

Does paying child support reduce men's subsequent remarriage and fertility? Evidence for a tradeoff between mating and parental effort

Kermyt G. Anderson
Dept of Anthropology
University Of Oklahoma
Norman, OK 73019
kganders@ou.edu

version 1.4
July 2009

Manuscript under review
Please do not cite without permission

Abstract

Evolutionary theory predicts that individuals experience tradeoffs between mating and parental effort. One specific prediction derived from this hypothesis is that men who pay child support to children from previous unions should be less likely to have subsequent children or to remarry than men who do not pay child support. Using data from the Panel Study of Income Dynamics (PSID), a nationally representative sample of American households, I evaluate this prediction. As predicted, child support payment is associated with lower probability of subsequent birth. However, the prediction was not met for marriage: men who paid child support were more, rather than less, likely to remarry. One interpretation of this result is that child support payment is an honest signal of men's willingness to commit to parental investment: by continuing to pay child support, men signal to prospective mates that they are good investors. Child support may thus function to some extent as mating effort.

Key words:

Child support; paternal investment; mating effort; marriage; fertility

1. Introduction

Male parental care is unusual among animals, occurring for example in only 5% of mammalian species (Clutton-Brock 1991). Humans are among the minority of species in which males invest in offspring. However, parental care has its costs. Evolutionary theory posits that organisms experience fundamental trade-offs between mating effort and parental effort (Low 1978, Trivers 1972). That is, time, money, and other resources can be devoted to the acquisition of sexual partners and the maintenance of such relationships (mating effort), or to the production of and investment in offspring (parental effort). In general, effort allocated to acquiring mates cannot be used to increase offspring quality, and vice versa.

Recent work has suggested that the trade-off between mating and parental effort may be relaxed under certain circumstances (e.g., Anderson et al. 1999b, Rohwer et al. 1999, Smuts 1985). When individuals choose mates at least in part on the mates' ability to invest in offspring, then investment in offspring may increase the probability of obtaining or retaining a mate, or improve the quality of the parental relationship. If this is the case, then parental effort may also function as mating effort. Consistent with this, Kalmijn (1999) found that Dutch couples in which men were more involved in parental care had stabler marriages, because "the wife is happier if the husband is strongly involved with the children" (1999:409). By investing more in offspring, men can potentially increase both offspring fitness and the quality or duration of their relationship with the offspring's mother. Parental care need not be solely motivated by its effect on offspring wellbeing but also by its effects on the offspring's mother's opinion of the care provider (Anderson 2000).

Humans are unusual, if not unique, among animals in that males can and do invest substantially in offspring after the male's relationship with the offspring's mother has ended

(Gray and Anderson 2010). For virtually every other species known, when the parental relationship ends, so too does male investment in offspring. Men, however, typically invest less in genetic offspring from former relationships than genetic offspring from current unions (e.g., Anderson et al. 1999a, 2007; Apicella and Marlowe 2007; Weiss and Willis 1993). As a result of this reduced investment, children from father-absent households typically experience poorer outcomes along many dimensions, from educational and occupational attainment to mental and physical health (e.g., Amato and Gilbreth 1999, Sarkadi et al. 2007, Sigle-Rushton and McLanahan 2004).

Humans are also unusual (though not unique) in the extent to which they invest in stepchildren, that is, in their mates' offspring from previous relationships. Both men and women form unions in which they may play a parental role to the preexisting children of their partners. The prevalence of stepfamilies is increasing in industrialized regions such as the United States and Europe, largely due to nonmarital births, divorce, and subsequent remarriage or cohabitation (reviewed in Gray and Anderson 2010). However, stepfamilies are not a phenomenon unique to modern societies; due to divorce and paternal mortality, many children in pre-industrial hunter-gatherer cultures spend part of their lives living with a stepparent (Hewlett 1991, Hill and Hurtado 1996). Evolutionary theory predicts that men exhibit discriminative parental solicitude (Daly and Wilson 1998), that is, they preferentially bias parental investment in favor of genetic offspring. And indeed men invest more in genetic children than stepchildren across a wide array of settings and for many measures of investment (e.g., Anderson et al. 1999a, 1999b; Evenhouse and Reilly 2004; Flinn 1988; Hofferth and Anderson 2003; Judge 1995; Marlowe 1999).

In a previous series of papers (Anderson et al. 1999a, 1999b; Hofferth and Anderson 2003), I examined men's investments in both genetic and step offspring in the context of mating

and parental effort. Models of male parental investment, especially those advanced by social scientists, usually focus on investment in genetic children of current mates, with the assumption that men invest in offspring because this improves offspring welfare and wellbeing (i.e., it improves their fitness outcomes). However, because investment in offspring impacts the relationship with the offspring's mother, parental care provided to genetic offspring of current mates is actually both parental and mating effort. Paternal investment in genetic children of previous mates is solely parental effort, since it no longer influences the relationship with the child's other parent. Investment in the stepchildren through a current mate is solely mating effort; men do not receive a direct genetic benefit from this, but providing care for these children may improve the quality or increase the duration of the man's relationship with the children's mother. Stepchildren from previous relationships are not predicted to receive any investment at all, since men receive neither parental nor mating benefits from providing care to these children. This model predicts that genetic children of current mates will receive the highest levels of investment from men, and stepchildren of previous mates will receive the least, predictions which are supported by evidence from Albuquerque, New Mexico (U.S.A.) and Cape Town, South Africa (Anderson et al. 1999a, b).

1.1. Child support as paternal investment

Perhaps the most prominent form of male investment in nonresidential children, at least in industrialized societies such as the United States, is child support. Current estimates suggest that just over half (51.3%) of American children will spend part of their lives with a single parent (Heuveline et al. 2003), suggesting that child support will become increasingly important as a vector of investment in children. Overwhelmingly the nonresident parent is a father; in 2005, for

example, 84% of children under 21 living with only one parent lived with their mother (Grall 2007). In 2006, 7.0 million custodial American mothers had child support awards, receiving a total of US\$22.4 billion in child support (Grall 2007). And yet many men are resistant to paying child support, or pay only a fraction of what they owe. In 2005, only 61.4% of the 11.4 million custodial mothers in the United States had child support awards. (Some women voluntarily choose not to seek awards.) Of those women with awards, 22.5% received no payments at all, and just over half (52.7%) received less than the full amount of child support due (Grall 2007). By some estimates, men could afford to pay nearly 40% more child support than they currently do, if all women eligible for child support had awards and if all men paid their child support obligations in full (Sorenson 1999).

Beginning in 1974, a series of federal child support legislative initiatives have bolstered governmental ability to oversee and enforce child support compliance in the U.S. (Garfinkel et al. 1998). Individual states have also adopted stricter child support laws, with the result that states that spend more money on child support collections and have more laws enforcing child support experience greater child support compliance (Freeman and Waldfogel 2001). And yet child support awards have remained remarkably constant for at least three decades, with 59.4% of custodial mothers having a child support agreement in 1978, 59.0% in 1987, 59.6% in 1997 and 61.4% in 2005, an increase of only 2% over nearly three decades (Freeman and Waldfogel 2001, Grall 2007).

Many factors influence whether or not men pay child support. Men and women both express strong support for and attach moral significance to child support, with over 90% agreeing that men are obligated to pay child support even if the mother has a new partner or the man has a new baby (Lin and McLanahan 2007). An increasingly large fraction of American

children are born to unmarried parents. Martinez et al. (2006) report for a nationally representative sample of Americans, 66% of first births were to married couples, 18% to unmarried cohabiting couples, and 16% to unmarried individuals who were living apart. Marital status is closely associated with receipt of child support. For example, in 1996 69.4% of previously married custodial mothers had a child support agreement, versus only 30.6% of never married women (Freeman and Waldfogel 2001). This is partly because the legal father of a child is less likely to be established for unmarried mothers. A study of birth certificates in Georgia found that 52.8% of children with unmarried parents did not have a father listed on the birth certificate, as opposed to only 1.4% of children whose parents were married (Gaudino et al. 1999). Unmarried fathers are more likely to have low paternity confidence—that is, to believe they are not the fathers of their children (Anderson et al. 2006)—which decreases men’s willingness to invest in children (Anderson et al. 2007). As a result, virtually every state uses genetic testing to establish paternity and identify a legal father for children (Case 1998).

Not surprisingly, men’s income is positively associated with child support compliance; men who can more easily afford child support are more likely to do so (Lin 2000, Manning et al. 2003). Distance between men and their children also influences child support compliance, with men who live closer to their children paying more (Seltzer 1991). However, as Shackelford et al. (2005) have noted, the causal relationship between distance and compliance is not clear: do men who live near their children choose to invest more in them, or do men who plan to invest more in their children choose to live closer to them?

For many noncustodial fathers, the extent to which they perceive their child support award as fair influences their compliance. One study of 150 men who do not pay child support found that the leading reason for nonpayment, reported by 38% of men, was that they could not

afford it (Dubey 1995). Lin (2000) reports that if men view their child support award as fair, they will pay it, and further government enforcement will not increase their compliance. It is only men who view their child support award as unfair whose compliance is increased by governmental interventions such as income withholding.

Men's inability to dictate how child support is spent by the children's mother may also influence their willingness to pay it. Weiss and Willis (1985, 1993) suggest that while married men and women can monitor each other's allocations to make sure resources are being distributed to children in a manner they both agree on, men may reduce financial investment in children following union dissolution because the money is channeled through the child's mother, who may allocate it for other purposes. Consistent with this, Dubey (1995) found that having no control over how the money was spent was the third most common reason for nonpayment of child support, given by 14% of men.

An evolutionary perspective suggests that many men are resistant to paying child support because their investment in genetic children of their current mates is both parental and mating effort, while investment in genetic children of previous mates is only parental effort (Anderson et al. 1999b). When the union with a child's mother ends, men reallocate the mating effort component of their parental investment into the establishment and maintenance of new relationships. There is thus a tradeoff between paying child support and mating effort, particularly if child support awards are large. At least three dozen U.S. states determine child support awards using the income shares model, which requires non-custodial parents to share the same proportion of their income with their children as they would have spent had they remained living with them (Hanson et al. 1996). This rule requires men to invest as much in genetic children by former mates as in genetic children of current mates, and decreases men's ability to

invest in new relationships. An evolutionarily-minded model thus provides a possible explanation for why many fathers, despite increasing legislative penalties, are proving so resistant to paying their child support obligations in full, and leads to the prediction that men who pay child support will exhibit lower levels of mating effort, such as fewer sexual partners and less frequent sexual intercourse, lower probability of remarriage, and lower subsequent fertility, while men who do not pay child support will exhibit higher levels of mating effort. In this paper, I will test the following specific predictions:

Prediction 1) Men's payment of child support is associated with reduced probability of subsequent birth.

Prediction 2) Men's payment of child support is associated with reduced probability of subsequent marriage.

Partial support has been found for each of these predictions in earlier research, although the issue has generally received not received much attention. According to several studies, men with new childbearing obligations are less likely to pay child support (Manning and Smock 2000, Manning et al. 2003), while men who have children within new relationships visit non-resident children less frequently (Manning and Smock 1999). However, Bloom et al. (1998) report that among fathers who remarry, child support has no effect on fertility within subsequent marriages. With regard to the second prediction, Bloom et al. (1998) find that paying child support reduces the probability of remarriage (among low income fathers only), while adolescent fathers who pay child support have fewer sexual partners and less frequent sexual intercourse than ones who do not (Huang and Han 2007). Seltzer (1991) reports that men who have

remarried pay less child support than unmarried fathers. Other studies have found that being in a new union or having other children does not influence child support payments by a nonresident parent (Smock and Manning 1997), and found no effect of paying child support on whether men form new unions (Stewart et al. 2003). Stewart et al. (2003) also report that men who visit their nonresident children more frequently are more, not less, likely to form new unions than men who visit less frequently, suggesting there is no tradeoff between visitation and remarriage.

These mixed findings from previous research indicate that many questions about men's willingness and ability to pay child support remain unanswered. Also, very little work has been done on child support from an evolutionary perspective (the 2005 review by Shackelford et al. being a notable exception). I propose to expand this literature by testing these predictions using a nationally representative sample of American households.

2. Methods

2.1. Data

The data used in this study come from the Panel Study of Income Dynamics (PSID), a longitudinal dataset collected and maintained by the Institute for Social Research at the University of Michigan. The PSID began in 1968 with a nationally representative sample of 5,000 U.S. households, with subsequent refresher samples added to account for changing demographic patterns in the U.S. Individuals from the original sample of households were interviewed annually from 1968 through 1996, and biannually since then; individuals who left core households to form new households were also followed, including spouses who divorced as well as children and grandchildren who grew up. Each wave of the PSID collects core data on income sources and amounts, employment, family composition changes, and demographic

events. Beginning in 1985, the PSID also began collecting comprehensive retrospective fertility and marriage histories of individuals in the sample households. The analysis will use the 1985 to 1993 retrospective demographic and marriage history file to construct complete marriage and birth histories for all individuals in the dataset.

For the present analysis, I reorganized these retrospective histories into a large annual event history dataset, with each entry in the file representing a year in a person's life, and each noting whether a birth or marriage occurred that year. The dataset was restricted to men who had at least one child. The sample was further restricted to years in which the child was age 21 or less (since virtually all children receiving child support are in this age range), and the father was age 59 or less (since very few births or marriages occur to men 60 and older). The dataset was also restricted to years for which data on child support payment were available from the main PSID longitudinal data files. Child support is measured at the household level, i.e., whether the household received any child support, and if so, how much. (From 1968 through 1976 alimony and child support were combined into a single variable; from 1977 onward child support was asked about separately. Sensitivity analyses found results were robust when the dataset was restricted to 1977 and later, as well as to children ages 18 or younger.) I linked child support payment to men via the ID code of the mother of the man's most recent child. That is, if the household in which the mother of a man's most recent child received any child support in a particular year, this was attributed to the father of that child. Two measures of child support are used in the analysis: 1) whether any child support was paid (0 = none paid, 1 = any paid), and 2) the amount of child support paid. Child support payments were converted into constant (1982/83) dollars, and then logged for analysis, with payments of zero dollars converted to one dollar to retain them in the logged variable.

The two dependent variables under analysis, marriage and birth, measure whether a marriage or a birth occurred within each year contained in the dataset. Because currently married men may experience a birth but are not at risk of marriage, two different but overlapping samples are used for the present analysis. The *birth sample* contains 821 men who contribute 3820 person-years when they are at risk of birth. The dependent variable of interest is whether or not a birth occurred in each year. Men remain at risk after they experience a birth, but the variable “age of youngest child” is reset to zero. The birth sample includes men who are unmarried and married, but excludes men married to the mother of their most recent child. The second sample, the *marriage sample*, contains 580 men who contribute 2566 person-years in which they are at risk of marriage. The dependent variable is whether a marriage occurs within any particular year. This sample excludes years in which men are married, except the year in which the marriage occurred; in other words, men are not at risk of marriage after they get married, although they may re-enter the risk set if they get divorced. Men who subsequently married the mother of their most recent child are also excluded.

Several additional variables are included for multivariate analysis, imported from the longitudinal PSID files and matched to each year in the dataset. Time variant variables include the man’s age, the calendar year, his annual income, the age of his most recent child, the number of children he has, and dummies for the man’s state of residence (which will partially control for variation across states in level of child support enforcement). Due to small sample size for some states, the number of state dummies included in the analyses varies across models. Annual income was converted into constant (1982/83) dollars, and then logged for analysis, with zero income converted to one dollar to retain these observations in the logged variable. Time invariant variables include the man’s education, coded as dummies for less than a high school degree, a

high school degree (the reference group), and a college degree or more. Race/ethnicity is included in the model, coded as dummies for non-Hispanic white (the reference group), Hispanic, black, or other race.

2.2. Data limitations

The PSID contains several limitations that should be noted. As indicated above, child support is measured indirectly, via receipt by the household of the child's mother rather than payment by the father himself. The dataset also matches child support via the mother of the man's most recent child. This method may undercount child support payments by men who father children through multiple women or overestimate child support if women have children through multiple men, although such cases are expected to be relatively rare in the time period under consideration. The PSID contains no information on whether child support payments are voluntary or court-ordered, raising important self-selection issues regarding men's payments. The PSID also contains no data on cohabitation for the years in the dataset. We can observe whether a man is married, but not whether he is living with an unmarried partner. We have no information on pregnancies that do not result in a live birth, or any sexual behaviors apart from birth itself. Despite these limitations, the PSID is a powerful and unique dataset that should provide insight into the potential tradeoffs men experience between paying child support and other fitness-related outcomes.

2.2. Analysis

The structure of the dataset, with each observation representing a single year, means that each year is a closed unit; censoring of dependent variables (marriage and birth) is thus not an

issue. The dataset does not lend itself to hazards analysis, as failure is not a unique event in each man's life. (Men can drop in and out of each risk state; for example, a man may be unmarried when his youngest child is ages 0, 1 and 2, marry when his child is age 3, and re-enter the marriage risk dataset (because of divorce) when his youngest child is age 7. Furthermore, he may have a birth within that marriage, so that when he re-enters the marriage risk dataset his youngest child is only 2.) Multivariate statistical analysis is done with generalized estimating equations (GEE) using the `xtgee` command in Stata/SE v. 10.1. This command fits population-averaged panel-data models (StataCorp 2005), and control for multiple observations per individuals to allow for lack of statistical independent among multiple data points contributed by the same person. I use the binomial family and logit link to fit logit regression models to a bivariate outcome (in this case, birth or marriage). All models are run twice, with each measure of child support (and child support paid or logged amount of child support paid) entered separately.

3. Results

3.1. Birth

Table 1 present descriptive statistics for the analysis samples. The 3,820 person-years in the birth sample resulted in 337 births, i.e. 8.8% of years coincided with a birth (Table 1). Child support was paid in 14% of years. Men on average were almost 36 years old, typically with a high school education, and nearly half the sample was white. The man's youngest child was 7.6 years old, on average, and men typically had 2.4 children. Men were less likely to have a birth when they had paid child support the previous year (1.15%, not shown in Table 1) than when they did not pay child support (10.03%) ($F[1,3818] = 44.49, p < 0.0001$).

[Table 1 about here]

Logistic GEE regression analyses of the probability of birth are presented in Table 1. The man's age and the number of children he has are significant negative predictors of birth, while race is a positive predictor (with blacks being $e^{0.654} = 1.9$ times as likely as non-Hispanic whites to experience a birth in a given year). Calendar year is marginally significant, while the man's income and education are not significant predictors of birth. All else being equal, men who pay child support are only 21.8% as likely as men who do not pay to have a child in any given year. Using logged amount of child support changes the model very little; increased child support payments are associated with decreased probability of birth. Prediction #1 is thus supported by the results.

[Table 2 about here]

3.2. Marriage

For the marriage sample, 111 (4.3%) of the 2566 person-years resulted in marriages. Child support was paid in 11.2% of those years (Table 1). The control variables are fairly similar to those in the birth sample, except that men's youngest children are about 0.6 years younger, or about seven years old.

Table 3 models the probability of marriage for the men in the dataset. For both models, the probability of marriage decreases with the man's age, the calendar year, if the man has less than a high school education or if he is black, and increases with the age of his most recent child. All else being equal, men who paid child support are 2.14 times more likely to get married than men who did not pay child support. The effect is similar when using the amount of child support paid: the more money spent on child support, the greater the likelihood of marriage. This is the opposite of the relationship posited by Prediction #2.

[Table 3 about here]

4. Discussion

Using a nationally representative sample of American men, I tested two predictions regarding the relationship between payment of child support and two evolutionarily-relevant demographic outcomes for men: fertility and marriage. The first prediction was upheld: men who pay child support are significantly less likely to have a child in the subsequent year. The second prediction was not supported: payment of child support was associated with increased probability of marriage. This unexpected result begs explanation: why should men who pay child support, and thus presumably have less money to spend on mating effort, be more likely to get married?

One explanation for this result may lie in the fact that the measure of mating effort used here, marriage, is a rather extreme outcome requiring a large degree of commitment. Presumably among the characteristics women desire in a husband are reliability and responsibility. While an unmarried father who does not pay child support may have more spending money, from the perspective of a potential wife his lack of child support may signal that he is a potential defector who may renege on his commitments. Furthermore, if she should have children with him she may be concerned that he will prove unwilling to support them should their marriage fail. Payment of child support may thus be a signal of male quality, indicating to a woman that here is a man who will honor his commitments and who furthermore values his investments in children. In that sense, then, child support payments may function as a form of mating effort, if they are an honest signal of male quality that may help attract potential mates. Tessman (1995) noted that altruistic courtship displays are likely to be honest signals, while others (e.g., Bliege Bird et al. 2001, Hawkes 1993) have argued that male provisioning is more consistent with costly signaling theory than parental investment. This finding may be a case of paternal investment in the child of

a previous partner being used to help acquire a new partner, a heretofore unidentified potential overlap between mating and parental effort.

A similar explanation was proposed (though not in an evolutionary context) by Stewart et al. (2003), who found that among never married men, men with high levels of involvement with nonresident children were the most likely to form cohabiting unions with new partners. Stewart et al. suggest that “men who are actively engaged in parenting may be viewed as *good fathers*, enhancing their attractiveness to potential partners” (pp. 100-101).

It would be extremely useful to analyze more casual forms of mating outcomes requiring less long-term commitment from partners, such as cohabitation or number of sexual partners (c.f. Huang and Han 2007). In those cases, where partners are less interested in signs of long-term commitment quality, paying child support should presumably be a negative factor in the establishment of new relationships. Unfortunately the PSID did not collect data on those variables for the time frame used in this paper.

Conclusion

Nearly 40% of nonresident fathers do not have child support agreements with the custodial mothers of their children, and among those with child support agreements, roughly half do not pay the full amount. Anderson et al. (1999b) drew attention to the possible role of tradeoffs between mating and parental effort in explaining “why, despite increasing legislative penalties, men are proving so resistant to paying their child support obligations in full” (p. 427). The role of tradeoffs between child support and mating effort has been examined only superficially in previous research, with inconclusive results. This paper has applied an evolutionary model of parental investment to child support payment, suggesting men do face a

tradeoff between paying child support and fertility, but that child support payments actually increase the likelihood of subsequent marriage. The role of child support as an honest signal of male quality or willingness to invest in offspring merits further investigation.

References

- Amato, Paul R., and Joan G. Gilbreth. 1999. Nonresident fathers and children's well-being: A meta-analysis. *Journal of Marriage and the Family* 61:557-573.
- Anderson, Kermyt G. 2000. The life histories of American stepfathers in evolutionary perspective. *Human Nature* 11(4):307-333.
- Anderson, Kermyt G., Hillard Kaplan, and Jane B. Lancaster. 1999. Paternal care by genetic fathers and stepfathers I: Reports from Albuquerque men. *Evolution and Human Behavior* 20:405-431.
- Anderson, Kermyt G., Hillard Kaplan, and Jane B. Lancaster. 2006. Demographic correlates of paternity confidence and pregnancy outcomes among Albuquerque men. *American Journal of Physical Anthropology* 131(4):560-571.
- Anderson, Kermyt G., Hillard Kaplan, and Jane B. Lancaster. 2007. Confidence of paternity, divorce, and investment in children by Albuquerque men. *Evolution and Human Behavior* 28(1):1-10.
- Anderson, Kermyt G., Hillard Kaplan, David Lam, and Jane B. Lancaster. 1999. Paternal care by genetic fathers and stepfathers II: Reports by Xhosa high school students. *Evolution and Human Behavior* 20:433-451.
- Apicella, Coren L., and Frank W. Marlowe. 2007. Men's reproductive decisions: Mating, parenting and self-perceived mate value. *Human Nature* 18:22-34.
- Bliege Bird, Rebecca, Eric A. Smith, and Douglass W. Bird. 2001. The hunting handicap: Costly signaling in male foraging strategies. *Behavioral Ecology and Sociobiology* 50:9-19.
- Bloom, David E., Cecilia Conrad, and Cynthia Miller. 1998. Child support and fathers' remarriage and fertility. In *Fathers Under Fire: The Revolution in Child Support*

- Enforcement*, I. Garfinkel, S.S. McLanahan, D.R. Meyer, and J.A. Seltzer, eds., pp. 128-156. New York: Russell Sage Foundation.
- Case, Anne. 1998. The effects of stronger child support enforcement of non-marital fertility. In *Fathers Under Fire*, I. Garfinkel, S.S. McLanahan, D.R. Meyer, and J.A. Seltzer, eds., pp. 191-215. New York: Russell Sage Foundation.
- Clutton-Brock, Tim. 1991. *The Evolution of Parental Care*. Princeton: Princeton University Press.
- Daly, Martin, and Margo Wilson. 1998. *The Truth About Cinderella: A Darwinian View of Parental Love*. New Haven, CT: Yale University Press.
- Dubey, Sumati N. 1995. A study of reasons for non-payment of child-support by non-custodial parents. *Journal of Sociology and Social Welfare* 22(4):115-131.
- Evenhouse, Erik, and Siobhan Reilly. 2004. A sibling study of stepchild well-being. *Journal of Human Resources* 39(1):248-276.
- Flinn, Mark V. 1988. Step- and genetic parent/offspring relationships in a Caribbean village. *Ethology and Sociobiology* 9:335-369.
- Freeman, Richard B., and Jane Waldfogel. 2001. Dunning delinquent dads: The effects of child support enforcement policy on child support receipt by never married women. *Journal of Human Resources* 36(2):207-225.
- Garfinkel, Irwin, Daniel R. Meyer, and Sarah S. McLanahan. 1998. A brief history of child support policies in the United States. In *Fathers Under Fire*, I. Garfinkel, S.S. McLanahan, D.R. Meyer, and J.A. Seltzer, eds., pp. 14-30. New York: Russell Sage Foundation.

- Gaudino, James A., Bill Jenkins, and Roger W. Rochat. 1999. No fathers' names: A risk factor for infant mortality in the state of Georgia, USA. *Social Science and Medicine* 48:253-265.
- Grall, Timothy S. 2007. Custodial mothers and fathers and their child support: 2005. United States Census Bureau. [<http://www.census.gov/prod/2007pubs/p60-234.pdf>]
- Gray, P., & Anderson, K. G. 2010. *Fathers: The Evolution of Human Paternal Care*. Cambridge, MA: Harvard University Press. (Forthcoming)
- Hanson, Thomas L., Irwin Garfinkel, Sara S. McLanahan, and Cynthia K. Miller. 1996. Trends in child support outcomes. *Demography* 33:483-496.
- Hawkes, Kristen. 1993a. Why hunter-gatherers work: An ancient version of the problem of public goods. *Current Anthropology* 34:341-361.
- Heuveline, Patrick, Jeffrey M. Timberlake, and Frank F. Furstenberg, Jr. 2003. Shifting childrearing to single mothers: Results from 17 Western countries. *Population and Development Review* 29(1):47-71.
- Hewlett, Barry S. 1991. *Intimate Fathers: The Nature and Context of Aka Pygmy Paternal Infant Care*. Ann Arbor: University of Michigan Press.
- Hill, Kim, and A. Magdalena Hurtado. 1996. *Ache Life History: The Ecology and Demography of a Foraging People*. New York: Aldine de Gruyter.
- Hofferth, Sandra, and Kermyt G. Anderson. 2003. Are all dads equal? Biology vs. marriage as basis for paternal investment. *Journal of Marriage and Family* 65:213-232.
- Huang, Chien-Chung, and Han, Wen-Jui. (2007). Child support enforcement and sexual activity of male adolescents. *Journal of Marriage and Family* 69:763-777.

- Judge, Debra S. 1995. American legacies and the variable life histories of women and men. *Human Nature* 6:291-323.
- Kalmijn, Matthijs. 1999. Father involvement in childrearing and the perceived stability of marriage. *Journal of Marriage and the Family* 61:409-421.
- Lin, I-Fen. 2000. Perceived fairness and compliance with child support obligations. *Journal of Marriage and Family* 62(2):388–398.
- Lin, I-Fen and Sara S. McLanahan. 2007. Parental beliefs about nonresident fathers' obligations and rights. *Journal of Marriage and Family* 69(2):382-398.
- Low, Bobbi S. 1978. Environmental uncertainty and the parental strategies of marsupials and placentals. *American Naturalist* 112:197-213.
- Manning, Wendy D., and Pamela J. Smock. 1999. New families and nonresident father-child visitation. *Social Forces* 78:87-116.
- Manning, Wendy D., and Pamela J. Smock. 2000. "Swapping" families: Serial parenting and economic support for children. *Journal of Marriage and the Family* 62:111-122.
- Manning, Wendy D., Susan D. Stewart, and Pamela J. Smock. 2003. The complexity of fathers' parenting responsibilities and involvement with nonresident children. *Journal of Family Issues* 24(5):645-667.
- Marlowe, Frank. 1999. Showoffs or providers? The parenting effort of Hadza men. *Evolution and Human Behavior* 20:391-404.
- Martinez, G.M., A. Chandra, J. C. Abma, J. Jones, and W. D. Mosher. 2006. "Fertility, contraception, and fatherhood: Data on men and women from Cycle 6 (2002) of the National Survey of Family Growth." National Center for Health Statistics. *Vital and Health Statistics* 23.

- Rohwer, Sievert, Jon C. Herron, and Martin Daly. 1999. Stepparental behavior as mating effort in birds and other animals. *Evolution and Human Behavior* 20:367-390.
- Sarkadi, Anna, Robert Kristiansson, Frank Oberklaid, and Sven Bremberg. 2007. Fathers' involvement and children's developmental outcomes: A systematic review of longitudinal studies. *Acta Paediatrica* 97:153-158.
- Seltzer, Judith A. 1991. Relationships between fathers and children who live apart: The father's role after separation. *Journal of Marriage and the Family* 53:79-101.
- Shackelford, Todd K., Viviana A. Weekes-Shackelford, and David P. Schmitt. 2005. An evolutionary perspective on why some men refuse or reduce their child support payments. *Basic and Applied Social Psychology* 27(4):297-306.
- Sigle-Rushton, Wendy, and Sara McLanahan. 2004. Father absence and child wellbeing: A critical review. In *The Future of the Family*. Edited by L. Rainwater, T. Smeeding, and D.P. Moynihan. Russell Sage Foundation, 2004, pp. 116-155.
- Smock, Pamela J., and Wendy Manning. 1997. Nonresidential parents' characteristics and child support. *Journal of Marriage and the Family* 59:798-808.
- Smuts, Barbara B. 1985. *Sex and Friendship in Baboons*. Hawthorne, NY: Aldine.
- Sorensen, Elaine. 1997. A national profile of nonresident fathers and their ability to pay child support. *Journal of Marriage and the Family* 59:785-797.
- Stewart, Susan D., Wendy D. Manning, and Pamela J. Smock. 2003. Union formation among men in the U.S.: Does having prior children matter? *Journal of Marriage and Family* 65:90-104.
- StataCorp. 2005. *Stata Longitudinal/Panel Data*. College Station, TX: StataCorp LP.

Trivers, Robert L. 1972. Parental investment and sexual selection. In *Sexual Selection and the Descent of Man 1871-1971*, B. Campbell, ed., pp. 136-179. Chicago: Aldine.

Weiss, Yoram, and Robert J. Willis. 1985. Children as collective goods and divorce settlements. *Journal of Labor Economics* 3:268-292.

Weiss, Yoram, and Robert J. Willis. 1993. Transfers among divorced couples: Evidence and interpretation. *Journal of Labor Economics* 11:629-679.

Table 1. Descriptive statistics for analytical samples

	Birth sample		Marriage sample	
	Mean	Mean	Mean	Std. dev.
Birth occurred	—	—	0.04	0.20
Marriage occurred	0.09	0.28	—	—
Any child support paid	0.14	0.34	0.11	0.32
Amount of child support paid (1982 \$)	\$419.05	\$1338.45	\$331.57	\$1193.10
Logged child support paid	1.05	2.67	0.86	2.44
Age	35.71	10.07	35.63	9.68
Calendar year	1983.69	6.39	1984.52	6.43
Income (1982 \$)	\$16348.47	17479.09	\$15861.16	\$15607.64
Logged income	7.80	3.80	8.03	3.53
Education				
Less than high school degree (dummy)	0.28	0.45	0.30	0.46
High school degree (dummy)	0.59	0.49	0.57	0.49
College degree or more (dummy)	0.13	0.34	0.13	0.33
Race/ethnicity				
White non-Hispanic (dummy)	0.48	0.50	0.47	0.50
Hispanic (dummy)	0.07	0.26	0.09	0.29
Black (dummy)	0.40	0.49	0.38	0.49
Other race (dummy)	0.05	0.22	0.05	0.22
Age of most recent child	7.61	6.22	7.01	5.83
Number of children	2.36	1.54	2.36	1.50
Sample size (person years)	3820		2566	
Sample size (men)	821		580	

Table 2. GEE logit models of birth

	A. Any child support paid			B. Amount of child support paid		
	Coeff.	Std. error	<i>p</i>	Coeff.	Std. error	<i>p</i>
Age	-0.053	0.014	0.000	-0.053	0.014	0.000
Calendar year	-0.018	0.011	0.092	-0.018	0.011	0.084
Logged income	0.014	0.016	0.395	0.014	0.016	0.383
Education						
Less than high school degree	0.129	0.144	0.372	0.124	0.144	0.389
High school degree (omitted)	—	—	—	—	—	—
College degree or more	-0.460	0.293	0.116	-0.460	0.293	0.116
Race/ethnicity						
White non-Hispanic (omitted)	—	—	—	—	—	—
Hispanic	0.046	0.283	0.871	0.043	0.283	0.880
Black	0.654	0.190	0.001	0.650	0.190	0.001
Other race	0.245	0.342	0.473	0.244	0.342	0.476
Age of most recent child	-0.011	0.020	0.600	-0.010	0.020	0.609
Number of children	-0.251	0.073	0.001	-0.250	0.073	0.001
Any child support paid	-1.521	0.401	0.000	—	—	—
Logged child support paid	—	—	—	-0.225	0.058	0.000
N	3820			3820		
Chi-squared(46)	184.08			182.61		
Model <i>p</i>	0.0000			0.0000		
Pseudo-R ²	0.1405			0.1418		

Note: state dummies included, not shown

Table 3. GEE logit models of marriage

	A. Any child support paid			B. Amount of child support paid		
	Coeff.	Std. error	<i>p</i>	Coeff.	Std. error	<i>p</i>
Age	-0.079	0.025	0.001	-0.080	0.025	0.001
Calendar year	-0.104	0.018	0.000	-0.102	0.018	0.000
Logged income	0.071	0.051	0.160	0.070	0.051	0.167
Education						
Less than high school degree	-0.683	0.321	0.033	-0.671	0.321	0.037
High school degree (omitted)	—	—	—	—	—	—
College degree or more	-0.055	0.318	0.862	-0.062	0.318	0.846
Race/ethnicity						
White non-Hispanic (omitted)	—	—	—	—	—	—
Hispanic	-0.786	0.668	0.239	-0.793	0.669	0.236
Black	-0.969	0.373	0.009	-0.961	0.373	0.010
Other race	0.577	0.512	0.260	0.602	0.512	0.240
Age of most recent child	0.163	0.031	0.000	0.163	0.031	0.000
Number of children	0.099	0.106	0.351	0.096	0.106	0.366
Any child support paid	0.760	0.242	0.002	—	—	—
Logged child support paid	—	—	—	0.104	0.031	0.001
N	2566			2566		
Chi-squared(39)	135.07			136.72		
Model <i>p</i>	0.0000			0.0000		

Note: state dummies included, not shown