

Parental Criminality
Links to Additional Risk Factors for Juvenile Delinquency

by

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ABSTRACT

Prior research has found links between family environment and criminal outcomes, but research is lacking on why these factors often occur together within families. Parental criminality, family size, and family disruption have been analyzed as risk factors for juvenile delinquency, but their relationships with each other have gone largely unexplored. This thesis explores the relationship between parental criminality, having children, number of children, and patterns of residence with children. Data from the National Longitudinal Survey of Youth '97 are used to associate likelihood of having children, likelihood of having any children out of residence, percent of children in residence, and number of children with arrest prevalence and self-reported offending. Results were generally supportive. Moderate effect sizes were found for likelihood of having children, with large effects on likelihood of having any children out of residence. Moderate effects were found for percentage of children in residence, and large effects were found for number of children.

DEDICATION

This work is dedicated to my family. Thanks for all of your love and support.

ACKNOWLEDGMENTS

This thesis would not have been possible without help from my committee, Dr. Gary Sweeten, Dr. Nancy Rodriguez, and Dr. Xia Wang. Special acknowledgements go to Dr. Gary Sweeten for his guidance and help with modeling.

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Chapter 1

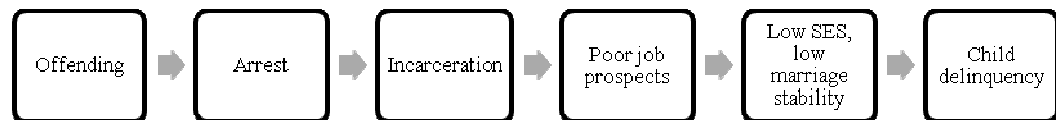
INTRODUCTION

Parental criminality, family size, and parental absence have been previously examined in relationship to juvenile delinquency and found to be risk factors (Farrington, Coid & Murray, 2009; Glueck & Glueck, 1950; Loeber & Stouthamer-Loeber, 1986; Sampson & Laub, 1990). In general, previous studies used delinquent behavior as an outcome and looked back to see what was related to it. Since the identification of these risk factors, little research has examined how delinquent youth come to be in households with an accumulation of them. In this study, I suggest that they do not come into being independently. Rather, the presence of parental criminality may increase the likelihood of other risk factors for offspring delinquency. In particular, this project examines parent criminality in conjunction with number of children and patterns of residence with children using longitudinal data from the National Longitudinal Survey of Youth 1997 (NLSY97).

Parental criminality is a logical starting point for investigating the overlap of delinquency risk factors because it has been shown to have far-reaching consequences throughout the life course. At the extreme end of state intervention, incarceration has been shown to have a deleterious effect on lifetime earnings and socio-economic status, as well as likelihood of marriage (Huebner, 2005; Lopoo & Western, 2005). Parental involvement with children is obviously curtailed by any incarcerations during a child's lifetime, and incarceration may limit the portion of a person's lifespan in which child-bearing is possible. But incarceration

is an extreme and relatively rare event, and so it is worth considering earlier stages in the chain of events in regards to family disruption. Figure 1 displays one of the pathways by which parent criminality may result in negative child outcomes. As it is beyond the scope of this research to examine them all, Figure 2 displays the associations tested in this thesis. Notably, only direct effects of offending and arrest are tested. Additional analysis would be needed to test indirect effects of offending and arrest through marriage, although marriage effects are controlled for in the analyses.

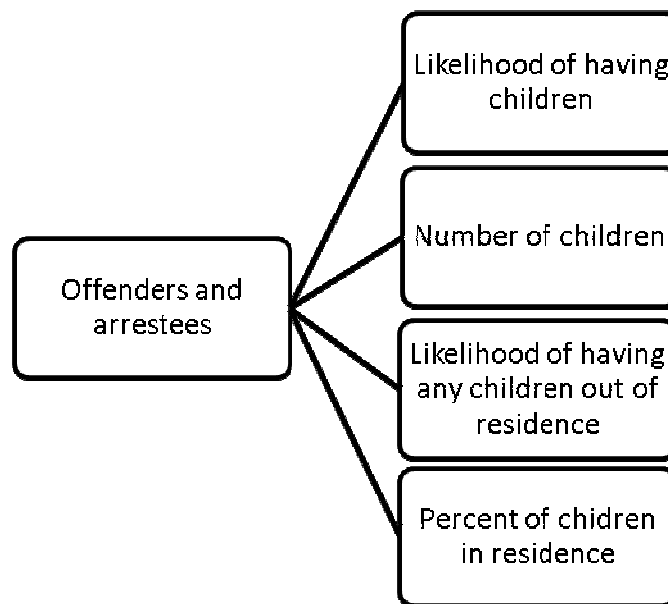
Figure 1
Possible Parental Pathway to Offspring Delinquency



The current work improves on existing research in several ways. First, it gives insight into how risk factors for juvenile delinquency may come to accumulate in families (Farrington, Coid & Murray, 2009). Prior research in this area has used samples of juvenile delinquents and worked back to identify similarities without considering why those similarities may occur. Second, the sample is dual gender, large, nationwide, prospective, and longitudinal. Even in longitudinal analyses, earlier samples have often been single gender, limited in geographic area, and racially homogenous. Third, it measures criminality using self-reported offending and arrest, whereas the majority of other research is limited to incarceration. This provides a more thorough picture of the outcomes of offending as opposed to state intervention. Finally, it measures patterns of

parental residence rather than whether or not a child has ever lived in a single-parent household. This matters because it gives more indicators of the stability of parental interactions. Particularly for offender parents, the impact of parental presence and interactions has been shown to have differing effects on children (Loeber & Stouthamer-Loeber, 1986).

Figure 2
Relationships Under Examination



Chapter 2

THEORY AND HYPOTHESES

Gottfredson and Hirschi's (1990) self-control theory holds that all criminal behavior is caused by the underlying, global trait of low self-control. This trait is expressed through risk-taking behavior, short-sightedness, and emphasis on immediate gratification. Gottfredson and Hirschi put the responsibility on parents to monitor, correct, and punish poor behavior from their children in order to instill self-control. This theory has several implications for the present study. First, offenders are automatically presumed to have low self-control. Second, given the global nature of low self-control, their other behaviors are expected to be consistent with risk-taking, short-sightedness, and emphasis on immediate gratification. In this case, offenders may be more likely than non-offenders to have more children and less stable living arrangements through any one or a combination of the three aforementioned characteristics. For example, risk-taking behavior may extend to use of birth control or number of sexual partners. Emphasis on immediate gratification may decrease sexual relationship fidelity, leading to relationship instability. Low-self control partners who were initially exciting may be seen as poor long-term partners, leading to increased relationship turnover.

Informal social control theory contains the idea that people do not offend because of their ties to pro-social others (Sampson & Laub, 1993). In particular, strong marital ties have been proposed as a pathway to desistance from offending (Sampson & Laub, 1993; Laub & Sampson, 2003). Yet, prior offending has been

shown in multiple samples to be associated with increased likelihood of divorce and decreased likelihood of marriage (Giordano, 2010; Lopoo & Western, 2005; Sampson & Laub, 1993). This implies that while bonding is helpful for criminal desistance and pro-social behavior in general, offenders have difficulty in creating and maintaining strong marital bonds, possibly due to a lack of self-control. In the context of the current project, weaker bonds between parents either through no initial marriage or through divorce would lead to greater residential instability for children of offenders. These two theories contribute to the four hypotheses for this study:

1. Offenders will be more likely than non-offenders to have children.
2. Offender parents will report living with a smaller percentage of their children than non-offender parents.
3. Offender parents will be more likely to have at least one child out of residence than non-offenders parents.
4. Offenders will have more children than non-offenders.

Chapter 3

LITERATURE REVIEW

Risk Factor Overview

Juvenile delinquency has been associated with many risk factors. A brief overview of the three predictors under consideration is presented here. Parental criminality is related to offspring delinquency in multiple ways. At the physical level, research has found some support for a genetic link in offending behavior, although effect sizes vary among studies (Lynn, 1995). Beyond this, social learning theory suggests that children learn behaviors and attitudes conducive to offending by modeling their parents. When offending leads to arrest and incarceration, parental criminality becomes a direct cause of parental separation for those offender parents who were living with their children. In their meta-analysis of family correlates of delinquency, Loeber and Stouthamer-Loeber (1986) found parental criminality to be a medium-strength predictor.

Parental separation from children also impacts juvenile delinquency through multiple avenues. An increasing body of research has found effects of parenting styles on juvenile delinquency (Loeber & Stouthamer-Loeber, 1983). Other work has found that parent/child relationships impact juvenile delinquency (Loeber & Stouthamer-Loeber, 1983). When parental separation occurs, both parenting style and parent/child relationships are disrupted and their impacts are negated. Furthermore, parental absence effects supervision, one of Gottfredson and Hirschi's (1990) criteria for effective parenting. To the extent that parental absence decreases supervision, juvenile delinquency is expected to increase.

While multiple studies have found higher rates of juvenile delinquency in single-parent households, Loeber and Stouthamer-Loeber (1983) found that parental absence independent of parental relationships and parenting styles was a weak predictor.

Finally, the number of children in a family has been found to be a risk factor for juvenile delinquency. As with all human behavior, there are multiple reasons for this. More children in a household may make it more difficult for parents to effectively supervise them, resulting in more opportunities for delinquency. A larger number of siblings creates competition for parental attention that may strain parent/child relationships. Siblings may act as negative peer influences that increase delinquency (Rowe & Gulley, 1992, Shaw & Criss, 2005). Spacing of children may also play a part. Lauritsen (1993) found that the total number of children in a household was not significantly associated with juvenile delinquency, but number of adolescents in a household was significantly and positively correlated with delinquency.

Related Literature

Although few studies have investigated the link between parental offending, family size, and patterns of residence directly, longitudinal studies frequently examine these variables in other contexts. The well-known Cambridge Study in delinquent development followed 411 boys from south London born between 1951 and 1954 through adolescence and continuing into the present day (Farrington, 2003; Farrington, Coid, & Murray, 2009). Although the sample leaves something to be desired in diversity of gender, race, and family

composition, it is one of the few studies that have produced an analysis of number of children born to criminal parents. Lynn (1995) used official conviction data on the parents of the initial sample and found an average of 3.91 children compared to 2.21 in the general population. Lynn expressed concern in this paper about such dysgenic fertility leading to an ever-growing number of criminals in the population. Follow-ups of the original sample at age 32 found that the men with at least one conviction were more likely to have been divorced or separated and to be separated from a child than those without a conviction (Farrington, 2001). Offenders in the sample were equally likely to marry, but offenders were more likely to separate from their wives and to conceive a child out of wedlock (Farrington, 2001). Farrington and colleagues (2009) remarked that parental criminality may have contributed to other risk factors, but an attempted analysis using structural equation modeling failed because the variables were measured dichotomously.

Another well-known longitudinal study of males is the Unraveling Juvenile Delinquency study initialized by Sheldon and Eleanor Glueck in 1939. Their research involved a sample of 500 delinquent boys from Boston with a matched comparison group, followed until 1965 (Glueck & Glueck, 1950). Sampson and Laub later continued the Gluecks' work with follow-ups of the participants (Sampson & Laub, 1993; Laub & Sampson, 2003). Like the Cambridge study, the UJD sample is exclusively male, primarily white, and drawn entirely from a single city. Although the Gluecks did not intentionally match participants on family size, the two groups initially had the same average on this variable. It was

not possible to determine from the published results, however, how family size was distributed among convicted and non-convicted parents of the sample.

Among the many findings of this work was that, as adults, the delinquent sample was 3-5 times more likely to get divorced than their non-delinquent counterparts (Sampson & Laub, 1993). In their most recent follow-up of the UJD participants Laub and Sampson (2003) did ask participants for their number of children, however, these results did not make it into publication. Unfortunately, only delinquents from the original sample were contacted at that time point, making comparisons between offending and non-offending parents on family size impossible.

The Toledo Youth Survey, Toledo Young Adult Survey and the Ohio Life-Course Survey have been used jointly to compare non-offenders to offenders on a variety of life outcomes (Giordano, 2010; Lowery, 2001). All samples are comprised of males and females, mainly from metropolitan Ohio, and participants were typically interviewed three times over the course of twenty-two years, beginning in their teens. Lowery (2001) analyzed family formation and fertility experiences of the offenders in the samples, finding a mean of 2.03 children and 59.7% of respondents that had at least one child living outside of their home. Male participants with at least one conviction had significantly fewer children than females with at least one conviction, and were significantly more likely to have a child living outside of their home. Additionally, over 91% had cohabitated with a partner at least once and just over half had been married at least once, but only 26% were presently married and only about 20% were in their first marriage.

Despite having access to data on non-offenders in the sample, Lowery did not compare offending and non-offending groups on these measures. Giordano (2010), however, did compare convicted females in the sample with the national population. She found that 90% of children nationally live with their mothers, but that 49% of the OLS female offenders had lost or never had custody of at least one of their children. These percentages are difficult to compare, however, because Giordano's measure is longitudinal and mother-specific whereas the national figure is cross-sectional and child-specific. Additionally, Giordano compared the OLS sample with the TARS sample on measures of whether or not a child had experienced a number of different parental separation events. The OLS (offender) group was significantly more likely to have a child that had gone to live with the other parent or another relative, been placed in a juvenile detention facility, had a parent spend over a week in a hospital or treatment facility, been removed from the home by child welfare, move in with the child's own friend's/boyfriend's/girlfriend's family, run away, move into their own home, or have a parent incarcerated. These results are notable not only because they highlight differences in child outcomes for offender and non-offender parents, but because of the attention to the multiple reasons for parental separation.

Another longitudinal study, the Great Smoky Mountain Study, examined the families of 1,073 elementary school children born in 1979-1980 (Phillips, Erkanli, Keeler, Costello, & Angold, 2006). This study made efforts to disentangle the risks to juveniles that had not previously been attempted. In the results, the

authors found no difference in family size between families who reported that at least one parent or step-parent had been previously arrested and those who did not, but did find that criminal justice system-involved families were more likely to report single-parent households and children in foster care. This study has a potentially problematic sample, as 90% of participants were chosen because they ranked high on initial measures of mental distress.

In a study using the National Longitudinal Survey of Youth 1979, Lopoo and Western (2005) looked at differences between ever incarcerated and never incarcerated men on a number of outcomes, including marriage and children. The NLSY79 sample was a nationally representative sample of almost thirteen-thousand males and females ages 14-22 at the age of initial interview, and who are still being followed at two-year intervals. The results of hazard analysis indicated that men who had ever been incarcerated were 18% less likely to have a first marriage by age 39, but this finding was not significant. Of the men who did marry, both groups married at about the same age but ever-incarcerated men were more likely to have a divorce, had a shorter average duration of marriage, were more likely to have children, and were more likely to have children outside of marriage than men who were never incarcerated. Because Lopoo and Western's study was primarily concerned with the effect of incarceration on marriage, no other information on number of children or patterns of child residence was considered.

A variety of other research is also relevant to the impacts of criminality on family size and patterns of residence. In the Netherlands, Apel and colleagues

found that while incarceration did not reduce the likelihood of marriage in the long run, it did significantly increase the likelihood of divorce (Apel, Blokland, Nieuwbeerta, van Schellen, 2009). Divorce obviously impacts child residence, despite increasing prevalence of joint custody arrangements, because a child primarily lives with only one parent afterwards. Additionally, in cases of disputed custody, family courts may be less likely to award custody to a parent with a prior conviction because the “best interest of the child” doctrine includes a portion on moral influence (Atkinson, 1985).

Using the 1992 National Health and Social Life Survey, London and Parker (2009) studied the relationship between incarceration and different living arrangements. The authors placed incarceration in the context of life-course criminology and disruption of social bonds to anticipate differences in eight different living arrangements. Although not longitudinal, the study had a large, dual gender sample between the ages of 18 and 59 years. Incarceration was set up as a prevalence measure. After controlling for a wide array of other variables, the results indicated that although living with a spouse and at least one child was the most common category for both groups, those who had been incarcerated were significantly more likely to live alone, to live with an unmarried partner with at least one child, and to live with a partner and no children.

Data from the U.S. Bureau of Justice Statistics also provides cross-sectional information on number of children and the living situations of offender parents. In a 2008 special report, Glaze and Maruschak found that 2.3% of the nation’s minor children had a parent incarcerated in state or federal prison. The

average number of children per incarcerated parent was two, and offenders with prior convictions were more likely to have children than those without. In the month prior to arrest, 55.3% of mothers and 35.5% of fathers reported living with at least one of their minor children. Only 13.6% of mothers and 18.3% of fathers reported living with at least one child in a two-parent household. While the snapshot nature of the BJS data is less than ideal, it gives insight into the magnitude of the situation. These estimates may be considered to be low for the number of incarcerated parents as jails are not taken into account, and children with previously incarcerated parents were not considered.

Chapter 4

METHODOLOGY

Sample

The present research uses the National Longitudinal Survey of Youth 1997. The NLYS97 sample consisted of approximately 9000 male and female youth in the United States born in the years 1980 to 1984. The same youth have been re-interviewed annually. Black and Hispanic respondents were oversampled so that they accounted for 47.65% of respondents initially screened into the sample (Moore, Pedlow, Krishnamurty & Wolter, 2000). I accounted for this over-sampling by using available sampling weights for descriptive tables and those statistical models utilizing the full sample. In models that used only parents, I did not include weights because self-selection into parenthood renders the sample unrepresentative. Data is available through 2008, yielding twelve waves with which to conduct the analysis. By the end of wave seven, over 85% of the original sample was retained (U.S. Department of Labor, 2005).

The NLSY97 is well-suited to the research questions but has a few weaknesses. It is longitudinal, the sample is large, dual-gender, and nationally representative. The respondents were only asked about whether or not each child lived with them at the time of interview. Although interviews were generally conducted on a twelve-month cycle, some took up to sixteen months. For the purposes of this study, only an annual measure of child residence can thus be constructed, and only approximately. This means that separations due to short-term parental incarcerations, for example, may not be recorded. Sample attrition

may not be random, particularly in the case of offenders who are often a difficult population to locate. Finally, although the data is longitudinal, at the time of the latest available sample the participants were between 24 and 29 years old. This age maximum does not include the upper limits of child-bearing years for many adults, so missing data may be inherent to the sample.

Measurement of variables

The dependent variables are prevalence of children by wave, prevalence of children out of residence by wave, percent of children in residence by wave, and number of children by wave. Respondents were asked for their number of biological children in residence and the number of biological children not living in the residence with the respondent. I summed these to create the total number of children, and divided the number of children in residence by the total number of children then rounded up to create an integer representation of the percentage of children in residence. Tables 1 and 2 report the number of children by wave. Tables 3 and 4 report the descriptive statistics for the dependent variables.

Antisocial behavior and arrest prevalence are the primary independent variables. Antisocial behavior was measured in waves one through seven, using a variety score similar to that of Apel and colleagues (2007). The variety score is comprised of seven items in which respondents indicated whether they had smoked marijuana, destroyed property, stolen money or items worth less than \$50, stolen money or items worth more than \$50, attacked another person intending to fight or hurt them, committed some other property crime, or sold illegal drugs since the last interview or ever in wave one. Each item was assigned

a 1 if the participant had engaged in the behavior or 0 if they had not; then the items were summed to create the variety score for each wave. In waves eight through twelve, only a subsample of the participants were asked these questions, and so only waves 1 through 7 are included in this research. The final variable representing offending is a prevalence variety score for each of the antisocial behavior variety score measures by wave seven. At each wave, respondents were asked about their interactions with the criminal justice system. This research includes measures for each wave of whether respondents were arrested, as well as cumulative arrest prevalence measure in order to give an indication of respondents' involvement with the criminal justice system. In addition to the demographic control variables age, white, black, and Hispanic, marital status at time of interview was measured as married or not married. All of the independent variables measured at each wave were constructed with a between-individual measure and a within-individual measure in order to facilitate analysis. The between-individual measures were constructed from the sample means of arrest and marital status. These measures reflect time-stable differences between individuals; in this case, differences between being arrested or married at all waves. Of course, it is unlikely that such individuals in this sample were arrested at all waves or married at all waves, and so results are broken down into single wave effects. The within-individual measures were constructed by finding the mean score of arrest and marital status for each individual, then calculating the deviation from the individual mean at each wave. The within-person measures show the effects of a change in arrest prevalence or marital status on subsequent

outcomes of the dependent variables, giving an indicator of causality. Although I had initially planned on including additional variables related to education, socioeconomic status, and family background, ultimately the statistical models would not support their inclusion. Table 5 presents descriptive statistics for the independent variables.

Table 1
Number of Children by Wave, Males

Number of Children	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7	Wave 8	Wave 9	Wave 10	Wave 11	Wave 12
0	4586	4225	4042	3876	3659	3508	3276	2967	2754	2682	2460	2311
1	11	53	112	204	264	380	465	536	605	681	743	803
2	1	2	14	31	47	78	128	161	217	308	361	439
3	0	0	0	2	6	17	23	42	70	98	132	152
4	0	0	0	0	0	2	6	11	10	16	26	42
5	0	0	0	0	1	0	1	3	4	4	5	10
6	0	0	0	0	0	0	0	1	1	3	4	4
7	0	0	0	0	0	0	0	0	0	0	1	0
8	0	0	0	0	0	0	0	0	1	1	1	1
Total Parents	12	55	126	237	318	477	623	754	908	1111	1273	1451
Total Children	13	57	140	272	381	595	819	1049	1323	1701	2029	2387
Missing	1	318	431	486	622	614	700	878	937	806	866	837

Table 2
Number of Children by Wave, Females

Number of Children	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6	Wave 7	Wave 8	Wave 9	Wave 10	Wave 11	Wave 12
0	4299	3873	3680	3411	3154	2923	2652	2400	2158	2038	1869	1732
1	74	204	300	450	548	662	749	802	783	821	809	829
2	10	24	49	86	165	258	327	425	501	589	630	693
3	0	2	6	15	18	41	83	117	179	228	271	326
4	0	0	0	0	4	6	12	20	40	66	88	104
5	0	0	0	0	1	0	1	1	2	4	12	24
6	0	0	0	0	0	2	2	0	2	2	2	7
7	0	0	0	0	0	0	0	2	1	1	1	1
8	0	0	0	0	0	0	0	0	1	1	1	1
Total Parents	84	230	355	551	736	969	1174	1367	1509	1712	1814	1985
Total Children	94	258	416	667	953	1337	1717	2102	2519	2994	3321	3786
Missing	2	282	350	423	495	493	568	618	718	635	703	668

Analytic Strategy

This research models the criminality/offspring relationship using multiple statistical models. The first is longitudinal logistic regression used to measure likelihood of having any children and likelihood of having any children live out of the residence. The second is longitudinal negative binomial regression used to model the relationship between the percentages of biological children in residence, arrest, and offending. In each of the longitudinal regression models the independent variable is lagged so that results represent child outcomes for the following year. Finally, I created trajectory models of arrest prevalence and included the posterior probabilities in a negative binomial regression model of arrest and offending on number of children. Group-based trajectory models are a concise way to control for developmental history of arrest where the data would not support longitudinal regression. All analyses were conducted separately for males and females because of acknowledged gender differences in offending, criminal justice system interaction, and fertility. Using multiple analytic strategies is a benefit for two reasons. First, it provides both descriptive and causal analyses. Second, it enables full usage of the longitudinal nature of the data where possible.

Modeling

Choosing appropriate statistical models presented some challenges. Despite the large sample size, the sample was quite young to begin with which resulted in problems with the dependent variables, namely: relatively few respondents had more than two children, relatively few respondents had children living out of residence, and less than 55% of the sample had any children at all by

the final observation. Additionally, the arrest measure was somewhat limited because only about one-third of the sample was ever arrested. Age was incorporated into the regressions untransformed. I could only incorporate respondents with at least three observations into the longitudinal regression models, and chose to limit the sample to those with four observations in order to improve accuracy. The resulting models were very fragile with addition of control variables. In order to be consistent, I kept the same variables for all longitudinal and trajectory analyses. Since some models were more fragile than others, this limited the variables I could include. This eventually led me to start with the most basic regression models possible and iteratively add variables. While this is not generally preferable, it was the only way to get consistent and working statistical models.

Table 3
Child Residence Descriptives, Males

	Number of Respondents Reporting any Children	Percent of Respondents Reporting Any Children	Number of Respondents Reporting Any Children In Residence	Number of Children In Residence	Number of Respondents Reporting Any Children Out of Residence	Number of Children Out of Residence	Total Number of Children
Wave 1	12	0.36	2	2	11	11	13
Wave 2	56	1.31	20	20	38	39	59
Wave 3	126	3.02	51	57	77	83	140
Wave 4	237	5.76	112	129	133	143	272
Wave 5	318	8.00	152	177	180	204	381
Wave 6	477	11.97	234	287	258	308	595
Wave 7	623	15.98	348	449	302	375	819
Wave 8	754	20.26	425	577	371	472	1049
Wave 9	908	24.8	534	732	429	591	1323
Wave 10	1111	29.29	660	958	519	746	1701
Wave 11	1273	34.10	795	1181	563	848	2029
Wave 12	1451	38.57	946	1451	612	976	2387

Because the data would not support longitudinal negative binomial regression for number of children, I conducted trajectory models for arrest prevalence per wave and age in waves one through eleven, weighted by initial sample weight, for incorporation into the number of children regression. The binary nature of arrest prevalence called for logistic trajectory models. The model that best fit the data for males had four groups. Over half of the sample (51.40%) was assigned to a low-prevalence of arrest group with a flat, stable trajectory. The next largest group (28.40%) showed a low start with a slow increase in arrest prevalence over time. Despite this increase, this trajectory was still very low in arrest prevalence, with trajectory results not exceeding .15. A third group (11.9%) had a high starting point (.40) that decreased steadily to near zero by age twenty-six. The final group comprised 8.3% of males and with a high, curved trajectory beginning at around .25, increasing to .43 between ages twenty and twenty-one, and decreasing to .30. For females, the model with the best fit had three groups. The vast majority of the females, 81.78%, were classified into a group with a flat trajectory near zero. The second group held 12.06%, and started at .21 with a decrease to near zero by age twenty-two. The final group was the smallest with 6.16%, with a curved trajectory beginning around .17, peaking at .25 around age twenty, and decreasing to .20 before age twenty-six. See Appendix 1 for males and Appendix 2 for females. These trajectory models were then incorporated into negative binomial regressions predicting number of children using prevalence of arrest by wave eleven, the offending variety score, posterior probabilities of group assignment to each trajectory, age, and the race variables.

Table 4
Child Residence Descriptives, Females

	Number of Respondents Reporting any Children	Percent of Respondents Reporting Any Children	Number of Respondents Reporting Any Children In Residence	Number of Children In Residence	Number of Respondents Reporting Any Children Out of Residence	Number of Children Out of Residence	Total Number of Children
Wave 1	84	1.92	77	95	10	11	106
Wave 2	230	5.61	217	241	13	17	258
Wave 3	355	8.80	339	391	20	25	416
Wave 4	551	13.91	527	631	30	36	667
Wave 5	736	18.92	704	904	40	49	953
Wave 6	969	24.90	930	1264	57	73	1337
Wave 7	1165	30.52	1129	1634	59	74	1708
Wave 8	1367	36.29	1332	2004	74	98	2102
Wave 9	1509	41.15	1467	2377	99	142	2519
Wave 10	1712	45.65	1652	2816	120	178	2994
Wave 11	1814	49.27	1755	3116	131	205	3321
Wave 12	1985	53.40	1922	3561	132	225	3786

Table 5
Descriptive Statistics, Independent and Control Variables

	Total sample	Males	Females	Males w/ children	Females w/ children
Offending Variety ^a by Wave 7	2.10(2.01)	2.50(2.16)	1.68(1.76)	2.62(2.18)	1.58(1.77)
Ever Arrested	33.11%	44.73%	21.43%	56.91%	27.13%
Ever Married	31.04%	25.25%	36.51%	49.24%	51.94%
White	70.51%	70.07%	70.96%	57.67%	60.34%
Black	25.99%	25.42%	26.59%	34.52%	34.46%
Hispanic	12.86%	13.43%	12.25%	17.12%	15.45%
Age at Wave 11 ^a	25.25(1.46)	25.35(1.46)	25.34(1.44)	25.71(1.32)	25.56(1.34)

^a Mean (s.d.)

Chapter 5

RESULTS

Table 6 reports the results for the longitudinal regression models for males. Hypothesis 1 gained support from the between –person arrest measure and the offending variety score. It was significant and in the positive direction ($b=21.85, p=.00$), indicating that arrest was associated with a greater likelihood of having any children. Because the between-person measures are across all twelve waves, they need to be divided by twelve in order to be effectively interpreted. The substantive effect size for between-person arrest on having any children is thus 1.82, or an increase of 1.82 in the log-odds of having children for arrest in any single wave. The within-person arrest measure was not significant for this dependent variable ($b=.01, p=.96$), although this was the only instance for males in which a primary independent variable was not significant. The offending variety score ($b=.36, p=.00$) was significantly associated with an increase in the log-odds of having children. Between-person marital status ($b=27.53, p=.00$) effectively increased the log-odds of having children by 2.93 for a single wave. Within-person marital status was also positive and significant, indicating an increase of 3.04 in the log-odds of having children the year following a report of being married compared to years following reports of not being married. Race variables were weighted for this model as it included the full sample, yet both black ($b=6.67, p=.00$) and Hispanic ($b=3.64, p=.00$) were significantly more likely to have children than whites.

Table 6
Results, Males

	Any Children	Children out of Residence	% of Children in Residence
Arrest-between	21.85(1.02)*	20.88(1.07)*	-1.62(.15)*
Arrest-within	.01(.17)	.33(.17)*	-.33(.07)*
Offending	.36(.06)*	.46(.07)*	-.02(.01)*
Marital status-between	27.53(.94)	11.25(.93)*	.78(.01)*
Marital status-within	3.04(.25)*	.86(.34)*	2.08(.10)*
Black	6.67(.32)*	8.09(.37)*	-.77(.05)
Hispanic	3.64(.34)*	4.81(.39)*	-.13(.04)*
Age	1.74(.05)*	1.37(.04)*	-.00(.01)
Mean (s.d.)			

* $p < .05$

Hypothesis 2 was supported for males across all primary independent variables. The coefficient for between-individual arrest ($b=20.88$, $p=.00$) means that for each year that males were arrested, the log-odds of their having any children out of residence increased 1.74. Within-person arrest ($b=.33$, $p=.05$) increased the likelihood that a respondent would have at least one child out of residence the year following an arrest by a factor of 1.39. The offending variety score ($b=.46$, $p=.00$) was also significantly correlated with an increased likelihood of having any children out of residence, with an increased log-odds of .46 for each offending behavior in which the respondent ever participated. Results for marital status are puzzling because the coefficients for both the between-person ($b=11.25$, $p=.00$) and within-person ($b=.85$, $p=.01$) measures were positive, indicating that marriage makes it more likely that a person will have any children out of residence. Both race variables were significant ($p=.00$), with blacks having an increased log-odds of 8.09 and Hispanics having an increased log-odds of 4.81

compared to whites. As with likelihood of having children, age ($b=1.3, p=.00$), likelihood of having any children out of residence was positive and significant.

Hypothesis 3 was also supported for males across all three primary independent variables. Between-person arrest ($b=-1.62, p=.00$) performed as expected, with arrest in any one year dropping percent of children in residence by a factor of .87. Similarly, within-person arrest ($b=-.34, p=.07$) decreased percent of children in residence in years immediately following arrest by a factor of .72. Offending ($b=-.02, p=.02$) was correlated with a 1.02 factor drop in children in residence for every behavior in which a respondent participated. Effect sizes for arrest and offending are thus fairly substantial. Report of marriage in one year increased percentage of children in residence by a factor of 1.9 between-persons, and children in residence the year following a report of marriage increased by a factor of 2.18 within-persons. Black ($b=-.77, p=.00$) and Hispanic ($b=-.13, p=.00$) males both lived with fewer of their children than whites. Age ($b=.00, p=.78$) was not significant for males in this model.

The model predicting number of children has some of the most concrete results, presented for males in Table 7 and fully supporting Hypothesis 4. Males who were ever arrested by wave 11 ($b=.82, p=.00$) are predicted to have more children in wave 12 than males who were never arrested by a factor of 2.75. The offending measure ($b=.045, p=.05$) predicted an factor increase of 1.04 for each type of offense committed. Results for marital status in wave 11 ($b=1.43, p=.00$) were even more striking, with a factor increase of 4.18 predicted for wave 12 compared to males who were not married in wave 11. Some caution is needed in

this interpretation, however, since duration of marriage is not taken into account. Posterior probabilities of assignment to offending trajectories were not significant. Black males ($b=.99, p=.00$) were predicted to have more children than white males by a factor of 2.69, and Hispanic males ($b=.40, p=.00$) were predicted to have more children by a factor of 1.49. Age was also significant ($b=.10, p=.00$), with one additional year resulting in a factor increase in children of 1.11.

Table 7

Results for Number of Children, Males

	Coefficient	Standard Error	z	P> z	95% Confidence Interval
Ever Arrested Wave 11	.82	.09	9.37	0.00	.65-.99
Offending Variety Prevalence Wave 7	.04	.02	1.98	0.05	.00-.08
Marital Status Wave 11	1.43	.08	17.25	0.00	1.27-1.60
Black	.99	.11	8.82	0.00	.77-1.21
Hispanic	.40	.12	3.34	0.00	.16-.63
Age at Wave 11	.10	.03	3.79	0.00	.05-.15
Group 1 Posterior Probability	-.02	.19	-0.10	0.92	-.40-.36
Group 3 Posterior Probability	-.05	.24	-0.19	0.85	-.52-.43
Group 4 Posterior Probability	.21	.15	1.40	0.16	-.09-.51

Table 8 displays the results for females for Hypotheses one through three. Hypothesis 1 was supported by two of the three primary independent variables, although significant effects were found for all three. Between-person arrest ($b=24.38, p=.00$) increased the log-odds of having children by 2.03 for each year arrested. Results for within-person arrest ($b=-.76, p=.00$) indicated decreased log-odds of 2.14 for having children the year following arrest. The offending measure ($b=.26, p=.00$) showed that the log-odds of having children increased .26 for each

type of offense committed. Each year a respondent reported being married increased her log-odds of having any children by 1.10 using the between-person measure ($b=13.14, p=.00$), and the increase in log-odds of having any children in the year immediately following a report of being married was 11.59. Black females had log-odds 5.67 higher than white females of having children ($p=.00$), and Hispanic females had log-odds 2.42 higher than white females ($p=.00$). Similarly to males, age ($b=1.44, p=.00$) increased the likelihood of having children.

Table 8
Results, Females

	Any Children	Any Children Out of Residence	Percentage of Children in Residence
Arrest-between	24.38(1.52)*	38.94(2.59)*	-9.54(.26)*
Arrest-within	-.76(.20)*	.19(.51)	-.07(.02)*
Offending	.26(.07)*	.96(.19)*	-.04(.01)*
Marital status-between	13.14(.49)*	10.73(2.74)*	.83(.07)*
Marital status- within	2.45(.19)*	.32(.62)	.02(.01)
Black	5.67(.31)*	5.33(.96)*	.00(.04)
Hispanic	2.42(.37)*	-.92(.93)	.52(.04)*
Age	1.43(.03)*	1.02(.06)*	-.005(.00)*

Mean (s.d.)

* $p < .05$

Hypothesis 2 was also supported by two of the three primary independent variables. For between-person arrest ($b=38.94, p=.00$), a single arrest increased the log-odds of having any children by 3.24. Within-person arrest ($b=.19, p=.71$) was not significant for females in this model. Offending ($b=.96, p=.00$) was significant, increasing log-odds of having any children out of residence by .96 for each additional type of offense committed. As with males, the results for between-person marital status ($b=10.73, p=.00$) are puzzling. Respondents' log-odds of

having any children out of residence increased .89 for every year in which they reported being married. Unlike males, within-person marital status ($b=.32, p=.60$) was not significant. Black ($b=5.33, p=.00$) females were more significantly more likely than white females to have any children living out of residence, but Hispanic ($b=0.93, p=.32$) females did not have a significantly different likelihood in this model.

Hypothesis 3 was supported for females by all three primary independent variables, with effect sizes similar to those of males. Between-person arrest ($b=-9.94, p=.00$) decreased the percentage of children living at home by a factor of .44% for each year in which a respondent reported arrest. Results for within-person arrest ($b=-.07, p=.00$) were somewhat higher. Percent of children in residence decreased by a factor of 2.05 in the year immediately following a year in which a respondent was arrested. For offending ($b=-.04, p=.00$), percent of children in residence was lowered by a factor of .96 for each type of offense committed. Black ($b=.00, p=.97$) females did not have a significantly different percentage of children living with them than white women, but Hispanic ($b=.52, p=.00$) females had a significantly smaller percentage of their children in residence than white females. Age ($b=-.004, p=.00$) decreased the percentage of children in residence less than one percent per year.

Table 9

Results for Number of Children, Females

	Coefficient	Standard Error	z	P> z	95% Confidence Interval
Ever Arrested Wave 11	.61	.08	7.71	0.00	.46-.77
Offending Variety Prevalence Wave 7	.06	.02	2.97	0.00	.02-.09
Marital Status Wave 11	.82	.07	12.13	0.00	.69-.95
Black	.73	.10	7.56	0.00	.54-.92
Hispanic	.49	.10	4.89	0.00	.29-.69
Age at Wave 11	.10	.02	4.63	0.00	.06-.15
Group 1 Posterior Probability	-.32	.17	-1.86	0.06	-.66-.02
Group 3 Posterior Probability	.15	.16	0.97	0.33	-.16-.46

Results for females and number of children, reported in Table 9, closely resembled those of males in terms of significance but with smaller effects for the primary independent variables. Females who had ever been arrested by wave 11 ($b=.61, p=.00$) were expected to show a factor increase of 1.8 children compared to those who had never been arrested. As with males, the offending variety score ($b=.06, p=.00$) resulted in a factor increase of approximately one (1.06) per offense type committed. Marital status at wave 11 ($b=.82, p=.00$) was not quite as dramatic as the result for males, but still predicted a factor increase of 2.27 for those who were married. Posterior probabilities of group membership in offending trajectories were not significant. Black females ($b=.73, p=.00$) were expected to have more children than females by a factor of 2.08, and Hispanic females were expected to have more children than whites by a factor of 1.63. Age ($b=.10, p=.00$) also had an effect size comparable to the male results.

Chapter 6

DISCUSSION

This research has expanded knowledge on the relationship between family predictors of juvenile offending. In terms of significance, I found support for an association between parental criminality and prevalence of children, likelihood of having any children out of the home, percentage of children in residence, and number of children for both males and females. Substantively, the strength of the effects of between-person arrest varied across outcomes. Arrest in any single year made it six times more likely that males would have any children, and over seven times more likely for females. Between-person arrest showed greater gender differences for likelihood of having any children out of residence. For males, arrest in one year made it five times more likely that at least one child would not be living with the respondent, but for females arrest in one year made this twenty-five times more likely. This difference may be explainable in part by the greater prevalence of children living away from their fathers than their mothers in the sample as a whole. While the analyses found that between-person arrest was significant for percentage of children living in the household, effect sizes overall for this outcome were very small for both genders, less than three percent at the maximum. Without child-specific analysis of residential transitions, it is not possible to determine whether or not this is due to children of offenders having stable patterns of living away from these parents. I found strong results with large effect sizes for an association between parental criminality and higher numbers of children. For females, prevalence of arrest returned an expected 1.8 more

children, and more than 2 children for males. Offending returned an expected increase of approximately one child for each type of offense in which the defendant participated.

This research has indirect implications for policy. It is obviously unacceptable to attempt to decrease risk factors for juvenile delinquency by acting directly on the fertility of offenders. As mentioned, however, family influences have been found to be driven in part by relationship factors between parents and children and between siblings (Lauritsen, 1993; Rowe & Gulley 1992; Shaw & Criss, 2005). With this in mind, policy for correctional and social support facilities could be set to provide parenting trainings aimed at improving these relationships in cases where offender parents live with their children upon release from incarceration. Services might also be targeted towards parents who do not live with their children but still maintain relationships with them. In either case, it is useful for agencies to bear in mind that offenders are expected to have children and to have different residential relationships with their children than non-offenders. Furthermore, policy-makers should not equate more children with greater incentive for parents to desist from crime. Research into the process of desistance has found mixed to no evidence that this is the case (Blokland & Nieuwebeerta, 2005, Thompson & Petrovic, 2009, Variale, 2006).

Additional efforts in this area could improve on any of the four hypotheses advanced here, or explore possible relationships that mediate or direct these effects. The youngest participants in the sample were twenty-three years old at the final interview, and the oldest were twenty-nine. This is fairly young in the

current scheme of American fertility and marriage. While the age-crime curve suggests that this is a suitable duration of study for arrest and offending, a longer duration of study would be required to get a more complete picture of lifetime fertility and patterns of child residence. Alternatively, samples of this same age group may need to over sample respondents with more children. Future research may also consider distinguishing between direct effects of parent criminality on fertility and child residence outcomes and indirect effects of parent criminality via direct effect on likelihood, number, and duration of marriage. Parental influence on children is complicated. Where the present research includes parental presence, future research could examine links between parental criminality and parent/child relationships. Finally, more attention could be devoted to explaining differences in effect sizes for between-person outcomes and within-person outcomes. Overall, the results of the present study suggest that family predictors of juvenile delinquency do not occur entirely independently, and future research may enhance these findings and expand upon the mechanisms by which family predictors co-occur.

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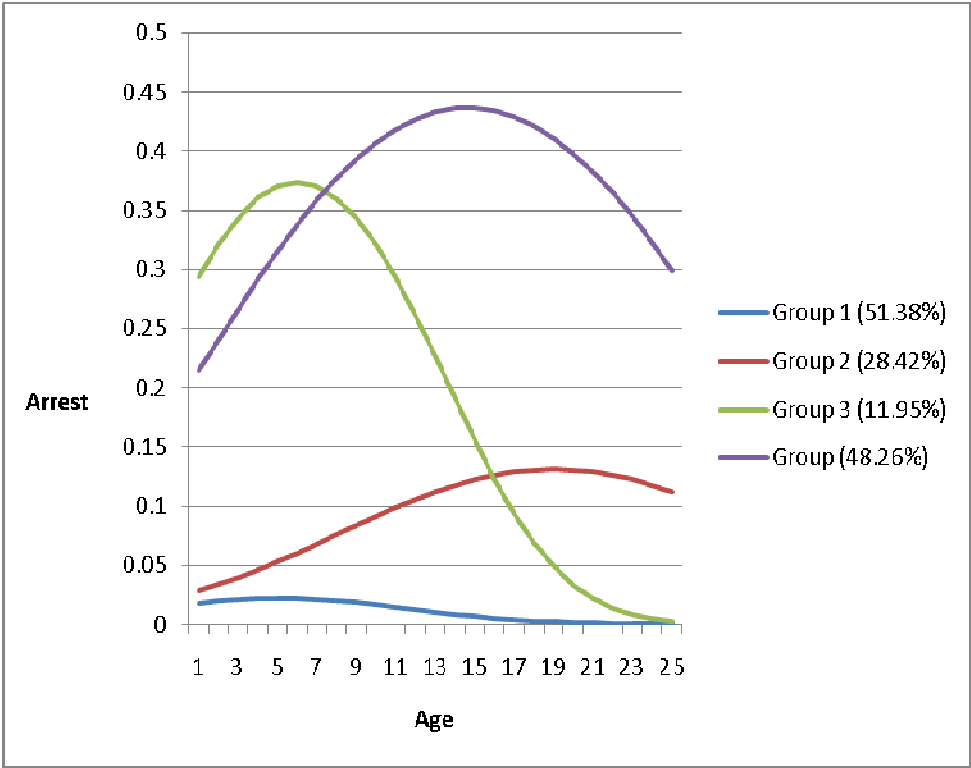
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APPENDIX A

GROUP-BASED TRAJECTORY MODEL, MALES

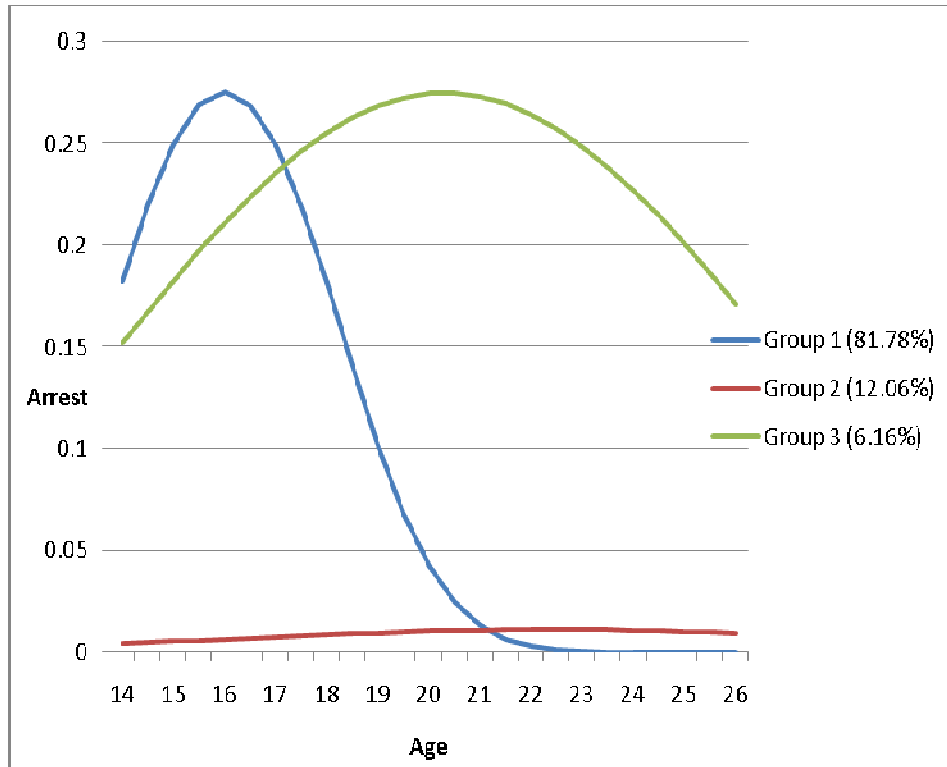
Arrest Trajectories by Age



APPENDIX B

GROUP-BASED TRAJECTORY MODEL, FEMALES

Arrest Prevalence by Age



APPENDIX C

INDEPENDENT VARIABLE CORRELATIONS, MALES

	Any Children	Any Children Out of Res.	Percent of Children in Res.	Number of Children	Arrest by Wave 11	Married Wave 11	Black	White	Hispanic	Age	
Any Children	1.00	1.00		0.83	0.19	0.11	0.32	0.16	-	0.08	0.16
Any Children	1.00	1.00		0.85	0.27	0.17	0.04	0.30	-	0.04	0.10
Out of Residence									0.30		
Percent of Children in Residence			1.00	-0.04	-0.21	-0.13	0.43	-0.32	0.27	0.05	0.07
Number of Children	0.83	0.85	-0.04	1.00	0.21	0.12	0.29	0.16	-	0.07	0.15
Arrest Prevalence Wave 11	0.19	0.27	-0.21	0.21	1.00	0.45	-0.09	0.09	-	0.01	0.04
Offending Variety Score	0.11	0.17	-0.13	0.12	0.45	1.00	-0.05	0.001	0.01	-0.01	-
Marital Status Wave 11	0.32	0.04	0.43	0.29	-0.09	-0.05	1.00	-0.11	0.08	0.01	0.16
Black	0.15	0.29	-0.32	0.16	0.09	0.002	-0.11	1.00	-	-0.17	0.01
White	-0.20	-0.29	0.27	-0.20	-0.08	0.01	0.08	-0.65	1.00	-0.60	-0.03
Hispanic	0.08	0.04	0.05	0.07	0.01	-0.01	0.01	-	-	1.00	0.02
Age	0.16	0.10	0.07	0.15	0.04	-0.004	0.16	0.175	0.60	-	1.00
								0.01	-	0.02	
									0.03		

APPENDIX D

INDEPENDENT VARIABLE CORRELATIONS, FEMALES

	Any Children	Any Child Out of Res.	Percent of Children in Res.	# of Children	Arrest by Wave 11	Offense Variety Score	Marital Status Wave 11	Black	White	Hispanic	Age
Any Children	1.00	1.00		0.83	0.19	0.11	0.32	0.16	-0.20	0.08	0.16
Any Children Out of Res.	1.00	1.00		0.85	0.27	0.17	0.04	0.30	-0.30	0.04	0.10
Percent of Children in Res.			1.00	-0.04	-0.21	-0.13	0.43	-0.32	0.27	0.05	0.07
Number of Children	0.83	0.85	-0.04	1.00	0.21	0.12	0.29	0.16	-0.20	0.07	0.15
Arrest by Wave 11	0.19	0.27	-0.21	0.21	1.00	0.45	-0.09	0.09	-0.08	0.01	0.04
Offense Variety Score	0.11	0.17	-0.13	0.12	0.45	1.00	-0.05	0.00	0.01	-0.01	-0.005
Marital Status Wave 11	0.32	0.04	0.43	0.29	-0.09	-0.05	1.00	-0.11	0.08	0.01	0.16
Black	0.15	0.29	-0.32	0.16	0.09	0.002	-0.11	1.00	-0.65	-0.17	0.01
White	-0.20	-0.29	0.27	-0.20	-0.08	0.01	0.08	-0.65	1.00	-0.60	-0.03
Hispanic	0.08	0.04	0.05	0.07	0.01	-0.01	0.01	-0.18	-0.60	1.00	0.02
Age	0.16	0.10	0.07	0.15	0.04	-0.004	0.16	0.01	-0.03	0.02	1.00

APPENDIX E

INTERNAL REVIEW BOARD EXEMPTION LETTER

To: Gary Sweeten
411 N Cent

RV From: Mark Roosa, Chair SM
Sec Beh IRB

Date: 04/21/2011

Committee Action: Exemption Granted

IRB Action Date: 04/21/2011

IRB Protocol #: 1104006360

Study Title: Parental Criminality: Links to Additional Risk Factors for Juvenile Delinquency

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(4).

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

