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THE IMPACT OF INCOME AND FAMILY STRUCTURE ON DELINQUENCY

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There is no more important issue in the economics of the family than the impact of parents on the behavior of their children. By providing rewards and imposing constraints, parents seek to affect their children's behavior. The explanation of these actions is that the child's conduct directly enters into the parent's utility function. In this paper, we use that framework to explore the role of parental control over his or her child's delinquent behavior. Using data from the National Longitudinal Survey of Youth, we estimate the impact of family income and various dimensions of family structure on a youth's contact with the criminal justice system between the ages of 14 and 22. From this analysis, we conclude that the single most important factor affecting these measures of delinquency is the presence of his father in the home. All other factors, including family income, are much less important.

JEL classification codes: J12, J13

Key words: family structure, delinquency, role of fathers, role of mothers

I. Introduction

There is no more important issue in the economics of the family than the impact of parents on the behavior of their children. By providing rewards and imposing constraints, parents seek to affect their children's behavior. The explanation of these actions is that the child's conduct directly enters into the parent's utility function. There is considerable evidence from evolutionary biology that altruistic behavior towards one's offspring is our common heritage

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(Trivers, 1985; and Clutton-Brock, 1991), which creates this type of utility function. In this paper, we use this framework to explore the role of parental control over his or her child's delinquent behavior.¹

The most important feature of parental conduct is the mere fact of being there, of remaining in the home with the child. This factor has become increasingly relevant over the past three decades as higher rates of divorce and illegitimacy have led increasing numbers of children to live in households where a parent, typically the father, is absent. In 1960, 87.7 percent of U.S. children lived with both parents, but this proportion fell to 68.1 percent by 1998. Of those children remaining, 73.1 percent lived with their mother but not with their father, 13.8 percent lived with their father but not with their mother, while the remaining 13.0 percent lived with others who were not their parents (U.S. Bureau of the Census, 1998). We focus here on the role played by parental absence on the child's subsequent conduct.

Reviewing the evidence on such matters, J.Q. Wilson (1993) writes:

Compared to children who are raised by their biological father and mother, those raised by mothers, black or white, who have never married are more likely to be poor, to acquire less schooling, to be expelled or suspended from school, to experience emotional or behavioral problems, to display antisocial behavior, to have trouble getting along with their peers, and to start their own single-parent families. These unhappy outcomes afflict both girls and boys, but they have a more adverse effect on boys.²

This statement suggests various hypotheses, which are the subject of this paper.

¹ A similar framework is employed in Case et al. (1999), which is applied instead to food consumption within the family.

² Wilson (1993, p. 176). See also Antecol, et al. (2001).

³ See the following statement from a recent discussion of teenage violence (Hechinger,

In addition to family structure, poverty is also considered by many as a major explanation for delinquent behavior.³ To these observers, income is the critical factor and antisocial conduct would decline if family income were increased. Because there are two rival themes that are used to explain delinquency, we explore the joint impact of income and family structure.

To be sure, there are other potential explanations for delinquent behavior. These include the influence of peers as expressed through neighborhood effects; prospects for legal employment; and law enforcement efforts that increase probabilities of apprehension and conviction. These are relevant factors, and indeed one of us has explored such matters in earlier research (Phillips, Votey and Maxwell, 1972; Phillips and Votey, 1987). However, sufficient information to measure these considerations is not available in our data set, and also their exclusion is unlikely to upset our primary findings on the influence of family structure. Neighborhood considerations are highly correlated with family incomes, so those influences are largely incorporated in that variable. In contrast, prospects for legal employment tend to be highly correlated with cognitive skills,⁴ which are measured here by scores on the Armed Forces Qualifications Test. And also there is little reason to believe that deterrence is associated with family structure. We argue below that our findings are not unduly influenced by these omitted variables.

To an extent, however, the role of peers is separate from neighborhood effects, and also a relevant factor for determining child behavior. Indeed, this factor may become all the more important as a child's family disintegrates, and his or her supervision at home declines. For this reason, peer effects represent, at least partially, the mirror image of family effects, and are thereby embodied in the variable itself. This consideration influences our interpretation of the empirical findings offered below.

1994, p. 4): "Growing up in an environment of harsh poverty with a feeling that opportunities for success are closed because of discrimination can lead to helplessness and rage that find expression in violence."

⁴ Card (1985). Of course, greater ability may be correlated as well with higher levels of education, making it difficult to separate completely the influence of ability on earnings.

II. Alternate Hypotheses on Parental Behavior

Although economic agents are typically presumed to consider only their own utility, that presumption has never applied to the interactions of parents and children.⁵ For example, Becker (1981, p. 114), suggests a pattern of asymmetric concerns in which the parent's utility function includes the children's consumption as well as his or her own, while the children's utility function depends only on their own consumption. This approach has led to "the rotten-kid theorem," an implication of which is that both parent and child are better off when the parent is highly altruistic towards the child, but both parties are worse off when altruism is lower or absent.⁶

While this analysis is framed in terms of consumption levels and monetary transfers, it has broader implications than that. When a child agrees to sacrifice his private goals for those of his family, he does so with the understanding that ultimately he is better off. And parents are willing to make the required effort because they too are better off.

This analysis is equally cogent when families disintegrate. Becker (1977, p. 507), writes that "altruism can benefit altruists only when there is substantial interaction between them and the beneficiaries" (see also Becker, Landes and Michael, 1972, pp. 1152-3). When interactions between parent and child diminish, as a result of divorce and the father's absence from the home, an expected result is that the parent's benevolence for the child declines. If the decline is sufficient, the child will accept its implications and move to a more selfish outcome; and both parent and child are worse off. A direct implication of the rotten-kid theorem is that the child's conduct turns on the expected benevolence of the parent.

When a family dissolves, an immediate effect is lost proximity between the non-custodial parent and the child. As a result, the time and monetary

⁵ See Bergstrom's (1996) discussion of Adam Smith's views on these issues, pp. 1904-5.

⁶ See also Bergstrom (1989).

costs to both parties of maintaining close contact are substantially increased (Weiss and Willis, 1985), and there is generally reduced concern by the absent parent for the child.⁷

In the empirical analysis below, we investigate the impact of family structure on children's delinquent behavior. Where both parents are present in the home, we assume there is sufficient benevolence so that their children follow family norms and do not respond to the temptations of lawlessness. On the other hand, where parents are absent, we hypothesize there is not sufficient altruism so that children more frequently seek their own pleasures without regard to family strictures; and as a result, more frequently come into contact with law enforcement officials. Following Becker's (1977) suggestion that altruism declines with lost proximity between altruist and beneficiary, we let family structure serve as a proxy for a parent's altruistic conduct toward his or her child.⁸

To be sure, other factors may be important as well. In particular, if family incomes are higher, children may see less need for criminal activity to achieve their goals, so that higher family incomes may be associated with less criminal activity. In the analysis below, we examine both propositions for young men between the ages of fourteen and twenty-two.

⁷ A father's absence from the home typically leads him to have little contact with his child. Fully 58 percent of absent fathers saw their child fewer than several times a year, while only about one-quarter had contact more than once a week. Furthermore, parent-child contact diminished over time. While 28 percent of absent fathers, separated for two years or less, saw their child fewer than several times a year, that percentage increased to 42 percent between three and five years post-separation, to 62 percent for six to ten years following the father's separation, and to fully 72 percent at eleven years or more (Seltzer, 1991, Tables 1 and 4, pp. 86, 91).

⁸ An alternate argument is that the critical factor for a boy is his opportunity to copy or imitate his father; and that this is lost when the father is absent. This hypothesis suggests that a substitute father would do nearly as well in limiting delinquent behavior, which is tested in the empirical analysis below.

III. Data

The data used in this study are the National Longitudinal Survey of Youth (NLSY), a frequently used data set collected annually at Ohio State University.⁹ In 1979, 12,686 young people, divided nearly equally between the genders, were surveyed on a wide range of topics that included family structure. These same respondents were asked in 1980 about their involvement with the criminal justice system for the period ending in 1979.

In this study, delinquency is measured by whether a youth has ever been charged with a crime between the ages of fourteen and twenty-two. From this data set, 17.2 percent of young men had been charged but only 4.4 percent of young women. Because there are such smaller numbers of criminal involvement for young women, we cannot carry out the same econometric analysis for both genders.

The youths were also asked with whom they lived at age fourteen. Their responses were quite similar as between young men and women. Overall, 67.9 percent lived with both father and mother. The second most frequent response was mother and no other man present, at 16.6 percent. The third largest category was mother and stepfather, at 6.6 percent. For this classification, however, there was a slight difference between young men and women: 6.9 percent of the latter lived with their mother and stepfather but only 6.4 percent of former. Finally, only 1.8 percent of the young men and 1.2 percent of the young women in the sample lived with their father and stepmother, and only 1.3 percent of males and 1.0 percent of females lived with their father and no woman present.

In terms of ethnicity, the sample is composed of 15.6 percent Hispanic, 25.2 percent Black, and 59.2 percent non-Hispanic, non-Black youths. Average family income is \$16,939, and varies between nothing and \$75,001. The logarithm of family income is approximately normally distributed in the range of two standard deviations around the mean; however there is more weight in the tails, especially for very low incomes.

⁹ See, for example, two recent papers which employ these data: Oettinger (1999) and Blau (1999).

Data are also available for scores on the Armed Forces Qualifications Test (A.F.Q. Test). During 1980, a battery of aptitude tests were given to nearly all of the sample respondents. The areas covered included general knowledge, arithmetic reasoning and paragraph comprehension, as well as numerical operations. Raw scores are then converted into national percentiles, which is the variable included in the empirical analysis.¹⁰

As reported in Table 1, Black youths come from families with average incomes of approximately two-thirds of that for families of majority youths. The percentage of families with a father present when the boy was fourteen is 79.7 percent for non-Hispanic, non-Blacks; 72.0 percent for Hispanics; and 54.8 percent for Blacks. The corresponding figures for mother present are 93.5 percent for non-Hispanic, non-Blacks; 93.7 percent for Hispanics; and 90.5 percent for Blacks. There is thus greater variability among ethnic groups for the presence of fathers than for mothers.

Table 1. Sample Characteristics for Three Ethnic Groups

	Hispanic	Black	Non-Hispanic, Non-Black
Ever charged (%)	18.2	14.3	18.1
Average age (years)	17.7	17.7	18.0
A.F.Q. Test (%)*	32.1	23.0	52.6
Average family income (\$)	15,524	13,426	19,442
Father present (%)	71.9	54.8	79.7
Mother present (%)	93.7	90.5	93.5
No. of observations	728	1,200	3,009

Note: * This variable is not available for all observations.

¹⁰ These scores are highly correlated with IQ values, that are widely considered to measure general intelligence (Herrnstein and Murray, 1994, p. 584). However, Blau suggests that there is doubt as to whether the AFQT measures achievement or ability (Blau, 1999, p. 265).

Note also that the fractions of male youths reporting being charged with a crime are comparable for two of the three ethnic groups, but Black youths report lower levels. This finding raises concern about the NLSY sample of minority youth since other data report that Black youths have a higher chance of being in prison by age 25. According to more recent Department of Justice figures, the probability of incarceration for a Black male is 15.9 percent, for an Hispanic male is 6.3 percent, and for a White male is 1.7 percent (Bonczar and Beck, 1997, Table 3, p. 2). Because Black youths in jail or otherwise involved with the criminal justice system may be under-represented in this sample, we analyze delinquency separately for the three ethnic groups, and find below that our results do not depend on ethnicity.¹¹

IV. A Preliminary Look at Family Structure

While the econometric analysis below explores the influence separately of a father's or mother's presence, we first consider these factors together. Although this approach suffers from the small number of observations available for some categories, it does suggest some hypotheses. There are thirty categories of family structure reported in the NLSY. The five largest were selected, which together account for nearly 95 percent of the observations. The rest were aggregated as "other" family structures. The results are reported in Table 2.

The most interesting comparisons in Table 2 are those for family structures in which one parent is absent from the home and a step-parent is or is not present. Note the striking differences between the "Mother-stepfather" and "Father-stepmother" categories: the reported probabilities of delinquency are twice as high in the "Mother-stepfather" case as in the "Father-stepmother" case. This observation suggests the importance of father's presence at home

¹¹ Note, however, that another study of juvenile crime reports that "an increased fraction of the population that is black is associated with lower juvenile crime rates" (Levitt, 1998, p. 1168).

Table 2. Delinquency by Family Structure: Young Men

Family structure at age fourteen	No. of cases	Percentage ever charged	Average family income
Father-mother	3,405	15.0	19,511
Mother-no man	789	19.6	11,550
Mother-stepfather	315	28.9	14,995
Father-stepmother	89	12.4	17,567
Father-no woman	62	22.6	14,784
Other structures	267	24.7	11,492
Chi-Square coef.	N/A	58.69*	N/A
Total number of cases	4,927	4,927	4,922 ^a

Notes: ^aData on income for five cases are not available. *Statistically significant at the 1% level. **Statistically significant at the 5% level. N/A not applicable.

for his son's conduct. In addition, however, the former category has a lower average family income than the latter, which could also account for differences in the proportion of youths charged with a crime.

Just as interesting is the comparison with the mother present, between cases where there is no other man present and where there is a stepfather. Again, having a stepfather present appears to increase the prospects for delinquency, despite higher average incomes. On the other hand, looking at the corresponding comparison with the father present, a stepmother seems to play a salutary role. These results suggest that a step-parent's gender may be critically important. For boys, a stepmother's presence may reduce the prospects of delinquency, although the presence of a stepfather may have the opposite effect.¹²

¹² Although our hypotheses rest on differences in altruistic behavior between parents and step-parents, there are also differences in abusive behavior which could account for our

We also carried out a contingency table analysis for this measure of delinquency. As indicated by the chi-square value, there is a statistically significant effect overall of family structure. Furthermore, since the sum of squares of these residuals is the chi-square statistic, we can determine which cells contributed most to this significant association. Critically, the Mother-stepfather category represented significantly more involvement with the criminal justice system than predicted under the assumption of independence. In contrast, the Father-mother category had significantly less involvement than projected. These two structures together accounted for a major share of the significant chi-square value.

The data provided in Table 2 are difficult to interpret because the delinquency and income variables include youths who have remained with one or both parents as well as those who live separately. If he lives with at least one parent, daily supervision and guidance are possible. In contrast, if a youth lives separately, he could be in the armed services, away at school, or on his own. This factor may have an important impact on delinquency because freedom from parental control may lead him to experiment with risky behavior.

Income levels are also impacted by living arrangements. Average family income for young men living in a parental household was \$17,644 in 1979 as contrasted with \$12,126 for those who did not. Income levels are thereby 31 percent lower for youths who no longer live with their parents. The relationship between income and delinquency is thus confounded by this selection decision.

V. An Empirical Framework

Self-selection is central to the decision of a young man to live with his parents. Accordingly, we employ a mover-stayer model, and estimate a self-

findings. After reviewing the evidence on this issue, Daly and Wilson (1989), pp. 87-88, find that "Stepparenthood *per se* remains the single most powerful risk factor for child abuse that has yet been identified". Unfortunately these writers do not distinguish between stepmothers and stepfathers. [We thank Ted Bergstrom for this reference.]

selection equation for the decision to remain within the parental household. From that equation, we derive a self-selection correction, which is then included in separate equations for “stayers” and “movers” that relate to whether a youth has been charged with a crime.

The self-selection equation is estimated using exogenous demographic and regional variables, the most important of which is the youth’s age. While only 4 percent of young men in the NLSY sample lived separately from their parents at age fourteen, fully 76 percent did so by age twenty-two; and there is a direct progression with age. Additional variables include indicators of race, ethnicity, geographic region, and also the labor market unemployment rate, as well as a dummy variable indicating whether or not he lived in a SMSA. We also include the educational backgrounds of both mother and father as measured by the number of school-years completed.

The dependent variable in this equation is dichotomous: it is coded one if he lives separately from both parents, if both parents are deceased, or if one parent is deceased and he lives separately from the other. It is coded zero if the youth lives with either or both parents.

If there are unobserved variables affecting both the decision of a young man to live separately and his prospective delinquency, then the error terms of the two equations, one explaining the mover-stayer decision and the other explaining delinquency will be correlated. Because of the incidental truncation arising from estimating delinquency separately for “stayers” and “movers”, the expectation of the error term in these equations are not zero. For example, if the error term in the self-selection equation and the error term in the delinquency equation are distributed bivariate normal, then for “stayers”

$$E(e_s) = r s_{e_s} + \text{Inverse Mill's Ratio} \quad (1)$$

where e_s is the error term for the delinquency equation for “stayers”, r is the correlation between e_s and the error term from the mover-stayer equation, and s_{e_s} is the standard deviation of e_s . This expression applies as well to “movers”, but of course the definition of the Inverse Mill’s ratio differs between

the two groups.¹³ This self-selection correction is used, and a coefficient for this ratio estimated in each delinquency equation.

A probit form is used to estimate the self-selection equation from which the appropriate corrections are derived. The Inverse Mills ratio calculated from the self-selection equation is highly correlated with the youth's age. The correlation coefficients are -0.90 for "stayers" and -0.89 for "movers". For this reason, we do not include age as a separate explanatory variable in some of the delinquency equations.

A second empirical issue is whether family structure can be treated as exogenous. Fathers are present or absent for a reason, which could be related to his child's delinquent behavior. For example, jailed fathers are absent, but it may be their criminality rather than their absence that has implications for his son's delinquency. Indeed, Wilson and Herrnstein (1985) suggest specifically that delinquency could influence family structure.¹⁴

Manski et al. (1992) investigate a very similar issue in their study of the impact of family structure on a child's receipt of a high school diploma or GED certificate by age 20. They consider various reasons why family structure and children's outcomes could be jointly determined. For example, the abuse of drugs or alcohol could make divorce more likely and also make effective parenting less likely. In that case, unobserved variables could jointly influence family structure and high school education, leading to a positive correlation between the residuals of a family determination equation and those of a high school graduation equation.

The empirical results contained in their paper are striking. They focus extensively on the problem of endogeneity but still conclude that "the

¹³ The Inverse Mills ratio is derived in Greene (1997), chap. 20.

¹⁴ After reviewing the literature on criminal behavior and family structure, these authors write: "this [evidence] does not mean that problem children will always wreck marriages...but we do mean that the child can be as much the cause as the consequence of family patterns, including broken homes and even abusive ones" (Wilson and Herrnstein, 1985, p. 253).

exogeneity assumption is not far off the mark” (p. 35).¹⁵ Of course our measure of children’s outcomes, delinquency, is different from theirs, which is high school graduation. Possibly, there are unobserved variables that jointly influence delinquency and family structure, notwithstanding the finding of Manski et al. (1992) that they can be ignored in the case of education and family structure. The approach taken here is different from theirs: we first estimate a self-selection equation for staying in the parental household. However, when we estimate delinquency equations separately for “stayers” and “movers”, as well as for both groups together, we use family structure variables obtained from reduced form equations to account for the prospect of endogeneity. In the reduced-form equations, two instrumental variables are used: average family income and whether the father was alive or dead in 1979. As expected, both factors have a major impact on whether a father was present when his son was fourteen.

VI. Do Fathers Make a Difference?

To investigate this question, we specify two “delinquency” equations, one for youths living in the parental household and another for those living separately. As described above, delinquency is indicated when a young man is charged with a crime between ages 14 and 22. In this analysis, we condense the thirty categories for family structure into two dummy variables regarding a father’s presence: (1) whether the father was present at age fourteen, and (2) whether any man was present in the home at the same age. The excluded

¹⁵ To reach their result, those authors first assume exogeneity and estimate a probit equation for obtaining a high school education using a dummy variable for family structure. Then they estimate a trivariate model for comparison, and find the error from the family structure equation is not correlated with residuals from either of two high school graduation equations, each conditional on the family structure variable. The coefficient for the family structure variable is no different than in the simple probit equation, significant in both approaches, but with a smaller t-statistic in the trivariate model.

category includes cases where another man was present, such as a stepfather, mother's boyfriend, or male relative.

In addition to family structure, we included variables indicating the youth's ethnicity, his age, and his cognitive ability. We had intended to include family income as an additional explanatory variable, and indeed this variable is a highly significant predictor of delinquency in the entire sample: "movers" as well as "stayers". However, as noted above, average family income is sharply different between these two groups, so that this variable is thereby largely an indicator of moving or staying. Interestingly, it is not a significant explanatory variable within either group.

The first set of equations in Table 3 deals with young men who remain in a parental household, while the second set concerns those who no longer live with either parent. The final equation is estimated for the entire sample: "stayers" and "movers" alike.¹⁶ We interpret these values as reflecting the probabilities of being charged with a crime between ages fourteen and twenty-two.

As can be seen, the explanatory variables are generally statistically significant. In particular, we observe that older youths have an increased chance of being charged with a crime. More important, we find that the "No man present" variable also has a negative coefficient: slightly smaller for "stayers" and slightly larger for "movers" than the "Father present" variable. Apparently, a boy is more likely to be charged with a crime if there is another man present in the house as compared with no man present,¹⁷ although of course the father's presence has a salutary effect. In the entire sample, the coefficient for "No man present" is also somewhat lower, although that result might reflect the larger number of "stayers" than "movers" in the combined sample.

¹⁶ The number of observations in this equation is larger than the combined total in the previous two equations: reflecting the observations lost due to missing data in estimating the mover-stayer decision.

¹⁷ This finding conflicts with the copying or imitation hypothesis suggested earlier.

Table 3. Probit Estimates for Determinants of Delinquency: Role of Fathers

	Stayers		Movers		Entire sample
Intercept	1.46 (1.38)	0.55 (0.48)	6.75** (2.44)	6.39* (1.96)	1.36 (1.52)
Age	---	0.065* (2.06)	---	0.014 (0.21)	0.062** (6.23)
Father present ^a	-2.74* (2.28)	-2.80** (2.33)	-8.01** (2.52)	-8.00** (2.52)	-3.59** (3.64)
No man present ^a	-2.25* (1.65)	-2.34* (1.71)	-8.65** (2.39)	-8.64** (2.39)	-3.29** (2.94)
Hispanic	-0.13 (1.62)	-0.17* (1.96)	-0.05 (0.25)	-0.06 (0.28)	-0.13* (1.90)
Black	-0.42** (4.97)	-0.45** (5.23)	-0.39* (2.01)	-0.40* (2.02)	-0.43** (6.39)
A.F.Q. Test	-0.004** (2.41)	-0.004** (2.44)	-0.005 (1.32)	-0.005 (1.33)	-0.004** (3.01)
Inverse ratio	-0.881** (4.74)	-0.077 (0.18)	-0.013 (0.04)	-0.114 (0.16)	---
No. of obs.	3,046	3,046	670	670	4,676
Log likelihood	-1,245	-1,243	-305	-305	-2,072

Notes: t values in parentheses. **Significant at the 1% level. *Significant at the 5% level.

^aFitted values.

VII. Ethnicity

A striking feature of the equations presented in Table 3 is the negative coefficients of both the Hispanic and Black ethnicity variables. In the latter case, the coefficients are always significantly negative; while in the former

case, the coefficients are effectively zero for movers and of questionable significance for stayers. These results follow from the characteristics of the underlying data, which we noted earlier. To explore this matter further, we distinguish observations for Blacks and Non-Blacks, and then re-estimate the self-selection and delinquency equations. Our purpose is to determine the impact of ethnicity on the estimated coefficients so we test below whether the corresponding coefficients are the same for Blacks and Non-Blacks.¹⁸

For the decision to live separately or not, there are some significant differences between Blacks and others. The regional variable for the South had significantly different coefficients, as did age and the intercept. We used the re-estimated self-selection equation to calculate a new Inverse Mill's Ratio for inclusion in the re-estimated delinquency equations, which are reported in Table 4.

The results for delinquency are striking. There are no significant differences between Blacks and Non-Blacks for any of the variables affecting the probability of being charged with a crime. Only the intercepts differ by ethnicity. We did not include age, because as noted earlier, this variable is highly correlated with the Inverse Mill's Ratio which is significant. In the delinquency equations, the family structure variables are significant for both stayers and movers. The presence of a father reduces delinquency; and ethnicity has not significantly affected the estimated coefficients.

As acknowledged in our earlier discussion of this data set, there may be selection bias in regard to the delinquency rates reported for minority ethnicities. Despite that fact, the estimated effects of the primary explanatory variables do not differ substantially between Blacks and Non-Blacks. The impact of these factors is apparently not influenced by whatever selection bias exists. The earlier findings are thereby supported regardless of the impact of ethnicity.

¹⁸ Restrictions on the coefficients are tested for significance using a Wald test. After as many restrictions are imposed as possible, the probit equation is re-estimated with the variables appropriate to the restrictions. A log-likelihood ratio test is then used to confirm the constrained estimation. For a discussion of these tests, see Greene (1997), p. 161.

Table 4. Probit Estimates for Determinants of Delinquency: Ethnicity Differences

	Stayers		Movers	
	Unconstr.	Constrained	Unconstr.	Constrained
Black	2.20 (0.64)	1.53 (1.52)	11.49 (1.50)	3.33* (1.75)
Non-Black	1.65 (1.19)	1.90* (1.90)	4.26* (1.74)	3.60* (1.92)
Father present (F.P.): Black ^a	-3.91 (0.95)	---	-14.87 (1.60)	---
F.P.: Non-Black ^a	-2.94* (1.90)	---	-5.26* (1.89)	---
F.P.: Entire sample ^a	---	-3.20** (2.81)	---	-4.59* (2.13)
No man present (N.M.P.): Black ^a	-3.57 (0.88)	---	-14.24 (1.60)	---
N.M.P.: Non-Black ^a	-2.52 (1.33)	---	-5.67* (1.77)	---
N.M.P.: Entire sample ^a	---	-2.85* (2.22)	---	-4.77* (2.00)
A.F.Q. Test: Black	-0.01 (1.06)	---	0.01 (1.35)	---
A.F.Q. Test: Non-Black	-0.003* (1.94)	---	-0.004 (1.45)	---
A.F.Q. Test: Entire sample	---	-0.003* (2.32)	---	-0.003 (1.41)
Inverse ratio (I.R.): Black	-0.50 (1.28)	---	-0.20 (1.14)	---
I.R.: Non-Black	-0.68** (4.27)	---	-0.12 (1.00)	---

Table 4. (Continued) Probit Estimates for Determinants of Delinquency: Ethnicity Differences

	Stayers		Movers	
	Unconstr.	Constrained	Unconstr.	Constrained
I.R.: Entire sample	---	-0.66** (4.46)	---	-0.17 (1.72)
No. of observations	3,294	3,294	1,331	1,331
Log likelihood	-1,373	-1,374	-669	-671

Notes: t values in parentheses. **Significant at the 1% level. *Significant at the 5% level.
^a Fitted values.

VIII. Do Mothers Make A Difference?

We also estimate probit equations for our measure of delinquency, where family structure is now represented by the presence or absence of the boy's mother. The results are reported in Table 5. Before reviewing these results, recall that there is far less variability here than with the presence or absence of the boy's father; and that for all ethnic groups, over 90 percent of the boys in the sample lived with their mothers at age fourteen. In these equations, moreover, the mother's presence is measured again by its fitted value from a first-stage equation where average family income and her life or death are the instruments employed.

As can be seen, these empirical results contrast sharply with those reported in Table 3, that deal with a father's presence. The first observed difference between these results and those reported before is that family income is now a significant factor affecting delinquency for youths who have left the parental household even if not for those remaining. For the first category of young men, income is apparently a more important factor than is a mother's presence at age fourteen, although the reverse seems to be the case for a father's presence. In contrast, for youths who continue to live with one or both parents,

Table 5. Probit Estimates for Determinants of Delinquency: Role of Mothers

	Stayers		Movers	
Intercept	-0.864 (1.22)	0.321 (0.62)	-1.613 (-0.91)	-1.128* (2.04)
Age	0.062* (2.00)	---	0.017 (0.24)	---
Family income	-0.00001** (3.19)	---	-0.00001* (2.21)	---
Mother Present ^a	-0.880 (1.47)	-1.270* (2.24)	1.256 (2.32)	1.097 (2.09)
Hispanic	-0.129 (1.58)	-0.064 (0.81)	-0.288 (1.59)	-0.262 (1.48)
Black	-0.344** (4.56)	-0.281** (3.85)	-0.452** (2.58)	-0.454** (2.62)
A.F.Q. Test	-0.005** (4.38)	-0.006** (5.28)	-0.012** (5.72)	-0.013** (6.03)
Inverse ratio	-0.223 (0.52)	-0.916** (5.02)	0.231 (0.33)	0.040 (0.12)
No. of obs.	3,097	3,097	683	683
Log likelihood	-1,268	-1,275	-309	-311

Notes: t values in parentheses. **Significant at the 1% level. *Significant at the 5% level.

^aFitted values.

the opposite conclusion appears warranted. For those young men, a mother's presence at age fourteen has a significant depressing effect on delinquency rates.

The most striking feature of these findings is the major difference indicated for a mother's presence as between "movers" and "stayers". For the former

group, the estimated coefficients are both positive. There is thus no indication here that a mother's presence at age fourteen had a salutary impact. On the other hand, for youths remaining in a parental household, the "stayers", a mother's presence does have a significant effect. These findings suggest that the self-selection decision is directly related to a mother's influence, while interestingly, there was no such difference for a father's influence. As noted above, his salutary role applies to both sets of youths.

IX. Conclusions

These empirical results are striking. Overall, the most critical factor affecting the prospect that a male youth will encounter the criminal justice system is the presence of his father in the home.¹⁹ All other factors, including family income, are much less important.

There are significant policy implications that follow from these results. Most discussions of teenage violence look first at family income. An example is the Progressive Policy Institute report on "Putting Children First" (Kamarck and Galston, 1990). Its primary proposals deal with tax credits and exemptions for children, and for collecting greater child support payments from absent fathers. Whatever the usefulness of these proposals to achieve other objectives, our findings suggest that they will have little effect on teenage delinquency. Both measures tacitly accept the father's absence from the home and seek to ameliorate its consequences by increasing the income available to mother and child. However, as reported above, we do not find income to be a significant factor, once the distinction between "movers" and "stayers" is accounted for. The empirical results reported above suggest that policy measures directed at income replacement will not succeed.

Furthermore, efforts to find "replacement" fathers for teenage boys may be equally unsuccessful. While we have no results on the impact of male role

¹⁹ These results, emphasizing the importance of fatherlessness, are confirmed in a recent paper by Harper and McLanahan (1998). In their analysis, the dependent variable is the likelihood of incarceration.

models outside the home, we note that replacement men within the home offer little improvement in rates of teenage delinquency, and appear even to make matters worse. Recall our finding that a mother alone with a youth is a more salutary factor than the mother together with another man who is not the boy's father. While there may be examples where replacement fathers have desirable effects, we cannot anticipate that policy actions taken in this area will generally have a desired effect.

Fathers play a critical role in the rearing of boys and young men, which is complementary to that of their mother. As one psychologist concludes, "rejecting a son turns out to be the most demoralizing thing a father can do to his son" (Heath, 1991, p. 282). While this rejection can surely take place within the home as outside, these findings suggest that rejection is more common, or has a larger impact, when the father is absent from the home. Policy measures should be directed first at increasing the prospect that boys will grow up in homes which include their fathers as well as their mothers.

One approach would be to change divorce laws such that they treat divorce petitions between parents differently than those between couples without children. Where children are involved, divorces should be more difficult to obtain. In making this recommendation, we do not mean to imply that a youth's outcome is always improved by an intact family. There may well be cases where family pathology has reached such levels that outcomes would be improved with separation. However, the results presented here indicate that father-presence is much preferred in merely average-quality households.

To be sure, any change in this direction will have little impact on the large and growing proportion of births that occur outside of marriage. In the past, these births were limited by an overwhelming social disapproval, which unfortunately has dissipated in recent years. How to replace that disapproval with something else such that boys grow up in the same households as their fathers is a difficult task for which we have no suggestions. Still, it is an effort that deserves society's attention.

Becker's (1981) model of altruistic behavior within the family has important implications for public policy. It concludes that both parent and

child benefit from altruistic actions taken by the parent on behalf of the child. The goal of public policy should be to promote and encourage this conduct, which can be done best by finding ways to support close and continued contact between fathers and sons.

References

- Antecol, H., Bedard, K., and E. Holland (2001), "Does Single Parenthood Increase the Probability of Teenage Promiscuity, Drug Use, and Crime? Evidence from Divorce Law Changes," mimeo.
- Becker, G.S. (1977), "Reply to Hirshleifer and Tullock," *Journal of Economic Literature* **15**: 506-507.
- Becker, G.S. (1981), *A Treatise on the Family*, Harvard University Press.
- Becker, G.S., Landes, E.M. and R.T. Michael (1972), "An Economic Analysis of Marital Instability," *Journal of Political Economy* **85**: 1141-1187.
- Bergstrom, T.C. (1989), "A Fresh Look at the Rotten Kid Theorem and Other Household Mysteries," *Journal of Political Economy* **97**: 1138-1159.
- Bergstrom, T.C. (1996), "Economics in a Family Way," *Journal of Economic Literature* **34**: 1903-1934.
- Blau, D.M. (1999), "The Effect of Income on Child Development," *Review of Economics and Statistics* **71**: 261-276.
- Bonczar, T.P. and A.J. Beck (1997), "Lifetime Likelihood of Going to State or Federal Prison," Bureau of Justice Statistics, *Special Report*, U.S. Department of Justice, March.
- Card, D.E. (1985), *Earnings, Schooling, and Ability Revisited*, Princeton University, Industrial Relations Section.
- Case, A., Lin, I. and S. McLanahan (1999), "Household Resource Allocation in Stepfamilies: Darwin Reflects on the Plight of Cinderella," *American Economic Review* **89**: 234-238.
- Clutton-Brock, T.H. (1991), *The Evolution of Parental Care*, Princeton University Press.
- Daly, M. and M.I. Wilson (1989), *Homicide*, New York: Aldine.

- Greene, W.H. (1997), *Econometric Analysis*, 3rd edition, Prentice Hall.
- Harper, C. and S. McLanahan (1998), "Father Absence and Youth Incarceration," unpublished paper.
- Heath, D.H. (1991), *Fulfilling Lives*, Jossey-Bass Publishers.
- Hechinger, F.M. (1994), "Saving Youth from Violence," *Carnegie Quarterly* **39**: 1-15.
- Herrnstein, R.J. and C. Murray (1994), *The Bell Curve: Intelligence and Class Structure in American Life*, New York: The Free Press.
- Kamarck, E.C. and W.A. Galston (1990), *Putting Children First: A Progressive Family Policy for the 1990s*, Progressive Policy Institute.
- Levitt, S.D. (1998), "Juvenile Crime and Punishment," *Journal of Political Economy* **106**: 1136-1185.
- Manski, C.F., Sandefur, G.D., McLanahan, S. and D. Powers (1992), "Alternate Estimates of the Effect of Family Structure during Adolescence on High School Graduation," *Journal of the American Statistical Association* **87**: 25-37.
- Oettinger, G.S. (1999), "The Effects of Sex Education on Teen Sexual Activity and Teen Pregnancy," *Journal of Political Economy* **107**: 606-644.
- Painter, G. and D.I. Levine (no date), "Daddies, Devotion and Dollars: How Do They Matter for Youth?"
- Phillips, L., Votey, Jr., H.L., and D. Maxwell (1972), "Crime, Youth and the Labor Market," *Journal of Political Economy* **80**: 491-504.
- Phillips, L. and H.L. Votey, Jr. (1987), "Rational Choice Models of Crimes by Youth," *The Review of Black Political Economy* **16**: 129-187.
- Seltzer, J.A. (1991), "Relationships between Fathers and Children Who Live Apart," *Journal of Marriage and the Family* **53**: 79-101.
- Thornberry, T. et al. (2000), "Teenage Fatherhood and Delinquent Behavior," *Juvenile Justice Bulletin*, January.
- Trivers, R. (1985), *Social Evolution*, Menlo Park: Cummings.
- U.S. Bureau of the Census, *Current Population Reports*, Series P20-514, "Marital Status and Living Arrangements: March 1988" and earlier reports.

- Weiss, Y. and R.J. Willis (1985), "Children as Collective Goods and Divorce Settlements," *Journal of Labor Economics* 3: 268-292.
- Wilson, J.Q. (1993), *The Moral Sense*, New York: Simon and Schuster.
- Wilson, J.Q. and R. Herrnstein (1985), *Crime and Human Nature*, New York: Simon and Schuster.