly identical to those presented for all males. In contrast to whites, hazard ratios lead to less variation among African Americans and greater variation among Hispanics. By their early 30s, approximately one-half of all black males reporting an incarcerated father were incarcerated themselves, compared to roughly one-third of all other black males. Among Hispanics, nearly one-half reporting father incarceration were themselves incarcerated by their early 30s, compared to 25% of males reporting their father was not incarcerated. Even with racial variation in cumulative risk of incarceration, these figures suggest that experiencing a father undergo incarceration (1) before birth or (2) during childhood or early adolescence is linked to significantly increased risk of incarceration.

## **Mother's Incarceration**

We now turn to examining how maternal imprisonment prior to Wave I is associated with arrest and incarceration among sons. While previous research by Huebner and Gustafson (2007) has estimated that having a mother undergo incarceration increases the likelihood of incarceration by a factor of three for young adults, their analysis focused on a small sample of mother who were incarcerated and their children using data from the 1979 National Longitudinal Survey of Youth. By focusing on a contemporary set of young males who report their mother has undergone incarceration, we examine how maternal incarceration is associated with risk of arrest and incarceration, while also examining variation by race and ethnic status. Using survival analysis techniques, we explore the cumulative hazard of maternal incarceration on the likelihood of arrest and incarceration for males into their early thirties. Results of Cox Regression and associated survival curves are presented below.

## **Table 4 About Here**

### **Arrest**

Models 1-4 in Table 4 contain the association of mother incarceration prior to Wave I with age of arrest among males, and for males from white, black, and Hispanic race & ethnic groups in the U.S. Controlling for demographic, family socioeconomic, family process, and adolescent characteristics, mother incarceration prior to Wave I was associated with increased hazard of arrest of 1.68 ( $p < 0.001$ ). At 1.37 ( $p < 0.001$ ) and 1.58 ( $p < 0.05$ ), hazard rates for arrest associated with father incarceration were lower among white and black males, respectively, when compared with all males. In contrast, mother incarceration was associated with a much higher hazard ratio ( $HR = 4.93$ ,  $p < 0.001$ ) for being arrested among Hispanic males, suggesting that mother incarceration places Hispanic males at a much higher risk of arrest relative to black and white males.

## **Figures 3A-3D About Here**

Figures 3A-3D provide the survival curves for arrest associated with mother incarceration, controlling for the demographic, familial, socioeconomic, & adolescent characteristics presented in Table 4. Among males and all racial and ethnic groups, maternal imprisonment was associated with increased risk of arrest. As Figure 3A suggests, mother incarceration prior to Wave I is associated with a higher cumulative risk for arrest among all males; approximately 45% of sons reporting no history of mother's incarceration were arrested by their early thirties, while two-thirds of those reporting a mother being incarcerated prior to Wave I were arrested in the same time. Among white and black males, respectively, nearly 55% and 75% of those reporting maternal imprisonment were arrested by their early 30s. In comparison, 45% and 55% of white and black males, respectively, reported being arrested by their early 30s for those not reporting maternal imprisonment. Compared to white and black

males, variation in arrest based on mother incarceration is most striking for Hispanics. Nearly all Hispanic males (95%) in the sample who reported their mother was arrested in childhood or adolescence were arrested by their early thirties, while only 45% reporting their mother was never incarcerated were arrested by their early thirties.

### **Incarceration**

The hazard ratios for incarceration associated with experiencing maternal imprisonment prior to Wave I are, generally, higher than those reported above for arrest. Models 5-8 in Table 4 contain the association of mother incarceration prior to Wave I with age of incarceration among males, and white, black, and Hispanic race & ethnic groups in the U.S. Controlling for demographic, family socioeconomic, family process, and adolescent characteristics, mother incarceration prior to Wave I was associated with increased hazard of incarceration of 2.17 ( $p < 0.001$ ). At 1.99 ( $p < 0.01$ ) and 2.00 ( $p < 0.01$ ), respectively, hazard rates for incarceration associated with father incarceration are slightly lower among black and white males than for all males. Among Hispanics, maternal incarceration is associated with a much higher hazard ratio for incarceration ( $HR = 3.46$ ,  $p < 0.01$ ). The survival curves presented in Figures 4A-4D depict these variations.

### **Figures 4A-4D About Here**

Figures 4A-4D plot the survival curves for incarceration associated with maternal imprisonment, controlling for predictors presented in Table 4. Among males and racial and ethnic subgroups, maternal incarceration is associated with increased risk of incarceration. As Figures 4A and 4B suggest, mother incarceration prior to Wave I is associated with similar cumulative risks for incarceration among all males and whites; approximately 40% of sons reporting mother's incarceration report ever being incarcerated by their early thirties, compared with 25% for those not reporting maternal imprisonment. Among white males, the

corresponding survival curves in Figure 4B, based on mother's history of incarceration, are nearly identical to those presented for all males, though probability of incarceration is ~5% lower for both groups. While having a similar hazard ratio to whites, African Americans have significantly different cumulative probabilities of incarceration. By their early 30s, approximately 60% of all black males reporting maternal imprisonment were incarcerated themselves, compared to roughly one-third of those reporting their mother had never been incarcerated. Among Hispanics, nearly 65% of those that reported their mother was incarcerated were themselves incarcerated by their early 30s, compared to just under 30% of males reporting their mother was not incarcerated prior to Wave I. While the hazard ratio for incarceration was only significantly different for Hispanics, both black and Hispanic males who report their mother was incarcerated were significantly more likely to experience incarceration than their white counterparts.

## **Conclusion**

In this paper, we have examined the associations of mother and father incarceration with arrest and incarceration among children. Using Cox regression techniques, we have found that father incarceration increases risk of arrest and incarceration among sons, respectively, by factors of 1.54 ( $p < 0.001$ ) and 1.91 ( $p < 0.001$ ). Increasing risk of arrest and incarceration by 1.67 ( $p < 0.001$ ) and 2.17 ( $p < 0.001$ ), respectively, maternal imprisonment is similarly associated with increased risk of arrest and incarceration among male children. The results are robust in response to a number of controls, including demographic characteristics, family structure, whether or not the biological father was known at Wave I interviews, neighborhood characteristics, family socioeconomic status, parent-child closeness, family processes, history of

physical abuse, low self-control, school attachment, and religious involvement. The results from our analysis use nationally representative sampling weights, allowing the results generated above to be generalizable to (1) all males & (2) black, white, and Hispanic subpopulations within the U.S. that were between ages 24-32 in 2008-2009.

In terms of timing, maternal and paternal incarceration were both generally associated with higher hazards of arrest and incarceration. With the exception of black males, father incarceration occurring before birth and in childhood and adolescence were associated with increased risk of criminal justice involvement. Father incarceration occurring after Wave I was associated with increased hazards of arrest and incarceration. Compared to father incarceration, maternal incarceration in childhood and early adolescence was similarly associated with increased risks of arrest and incarceration. However, maternal imprisonment was associated with lower hazards when occurring before birth, while having higher hazards when occurring in periods after Wave I. Future research examining the extent to which mother and father incarceration may have different developmental or socioeconomic effects on sons may help elucidate why these variations may occur.

Racial variation in the effects of parental incarceration was found to vary significantly by gender. For father incarceration, hazard ratios remained roughly equivalent across racial groups, though Hispanics had the largest hazard ratios relative to whites and blacks. Despite similar magnitudes, however, results from survival analysis suggest that 75% of blacks and Hispanics who experienced paternal imprisonment were arrested by their early thirties, with one-half also experiencing incarceration in this same period. In contrast, among white males reporting their father was incarcerated in childhood or adolescence, roughly 55% reported being arrested and 40% reported being incarcerated by their mid-thirties. Given similar hazard rates for arrest and

incarceration, these racial and ethnic variations in percentages being arrested are possibly due, in part, to the increased general probability of blacks and Hispanics to be arrested and incarcerated in the U.S.

While mother incarceration was similarly associated with arrest and incarceration among black and white males, Hispanic males who have experienced maternal imprisonment were much more likely to be arrested and incarcerated. Compared to all males in the U.S. who report having a mother incarcerated, Hispanics had much higher hazard ratios for arrest (4.94 vs. 1.67) and incarceration (3.46 vs. 2.17). By their early 30's, 95% of Hispanics who reported experiencing maternal incarceration report being arrested, while 65% report being incarcerated. As with paternal imprisonment, these variations possibly result from racial variation in baseline risks of criminal justice involvement. For example, a similar proportion of black males experience maternal incarceration relative to Hispanic males (60% vs. 65%, respectively), but 35% of all other black males report being incarcerated in their early 30s, compared with ~27% of all other Hispanics.

While associations of parental imprisonment with criminal justice involvement presented above are generally consistent across all racial and ethnic groups, it is important to note that this does not imply that race is not an important demographic factor when considering parental incarceration's potential aggregate effects on patterns of criminal justice involvement. With (1) higher rates of incarceration among minorities (Bonczar 2003; Pettit and Western 2004) and (2) minority children disproportionately experiencing parental incarceration (Glaze and Maruschak 2008; Wildeman 2009), intergenerational criminal justice involvement is a much more common phenomenon among young black and Hispanic men, relative to whites. With parental imprisonment an increasingly common lifecourse event among minorities, a growing number

black and Hispanic males face increased risk of intergenerational criminal justice involvement in young adulthood, along with the many associated social and economic inequalities resulting from incarceration for offenders, families, and communities.

## Bibliography

- Allison, Paul D. 1995. *Survival Analysis Using SAS*. Cary, NC: SAS Publishing.
- Allison, Paul D. 2001. *Missing Data*. Thousand Oaks, CA: Russell Sage.
- Amato, Paul R. 1998. More than money? Men's contributions to their children's lives. In A. Booth & A. C. Crouter (Eds.), *Men in families: When do they get involved? What difference does it make?* (pp. 241-278). Mahwah, NJ: Erlbaum.
- Amato, Paul R., & Riviera, Fernando. 1999. Paternal involvement and children's behavior problems. *Journal of Marriage and the Family*, 61, 375-384.
- Arditti, Joyce A., Smock, Sara, and Tiffaney S. Parkman. 2005. It's been hard to be a father: A qualitative exploration of incarcerated fatherhood. *Fathering* 3:267-288.
- Bishop, Donna and Frazier, Donald. 1988. The Influence of Race in Juvenile Justice Processing. *Journal of Research on Crime and Delinquency*. 25: 242-263.
- Bloom, B. 1995. Imprisoned mothers. In *Children of Incarcerated Parents*, edited by K. Gabel, and D. Johnson. New York: Lexington Books. pp. 21-30.
- Bonczar, Thomas P. 2003. "Prevalence of imprisonment in the u.S. Population, 1974-2001." Washington, D.C.: Bureau of Justice Statistics.
- Bor, William, Tara R. McGee, and Abigail A. Fagan. 2004. Early risk factors for adolescent antisocial behavior: An Australian Longitudinal Study. *Australian and New Zealand Journal of Psychiatry*. 38:365-372.
- Boswell, Gwyneth and Peter Wedge. 2002. *Imprisoned Fathers and Their Children*. London: Jessica Kingsley.
- Braman, Donald. 2004. *Doing Time on the Outside: Incarceration and Family Life in Urban America*. Ann Arbor: University of Michigan Press.
- Bridges, George and Sara S. Steen. 1998. "Racial Disparities in Official Assessments of Juvenile Offenders: Attributional Stereotypes as Mediating Mechanisms," *American Sociological Review*, 63: 554-70.
- Cabrera, Natasha J., Tamis-LeMonda, C. S., Bradley, Robert H., Hofferth, Sandra, and Michael E. Lamb. 2000. Fatherhood in the twenty-first century. *Child Development* 71:127-136.
- Clear, Todd. 2007. *Imprisoning Communities: How Mass Incarceration Makes Disadvantaged Neighborhoods Worse*. Cambridge: Oxford University Press.
- Clear, Todd, Rose, Dina, Waring, Elin, and Kristen Scully. 2003. Coercive mobility and crime: A preliminary examination of concentrated incarceration and social disorganization. *Justice Quarterly* 20:33-64.
- Cleves, Mario, Gould, William, Gutierrez, Roberto, & Yulia Marchenko. 2008. *An Introduction to Survival Analysis Using Stata*, 2<sup>nd</sup> Edition. College Station, TX: Stata Press.
- Coley, Rebekah L. and Bethany L. Medeiros. 2007. Reciprocal longitudinal relations between nonresident father involvement and adolescent delinquency. *Child Development* 78:132-147.
- Collins, Patricia Hill. 2005. *Black sexual politics*. New York: Routledge.
- Eisenberg, Marla E, Olson, Rachel E., Neumark-Sztainer, Dianne, Story, Mary , and Linda H. Bearinger. 2004. "Correlations between family meals and psychosocial well-being among adolescents." *Archives of Pediatrics & Adolescent Medicine* 158:792-96.

- Ford, Carol A., Bearman, Peter S., and James Moody. 1999. Foregone health care among adolescents. *Journal of the American Medical Association* 282:2227-2234.
- Foster, Holly, and John Hagan. 2007. "Incarceration and Intergenerational Social Exclusion." *Social Problems* 54 (4): 399–433.
- Foster, Holly and John Hagan. 2009. The mass incarceration of parents in America: Issues of race/ethnicity, collateral damage to children, and prisoner reentry. *Annals of the American Academy of Political and Social Science* 623:179-194.
- Garland, David. 2001. *The Culture of Control: Crime and Social Order in Contemporary Society*. Chicago, IL: University of Chicago Press.
- Giordano, Peggy C. 2010. *Legacies of Crime: A Follow-Up of the Children of Highly Delinquent Girls and Boys*. Cambridge, UK: Cambridge University Press.
- Gottschalk, Marie. 2006. *The Prison and the Gallows: The Politics of Mass Incarceration in America*. Cambridge, UK: Cambridge University Press.
- Glaze, Lauren E. and Laura M. Maruschak. 2008. *Parents in Prison and Their Minor Children*. Washington D.C.: Bureau of Justice Statistics. Available online at: <http://bjs.ojp.usdoj.gov/index.cfm?ty=pbdetail&iid=823>
- Glueck, Sheldon and Eleanor Glueck. 1950. *Unraveling Juvenile Delinquency*. New York: The Commonwealth Fund.
- Guo, Guang, Roettger, Michael E., and Cai, Tianji. 2008. The integration of genetic propensities into a social control model of delinquency. *American Sociological Review* 73:543-568.
- Hagan, John and R. Dinovitzer. 1999. Collateral consequences of imprisonment for children, communities, and prisoners. *Crime and Justice* 26:121-62.
- Hagan, John, Shedd, Carla, and Monique M. Payne. 2005. Race, ethnicity, and youth perceptions of criminal injustice. *American Sociological Review* 70:381-407.
- Harper, Cynthia and Sara McLanahan. 2002. Father absence and youth incarceration. *Journal of Research on Adolescence* 14:369-397.
- Harris, Kathleen M., Carolyn T. Halpern, Eric Whitsel, Jon Hussey, Joyce Tabor, Peggy Entzel, and J.R. Udry. 2009. The National Longitudinal Study of Adolescent Health: Research Design. Available: <http://www.cpc.unc.edu/projects/addhealth/design>
- Hay, Carter and Walter Forrest. 2006. The development of self-control: Examining self-control theory's stability thesis. *Criminology* 44:739-774.
- Herman-Stahl, Mindy, Marni L. Kan, and Tasseli McKay. 2008. *Incarceration and the Family: A Review of Research and Promising Approaches for Serving Fathers and Families*. Raleigh, NC: RTI International Available online: <http://aspe.hhs.gov/hsp/08/MFS-IP/Incarceration&Family/index.shtml>
- Hirschfield, Paul J. 2008. The declining significance of delinquent labels in disadvantaged urban communities. *Sociological Forum* 23:575 – 601.
- Hirschi, Travis and Michael R. Gottfredson. 1983. Age and the explanation of crime. *American Journal of Sociology* 89:552-584.
- Horton, Nicholas J. and Ken P. Kleinman. 2007. Much ado about nothing: a comparison of missing data methods and software to fit incomplete data regression models. *American Statistician* 61:79-90.

- Huebner, Beth M. and Regan Gustafson. 2007. "The Effect of Maternal Incarceration on Adult Offspring Involvement in the Criminal Justice System." *Journal of Criminal Justice*, 35(3), 283-296.
- Johnson, Elizabeth and Jane Waldfogel. 2004. "Children of incarcerated parents: Multiple risks and children's living arrangements." In *Imprisoning America*, edited by M. Pattillo, D. Weiman, and B. Western (pp. 97-134). Thousand Oaks, CA: Russell Sage Foundation.
- Johnson, R. (2009). "Ever-increasing levels of parental incarceration and the consequences for children." In S. Raphael & M. Stoll (Eds.), *Do prisons make us safer? The benefits and costs of the prison boom* (pp. 177-206). New York: Russell Sage.
- Johnston, Denise. 1995. Effects of parental incarceration. In *Children of Incarcerated Parents*, edited by K. Gabel and D. Johnson. New York: Lexington Books. pp. 59-88.
- Johnston, Denise and Katherine Gabel. 1995. Incarcerated parents. In *Children of Incarcerated Parents*, edited by K. Gabel and D. Johnson. New York: Lexington Books. pp. 3-20.
- Kampfner, Chistina Jose. 1995. Post-traumatic stress reactions in children of imprisoned mothers. In *Children of Incarcerated Parents*, edited by K. Gabel and D. Johnson. New York: Lexington Books. pp. 89-102.
- Kandel, Elizabeth, Sarnoff A. Mednick, Lis Kirkegaard-Sorensen, Barry Hutchings, Joachim Knop, Raben Rosenberg, and Fini Schulsinger. 1988. IQ as a protective factor for subjects at high risk for antisocial behavior. *Journal of Consulting and Clinical Psychology*. 56:224-226.
- Laub, John H. and Robert J. Sampson. 2003. *Shared Beginnings, Divergent Lives: Delinquent Boys to Age 70*. Cambridge: Harvard University Press.
- Maguire, Kathleen & Pastore, Anne. 2010. Sourcebook of Criminal Justice Statistics. Washington, D.C.: U.S.. Department of Justice. Annually published since 1973. Available online at: <http://www.albany.edu/sourcebook/>
- Mauer, Mark. 2003. *Race to Incarcerate*. New York: New Press.
- Murray, J., & Farrington, D. P. (2008). "Effects of parental imprisonment on children." *Crime and Justice: A Review of Research* 37: 133-206.
- Murray, J., Farrington, D., Sekol, I., & Olsen, R. F. (2009). Effects of parental imprisonment on child antisocial behaviour and mental health: a systematic review. *Campbell Systematic Reviews* 2009: 4. Available online at: <http://campbellcollaboration.org/lib/download/683/>
- Murray, Joseph, Janson, C. G., and David P. Farrington. 2007. Crime in adult offspring of prisoners - a cross-national comparison of two longitudinal samples. *Criminal Justice and Behavior* 34: 133-149.
- Nurse, Anne. 2002. *Fatherhood Arrested: Parenting from Within the Juvenile Justice System*. Nashville, TN: Vanderbilt University Press.
- Nurse, Anne. 2004. Returning to strangers: Newly paroled young fathers and their children. In *Imprisoning America: The Social Effects of Mass Incarceration*, edited by M. Pattillo, D. F. Weiman, and B. Western. New York: Russell Sage. pp. 76-97.).
- Pager, Devah. 2007. *Marked: Race, Crime, and Finding Work in an Era of Mass Incarceration*. Chicago, IL: University of Chicago Press.

- Pettit, Becky and Bruce Western. 2004. "Mass Imprisonment and the Life Course: Race and Class Inequality in U.S. Incarceration." *American Sociological Review* 69:151–69.
- Petts, Richard J. (2009). Family and religious characteristics' influence on delinquency trajectories from adolescence to young adulthood. *American Sociological Review* 74:465-483.
- Phillips, S. D., Burns, B. J., Wagner, H. R., Kramer, T. L., & Robbins, J. M. 2002. Parental incarceration among adolescents receiving mental health services. *Journal of Child and Family Studies*, 11(4): 385-399.
- Robins, Lee. 1966. *Deviant children grown up*. Baltimore, MD: Williams and Wilkens.
- Roettger, Michael E. and Swisher, Raymond R. 2010. "Associations of Father's History of Incarceration with Delinquency and Arrest among Black, White, and Hispanic Males in the U.S., Ages 12-25." Working Paper, National Center for Family and Marriage Research. Bowling Green State University.
- Roettger, Michael E., Swisher, Raymond R., Kuhl, Danielle, C., and Jorge M. Chavez. 2011. "Paternal Incarceration and Altered Trajectories of Marijuana and Hard Drug Use From Adolescence into Adulthood: Evidence From National Panels of U.S. Males and Females." *Addiction*, 106:121-132
- Rowe, D.C. and Farrington, D.P. .1997. The familial transmission of criminal convictions. *Criminology*, 35: 177-201.
- Roy, Kevin, and Omari L. Dyson. 2005. Gatekeeping in context: Babymama drama and the involvement of incarcerated fathers. *Fathering* 3:289-310.
- Royston, Paul. 2005. Multiple Imputation of Missing Values. *STATA Technical Journal* 5: 527-536.
- Sampson, Robert J. and Dawn J. Bartusch. 1998. Legal cynicism and (subcultural?) tolerance of deviance: The neighborhood context of racial differences. *Law & Society Review* 32:777-804.
- Sampson, Robert J. and John H. Laub. 1993. *Crime in the making: Pathways and turning points through life*. Cambridge, MA: Harvard University Press.
- Simon, Jonathon. 2008. *Governing through crime: how the war on crime transformed american democracy and created a culture of fear*. Oxford, UK: Oxford University Press.
- Thornberry, T. P. 2005. "Explaining multiple patterns of offending across the life and course and across generations." *Annals of the American Academy of Political and Social Science* 602:156-195.
- Thornberry, T. P., A. Freeman-Gallant, A. J. Lizotte, M. D. Krohn, and C. A. Smith. 2003. "Linked lives: The intergenerational transmission of antisocial behavior." *Journal of Abnormal Child Psychology* 31:171-184.
- Waquant, Loic. 2001. "Deadly symbiosis: when prison and ghetto meet and mash." *Punishment & Society*, 3:95-133.
- Waller, Maureen R. and Swisher Raymond R. 2006. Father's risk factors in Fragile Families: Implications for 'healthy' relationships and father involvement. *Social Problems* 53:392-420.
- Wakefield, Sarah. 2009. "Parental disruption of another sort? Bringing parental imprisonment into a model of children's mental health and well-being." Working Paper, Department of Criminology, Law, & Society, University of California at Irvine.
- West, D. J. and Farrington, D. P. 1973. *Who Becomes Delinquent?* London: Heinemann.

- Western, Bruce. 2006. *Punishment and Inequality in America*. Thousand Oaks, CA: Sage Publications.
- Western, Bruce, Lopoo, Leonard, and Sara McLanahan. 2004. Incarceration and the bonds between parents in fragile families. In *Imprisoning America*, edited by M. Pattillo, D. Weiman, and B. Western. pp. 21-46. Thousand Oaks, CA: Russell Sage.
- Western, Bruce and Christopher Wildeman. 2009. "The Black Family and Mass Incarceration." *Annals of the American Academy of Social and Political Science* 621:221–242.
- Wildeman, Christopher. 2009. "Parental Imprisonment, the Prison Boom, and the Concentration of Childhood Disadvantage." *Demography* 46:265-280.
- Wildeman, Christopher. 2010. Paternal incarceration and children's physically aggressive behaviors: Evidence from the Fragile Families and Child Wellbeing Study. *Social Forces*, 89:285-310
- Wilson, William W. 1996. *When Work Disappears: The World of the New Urban Poor*. New York: Random House.

<b>Dependent Variables</b>	Description	All Males	White Males	Black Males	Hispanic Males
Age of First Arrest	Self-Report of Respondent's age of arrest prior to Wave IV interviews.	25.02 (5.21)	25.07 (5.08)	24.20 (5.35)	25.33 (5.41)
Ever Arrested	Self-Report of Respondent's history of ever being arrested prior to Wave IV interviews.	0.411 (0.492)	0.399 (0.490)	0.501 (0.500)	0.398 (0.489)
Age of First Incarceration	Self-Report of Respondent's age of imprisonment prior to Wave IV interviews.	26.69 (4.28)	26.82 (4.05)	26.01 (4.65)	26.77 (4.57)
Ever Incarcerated	Self-Report of Respondent's history of ever being imprisoned prior to Wave IV interviews.	0.239 (0.426)	0.215 (0.411)	0.317 (0.465)	0.255 (0.435)
<b>Independent Variables</b>					
Father's History of Incarceration	Wave IV Response to "How old were you when your biological father went to jail or prison (the first time)?" Coded so that risk periods occurs from before birth to one year younger than age at Wave I interviews.				
Father Incarcerated Before Birth	Biological father's first incarceration occurred prior to respondent's birth. Coded: '1'=Yes, '0'=No.	0.014 (0.117)	0.018 (0.132)	0.007 (0.084)	0.015 (0.123)
Father Incarcerated After Birth & Before Wave I	Biological father's first incarceration occurred after respondent's birth and one year prior to Wave I interviews. Coded: '1'=Yes, '0'=No.	0.102 (0.302)	0.094 (0.291)	0.138 (0.345)	0.109 (0.311)
Father Incarcerated Between Waves I-IV	Biological father incarcerated After Wave I interviews	0.025 (0.155)	0.022 (0.148)	0.023 (0.150)	0.029 (0.167)
Mother's History of Incarceration	Wave IV Response to "How old were you when your biological mother went to jail or prison (the first time)?" Coded so that risk periods occurs from before birth to one year younger than age at Wave I interviews.				
Mother Incarcerated Before Birth	Biological mother's first incarceration occurred prior to respondent's birth. Coded: '1'=Yes, '0'=No.	0.002 (0.041)	0.002 (0.046)	0.002 (0.046)	0.00 (0.00)
Mother Incarcerated After Birth & Before Wave I	Biological mother's first incarceration occurred after respondent's birth and one year prior to Wave I interviews. Coded: '1'=Yes, '0'=No.	0.019 (0.137)	0.013 (0.117)	0.039 (0.194)	0.019 (0.136)
Mother Incarcerated Between Waves I-IV	Biological mother incarcerated After Wave I interviews	0.013 (0.113)	0.011 (0.104)	0.023 (0.150)	0.011 (0.103)
Age at Wave I Interviews	Age at Wave I Interviews	15.72 (1.72)	15.65 (1.71)	15.58 (1.74)	16.02 (1.69)
Race	Respondent's Racial Phenotype				
<i>White</i>		0.541 (0.498)	1	-	-
<i>Black</i>		0.201 (0.400)	-	1	-
<i>Hispanic</i>		0.161 (0.367)	-	-	1
<i>Asian</i>		0.069 (0.253)	-	-	-
<i>Native American</i>		0.018 (0.136)	-	-	-
<i>Other Race</i>		0.009 (0.095)	-	-	-
Family Structure					

<i>Two Biological Parents</i>	Respondent resides in home with both biological parents. Coded: '1'=Yes, '0'=No.	0.541 (0.498)	0.589 (0.498)	0.332 (0.471)	0.558 (0.496)
<i>Two Parents, One Biological</i>	Respondent resides in home with two parents, one biological. Coded: '1'=Yes, '0'=No.	0.156 (0.363)	0.176 (0.380)	0.141 (0.348)	0.129 (0.335)
<i>Single-mother</i>	Respondent resides with single mother. Coded: '1'=Yes, '0'=No.	0.215 (0.410)	0.160 (0.367)	0.396 (0.489)	0.228 (0.420)
<i>Single-father</i>	Respondent resides with single father. Coded: '1'=Yes, '0'=No.	0.039 (0.194)	0.042 (0.201)	0.033 (0.179)	0.036 (0.186)
<i>Other Family Structure</i>	Respondent resides in other family structure. Coded: '1'=Yes, '0'=No.	0.049 (0.216)	0.031 (0.175)	0.095 (0.294)	0.048 (0.213)
Father Unknown	Respondent knew no information about both biological father at Wave I interviews	0.085 (0.279)	0.067 (0.250)	0.140 (0.347)	0.089 (0.285)
Family Socioeconomic Status	Socioeconomic Scale based on Ford, Moody, and Bearman (2004). Composite of Occupation and Education for mother and/or father living in household.	6.29 (2.56)	6.56 (2.42)	6.53 (2.55)	4.83 (2.59)
Proportion Non-White	Percentage of residents of respondent's census tract non-white	0.220 (0.165)	0.1359 (0.124)	0.344 (0.152)	0.292 (0.129)
Proportion Below Poverty	Percentage of families in census tract below poverty level.	0.109 (0.060)	0.099 (0.060)	0.144 (0.066)	0.108 (0.041)
Father Closeness	Respondent's Wave I response of "How close do you feel towards your biological father?" Coded '1'=Not close at all, '2'=not very close, '3'=Somewhat close, '4'=Quite Close, '5'=Fairly close	3.96 (1.17)	4.06 (1.14)	3.67 (1.26)	3.99 (1.19)
Mother Closeness	Respondent's Wave I response of "How close do you feel towards your biological mother?" Coded '1'=Not close at all, '2'=not very close, '3'=Somewhat close, '4'=Quite Close, '5'=Fairly close	4.54 (0.810)	4.48 (0.821)	4.63 (0.789)	4.61 (0.792)
Daily family meals	Respondent shared six or more meals per week with a parent. Noted in research as associated with reduced risk of a number of adolescent deviant behaviors, including delinquency, mental health issues, drug use	0.456 (0.498)	0.505 (0.499)	0.313 (0.464)	0.450 (0.497)
Parental Supervision	Wave 1 summary score of whether or not respondent's parents set weekend curfews, controlled friends respondent hung out with, set bedtime, set limits on TV viewing, and set limits on clothes worn.	1.43 (1.22)	1.36 (1.16)	1.56 (1.25)	1.51 (1.30)
Repeated Abuse by Parent or Caregiver	Dichotomous variable indicating history of being slapped, kicked, or hit by parent or caregiver more than five times before age 10. Coded '1' if event occurred more than five times, '0' otherwise	0.095 (0.294)	0.081 (0.273)	0.089 (0.285)	0.119 (0.324)
School Attachment Scale	Attachment scale used by Hagan and Foster (2001), averaging responses to questions of agreeing or disagreeing with the following questions: (1) You feel close to others at school (2) You are happy at school (3) You feel like you are part of your school. Coded responses were: '1'= Strongly disagree, '2'=Disagree, '3'=Neither agree nor disagree, '4'=Agree, '5'=Strongly Agree	3.76 (0.886)	3.75 (0.917)	3.79 (0.858)	3.74 (0.858)
Parent Report of problems in child temperament	Parent's response to "Does your child have a temper?" Coded: '1'=Yes, '0'=No.	0.280 (0.448)	0.291 (0.453)	0.239 (0.425)	0.311 (0.462)
Religious Attendance	Religious attendance at Wave I. Coding is for "How often have you attended religious services in the past 12 months?" '1'=Never, '2'=A few times per year, '3'= Once per month, '4'= One or more times per week.	2.68 (1.21)	2.59 (1.213)	2.97 (1.16)	2.61 (1.22)
Sample Sizes	Number of male respondents	6872	3718	1378	1107

Table 2: Cox Regression Hazard Ratios and Standard Errors Associated with Parental Incarceration and Risk of Arrest & Incarceration Among Males

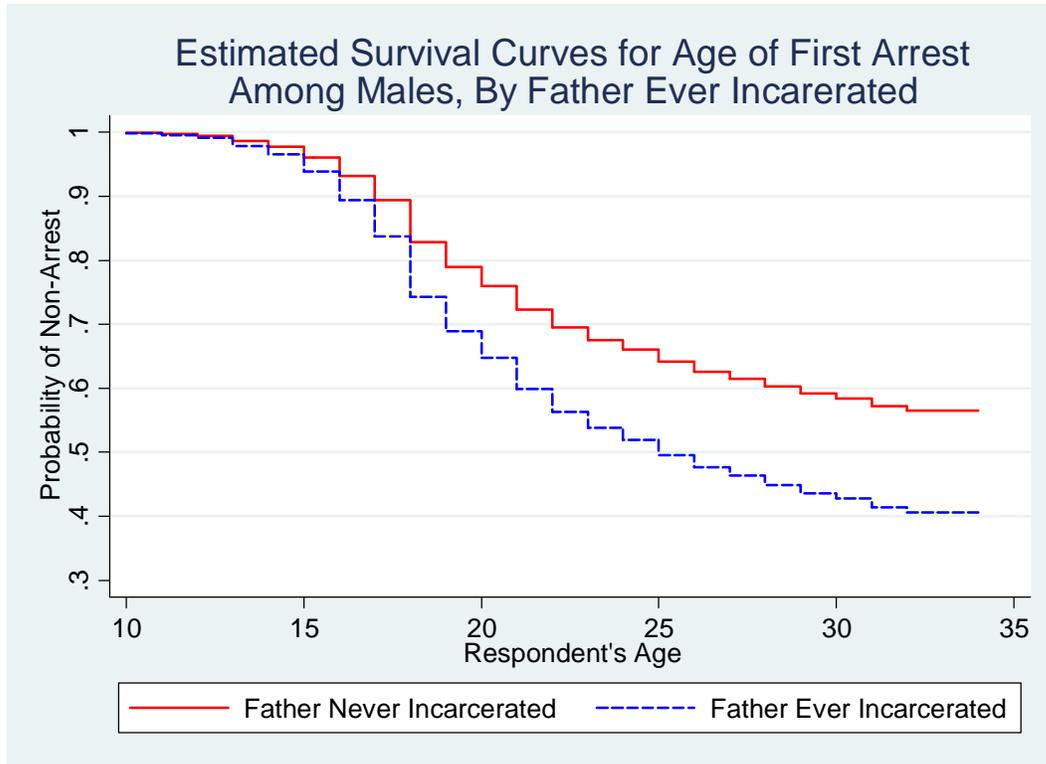
	<b>Arrest</b>				<b>Incarceration</b>			
	All Males	White Males	Black Males	Hispanic Males	All Males	White Males	Black Males	Hispanic Males
<b>Father's History of Incarceration</b>								
Father Incarcerated Before Birth	1.993** (0.426)	2.040*** (0.416)	2.578 (1.690)	2.019 (1.380)	2.532*** (0.571)	3.283*** (0.778)	1.096 (0.911)	3.337+ (2.305)
Father Incarcerated Between Birth and Wave I	1.921*** (0.139)	1.870*** (0.162)	2.061*** (0.291)	2.791*** (0.504)	2.549*** (0.233)	2.928*** (0.320)	2.124*** (0.336)	2.789*** (0.700)
Father Incarcerated Between Waves I-IV	1.517** (0.210)	1.452* (0.266)	1.672+ (0.445)	1.544 (0.423)	1.847*** (0.324)	1.634+ (0.436)	2.008* (0.574)	1.874* (0.538)
<b>Mother's History of Incarceration</b>								
	All Males	White Males	Black Males	Hispanic Males	All Males	White Males	Black Males	Hispanic Males
Mother Incarcerated Before Birth	1.514 (0.753)	1.851 (1.274)	1.074 (0.802)	0	2.222+ (0.923)	2.288 (1.217)	1.958 (1.411)	0
Mother Incarcerated Between Birth and Wave I	2.374*** (0.275)	2.040*** (0.358)	2.170*** (0.435)	5.477*** (1.723)	3.197*** (0.462)	3.201*** (0.671)	2.717*** (0.712)	3.969** (1.718)
Mother Incarcerated Between Waves I-IV	2.454*** (0.419)	2.731*** (0.542)	1.914+ (0.633)	2.169 (1.675)	3.234*** (0.662)	3.784*** (0.960)	2.037+ (0.793)	3.685+ (2.510)

Table 3: Cox Regression Hazard Ratios and Standard Errors Examining Father Incarceration & Control Variables With Risk of Arrest and Incarceration Among Males

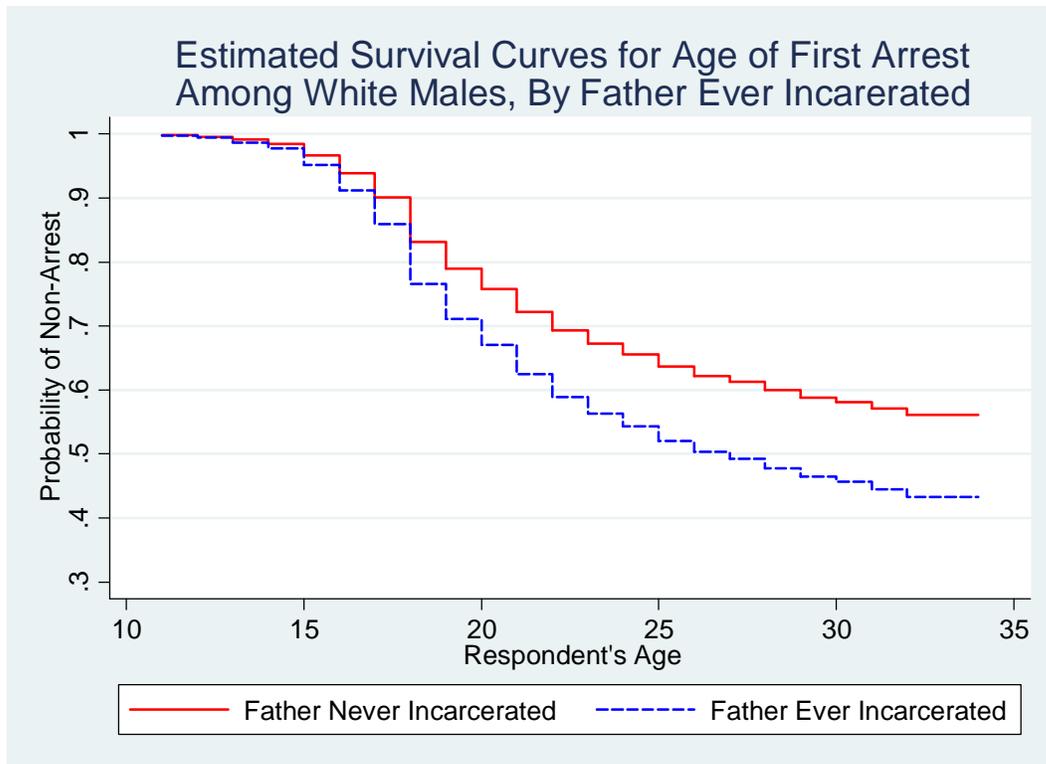
	Arrest				Incarceration			
	(1) All Males	(2) Whites	(3) Blacks	(4) Hispanics	(5) All Males	(6) Whites	(7) Blacks	(8) Hispanics
Father Incarcerated Prior to Wave I	1.540*** (0.128)	1.428*** (0.148)	1.833*** (0.267)	2.293*** (0.405)	1.906*** (0.178)	2.047*** (0.242)	1.711** (0.299)	2.401*** (0.577)
Race								
<i>White [Reference]</i>								
<i>Black</i>	1.247* (0.109)				1.471*** (0.165)			
<i>Hispanic</i>	1.038 (0.0878)				1.294* (0.151)			
<i>Asian</i>	0.573** (0.0980)				0.667 (0.166)			
<i>Native American</i>	1.355+ (0.236)				1.697* (0.381)			
<i>Other Race</i>	0.897 (0.250)				1.029 (0.342)			
Age at Wave I Interviews	0.931*** (0.0151)	0.939** (0.0180)	0.945 (0.0418)	0.890** (0.0343)	0.927*** (0.0205)	0.943* (0.0247)	0.912+ (0.0431)	0.913 (0.0530)
Family Structure								
<i>Two Biological Parents [Reference]</i>								
<i>Two Parents, One Biological</i>	1.260** (0.103)	1.149 (0.115)	1.646* (0.324)	1.371 (0.265)	1.334* (0.157)	1.196 (0.168)	1.469 (0.405)	1.646 (0.505)
<i>Single-mother</i>	1.183* (0.0953)	1.064 (0.119)	1.471** (0.207)	1.286 (0.287)	1.266* (0.143)	1.141 (0.171)	1.261 (0.255)	1.647* (0.413)
<i>Single-father</i>	1.397** (0.176)	1.230 (0.187)	2.243* (0.858)	2.066* (0.730)	1.303 (0.215)	1.178 (0.242)	1.927+ (0.709)	1.778 (0.695)
<i>Other Family Structure</i>	1.298* (0.145)	1.204 (0.189)	1.366 (0.291)	1.854** (0.397)	1.159 (0.170)	0.946 (0.224)	1.226 (0.327)	1.405 (0.421)
Family Socioeconomic Status	0.986 (0.0101)	0.988 (0.0139)	0.985 (0.0244)	0.987 (0.0240)	0.954** (0.0134)	0.951* (0.0201)	0.964 (0.0300)	0.959 (0.0272)
Father Unknown	1.008 (0.0868)	1.084 (0.160)	1.014 (0.135)	0.835 (0.189)	1.101 (0.134)	1.163 (0.235)	1.259 (0.264)	0.770 (0.226)
Percentage Non-White	1.092 (0.244)	1.414 (0.387)	0.703 (0.325)	0.311 (0.234)	0.658 (0.211)	0.720 (0.320)	0.416 (0.259)	0.307 (0.298)
Percentage Below Poverty	0.581 (0.319)	0.703 (0.410)	0.273 (0.329)	70.83* (129.0)	0.906 (0.720)	1.095 (1.013)	0.374 (0.613)	70.38 (187.6)
Father Closeness	0.966 (0.0226)	0.933* (0.0292)	1.054 (0.0503)	1.002 (0.0721)	0.986 (0.0332)	0.943 (0.0426)	1.046 (0.0654)	0.959 (0.0272)
Daily family meals	0.824** (0.0485)	0.826** (0.0568)	0.777+ (0.104)	0.910 (0.159)	0.788** (0.0621)	0.781* (0.0763)	0.746+ (0.121)	0.955 (0.171)
Parental Supervision	0.995 (0.0208)	1.003 (0.0285)	0.950 (0.0436)	1.052 (0.0647)	1.025 (0.0303)	1.016 (0.0406)	0.999 (0.0605)	1.101 (0.0847)
Repeated Abuse by Parent or Caregiver	1.152 (0.0980)	1.282* (0.138)	1.105 (0.195)	0.902 (0.190)	1.272* (0.128)	1.505** (0.186)	1.415+ (0.256)	0.930 (0.265)
School Attachment	0.902*** (0.0261)	0.897** (0.0325)	0.922 (0.0512)	0.983 (0.0686)	0.836*** (0.0306)	0.825*** (0.0388)	0.862* (0.0619)	0.918 (0.0878)
Child Temperament	1.439*** (0.0808)	1.485*** (0.113)	1.182 (0.131)	1.559** (0.236)	1.421*** (0.1000)	1.506*** (0.141)	1.022 (0.146)	1.466* (0.258)
Religious Attendance	0.905*** (0.0198)	0.882*** (0.0271)	0.951 (0.0410)	0.950 (0.0573)	0.929** (0.0228)	0.911* (0.0336)	0.964 (0.0581)	0.961 (0.0545)
Sample Sizes	6872	3718	1378	1107	6872	3718	1378	1107

Figures 1A-1D: Estimated survival curves for age of first arrest all males, & black, white, and Hispanic males, by whether the biological father was ever incarcerated

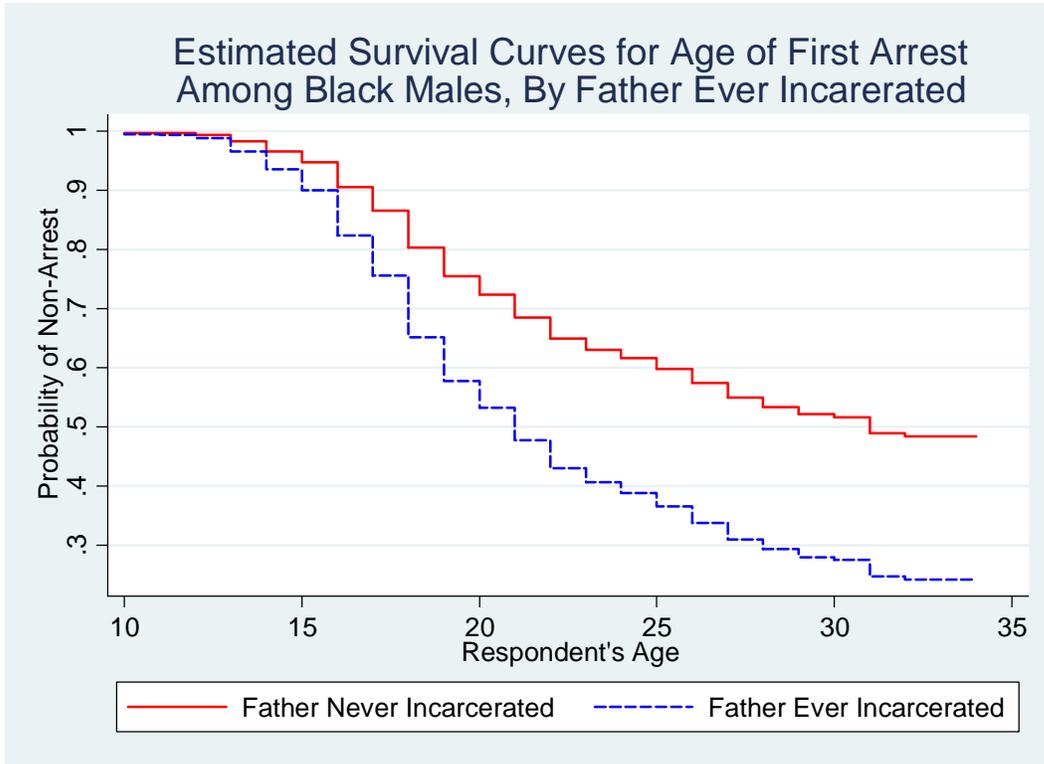
A. All Males



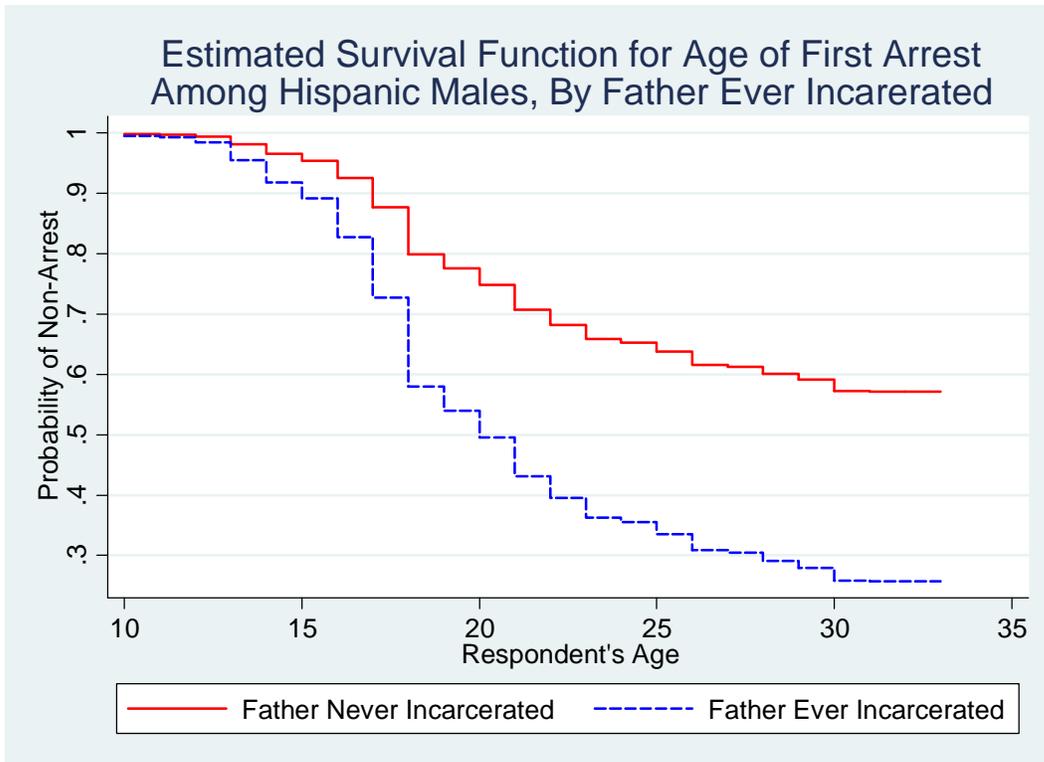
B. White Males



C. Black Males

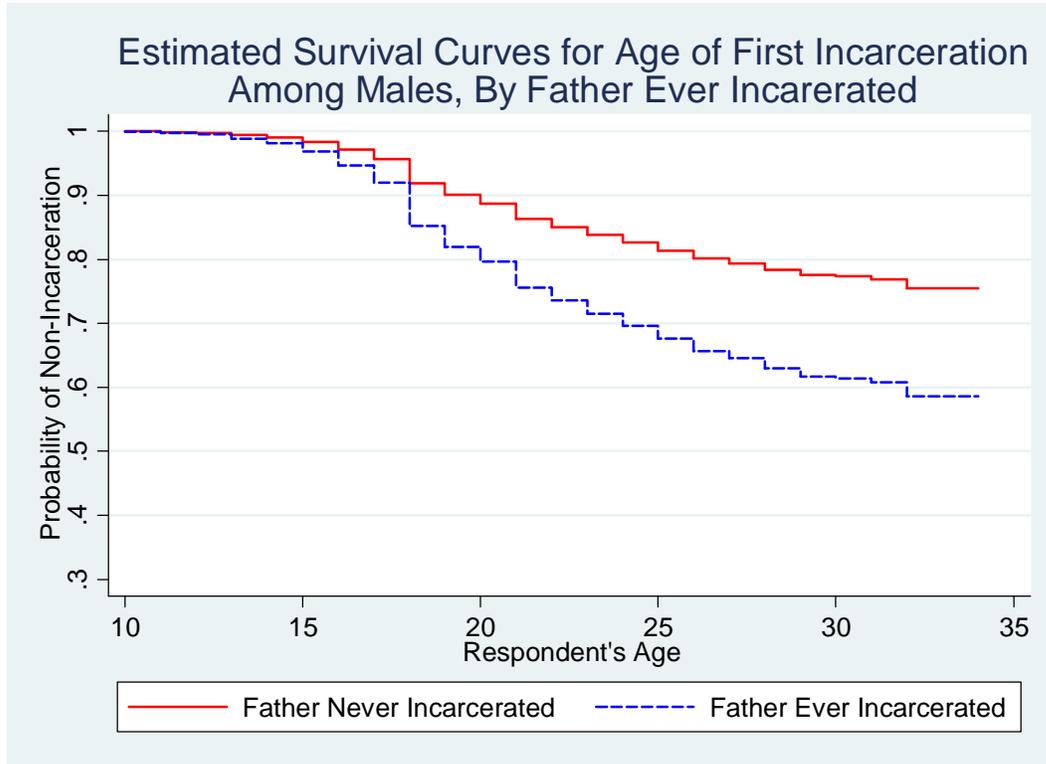


D. Hispanic Males

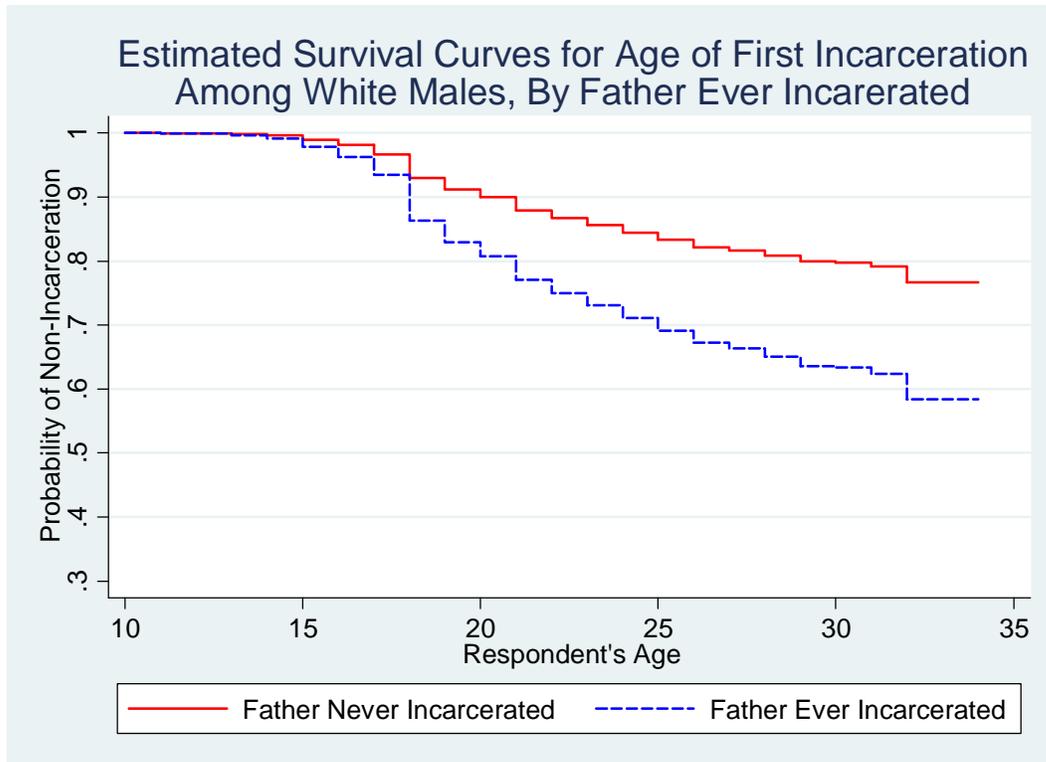


Figures 2A-2D: Estimated survival curves for age of first incarceration for all males, & black, white, and Hispanic males, by whether the biological father was ever incarcerated

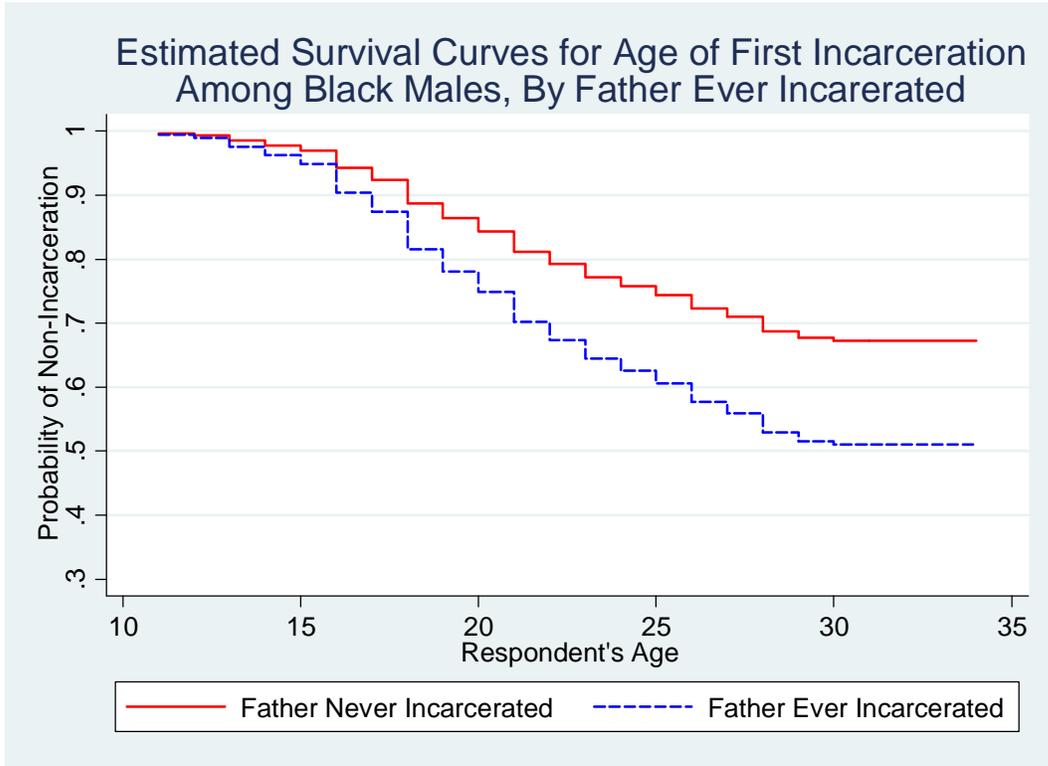
A. All Males



B. White Males



C. Black Males



D. Hispanic Males

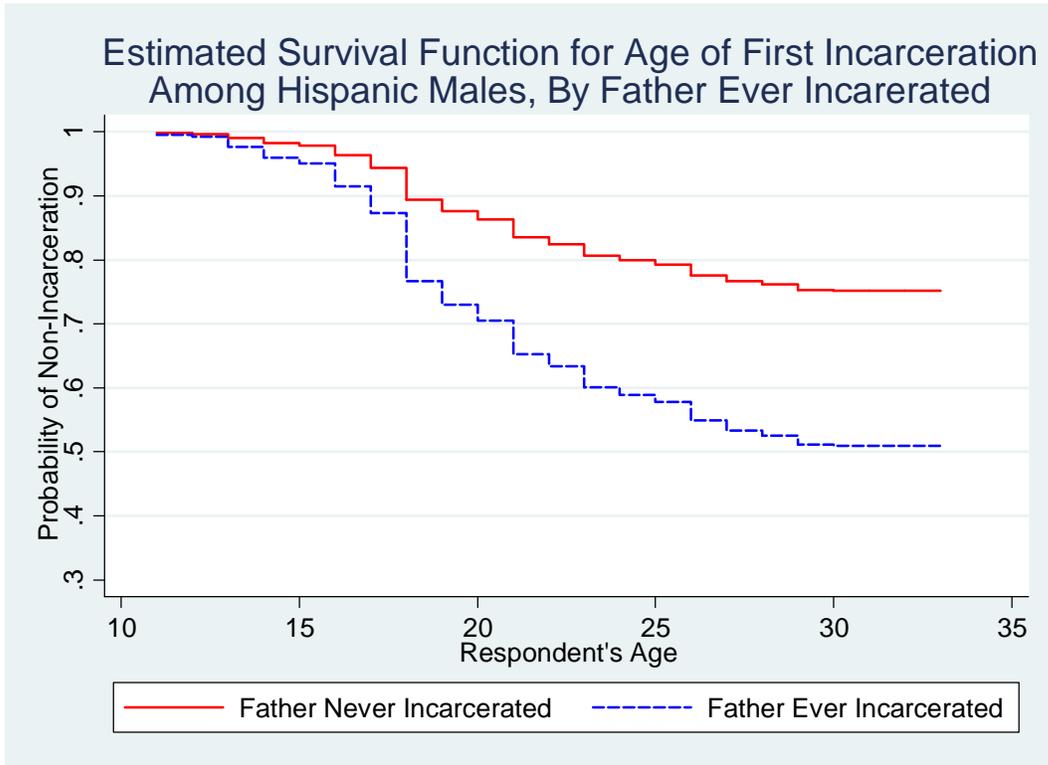
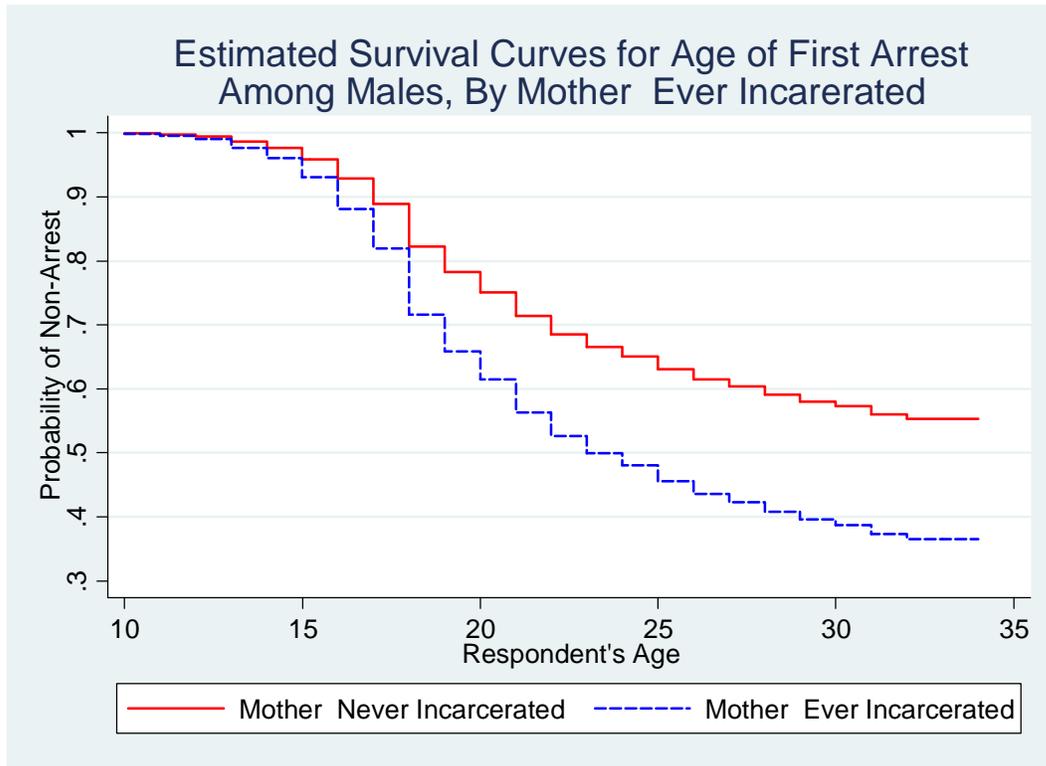


Table 4: Cox Regression Hazard Ratios and Standard Errors Examining Mother Incarceration & Control Variables With Risk of Arrest and Incarceration Among Males

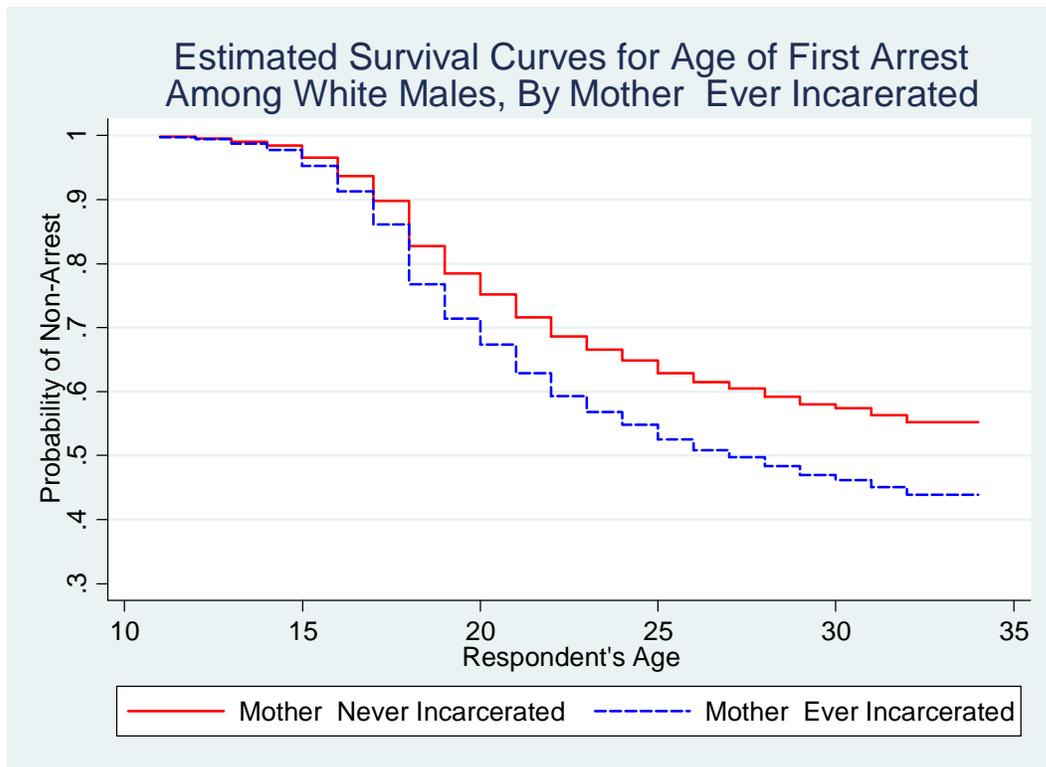
	Arrest				Incarceration			
	(1) All Males	(2) Whites	(3) Blacks	(4) Hispanics	(5) All Males	(6) Whites	(7) Blacks	(8) Hispanics
Mother Incarcerated Prior to Wave I	1.674*** (0.214)	1.374 (0.277)	1.580* (0.334)	4.934*** (1.382)	2.167*** (0.306)	1.991** (0.434)	1.999** (0.500)	3.464** (1.292)
Race								
<i>White [Reference]</i>								
<i>Black</i>	1.261** (0.109)				1.416** (0.155)			
<i>Hispanic</i>	1.048 (0.0927)				1.318* (0.159)			
<i>Asian</i>	0.573** (0.0970)				0.667 (0.167)			
<i>Native American</i>	1.417* (0.243)				1.824** (0.396)			
<i>Other Race</i>	0.927 (0.256)				1.058 (0.384)			
Age at Wave I Interviews	0.932*** (0.0148)	0.942** (0.0183)	0.938 (0.0389)	0.905** (0.0320)	0.953* (0.0226)	0.947* (0.0236)	0.908* (0.0402)	0.929 (0.0534)
Family Structure								
<i>Two Biological Parents [Reference]</i>								
<i>Two Parents, One Biological</i>	1.368*** (0.104)	1.349** (0.121)	1.614* (0.325)	1.512* (0.278)	1.452*** (0.148)	1.375** (0.164)	1.416 (0.388)	1.668 (0.532)
<i>Single-mother</i>	1.323*** (0.0991)	1.229* (0.127)	1.444** (0.195)	1.546* (0.294)	1.461*** (0.146)	1.430** (0.193)	1.235 (0.246)	1.669* (0.367)
<i>Single-father</i>	1.372* (0.178)	1.185 (0.181)	2.027+ (0.790)	1.868+ (0.690)	1.334+ (0.230)	1.190 (0.262)	1.661 (0.630)	1.915+ (0.717)
<i>Other Family Structure</i>	1.350** (0.139)	1.267 (0.199)	1.290 (0.244)	2.352*** (0.492)	1.224 (0.169)	1.033 (0.261)	1.109 (0.285)	1.668 (0.532)
Family Socioeconomic Status	0.979* (0.0101)	0.980 (0.0136)	0.976 (0.0246)	0.980 (0.0230)	0.945*** (0.0136)	0.934*** (0.0190)	0.964 (0.0312)	0.961 (0.0299)
Father Unknown	1.007 (0.0867)	1.114 (0.166)	1.001 (0.125)	0.746 (0.139)	1.094 (0.132)	1.218 (0.247)	1.245 (0.234)	0.694 (0.184)
Percentage Non-White	1.007 (0.231)	1.371 (0.384)	0.573 (0.276)	0.218* (0.162)	0.553+ (0.188)	0.659 (0.303)	0.320+ (0.201)	0.199+ (0.187)
Percentage Below Poverty	0.565 (0.318)	0.655 (0.400)	0.275 (0.328)	65.79* (125.8)	0.864 (0.714)	0.909 (0.954)	0.444 (0.702)	92.12 (261.0)
Mother Closeness	0.978 (0.0338)	0.955 (0.0406)	0.964 (0.0703)	1.091 (0.103)	1.007 (0.0460)	0.976 (0.0654)	0.959 (0.1324)	1.203 (0.151)
Daily family meals	0.821** (0.0493)	0.818** (0.0573)	0.764* (0.103)	0.898 (0.155)	0.761*** (0.0578)	0.769** (0.0766)	0.755+ (0.120)	0.976 (0.167)
Parental Supervision	0.994 (0.0208)	1.001 (0.0291)	0.960 (0.0421)	1.063 (0.0621)	1.020 (0.0312)	1.014 (0.0425)	1.000 (0.0582)	1.123 (0.0873)
Repeated Abuse by Parent or Caregiver	1.203* (0.103)	1.328** (0.141)	1.169 (0.197)	0.945 (0.189)	1.361** (0.141)	1.632*** (0.215)	1.411+ (0.247)	0.953 (0.260)
School Attachment	0.900*** (0.0268)	0.895** (0.0337)	0.934 (0.0517)	0.916 (0.0674)	0.832*** (0.0314)	0.823*** (0.0396)	0.872* (0.0599)	0.851+ (0.0820)
Child Temperament	1.436*** (0.0810)	1.477*** (0.114)	1.195 (0.136)	1.620** (0.240)	1.429*** (0.0994)	1.514*** (0.142)	1.028 (0.146)	1.478* (0.267)
Religious Attendance	0.902*** (0.0195)	0.876*** (0.0263)	0.961 (0.0369)	0.953 (0.0590)	0.926** (0.0218)	0.907** (0.0328)	0.962 (0.0508)	0.965 (0.0605)
Sample Sizes	6872	3718	1378	1107	6872	3718	1378	1107

Figures 3A-3D: Estimated survival curves for age of first arrest for all males, & black, white, and Hispanic males, by whether the biological mother was ever incarcerated

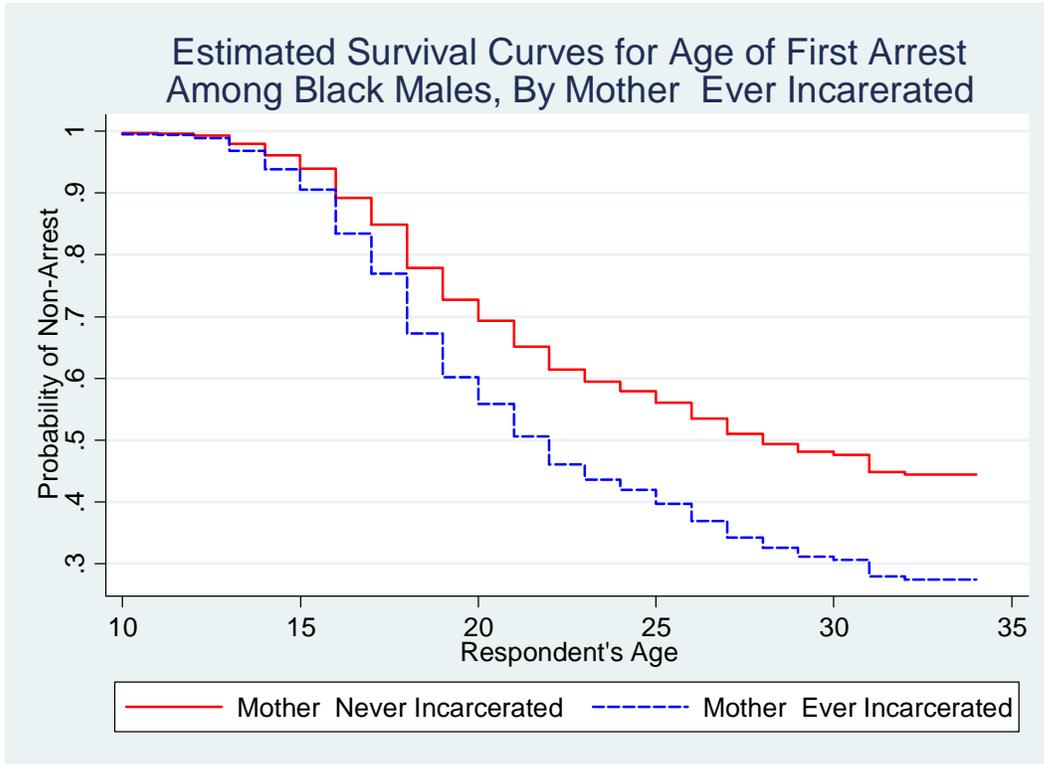
A. All Males



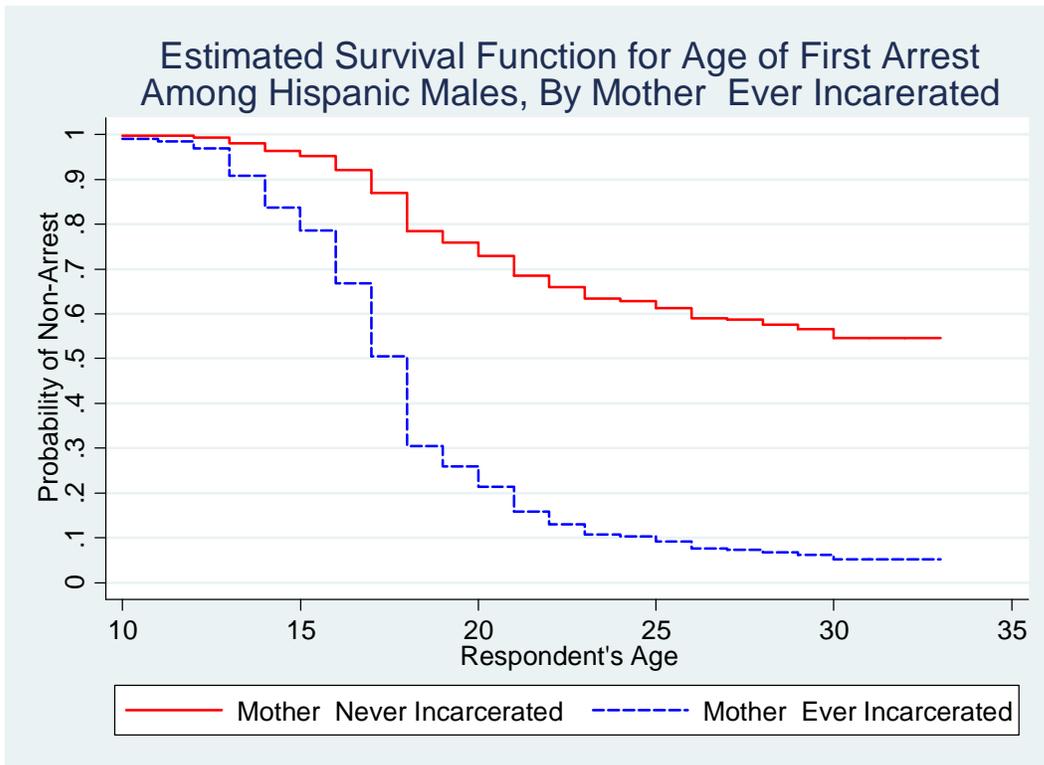
B. White Males



C. Black Males

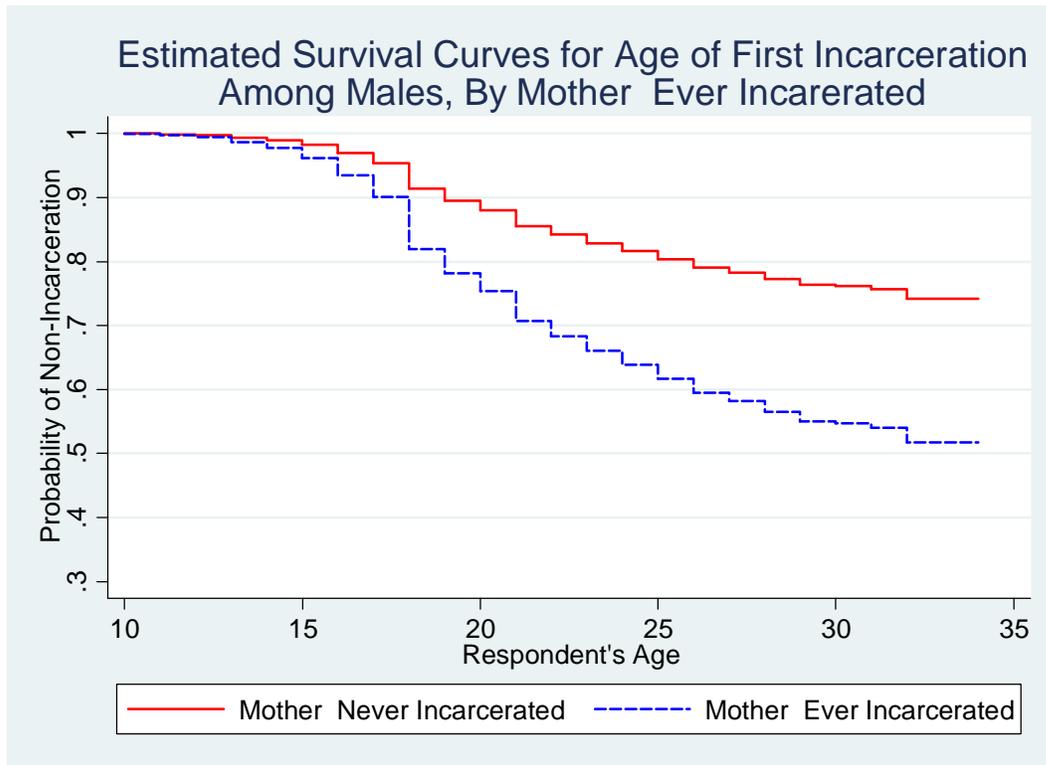


D. Hispanic Males



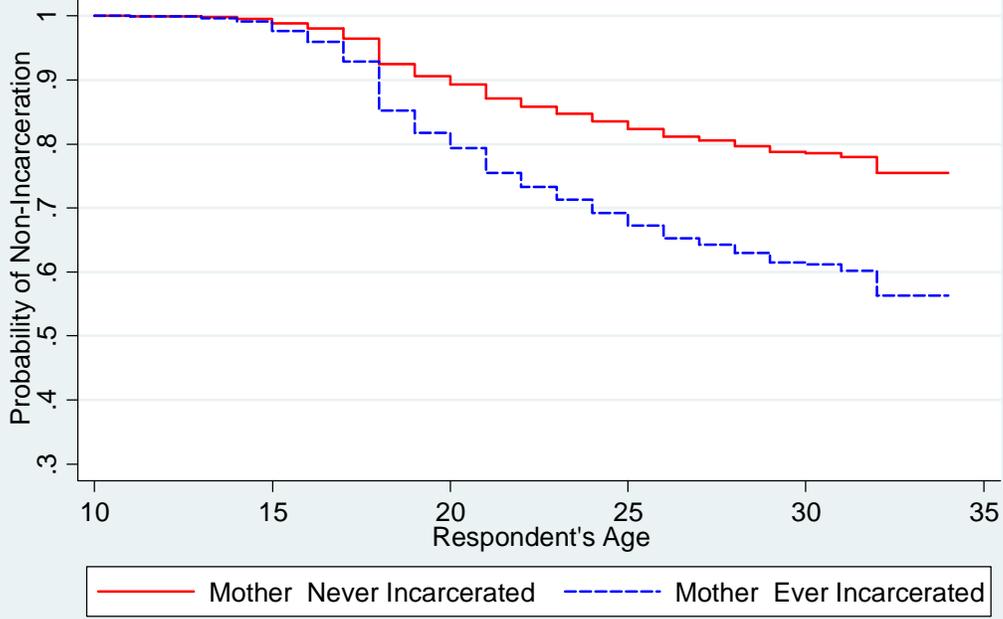
Figures 4A-4D: Estimated survival curves for age of first incarceration for all males, & black, white, and Hispanic males, by whether the biological mother was ever incarcerated

A. All Males



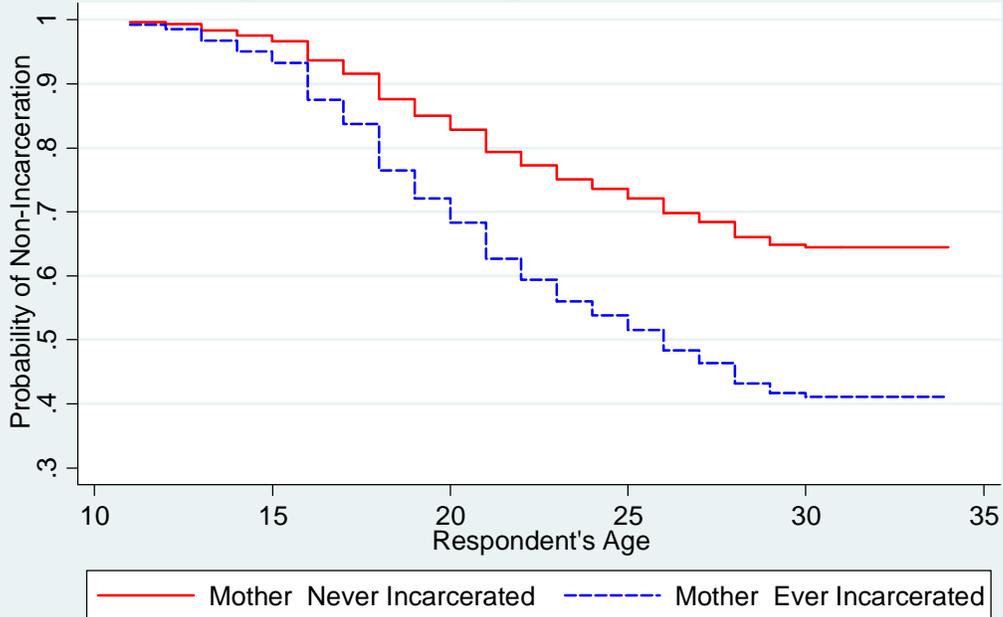
B. White Males

Estimated Survival Curves for Age of First Incarceration Among White Males, By Mother Ever Incarcerated



C. Black Males

Estimated Survival Curves for Age of First Incarceration Among Black Males, By Mother Ever Incarcerated



D. Hispanic Males

Estimated Survival Function for Age of First Incarceration Among Hispanic Males, By Mother Ever Incarcerated

