THE EDUCATIONAL EFFECTS OF PARENTAL INCARCERATION

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Approved:

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Abstract

This paper explores the intergenerational educational consequences of incarceration. Through a structural equation model with latent variables, it analyzes four waves of data from the National Longitudinal Study of Adolescent Health (Add Health) to explore how paternal incarceration influences children's school trouble in their mid-high school years. The data show that the children of the prison boom are socioeconomically vulnerable; they are more likely to be from minority racial/ethnic groups, to have non-traditional family structures, and to be from low-income families. Paternal incarceration negatively affects adolescents' performance in school through decreased family earnings, altered family structures, reduced paternal involvement in the child's life, and strain on the child's mental health. It also harms school performance directly, theoretically through social stigma. By exploiting an idiosyncrasy of the Add Health data, this model identifies and quantifies a paternal incarceration effect that acts separately from the effect of paternal criminality. Punishment in America reverberates across generations.

Acknowledgements

I am deeply grateful for the support of Dr. Boone Turchi and Dr. Geetha Vaidyanathan. Without Dr. Turchi's guidance and perspective, this project would have been less ambitious and my learning less profound. Dr. Vaidyanthan provided invaluable encouragement at every step of the thesis process. Thank you both.

Introduction

In the year 1831, the French government commissioned a report from Alexis de Tocqueville. His travels produced the famous *Democracy in America*, but the purpose of the trip was to examine the new American prison system. He wrote to Louis Philippe I about solitary confinement, prison labor, and the new penitentiary buildings. In American penitentiaries, he found ideals quite different from those he praised in *Democracy in America*: "Whilst society in the United States gives the example of the most extended liberty, the prisons of the same country offer the spectacle of the most complete despotism." (de Beaumont and de Tocqueville, 1833). We can only imagine what de Tocqueville would report about the contemporary U.S. prison system.

The sheer scale of the American prison system is hard to grasp. In 2012, there were 2,240,600 people in prison or jail in the United States (Glaze and Herberman, 2013). For perspective, the 2012 population of our nation's capital was less than a third of that figure. Nearly as many people are currently locked up as lived in America at the time of the revolution (Census Bureau, 1975), and there are more black men in prison than there were enslaved in the year 1850 (Alexander, 2010). More Americans live in a cell than in the state of New Mexico.

The Land of the Free is the most imprisoned nation on earth. In the U.S., nearly one in every 100 people is behind bars (Warren, 2008), which is the highest incarceration rate in the world. With just 5% of the world's population, the U.S. government locks up 25% of the world's prisoners (Alexander, 2010). Most Americans are surprised to learn that their country's incarceration rate dwarfs those of governments we usually consider highly authoritarian, such as China, Russia, and Iran.

Not only are these figures staggeringly high compared to the rest of the world, they are also dramatically higher than they have been in our country's history. In the 1970s and 80s, state and federal governments – responding to dramatic increases in crime – passed "tough on crime" legislation that often mandated long prison terms for nonviolent crimes, especially drug crime. In less than three decades, the prison population skyrocketed from about 300,000 to over 2 million. Drug crime drove this surge, accounting for about two-thirds of the increase in federal inmates and about half the increase on the state level. In 2010, there were more people serving time for drug crime than there were total inmates in 1985 (Alexander, 2010).

The burden of the penal system is not shared equally among all groups of Americans. In 1960, African-American men were nearly five times more likely to be incarcerated than White men. In 2010, five decades after the climax of the Civil Rights Movement, African-American men were incarcerated at a rate six times larger than the rate for White men. Hispanic men are nearly three times more likely to be incarcerated than White men (Pew, 2013). On the 50th anniversary of Martin Luther King Jr.'s "I Have a Dream" speech, President Jimmy Carter noted that, "we all know how Dr. King would have reacted to have more than 835,000 African-American men in prison, five times as many as when I left office, and with one-third of all African-American males being destined to be in prison in their lifetimes" (Carter, 2013).

Now, over thirty years after the Prison Boom began in the 1970s and 1980s, we are beginning to observe the effects of mass incarceration on a second generation. Nearly half of state prisoners and nearly two-thirds of federal prisoners are parents (Hagan and Foster, 2012). The children of the prison boom therefore make up a large cohort, especially in low-income communities. 2.7 million children have an incarcerated parent, and two-thirds of those parents were locked up for nonviolent offenses (Western and Pettit, 2010). Research has begun to

explore the ways in which the consequences of mass incarceration reverberate through communities and across generations. The evidence is strong that the harsh sentencing of the tough-on-crime era punishes innocent children as well as their criminal parents.

This project analyzes the educational effects of paternal incarceration. Using the National Longitudinal Study of Adolescent Health (Add Health; Harris, 2009), we explore the ways in which paternal incarceration affects school trouble in the mid-high school years.[1] There are two main contributions of this study. First, a structural equation model (SEM) allows us to estimate the direct effects of parental incarceration on school trouble, as well as the effects moderated through family structure, family income, child's mental health, and paternal involvement in the child's life. Also, we exploit an idiosyncrasy in the Add Health design to distinguish the effects of the experience of paternal incarceration from the effects of the father's criminality. The results therefore contribute to an understanding of how mass incarceration affects a generation of American children.

[1] 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.

Chapter 1: The Theory, the Literature, and the Model

General Theoretical Model

The theoretical framework of this study stems from the point of view of an adolescent and the decisions she makes. Grounded in an economic theory of choice, it frames adolescent decision-making as an analysis of the costs and benefits of those decisions. In this way, one might label this framework a rational choice model, although the adolescent's decisions may not appear rational to an outside observer who does not understand the constraints and incentives that the adolescent responds to. We use this general theoretical framework to map the intrinsic and extrinsic influences on an adolescent's school outcomes. Later, we will insert paternal incarceration into this general school achievement model, and ultimately we will use this theoretical framework to craft an empirical model of adolescent school trouble.

For the most part, adolescents make decisions through cost-benefit analyses. When faced with the decisions to skip school, do their homework, pay attention in class, etc., adolescents weigh the costs and benefits, both present and future, of these choices. That is not to say that adolescents always make decisions that reasonable adults would consider rational. The decision-making frameworks of adolescents probably vary dramatically from the frameworks of reasonable adults. They make decisions according to these personal frameworks, and even their destructive behavior might make sense according to their perceived costs and benefits. If we put ourselves in the mind of a 16-year-old girl deciding whether to do her math homework or spend time with her friends, we can begin to examine the decision-making mechanisms of adolescents.

First, she must weigh the immediate repercussions of her behavior. In the case of the homework decision, the 16 year old might face consequences such as the chance of school-based

discipline like detention, social stigma, and perhaps the disappointment or punishment of her parents. She weighs these direct costs against the benefits of skipping her homework. Besides the direct consequences of problem behavior, adolescents must calculate the costs and benefits in terms of these actions' effects on their future achievements. The adolescent makes this calculation based on her perception of her personal potential. That is, problem behavior affects kids differently depending on what path they are on. For example, the costs and benefits of doing math homework probably differ between a girl who intends to attend a top-tier college and a girl who does not expect to graduate from high school.

A complex web of personal and background characteristics moderate all these costs and benefits. Some personal traits affect adolescents' perceptions of their potential achievement, and also their costs and benefits of applying themselves to school, including race/ethnicity, intelligence, primary language, past achievement, and physical and mental health. Through their effects on the child's perceived costs and benefits of engaging in problem behavior, these factors affect school trouble.

The weight that adolescents place upon the future costs and benefits of their decisions dramatically affects their choices. Some adolescents are better than others at predicting the future consequences of their decisions. Furthermore, the extent to which adolescents factor these future consequences into their decisions varies greatly. We call this personal characteristic a child's "time orientation." If the 16-year-old girl we imagine is highly sensitive to the future costs and benefits of her actions, she may be hyper aware that her decision to do her homework will affect her future goals of making the honor roll, attending college, etc., and she may be more likely to dedicate her time to schoolwork.

Many background characteristics that are outside of the adolescent's control affect her academic choices. Cultural norms and expectations, set either by the family or the wider community, dramatically affect adolescents' perceptions of what they can and should achieve. Some determinants of these norms are neighborhood quality, parental education, and parental income, and the strength of their influence probably depends on the adolescent's relationship with her parents. Family structure also likely affects the cost-benefit tradeoff of her decision to study. For example, suppose the 16-year-old comes from a one-parent household. Her mother works through the evening, and this girl has to take care of her younger siblings in the afternoon. The cost of studying is therefore much higher for her.

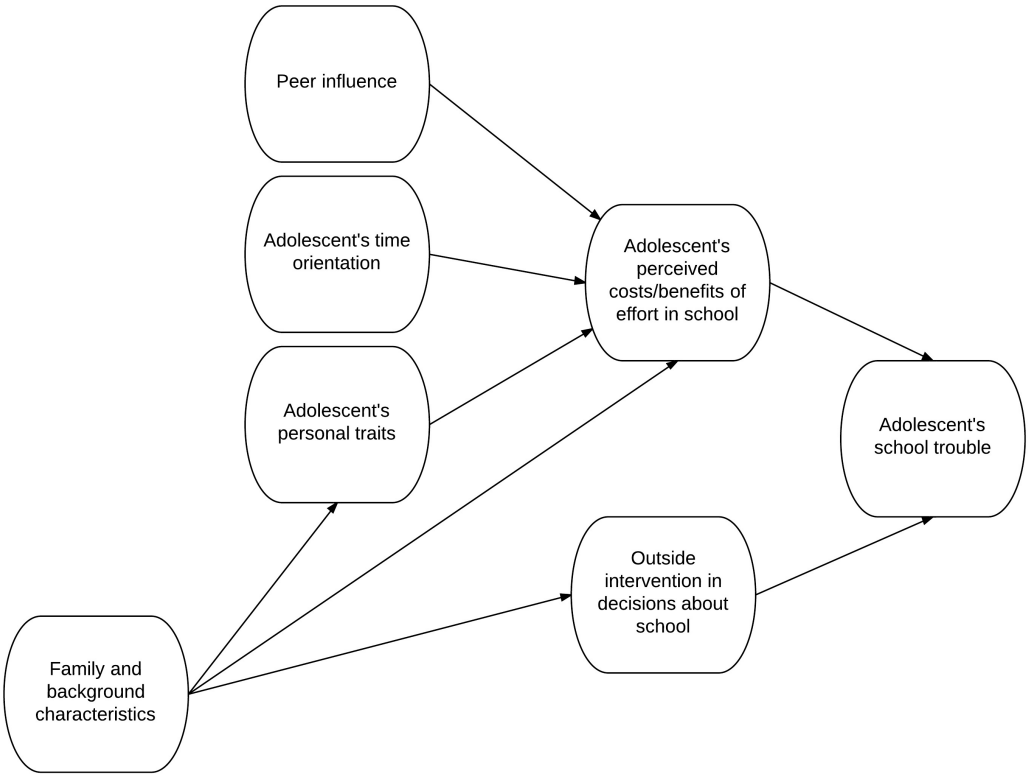
Other factors affect the cost-benefit tradeoff of that decision to study. Peer influence, especially involvement in a normative group, can have an enormous impact on the costs and benefits of studying. If that sixteen year old girl belongs to a church youth group that prizes good grades, she faces greater benefits of her time studying. On the other hand, if she belongs to a competitive swim team, the opportunity cost of studying in terms of time spent swimming might tip the scales. In addition to all these external factors, different children probably have different personal characteristics that contribute to their drive and ambition.

Although it seems reasonable to assume that adolescents usually make rational decisions within their contexts, we know intuitively that this is not always the case. Perhaps because their brains have not fully developed, or because they have not yet been socialized to the extent that adults have, adolescents sometimes make decisions that a reasonable adult would consider irrational. Their impulses or peer pressure may lead them to miscalculate the costs and benefits of their actions, or even perhaps to make decisions outside of this rational framework. In this type of situation, there may be outside forces – usually the parents – that intervene in the

adolescent's decisions. Therefore, adolescents' periodic lapses from rational decision making are another reason why their relationships with their parents affect their performance in school.

Figure 1.1 represents this theoretical model. A child's family and background characteristics, including neighborhood quality, family structure, parental education, parental income, and relationships with her parents directly affect a child's perceived costs and benefits of working hard in school through the mechanisms discussed above. These background characteristics also affect a child's ultimate decisions because they may moderate the extent to which outside forces, usually the parents, intervene in the child's choices. The adolescent's personal traits, including race/ethnicity, intelligence, primary language, past achievement, and physical and mental health affect her educational decisions, and family background moderates many of these characteristics. The figure shows how, as discussed, the child's time orientation and peer influence may affect her cost-benefit analysis, and consequently her school outcomes.

Figure 1.1: General Theoretical Model of Adolescent Educational Outcomes



Influence of Incarceration

This study explores the ways that parental incarceration, and the criminal behavior that precedes it, may directly or indirectly affect adolescent decision making and trouble in school. Working from the framework explained above, there are several ways in which parental incarceration may play a part in a child's school outcomes. Parental incarceration may directly influence a child's trouble in school through social stigma. It may also alter the child's perceived future achievement, therefore affecting the calculation of future costs and benefits of problem behavior. Parental incarceration may increase adolescents' school trouble indirectly through its harmful effects on

four determinants included in our framework: household economic status, family structure, parental relationships, and child's mental health.

This section also serves as a review of the literature on the effects of paternal incarceration, paying special attention to the educational effects. Only a decade ago, the vast majority of the literature on the intergenerational effects of incarceration was limited to descriptive or anecdotal research (Johnson and Waldfogel, 2004; Travis and Waul, 2003). However, in recent years, researchers have begun to directly observe the life course effects of parental imprisonment.

Direct effects of paternal incarceration on school achievement

There are several ways in which parental incarceration might directly affect adolescents' school outcomes. Children often suffer from the absence of parent figures. Paternal incarceration may be a particularly damaging form of paternal absence. The social stigma of having a father in prison could intensify the problems associated with paternal absence due to divorce or other circumstances. Research shows that parental incarceration is more deleterious on child development than other kinds of parental absence, supporting the notion that the trauma and stigma of parental incarceration uniquely harm children's decisions that lead them toward success or failure (Geller et al., 2012). Pager (2007) deems this process "marked absence," explaining that paternal incarceration carries with it a set of social and psychological repercussions that exacerbate the effects of paternal absence. Even after the prison term, the social stigma of parental incarceration may continue to affect the way children perform in school. Social stigma is one way in which parental incarceration may directly affect school

trouble, but there may be more kinds of direct influence that are unknown to us or highly individualized to the child.

Indirect effects of paternal incarceration on school achievement

Beyond these direct effects, paternal incarceration may stifle children's academic outcomes by affecting various other determinants of success. For the purposes of this study, in addition to its direct effects, paternal incarceration alters children's outcomes through its harmful effects on family economic status, family structure, paternal involvement, and the child's mental health.

Paternal incarceration reduces household earnings. Clearly, families often lose a wage-earner during the prison term itself, but these income effects also continue to stifle family earnings after release. Serving time in prison may reduce social and human capital, and also exacerbate existing physical and mental health issues (Western, 2006). Also, ex-offenders face legal barriers that prevent them from working in certain industries, and they face stigma in the hiring process (Alexander, 2010).

Several studies document the labor market effects of incarceration. Western (2002) employs a life course perspective on criminal behavior and concludes that incarceration "is a turning point that reduces the earnings mobility of young men." His analysis of the National Longitudinal Survey of Youth indicates that incarceration reduces the earnings of ex-inmates by about 20%. When formerly incarcerated men do find jobs, they are often in industries that offer neither job security nor the economic mobility of the primary labor market. A later Western study compares men who have been involved in crime but not served time behind bars with men who were incarcerated, concluding that the prison sentence itself contributes to the poor labor

market outcomes for the formerly incarcerated (Western, 2006). Pager (2003) uses an experimental audit approach in which matched pairs applied for entry-level jobs. She concludes that ex-offenders are only one-half to one-third as likely as non-offenders to be considered by employers. Holzer (2009) reviews the studies on the effects of incarceration on subsequent earnings and employment. He concludes that the preponderance of evidence, from studies using survey data, administrative data, and aggregate level data, support the theory that incarceration reduces offenders' post-prison employment and wages. (See also Raphael, 2007; Alexander, 2010).

Not unexpectedly, these labor market effects of incarceration play out in a second generation. More than half of prisoner fathers report that at the time of arrest they were the primary economic support for their children (Glaze and Maruschak, 2008). Therefore, it is no surprise that family earnings fall when a parent is incarcerated. One study finds that the average child's family income falls by 22% compared to the year before the father's incarceration (Western and Pettit, 2010, using Johnson, 2009). These figures do not account for shifting family structures due to incarceration; grandparents, for example, may provide financial support while the father is incarcerated. Despite these shifts, paternal incarceration is associated with material hardship of children (Schwawrtz-Soicher et al., 2011). Even after the prison term, Geller et al. (2012) show that formerly incarcerated men are less likely to contribute financially to their families, and those who do generally contribute less.

In addition to reducing family income, paternal incarceration may affect family structure. Paternal incarceration destabilizes families. Marriages and marriage-like partnerships that are interrupted by incarceration often fail (Western, 2006). Like the effects on family economic status and the social stigma of incarceration, the effects on family structure extend beyond the

prison term. Also, children of incarcerated parents are more likely to experience residential instability than their peers with similar backgrounds (Geller et al., 2009). Beyond divorce and separation, the absence of a wage-earner may force the other parent, usually the mother, to take on extra work, further reducing the time the child spends with her parents. With one parent absent and the other working more, parental intervention into adolescents' bad decisions may be less likely or less powerful. In particular, lost parenting can lead to less discipline when it comes to school work, and also to less intervention in risky behaviors (sex, alcohol/drug abuse, smoking, petty crime) that have significant effects on school success.

Paternal incarceration is associated with various physical and mental health problems, including depression, posttraumatic stress disorder, anxiety, high cholesterol, and asthma (Lee et al., 2013). This study reveals a larger effect of specifically paternal incarceration on mental health than on physical health. These findings offer evidence for our theoretical model, which includes paternal incarceration's direct effect on mental health and indirect effect (through income) on physical health. Swisher and Roettger (2012) use Add Health and similarly conclude that paternal imprisonment increases risk of depression and delinquency across races, ethnic group, and sexes. Murray and Farrington (2008) conclude that children of incarcerated parents are about twice as likely to suffer from mental health problems. Children who struggle with their mental and physical health have a harder time succeeding in school.

It is important to note the extensive literature on the effects of paternal incarceration on non-educational behavior problems. The most extensively researched area in this field is the intergenerational transmission of criminality. Parental incarceration leads to increased chance of delinquency and antisocial behavior during adolescence and into adulthood (Murray and Farrington, 2008). Wildeman (2010) uses Fragile Families data and finds that paternal

incarceration causes increased physical aggression among boys, and that these effects are concentrated among boys whose fathers were incarcerated for non-violent offenses. Johnson (2009) uses PSID data to examine the effects of parental incarceration on children, finding that parental incarceration leads to greater behavioral problems. These behavioral problems probably reverberate through the child's school performance.

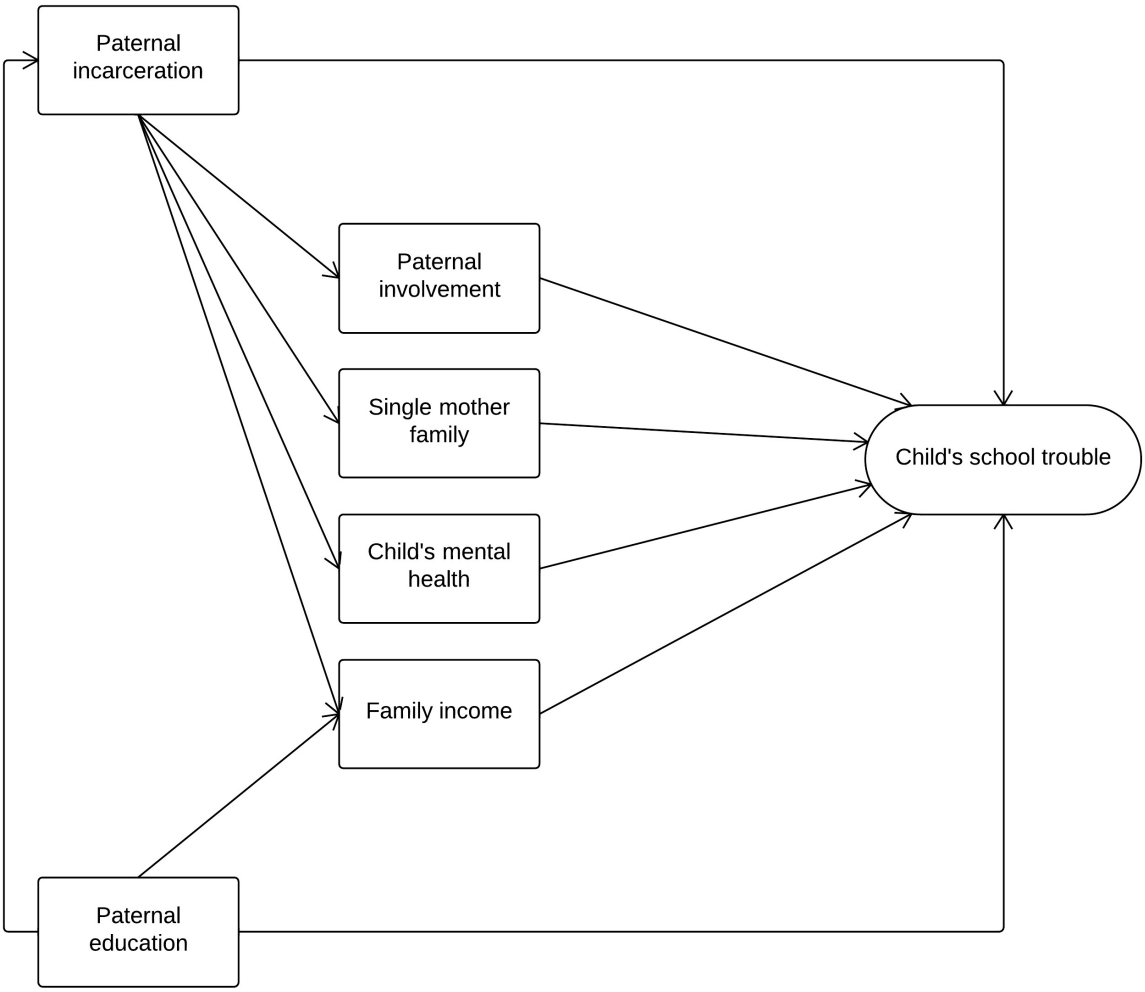
Several projects empirically demonstrate the negative effects of parental incarceration on educational outcomes. Paternal imprisonment is associated with higher rates of expulsion from school and lower college completion rates (Geller et al., 2012). Foster and Hagan (2009) use Add Health data and a socialization/strain theory model to show that paternal imprisonment has negative consequences on the high school GPA and highest level of education achieved by adolescents entering young adulthood. Hagan and Foster (2012) observe educational "spill over" effects in schools with particularly high parental incarceration rates, showing that the parental imprisonment may cause harm on the community as well as the individual level. These community-level educational effects make sense given that incarceration is highly geographically concentrated in areas with high poverty, unemployment, family disruption, and racial isolation (Sampson and Loeffler, 2010).

Other studies demonstrate the general disadvantage of parental incarceration. Foster and Hagan (2009) use the Add Health data to argue the presence of an intergenerational "detainment process" that results in the increased risk of homelessness, health-care uninsuredness, and political disengagement. Other analyses of longitudinal data sets have revealed that children of incarcerated parents face more economic and residential instability than their counterparts, and these effects cannot be explained by other observed demographic background characteristics (Geller et al., 2009).

It is important to note that incarceration almost always follows criminal behavior on the part of the parent. The criminal behavior itself, even if the parent is never incarcerated, may affect children's outcomes. The traits and conditions that lead people to engage in criminal activity in the first place (aggressive behavior, violence, low engagement with social/civic institutions, poverty, bad neighborhoods, low levels of education, etc.) are in themselves associated with negative intergenerational outcomes. It is impossible to argue that the negative effects of parental incarceration are due entirely to the experience of having a father in prison, and not also at least in part due to having a criminal father. Ideally, one would want distinct measures of criminality and incarceration in order to measure their separate effects. Generally this is not possible due to lack of data, but the Add Health data offer a way to address this need, as will be discussed in Chapter 2.

Figure 1.2 demonstrates how paternal incarceration directly and indirectly affects school trouble, incorporating this variable into the general theoretical model. Father's education, family income, family structure, and child's relationship with the father are some of the "family and background characteristics" explained in the general theoretical model and represented in Figure 1.1. Child's mental health falls under the category of "adolescent's personal traits."

Figure 1.2: The Effects of Paternal Incarceration on School Trouble



Chapter 2: The Data and the Empirical Model

Add Health Data

This study uses the National Longitudinal Study of Adolescent health, a longitudinal data set of a nationally representative sample of youth (Add Health; Harris, 2009). Add Health "is the largest, most comprehensive longitudinal survey of adolescents ever undertaken." The study design ensures the data are nationally representative in terms of region, urbanicity, school size, school type, and ethnicity.

Adolescent respondents were in grades 7-12 in the 1994-1995 school year, during the first wave of data collection. Three subsequent in-home interviews were conducted in 1996, 2000-2001, and 2007-2008. In the last wave of data collection, respondents were young adults aged 24-32. Data were collected from the adolescents, their peers, parents, siblings, school administrators, friends, and romantic partners. These personal data are merged with data that describe respondents' neighborhoods and communities, including variables on poverty, unemployment, crime, health care, and social programs. Of the 20,745 adolescents who participated in the first in-home interview, 15,701 were interviewed as young adults in Wave IV.

Add Health was created in response to a U.S. Congress mandate to fund a study that explores adolescent health. Thus, the early waves of the study focus on adolescent health and risk behaviors and the forces that might affect them. As the respondents entered young adulthood, the scope of the study broadened. Of relevance to this project, Wave IV includes variables on parental incarceration history, as reported by the child. Over 15% of children reported that their biological fathers had spent some time in prison. Add Health also includes extensive information that describes respondents' educational attainment, labor market

experiences, family structures, relationships, and criminal justice involvement. This data therefore allow for rich analysis of the effects of parental incarceration on educational outcomes.

Who are the Children of the Prison Boom?

Although they make up a large cohort, little description of children with incarcerated fathers has been published. Weighted to account for attrition and systematic oversampling, the Add Health data allows us to present some powerful descriptive statistics. The data show that the children of the prison boom were socioeconomically vulnerable aside from their fathers' incarceration.

Minorities are overrepresented in this cohort. As shown in Figure 2.1, 24.78% were African American, versus 15.83% of the general population. As for ethnicity, 12.5% of the children with incarcerated fathers were Hispanic, as opposed to 10.87% of the general population. These rates are not surprising given the overrepresentation of African-American and Hispanic men in the criminal justice system.

Children with incarcerated fathers were also more likely to have non-traditional family structures. As shown in Figure 2.2, 25.78% of these children lived with both biological parents when they completed Wave I, as opposed to 63.01% of children whose parents were never incarcerated. They were also over 17% more likely to live in a single-parent household at Wave I. In the first year in which the father was sent to jail or prison, 58.79% of these children lived with their biological fathers. By the time they participated in Wave 1, only 26% still lived with their biological fathers.

Figure 2.1: Race of Children with Incarcerated Fathers

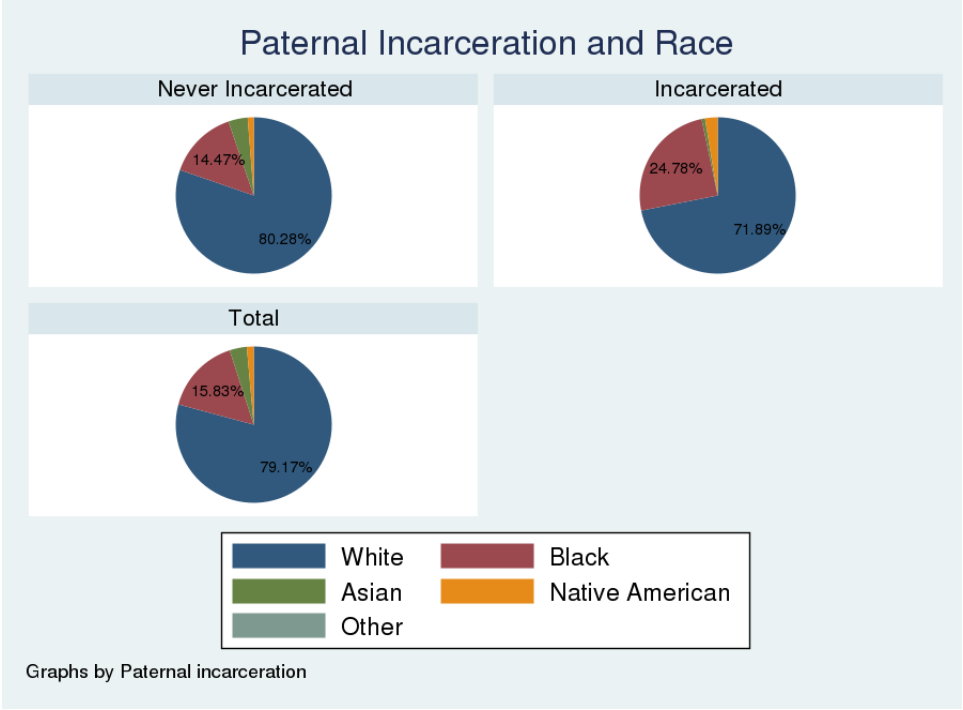
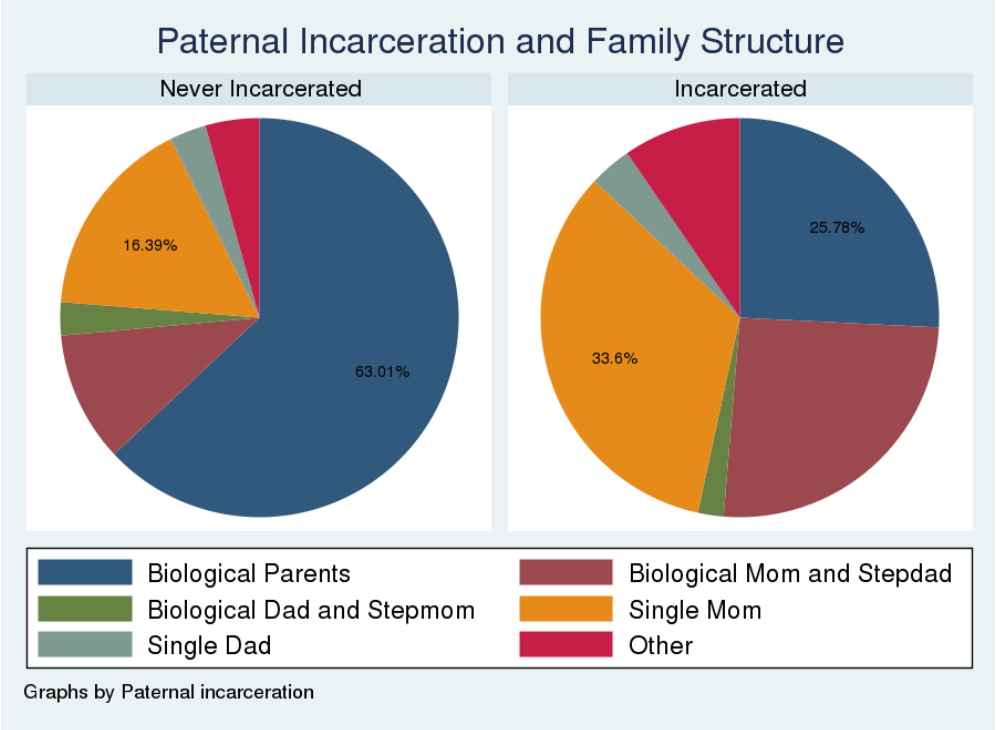
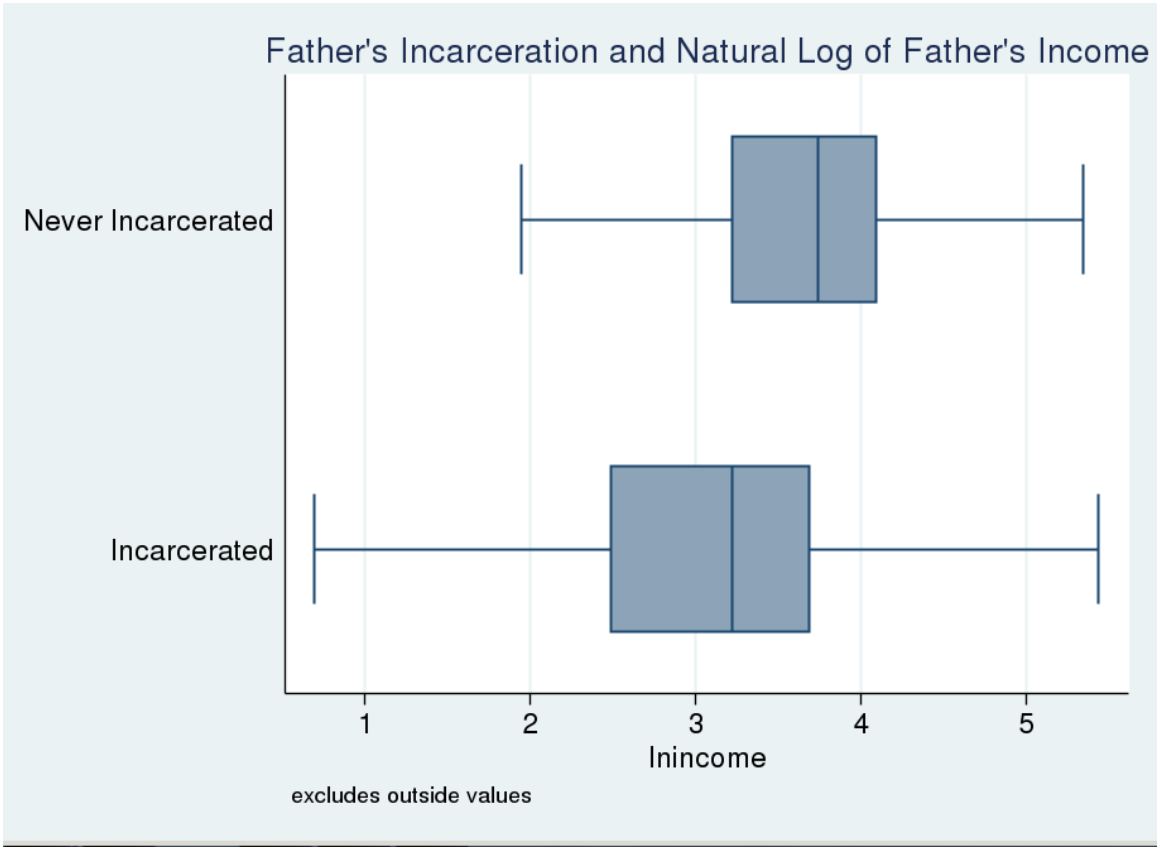


Figure 2.2: Family Structure of Children with Incarcerated Fathers



Most markedly, the children of incarcerated fathers are relatively low-income. The median reported family income for children of incarcerated fathers was $25,000, which is $15,000 less than the median family income for children of non-incarcerated fathers. See Figure 2.3. Nearly 35% of children of incarcerated fathers lived below the federal 1995 poverty line for a family of four. As discussed in the theory section, paternal incarceration theoretically affects family income, and we do not have a measure of family income before the father's incarceration. That being said, these children also reported that their fathers had a lower education level than the general public (4.35 compared to 5.53 on the scale explained in Appendix A) which suggests that their fathers were relatively low-income even before incarceration stifled their labor market expectations.

Figure 2.3: Family Income of Children with Incarcerated Fathers



Besides being vulnerable in the ways listed above, these children were more likely to face other kinds of social challenges. Fully 38.75% of mothers reported that their children's incarcerated fathers were alcoholics, as opposed to 10.19% of fathers who were never incarcerated.

In sum, the Add Health data reveal that the children of the prison boom are generally vulnerable. They are more likely to belong to a minority racial/ethnic group, live in a non-traditional family structure, and suffer from low family income. Their fathers are more likely to be alcoholics, and we cannot forget that their fathers committed crimes. The significance of this chapter is that the harm of paternal incarceration discussed later in this project fall upon a population that was born into serious disadvantage.

The Empirical Model

This study explores how paternal incarceration might stifle school achievement both directly and indirectly through its negative effects on family income, family structure, father's involvement in the child's life, and child's mental health. We explore these hypotheses with a structural equation model (SEM), using Stata 13.1. SEM allows for the examination of the complex relationships between paternal incarcerations, observed family variables, observed personal characteristics of the child, and the child's school achievement. SEM offers the extra advantage of modeling school achievement with a latent variable, measured with observed variables that reflect the child's trouble in school. Overall, the Add Health data provided strong measure of and proxies for the variables included in the theoretical model.

The paternal incarceration variable was constructed using a Wave IV question that asks if the respondent's biological father had ever gone to jail or prison. Just over 15% of respondents

answered affirmatively. The section also solicits information regarding the respondent's age at the time of the father's first instance of incarceration, and the respondent's age at the father's last release. Because the dependent variables that capture school effects are measured in Wave I, we used their responses to the year in which their father was incarcerated to create a dummy variable that captures if respondent's biological father was incarcerated prior to the Wave I interview. We call this pre-Wave I paternal incarceration, and it describes 1,487 respondents, or 10.17% percent of the sample. For the purposes of exploring the effects of the father's propensity for incarceration, we also created a dummy variable for respondents whose fathers were incarcerated after they responded to the Wave I interview. At 2.36% of the sample, 334 respondents have post-Wave I paternal incarceration.[2]

The serious limitation of these variables is the conflation of fathers who went to jail and those who went to prison. Whereas jails usually hold people who are awaiting trial and those who are serving very short sentences, prisons are for people who are convicted of crimes and those serving longer sentences. Unfortunately, the Add Health data do not allow for the distinction between jailed and imprisoned parents. Therefore, some of the fathers who served jail time, and are therefore coded as positive in the paternal incarceration variables, may have been jailed for minor offenses such as disorderly conduct, civil disobedience, etc. Those fathers may have spent as little as a few hours in jail, and their children are not subject to the theoretical effects of incarceration. This limitation may contribute to less-than-ideal fit of the data to the theoretical model.

The primary dependent variable, school trouble, is a latent variable constructed with observed Wave I variables. We used seven observed variables: how often the respondent skipped

[2] Not all respondents who reported paternal incarceration could be divided into these two groups because 2.9% of respondents, or nearly a fifth of the total number that reported paternal incarceration, did not know how old they were when their fathers went to jail or prison for the first time.

school, how often the respondent had trouble doing her homework, if she had been suspended, if she had been expelled, if she had been held back, her grades in the last grading period, and her expectations regarding college. All seven observed variables load over .45 on the first factor with an eigenvalue of 2.25.

Neighborhood depression is a latent variable constructed from several census variables that describe the respondent's geo-code. Cognitive ability is the respondent's performance on the Add Health version of the Peabody Picture Vocabulary test.

The model controls for the background characteristics of father's educational attainment, neighborhood depression, family income, family structure, father's alcoholism, and parental involvement in the child's life. It also controls for the personal characteristics of race, ethnicity, age, sex, cognitive ability, physical health, and mental health. In addition to modeling the direct effect of paternal incarceration, it captures the four hypothesized indirect effects explained above: effects on family income, paternal involvement, family structure, and child's mental health.

In addition to these effects of paternal incarceration, this model also includes several paths that describe the relationships among the other background variables. It includes the logical effect of father's education on family income. It also includes the effects of father's education on his incarceration, given the relatively low education levels of U.S. prisoners, and the reasonable assumption that people with low education may face more benefits and fewer consequences of criminal activity. This model includes the effects of family income on health, given that families that are better off can afford health insurance and better health care. It also models a path from family income to neighborhood quality, because families that make more money can afford to live in more prosperous, safer neighborhoods.

Since family income affects school trouble indirectly through its effects on health and neighborhood depression, there are six total ways in which this model captures the effects of paternal incarceration on school trouble: directly, through family income, family structure, father's involvement in the child's life, child's mental health, child's health, and neighborhood depression.

To create a recursive model, we omitted the effects of family income on father's incarceration. We also omitted the effects of neighborhood depression, parental involvement, father's education, and family structure on physical and mental health. To include these paths would be to make this model impossible to estimate with the current software. They were omitted because health and mental health are not the primary dependent variables of this study, but rather mediating variables through which we hope to capture the effects of paternal incarceration on school trouble. Due to measurement problems, we could not include the effects of peer influence on school trouble. Also, although the model includes a variable for neighborhood economic conditions, it lacks variables that capture community-level normative effects. These may be serious omissions, and we hope future research will be able to build a model equipped to incorporate these effects.

See Table 2.1 for descriptive statistics of the variables used in this model, and refer to Appendix A for a more detailed description. Figure 2.4 depicts the variables and paths in the empirical model.

Table 2.1: Descriptive Statistics

Variable	Mean	Std Dev
Age	15.818	1.600
Sex	0.495	0.500
African American	0.238	0.426
Hispanic	0.170	0.376
Cognitive Ability	99.660	15.166
Health	4.088	0.913
Mental Health	36.697	5.389
Father's Education	5.355	2.500
Family Income (Thousands)	45.728	51.617
Pre Wave I Paternal Incarc	0.102	0.302
Post Wave I Paternal Incarc	0.024	0.152
Single Mother Household	0.218	0.413
Father's Involvement	2.564	2.162
Mother's Involvement	3.871	2.051
Alcoholic Father	0.138	0.345

See Appendix A for further description and explanation of variable construction.