The Relationship between Motherhood and Re-incarceration*

Haeil Jung, Ph.D.
Assistant Professor
hij@indiana.edu
School of Public and Environmental Affairs
Indiana University Bloomington
1315 E. 10th St. SPEA 331
Bloomington IN 47405
Phone: 812-322-2128
Fax: 812-855-7802

Robert LaLonde, Ph.D.
Professor
r-lalonde@uchicago.edu
Harris School of Public Policy
University of Chicago
1155 East 60th Street
Chicago, IL 60637
Phone: 773-606-4875

Abstract
Using matched administrative records from the Illinois Department of Corrections and the Illinois Department of Children and Family Services, this paper finds that mothers' re-incarceration is higher than women without children. It is also found that incarcerated mothers, whose children have been in foster care, have a higher re-incarceration rate than women without children. The re-incarceration is particularly higher among mothers who have children in foster care overlapping with their first incarceration and mothers who had children in foster care but lost their custody before entering their first incarceration. These findings are more distinctively shown among white women with drug-related offenses or with drug addiction than their African-American women counterparts.

Keywords: motherhood; foster care; female prisoners; incarceration; re-incarceration

* This research has been supported by the Chicago Community Trust, the National Institute of Justice, the Russell Sage Foundation, the Open Society Foundations, and by Grant 02-DB-BX-0017, awarded to the Illinois Criminal Justice Information Authority by the Bureau of Justice Assistance, Office of Justice Programs, U.S. Department of Justice. We have benefited from comments by Henry Brady, Robert M. Goerge, Susan George, Marilyn Moses, and Anne Powell, participants in the Center for Human Potential and Public Policy, the Incarcerated Women and Their Children workshops at the University of Chicago, and participants at the National Institute of Justice Conference, July 17 to 19, 2006 in Washington D.C. The views expressed in this paper are those of the authors and do not reflect the views of the National Institute of Justice or any agency of the state of Illinois. The authors are responsible for all errors.

Introduction

Rising female incarceration rates has drawn public attention because most female inmates are mothers and their incarceration is directly related to their children's wellbeing.[1] It has been well documented that a mother's incarceration is negatively related to her children outcomes. Specifically, maternal incarceration has been associated with their children's behavioral problems at school, including frequent disciplinary actions, dropping out of school, suspensions, lower standardized test scores, and failed classes (Cho, 2010; Myers et al., 1999; Trice & Brewer, 2004). Further, maternal incarceration also increases the risk of criminal activity and incarceration of the children themselves (Myers et al., 1999). Along with maternal incarceration, the foster care placements of incarcerated mothers' children also has drawn attention, as foster care caseloads have increased substantially since the 1980s, which has been associated with reductions in cash welfare benefits and an increase in female incarceration (Johnson & Waldfogel, 2002; Swann & Sylvester, 2006). Thus, how well mothers integrate into the community after incarceration is important for themselves and their children. Particularly, it is important to understand how motherhood and the foster care records of their children are associated with the re-incarceration of previously incarcerated women.

This paper studies the population of incarcerated women in Illinois state prison, who have had multiple contacts with the criminal justice system, and often were their children's only custodial parent prior to their incarceration. Particularly, it examines whether motherhood and their children's foster records are associated with these women's re-incarceration after release from prison. Instead of relying on survey data, this study is based on matched administrative records from the Illinois Department of Corrections (IDOC) and the Illinois Department of

[1] Particularly, a turning point in levels of female incarceration was known as the 1986 Anti-Drug Abuse Act, which saw a dramatic increase in the number and length of female incarceration (Swann & Sylvester 2006).

Children and Family Services (DCFS). The analysis sample consists of about 7,000 female prisoners released from their first incarceration between 1995 and 1999; 84 percent of them have at least one child and 17 percent of them have at least one child in the foster care system before their first incarceration.

This study creates a re-incarceration variable indicating whether women were re-imprisoned within three years after their release from the first incarceration. The analysis examines whether motherhood itself is associated with a higher (or lower) re-incarceration rate and extends this question to whether motherhood with different foster care records is associated with different re-incarceration rates.

We find that re-incarceration rate of mothers is higher than women without children. We also find that incarcerated mothers, whose children have been in foster care, have a higher re-incarceration rate than women without children in the foster care system. Re-incarceration is particularly higher among mothers who have children in foster care overlapping with the first incarceration and mothers who had children in foster care and lost custody before entering the first incarceration. These findings are more distinctively shown among white women with a drug-related offense or with drug addiction than their African-American counterparts.

The remainder of this paper is organized as follows. In the next section, we summarize the previous studies and highlight our contribution. In the third section, we describe our data. In section four, we propose an empirical model to analyze whether motherhood and children's foster care records are associated with the re-incarceration of women released from their first incarceration. The empirical results are also presented in the fourth section. In the final section, we discuss the implications of our findings.

Previous studies

There is a limited pool of current literature on female re-incarceration or recidivism.[2] It is known that women with lower levels of education and histories of drug use or violence are more likely to be incarcerated again (Phillips et al., 2005; Huebner et al., 2009). According to Andrews et al. (2012) Holtfreter & Cupp (2007) and Reisig et al. (2007), women and men have different risk factors for criminal recidivism. These studies point out that substance abuse is a strong predictor of both male and female recidivism, but is more strongly related to female recidivism. They also found that incarcerated mothers are slightly more likely to have used drugs in the month before their incarceration than incarcerated fathers, 65.3 percent compared with 57.5 percent. Studying incarcerated mothers, Arditti & Few (2006) finds that mothers, especially those incarcerated for drug offenses, have high rates of recidivism. Investigating the effects of poverty on recidivism, among female offenders, Holtfreter et al. (2004) show that women living below the poverty level are at a higher risk for recidivism than their less impoverished counterparts.

The difference between the recidivism or re-incarceration of mothers and women without children is not a well-researched issue. Bonta et al. (1995) investigate the risk factors of women's re-incarceration (measured by re-incarceration within three years after released from the previous incarceration) and report that the re-incarceration rate of mothers and women without children are similar: 38.8 percent and 41.2 percent, respectively; but they also find that single mothers had a significantly higher re-incarceration rates than mothers with a partner, 51.7 percent compare with 22.2 percent. However, their sample is too small to generalize their findings; 49 women reported having children in the sample of 136 women. Also, their sample of female prisoners (federally sentenced) in Canada might not be representative of incarcerated women in the United States. More recently, when examining the long-term patterns of recidivism

[2] Re-incarceration means that women are imprisoned in state or local correctional facilities. On the other hand, recidivism indicates that women committed new crimes or violated parole rules, which may not lead to re-imprisonment.

of 519 women released from US state prisons, Huebner et al. (2010) find that most (81percent) of the sample reported having one or more dependent children, and the recidivism rate (measured by parole violation) of mothers is higher (50 percent) than that of women without children (32 percent) although the difference is not statistically significant after controlling for women's characteristics. Huebner et al. (2010) does not investigate any further specifics related to motherhood and recidivism.

Studies on maternal incarceration and their children's foster care have largely focused on whether maternal incarceration lowers the chance of reunification with their children who are in foster care. Hayward & DePanfilis (2007) show that children with incarcerated parents, along with other high-risk factors, are less likely to be reunited. Several consequences of incarceration complicate the reunification of mothers and children. Women who are incarcerated, particularly mothers, face mental health issues, inadequate parenting resources, family reconfiguration, reestablishing social support, when returning to life after incarceration (Addritti & Few, 2006; Opsal & Foley, 2013). These factors contribute to instability in the home and likely delay the reunification process. Children of incarcerated mothers are twice as likely to be removed from their homes as when fathers are incarcerated (Mumola, 2000). If child services cannot locate the incarcerated parent and the foster child is declared abandoned, an abandonment finding may be issued. This may lead to changing a child's permanency planning goal to adoption and make reunification much more difficult (Ross et al., 2004).

There has been less attention on whether motherhood and children's foster care records are associated with women's recidivism although the recidivism rate of mothers is particularly critical to assess the wellbeing and stability of their children's life. Three explanations about whether mothers' recidivism differs from the rates for women without children include the

following: First, mothers might have lower recidivism rates, because they have an additional incentive, driven by children and family, to try and avoid another incarceration after their releases (Maier, 2006). Also, mothers whose children are in foster care, while they are incarcerated, would appear to have a significant incentive to avoid another prison time after their release in order to facilitate being reunited with their children. Second, mothers might have higher recidivism rates because they are more likely to be untreated drug addicts and more likely to engage in subsequent criminal behavior (Maier, 2006). Third, mothers' recidivism might be higher than women without children, because incarcerated mothers experience more risk factors such as a child out of wedlock, divorce, and physical/ sexual abuse by a husband or partner (Greene et al., 2000; Carlson and Shafer, 2010; Poehlmann, 2005). Additionally, foster care records of incarcerated mothers' children might signal that those mothers experience serious difficulties such as drug addiction or domestic violence.

This study investigates whether mothers are more likely to be re-incarcerated, after their previous incarceration, than women without children. Further, it also studies whether mothers' re-incarceration depends on the foster care records of their children. We do not attempt to identify the causal relationship but instead we try to investigate the association between motherhood, having children in foster care, and re-incarceration.

Matched Administrative Data

Our study is based on rarely available administrative records, matched from (i) the Illinois Department of Corrections (IDOC) and (ii) the Illinois Department of Children and Family Services (DCFS). We explain the details of how to match two data sets in Appendix. We begin with a sample of women who exited from the Illinois state prisons between the first quarter of 1995 and the fourth quarter of 1999. These files contain information on each woman's criminal

offense, whether she reported a substance abuse problem (e.g., cocaine, marijuana, and heroin addiction) at the time of her admission to prison, and the entry and exit dates of each prison spell. These files also include demographic information on inmates' race, birth date, educational attainment, county from which they were sentenced to prison, marital status, reported number of children and various personal identifiers. However, previous conviction or criminal records that did not lead to incarceration are not available in the data. Women incarcerated more than 5 years (less than 2 percent) are not included in the analysis. It is fairly certain that our sample follows women after their first prison spells, because those women did not have any other incarceration going back at least through 1989 in our IDOC records.

These records are then matched to the DCFS's foster care records that extended from 1975 through the second quarter of 2002. The DCFS's child welfare data include information on the timing of all children's entry and exit dates into foster care, their placements, and whether and how their foster care spells were resolved by the end of the sample period. As a result, we identify when incarcerated mothers had children in foster care relative to the timing of their first incarceration. This paper adds subsample analyses of African-American and white women to examine whether the association between motherhood and re-incarceration is different by race.

Descriptive Statistics

In order to measure the re-incarceration of women in the data, we create a dummy variable indicating whether women were re-incarcerated within three years after being released from their first incarceration.[3] As shown in Table 1, about 33 percent of women were re-incarcerated within three years after the first incarceration. This re-incarceration rate is higher for African-American women (36 percent) than white women (26 percent).

<Table 1 about here>

[3] It is not perfect but three years are long enough to cover most re-incarcerated women in the data.

Table 1 also presents individual and foster care related variables as well as offense and incarceration related variables, for African-American and white women. There are 5 categories of women based on whether they have at least one child and whether one of their children was in foster care before the first incarceration. The first column of all women reports that about 16 percent of incarcerated women have no child, while about 67 percent of women have at least one child but no child in foster care before their first incarceration. About 11 percent of incarcerated women have at least one child, who started foster care but did not leave foster care, when they started the first incarceration. Also, about 6 percent of incarcerated women have at least one child who started and ended foster care before their first incarcerations; out of 6 percent of such women, about 2 percent reunified with children before incarceration and about 4 percent lost the custody to adoption or subsidized guardianships.[4] These findings are similar for African-American or white women, although more white women are single and more African-American women have children who were in foster care before their first incarcerations.

On average, the education level of all incarcerated women is about 11 years and their age at release, from their first incarceration, is about 32.5 years. There is little difference in education and age between African-American and white women. 68 percent of incarcerated women are African-American while 26 percent are white. Only 6 percent are Hispanic or other race. About 13 percent of incarcerated women are married with white women being more likely to be married (21 percent) than African-American women (10 percent). Length of the first incarceration is about 0.9 years, which is similar among African-American and white women.

[4] Subsidized guardianships differ from adoptions in several ways. When child welfare case workers determine that adoption is not an option for a child in foster care who is 12 or over, they may eligible to be placed in subsidized guardianship. Guardians have many similar rights and responsibilities as adoptive parents and receive subsidies from the state including Medicaid care for the child. But unlike an adoption, a guardianship ends when the child turns 18. Furthermore, the birth parents retain visitation rights and other rights including the right to determine the child's religion. See Illinois Department of Children and Family Services web site: www.state.il.us/dcfs/docs/chapter7.pdf.

About 63 percent of women were sentenced to their first incarceration in Cook County; this rate is much higher for African-American women (77 percent) than for white women (26 percent). 48 percent of incarcerated women were convicted for drug offenses while 34 and 15 percent of women were convicted for property and person related offenses respectively.[5] African-American women are more concentrated in drug related offenses (about 56 percent) while white women are more concentrated in property related offenses (about 51 percent). Drug addiction rates at the time of admission to prison are higher (about 62 percent) for African-American women than for white women (about 54 percent); drug addiction was self-reported and illegal drug includes cocaine, marijuana, and heroine.

In Table 2, we further examine the re-incarceration rate based on motherhood and children's foster care records. In the first column, it is noticeable that the re-incarceration rate of women with no child is lower by 4.2 percentage points (statistically significant at $p<0.05$) than women with children.[6] In the second and third columns, however, the re-incarceration rates within each race group tell a different story. For African-American women, there is no difference in the re-incarceration rate between women with and without children, about 35 to 36.2 percent; for white women, the re-incarceration rate of women with children is about 5.2 percentage points higher (statistically significant at $p<0.05$) than it is for their counterparts without children.

<Table 2 about here>

[5] These categories are categories of individuals' holding charges. They may be serving time for other charges as well. It is possible that those in prison for a property-related offense, for example retail theft, may also have been charged and pleaded to a drug-related offense and visa versa.

[6] The difference between women with no child (reference group) and other groups of women are measured and the t-test provides whether the difference is statistically significant. Also, in our data, we find that 18.3% of mothers were re-incarcerated as a result of a parole violation while 19.4% of women without child were re-incarcerated due to a parole violation. The difference is 1.1% and statistically insignificant (p value = 0.64). Thus, it seems that parole violation does not drive the difference in re-incarceration between the two groups. From the IDOC, we also learn that there is no difference in parole rules between mothers and women without children.

The third row of Table 2 presents the re-incarceration rate of different groups of women by their own children's foster care records. Among all women, compared to women without children (29.3 percent), the re-incarceration rate is much higher for (i) women whose children started foster care before their first incarceration and was not resolved at the time of admittance to prison (42.4 percent) and (ii) women whose children started foster care before their first incarceration and lost their custody before the time of admittance to prison (40.7 percent). Among African-American and white mothers, the re-incarceration rate is differently related to their children's foster care status. Particularly, African-American mothers who have children, but no child in foster care before incarceration, and who have a child whose foster care started and ended with reunification before their first incarceration have the similar re-incarceration rates (about 34 and 36 percent respectively) as women without children (35 percent). On the other hand, (i) African-American mothers whose child started foster care before their first incarceration but was not resolved when they started their first incarceration and (ii) African-American mothers whose child started foster care and ended with losing the custody before the first incarceration have a higher re-incarceration rate (about 44 and 43 percent, respectively) than women without children (35 percent). Such differences, 8.8 and 8 percentage points, are statistically significant at $p<0.01$.

In contrast, the re-incarceration rate of white mothers is greater than white women without children regardless of whether their children were ever in foster care. Particularly, (i) white mothers those child started foster care before their first incarceration but was not resolved when they started their first incarceration and (ii) white mothers whose child started foster care and ended up with losing their custody before their first incarceration have a higher re-incarceration rates (about 34 and 36 percent, respectively) than white women without children

(21.9 percent). Such differences, 12.4 and 14.4 percentage points, are statistically significant at $p<0.01$ and $p<0.05$, respectively. The following section rigorously reexamines these findings summarized in Table 2.

Empirical Strategy and Outcomes

Using the matched data described earlier, we constructed a Probit model to examine whether motherhood and children's foster care, before their first incarceration, is associated with women's re-incarceration (re-incarceration within three years after being released from their first incarceration) controlling for individual characteristics:

$$P(y_i = 1|D, X) = \Phi(\alpha + \delta D_i + \beta X_i), \quad (1)$$

where y_i is the binary variable indicating whether women were re-incarcerated within three years after being released from their first incarceration and $\Phi(\alpha + \delta D_i + \beta X_i)$ is the standard normal cumulative distribution function of $\alpha + \delta D_i + \beta X_i$.[7] To examine the relationship between motherhood and re-incarceration, D_i indicates whether the women has child (=1) or not (=0). X_i is a vector of control variables presented in Table 1: demographic characteristics, incarceration and offense related characteristics, and drug addiction. Also, in order to control for socio-economic circumstances when women were released from their first incarceration, X_i includes calendar quarter dummies when women were released.[8]

This study also examines whether the foster care records of children, before incarceration, are associated with re-incarceration of women. To do so, D_i in equation (1) is replaced with four dummy variables (D_{2i} to D_{5i}) indicating the different foster care records of children of incarcerated mothers:

[7] We also check the Logit and Linear Probability models as an alternative to our Probit model and find that they provide similar findings.

[8] The reference period is the year of 1995. Nearly all of these women were paroled from prison rather than being released out right from prison.

$$P(y_i = 1|D, X) = \Phi(\alpha + \delta_2 D_{2i} + \delta_3 D_{3i} + \delta_4 D_{4i} + \delta_5 D_{5i} + \beta X_i) \quad (2)$$

where D_{2i} indicates mothers who have at least one child but no child in foster care before incarceration; D_{3i} indicates mothers who have a child whose foster care started before incarceration and was not resolved when she started incarceration; D_{4i} indicates mothers who have a child whose foster care started and ended with reunification before incarceration; D_{5i} indicates mothers who have a child whose foster care started and ended with non-reunification before incarceration. The reference group is women without children. y_i and X_i are the same as in equation (1). In both equations (1) and (2), robust standard errors are estimated to account for possible heteroscedasticity.

Regression Results

Tables 3 and 4 show whether women's re-incarceration depends on motherhood and the foster care status of their children. The first column reports the regression outcome for all women while the second and third columns report the regression outcomes for African-American and white women respectively. We present the regression outcomes with and without controlling for demographic characteristics, incarceration and offense related variables, drug addiction, and released quarter dummies, which are presented in Table 1. The reported estimates are the estimated probability difference between the group of women indicated by the dummy variable and the reference group of women (women without children) at the mean of all other independent variables.[9]

Most estimates without control variables in Table 3 are consistent with our simple mean difference presented in Table 2; minor differences are due to our use of the Probit model. The estimates for all women indicates that women, with at least one child, are more likely to be re-

[9] The Probit estimates cannot be interpreted as the probability difference, because the outcome variable is not a linear function of coefficients. The table reports estimates of the transformed estimates to the marginal probabilities evaluated at the means of other independent variables.

incarcerated within three years after release from their first incarceration (about 4.2 and 3.9 percentage points without and with control variables, respectively) than women without children. The differences are statistically significant at least at $p<0.05$. However, for African-American women, the estimated difference in the re-incarceration rate is small and statistically insignificant (1.2 percentage points without and with control variables, respectively). On the other hand, for white women, the estimated difference is larger and statistically significant at least at $p<0.05$, 5.2 and 7.9 percentage points without and with control variables. Thus, it seems that the different re-incarceration rates between women with and without children are mostly shown among white women. Also, Table 3 shows that controlling for individual demographic and offense-related variables does not change the association between motherhood and re-incarceration.

<Table 3 about here>

Table 4 reports the extent that foster care records of these women's children are associated with their mother's re-incarceration; the estimated coefficients are for motherhood status with four different foster care experiences of their children. The reference group is women without children.

<Table 4 about here>

For all women, the estimated coefficient in the first row is small and statistically insignificant (2.3 and 2.4 percentage points without and with control variables, respectively), which suggests that the re-incarceration rate of mothers, whose children were not in foster care before their first incarceration, is not significantly different from women without children. Such an estimate is close to 0 for African-American women but it is much larger and statistically significant (7 percentage points with control variables) for white women. The second row presents the estimated coefficients of mothers whose children started and stayed in foster care

before and during the first incarceration. The estimated coefficients are higher and statistically significant (ranging from 8 to 14.9 percentage points with control variables) both for African-American and white women, which suggests significantly higher re-incarceration rate among those mothers than women without children.

The third and fourth rows present the estimates for mothers whose children started foster care and their cases were resolved either by reunification or loss of their parental rights (non-reunification) before their first incarcerations. Mothers who lost parental rights prior to their first incarcerations have higher re-incarceration rates (ranging from 7.6 to 16.8 percentage points with control variables) than women without children. Such differences are statistically significant at least at $p<0.1$. Again, this relationship is particularly strong for white women. On the other hand, the re-incarceration rates among African-American women who were reunited with their children are similar to those of their peers whose children were not in foster care.[10] Again, it seems that controlling for individual demographic and offense-related variables does not dramatically change the association between the foster care status of women's children and re-incarceration although the estimated coefficients with control variables are larger and more statistically significant among white women.

It is puzzling why white mothers are more likely to be re-incarcerated than white women without children. Among three possible explanations proposed in the literature review, we examine the second explanation because it is testable; higher re-incarceration rates among mothers are driven by the higher proportion of drug-related offenders or drug addicts among incarcerated mothers. First, we test whether drug offenses and drug addicts are more concentrated among mothers. Using the two group t-test, we find that drug offenses are more

[10] Some of these women may have children enter the foster care system after their first incarceration spells had ended.

prevalent among white mothers (31.4 percent) than white women without children (25.8 percent); the difference is statistically significant at $p<0.05$. However, drug addicts are similar and statistically indifferent among white women without children (54.6 percent) and white mothers (54.3 percent).

Among African-American women, the difference in mothers and non-mother's drug offender status is smaller than it is for whites. Among these women, mothers are more likely to be drug-related offenders than women without children, 56 percent and 52.2 percent respectively; the difference is not statistically significant at $p<0.05$. The self-reported substance abuse (drug addiction) rate among African-American mothers (63.5 percent) is much higher than African-American women without children (54.8 percent) and the difference is statistically significant at $p<0.01$. Thus, these findings among white and African-American women give at best mixed support for the explanation that higher re-incarceration rates among incarcerated mothers are driven by the higher proportion of drug-related offenders or drug addicts among incarcerated mothers.

<Table 5 about here>

Replicating Table 4 by offense types and drug addiction, we further examine whether the higher re-incarceration rates of mothers are driven by a higher proportion of drug-related offenders or drug addicts among incarcerated mothers. If this explanation is plausible, then there should be less or no difference in the re-incarceration rates between women with and without children in a subgroup analysis of drug-related offenders or drug addicts. The third and fourth columns of Table 5 presents subsample analyses that separately study drug-related offenders and drug addicts. Within such groups, white mothers, regardless of their children's foster care records, were more likely to be re-incarcerated than white women without children. This implies

that beyond those observed characteristics such as drug-related offenses or drug addiction, there must be other unobserved familial and socio-economic factors of white mothers that cause their re-incarceration to be higher than white women without children. Interestingly, on the other hand, among African-American women with drug-related offenses or drug addiction, the re-incarceration rates between women with and without children are not significantly different although there were some considerable estimates.

Discussion and Conclusion

Merging two state administrative databases from IDOC and DCFS, this study yields valuable information about the re-incarceration of the female prison population based on motherhood and their children's foster care experience. Our analysis finds that mothers' re-incarceration is higher than women without children, which is different from Bonta et al. (1995) but consistent with Huebner et al. (2010). Further, it is also found that incarcerated mothers, whose children have been in foster care, have a much higher re-incarceration than women without children. Re-incarceration is particularly higher among mothers who have children in foster care overlapping with their first incarceration and mothers who had children in foster care and lost custody before their first incarceration. These findings are more distinctive among white women. In order to understand our findings, we discuss three possible explanations proposed in the literature review section.

First, the finding of higher re-incarceration of mothers contradicts the conventional argument discussed in Maier (2006) that mothers should have an additional incentive and responsibility to avoid another incarceration after released from their first incarceration. Further, against our expectation that mothers whose children are in foster care, while they are incarcerated, would appear to have a significant incentive to avoid prison time after their release

in order to facilitate being reunited with their children, their re-incarceration is higher than women without children and women whose children were not in foster care before incarceration.

Second, it has been suggested that a higher proportion of drug-related offenders or drug addicts, among incarcerated mothers, may explain higher re-incarceration rates among mothers (Maier, 2006). However, this explanation is not supported by our analyses. We find that compared with white women without children, white mothers are likely to be concentrated as drug-related offenders but not as drug addicts. Also, compared with African-American women without children, African-American mothers are highly concentrated as drug addicts but not as drug-related offenders. Further, the separate regression analysis studying drug-related offenders and drug addicts suggests that white mothers still have a much higher re-incarceration than white women without children. This implies that there must be other unobserved familial and environmental factors (not explained by drug-related offenses or drug addiction) of white mothers that cause white mothers' re-incarceration rate to be higher than white women without children. For example, the white mothers may face more stress and difficulties in maintaining their life with children.

Third, it is not possible to test whether incarcerated mothers are more disadvantaged than incarcerated women without children due to lack of personal history in our data but there are some studies that support this argument. Greene et al. (2000) suggests that incarcerated mothers suffer more risk factors than women without children; physical abuse by a husband or partner and a child out of wedlock. Poehlmann (2005) and Carlson and Shafer (2010) also find that incarcerated mothers experienced various types of loss or trauma; for example, having had a child who died; having unwanted sex in exchange for money, drugs, or material goods; being sexually assaulted by a family member or a stranger. It seems that having children reflects more

difficulties and traumatic events among incarcerated women although it is still not clear why our findings are shown among white women, not African-American women.

Additionally, there are other plausible explanations for some of our findings. The well-documented racial disparities in foster care involvement may give more insights into our analysis. The prevalence of foster care involvement among African-American women may imply that the foster care involvement reflects different perceptions and experiences between white and African-American women. Also, although information related to the trauma associated with foster care involvement is not available in the data, it is likely that the trauma associated with foster care involvement negatively affects women's life and leads to higher re-incarceration among women with foster care involvement.

Beyond these explanations, it may be plausible that residential environments can affect women's re-incarceration. In our data, we know that a larger percentage of African-American women (77 percent) was sentenced to prison in Cook County than white women (26 percent). Although the foster care system is a state system, the criminal justice system such as jails, policing and courts is not. Cook County may have more services available to ex-offenders than do the many smaller counties in Illinois. As a result, assuming that being sentenced to prison in Cook County indicates their residency in Cook County after release, it may be possible that white mothers have higher re-incarceration rates than white women without children because white mothers might face different criminal justice system or could not access to public services available in Cook County. If so, being sentenced to prison in Cook County should predict lower re-incarceration in our regression analysis. However, according to our regression analysis, being sentenced to prison in Cook County always leads to higher re-incarceration. Therefore, it seems

that residential environments do not explain why white mothers are more likely to be re-incarcerated than white women without children.

Our study has a few caveats. First, instead of using recidivism, we use re-incarceration indicating whether women were re-imprisoned to state prisons within three years after the first incarceration because our data do not have information on the time of parole violation or additional convictions that did not lead to incarceration. Although our re-incarceration variable may be stricter than other papers such as a parole violation in Hueber et al. (2010), it measures whether women were physically separated from their family and children. Second, due to the data limitation, our regression model could not control for pre-incarceration criminal records such as arrests or convictions that did not lead to incarceration. Because our data is based on administrative records, we could not investigate specific risk factors of mothers and women without children such as physical and sexual abuse during childhood, teenage pregnancy, and domestic violence.

Third, we do not have a sure explanation to why re-incarceration is higher among white women with children than those without children and why white and African-American women have different associations between motherhood and re-incarceration. In order to answer these questions, future studies should investigate more about social capital and cultural factors within each subgroup of women. For example, women in some ethnic groups with children may experience more risk factors such as a child out of wedlock, divorce, and physical/sexual abuse by a husband or partner. Fourth, the self-report on addiction may have measurement error because some drug-addicted women are less likely to disclose their addiction. Thus, in our subsample analysis, it is possible that women without drug-addiction may include women with drug-addiction at the time to prison entrance. As a result, the estimates among women without

drug-addiction may overstate the association between motherhood and re-incarceration assuming the higher re-incarceration rates among mothers with drug-addiction. Finally, because our study investigates incarcerated women in Illinois, readers should be cautious before generalizing our findings.

Despite such limitations, our study uses a large sample of incarcerated women and provides a richer understanding of women and their reentry. We conclude that motherhood and their children's foster care experiences are valuable indicators that policy makers and program operators can use to predict higher re-incarceration rates among these women. Our findings imply that these mothers might face more difficulties and obstacles in maintaining their life than women without children. Thus, we expect that such women will require more services, upon re-entry, to integrate them successfully for themselves and their children. Also, future studies may investigate what risk factors and socio-economic environments for re-incarceration are different between incarcerated mothers and incarcerated women and whether such differences vary by race.

References

Andrews, D. A. , Guzzo, L., Raynor, P., Rowe, R. C., Rettinger,L. J., Brews, A. & Wormith, J. S. (2012). Are the major risk/need factors predictive of both female and male reoffending?: A test with the eight domains of the level of service/case management inventory. *International Journal of Offender Therapy and Comparative Criminology* 56(1): 113-133.

Arditti, J. A., & Few, A. L. (2006). Mothers' re-entry into family life following incarceration. *Criminal Justice Policy Review* 17(1): 103-123.

Bonta, J., Pang, B., & Wallace-Capretta, S. (1995). Predictors of recidivism among incarcerated female offenders. *The Prison Journal* 75(3): 277-294.

Carlson, E. B., & Shafer, M. S. (2010). Traumatic histories and stressful life events of incarcerated parents: Childhood and adult trauma histories. *The Prison Journal* 90(4): 475-493.

Cho, R. M. (2010). Maternal incarceration and children's adolescent outcomes: Timing and dosage. *Social Service Review* 84: 257-282.

Goerge, R., Voorhis, J. V., & Lee, B. J. (1994). Illinois longitudinal and relational child and family research database. *Social Science Computer Review* 12(3): 351-365.

Greene, S., Haney, C., & Hurtado, A. (2000). Cycles of pain: Risk factors in the lives of incarcerated mothers and their children. *The Prison Journal* 80(1): 3-23.

Hayward, R. A., & Depanfilis, D. (2007). Foster children with an incarcerated parent: Predictors of reunification. *Children and Youth Services Review* 29(10): 1320-1334.

Holtfreter, K., Reisig, M. D., & Morash, M. (2004). Poverty, state capital, and recidivism among women offenders. *Criminology and Public Policy* 3(2): 185-208.

Holtfreter, K., & Cupp, R. (2007). Gender and risk assessment: The empirical status of the LSI-R for women. *Journal of Contemporary Criminal Justice* 23(4): 363-382.

Huebner, B. M., Dejong, C, & Cobbina, J. (2010). Women coming home: Long-term patterns of recidivism. *Justice Quarterly* 27(2): 225-254.

Johnson, E., & Waldfogel, J. (2002). Parental incarceration: Recent trends and implications for child welfare. *The Social Service Review* 76(3): 460-479.

Maier, K. (2006). Inquiry: children of incarcerated parents. *Journal of Children and Poverty* 12(1): 91-105.

Mumola, C. J. (2000). Incarcerated parents and their children. The U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, NCJ 182335, August 2000.

Myers, B. J., Smarsh, T. M., Amlund-Hagen, K., & Kennon, S. (1999). Children of incarcerated mothers. *Journal of Child and Family Studies* 8(1): 11-25.

Opsal, T., & Foley, A. (2013). Making it on the outside: Understanding barriers to women's post-incarceration reintegration. *Sociology Campus* 7(4): 265-277.

Phillips, S., Burns, B., Wagner, H. R., & Barth, R. P. (2004). Parental arrest and children involved with child welfare services agencies. *American Journal of Orthopsychiatry* 74(2): 174 - 186.

Poehlmann, J. (2005). Representations of attachment relationships in children of incarcerated mothers. *Child Development* 76(3): 679-696.

Reisig, M. D., Holtfreter, K., & Morash, M. Assessing recidivism risk across female pathways to crime. *Justice Quarterly* 23(3): 348-405.

Ross, T., Khashu, A., & Wamsley, M. (2004). *Hard data on hard time: An empirical analysis of maternal incarceration, foster care, and visitation*. New York: Vera Institute of Justice and Administration for Children's Services.

Swann, C. A., & Sylvester, M. S. (2006). The foster care crisis: What caused caseloads to grow? *Demography* 43(2): 309-335.

Trice, A. D., & Brewster, J. (2004). The effects of maternal incarceration on adolescent children. *Journal of Police and Criminal Psychology* 19(1): 27-35.

Appendix: Matching the IDOC and the DCFS

To match individual records from the Illinois Department of Corrections (IDOC) and the Illinois Department of Children and Family Services (DCFS), the Chapin Hall Center for Children used probabilistic record matching. This method assumes that researchers cannot match individuals' records for a single shared variable (or field) in two data sets with complete confidence. For example, even if it were possible to match former inmates' social security numbers in different data sets, some matches would inevitably be in error. Instead, Chapin Hall based its matches on a statistical model that estimates the probability that two records in two different databases are for the same person using matches between as many variables as possible. For this study, these variables included all known last names, first names, birthdates, race/ethnicity indicators, and last known residence. The match rate between the IDOC file and the DCFS was approximately 82 percent. Match rates outside of Cook County were higher; match rates in Cook County were about 78 percent. See Goerge et al. (1994) for further details.

Table 1. Descriptive statistics of incarcerated women

	All (N=6963)		African-American (N=4758)		White (N=1783)	
	Mean	Sd	Mean	Sd	Mean	Sd
Re-incarcerated within three years after the first incarceration (=1)	0.33	(0.47)	0.36	(0.48)	0.26	(0.44)
No child (=1)	0.16	(0.36)	0.13	(0.34)	0.21	(0.41)
Have a child but no child in foster care before incarceration (=1)	0.67	(0.47)	0.68	(0.47)	0.64	(0.48)
Have a child whose foster care started before their first incarceration and was not resolved (=1)	0.11	(0.32)	0.13	(0.33)	0.08	(0.27)
Have a child whose foster care started and ended with reunification before their first incarceration (=1)	0.02	(0.16)	0.02	(0.15)	0.03	(0.18)
Have a child whose foster care started and ended with non-reunification before their first incarceration (=1)[a]	0.04	(0.18)	0.04	(0.19)	0.04	(0.19)
Education in years	11.13	(1.83)	11.14	(1.70)	11.30	(1.98)
Age at release	32.69	(7.77)	32.85	(7.41)	32.56	(8.46)
African-American (=1)	0.68	(0.47)	NA	NA	NA	NA
White (=1)	0.26	(0.44)	NA	NA	NA	NA
Hispanic (=1)	0.05	(0.23)	NA	NA	NA	NA
Other race (=1)	0.01	(0.08)	NA	NA	NA	NA
Married (=1)	0.13	(0.33)	0.10	(0.30)	0.21	(0.41)
Length of first incarceration in years	0.89	(0.84)	0.88	(0.84)	0.88	(0.81)
Sentenced to prison in Cook County (=1)	0.63	(0.48)	0.77	(0.42)	0.26	(0.44)
Person related offense (=1)	0.15	(0.35)	0.15	(0.36)	0.13	(0.34)
Property related offense (=1)	0.34	(0.47)	0.27	(0.45)	0.51	(0.50)
Drug related offense (=1)	0.48	(0.50)	0.56	(0.50)	0.30	(0.46)
Sex related offense (=1)	0.01	(0.12)	0.01	(0.10)	0.03	(0.17)
Other offenses (=1)	0.02	(0.13)	0.01	(0.11)	0.03	(0.16)
Self-reported drug addiction at the time of admission to prison (=1)[b]	0.60	(0.49)	0.62	(0.48)	0.54	(0.50)

Note: Descriptive statistics of 422 Hispanic and other race women are not presented in a separate column; [a] Mothers lost custody due to adoption or subsidized guardianship; [b] Illegal drug includes cocaine, marijuana, and heroin.

Table 2. Re-incarceration rate within three years after incarceration

	All (N=6963)		African-American (N=4758)		White (N=1783)	
	Re-incarceration Rate	Difference [b]	Re-incarceration Rate	Difference [b]	Re-incarceration Rate	Difference [b]
By motherhood:						
No child (Reference group)	29.3%		35.0%		21.9%	
Have at least one child	33.5%	4.2%**	36.2%	1.2%	27.1%	5.2%**
By foster care records:						
No child (Reference group)	29.3%		35.0%		21.9%	
Have a child but no child in foster care before their incarceration (=1)	31.6%	2.3%	34.4%	-0.6%	25.6%	3.6%
Have a child whose foster care started before their first incarceration and was not resolved (=1)	42.4%	13.1%***	43.8%	8.8%***	34.3%	12.4%***
Have a child whose foster care started and ended with reunification before their first incarceration (=1)	33.1%	3.8%	35.9%	0.9%	30.5%	8.6%
Have a child whose foster care started and ended with non-reunification before their first incarceration (=1) [a]	40.7%	11.4%***	43.0%	8.0%*	36.4%	14.4%**

Note: *** p<0.01, ** p<0.05, * p<0.1; [a] Mothers lost custody due to adoption or subsidized guardianship; [b] The difference between women with no child (reference group) and other groups of women are measured and the t-test provides whether the difference is statistically significant.

Table 3. Re-incarceration within three years after their first incarceration based on motherhood

	All Women		African-American Women		White Women	
Have children (=1)	0.042***	0.039**	0.012	0.012	0.052**	0.079***
	(0.015)	(0.016)	(0.020)	(0.021)	(0.024)	(0.024)
Control variables [a]	No	Yes	No	Yes	No	Yes
Sample size	6,963	6,963	4,758	4,758	1,783	1,783

Note: *** p<0.01, ** p<0.05, * p<0.1; Reported estimated coefficients are the estimated probability difference between the group of women indicated by the dummy variable and the reference group of women (women without children); [a] Control variables include education in years, age in years at the time of release, race, marital status, length of first incarceration in years, whether sentenced to prison in Cook County, type of offenses, drug addiction, state prison released calendar quarter dummies; Robust standard errors are in parentheses; Incarcerated women without children are a reference group.

Table 4. Re-incarceration within three years after their first incarceration based on motherhood with foster care records

	All Women		African-American Women		White Women	
Have at least one child but no child in foster care before incarceration (=1)	0.023	0.024	-0.006	-0.005	0.038	0.070***
	(0.016)	(0.016)	(0.021)	(0.022)	(0.026)	(0.026)
Have a child whose foster care started before incarceration and was not resolved (=1)	0.133***	0.112***	0.088***	0.080***	0.130***	0.149***
	(0.023)	(0.024)	(0.028)	(0.029)	(0.049)	(0.052)
Have a child whose foster care started and ended with reunification before incarceration (=1)	0.040	0.061	0.009	0.036	0.092	0.121
	(0.040)	(0.042)	(0.052)	(0.054)	(0.068)	(0.074)
Have a child whose foster care started and ended with non-reunification before incarceration (=1) [a]	0.117***	0.107***	0.081*	0.076*	0.153**	0.168**
	(0.035)	(0.036)	(0.043)	(0.044)	(0.067)	(0.069)
Control variables [b]	No	Yes	No	Yes	No	Yes
Sample size	6,963	6,963	4,758	4,758	1,783	1,783

Note: *** p<0.01, ** p<0.05, * p<0.1; Reported estimated coefficients are the estimated probability difference between the group of women indicated by the dummy variable and the reference group of women (women without children); [a] Mothers lost custody due to adoption or subsidized guardianship; [b] Control variables include education in years, age in years at the time of release, race, marital status, length of first incarceration in years, whether sentenced to prison in Cook County, type of offenses, drug addiction, state prison released calendar quarter dummies; Robust standard errors are in parentheses; Incarcerated women without children are a reference group.

Table 5. Re-incarceration within three years after their first incarceration based on motherhood with foster care records by offense types and drug addiction

	Offense type			Drug addiction [c]	
	Person	Property	Drug	Yes	No
Regression analysis for White women					
Have at least one child but no child in foster care before incarceration (=1)	0.133*	0.053	0.130***	0.082**	0.067*
	(0.072)	(0.039)	(0.043)	(0.037)	(0.036)
Have a child whose foster care started before incarceration and was not resolved (=1)	0.214	0.145**	0.292***	0.163**	0.144*
	(0.170)	(0.070)	(0.111)	(0.071)	(0.076)
Have a child whose foster care started and ended with reunification before incarceration (=1)	0.265	-0.019	0.358***	0.110	0.118
	(0.335)	(0.098)	(0.133)	(0.094)	(0.119)
Have a child whose foster care started and ended with non-reunification before incarceration (=1) [a]	NA	0.202**	0.314**	0.102	0.246**
		(0.102)	(0.137)	(0.088)	(0.112)
Control variables [b]	Yes	Yes	Yes	Yes	Yes
Sample size	231	914	539	704	1079
Regression analysis for African-American women					
Have at least one child but no child in foster care before incarceration (=1)	0.058	0.018	-0.025	-0.007	-0.010
	(0.043)	(0.044)	(0.030)	(0.029)	(0.032)
Have a child whose foster care started before incarceration and was not resolved (=1)	0.173***	0.087	0.057	0.066*	0.089*
	(0.068)	(0.059)	(0.039)	(0.037)	(0.048)
Have a child whose foster care started and ended with reunification before incarceration (=1)	0.117	0.049	0.003	0.010	0.057
	(0.125)	(0.101)	(0.074)	(0.070)	(0.081)
Have a child whose foster care started and ended with non-reunification before incarceration (=1) [a]	0.133	0.102	0.046	0.096	0.032
	(0.118)	(0.081)	(0.061)	(0.057)	(0.068)
Control variables [b]	Yes	Yes	Yes	Yes	Yes
Sample size	708	1301	2642	1838	2920

Note: *** p<0.01, ** p<0.05, * p<0.1; Robust standard errors are in parentheses; Incarcerated women without children are a reference group; Reported estimated coefficients are the estimated probability difference between the group of women indicated by the dummy variable and the reference group of women (women without children); [a] Mothers lost custody due to adoption or subsidized guardianship; [b] Control variables include education in years, age in years at the time of release, race, marital status, length of first incarceration in years, whether sentenced to prison in Cook County, type of offenses, drug addiction, state prison released calendar quarter dummies; [c] Drug addiction was self-reported at the time of admission to prison. Illegal drug includes cocaine, marijuana, and heroin; Robust standard errors are in parentheses; Incarcerated women without children are a reference group.