

**GIRLS WITH INCARCERATED PARENTS:
A LONGITUDINAL ANALYSIS OF ADOLESCENT DELINQUENCY AND
JUVENILE ARREST**

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Submitted to the Graduate Faculty of
The University of Pittsburgh School of Social Work in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

University of Pittsburgh

2018

UNIVERSITY OF PITTSBURGH

School of Social Work

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Children with incarcerated parents have been shown to be at increased risk of acting out, exhibiting delinquent behaviors, and becoming involved with the criminal justice system. Research has done little to examine girls' delinquency with relation to parental incarceration and its effects on girls' juvenile justice system involvement. This dissertation advances our understanding of girls with incarcerated parents in three important ways: time-ordered data allows for controlling factors prior to a girl's parental incarceration; delinquency measures are specifically created to compare girls with each other as well as track change over time; and comparison groups are designed according to a parents' criminal justice system involvement, as gathered through primary data collection. The aim of this study is to identify and measure the independent effects of parental incarceration on girls' delinquency and arrest. Initial comparisons between groups indicate significant differences in delinquency and arrest between girls with and without incarcerated parents. Girls with incarcerated parents and girls with parents who have been involved with the criminal justice system but never incarcerated, showed similar levels of delinquency and arrest. Analyses rerun on propensity score matched groups find that the differences in delinquency and arrest are no longer significant between any groups. Questions about the roles of contextual factors in the lives of girls are addressed.

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PREFACE

This dissertation would not have been realized without the presence of so many individuals, a few of whom I'd like to acknowledge. The pursuit of a PhD is a long and often difficult journey, made possible only by the efforts, care and support of many others. I'd like to first recognize one of my first mentors in the field of social work, Tracy Soska. He is someone who has made me proud to call myself a social worker. It was Tracy who got me involved in community practice, and specifically involved me in the Citizens Leadership Initiative through which I was made aware of how incarceration has consequences for so people in our neighborhoods, specifically children. He has a knack for listening, gaining the trust of others, and knowing the right questions to ask at the right time. He showed the confidence in me to let me go forth and try my hand at those same tasks. Without those formative experiences I would have never learned about, nor pursued what I see as the most pressing social justice issue currently facing our nation's youth.

I want to recognize Dr. Willie Eliot who was instrumental in challenging me to understand the issue of parental incarceration at a level that can be empirically tested and then discussed in a compelling way. Likewise, Dr. Claire Walker deserves thanks as former director of the Pittsburgh Children's Foundation, her advice, edits, and time shared over many caffeinated afternoons were indispensable to my understanding of issues surrounding families involved in

the justice system. It was through her efforts that I became acquainted with the Pittsburgh Girls Study. There is a long list of individuals from the PGS whom I would be remiss not to thank. From the lead investigators Dr. Stephanie Stepp, Dr. Alison Hipwell, Dr. Magda Stauthamer-Loeber, and Dr. Rolf Loeber, through the team of data managers and statisticians, namely Colleen Grimm, ZB Bornemann, and Amy Byrd, who were so helpful in helping to create the databases we used, run queries, compare data, and process data requests. Finally, I want to thank my team who helped search, input, code and double check my work: Summer Mazur, Shannon Briscoe, Lewis Lee, and Josh Ha. The PGS crew have been great collaborators sharing their expertise, warmth and their data, without which this dissertation would be but a shadow of the current document.

I'd like to extend a thank you to Amachi Pittsburgh for continuing to put children first in the discourse on our justice system, and allowing me the opportunity to form a mentorship relationship with the young man who was my constant "real world" sounding board. I would like to thank my friend Jason who helped keep me grounded and realistic about the ways that the justice system changed his life, and kept me honest about how I talk about it. He has shown great perseverance and continues to make me proud.

I'd like to acknowledge the contributions and sacrifices of my wife Marie Isel, who has put up with me, the emotional ups and downs of academic life, the many hours spent with my mentee, my mentors, and my many long hours of research and writing. This would not have been possible without her support, encouragement, patience, and occasional prodding. And thank you to my daughter Sofia Luna, who has been my inspiration and reward over these many years of study.

Finally I'd like to thank my committee, for their support and patience with me during my doctoral journey. First and foremost, Dr. Jeff Shook has supported my research from early on, while challenging me at many points along the way. He has been a role model as academic and advocate. He has made me a better scholar, presenter, and social worker, through his attentiveness and trust in my abilities. Dr. Sara Goodkind has been a stalwart supporter of my work, and has provided important perspective and input on issues related to race and gender and the importance of using language precisely as a tool for social justice. Dr. Rachel Fusco has supplied her expertise in my research process while being generous with her time and feedback, as a keen reviewer and sounding board for my ideas and pitches. Dr. Stephanie Stepp has been instrumental to this project's success, and has shown great support and encouragement with every step of the process. Without her trust and confidence in my work, this project would never have been completed. And finally I'd like to offer posthumous thanks to Dr. Kevin Kim. It was he who first sparked my interest in using statistics to tell a story. He was an inimitable resource in my initial formulations for this dissertation, and has been sorely missed since his passing. Finally, I am appreciative of all of those at the University of Pittsburgh, School of Social Work who have played such a pivotal role in my professional and academic growth.

1.0 INTRODUCTION

Parental incarceration is social problem that has affected millions of youth in the United States and continues to impact the lives of many youth and their families. Advocates across our nation have fought a long and difficult campaign to raise awareness of this issue. The work of scholars and academics has been essential in advocating for the children of incarcerated parents, and this dissertation aims to add to the mounting evidence needed to address this issue. With two million children experiencing the imprisonment of a parent each year, parental incarceration has had an impact at a scale that approaches epidemic proportions. While incarceration rates have decreased slightly in recent years, the difficulties experienced by the children of incarcerated parents have not. Children whose parents become incarcerated are at greater risk than their peers of becoming involved in delinquency and gaining the attention of criminal justice officials themselves. The full effects of parental incarceration on the lives of children has only begun to be explored, and seeking to better understand the effects of parental incarceration on children's lives remains an imperative to better serve those children who experience the unintended effects of having a parent imprisoned.

I first became aware of the issues faced by children when a parent is incarcerated in the summer of 2008 as part of a community organizing venture called the Citizens Leadership Initiative (CLI) that brought together Pittsburgh residents to explore and address the challenges and triumphs experienced in their communities. The inaugural CLI cohort chose to focus on the

ubiquitous presence of the criminal justice system in their lives and communities. Their work coalesced around the notion of ‘Second Chances,’ a blanket sentiment that carried a variety of meanings with individual participants: Some saw it as a chance to reform their lives in the aftermath of their own prior incarceration stints; others as a hope that they could reconnect with estranged family members who had been imprisoned; others saw it as an employment discrimination issue for job applicants with criminal records. The group had a few members who were grandmothers, and one participant in particular expressed her concerns as they affected her granddaughter. Her son was serving a sentence for a theft of some sort, and the girl’s mother had not been seen in years. Now the grandmother, who had her own convictions in the past, had full responsibility for her son’s teen daughter. She would tell me how hard it was for a grandmother to raise a teenaged girl. She expressed to me that her fourteen-year-old granddaughter was having trouble in school. She had secured some social services for her granddaughter, but without a car and with cuts to public transportation, they missed many appointments. She admitted with frustration that she was struggling emotionally and materially to provide for her granddaughter who was quickly growing into a young woman. For her part, the teen mostly followed the rules but got in trouble for “kid stuff” a few times, apparently skipping school and smoking, and had started staying out late with a group of local boys. She feared her granddaughter might get herself into trouble with the law. Her grandmother expressed a mix of rage and resignation at the prospect that another generation of her family might someday occupy a cell in a jail.

The following fall, a second cohort of residents was organized across city neighborhoods into a group that chose to focus on the well-being of children, particularly those in neighborhoods experiencing high levels of violence. This group consisted of many concerned

mothers, each with stories of trauma and loss. The group concluded that children were in need of outlets to share their experiences, and they conducted a series of community conversations so that kids could have their voices heard. A group of more than 50 youth, social services providers, policy-makers and interested adults split into small groups to have conversations at one culminating event. At the end of that session, the large group reconvened to discuss common themes. Kids as young as eight years old participated, and about half-way through one young teen spoke about never knowing his father because he was far away in prison. Another slightly taller girl talked about having her mother locked away, and how hard it was having someone new take over when her mom was in prison. The many nodding heads and knowing glances of the other participants suggested that these were not isolated instances. Adults were arrested and locked up on a daily basis in some neighborhoods, and the consequences were all too acutely felt by the people living in those communities.

I was particularly struck, sitting in this large room with groups of children and adults, that over the course of two separate projects, the interests of grandmothers and adolescents had rarely aligned, yet this one issue was brought up independently by both. Incarceration of parents was a problem that affected both grandparents and children, and of course the parents themselves. Though these children and grandparents may have had no direct contact with the criminal justice system themselves, its influence reached deeply into their lives, altering family structures and the make-up of whole communities. I did not know at the time how high the incarceration rate had climbed, especially for black Americans, and how common it was to have mothers and fathers taken away from certain neighborhoods every day. My interest in how the justice system affects children, and in turn how children react to parental incarceration began there.

I began my formal studies as a PhD student soon after. I began consuming research literature in peer-reviewed journals and published books. I poured through manuals for practitioners who work with children of incarcerated parents, and even children's books that addressed the issue in language young people could understand. I learned that each year in the United States two million children are separated from their parents because they are arrested and imprisoned. Millions more children have experienced parental incarceration during their lives, but their parents have been since released, and millions more will experience their mothers and fathers getting locked away in the future. Some of these children are traumatized by witnessing an arrest, seeing their parents in handcuffs being hauled away by people in uniforms brandishing weapons. Other children will return home to find an empty house. These sources show that children react to the incarceration of a parent in myriad ways, with behavioral outbursts being a common reaction. These children are more likely to be singled out by authorities, arrested, and convicted than their peers (Bessemmer et al, 2013), perpetuating a cycle where the sons and daughters of convicted parents become inmates themselves in what is commonly referred to as "intergenerational incarceration."

At the time, I found little public awareness of what I had been made aware of in the academic literature. Seeing the effects of parental incarceration as one of the biggest issues affecting children in the present day my studies began in earnest. And since then a broader interest in children with incarcerated parents has continued to gain recognition as a social issue of great import. Many forms of popular media, such as children's television programming like Sesame Street, have produced episodes focused on issues facing children with incarcerated parents with the hope of raising further awareness and diminishing the stigma of having an imprisoned parent. Op-eds in daily newspapers, some by fiscally minded politicians, others by

concerned advocates, decry the enormous and expensive U.S. prison system and call for change. Cable news shows lampoon the high rate of incarceration in our country compared to the rest of the world, and its impact on families and communities.

I witnessed advocacy efforts emerge around the country, and how policy makers at the state and local levels were influenced by their campaigns, like those in California and Pennsylvania who have convened investigations and produced reports on children with incarcerated parents (e.g., PA 2009 House Resolution 2003; CA 2009 Senate Concurrent Resolution No. 20 via Beckerman, 2010). Advocacy efforts have attempted to address the issues surrounding parental incarceration through a variety of means. Campaigns to make prison visitation policies more family-friendly have been met with some success. Groups are being organized in schools and after school programs to support youth who experience parental incarceration. Mentorship programs, similar to Big Brother/Big Sister, specifically catered to children with incarcerated parents have also sprung up over the last decade. Amachi is one such program in Pittsburgh, in which I participated for two years as a mentor of a young man not yet entering middle school. Through this I've seen how children are excluded from conversations about their incarcerated parents, and how the secrecy that caregivers adopt in the child's best interests increases mistrust and distances children from their usual supports when they need it most. Journalists, practitioners, academics, and advocates have greatly enhanced the visibility of children with incarcerated parents raising awareness about the difficulties faced by the children once labeled "invisible victims."

Nonetheless, important gaps remain in the academic literature as well as our general understanding of how parental incarceration affects children. Questions remain regarding the specific mechanisms by which parental incarceration impacts children or how different life

circumstances may exacerbate or protect children during a parent's incarceration. Research, detailed below, has provided convincing evidence of how boys follow trajectories of delinquency which matures into adult arrests. The focus on the poor outcomes of boys in parental incarceration scenarios remains a topic of intense study while scant research has pursued whether the outcomes attributed to boys are similarly found amongst the daughters of incarcerated parents.

A variety of ways in which parental incarceration can potentially alter children's lives have been offered. The most studied mechanisms by which parental incarceration affects children involves how interpersonal processes between each child their now absent parent become altered, strained, or broken. Parental incarceration also indirectly affects children by altering relationships between the now incarcerated parent and remaining caregivers, adding stress to family situations, and materially disadvantaging those involved. Macro-level processes such as societal stigmatization and official bias are less studied phenomena that are of increasing interest as the scrutiny of the roles of criminal justice officials like police officers and prosecutors gains momentum in the wake of modern scandals. An emerging line of evidence suggests that the justice system itself is biased against children of incarcerated parents convicting them at higher rates for the same offenses as their non-criminally involved parent peers, (Bessemmer et al, 2013). Increased surveillance and biased treatment toward known criminal families may increase the likelihood that authorities will identify and prosecute the delinquent behaviors of the children of known offenders. Along these lines, this examination looks at the role of the interpersonal and systematic processes that further disadvantage girls in the context of parental incarceration.

Research literature shows that children respond negatively in the aftermath of parental incarceration, yet important gaps in our collective knowledge about the topic remain. First, little is known about how girls in particular react to their parents' arrest and incarceration. Studies of parental incarceration have predominantly focused on boys from families of incarcerated parents. The foundational studies that look at parental incarceration have been conducted among primarily male samples (e.g. Cambridge Boys Study, Pittsburgh Youth Study, etc.) and how they act out in terms of delinquency and anti-social behaviors. How girls respond to parental incarceration has largely gone unstudied, and in particular whether and to what degree girls are prone to delinquency and anti-social behavior following a parent's arrest and incarceration is unknown. This mirrors the general trend within criminological studies that has historically paid less attention to female crime and delinquency in general, which remain largely understudied topics (Chesney-Lind & Sheldon, 2004). Our current understanding of how girls are affected is incomplete with the current examination being the only known extant research specifically on parental incarceration's effects on girls.

Because this study is the first to look at girls' delinquency in the context of parental incarceration, special considerations are made. Researchers debate the real versus perceived differences in female delinquency versus that perpetrated by boys. There is a general consensus that delinquency is concentrated in neighborhoods marked by poverty (Ingoldsby & Shaw, 2002, Leventhal & Brooks-Gunn, 2000; Sampson & Groves, 1989) but that boys and girls may react differently in the face of environmental disadvantages (Kronenman, Loeber, & Hipwell, 2004) and that conduct problems for boys and girls are gender specific (Webster-Stratton, 1996). However there is evidence that delinquency between boys and girls is adjudicated differently (Goodkind, Wallace, Shook, Bachman, & O'Malley, 2009). The more serious offenses, likely to

initiate youth arrest, involve violence and carrying firearms, behaviors in which boys are more likely to engage than girls (Crick & Grotpeter, 1995; Esbensen, Deschenes & Winfree, 1999). For these reasons, this study uses a single gender sample of girls with parents who have different degrees of criminal justice involvement and looks at their daughters' levels of delinquency and juvenile justice involvement. The use of a single gender sample is of particular advantage when studying delinquency which may be conceptualized differently for girls compared to boys. Likewise, small variations in delinquency may be missed when comparing girls with boys, who may participate in delinquent acts at different rates. Similarly, girls are generally involved in the juvenile justice system at lower rates than boys (Snyder & Sickmund, 2006) making inter-sex comparisons less useful for understanding subtle differences between girls. Even as the arrest rate for girls has increased more than that of boys since the 1990's (Hawkins, Graham, Williams & Zahn, 2009), the gender disparity in juvenile arrests remains where girls account for 29% of juvenile arrests, despite making up 49% of the U.S. population between the ages of ten and seventeen (Sickmund, & Puzzanchera, 2014).

The majority of extant research has examined the interpersonal processes by which children are affected by their parents' imprisonment with little attention to the structural ways in which parental incarceration may disadvantage children. Theories that focus on the individual-level effects of parental incarceration like trauma, disrupted attachment bonding, and strained family processes are likely to affect girls much like they would boys, but this has not been specifically examined among female samples. Research on boys also shows that while parental incarceration's effects are partially explained through individual processes, a portion of the cited effects remains unaccounted for and must be the result of other mechanisms. A macro-systems approach provides promising explanations for these remaining effects. This dissertation seeks to

further our understanding of the role that parental incarceration plays in terms of family stigmatization and justice system bias towards children of criminal families. I theorize that incarceration has a stigmatizing effect on families, which in conjunction with increased surveillance, causes the children of incarcerated parents to become involved with the law at a higher rate than their peers. This dissertation offers an interpretation of the way that structural and macro-level forces may affect children's well-being over the course of a parent's criminal justice system involvement.

Finally, this dissertation has several methodological advantages for studying the effects of parental incarceration, including the use of detailed longitudinal data from a large sample of girls and scaled measures of girls' delinquency. The large sample size, with data collected over many years allows for more freedom to match girls along covariates and utilize complex models. The quality of instruments used by the Pittsburgh Girls Study allows for the use of a scaled delinquency measure, created through Item Response Theory (IRT) modeling, to compare delinquency scores across girls at different ages. Finally, this data is supplemented with my own primary document search and review, culminating in a database documenting the study subjects' parental involvement with the Pennsylvania courts system. Another important advantage of this dissertation is that data from the PGS has been collected since the year 2000, meaning that this sample of girls has come of age during the height of the modern increase in incarceration rates. This means that this sample is likely to have larger numbers of girls potentially affected by the modern increases in the incarceration rate, allowing for more rigorous forms of analysis.

This study's primary goal is to test the independent role of parental incarceration in predicting girls' delinquency and arrest, using time-ordered data, statistical matching procedures and multiple comparison groups. To do so, this study examines longitudinal data from the

Pittsburgh Girls Study, grouping girls ages 8 thru 17 according to their parental incarceration histories, and matching them according to potentially confounding covariates. Matching variables are chosen according to those suggested by theory. Regression models then predict delinquency and arrest and using longitudinal data to examine change over time. This study will add to the growing knowledge base on the effects of parental incarceration, particularly with regard to how girls respond behaviorally to parental incarceration.

1.1 BACKGROUND AND SIGNIFICANCE

The United States imprisons more people now than at any time in our nation's history (Walmsley, 2012). This has not always been the case. The American roots of the modern incarceration system were influenced by different motivations from desistance to punishment to rehabilitation during different eras (Garland, 1985; Gottschalk, 2006). Yet the incarceration rate remained quite stable until recent times. For the better part of a century (from 1900 through 1970,) the United States' incarceration rate hovered at around 110 inmates per 100,000 people (Blumstein & Cohen, 1973; Blumstein & Beck, 1999). Policy changes beginning in the 1980's drastically changed the landscape of the justice system until the present day when American incarceration rates far outstrip those of any other industrialized country. A precipitous rise in the incarceration rate began in the 1980's so that today the incarceration rate is 920 imprisoned people per every 100,000 (Glaze & Herberman, 2013), a near nine-fold increase, and by far the highest rate in the world (Walmsley, 2012). At last census (US Census, 2011) over 2.3 million people are being held in state, federal, and local correctional facilities. In 1974 that figure was 200,000 individuals (Blumstein & Beck, 1999). By 1980, there were an estimated 330,000

prisoners in U.S. prisons and by 1994 that number had dramatically increased to 1 million prisoners (Blumstein, 1995). By 2001 the prison population reached 2 million (Luke, 2005; Travis, 2005) so that now 1 in every 108 Americans is in jail or prison and 1 in every 35 Americans are under some form of Correctional Supervision (Glaze & Herberman, 2013).

Much has been written about the dramatic rise in the incarceration rate (e.g. Blumstein & Beck 1999; Gottschalk, 2006; Rothman, 1995; Alexander, 2012). However, the increase in the rate of incarceration is not a direct result of an increase in violent or property crime. The Bureau of Justice Statistics show violent crimes dropping steadily over the last two decades, while the incarceration rate continued to climb. Rises in violent crime in the late 1970's and again in the early 1990's contributed to some of the increases in the incarcerated population (Blumstein & Beck 1999), yet the subsequent drops in the violent crime rate have not been met with similar decreases in the incarceration rate. European countries, like Germany, had similar crime rates during this period, yet had stable or decreasing incarceration rates while the U.S. incarceration rate ballooned to present levels (Tonry, 2004). Notable changes to criminal justice policies have effectively put more people away, for longer periods of time, for a variety of offenses. With no direct correlation between the US's crime rate and the incarceration rate supports the assertion that the incarceration rate is more closely linked to the dictates of policy than any particular public safety imperative (Wacquant, 2010; Tonry, 2004).

Policies such as the Controlled Substances Act, the implementation of a determinate sentencing schema, the use of mandatory minimum sentences, and the imposition of strict sentences for drug offenders have all contributed to the rise in the incarceration rate (Lynch & Sabol, 1997). As such, "lesser offenses" like drug crimes, parole and probation violations, and property offenses, now constitute over two-thirds of prison admissions (Carson & Golinelli,

2013). These statistics indicate an unprecedented expansion of the use of incarceration as a punishment, and society's general willingness to lock up offenders for relatively minor offenses.

The dramatic increase of the use of prisons has been linked with a larger cultural shift towards the more punitive neoliberal philosophy which has served to justify the dual processes of disinvesting from public welfare while warehousing the poor in prisons (Wacquant, 2010). The retreat of government from providing human services, ensuring employment, and securing entitlement benefits to large swaths of society have coincided with a dramatic increase in the role and scope the criminal justice system. The public welfare system, now greatly diminished, has been functionally replaced by a justice system that in effect serves the same groups of people. Although the goals of the criminal justice system, namely to prevent and prosecute crimes and seek justice, do not contradict public welfare goals, in practice, the modern criminal justice policy has served to punish and monitor individuals with little means, rather than assist them in any meaningful ways. Michelle Alexander (2012) finds ample support for this shift as a mechanism to reinforce racial segregation and race-based social control that she terms the "New Jim Crow." This system likewise reinforces class-based divisions, and serves to maintain if not exacerbate social inequality, one of the most destabilizing phenomena of our modern society (Reichman, 2010). Much the way wealth is passed down within families across generations, the stigma of incarceration appears to be handed down as well.

The tremendous increase in the incarceration rate over the last 30 years has served to lock up a broader demographic of offenders, particularly women and parents, than in anytime over the last century. Today, the majority of all inmates are parents (Mumola, 2000). Female prisoners are even more likely to be mothers than male prisoners are to be fathers, and women now comprise a greater portion of the prison population than ever before at 10%. Moreover, the incarceration rate

of women is rising at a rate faster than that of men (Travis & Western, 2014). These factors have all contributed to the unprecedented numbers of children who experience the imprisonment of their parents.

1.1.1 Population Estimates of parents in prison and their children

At the close of the twentieth century, it was estimated that the majority of those who passed through our country's jails and prisons were parents (Mumola, 2000). At that point, only around a million individuals were behind bars. In the fifteen years since, that figure has more than doubled. With estimates that show fifty-six percent of male inmates are parents of an average 2.1 children and 67% of female inmates are the parents of an average 2.4 children (Mumola, 2000; Parke & Clarke-Stewart, 2003), more children are subject to indeterminate loss of a parent's presence to jail or prison than at any point in our country's history. We know relatively little about incarcerated parents as a class, though national population estimates show that black and Hispanic adults are over-represented in prisons, particularly with regard to drug crime convictions (Carson, & Golinelli, 2013).

With the rise in the rate of incarceration, a corresponding number of youth are separated from their parents when arrested and imprisoned. Although no actual census of the number of children with parents in jail or prison has been conducted, researchers put the point-in-time estimate of children with a parent behind bars between 1.7 and 2.8 million children (Mumola, 2000; Hairston, 2007; Glaze & Maruschek, 2008). It is estimated that 13,795 children had a parent in prison in Allegheny County alone (Allegheny County, DHS, 2010).

Point in time estimates underestimate the cumulative risk of a child having a parent incarcerated at some point in their childhoods, and an additional 10 million youth are estimated

to have had a parent incarcerated at some point in their lives (Reed & Reed, 1998). Many more have experienced losing a parent to jail or prison but are now older than 18. Additionally, such estimates are likely much higher today, given the much higher rate of incarceration. To further complicate population estimates, the vast majority of prison sentences are finite and temporary, with 66% of all inmates returning home within three years, and many recidivating thereafter (Nadeau, 2011). Thus, much remains uncertain with regard to the actual number of youth who have experienced parental incarceration, aside from it being too many.

Incarceration is but one of many outcomes that can result from becoming involved in the criminal justice system. Over 10 million individuals were arrested in the United States in 2015 (FBI, 2017). Only a fraction of those who are arrested are actually sentenced to prison. Many of those who are arrested are acquitted and released. Many others are convicted and sentenced to a range of penalties like community service, electronic monitoring, probation, or diversionary programs. While 1 in every 108 Americans is in jail or prison, 1 in every 35 Americans are under some form of correctional supervision (Glaze & Herberman, 2013). Much less has been made of children whose parents are involved in the criminal justice system who do not receive prison sentences than actual children of incarcerated parents. This is not in itself surprising, as parental incarceration is an obvious instance of parents being removed from the lives of children, while arrest typically involves a parent being detained for a relatively short time (usually overnight, or a few days) where there is less strain on long-term interpersonal bonds. However, involvement with the criminal justice system may have similar effects as parental incarceration on a macro systems level. If parents are known offenders, the stigmatization of a criminal family may bias police and the courts against children of those offenders. Researchers refer to this as “official bias” (Bessemmer, et al, 2013; Farrington, 1997; Thornberry, 2009). Official bias describes how

known offenders receive more attention by police, and how decisions related to arrest, prosecution, and sentencing may be influenced by individual and family histories. Alternative sentences like probation and electronic monitoring involve a great deal of correctional supervision toward offenders, which may also increase opportunities for law enforcement to detect offenses committed by children. Comparing children of incarcerated parents to children with justice system involved parents will provide opportunities to understand the ways which juvenile arrest may be influenced by official bias.

Justice system officials may be biased by more than just family criminal histories. Race and class dynamics are necessary factors to consider in any investigation of the criminal justice system.

1.1.2 Race, socio-economic status, and the criminal justice system

Parental incarceration affects children from across the demographic spectrum but its prevalence is notably concentrated among African American and Latino populations. Increases in the incarceration rate have disproportionately impacted African Americans, making African American children disproportionately more likely to have a parent in jail. The majority of new prison admissions are African American adults (Carson, & Golinelli, 2013) and 50% of state and federal prisoners are African Americans (Guerino, Harrison, & Sabol, 2011) despite comprising less than 13% of the total U.S. population (U.S. Census, 2010). Racial disproportionality is apparent in both corrections populations and the resulting numbers of youth of non-European descent who are affected by their parent's imprisonment. African American children, and more recently children of Hispanic or Latino descent, have experienced the increase of parental incarceration rates at levels far higher than European American children (Becket et al, 2011).

Consequently, children from African-American families are at a much greater risk of losing a parent to incarceration than European-American children. An African-American child has a 1 in 4 chance of having a parent incarcerated before she reaches the age of fourteen, compared to a European American child who has a 1 in 33 chance of having a parent incarcerated (Wildeman, 2009). This means that African Americans are more than 8 times more likely to have a parent in prison than European American children.

Justice statistics have long shown that racial minorities have been disproportionately involved in the system. African American males are two and a half times as likely as a white male to be arrested for a drug crime, despite using drugs at about the same rate (9% and 8% respectively) (Western 2006). Such inequitable enforcement is evidence to authors like Michelle Alexander (2010) that the modern incarceration system is biased and an effective tool for continuing racial control and subjugation in the years since the end of the Jim Crow era. The disproportionate number of black and minority men incarcerated under targeted drug enforcement and strict sentencing guidelines has had profound effects in the lives of individuals and whole communities.

Social class and socio-economic status (SES) are additional factors that may be involved in perpetuating bias in law enforcement practices. Bias in terms of socio-economic status can be conceptualized according to how people are stratified in society according to income, wealth, poverty, education, and occupation (LaVeist, 2005). SES and race are highly correlated in modern America. African American children are 3 times more likely than white counterparts to be living below the poverty line (APA, 2010). Unsurprisingly then, people of low socio-economic status are arrested at higher rates than people from middle and upper-class backgrounds (Sealock & Simpson, 1998; Wu and Fuentes, 1998).

In social work research, race and SES measures are often correlated to such an extent that their individual effects become confounded (LaVeist, 2005). The relationships between race and SES are complex and interconnected, with the two concepts likely interacting to produce differing degrees of societal bias. Racial disparities are a function of socioeconomic status and socioeconomic status is influenced by societal racism. These forces are evident in the demographic characteristics of prisoner and those who get involved in the criminal justice system.

1.2 PARENTAL INCARCERATION AND CHILD WELL-BEING

Scholarly attention to children with incarcerated parents has increased in recent years. The inflated incarceration rate has spurred investigations into the lives of prisoners and their families with much greater frequency and rigor in academia, popular culture, and journalism. While studies of the effects of a parent's incarceration on families date back to the 1920's, interest has spread from academia to practice literature and into popular media. Since the turn of the twenty-first century, a wealth of literature on the "prison boom," has looked at mass incarceration's effects, including investigations into how incarceration affects the children of those incarcerated.

The vast majority of studies and examinations of children dealing with parental incarceration focus on the negative impacts that these events have on children. The few qualitative studies to explore families during the course of a parent's prison sentence have added depth to our understanding of these children who were once largely invisible in our society's collective conscience. Portraits of how families experience the hardships and mixed-emotions that surround a loved-one's incarceration have revealed the myriad ways in which the

incarceration of one family member has consequences for the rest of the family, particularly children (e.g. Martin, 2001; Giordano, 2010; Braman, 2007; Martone, 2005; Arditti, Lambert-Shute, Joest, 2003; Dallaire, Ciccone, & Wilson, 2010; Siegel, 2011). Qualitative works also highlight the many circumstances by which incarceration impacts the lives of caregivers financially and children emotionally. A powerful example of this is Braman's 2004 ethnography which highlights the conflicted feelings of family members when loved ones are arrested and imprisoned, how their own mixed feelings make honest dealings with children difficult, and the resultant way in which children become withdrawn or act out under such conditions. Circumstances vary greatly from family to family, as do the degrees by which families discuss or explain a parent's imprisonment. Thus, children's reactions run the gamut from grief & depression (Arditti, et al, 2003) to disobedience (Martin, 2001) to guilt (Martin, 2001; Martone, 2005).

In the context of parental incarceration, how a child reacts is vitally important to their future success. These children have been shown to act out, exhibit anti-social behaviors, and become delinquent following a parent's incarceration. Children with incarcerated parents are more likely to act out in aggressive and delinquent ways (Murray & Farrington, 2005; Wildeman, 2010), and examinations show that delinquency in adolescence is linked with later criminal acts, depression, substance abuse problems, and criminal justice system involvement (Pajer, Kazmi & Gardner, 2007; Silverthorn & Frick, 1999). Individuals with conduct problems as youth are more likely to become involved in the criminal justice system as adults (Farrington, 1991). And children with convicted parents are more likely to be convicted themselves (Farrington, 1997; Thornberry, 2009; Bessemer, et al, 2013). Of great importance here, a parent's history of convictions is still the strongest predictor of children's own convictions when

delinquency is controlled for (Besemer, et al 2013). This suggests that there are two separate processes at play, one that leads from youthful delinquency to greater adult criminal activity, and another link from a parents' convictions to those of their offspring separate from childhood behavior. There is a likely path by which parental incarceration causes increases in the delinquent behaviors of youth. But even when child behavior is accounted for, there is something that causes the children of convicted parents to become arrested and convicted at a higher rate than their peers.

1.2.1 Acting Out: Anti-Social Behavior & Delinquency

Acting out is a common reaction of children who undergo stressful circumstances. Behavioral problems in the aftermath of a parent's incarceration are noted in qualitative studies of teachers (Dallaire et al, 2010), parents (Fritsch & Burkhead, 1981) and mentors (Davies et al, 2008). The evidence of acting out in various forms finds ample support in quantitative research as well. The earliest study to specifically address children's wellbeing (Serapio, 1964) used a sample of 124 female offenders in Los Angeles and reported that 20% of the children were in foster care, and an equal number had behavior problems. Similarly, an Israeli study (Lowenstein, 1986) of 118 male prisoners found that 40% of their children had interactional problems and 20% had behavioral problems. A bevy of other studies have likewise shown behavioral problems and conduct issues among children with incarcerated parents (e.g., Fritsch & Burkhead, 1981; Myers et al. 1999; Perry & Bright 2012; Phillips et al. 2002). Johnson (2009) found that when comparing children who had a parent incarcerated before their births to children who experienced parental incarceration during their lives, the latter had significantly greater levels of behavioral problems.

Longitudinal studies of cohorts over the lifespan of a child (Murray & Farrington, 2008) have supported an independent effect of incarceration on behavioral problems, even after controlling for a variety of potentially confounding covariates like demographics, SES, and family structure. Behavioral reactions range from increased aggression in younger samples (Wakefield & Wildeman, 2011) to delinquency and anti-social personalities in adolescent samples (Murray & Farrington 2005). Findings from the Cambridge Boys Study (Murray & Farrington, 2005) support the relationship between parental incarceration and anti-social behaviors following an incarceration event. This study finds higher rates of acting out and anti-social behaviors among children with incarcerated parent than among children who were separated from their parents due to other reasons. The Cambridge study's use of time-ordered data, multiple controls, and multiple comparison groups set the standard for research on this topic.

The majority of extant studies support their findings. Wilbur's (2007) longitudinal analysis of 31 children with incarcerated fathers in Boston, finds higher levels of behavioral problems compared with 71 children without parental incarceration. Children with incarcerated fathers in the Fragile Families Study (Craigie 2011; Geller, et al. 2012; Wakefield and Wildeman, 2011) also shows behavioral problems in their sample. Paternal imprisonment by age five occurred in nearly half of the study participants and is associated with significantly more aggression and attention problems. Using ordinary least squares regression on their longitudinal sample, Craigie (2011) find increased aggression for both boys and girls, though only among the non-white youth. Wakefield and Wildeman (2011) (again using the Fragile Families sample) find aggression significantly elevated as high as 33% for children under five (Wakefield & Wildeman, 2011) and after controlling for a variety of covariates still find a significant if small

(4-6%) independent increases in children's aggression. Geller (et al. 2012) finds that aggression is twice as high among boys as among girls, agreeing with Wildeman's (2010) analysis that parental incarceration is the most robust predictor of aggression for boys. These studies strongly support parental incarceration's effects on children's behaviors, but particularly that of male children.

Aggression that begins with parental incarceration during childhood is likely to continue throughout adolescence and into adulthood (Wakefield & Wildeman, 2011). Aggression and behavioral problems can get labeled as delinquency as youth age and can lead to serious consequences within the juvenile and adult justice systems. Roettger & Swisher (2008) find significant and robust associations between a father's imprisonment and children's delinquency after controlling for individual family and community covariates. Murray, Loeber & Pardini (2012) show significantly increased theft for children of incarcerated parents in the Pittsburgh Boys Study concluding that parental incarceration is a causal risk factor for boys' theft.

In summary, there is a robust body of evidence that children with incarcerated parents are more likely to act out behaviorally and become involved in delinquency than their peers. Another body of research attempts to identify if there is a similar correlation between parental incarceration and juvenile justice system involvement.

1.2.2 Justice System Involvement

The commission of an illegal act is not in itself enough to become involved in the justice system. First, an act must be witnessed or caught, and various decisions must be made regarding arrest and prosecution. Justice system intervention is therefore not automatically a result of delinquent acts, but is dependent upon a series of policy and individual decisions made at various points by

a string of justice system officials. Therefore, the involvement of youth within the justice system is a separate area of investigation.

A child's history of parental incarceration is a strong predictor of that child's own convictions (Farrington, 1997; Thornberry, 2009; Bessemer, Farrington & Bijleveld, 2013). The Cambridge Boys Study (Murray & Farrington, 2005) sought to identify whether there was a greater likelihood of the sons of incarcerated parents be become involved with the justice system themselves. Murray and Farrington (2005) find statistically significant differences in convictions between children of incarcerated parents and their multiple comparison groups. Because children with incarcerated parents are more likely to become delinquent, it is not surprising that their conviction rate is higher, yet this finding remains even when youth delinquency is controlled. In essence even when two boys commit delinquent acts at the same rate, the child with the incarcerated parent is more likely to be convicted for the indiscretion. Some studies indicate that a parent's history of convictions remains the strongest predictor of children's future convictions even considering child self-reports of delinquency (Huebner & Gastofson, 2007; Besemer, et al 2013). In essence, children who exhibit the same delinquent behaviors get arrested based more on their parents' legal histories than their own behaviors. Huebner & Gustafson's 2007 study supports this, finding that maternal incarceration was unrelated to childhood delinquency, yet increased children's chances of adult probation & conviction by a factor of three and half. Again, parental incarceration is a more important factor for predicting a child's convictions than a child's reported delinquency.

The meta-analysis by Murray, Farrington, & Sekol (2012) supports the independent effect of parental incarceration on justice system involvement during adolescence. However, in samples with very high levels of child delinquency, juvenile justice contact was not significantly

different between children with and without parental incarceration (Brazzell, 2008). Likewise, studies conducted on Dutch and Swedish samples indicate no connection between parental incarceration and child convictions (Bessemmer, et al 2011). This may suggest that criminal justice policies in different countries may have more impact on youth arrest than the commission of particular acts. The United States and Great Britain appear to have justice systems that disadvantage the children of incarcerated parents, and increase their own justice system involvement, more so than in other international samples.

One deficiency in the overall research literature is the absence of girls from the vast majority of research studies on delinquency and parental incarceration. Though the evidence among male samples supports the conclusion that parental incarceration is linked to increased child delinquency and justice system involvement, these findings have never been explored among all-female samples. Girls, in general, have not been subject to the degree of inquiry that boys have regarding parental incarceration and delinquency (Chesney-Lind & Sheldon, 2004) and it remains unknown to what extent girls react behaviorally to parental incarceration.

1.3 FINDINGS AMONG GIRLS

No studies to date have specifically examined the effects of parental incarceration on girls' behavioral reactions and justice system involvement. Our current understanding of how youth react when a parent goes to prison is predominantly informed by results from all-male samples (e.g., the Cambridge Boys Study, The Pittsburgh Youth Study, etc.) or very young mixed-gender samples (e.g., the Fragile Families Study, and the Project on Human Development in Chicago Neighborhoods, etc.). No studies on this topic have been conducted entirely on all-girl samples,

until the present investigation. The use of a single gender sample is important for discovering gender specific variations that may be overlooked in a sample that includes both boys and girls (Keenan, et al, 2010), such as with delinquency. The degree to which boys and girls are similar or different in performing delinquent acts is the subject of much debate (Chesney-Lind & Sheldon, 2012; Goodkind, et al, 2009).

Studies that report outcomes for girls in mixed gender samples have been inconsistent with regard to significant levels of anti-social behavior. There is a body of research that shows girls' self-reported participation in delinquent acts are of a similar nature to those of boys and another body of research that suggests that there are important differences between the ways that girls and boys react (Chesney-Lind & Sheldon, 2004). The representation of youth in juvenile court is overwhelmingly populated by male offenders who represent 72% of juvenile cases compared to 28% for girls (Puzzanchera & Robson, 2014). However, girls have closed the gap in representation in juvenile arrests since the 1970's (Snyder & Sickmund, 2006), though this appears to be more reflective of changes in justice policy than actual changes in girls' delinquency (Goodkind, Wallace, Shook, Bachman, & O'Malley, 2009). Nonetheless, girls' increased participation in the justice system demands further investigation.

Parke & Clark-Stewart (2002) hypothesize that boys and girls respond differently to the incarceration of a parent. They posit that boys react to parental incarceration outwardly in aggression and violence, while girls internalize their reactions and are less likely to act out. Wildeman (2010) finds small increases in aggressive behaviors for boys, but no such increase for girls who experience parental incarceration. And Geller, et al. (2009), using the same data from the Fragile Families study finds similar results for children at age 3, with boys exhibiting some increases in aggression but not so for girls. By age 5, both boys and girls have higher levels of

aggression when a father is incarcerated, though the effect is twice as strong for the boys than for girls (Geller, et al. 2012). Bessemer, et al, (2011) find in their British sample (but not in their Dutch sample) that children of incarcerated parents are more likely to have convictions as adults though boys were twice as likely as girls to do so.

A number of studies also indicate that boys and girls on average do not respond differently. Conduct disorder, and its most common expressions like aggression and rule violating, are similarly reported in teen-aged girls and boys (Maughan, et al, 2004; Keenan, et al, 2010). Neither boys nor girls with incarcerated parents in the Fragile Families study show significant changes in depression, anxiety or health at age five (Geller, et al, 2012). Wakefield (2007) finds large increases in antisocial behaviors when measuring change from before parental incarceration to three years later for both boys and girls aged 6-15. Murray, Farrington and Sekol's (2012) meta-analysis finds the same 10% increase in anti-social behavior for both genders when comparing children of incarcerated parents with control groups.

Agnew & Brody (1997) posit that there are differences in the types of strain experienced by boys and girls, and different emotional responses to strain by gender. For instance, Agnew theorizes that girls' traditional focus on maintaining bonds and social relationships prevents girls from committing property and violent crimes, instead producing more self-destructive behaviors. However, theories of female delinquency have long been ignored or followed from dubious gender stereotypes or moral prescriptions (Chesney-Lind & Sheldon, 2004). Differences in socialization, self-esteem, and risk-taking have been implicated in different rates of offending (Heimer, 1995), and parental incarceration may interact with gender to produce particular outcomes for girls.

It is the aim of this study to identify whether parental incarceration predicts increased delinquency and arrest in girls. This study also controls for girls' delinquency to test if bias is potentially at play in predicting youth arrests among girls who experienced parental incarceration. Next, girls are matched along covariates that predict both parental incarceration and youth delinquency to test whether parental incarceration itself is a causal factor for delinquency. Finally, using time ordered data, I further seek evidence of parental incarceration's causal effects by identifying change in delinquency from before to after a parent's first prison sentence.

1.4 THEORETICAL FRAMEWORKS

Due to the complicated and varied circumstances that may accompany a parent's incarceration, a similarly varied set of theoretical explanations for the association between parental incarceration and poor child outcomes have been offered. In an attempt to account for the most likely explanations for how parental incarceration effects delinquency, many theories are incorporated in this analysis. The ecological framework is useful for these purposes as it conceptualized many interactions between person and the environment at different levels (Arditti, 2005; Broffbenner, 1986). The ecological framework is foundational for understanding parental incarceration's effects on girls in terms of their interactions with different systems from the micro-level through macro-level.

Within the ecological framework, theories at the micro-level include those that consider parent-child relationships and strain theory which describe how economic and life stressors may lead to delinquency and crime. These theories are nested within the broader social and temporal-

historical conditions that produce stigmatization, social exclusion, and bias toward children of criminal families within neighborhoods and in society at large. These theories are tested against the concept of social selection. Social selection is a term that indicates that parents who become incarcerated are different from other parents in important ways that also affect their children's delinquency, and therefore may bias conclusions that may result from less methodologically rigorous assessments. In essence, selection bias assumes that the conditions that preclude a parent's incarceration affect children regardless of the parent's incarceration status, and that these children are different from their peers prior to parental incarceration, and therefore the correlation between parental incarceration and child delinquency is spurious.

1.4.1 Micro-systems: Individual level effects

Parental incarceration has the potential to disrupt important parent-child attachment bonds. When a parent's incarceration occurs at different child ages, children may react differently. Erickson's (1950) theory of child developmental is useful for conceptualizing potential ways parental incarceration affects children of different ages. Infants are totally dependent on their primary caregivers materially, and as attachment theory explains, there are negative life consequences for children separated from caregivers at young ages (Bowlby, 1946; Bowlby, 1969; Ainsworth, et al, 1978). These interrupted relationships were later termed "maternal deprivation" and were implicated in producing maladapted attachment representations that served as predictors of delinquency (Bowlby, 1969).

Attachment disruptions have been cited as an explanation for the effect of parental incarceration on the outcomes of youth (e.g. Murray & Farrington, 2005; Murraray & Farrington, 2008; Murray & Murray, 2010; Luke, 2002; Galhaim, 2012; Geller, et al, 2012). Poehlman

(2005) conducted a study on attachment representations among a sample of 60 children of incarcerated mothers and finds that stronger attachment bonds were linked to better outcomes and resilience in these high-risk children.

Murray and Farrington (2005, 2008), in their longitudinal studies, found higher levels of problematic behaviors throughout the life course for boys who were separated from parents due to parental incarceration. In general, children who were separated from parents for a variety of reasons (health, death, divorce, etc.) showed worse outcomes than those in the comparison group with intact parents. Children with incarcerated parents still fared worse than those who were separated for other reasons in their analysis, suggesting that more than just attachment disruption is at play in these children's worse outcomes. In the end, attachment theory explains some but not all of the effects of incarceration, but other mechanisms must also be at work.

1.4.2 Meso-Systems: Classic & Modern Strain Theory

Strain theory is a popularly cited criminological theory. Classic strain theory (Agnew, 1994; Agnew, 1992) describes how financial and material difficulties lead to criminal involvement. In the context of parental incarceration, an incarcerated parent, as a potential wage earner, is necessarily kept from earning meaningful income while imprisoned, and the ability to procure earnings post-release is also depressed (Geller, et al, 2009). This has great potential to create hardships for families with already limited incomes. The economic consequences of parental imprisonment affect not only the convicted, but their families and children as well. Much like wealth, poverty is perpetuated generationally, passed down from parent to child.

The earliest study of the effects of incarceration on the families of offenders in the United States, was conducted in 1920 at the behest of the state of Kentucky (Bloodgood, 1928). In the

immediate aftermath of imprisonment, parental wage-earners were removed from productive work thereby curtailing their ability to provide income in support of their families. The loss of the family breadwinner meant certain poverty. This was not new evidence of the collateral effects of prison on an offender's family as the same phenomenon was recognized a hundred years earlier during Europe's experiments with the prison punishment. Lucas, a 19th century French scholar, wrote "The same order that sends the head of the family to prison reduces each day the mother to destitution, the children to abandonment, the whole family to vagabondage and begging. It is in this way that crime can take root." (via Foucault, 1977).

Little has changed over the centuries, as today caregivers continue to endure the financial strain of having a family member in jail, particularly grandparents and kinship caregivers who do not receive compensation for custody as unrelated foster parents do (Gibson, 2002). Noncustodial fathers provide substantial support (Cancian, et al, 2009) and studies of unmarried fathers show them involved with children both financially & non-financially (Lerman & Sorensen, 2000; Waller & Swisher, 2006) with more than half of fathers being the primary earners in their families (Glaze & Maruschak, 2008). Geller and colleagues (2009) find that a father's incarceration negatively impacts his labor market performance, lifetime economic earnings, and the ability to provide material child support. With support curtailed, remaining caregivers are increasingly stressed, especially those with limited incomes. In addition to the loss of income, increased monetary costs result from parental incarceration.

A criminal record suppresses earnings over an individual lifetime, with serious and unjust consequences for their dependent children. The economic and class disadvantages that persevere over a lifetime are passed down to the next generation. When opportunities for earning legitimate income are blocked, then strain theory posits that illegitimate means of income are sought. This

is thought to increase crime, particularly crimes of an economic nature such as theft, fraud, and drug dealing, and may lead to more serious or violent crimes as underground economies are not regulated nor protected by law. Based on this information, financial information, income, and class status are important concepts this study seeks to explore.

There are additional costs to families by having a parent in jail or prison as a function of having a loved one in prison. An incarcerated loved one may accrue legal debts through attorney payments and in court fees (Allard & Greene, 2011). Many convicted individuals are required to also pay fines or restitution as part of their sentences. Prisoners are often subject to purchasing basic goods like toiletries from prison commissaries, and need money to be placed in commissary accounts for such purposes. Communications, via mail or telephone, come with special costs, as well. The costs of visitation, phone calls, and money put in commissary accounts, average \$75 per month (Arditti, et al, 2003). Pittsburgh-based researchers (Walker, 2005) have estimated that communication costs alone require of families an average of \$54 dollars a month. There are also practical costs of visiting a prisoner, like the cost of transportation, often over very great distances by car or bus. The accumulation of expenses causes considerable hardship on families already in precarious financial situations. But strain is more than just a financial issue.

Modern strain theory incorporates the role of emotional strain in affecting child behavior. Agnew expanded the notion of strain to include the “presentation of negative stimuli” (1992, p. 58) and its link to criminal or delinquent behavior. Delinquent behaviors have been linked to such negative stimuli as parental unemployment, family deaths and illness (Hoffman & Miller, 1998). Agnew’s (1992) theory suggests that more or repeated strain causes anger which increases delinquency. However, in studies of children with incarcerated parents Hagan & Myers (2003),

contrary to expectations, found that externalizing problems were not linked to the number of stressors in a child's life. Social support was the primary driver of reduced problem behavior. But social support can be directly affected by the presence of "negative stimuli," and parental incarceration is obviously one example.

Attachment and strain theories explain some of the effects of parental incarceration but leave a significant portion of explanatory value unaccounted for. A macro-theory for explaining this gap may provide answers as to why children with incarcerated parents become delinquent and involved in the juvenile justice system.

1.4.3 Macro-systems: Stigmatization, Social Exclusion, and Official Bias

The importance of contextualizing the lives of youth within their neighborhoods, communities, and societal conditions cannot be ignored within the ecological model. The strain of diminished resources is not just a function of family specific circumstances, but has implications at the larger neighborhood and even regional locations. Areas with high crime rates often correlate with neighborhoods where poverty and unemployment are concentrated, (Ludwig, Duncan, Hirshfield, 2001) and the effects of poverty concentrated at the neighborhood level is known to have adverse impacts on adolescent outcomes (Leventhanl & Brookes-Gunn, 2000). There has been much written about community level disorder in terms of social cohesion, and collective efficacy as mediators between concentrated disadvantage and violent crimes (Sampson, Raudenbush, & Earlys, 1997). It thus follows that beyond material deprivations, the collateral consequences of parental imprisonment may have a cumulative effect on keeping communities fragmented, as stigmatization compels people to isolate from others. Meanwhile actual

discrimination, creates feelings of frustrations and apathy that keep others from engaging with their communities.

Stigmatization refers to the many instances in which groups or individuals get identified as being less worthy of full social acceptance (Shoham & Rahav, 1982). Goffman (1963), a pioneering scholar in the study of stigmatization as a social phenomenon, conceived of stigma largely as a social dynamic based on physical characteristics, such as skin color, disability, and visible signs of disease. Stigmatization in modern scholarship is recognized in a broader range of circumstances, where any devaluing or a categorizing of individuals or groups based on shared characteristics is included. Stigmatization in the modern world is a situationally specific, dynamic, and complex process (Dovidio, Major, & Crocker, 2000). The role of social norms in the stigmatization and social exclusion of youth with parents in jail involves both the self-identification with a stigmatized label and the significance of the label in biasing others toward the stigmatized individual. Goffman (1963) speaks of the ‘contagion of stigma’ and described it as ‘sticky’ in that it attaches itself to family members of the stigmatized, such as those with an incarcerated family member.

Arrest and incarceration are stigmatizing for both offenders and family members of the accused. To prevent stigma from attaching to children, families resort to secrecy and social exclusion in an attempt to hide their new stigmatized status. Often the stigmatizing circumstances of criminal justice system involvement lead families to hide the truth of a parent’s absence from children. The secrecy many families adopt is an adaptive response to having to navigate the biases of others (Murray, 2007). A ‘conspiracy of silence’ (Arditti, 2005) around an incarcerated parent’s whereabouts and actions is often adopted for “the sake of the children.” Likewise, secrecy was practiced more when there was a greater feeling of stigma. Stigmatization

is just one of many ways that families of inmates are socially excluded (Murray, 2007). In the aftermath of arrest and incarceration, families have a tendency to withdraw so as to protect themselves from discrimination and bias, unwittingly denying outside support to children when it is most needed. Such a lack of support is correlated with externalizing problems (Hagan & Myers, 2004).

The incarceration of a parent serves to remove that person from the life of the child. Whereas parental loss is not necessarily uncommon, the particular type of parental absence resulting from incarceration is a loss described as being both ambiguous and stigmatizing: Ambiguous because it is unexplained, lasting for an indeterminate length with an unknown resolution; stigmatizing because everyone says ‘the apple doesn’t fall far from the tree’ (Phillips & Gates, 2011). Children are disenfranchised from appropriate outlets for grieving, and tend to act out, being emotionally traumatized by events, while denied support during their grieving and simultaneously labeled ‘bad seeds.’

Stigmatization toward offenders is intended to be a deterrent to others’ future offending (Garland, 1985). Criminal activity is widely regarded as a behavior appropriately stigmatized, however children share the stigmatization by virtue of their proximity to their now ‘disgraced’ parents (Phillip & Gates, 2010). ‘Bad seed’ labels set expectations for children and their behaviors, which if internalized suggest an explanation for the concept of intergenerational crime transmission. When children feel inferior or shamed by a parent’s incarceration they are likely to display anti-social behaviors (Murray & Farrington, 2005) and are more likely to join peer groups who share such characteristics (Miller, 2006), with potentially problematic consequences for getting in trouble and perpetuating the intergenerational cycle of delinquency and crime.

Scholars have suggested that geographically concentrated parental incarceration, as occurs in some urban neighborhoods, would lessen the shame of having a parent in jail (e.g. Hairston, 2002) and reduce incarceration's negative associations. Hairston thought that for some incarceration has been normalized and even a 'status symbol' among certain socioeconomic and racial groups. Nesmuth and Ruhland (2008) found this not to be the case in their study of children between 6 and 13 years old who were acutely aware of the stigma of having an incarcerated parent, and protective of their status as such. Indeed, children who are discrete with regard to revealing a parent's incarcerated status to others for children fair better, than youth who do not shield such information (Hagan & Myers, 2003). Stigmatization, therefore, may explain some of the increases in individual delinquency, but stigmatization has greater implications for actual discrimination and bias perpetuated by others.

Geographic concentrations of parental incarceration are linked with increases in juvenile delinquency in those areas (Hannon & Defina, 2012) with the possibility that concentrated parental arrests may decrease parental supervision and increase the patrolling of these areas by police. Officers in areas known for high arrest rates may have less leniency toward minor infractions, and may in some ways be unconsciously biased against youth in those regions. Children who have membership in multiple stigmatized groups such as the poor or racial minority groups are at even greater risk of bias on behalf of law enforcement (Alexander, 2012).

Qualitative studies (Dallaire, Ciccone, & Wilson, 2010) find that even teachers engage in stigmatization in school by assigning biased motivations to behavioral problems among children with known histories of parental incarceration. Teacher expectations of and experiences with children with incarcerated parents show that while teachers themselves perceived many struggles and strengths from these youth, a third of the teachers interviewed indicate that colleagues were

unsupportive, unprofessional, or had lowered expectations for children with incarcerated parents. Teachers, subjected to both qualitative interviews and questionnaires, note higher prevalence of behavior problems amongst these youth, compared to their peers without a parent incarcerated, but qualify that younger children had more difficulty coping with their parents' imprisonment than older youth. Teachers also note that elementary school teachers are more likely to know about the incarceration of a student's parent, compared with children in higher grades, with the implication that concealment of a parent's status may indeed benefit youth by shielding them from the effects of stigma, even from school teachers whom one would hope to be sources of extra-familial support.

Stigmatization works at the systemic level as well. As seen through the lens of social exclusion, Joseph Murray highlights multiple ways in which prisoners and their families are drawn into a "cycle of punishment" (Murray, 2007) in which children share in denied material, political, and aspirational opportunities through their parents' justice system involvement. More so, the stigmatization of being from a family with a criminal history may bias police and the courts against children of those families. Bias on the part of justice officials may cause children to receive additional scrutiny by police, and may influence decisions related to arrest, prosecution, and sentencing (Bessemmer, et al, 2013; Farrington, 1997; Thornberry, 2009). A parent's conviction record most strongly predicts their child's own convictions (Bessemmer et al, 2013). This remains the case even when delinquency is held steady, suggesting that this could be the result of official bias. Bias may be causal mechanism for the perceived "transmission" of anti-social behaviors across generations, to a greater degree than the actual behavior of children with incarcerated parents.

1.4.4 The Social Selection Argument

Social-selection, as a concept, challenges the conclusion that parental incarceration is a causal role in shaping the lives of children with incarcerated parents. The social-selection argument proposes that those who go to jail, and by extension their families, have particular traits that differentiate them from the general population. This argument suggests that individuals who become involved in crime are different from the general population in important ways that would impact their children's well-being. In this thinking, children of incarcerated parents would be similarly distinguished as a particular subset of the population with certain characteristics that differentiate them from their peers. Therefore, the apparent relationship between parental incarceration and poor youth outcomes is spurious and better explained by those pre-existing factors that are specific to parents who become incarcerated. Indeed, studies show that the families of incarcerated individuals are generally worse off financially than comparison groups (e.g. Arditti, et al, 2003; Chung, 2011; Geller, et al, 2009; Murray, et al, 2014). The goal of research on parental incarceration is to identify the specific role of parental incarceration, above and beyond those pre-existing risks. If parental incarceration offers no additional explanatory value beyond those risks then an argument can be made that the relationship between parental incarceration and child delinquency is unfounded.

There is a debate in the research literature as to whether children are harmed by their parent's incarceration or whether pre-existing disadvantages better account for children's poor outcomes (see pieces by Johnson & Easterling, 2012 and responses from Wildeman, Wakefield and Turney, 2012 and Johnson & Easterling, 2013 in which the social selection argument is posited and subsequently challenged through reviews of literature, results, and methods). Most studies account for selection bias by using controls, and selective grouping criterion. The

majority of studies show that children with incarcerated parents indeed have greater levels of risk prior to their parent's incarceration, yet parental incarceration still predicts worse outcomes even when these factors are accounted for.

Some risks, such as poverty and family stress, are likely contributing factors to parent imprisonment and child delinquency. However, many of these risk factors may also be caused or magnified by a parent's imprisonment. Cross-sectional studies that control for these factors may over-control for indirect consequences of parental incarceration. This investigation has the benefit of longitudinal data that allows for matching girls according to important covariates prior to a parent's first incarceration sentence. The ability to measure change over time while essentially controlling for pre-existing disadvantages produces a clearer picture of the specific effects of a parental prison term on the lives of daughters. By matching girls along theoretically important covariates, and using time-ordered data I can directly address the social selection argument.

1.5 RESEARCH QUESTIONS AND HYPOTHESES

Based on the theoretical and research literature, this dissertation asks the following research questions with related directional hypotheses. In total there are 6 research questions and 16 related hypotheses.

1. Is parental incarceration a predictor of girls' delinquency?

H1: Parental Incarceration will predict higher levels of delinquency than that of girls with no parental CJS involvement.

H2: Parental CJS dockets group will predict higher levels of delinquency than that of girls with no parental CJS involvement.

H3: Parental Incarceration will predict higher levels of delinquency than that of girls with parental CJS dockets.

2. Is Parental incarceration a predictor of girls' acquiring a juvenile record?

H4: Parental incarceration will predict higher rates of girls' having a juvenile record compared to girls with no parental CJs involvement.

H5: Parental dockets will predict higher rates of girls' juvenile records that that of girls with no parental dockets.

H6: Parental incarceration will predict higher rates of girls' juvenile records compared to that of girls with parental dockets.

3. Is parental incarceration a predictor for girls' delinquency at age 17, controlling for delinquency at age 8?

H7: After controlling for childhood delinquency, the parental incarceration group will have higher rates of teen delinquency than that of girls' in the no parent docket group.

H8: After controlling for childhood delinquency, parental docket group will predict higher rates of teen delinquency than that of girls in the no parent docket group.

H9: After controlling for childhood delinquency, the parental incarceration group will have similar rates of arrest as girls in the parent docket group.

4. Is parental incarceration a predictor for juvenile arrest after controlling for delinquency?

H10: After controlling for delinquency, girls in the parental incarceration group will predict higher rates of girls' juvenile arrest than that of girls in the no parent docket group.

H11: After controlling for delinquency, girls in the parental docket group will have higher rates of juvenile arrest than that of girls in the no parent docket group.

H12: After controlling for delinquency, girls in the parental incarceration group will have similar rates of juvenile arrest as girls in the parent docket group.

5. Are the daughters of incarcerated parents significantly different from other girls prior to their parents' incarceration regarding demographic and personal characteristics as well as their family characteristics and neighborhood environments?

H13: Girls with incarcerated parents will be significantly different along multiple covariates than girls in the no parental docket group.

H14: Girls in the parent docket group will be significantly different along multiple covariates than girls in the no parent docket group.

H15: Girls in the parental incarceration group will be significantly different along multiple covariates than girls in the parental docket group.

6. After matching girls along observed covariates (PSM), does parental incarceration predict delinquency and juvenile justice system involvement?

H16: Predictions for H1 thru H12 will remain, but to a lesser degree than initial analyses. (indicated as H1.2, H2.2, H3.2 etc.)

2.0 METHODS

2.1 STUDY DESIGN

This study is intended to increase our knowledge of how girls are affected by parental incarceration. This dissertation advances the present state of research on this topic in a few important ways: (1) this dissertation tests whether delinquency is predicted by parental incarceration among girls. The use of an all-girl sample enables us to identify important differences in delinquency between girls that may be missed in mixed-gender samples; (2) this dissertation employs delinquency measures modelled specifically to be comparable across ages; (3) this dissertation uses of primary official documents data searched, collected and coded specifically for this examination; (4) this dissertation tests longitudinal relationships between delinquency and juvenile arrest that add to our understanding of system-level forces on girls' lives. By using statistical methods that match along multiple covariates, using multiple comparison groups, and using longitudinal data, I seek to identify both *if* parental incarceration is associated with delinquency and arrest in girls, and *how* those variables are related. The goal of this study is to best approximate the specific role of incarceration in influencing girls' lives, after controlling for a wide range of potentially confounding covariates.

How girls, in particular, respond to their parents' incarceration has not been specifically studied outside of the present analysis. This dissertation uses data from thirteen years of study by the Pittsburgh Girls Study, a single gender sample, which affords this dissertation two major

advantages: First, many of even the most common childhood disorders, and psychological problems occur in only small percentages of the population, and usually with one gender considerably more representative than the other (Keenan, et al. 2010). In such instances, the value of gender interaction findings may be questioned. Secondly, sex-specific research questions and models are important for understanding the particular developmental trajectory of girls, the ages of onset of problems, and specific forms of delinquency that result (Keenan, Loeber & Green, 1999).

Measurement is of particular importance when using a construct of delinquency. Delinquency is most commonly constructed as a summed construct of discrete items (Osgood, McMorris & Potenza, 2002). However different behaviors are more likely to occur at different ages and it may not be appropriate to compare summed items at different ages. Different numbers of items were asked at different ages in PGS interviews making simple comparisons between ages impractical. Therefore, it is necessary to create a delinquency measure that is comparable between girls at different ages.

Item Response Theory is used to assign girls along a continuum of delinquency based on the combined information of all available items. The end product is an F-score (Theta) assigned to each girl at each age which can be directly compared between girls and within subjects over time.

2.2 DATA DESCRIPTION & COLLECTION

Data for this study comes from the Pittsburgh Girls Study (PGS), which collects data on 2,451 girls in the city of Pittsburgh. The PGS is designed to study the development of conduct

disorders and co-occurring disorders like precursors to depression, substance abuse and sexual development (Keenan et al, 2010). Four cohorts of girls have been interviewed annually on a wide range of subjects beginning in the year 2000 when girls were between the ages of five and eight. This continuous longitudinal stream of data, allows for analyses of change over time. The areas of inquiry range from individual-level factors to family, school, peer and neighborhood-level characteristics, and of particular interest to this study, conduct and delinquency items. The overall retention rate of the PGS ranges from 97.2% in Year 02 to 89.2% in Year 08 (Keenan, et al, 2010).

2.2.1 Supplemental Primary Data Collection

PGS data is supplemented with primary data collected from an official document search and review. PGS IRB protocols were followed to collect this data. Criminal justice system dockets are available for public access via the PA Unified Judicial System: <http://ujportal.pacourts.us/DocketSheets.aspx>. The PA Court's website allows public access to court docket sheets (Web Dockets) and court summary sheets that date back to the 1970's. These documents contain information on specific offenses, sentence types (confinement, probation, etc.) as well as sentencing dates. This document-search collects detailed information regarding dates of arrest and disposition, crimes charged, convictions, sentencing, and any fines, costs, or restitution that may be imposed. All consenting caregivers from the PGS were included in the search. All known aliases were searched by two independent coders. If a subject has a criminal docket logged within Pennsylvania's criminal justice system it was printed and coded. Names (and aliases) and birthdates of all parents/caregivers are searched through this system, and appropriate public document matches are printed and kept in secure files at the PGS's secure

facility. Pertinent data are coded and entered into an Access database. These data are twice entered by independent coders, and a comparison function is used to check for discrepancies so as to prevent input error. All data is then depersonalized so that subjects can no longer be identified in the dataset. These data are used to group girls according to their parental incarceration histories for later analysis.

A limitation of the official document search and review is the possibility that crimes under the jurisdiction of federal authorities or that were prosecuted in other states may be missed in this process. To guard against such instances (false negatives), two PGS survey questions regarding parent/caregiver CJS involvement and partner jail-time will be used to further rule out instances where incarceration events have been missed, to ensure the most accurate assignment to groups.

2.3 DEFINITION OF PARENTAL INCARCERATION

The U.S. Department of Health and Human Services defines parental incarceration as: “when one or both parents are incarcerated in a federal, state or local correctional facility” (Wagner, 2006). This dissertation adopts this definition for theoretical and practical reasons. First, this definition includes the imprisonment of caregivers in both local jails and state prisons for various offenses and for different sentence lengths. Secondly, caregivers are broadly considered, including biological parents, custodial family members, and foster parents. This is a practical and necessary way to view incarceration as most parents in prisons do not live within the traditional image of the ‘nuclear family’ (Hairston, 2007) and three fourths of parent inmates are either divorced or unmarried, commonly with different mothers or fathers with children residing in the

same households (Hairston, 2007; from the “Survey of Inmates in State and Federal Correctional Facilities 1997”). This dissertation operates on the premise that parental incarceration, whether local jail, state prison or federal facility, or by any custodial caregiver has consequences for children and the type of trouble they may experience.

Web dockets provide information on sentencing and are a major component of assigning girls to groups for analysis. Sentences of “confinement in state prison”, “confinement in county jail”, or “IPP” cause the daughter to be classified in the incarceration group. A parent’s criminal docket assigns the daughter to be classified in the CJS group. If no docket was found for any of a girl’s caregivers, that girl is assigned to the no parental incarceration group.

2.4 SAMPLE

The full sample of 2,451 girls from the city of Pittsburgh and all listed caregivers were searched. Girls were originally identified for inclusion in the PGS through a stratified, random household sampling (Keenan, 2010) which intentionally oversampled households in low-income communities. Eighty-nine Pittsburgh neighborhoods were classified as either disadvantaged (n=23) or “non-disadvantaged” (n=66). Living in an economically disadvantaged environment is a recognized risk factor for behavior problems and criminal justice system involvement, making neighborhood disadvantage a useful covariate to match along. Two racial groups, black and white make up 94% of the total sample, and make up 53% and 41% respectively.

2.5 VARIABLE DESCRIPTIONS

2.5.1 Dependent Variables

Two major outcome variables are examined in the course of this study: the first is a measure of delinquency, the second is a measure of juvenile justice system involvement.

2.5.1.1 Delinquency:

Delinquency is a term that can be defined differently for different purposes. For the purposes of this project, a behavior is considered delinquent if it could potentially be punishable by law enforcement agents. This includes any acts that could be prosecuted for individuals of any age, like acts of violence, theft, illicit drug use, etc. as well as “statutory crimes” or those acts that are illegal due to the actors’ age. Youth hold a particular status in the United States, and they can be arrested for behaviors that would not be punishable if performed by an adult. These statutory crimes include acts like staying out past curfew, drinking alcohol, or being truant from school.

The data for the delinquency construct come from four questionnaires asked to all respondent children and their caregivers on a yearly basis, and modeled using item response theory. The Conduct Disorder Scale (CD), and Child Symptom Inventory (CSI), Adolescent Symptom Inventory (ASI), and Nicotine, Alcohol, & Drug Use Scale (NADU) were each asked of child and caregiver informants at each age.

In much research using individual level self-reports of delinquency, it has been typical to simply add combined responses from survey items to produce summative delinquency constructs. This type of scaling generally produces useable measures with decent reliability,

although this type of scaling also has significant shortcomings when applied to delinquency (Osgood, McMorris & Potenza, 2002).

Delinquent acts are by definition not normal, and are performed by a small percentage of individuals. Therefore data on delinquency is typically skewed, not normally distributed and limited (Osgood et al, 2002). Because many common analytical methods rely on normal distributions, delinquency is a construct that often violates the assumptions needed to run ordinary least squares methods. Likewise, many behaviors labeled delinquent by researchers are rather common among youth, and questions about the comprehensiveness and seriousness of delinquency items have been questioned for decades (i.e. Elliott & Ageton, 1980; Hindelang et al., 1981).

When multiple scales are utilized, it becomes difficult to use discrete data to fit many models without losing the advantages of scaled item scores. Summative scaling has been used to great effect, as aggregated data typically increase the reliability and precision of a measure, while protecting from the error of any individual items on the larger scale (Huizinga & Elliott, 1986). However summing delinquency items has limitations. First, self-reported delinquent behaviors usually seek to identify if an act has been committed and the frequency of how often a respondent performed a certain act. For the majority of respondents that response is zero. A small number of respondents will have performed an act multiple times, thus the summed data is poorly distributed, skewed, and error variance becomes heterogeneous (Huizinga & Elliott, 1986). Secondly, conventional summing gives the outsized weight to less serious offenses compared to offenses that would more likely lead to arrest. More serious offenses are rarer and therefore have small means and variances, while the less serious offenses means and variances

are greater. Resultantly, conventional summative scoring gives disproportionate weight to the least serious offenses (Hindnelange, et al, 1979: 1000; Osgood et al, 2002.)

How often an offense is performed is a common measure of delinquency. Despite the fact that integer counts provide fixed intervals between responses, when looking at relative levels of deviance (as this project seeks to do) these intervals become difficult to compare. The vast majority of subjects will have a zero value, and the commission of even one delinquent act ‘sets an offender apart from the conforming majority’ (Osgood et al, 2002, p. 274) and significantly increases the possibility of detection by authorities (such that the difference between never committing an act and the first commission is greater than the difference between the 8th time performing that act and the 9th, for example.) To address this, many instruments assess intervals, like “never” “Once” two to three times four or more times”. Hindelang, Hirshi, and Weis (1981) dichotomized delinquency items as “never” or “ever.” Dichotomizing responses is advantageous for a few reasons: First it limits the contribution of minor offenses, which are likely performed at much higher rates. Secondly, it avoids problems of creating arbitrary response categories, and lastly it reduces the skewness of the final measure (Osgood, et al., 2002). However, dichotomizing items ignores the potential subtle variations in frequency of delinquent acts, yet Osgood and colleagues (2002) concluded in their IRT project that “the most telling distinction is between not committing an offense at all and committing it at least once” adding support to the utility of dichotomously coded items.

Items from the Conduct Disorder scale were asked at all ages. Each item from the Conduct Disorder was originally answered on 4-point Likert-type scale, and later, dichotomized so as to be used in our scaling (described below.) The Conduct Disorder scale has an internal consistency coefficient (α) in the current sample that ranged between .69 & .80 (Hipwell, Stepp,

et al, 2011). Two related questionnaires (SRD & SRA), ask delinquency and behavioral questions but contain different items based on the age of the child. Items from the Child Symptom Inventory (CSI, Gadow & Sprafkin, 1996) were asked for girls ages 5-10 and the Adolescent Symptom Inventory was used for children 11-17 (ASI, Gadow & Sprafkin, 1996.)

Because opportunities for delinquency change as children age, the items being asked at different ages were consciously fitted to better match the developmental stage of the girl. In order to compare delinquency at one age with delinquency at another, information must be aggregated in such a way as to compare delinquency at one age with delinquency at another. Item Response Theory provides a means of scaling girls along a continuum of delinquency relative to the rest of the sample.

Toward this end, items from the CD, SRA, SRD and NADU from both child and caregiver reports are combined. Descriptive statistics of the dichotomized items were run to identify the number of girls who endorsed each item. Only items that were endorsed by at least 5% of the sample were used, and child and parent reports were run separately.

Exploratory factor analyses are run on the remaining items at each child age from both informants. To determine underlying factor configurations, Eigenvalues and scree plots from EFA were examined and indicated a one factor solution as an optimal solution for all respondents at all ages. Confirmatory factor analyses show sufficient unidimensionality of the items, which improves the model after the few items that do not fit the one-factor solution are removed. This basically shows that delinquency can confidently be understood as a singular construct. The items were then modeled using Item Response Theory in Mplus 7. One and two-factor PL models were tested and compared. A one factor (Rasch) model indicates a similarity of each item to the other, and was adequate for younger ages, but became a rather poor fit in older

ages. However, a 2 parameter logistic (2PL) model allows that some items have different ‘difficulty’ levels than others. This difficulty factor is suitably translated to our understanding of delinquency, as certain behaviors, like violence or armed robbery, are of greater severity other delinquent behaviors, like truancy or shoplifting, and therefore more “difficult.” This 2pl model provided a much better fit at all ages for both girls and their caregivers, and was used for the analysis. Again, the item pool was slightly reduced as items that did not meet the criteria of .35 were removed at each age. Next the combined information is modeled from both child and caregiver informants. Residuals from related items were correlated to create a series of models that ranged from adequate to very good fit. (CFI range from .90 to .95) This is shown to be a more precise measure than the individual or summed measures with the advantage of using fewer items to still attain greater specificity of the measure.

These IRT models produce a theta score for each girl at each age. The thetas from the analysis represent the relative place along a delinquency spectrum upon which a girl falls at each age and can be confidently compared between girls and at different ages.

2.5.1.2 Juvenile Arrest

Official records from the Juvenile Justice system have been acquired by the PGS study with arrest & placement information by year and type of offense. The existence of a girl’s record from the juvenile justice system is used. It is a dichotomous item coded 1 if the girl has a juvenile record, 0 if not.

2.5.2 Grouping Variable

Parental incarceration status is the main grouping variable in this study. Parental incarceration status is used to group girls into three categories, based on the severity of CJS involvement. These groups are 1) no caregiver criminal record 2) Criminal Justice System involvement (no confinement) and 3) Caregiver Incarceration. The caregiver incarceration group will also be matched to a group with no parental incarceration using propensity scores of observed covariates, as described below.

2.5.2.1 Parental incarceration

Parental incarceration, as understood herein, refers to any finding in a searched Web docket that indicates a sentence of Confinement, or Intermediate Punishment Program (IPP). IPP (sometimes referred to as SIP, state intermediate punishment) is a two-year sentence that demands mandatory confinement plus rigorous probationary supervision and substance abuse treatment for a designated time thereafter. IPP's are used in particular drug-related offenses, like drug delivery, DUI, and burglary. IPP requires a minimum seven-month incarceration sentence, a minimum of two months of community based therapy, and a minimum of six months outpatient addiction treatment, with supervised reintegration used for the balance of to be fulfilled. (For more detail see the PA State Intermediate Punishment Program, 2006 in the Appendices.) If any caregiver has a docket with an incarceration sentence, the girl is categorized into this group.

2.5.2.2 Caregiver Arrest without Incarceration

A large group of caregivers have been arrested at some point, but were never incarcerated. All documented arrests and convictions that did not result in a confinement sentence are herein

grouped. Convictions may instigate various forms of sentence such as community supervision, electronic surveillance or monetary fines. The most common sentence is probation. Probationary supervision can last for lengths of time that vary from a few months to decades. Another form of alternate sentence considered in this study is Advanced Rehabilitative Disposition (ARD). ARD is a pre-trial program intended to deal with first-time non-violent offenders in lieu of a formal trial. A form of supervisory probation is accepted for two years, and assuming all responsibilities therein are met, then the defendant's criminal charges are dismissed and his/her record expunged. All web dockets with an ARD designation are included in the arrest group. Arrests without conviction are also included in this group. Arrests may result in short jail stays while a defendant awaits processing or posting of bail, but is found not-guilty and thus never formally sentenced.

2.5.2.3 No Criminal Justice System involvement

No Criminal Justice System Involvement (NCJSI) is comprised of those without any formal record of arrest or conviction. This group includes all individuals in the study as searched through the PA Courts WebDocket system, with no findings. Broad searches were narrowed down (see appendix {WEBDocketSearch}) through birthdays, maiden names, aliases and any identifying information like zip code which may weigh in on disputes about identity (i.e., slightly different birthdays, common name misspellings, or missing basic identifying information).

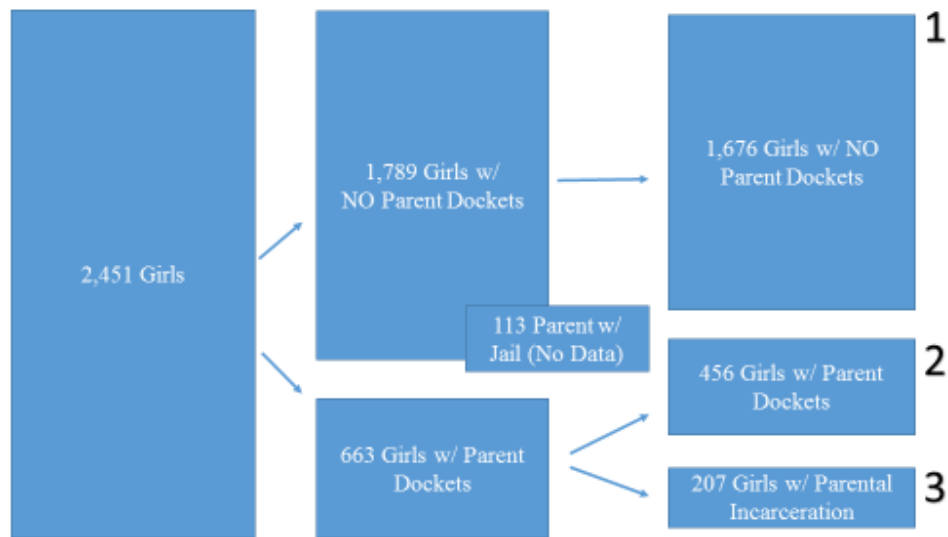


Figure 1: Sample of girls according to parental criminal justice system involvement

2.6 DATA ANALYSIS PLAN

This study analyzes predictors of girls' delinquency and arrest using several steps. This study uses longitudinal data from the PGS.

- 1) Descriptive and univariate statistics of the dependent and independent variables are analyzed to create initial comparison groups.
- 2) A bivariate analysis of the variables using Pearson correlations is conducted to identify which variables are highly correlated and which should be included in matching or as controls.

- 3) Girls are grouped according to Parental Criminal Justice system involvement and group means of delinquency and juvenile arrest are compared between groups.
- 4) Girls delinquency and juvenile records are examined based on age at which parent is first incarcerated.
- 5) Propensity score analysis (Guo & Fraser, 2010) is used to create comparison groups of girls with similar characteristics to our interest group: namely that of girls with no parental incarceration at age 8 who have incarcerated parents by age 17.
- 6) The next step involves analyzing the effectiveness of performing Propensity score matching with covariate balance checks.
- 7) Finally, I examine between group differences using multivariate (OLS) regression on the delinquency variable and logistic regression predicting a girls' acquisition of a juvenile record.

2.6.1 Descriptive and Univariate Analyses

The first analytical task is to understand the basic demographic characteristics of our sample, as well as a variety of other observed characteristics. For this step, data was analyzed from the earliest ages from which full data was available, age 8. This process assists in identifying appropriate covariates to match in a propensity score analysis.

2.6.2 Correlations

Bivariate correlations between variables are conducted using Pearson correlations.

2.6.3 Age of parental incarceration

Girls are categorized by general age groups at which parents were first incarcerated. Four categories are identified: (1) parent incarcerated before girls' birth, (2) parent incarcerated between birth and age 8, (3) parent incarcerated between age 8 and 17, and (4) parent incarcerated after girl turns 17.

2.6.4 Propensity Score Matching

Propensity score analysis is an analytic method used to correct for selection bias using observed data (Guo, 2013). Propensity score matching procedures are used to account for the potential social selection that may account for both the propensity for an individual parent to commit crimes and summarily go to jail, which could also influence the propensity for girls to follow a similar pattern. When classification is between two groups (binary) then propensity scores can be calculated using logistic regression (Hirano, Imbens & Ridder, 2003). Logistic regression determines a propensity score for each participant, i ($i=1, \dots, N$) that in this instance determines the conditional probability of having a parent incarcerated ($W_i=1$) versus never incarcerated ($W_i=0$) based on the observed covariates \mathbf{x}_i : $e(\mathbf{x}_i) = \text{pr}(W_i=1 / \mathbf{X}_i= \mathbf{x})$ (Hirano & Imbens, 2001).

Each respondent is scored according their responses to demographic, behavioral, family, and neighborhood characteristics. Inferences about the impact of a parent's prison sentence on girl's delinquency involve speculation about how a girl would have performed had her parent not been incarcerated. Many of the factors that are correlated with becoming incarcerated, like disordered neighborhoods and low family SES can also be implicated causally in the development of children's behavioral problems and delinquency (Caliendo & Kopeinig 2005).

The impact of parental incarceration is likely to be dependent on many such factors, so to accommodate this, girls are matched based on covariates that influence both the grouping variable and the outcome variables: child delinquency and juvenile justice involvement. These covariates are identified according to ecological and criminological theory.

2.6.5 Covariates to be matched

The covariates listed below are all from data when girls are 8 years old, as it is the first age at which all girls completed the questionnaire. The “assignment to group” is the girl’s age at first parental incarceration event. For change in parent incarceration status to be isolated, the entire sample had no parental incarceration at age 8. The group of interest then had a parent become incarcerated for the first time during the measurement period. These girls had a parent incarcerated for the first time between the ages of 8 and 17. Thus by matching girls along these covariates the effects of parental incarceration is better isolated.

All variables used in the matching procedure are dichotomous. Variables that were originally scaled were dichotomized so that the most extreme 20% are indicated. All variables were measured when girls were 8 years old when none of the girls had yet to experience the incarceration of a parent.

Covariates:

Race: Race is a dichotomous variable distinguishing between European American/White girls and those of all other races. The majority of the sample was African American with a small portion identifying as biracial and a smaller fraction identifying as Asian American.

Receipt of public Assistance- is a dichotomous variable indicating whether parents responded yes or no to an item regarding their receipt of public assistance at age 8.

Debt Problems- is a dichotomous variable indicating whether parents responded affirmatively to a question regarding having debt problems.

Credit Problems – is a dichotomous variable indicating whether parents responded affirmatively to a question regarding having credit problems.

Single Parent Family- is a dichotomous variable indicating whether multiple caregivers were involved in the girl's upbringing.

Neighborhood Violence- A variable consisting of the sum of three dichotomous questions regarding violent crime in the neighborhood. All summed variables were then dichotomized so that the worst 20% are identified.

Neighborhood Crime Summary- consists of the sum of 7 dichotomous questions regarding crime in the girl's neighborhood as reported by the respondent caregiver. This summed variable was dichotomized so that the most extreme 20% were identified.

Neighbor Intervention- consists of the sum of 4 dichotomous question regarding the presumed intervention of neighbors during proposed neighborhood events, as reported by the respondent caregiver when girls were 8. This variable was reverse coded, and with a 20% cutoff.

Caregiver Education- is a dichotomous variable indicating whether caregivers responded affirmatively to a question regarding having completed high school or high school equivalence.

Difficult Life Circumstances- a dichotomous variable created by taking the most extreme twenty percent of the sum of 16 dichotomous items regarding potentially difficult life circumstances that the family is experiencing when the girl is 8 years old.

Caregiver Substance Abuse- is a dichotomous item indicating whether the respondent caregiver responded affirmatively to a question regarding the primary caregiver's substance abuse problems.

Caregiver 2 substance Abuse- a dichotomous item indicating whether the respondent caregiver responded affirmatively to a question regarding the secondary caregiver having substance abuse problems.

2.6.6 Covariate Balance Checks

Covariate Balance Checks are used to determine whether the Propensity Score Weighting was effective or if significant differences between the groups remain after applying ATT weighting. Logistic regressions using ATT weights check for covariate balance (Guo & Fraser, 2010). This step addresses the research question regarding whether girls' demographics, family, and environmental characteristics are significantly different prior to parental incarceration.

2.6.7 OLS and Logistic Regression

Ordinary Least Squares regressions is used to predict delinquency at age 17 by parental criminal justice system history. OLS regression is also used to test for the role of parental justice history after controlling for delinquency at age 8. I also test differences in delinquency between girls whose parents were incarcerated before they were born, girls whose parents were incarcerated between birth and age 8 and girls whose parents were incarcerated between ages 8 and 17. Using logistic regression, I analyze girls' juvenile arrests as predicted by parental justice system

histories, and in another model after controlling for delinquency. Longitudinal data is used to assert the time order of events beyond mere correlation.

3.0 RESULTS

3.1 DESCRIPTIVE STATISTICS

Descriptive Statistics are presented in Table 1 and the grouping flow chart Figure X. In total 207 girls (8.4% of the full sample) had a caregiver incarcerated at some point. Another 465 girls (19.0%) had parents with criminal dockets resulting in outcomes other than incarceration. One hundred and thirteen girls (4.6%) had caregivers indicate that a partner who had never participated as respondent caregiver had spent some time in jail or prison. Because these individuals had not consented to be a part of the study, no data was obtained for these individuals, their histories were never searched and the corresponding girls were removed from the analysis. A remaining 1676 girls (68.4%) had no histories of parental criminal justice system involvement.

Of the 207 girls in the parental incarceration group, 45 had a caregiver's first imprisoned prior to the girls' birth. The remaining 162 girls have experienced their parents' first incarceration event during their lives. Sixty-one girls experienced parental incarceration between birth and age 8, 76 between the ages of 8 and 17, and an additional 25 had their parents' first incarceration occur after the girl turned 17. Among those caregivers who were incarcerated 51.7% are the biological mother, 29.5% are the biological father, and the remaining percent

include other caregivers, which include grandparents, aunts & uncles, foster parents, and other caregivers.

Comparing the 207 girls with histories of parental incarceration with the girls whose parents were never incarcerated showed significant differences along demographic and family characteristics (See table 1). Girls from the parental incarceration group were more likely to come from single-parent families, come from non-European American descent, have more public assistance, and live in more disordered neighborhoods. The girls in the parental incarceration group were also more likely to become involved in the juvenile justice system and have higher delinquency scores than the no parental incarceration group.

Table 1: Sample statistics at age 8 (unless otherwise indicated)

N=2451(total sample)	N=2451 (Total Sample)	N= 2055 (Girls w/ no parental incarceration)	N= 207 (Girls w/ parental incarceration)	
Variable	% Mean/(SD)	Mean/(SD)	Mean	P
Girls arrested by 17	20.0%	18.5%	31.4%	<.001
Girls Delinquency 17	.062(.82)	.034(.82)	.325(.87)	<.001
European American	41%	44%	25%	<.001
Raised by Single Parent	43%	41%	54%	<.001
Parent HS Grad	93%	93%	88%	.012
Public Assistance	35%	32%	47%	<.001
Neighborhood Crime	11.76(3.90)	11.63(3.78)	12.86(4.60)	<.001
# siblings	1.75(1.33)	1.73(1.35)	1.88(1.31)	.331
Caregiver Docket	27%	21%	100%	<.001

3.2 CORRELATION RESULTS

Results of Pearson Correlations among key covariates can be found in Table 2. Of particular interest are the correlations between the variables theoretically predictive of delinquency and

juvenile arrest. A caregiver docket was highly correlated with a number of covariates like poverty, living in a disordered and high-crime neighborhoods, as well as having more difficult life circumstances.

Correlations N=2451

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1)Theta17	1								
(2)Juvenile Record	.284***	1							
(3) CGDocket	.123***	.164***	1						
(4) European American	-.093***	-.287***	-.242***	1					
(5) Single Parent	.103***	.189***	.113***	-.346***	1				
(6) CG GED or HS diploma	-.062**	-.100***	-.098***	.033	-.088***	1			
(7) # Siblings	.101**	.182***	.123***	-.179***	-.019	-.054	1		
(8) Public Assistance	.115***	.179***	.199***	-.303***	.230***	-.138***	.187***	1	
(9) Neighborhood Summary	.131***	.151***	.144***	-.252***	.167***	-.074***	.119***	.194***	1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Pearson Correlations at age 8

3.3 RESEARCH QUESTION 1 RESULTS: IS PARENTAL INCARCERATION A PREDICTOR OF DELINQUENCY AND ARREST?

3.3.1 Delinquency at age 17 predicted by parental criminal justice history

In order to test Research Question 1, a sequential multiple regression is performed on girl’s delinquency scores at age 17 predicted by parents’ legal histories. There are 3 levels of parental criminal justice history: (1) no parent docket, (2) parental docket without incarceration, and (3) parental incarceration. The parental criminal justice history variable is dummy coded so that the (1) no docket group is the comparison group. All assumptions of OLS regression were met after

a square root transformation was used on the dependent variable, satisfying the assumption of heteroscedasticity (Breusch-Pagan 3, $N=2124$, $.22 p = .975$). All other assumptions were met.

There is a significant prediction of girls' delinquency at age 17 by caregiver's legal history, $F(2, 221) = 16.42$, $p < .001$, $r^2 = .015$, $adj r^2 = .014$. Having a parent with an incarceration history predicts delinquency compared to having a parent with no criminal docket, $B = .169$, $t(2147) = 4.80$, $p < .001$, $sr^2 = .011$, as does having a parent with a criminal justice docket, $B = .095$, $t(2147) = 3.75$, $p < .001$, $sr^2 = .006$. The difference in girls' placement along the delinquency spectrum at age 17 approaches significance for the test of (2) parent docket group and (3) parental incarceration group, but is not statistically significantly different, $F(1, 2147) = 3.38$, $p = .066$.

3.3.2 Juvenile record predicted by parental criminal justice history

Logistic regressions are used to predict the juvenile record by parents' legal history, with the same three groupings: 1) No docket, 2) docket, 3) incarceration. Girls are classified as "juvenile record" or "no juvenile record." Frequencies of girls' juvenile record by parental legal history is displayed in table 3. All assumptions were met. There is a significant prediction of juvenile record by parents' legal history $\chi^2(2) = 70.003$, $p < .001$, Nagelkerke $r^2 = .046$. The girls from the parental docket (2) and parental incarceration (3) groups both have nearly a two and a half [2.5] times greater likelihood of having juvenile records than the girls from the (1) no parental criminal justice history group, (odds likelihood 2.44 & 2.54 respectively). There is no significant difference between (2) parental docket and (3) parental incarceration groups.

There is no significant difference between observed and predicted juvenile record group assignment, Hosmer-Lemeshow $\chi^2(1) .000, p = 1.00$. The overall classification rate is ok, ROC area = .600.

Table 3: Number and Percent of participants by juvenile record and parental legal history group

	no parent docket	parent docket	parent incarceration
No juvenile record	1420 (85%)	316 (69%)	142 (69%)
juvenile record	256 (15%)	139 (31%)	65 (31%)

3.4 RESEARCH QUESTION 2 RESULTS: IS PARENTAL INCARCERATION A PREDICTOR FOR DELINQUENCY AT AGE 17 AND ARREST AFTER CONTROLLING FOR DELINQUENCY AT AGE 8?

3.4.1 Delinquency predicted by parental criminal justice history controlling for delinquency at age 8

There is a significant prediction of delinquency at age 17 by parents' legal history and delinquency at age 8, $F(3, 2120) = 62.23, p < .001, R^2 = .081, \text{adjusted } R^2 = .080$. Delinquency at age 8 is the strongest predictor of delinquency at age 17, $B = .438, t(1) = 12.31, p < .001, sr^2 = .066$. Controlling for delinquency at age 8 still shows statistically significant prediction of delinquency at age 17 by parental incarceration and parental docket, respectively $B = .134, t(1) = 3.89, p < .001, sr^2 = .007; B = .053, t(1) = 2.13, p = .034, sr^2 = .002$.

Table 4: Results of OLS Regression

Variable	<i>B</i>	β	<i>T</i>	<i>p</i>	<i>sr</i> ²
Intercept	.431	0	11.16	< .001	
Docket compared to no docket	.053	.045	2.13	.034	.002
Incarceration compared to no incarceration	.134	.082	3.89	< .001	.007
Delinquency age 8	.438	.259	12.31	< .001	.066

Table 5: Delinquency by parental criminal justice history

Parent's legal History	Variables	Mean	SD	(1)	(2)
No legal involvement	(1) Delinquency Age 17	-.006	.798	1.000	
	(2) Delinquency Age 8	-.021	.806	.277	1.000
Docket (no Incarceration)	(1) Delinquency Age 17	.181	.859	1.000	
	(2) Delinquency Age 8	.262	.830	.333	1.000
Incarceration	(1) Delinquency Age 17	.325	.865	1.000	
	(2) Delinquency Age 8	.295	.919	.226	1.000

3.4.2 Juvenile record predicted by parental criminal justice history and delinquency at age 17

A sequential logistic regression is performed on girls' juvenile records predicted by parental legal history, girls' delinquency and the interaction of parental legal history and girls' delinquency. There is a significant prediction of juvenile record by the predictors, $\chi^2(5) = 225.027, p < .001$, Nagelkerke $r^2 = .156$. There are significant differences in prediction of juvenile record among the levels of parental legal history $\chi^2(2) = 11.458, p = .003$. Girls with parents with dockets are over 5 times as likely as girls with no parental legal histories to have juvenile records, $B = 1.678, \chi^2(1) = 5.134, p = .024$, Exp (Est) = 5.356, and girls with incarcerated parents are over 17 times as likely than girls with no parental legal histories to have juvenile records, $B = 2.886, \chi^2(1) = 8.988, p = .003$, Exp (Est) = 17.929. A girl's delinquency spectrum score is the strongest predictor of juvenile record, $B = 2.797, \chi^2(1) = 105.436, p < .001$, Exp (Est) = 16.390, yet even when girls' delinquency is controlled for, parental legal history still predicts girls' juvenile records, $\chi^2(2) = 11.458, p < .003$.

There is not a significant difference in prediction of girls' juvenile records among the groups of parental legal histories, $\chi^2(2) = 5.445, p = .066$, but because the p value approaches statistical significance, the interactions are left in the model. The likelihood of a juvenile record for girls with parents from legal dockets group (group 2) is not significantly different from girls with no parental dockets (group 1), $B = -.579, \chi^2(1) = 1.449, p = .229$, however the likelihood of having a juvenile record for each unit increase in girls' delinquency is less for girls with incarcerated parents (group 3) compared to girls with no parental dockets (group 1), $B = -1.381$,

$\chi^2(1) = 5.001, p = .025$, though the intercept of girls with parental incarceration (group 3) is higher.

There is no significant difference between observed and predicted juvenile record group membership, Hosmer-Lemeshow, $\chi^2(7) = 9.024, p = .251$. The overall classification rate is acceptable, ROC area = .722.

Table 6: Delinquency by girls' juvenile records

Juvenile Record	Variable	M	SD	(1)	(2)
No Juvenile Record	Delinquency age 17	-.061	.759	1.000	
	Delinquency Age 8	-.033	.787	.225	1.000
Juvenile Record	Delinquency age 17	.536	.892	1.000	
	Delinquency age 8	.448	.893	.309	1.000

3.5 RESEARCH QUESTION 3 RESULTS: ARE THE DAUGHTER OF INCARCERATED PARENTS DIFFERENT FROM OTHER GIRLS PRIOR TO PARENTAL INCARCERATION?

As Table 5 shows, girls from the parental incarceration group (group 3) and parental docket group (group 2) are significantly different from girls from the no parent docket group (group 1) along nearly every covariate. They are more likely to be of non-European descent, receive public assistance, and have parents with lower educational attainment, and more disordered neighborhoods. There are far fewer significant differences between the parental docket (group 2) and parental incarceration group (group 3). The only statistically significant differences between

these two groups are along measures of unemployment, caregiver substance abuse, and the amount of supervision provided. In each of these instances parents with incarceration histories (group 3) score lower than parents in the docket group (group 2). However, parents with incarceration histories are far less likely to use corporal punishment.

Based on the many differences between the groups, propensity score matching is utilized to create a new comparison group from the girls with no criminal justice histories (group 1). Propensity scores are calculated based on the propensity for a parent to become incarcerated using the covariates listed in table 2. Girls were initially matched on a two to one basis, but due to missing data and the removal of influential cases the final comparison group (group 1) consists of 87 girls.

Similarly a group of girls from the parental docket group (group 2) was chosen based on the date of first caregiver arrest. The final group of girls had caregivers arrested for the first time after the girls had turned 8. This group consists of 115 girls who had parent dockets only after the age of 8.

Table 7: Dichotomized covariate means by parental legal history group assignment

N=2451(total sample)	N=2334(Total Sample)	N= 1673 (Girls w/ no parent dockets)	N= 454 (Girls w/ parent dockets)	N= 207 (Girls w/ parental incarceration)
	(full)	(1)	(2)	(3)
Variable	%	%	%	%
Girls arrested by 17	20	15	31	31
Girls Delinquency 17	.061(.82)	-.006(.80)	.181(.86)	.325(.86)
Girls Delinquency 8	.063(.83)	-.021(.81)	.262(.83)	.295(.92)
European American	42	50	20	25
Raised by Single Parent	42	38	51	54
Parent HS Grad	84	88	76	70
Public Assistance	33	27	51	47
Neighborhood (dichot)	19	16	26	29
Neighborhood Crime	20	17	26	30
Neighborhood Violence	22	20	27	28
Neighborhood Intervene	19	16	26	26
Debt	37	38	35	37
Credit	31	31	44	49
Unemployment	12	10	15	23*
Carer1 Subst Abuse	2	1	3	5*
Carer2 Sbust Abuse	4	4	6	5
Difficult Life Circ	21	18	28	29
Caregiver Stress	22	20	26	32
Corporal Punishment	32	33	33	24*
Supervision	22	20	23	36*
Conflict Resolution	21	20	24	27
Psychological Aggression	17	16	18	21
Low Warmth	23	23	24	27
Positive Parenting	17	15	21	26

Bold figures indicate significant differences between bold faced group and group (1).

* indicates significant difference between group (2) and (3).

3.6 COVARIATE BALANCE CHECK RESULTS

A covariate balance check is conducted on the matched groups, the results of which are indicated in Table 6. In the initial sample, nearly every covariate was significantly different between the girls with no criminal justice history (group 1) and the girls with parental incarceration (group 3), [See Table 5]. After the groups are matched according to propensity scores, there is no significant differences between groups. Similarly, the girls with parental dockets (group 2) are also well matched with only one covariate being statistically different between groups. Thus, the regression models are rerun with three matched groups.

Girls with no parental criminal histories (group 1) are matched to girls with parental incarceration histories (group 3) according to the listed covariates. After matching there were no significant differences between means on the covariates. Because girls with parental dockets (group 2) and girls with parental incarceration (group 3) had few significant differences, the same rigorous matching procedures were deemed unnecessary. Instead a more selective group from the parental docket group was chosen who had their parents' first documented arrest occur after the girl turned 8. This way the comparison group of girls from the parental docket group had no parental dockets at age 8, but had dockets by the time the girls turned 17. In this way we can better identify differences between the role of first-time parental *arrest* in the lives of girls as well as that of first time parental *incarceration*.

Table 8: Number and percent of matched participants by juvenile record and parental legal history

	no parent docket	parent docket	parent incarceration
No juvenile record	64 (74%)	76 (63%)	50 (68%)
juvenile record	23 (26%)	45 (37%)	24 (32%)

3.7 RESULTS AFTER MATCHING PROCEDURES

3.7.1 Delinquency age 17 predicted by parental criminal justice history

The matched groups are subjected to the same regimen of analyses performed on the original samples. After the girls are matched, there is no significant prediction of girls' delinquency at age 17 by caregiver's legal history, $F(2, 255) = 1.62, p = .200, r^2 = .013, \text{adj } r^2 = .005$. Neither having a parent with a docket nor having a parent who gets incarcerated predicts delinquency compared to having a parent who experiences neither, respectively, $B = -.053, t(255) = -1.09, p = .276, sr^2 = -.083, B = .024, t(255) = .53, p = .595, sr^2 = .041$. There is no difference in girls' placement along the delinquency spectrum at age 17 in the comparison test of the parent docket group and parents with incarceration group, $F(1, 255) = 3.19, p = .075$.

3.7.2 Juvenile arrests predicted by parental criminal justice history

Logistic regressions are used to similarly predict among the matched groups juvenile arrests by parents' legal history. Again, girls are classified as "juvenile record" or "no juvenile record." All assumptions are met. There is no significant prediction of juvenile record by parents' legal history $\chi^2(2) = 2.645$, $p < .267$, Nagelkerke $r^2 = .013$. There is also no significant difference between (2) parental docket and (3) parental incarceration groups.

When logistic regressions predict juvenile arrest by parental history and girls delinquency, there is a significant prediction of girls' juvenile record $\chi^2(3) = 28.445$, $p < .001$, Nagelkerke $r^2 = .176$. Girls' delinquency was the only significant predictor of juvenile arrest $\chi^2(1) = 26.923$, $p < .001$, $\exp(\text{est}) = 7.609$. Controlling for girls' delinquency, there is no significant prediction by either (2) parental docket or (3) parental incarceration groups, respectively $\chi^2(2) = 1.337$, $p < .248$; $\chi^2(2) = .240$, $p < .624$.

There is no significant difference between observed and predicted juvenile record group assignment, Hosmer-Lemeshow $\chi^2(8) = 3.408$, $p = .906$. The overall classification rate is acceptable, ROC area = .716.

3.8 SUMMARY OF RESULTS

This chapter presents a summary of the results reported above. These analyses test a series of questions regarding whether parental incarceration is predictive of juvenile delinquency and juvenile arrest.

Model 1 corresponds with the first research question, asking whether parental incarceration is predictive of increased delinquency at age 17, with three associated hypotheses: (H1) girls with histories of will have higher levels of delinquency than girls with no parental CJS involvement; (H2) girls with parental CJS dockets group will have higher levels of delinquency than girls with no parental CJS involvement; and (H3) girls with histories of parental incarceration will have higher levels of delinquency than girls with parental CJS dockets. In the full sample, there is support for the first three hypotheses. There are significant predictions of girls' delinquency at age 17 by parental incarceration (H1) and parental criminal dockets (H2). The delinquency score for the parental incarceration group is higher than that of the parental docket group at $p = .067$, indicating that the difference between the groups approached statistical significance lending some support to H3, that girls with incarcerated parents would be more delinquent than girls with only parental dockets.

Model 2 is a logistic regression predicting the acquisition of a girls' juvenile record by parental criminal justice system history, with three associated hypotheses: (H4) girls with histories of parental incarceration will have higher rates of juvenile arrest than girls with no parental CJS involvement; (H5) girls with parental dockets will have higher rates of girls' juvenile arrests than girls with no parental dockets; (H6) girls with histories of parental incarceration will have higher rates of girls' juvenile arrests than girls with parental dockets. There is support for the next two hypotheses but little support for the third. Parental incarceration and parental dockets were each significant predictors of a girls' juvenile arrest compared to having no parental criminal justice history, supporting H4 and H5. There is no significant difference between the parental incarceration and parental docket groups, offering no support for H6.

Model 3 controls for delinquency at age 8 and tests if parental criminal justice history is still predictive of delinquency when girls are age 17 with three associated hypotheses: (H7) after controlling for childhood delinquency, the parental incarceration group will have higher rates of teen delinquency than that of girls' in the no parent docket group; (H8) After controlling for childhood delinquency, parental docket group will predict higher rates of teen delinquency than that of girls in the no parent docket group (H9) After controlling for childhood delinquency, the parental incarceration group will have similar rates of arrest as girls in the parent docket group. Delinquency at age 8 was the strongest predictor of delinquency at age 17. This indicates some coherence in trajectories of delinquency, where earlier delinquent behaviors are predictors of later delinquent behaviors. However even after controlling for delinquency at age 8, parental incarceration remained a significant predictor of delinquency at age 17. Girls with parental incarceration (group 3) still significantly predicted delinquency over girls with no parental CJS histories (Group 1), supporting H7. Girls with parental dockets (group 2) had higher delinquency scores than girls with no parental criminal justice history (group 1), supporting H8. Finally the girls with histories of parental incarceration (group 3) and the girls with parental CJS histories were not significantly different, supporting H9.

Model 4 controls for delinquency at age 17 to test if parental criminal justice history remains predictive of girls' juvenile records, with three associated hypotheses: (H10) After controlling for delinquency, girls in the parental incarceration group will have higher rates of girls' juvenile arrest than that of girls in the no parent docket group; (H11) After controlling for delinquency, girls in the parental docket group will have higher rates of juvenile arrest than that of girls in the no parent docket group (H12) After controlling for delinquency, girls in the

parental incarceration group will have similar rates of juvenile arrest as girls in the parent docket group.

Delinquency is unsurprisingly the strongest predictor of a girls' juvenile record. However, parental criminal justice history remains predictive of juvenile record even when controlling for delinquency. Interaction terms between delinquency and parental criminal justice system history approached significance, and while there were not great differences in predicting juvenile records among the groups, the parental incarceration group was statistically different from the other groups in that an increase in delinquency score had a lesser and lesser predictive power regarding juvenile record. The parental incarceration group had a larger initial delinquency score but the slope of juvenile record prediction was much lower than the other two groups. This essentially means that higher delinquency scores among girls with parental incarceration histories did less and less to predict their likelihood of arrest, compared to the other groups. As delinquency scores rise in the no parent incarceration group (1) and the CJS history group (2) there is an associated rise in the rate of juvenile arrest. This trend is not to be found among the girls with histories of parental incarceration (group 3) suggesting that the influence of parental incarceration has a different effect on girls' arrest likelihood when parents' have been arrested, than is found in the other groups.

Next, the analysis delves into the characteristics of the girls who were assigned to each group based on their parents' criminal justice histories. This step is conducted to account for factors that may influence the propensity of a parent committing crimes that may also account for a girl's participation in delinquency. When examining the covariates that may be potentially different between the groups, there were many significant differences. Table 5 shows that demographic, neighborhood, and family variables were largely different between the group of

girls with no parental criminal justice histories and the two groups with parental criminal justice system involvement prior to a parent's involvement in the criminal justice system. Propensity score matching was used to account for differences between these groups so as to identify an appropriate comparison group from girls who had no parental criminal justice system involvement (group 1) who would more closely match the group of girls whose parents would go on to become incarcerated. First, girls with incarcerated parents (group 3) were further categorized based on the age of the girl when their parent was first incarcerated. Those girls who had not yet experienced parental incarceration at age 8, but who would by age 17 were selected as the main group of interest (n=74) and matched to girls from the no parental incarceration group (group 1) according to the shared propensity for having a parent incarcerated based on their propensity scores. A comparison of covariates shows that after the matching procedure was accomplished there were no statistically significant differences between any of the items between these two groups. A third comparison group is identified from among girls with parental dockets (group 2) based on the date of their parents' first arrest, so that this group would, similar to the parental incarceration group, have no parental arrest at age 8 but would by the time the girls are 17. The comparison of covariates here now shows only one significant difference in one covariate, and was used as a third comparison group. The entire set of models were then rerun using these matched groups.

Model 1.2 tests the prediction of delinquency by parental criminal justice history using the matched samples and shows no significant prediction of delinquency. Similarly model 2.2, using the matched samples, shows no significant prediction of juvenile record by parental criminal justice history. Model 3.2 showed that juvenile delinquency in youth was the only

predictor of delinquency at age 17, and Model 4.2 found no prediction of juvenile record after delinquency was controlled for.

In sum, the first set of hypotheses which predicted that delinquency would be affected by parental incarceration, were generally supported by analysis results using the full sample. However, girls with incarcerated parents were statistically different from the girls with no histories of justice system involvement along a number of ultimately very important covariates. After matching the groups according to their propensity scores, based on theoretically chosen covariates, the differences in the covariates are no longer present, and accordingly, when the analyses were rerun on the matched samples, there are no longer predictions of delinquency or juvenile arrest by parental criminal justice history.

4.0 DISCUSSION

This dissertation originated with the goal of testing the degree to which parental incarceration is a factor in predicting daughters' delinquency. Research studies have indicated a connection between parental incarceration and delinquency in all-male samples but little research has examined this relationship with regard to girls. Researchers have published a litany of studies that show that parental incarceration is linked to sons' behavioral problems (Wilbur, 2007; Murray & Farrington, 2008; Fritch & Burkhead, 1981; Myers, et al., 1999; Phillips, et al., 2002), delinquency (Murray & Farrington, 2005; Roettger & Swisher, 2008; Murray, Loeber, & Pardini, 2012) and later justice system involvement (Farrington, 1997; Bessemer, Thornberry, 2009; Farrington & Bijleveld, 2013). To test how parental incarceration affects girls' delinquency, this dissertation makes use of the Pittsburgh Girls Study [PGS], a world-class study with a large sample size, more than fifteen years of longitudinal data, and rigorously catalogued methods. The PGS data provides incomparable information regarding the lives of girls on a range of topics, with multiple sets of questions related to behavior and activities that may be deemed delinquent. This dissertation supplemented the PGS with an independent data collection of Criminal Justice System records for all of the respondent caregivers of the study's participants, which were searched, logged, coded and re-coded with the assistance of the team at the PGS. This dissertation is designed to identify the degree to which parental incarceration results in girls committing delinquent acts and getting arrested as youth. As such, this dissertation makes use

Item Response Theory to create a scaled measure of delinquency, from the PGS's many delinquency related questions to create a scale which 1) is specific to girls' behaviors, 2) can be used to compare girls with each other and 3) can be used to compare girls with themselves at different ages. Finally, taking advantage of the nature of the longitudinal data, I was able to choose covariates upon which the girls were matched from the time period prior to parental incarceration to better isolate the effects of parental incarceration on this sample of girls.

The assertion that children with incarcerated parents are among our nation's most disadvantaged youth is supported by the initial findings in this dissertation. However, deeper analyses indicate that this disadvantage exists well before their parents become incarcerated complicating the potential relationship. My initial hypotheses, focusing on how parental incarceration would be detrimental to girls in terms of their delinquency and arrest, among all girls in the full study sample are confirmed. In the full sample, young girls whose families have histories of criminal justice system involvement exhibit worse outcomes in terms of delinquency and juvenile arrest than those girls who don't. Girls whose parents go to jail have higher delinquency scores and are more likely to experience juvenile arrests, than girls with no parental criminal justice system involvement.

However, the families of girls with incarcerated parents are shown here to be statistically different from the families of girls who don't in a number of important ways prior to their parents' incarceration. When demographic, neighborhood, and financial characteristics are considered there are a wide range of statistically significant differences between the two groups of girls. Girls with incarcerated parents are more likely to be from racial minority groups, receive public assistance, live in neighborhoods described as disordered, and experience more difficult life circumstances generally prior to their parent's incarceration. This dissertation finds that a

parent's incarceration provides little additional explanatory power for predicting a daughter's delinquency beyond the contextual factors that impact their development prior to any incarceration sentence. As the covariate Table 5 indicates, a number of contextual factors differentiate the groups. When girls are matched along these contextual covariates, then parents' status does little to influence girls' delinquency or arrest.

One explanation for this is that, as was noted by those who first brought the issue of mass incarceration to my attention, families that end up involved with the justice system are beset by a multitude of hardships that are intimately intertwined with the potential to run askance of the law. It appears that the circumstances that lead a child to become delinquent are to be found in the context of their lives more than as a direct result of their parents' involvement in the criminal justice system per se. Living in neighborhoods with few social controls and a little in the way of economic resources provides for settings in which crime is more likely to occur. Family stress, parental substance abuse, and caregiver stress are markedly different between these groups. Such families are beset by unemployment, debt and credit problems, as well as a bevy of difficult life circumstances (Foster & Hagan, 2007). All of these covariates appear to influence both a parent's likelihood of becoming involved with law enforcement, especially when contextualized within neighborhoods where crime occurs at higher rates. An increase in crime naturally influences the amount that police are present in a neighborhood, both in responding to criminal incidents, and the number of pro-active police patrols that are mandated in neighborhoods that are known to be high in crime. More police in an area increases the likelihood that offenses are witnessed, actors are detained, and a range of crimes catch the attention of law enforcement.

This dissertation originated with a focus on incarceration. With a growing cultural awareness of the role of incarceration and its connections to a number of recognized social

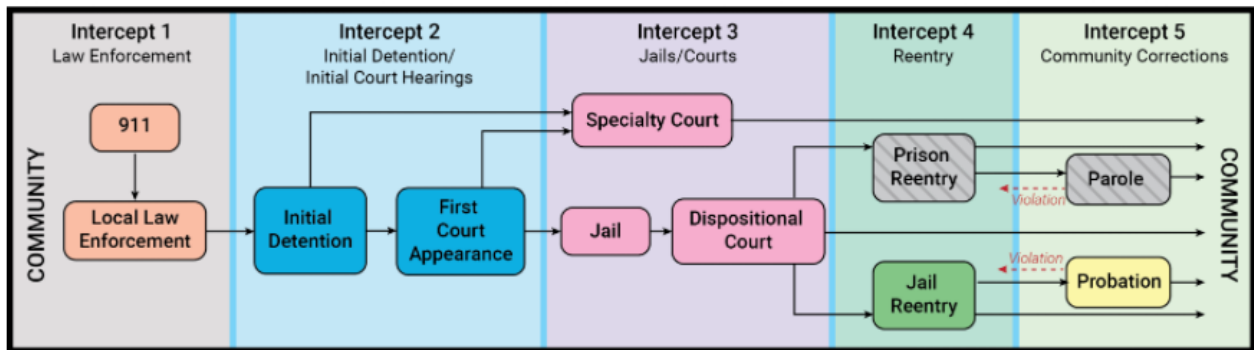
justice issues from poverty to racism, it seemed a vital concept to understand as its collateral affects have been long cited on family members and children. Incarceration however represents but the most severe degree of engagement with the criminal justice system. The criminal justice system is far more complicated than this popular conception of “mass incarceration” frequently makes explicit.

Few studies had specifically compared a parent with a history of incarceration with those parents who had less severe outcomes from their interactions with law enforcement, and the inclusion of this important comparison group is a strength and advance that this dissertation touts. This dissertation shows that girls whose parents get involved with the criminal justice system but who are never sentenced to jail are likely to get arrested at similar rates as girls with incarcerated parents. Girls whose parents were embroiled in the justice system, regardless of incarceration status were similarly given to delinquency and arrest. Of note, they were also very similar according to their contextual covariates, to the point where there were few statistically significant differences between these groups of girls at all. The role of incarceration may be secondary to the mere presence of the criminal justice system in their lives, as incarceration is merely one of the most severe results in that system.

For any one person to become incarcerated, he or she must clear a series of “gatekeepers” in order to serve a prison sentence. This was well recognized by Foucault in *Discipline & Punishment* (1975) where he identifies four key steps are required before a given act can even being designated as a crime. He lays out a process by which a certain act must first be codified into law as a crime. Only then, this act must be committed, summarily witnessed and/or caught, and then finally prosecuted before this act fully reaches the status of “criminal”. However, this determination is only the first step in a much longer process that is well mapped in terms of the

Sequential Intercept Model (Munetz & Griffin, 2006). The Sequential Intercept Model is a useful tool for showing each point along a path through the criminal justice system in which subjective human decisions can either further embroil an individual in the criminal justice system or allow for a diversion out of it (See Figure 2).

Figure 2: The Sequential Intercept Model- Source SAMHA's Gains Center, 2013



SAMHSA's GAINS Center. (2013). *Developing a comprehensive plan for behavioral health and criminal justice collaboration: The Sequential Intercept Model* (3rd ed.). Delmar, NY: Policy Research Associates, Inc.

As the visual above shows, there are multiple areas in which a person may either get drawn in more deeply, or become diverted out of the justice system. The process begins initially with law enforcement interactions, typically in the form of police contact and potential arrest. An arrestee is lead through a series of preliminary hearings and decisions that can range from dismissals of charges, to plea bargains, to full trials. If court proceedings are initiated, they will either result in a not-guilty verdict and release or a guilty verdict followed by sentencing decisions and a range of punishments. Punishments can include probationary periods, alternative punishments, fines and restitutions, or imprisonment. At every step along this process there are opportunities for human actors to make subjective decisions, usually within the bounds of clearly defined expectations and restraints. But nonetheless the latitude for action or inaction can have serious consequences. For example, a police officer can make a snap decision to arrest someone who is engaged in criminal mischief or let them go with a warning. At a preliminary hearing a

prosecutor or judge can determine that the charges filed were too severe and dismiss a case outright. Further, even when an actor is convicted of a crime, judges refer to sentencing guidelines, but have discretion as to how closely to adhere to them, allowing for subjective determinations as to the severity or mildness of the sentence. These critical junctures of human discretion are ultimately subject to certain amount of chance and luck. If an officer is having a particularly bad day, he or she may have little tolerance for something they may have ignored on a different day. If an offender is tried in front of the wrong judge, the sentencing implications could be life changing. Thus, it seems that the similarity in outcomes between those girls who had a parent incarcerated and the girls whose parents were arrested but never sentenced to a significant jail term are somewhat understandable. If so many decisions can be arbitrary, or at least imbued with a certain amount of luck and randomness, then the similarity of the outcomes for the children of individuals who have any contact with the criminal justice system are explicably similar.

Allowing for a certain amount of randomness, there is also the role of bias, often unconscious, which may influence the outcomes of people, particularly those of color or minority status. While this study was focused on potential bias that accompanies the stigma of having a family member involved in the justice system, the unconscious bias of officials towards others along protected classes like race, gender, religion, sexual orientation, or disability may play a role that is outside of the designed purview of this study. Nonetheless the similarity of delinquency and arrest among both girls whose parents were arrested and either went to prison or didn't is further evidence that it is not parental incarceration, per se, that is key to girls' expressions of delinquency and arrest but the intersection of factors that lead parents into contact with authorities.

This study concludes that girls who had similar life experiences had similarly high levels of delinquency and juvenile arrest, regardless of their parents' criminal justice histories. This may be partially explained by the fact that parental incarceration is concentrated within neighborhoods with fewer resources and less community engagement (Roberts, 2003). Neighborhoods with concentrations of incarcerated parents and high crime rates are those that often have high rates of poverty and unemployment, sub-standard housing, struggling schools, racially segregated communities and few informal controls (Rose & Clear, 1998; Western & Wildeman, 2009; Testa & Furstenberg, 2002; Wakefield & Uggen, 2010). Parents incarcerated at higher rates mean that regardless of whether those arrested individuals were YOUR parents, the police are still patrolling those areas more heavily. The children living in these neighborhoods are subject to the same conditions and increased police surveillance which may increase their visibility and contact with law enforcement. Thus, the conditions of these communities appear to be even more salient than their own specific family's incarceration history. The paucity of resources in schools in high poverty neighborhoods remain unchanged whether or not their parent has gone to jail. Within a context of neighborhoods with few legitimate opportunities, and an American culture that demonizes poverty as a personal failing and largely ignores the structural causes of poverty, few opportunities for advancement are available, regardless of one's legal history. Social sciences have a tendency to stress the role of interpersonal relations, and indeed this dissertation was subject to an overreliance on micro- and mezzo-theories which overshadow the critical nature of the larger societal context. When this context is marked by discrimination and social disorganization, it is less surprising that these factors are influential in predicting outcomes for these already disadvantaged children.

Finally, the results of this dissertation have brought to my mind the character Procrustes, Theseus' foe from Greek mythology. Procrustes was known for inviting travelers to spend the night at his homestead, where they would be forced to sleep in an iron bed. If the traveler was too short, he would stretch them until they fit; if they were too tall he would lob off the extended part of their legs until they were the right size for the bed. Sordid as the tale is, his actions present a clear instance of variable confusion. Much suffering could have been prevented if the villain would have merely altered the bed instead. In such a way, I've come to wonder if I haven't been guilty of the same type of variable confusion in my thinking regarding the role of parental incarceration. I assumed that parental incarceration was a causal mechanism for disadvantaging youth. Yet, based on the results here, it appears that parental incarceration may be more of a symptom of the social conditions that disadvantage youth, rather than the driver of this disadvantage. Indeed, we know that a criminal record can further the economic hardships and restrict future opportunities for employment. Likewise, we know that unstable families can affect children in many ways. Yet in the communities and households where these realities exist already, essentially the damage is already done. If parental incarceration is a symptom of greater social ills, it is no less deserving of our attention, yet suggests that the root causes of crime and delinquency cannot be so easily placed upon the role of the criminal justice system, but on the larger societal failures that have allowed for mass incarceration to flourish in the first place. And in this environment it makes sense to devote more energy into "altering the bed" to change the contextual circumstances.

4.1 GIRLS WITH INCARCERATED PARENTS

Girls are the focus of this dissertation. Their noted absence in much of the extant research literature on the effects of parental incarceration is an egregious omission in light of the results found in this study. As it turns out, omitting girls from these avenues of inquiry has resulted in our research knowledge missing half of the picture. The findings of this dissertation are in contrast to the majority of findings on samples that included only males, such as the Cambridge Boys Study and the Pittsburgh Youth Study. In all-male samples, there are noted correlations, even time-ordered connections between a male child's parental incarceration and their delinquency and acting out (e.g. Murray & Farrington, 2005; Wildeman, 2010). While initial findings herein appeared to mirror those results, the more rigorous use of comparison groups indicates that delinquency among girls is not as influenced by their parents' incarceration as is found among boys.

These findings challenge pre-conceived notions of how parental incarceration is influencing girls' lives, in that it appears that boys are reported to react differently to these circumstances, or that similar methodological approaches might find different results for boys as well. The experience of parental incarceration during a girl's life seems like an obvious cause of disruption and ostensibly should be more detrimental to a child's well-being. This still may be the case with regard to other potential measures of well-being, but girls' reactions to parental incarceration do not appear to present in the form of increased behavioral delinquency. Juvenile justice statistics show large discrepancies in the proportion of girls to boys in juvenile justice system. Perhaps girls are given to reacting in ways that are less outward or more productive than boys do. There are many unanswered questions in terms of the mechanisms that seem to protect

girls from the cycle of incarceration, and future studies should strive to understand what these are and how we can learn from them.

4.1.1 Implications for theory

The implications of these findings for social work theory are legion. The ecological framework that is at the heart of this examination conceptualizes the actions of individuals in relation to multiple systems including their inter-personal, familial, neighborhood and societal/historical contexts. The ecological model incorporates multiple layers of interaction between individuals and the forces that impact their lives at these interrelated levels. This examination relies on these contextual factors to inform potential mechanisms for the transmission of parental incarceration to delinquency. And theory provides the variables that are used in the matching procedures between comparison groups, which as these results show, have a more profound effect on the development of girls' delinquency than their parents' histories of incarceration. When contextual variables were similar, there was not a mean difference in the level of delinquency or likelihood of juvenile arrest regardless of a girls' parental history. This suggests that these contextual variables have a much greater influence on girls' development of delinquency than the imprisonment of their parent.

The consequences of this are profound. As we know, parental incarceration can increase instability within families, and when concentrated within neighborhoods can destabilize entire communities. But such instability is already occurring in many of these families and communities and is inextricably linked to the chances of a parent being incarcerated. That was the purpose of the propensity score matching, and once the propensity for parental incarceration was equalized, then the propensity for female offspring to take part in delinquency is also

equalized. These contextual variables appear to increase delinquency more so than the experience of parental incarceration. So, in a fashion, by the time a parent becomes incarcerated the damage has already been done. Poverty and the lack of viable and legitimate means of providing for oneself and family have a larger effect on girls than the act of losing a parent to prison. While parental incarceration shapes families, these families are already at the mercy of circumstances that are inextricably connected to parental incarceration.

The circumstances that affect girls from birth appear to be a larger contributing factor in those girls' later outcomes than that related specifically to experiencing the incarceration of a parent. The degree to which separation between parent and child occurs during the life of the child has little effect beyond those circumstances that affect other youth in similar situations when their caregivers remain free from criminal justice system entanglement.

4.1.1.1 Implications for individual level interactions: Attachment theory

An ecological framework provides for interactions at different levels that affect the functioning of an individual. The micro or individual level factors are theorized as some of the most salient for healthy development. Attachment theory is an important theory that explains micro and individual level interactions that affect child development. Attachment theory posits that disruptions in parent/child bonding have a major influence in children's later development, particularly with regard to delinquent behaviors and anti-social personalities.

Disruptions due to parental incarceration were ultimately not a predictive factor in girls' delinquency. The traumatic removal of a caregiver would theoretically be more likely to detrimentally impact the development of maladaptive child behaviors, and later influence delinquency. The fact that, once isolated, parental incarceration is no longer a predictor of delinquency suggests that the context of those families within troubling circumstances of

economic instability, bad neighborhoods, impoverished social capital, and racism are even more damaging to a girls' chances of growing up healthy than the actual break in caregiver bonds that results from parental incarceration.

An assessment of the role of attachment theory in this study may be too narrowly focused on parental incarceration. Attachment bonds can be disrupted due to many factors that range from death to inattentive parenting. While the groups were matched along important covariates related to the propensity for going to jail, there is no accounting here for the specific family circumstances that may be at play in the comparison groups. The matched groups appear to have similar levels of general instability, and this may translate to attachment issues across the entire matched sample. Or girls may be able to form attachment bonds with other caregivers, even in the context of parental incarceration. There is some support for this interpretation, as multiple caregivers report throughout the Pittsburgh Girls Study, which may include custodial grandparents, care-giving siblings, or extended family members. Girls may be protected from the harm of attachment disruptions through the interventions of secondary or alternate caregivers who step up to care for a child in the absence of an incarcerated parent. Perhaps important attachment bonds are being formed with alternate and secondary caregivers in their parents' absences, and it may be that the circumstances leading to a parent's incarceration were a strain on attachment bonds in the first place.

Alternately, attachment theory may be secondary to, or less important than, the other forces that are affecting these girls' lives before, after, and during a parental incarceration event. Attachment theory may have a limited ability to predict a girl's delinquency in the context of parental incarceration. It may be that girls are uniquely resilient to the breaking of parent child bonds during a parental incarceration event.

4.1.1.2 Implications for meso-level effects: Strain Theory

The role of contextual variables in the lives of girls cannot be understated in light of this dissertation's findings. Strain theory posits that both financial and life stressors will have an effect on the potential criminal involvement of individuals, and this theory appears to find support here. Incarceration is correlated with a great many other disadvantage producing factors. The Pearson correlations table (Table 2) shows that many of the theoretical covariates are significantly associated with each other, including those related to financial status and criminal justice system involvement. The differences in the demographic, family, neighborhood, and parenting attributes between these groups is quite apparent. Indicators of financial strain like receipt of public assistance, credit problems, debt and unemployment were associated with criminal justice system involvement and lend support to classic strain theory. Girls were more likely to have difficulties with their financial situation if their families experienced incarceration, and vice versa if families had financial difficulties they were more likely to become involved with the justice system.

The girls with parental incarceration histories were more likely to receive public assistance than the other girls. Their families were more likely to have debt and be unemployed as well. It is obvious that strain theory seems to appropriately show that the families who get involved with the law already come from low income families, they were more likely to have experienced a range of stressful life events, as well as substance abuse problems and trouble with coping. Because girls were matched according to the financial as well as life stress variables, and girls with similar situations appear to have similar delinquency outcomes, then we must conclude that the roles of poverty and difficult life circumstances are playing a greater role in predicting girls' later delinquency than the effects of a parent's removal due to prison. This finding finds

support in strain theory. Future studies should explore the way in which parental incarceration increases the amount of financial difficulties and the severity of life stressors which may be implicated in further affecting girls' delinquency. The fact that girls matched along contextual circumstances in this study showed that the negative life events that precede the likelihood of parental incarceration are looming over and above the effect beyond the additional financial strain that follows a parent's incarceration. It is important to note that the measures of financial strain were rather broadly looking at the provisions of public assistance, and various credit or debt problems. Actual figures of income, amount of debt, and details of financial information were and could provide more nuanced information on how incarceration shapes a family's finances and potentially their daughters' delinquency.

4.1.1.3 Implications for official bias, stigmatization, and macro level theory

Stigmatization and official bias are conceptualized as two societal wide forces with the potential to negatively impact children. Stigmatization is both an internal and external process. Stigmatization when externalized, refers to how others treat an individual differently based on their association with a selected class, in this instance, it describes how individuals become less trusting of a child whose parent is in jail, or when a teacher subscribes sinister motives to behavioral problems due to the fact of their parent's criminal justice system involvement. When stigmatization is internalized it encourages children to identify with a perceived stereotype, in this instance, that of being the delinquent offspring of a criminally involved parent. Internalized stigma can encourage the stigmatized to adopt features of the stigmatized class. In terms of parental incarceration, a child is treated like they are criminally involved, they internalize those impression, and then act in such a way as to fit that image, through acting out and delinquency.

The analyses on the full sample appeared to show some evidence of this, as the daughters of incarcerated parents had wildly higher delinquency scores than the comparison groups. But when the groups were matched, the girls were not statistically different in terms of their delinquency scores. If externalized stigma is at play, it is likely operating in terms of official bias.

Official bias refers to the way that people in positions of power make decisions that could affect the outcomes of individuals based on their own impressions and prejudices. Official bias is at work when children who are not necessarily more involved in delinquent activity become noticed or arrested at a greater rate for taking part in activities that otherwise wouldn't have brought them to the attention of authorities. Bessemer & colleagues (2013) found evidence of such an effect in predicting convictions of children with incarcerated parents, after controlling for those children's delinquency. A similar result was found among the full sample in this study, where even after a girl's delinquency was controlled, her parent's incarceration status was still a significant predictor of juvenile arrest. This same result that was replicated among the matched sample, however.

In controlling for delinquency and testing whether there is a difference in juvenile arrest, I was seeking to identify whether the children of incarcerated parents are overrepresented in their juvenile justice involvement or if authorities have an implicit bias against children who have a parent with a history of incarceration. Parents with incarceration histories are likely to be the recipient of increased surveillance through probation, which may mean that their kids are similarly under enhanced scrutiny. It may also be that having a reputation as a child of an incarcerated parent, and a related "guilt by association" may translate into children of incarcerated parents receiving harsher treatment by authorities than would otherwise be the case had they no familial connection to the criminal justice system. In the full sample this was shown

to be true. The children of incarcerated parents, controlling for their place on the delinquency spectrum, showed higher rates of juvenile arrest based on their parental incarceration grouping. However, the matched groups showed no independent effect of parental criminal justice status on their juvenile arrest rates. There was a very strong effect of delinquency on arrest, which was fully expected, however once controlling for that there was little evidence that parental criminal justice history had any significant additional effect.

The correlations table (Table 2) shows strong correlations between juvenile arrest and a number of important factors, not the least of which are race and neighborhood characteristics. At a macro level, the role of race and geography are inextricably intertwined in modern American cities, which is undeniably the case in Pittsburgh. Pittsburgh has crime rates that are geographically focused in certain neighborhoods, characterized as disordered or high-crime communities. These communities, due to the preponderance of crime, draw more attention from law enforcement authorities, meaning in essence that more police cars patrol these neighborhoods with greater frequency. This increases the likelihood that youth come into contact with criminal justice officials, and may get in trouble. Girls with parental incarceration histories reported worse neighborhood conditions, crime, violence, and less likelihood that neighbors would intervene. It is more likely that that police are a regular presence in such communities. This makes the notion of official bias understandable in terms of detection of delinquency. The girls from matched groups came from neighborhoods with similar conditions of high crime rates and fewer neighborhood supports, thus would have been subject to the same degrees of increased police surveillance whether or not their particular parents were ever incarcerated. The findings herein suggest a broader neighborhood-wide effect of having more police patrols in certain communities. It is not so much as that YOUR individual parent is incarcerated, it is that there are

many people with incarceration histories living in the same disadvantaged neighborhoods and therefore subject to increased surveillance as a matter of geography and neighborhood reputation. This result indicates that official bias must be conceived of more broadly than at the individual level, and operates more expansively to entire neighborhoods. When girls come from similar neighborhoods, where they are similarly affected by poverty, disenfranchisement, and a bevy of difficult life circumstances. This dissertation's most rigorous analysis suggests that these factors are more likely to affect a girl's delinquency and justice involvement than whether or not their parent actually went to jail.

4.1.1.4 Implications for social selection theory

The ecological framework that underlies this dissertation guides the list of variables that theory would suggest was both instrumental toward explaining a parent's criminal justice system involvement. To account for these factors I created propensity scores for each girl based on the covariates that were predictive of parental incarceration, and matched girls with no parental incarceration histories with girls who did according to those propensity scores. Matching girls using this method successfully created groups that were analogous according to an expansive list of covariates. The original models showed significant predictions of delinquency and juvenile arrest among the full sample. However, when the models were rerun with these newly matched groups, the results no longer showed any significant relationships between parental justice system involvement and girls' delinquency and arrest.

The girls with parents who go to jail share many of the same characteristics as girls with parents that get involved with the criminal justice system but don't go to jail. Both of these groups of girls are more delinquent and likely to get caught for their activities than girls who have no parental histories of criminal justice system involvement. What the matching procedure

shows us is that the full sample of girls with no parental justice system histories are not representative of the girls who live in families going through the justice system. Strain theory provides many of the likely covariates that would make a family more likely to run afoul of the law such as being a member of a discriminated against racial minority, living below the poverty line, and living in disordered neighborhoods with few opportunities (Johnson & Waldfogel, 2004). This multitude of difficult life circumstances was more likely found among the girls with histories of parental criminal justice system involvement, but when girls without such histories lived under the same circumstances they were not statistically significantly different according to their degrees of delinquent behavior or juvenile arrest.

This, in essence, is the definition of social selection. When the debate about parental incarceration vs. social selection arose in the research literature, I was firmly on the side that parental incarceration would have clear and obvious effects on children. I still believe that, but in terms of leading them towards lives in which they may get into trouble, they have likely already been born into conditions that are far more impactful for their aptitude towards delinquency than having a parent incarcerated. In this context, parental incarceration is just another event that disadvantages youth, and when parental incarceration is geographically concentrated, it has a cumulative effect on the entire community (Clear, 2008).

So, in some sense, the social selection premise can be said to have some validity. Social selection is indeed at play in that societal disadvantages concentrate together. Poverty, disordered communities, diminished opportunities, and discrimination are some of the very same factors that lead individuals to getting embroiled in crime, becoming arrested, and potentially serving prison sentences. These are also conditions that make delinquency more likely. Delinquency as a youth can easily lead to crime as an adult. And the cycle of disadvantage continues. It highlights

the fact that criminal justice system involvement is just another among a litany of disadvantages that accrue around the very same people who end up getting involved with the criminal justice system. For this sample of girls, social selection had a stronger effect on girls' delinquency than their parents' arrest or incarceration.

4.1.2 Implications for Social Work Practice

With the high rates of incarceration nationwide, the likelihood of Social Work practitioners will come into contact with individuals affected by the Criminal Justice System has increased dramatically in recent years. Social workers may have to address consequences of parental incarceration in a variety of fields, ranging from early intervention to children to working to address food security issues; from housing instability, to employment programs; from community organizing through any programs that serve to address poverty related concerns; any social work related endeavor is likely encounter individuals for whom the effects of incarceration have altered their life prospects. Yet the current system of education and training for social work generalists remains largely mum on the ubiquity of incarceration and its myriad impacts. Social work education is positioned at a critical juncture to train the next generation of field practitioners to be prepared to face the challenges of clientele with criminal records, or their families who are coping with the collateral consequences of their loved ones' circumstances.

As this dissertation highlights, incarceration is not an isolated social problem. Incarceration is enmeshed within a web of disadvantages at both the personal and societal levels. The intersectionality of oppression and lack of resources is acute amongst those whose families are involved in the criminal justice system. Practitioners need be aware of these issues which should inform decisions related to referrals, resources, and supports that could be of assistance to

families who are likely dealing with multiple life stressors in addition to the incarceration of their loved ones.

Meanwhile the stigmatization of having a criminal record, or a parent with one remains very real and largely unaddressed by even those duty bound to serve those very individuals. Practitioners must be cognizant of their own unconscious biases and actively work to resist letting those impact their work with families, even those families who have a mistrust of outsiders, even well-meaning individuals, such as social workers. As it appears that the consequences of locking up parents may prove quite different for different youth, social workers must also refrain from making broad assumptions about youth with parents in jail, as their stresses and reactions are likely to be varied, and require specialized services.

4.1.3 Implications for policy

In the many years since I first heard a young person talk about their incarcerated parent, I have seen the societal recognition of this issue grow and evolve. Newspapers report on legislators' and political candidates' proposals to address prison funding, overcrowding, and the need for alternative sentences. It is possible that societal recognition of the problem of parental incarceration has somewhat reduced the stigmatization of having parents in jail, just as jails themselves have evolved to be more sensitive to the needs of visiting families. Perhaps that awareness has influenced public officials, as it does not appear that official bias due to criminally involved parent is overtly affecting girls' outcomes.

What this dissertation's findings stress is that parental incarceration is interwoven with many other social ills. Poverty, disordered neighborhoods, and a litany of disadvantages are all interrelated with a parent's involvement in the criminal justice system. It is not surprising that the

poor are disproportionately singled out by the system. As strain theory posits, crime is often motivated by economic forces. Drug selling is often done for economic reasons (Shook, et al, 2013), as are many property crimes, like shoplifting, theft, and fraud. Likewise, material means determine the quality and location of the housing in which a family can reside. A safe place to live is also a safe place from the eyes of police officers. Someone doing drugs on the street has a far greater likelihood of being witnessed and arrested than someone doing so in the privacy of their own home. Likewise, affluent neighborhoods have less crime and aren't under the same levels of scrutiny as low-income communities.

In as much as attention to parental incarceration has rightly pointed out the excesses of a punitive system that houses millions of parents every year, much less attention is paid to the housing conditions of so many of our nation's citizens, the poverty that affects so many, and the lack of opportunities for meaningful work in American cities. These suggest that policies that are directed at reducing the prison population should be seen as extensions of policies that provide for the basic needs of individuals, like food, housing, and security. Wacquant (2010) suggests this very thing. Prisons have taken over many of the responsibilities of tending to the most disadvantaged citizens. This was once a job for social services and government agencies. But government spending on social services and basic needs for the poor have been dramatically cut over the decades, while spending on the criminal justice system has grown. Policies that reorder this balance should be advocated. If we focus programs and spending priorities toward providing for basic needs then we may be able to ameliorate the very social conditions that lead people towards the jail house.

In this vein, it should be the priority of human services providers to ensure that the families of those who are impacted by the incarceration of a parent are provided with the basic

supports that all children need to succeed. Girls are as deserving as boys, even if they are not most useful targets for anti-delinquency programs. Indeed, the coping mechanisms that girls adopt in the event of a parental incarceration event should be better understood so that they may be replicated by others who aren't as resilient.

4.1.4 Implications for Future Research

The results of this dissertation are unexpected given the amount of evidence from studies that show higher levels of acting out, delinquency and arrest among male samples. This study suggests that girls do not necessarily respond to the stresses of parental incarceration through acting out or delinquency, and exhibit tremendous resilience in the face of parental incarceration. This dissertation leaves the door open for future study to understand how girls react to and navigate through the incarceration of a parent. Are these girls somehow protected from the influence of parental incarceration, are they sheltered or somehow better adapted to dealing the sense of loss and family disruption described in qualitative accounts? Future research should look at other potential outcome measures that may be more reflective of girls' responses to parental incarceration and arrest. In future work I hope to get a sense of how medical histories, psychosomatic problems, or mental and emotional health measures are related to parental incarceration. Research could do a lot to test whether or not girls are being affected in other ways besides their behavioral problems. An even more promising direction for research would be to identify what factors and characteristics girls possess that keep them from exhibiting poor outcomes in the chaos of a parental incarceration event. An analysis of girls' strengths, coping mechanisms, and supports would add greatly to our understanding of girls in the context of parental incarceration.

Likewise, replication of this study in other geographic locales could identify differences among girls who live in other cities and states with different state-level policies regarding criminal justice. Likewise, unknown differences may exist between girls who may live in rural or suburban areas compared to this study's urban sample of girls.

4.1.5 Limitations

Results presented in this dissertation should be considered in light of certain limitations. These are discussed according to data, measurement, and methodology.

4.1.5.1 Data limitations

Data from this study came from two sources. The first of which is the Pittsburgh Girls Study. The PGS data is well respected and collected with professionalism and rigor, but nonetheless, a certain amount of attrition occurs in any long-term study. While the retention rate for the PGS is high, a perhaps not insignificant number of girls who left the study were those impacted by a parent's incarceration, thereby biasing the final study group. Participation in the study could have been in some way attenuated by the circumstances regarding caregivers' criminal justice system histories themselves.

Data collected regarding caregivers' justice system dockets were searched and logged through the Pennsylvania online docket system. This is a publicly accessible system, and while updated with regularity, was found to contain a number of typos, errors, and incomplete records. The research team at the PGS was consulted on all questionable cases, and cross referenced with known information to assure the most accurate search, double checks and twice logged data entry that was later compared. Despite this rigorous process, error is always possible within a

process that contained such a great number of records. It remains possible that individuals with names misspelled or unknown aliases could have been missed in the search procedures, although the broadest search techniques were used to search for individuals and their known aliases, including diminutive versions and nicknames of common first names.

It is also important to recognize that dockets, as a public record are the products of legal involvement that has gone to the length of being prosecuted and officially documented. Docket as an indication of an individual's criminal involvement are thus only a partial picture. It is certain that many arrests go undocumented, go unprosecuted or are otherwise dismissed before the official docket process is even started and logged. Therefore, there may be various degrees of criminal justice system contact of which we have no information and could potentially bias results in some way. Further since the majority of all the data related to the sentencing of parents came from dockets, the data was limited in terms of understanding many important pieces of information that would have added depth to our understanding of how incarceration affected families, such as amount of time served, whether a parent returned to live with the family post-release, or how much contact there was between child and parent during the jail term.

Finally, there also remains that possibility that caregivers received dockets in other state jurisdictions or at the federal level, in which cases no record of their criminal justice system involvement would have been located. Considering these limitations, the representativeness of this group of girls with incarcerated parents compared to the actual population of girls with incarcerated parents is unknown.

4.1.5.2 Limitations of measurement.

Great efforts, and an entire portion of this dissertation, are devoted to creating a standardized measure of girls' delinquency, which was modeled using item response theory. Despite these

efforts, there remain limitations in that all measures are subject to questions of validity, in that we have little way of knowing without fault that we are indeed accurately measuring what we intend to measure. This type of modeling has produced a strong measure for how girls' delinquency compares to their peers, but may look quite different when compared to less rigorous measures used to measure delinquency among boys or other samples.

This measure, however, did not include information on the frequency of delinquent acts of various sorts. How often an offense is performed is a common measure of delinquency, but was not used in the current modeling. Despite the fact that integer counts provide fixed intervals between responses, the vast majority of subjects' responses are zero for a given item. At this point the commission of even one delinquent act 'sets an offender apart from the conforming majority' (Osgood et al, 2002, p. 274) and significantly increases the possibility of detection by authorities. The skewness of such a measure essentially makes it less useful for future analysis. To address this, many instruments assess intervals, like "never", "once", "two to three times", or "four or more times". This creates some problems regarding creating arbitrary response categories that have not the advantage of being integers nor the simplicity of a dichotomous distinction. However, dichotomizing items ignores the potential subtle variations in frequency of delinquent acts, and the relationship that may or may not exist between serial offenders and arrest. In this way this delinquency measure has some limitations.

4.1.5.3 Limitations of methods

The potential for variables of import to be omitted is an unavoidable reality. While the variables used in the propensity score matching procedure were carefully chosen on theoretical bases, (and the quality of the PGS variables is incomparable) there is the possibility that other important variables were omitted from the matching procedure. There may be common characteristics of

the sample that were not identified that could have potentially altered the make-up of the comparison groups, and thus could have produced different results.

An additional limitation is the reduced sample size that necessarily resulted from the matching procedure. Significant relationships among the smaller sample size are more difficult to confirm and could potentially bias results (Guo & Fraser, 2010). These concerns are minimized by the logistic regression tests that showed that a majority of the data is correctly classified, and results from the Hosmer-Lemeshow goodness-of-fit test indicated good model fit. Nonetheless the greatly reduced sample size is a limitation of the matching procedure.

5.0 CONCLUSION

This dissertation began with the intention of filling important gaps in our understanding of how girls are affected by parental incarceration. Many studies have highlighted the difficulties that boys face when their parents get incarceration in terms of getting into trouble with the law and becoming incarcerated themselves. Few investigations focused on how girls experience and react to the same situations. Delinquency and behavioral problems are common measures for determining how boys react to traumatic events, and so similar outcome measures were adopted in this study. Because there is comparatively little scholarship that focusses on girls as opposed to boys, this dissertation was intent on using measures of delinquency that would best represent how delinquency is manifested among girls, and further how this develops as girls age. The use of a respected data set from the Pittsburgh Girls Study supplied unparalleled empirical data on the lives of the girls in their samples. To augment this, this dissertation was further strengthened by an independent data collection on the parental histories of criminal justice system involvement, using the public facing Pennsylvania Court Docket system, with a focus on sentencing. This information enabled the sample of girls to be grouped according to their histories of parental incarceration and parental involvement in the justice system. Analyses of various sorts showed that the differences between the groups were remarkable in terms of how girls' delinquency and juvenile arrest was predicted by their assignment to each group. However, recognizing that the between group differences were great along a whole host of other

characteristics, the sample was matched according to how those girls' parents would have a propensity to become incarcerated. Once the matching was accomplished, the groups of girls looked very similar not only in terms of the matched variables, but along a wide range of variables not included in the matching scenario. When my analyses were rerun on these newly matched samples, the delinquency and juvenile arrest differences between the groups were no longer statistically significant.

These findings show that girls with incarcerated parents are beset by a host of disadvantages before their parents ever come into contact with the law, and that these stressors have a greater impact on the development of girls' delinquency than the direct effects of parental incarceration. Using time ordered data, advanced measures, and rigorous methods, I was unable to detect an independent causal effect of parental incarceration on girls' delinquency and arrest, which I had predicted. This raises a host of questions about the ways girls respond in the course of a parent's incarceration, how they avoid acting out as the research literature indicates that boys do, and what particular factors can be addressed to better prevent delinquency in general.

Some implications of the findings from this study, include the conclusion that a parents' criminal history is not at the root of delinquency and arrest for girls. The children of incarcerated parents are affected just as other kids are to the circumstances in which they grow up, develop, and come of age. They are not fated to lives of crime and imprisonment by their parents' criminal justice system involvement. The results of this study suggest that the structure of neighborhoods, poverty and race relations in our country are more impactful on girls' delinquency than the individual level disadvantage caused by having a parent incarcerated. These girls appear to be resilient to the forces of powerful systems that remove their loved ones from their homes. Girls with incarcerated parents appear less likely to fall into the cycle of

intergenerational incarceration that is so well noted among boys. Understanding the mechanisms that girls adopt in order to avoid some of the most dire consequences of delinquency is an important area of future study. As a corollary, understanding how girls' delinquency is influenced by a girl's neighborhood and family context prior to and during a parent's incarceration could greatly enhance our knowledge and how to better design interventions that address girls' delinquency in general. If the macro-context within which girls are raised is the key factor in predicting their delinquency, then this opens up the door for interventions that could impact all girls. By working to change the neighborhoods in which girls live, entire generations of youth could benefit. Meanwhile, more research needs to illuminate the other ways in which parental incarceration may influence girls' well-being.

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