Male Relationship and Fertility Data in the NLSY79 and NLSY97:
Substantive and Methodological Considerations

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A WORK IN PROGRESS. ALL COMMENTS ARE WELCOME.

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OBJECTIVES

Historically, research regarding fertility has primarily been limited to women because of the difficulty in establishing confident links between fathers and their biological, often non-residential, children (Cherlin and Griffith 1998). Our previous findings suggest the most important reason female fertility reports are more accurate than those of men is that mothers are more likely to be living with their children (Mott 1998). In this paper, we present a variety of findings that describe relationship and fertility profiles for two distinctively different national populations of men. In essence, this is a progress report of where we are in our research at this time and a description of what additional refinements we intend to make over the next few months. We have several closely linked objectives in mind, with a focus on both relationship as well as fertility patterns, as this enables us to present and indeed validate the fertility data to a much greater extent. From a substantive perspective, we first profile a variety of cross-sectional and longitudinal results for men from the 1979 NLSY as they aged from 14-22 at their first interview date in 1979 to 33-41 in 1998. We then examine fertility and relationship behaviors of a more recent cohort of male respondents from the 1997 NLSY, who were 12-17 at the first interview point in 1997 and 16-22 by the fifth wave in 2001. Through the individual examination of, and comparison between, these two data files we are able to gain significant insight into generational differences, as well as assess, to some extent, the validity of cross-sectional versus longitudinal measures of early relationship and fatherhood trends common to men at these early stages in the life course.

The depth of information available for the 1979 national sample allows us to provide some useful clarification of what factors are associated with "better" fertility

reporting, utilizing a variety of internal (to the data set) data checks. There are, however, a few weak links in the 1979 NLSY data set. First, many of the respondents have incomplete adolescent and early adult relationship and fertility profiles, partly because the information available in the early survey years was less comprehensive because many of the early fertility-relationship events occurred prior to the first survey round in 1979. Additionally, as we will suggest for a variety of reasons, even at its best, adolescent birth reporting is of shaky quality. Also, from a relationship perspective, for the early NLSY79 survey years we did not have complete cohabitation histories, so we approximated cohabitation profiles from survey point status with most of the survey points spaced approximately one year apart. In previous work we speculated, on the basis of other limited information available, that this probably represented a reasonable approximation to an "ever-cohabitation" profile.

The availability of five annual waves of NLSY97 data has allowed us to extend this work several steps further. Although this subgroup is clearly representative of a different generation than the earlier NLSY cohort, the considerable depth of relationship and fertility information for these men permit several useful substantive and methodological clarifications to be made. First, we can clarify relationship and fertility patterns and approximately compare them with comparably aged youth in 1979. Also, in order to assess the extent to which our point estimates for cohabitation using the NLSY79 may be underestimated, we explore the association between cumulative point estimates and complete retrospective histories for respondents from the 1997 NLSY as of the fifth wave in 2001. This approach allows us to estimate undercounts in the fifth wave (1984) NLSY79 round for similarly aged youth. We then present, in a preliminary fashion,

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comparative findings for male youth through age 22 over the past two decades, with a focus on relationship and fertility processes.

Before proceeding, we would like to acknowledge one important point. Our current investigation of male fertility is limited to those men who indicate having residential or non-residential biological children. We do recognize that biological ties are not essential to establish a paternal-child relationship, and that some such relationships may, in some instances, actually be more meaningful and significant than those of their biologically related counterparts (Furstenberg 1995; Marsiglio 1998). Indeed, our previous research (Burchett-Patel, Gryn & Mott 1999) affirms that a sizeable number of men assume fatherly responsibilities for, and connections with, non-biological children, often when they may not even be in residence! However, the disentanglement and clarification of subjectivities surrounding non-biological fatherhood, while an integral component of appropriately interpreting social and psychological fathering, is beyond the scope of this paper.

PREDICTING FERTILITY MISREPORTING: EVIDENCE FROM NLSY79

Using the National Survey of Adolescent Males, relatively recent research (Boggess, Martinez & Bradner 1998) suggests that more than one-third of adolescent fathers reported inconsistently at some point across three survey rounds. And, although these inconsistencies did not have a significant overall effect on estimated rates of teen fatherhood, a few demographic characteristics were associated with the likelihood of providing conflicting information: younger age, non-residential location, African American self-identification, and those who were not married. When examining the NLSY fatherhood data, we too found discrepancies in reporting (Mott 1998). In this

section, we draw on completed research using the NLSY79 cohort covering the 1979 to 1998 period to suggest a number of parameters that may be considered "red flags" for poor quality reporting. We highlight factors that are convincingly linked with the tendency for a man to alter his willingness to acknowledge biological paternity of specific children (a more detailed analysis is included in Mott and Gryn, 2001).

Between 1979 and 1998, NLSY79 male respondents were repeatedly interviewed in depth on a wide range of topics (Center for Human Resource Research 1999). For instance, they repeatedly completed a fertility history that in some years was an update from the proceeding survey round and in other instances a complete re-listing of births. Additionally, a roster was completed each year that specified all biological and non-biological children in the household. This roster included ages and actual names that were accessible to us at the Center for Human Resource Research (CHRR). Also, from a fertility-related perspective, in many of the more recent years rosters for all non-biological children *not* in residence have also been completed. This information by itself provides a wide range of cross-year crosschecks on fertility-related responses and can resolve some inconsistencies with varying degrees of confidence (acknowledging, of course, that complete consistency does not guarantee accuracy). However, the primary utility of the NLSY79 data set for evaluating fertility quality issues rests on the availability of a massive amount of linked relationship, and other socio-demographic information, that permit one to intuit the likelihood that related fertility reports have higher or lower face validity. **A final version of this paper will include a "roster" of fertility-related information available in this dataset.** In particular, we utilized the considerable body of relationship information available to clarify the presence or absence

of specific partners and spouses to the male respondents over the 1979 to 1998 period.

Our ability to do this was significantly enhanced by our knowledge of the names of

spouses and partners present in the household record, as well as related characteristic

information for each point in time that permitted us to clarify in almost all instances the

precise partner available at each survey point. We were thus able to make very strong

inferences about partner-spouse presence at each survey point, as well as the likelihood

that children in the household either "belonged" or did not "belong" to the male

respondent. Conversely, this information permitted us to clarify, in important ways, why

in some instances men might redefine their paternal status with respect to a particular

child (Mott & Gryn, 2001; Mott, Gryn & Burchett-Patel 2002).

In our extensive evaluation of NLSY79 male fertility responses, we considered all

of the above possible inputs, as well as the comprehensive relationship profile

information, in making (sometimes admittedly subjective) judgments regarding the

likelihood that a particular child is indeed a man's biological child (as claimed in at least

one survey round). The overriding objective was to clarify the magnitude of potential

misreporting errors, as well as their temporal placement, that can independently impact

the shape of fertility trajectories. We categorized each child according to our confidence

or certainty that he/she was indeed a biological child of the man. The primary reason we

were able to clarify a large proportion of these births was that we had repeated

measurements for the "same" event, something only possible with a panel data set. It is

also useful to note that one important mechanism for clarifying female records—minimal

gaps between births—is obviously not feasible for men. As we already mentioned,

perfectly consistent but inaccurate reports across survey years, whether intentional or

inadvertent, are essentially impossible to identify. Fortunately, if a respondent has enough time and inclination to do so, in contrast with a cross-sectional data collection, 18 rounds of data collection offers considerable opportunity to change one's mind or to inadvertently alter one's response.

Tables 1 and 2 provide results based on this evaluation, and we highlight here a few notable conclusions from our more extensive paper (Mott and Gryn 2001). Without going into detail, a confidence level of one or two implies that we are very comfortable the child claimed as biological is indeed a man's child. A confidence level of 3 means that we cannot resolve the issue in any reasonable way, and children with confidence levels of 4 and 5 are in all likelihood not the man's (biological) child. Overall, we believe that about 92 percent of the births are indeed accurately reported as "belonging" to the man (dating misreports are much more substantial, but beyond the scope of what we highlight here). Indeed, our a priori perception was that this percent would be much higher!

To assess where the largest *numbers* of misreports are found we consider those children born between the first interview in 1979 and 1998. For this large (over 90 percent) proportion of all the children ever reported as being born to the men, we are best able to resolve inconsistencies in reports, as the full lifetime of the child is encompassed in our reporting window. While more detail is available, we focus here on the linkages between child presence or absence in the father's home and our estimate of paternity likelihood. As presented in Table 1, in instances where a father is present at the birth point, we are comfortable (after examining the complete longitudinal record) that over 97 percent of reported children are indeed biological. Our estimate is 96 percent when a child is in the home all survey years.

We have far less confidence about reported paternity status in most of the other residence permutations. The greatest uncertainty is where a child appears belatedly in the fertility roster, at some point past birth. In these situations, there is uncertainty regarding status for a large percent and also reasonable certainty that the child is not a biological child for a large group. The net result is that we are comfortable regarding the paternity of only about half of this group. The status of non-residential fatherhood can, at times, be highly unstable and fluctuate between survey rounds (Fox 19XX; Mott 1998; Nord & Zill 1996). Where a reported biological child is *never* in residence (which constitutes a rather substantial group at these young adult ages), there is also substantial ambiguity. Also, where a child has one or more entries/exits from the home, or where a father was not present at the birth interview point, paternity statuses are less definitive.

In any event, Table 1 indicates clearly that, in a bivariate context, the major paternity reporting issues are related to complex relationship transition patterns, be it paternal, maternal, child, or some mix of the above! This of course is a simplification, as in many instances paternal acknowledgement, or lack thereof, undoubtedly reflects complex family psychological processes of which the transitions we describe are just reflections.

In Table 2 we take this one step further by placing some of these relationship transitions in multivariate context. In these logit equations, higher odds ratios are indicative of lower confidence in paternity. There are parallel equation sets, one including all children ever identified and the second limited to children born after the first (1979) survey date. It is useful to note that for the large majority (over 90 percent) of these

children, the 1979 to 1998 survey window encompasses their entire life. We briefly focus here on that subset.[1]

Focusing first on the total race group, it is useful to note several demographic and socioeconomic distinctions generally consistent with expectations; low confidence in reporting is associated with younger ages at childbirth, being African American, and having had more children. We shift now to factors more directly linked with family structure and family transitions. First, controlling for the number of relationships a man has been in (with larger numbers linked with *lower* child-specific paternity likelihood), the more years a man has had a spouse and/or a partner present, the *greater* the confidence in paternity. In this regard, it is useful to note that years with a spouse or a partner are essentially equivalent in how they are linked with paternity confidence.

The various inputs more directly linked with child (and typically maternal) residence patterns clearly are predictive of "lower confidence" regarding paternity. The reference group for all these variables is a child who is always present. It is clear that, independent of paternal relationship statuses as well as the various socio-economic and demographic concomitants, child erratic residential patterns are connected in basic ways with transitions or uncertainty regarding paternal acknowledgement. In comparison with always being present, the worst scenario is where a child enters and leaves the father's home exactly once! The typical situation is where a mother and child arrive in a father's household at the same time and also leave together, a child status change is indicated (sometimes significantly after the exodus), and only limited corroborating evidence to

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[1] In earlier research (Mott, February 1988) we documented conclusively how the earliest reports for the 1979 cohort had substantial misreporting inconsistencies that were not easily resolved. This partly reflected the fact that many of those births preceded the first survey round and additionally that fertility information collected prior to the 1982 survey round was much more perfunctory.

definitely clarify paternity. This disengagement can evolve from uncertainty surrounding the nature of the paternal-child relationship following a separation or divorce (Nord & Zill 1996); uncertainty that may arise from a multitude of factors, such as: geographic distance, remarriage, an uncooperative relationship with the former spouse/partner, visitation or communication with the child is prevented by the child's mother, a new "father figure" is living with the child and his mother, an attempt to lessen the emotional pain, and/or the biological father has insufficient financial resources (Furstenberg & Harris 1992; Furstenberg & Cherlin 1991; Umberson & Williams 1993; Seltzer & Bianchi 1988). Also, as noted in the tabular story, a child who is never in residence is linked with the greatest level of uncertainty, largely because contradictions in reports about that child over time are less easily resolved.

There are some interesting racial distinctions, but space considerations limit our discussion at this forum. While some race comparisons suggest similarities, others suggest differences of some potential substantive importance. In particular, child residence was a less relevant predictor for black children, perhaps partly because of the less dominant relevance of the child always present reference group, which represented a much smaller and perhaps less "selected out" population group.

NLSY79: SOME SUBSTANTIVE INSIGHTS

In this section we highlight some substantive trends and patterns for this cohort of men as they age from late adolescence/early adulthood into middle age. Graph 1 clarifies the net impact of all of our changes on their fertility profile. Two curves are presented, one based only on children we are confident "belong" to the men, and one that includes all the children ever reported by the men as their own. It should be noted that the revised

curve also incorporates all the dating changes we made to the file as well as the deletion of children for whom we believed expressed paternity was, at best, dubious. We must reemphasize that our evaluation is based on an examination of children who were "claimed" in at least one survey round, and that children either in or outside of the household who were listed as a step, adopted, or other status child, but *never* as a biological child, had no opportunity to be re-categorized as biological. The net impact on of our evaluation was to reduce fertility by ages 33 to 41 (in 1998) by about a tenth of a child—with most of that difference already in evidence at much younger ages, where child re-definition was most prevalent. We readily acknowledge that year-specific changes at the individual dynamic level can show changes not evidenced in this aggregate cumulative profile. However, this modest aggregate impact on the overall fertility profile is consistent with our finding that the actual change in acknowledgement, below 10 percent, was quite modest. Once again, the caveat that our analysis is based on reports of internal consistency is in order; a child always or never claimed as biological cannot have his status questioned in our evaluation scheme. We also reiterate that one important way to verify maternal birth records –the spacing between births - is not particularly useful for evaluating male records. Also, while any misplacement of births because of inappropriate dating may impact the shape of our fertility curve. By the 1998 endpoint (for this evaluation) these misdates will have "come out in the wash", if you will.

We now draw from our revised fertility history to make a few summary comments regarding the fertility behavior of this cohort. Given the paucity of information about male fertility, these statistics are of interest in their own light and may also be a

useful indicator of the data's face validity. Table 3 summarizes some of our selected fertility indicators as of the 1985, 1990 and 1998 survey points for men who were 14 to 17 in 1979. Thus, we are essentially describing fertility trajectories for these men from incipient adulthood up through ages 33-37. All three racial/ethnic groups show systemic increases in fatherhood/fertility over the course of this time period. For all indicators, at all points, Hispanic fertility is the highest and non-Hispanic white fertility is the lowest. The pace of minority fertility is clearly higher, although the gap narrows somewhat by 1998 as approximately three quarters of the minority men and two thirds of the white men have attained fatherhood status by that point (although the white men remain well below replacement level).

Tables 4 and 5 highlight how the selection into fatherhood is substantially reduced by 1998 (by eyeballing comparable coefficients from the 1985 and 1998 outcome years), although it may be worth noting that even with years of cohabitation and marriage indicators in the equation, racial/ethnic disparities in attaining fatherhood still remain as of 1998. This finding noteworthy given that racial disparities in non-marital versus marital childbearing have been documented in the literature (Brien & Willis 1997). While these fatherhood entrance disparities remain, it is useful to note that at both the 1985 and 1998 points, black (but not Hispanic) movement from first to second parity is significantly below that of the white majority. As a concluding general comment, many of the variations in predicting fatherhood by 1985 are no longer relevant by 1998. This is consistent with expectations.

THE NLSY97 COHORT: METHODOLOGICAL AND SUBSTANTIVE ISSUES, BOTH CROSS-SECTIONALLY AND OVER TIME.

We now shift gears and focus specifically on relationship and fertility issues related to the NLSY97 cohort, a data set that represents a national cohort of youth who were 12 to 16 years of age as of the end of 1996, and were almost all between the ages of 12 and 17 when interviewed in the latter part of 1997 (a handful of respondents were not interviewed until early in 1998 when they may have attained age 18). The substantive and methodological issues we consider are based on following these youth up to their fifth interview in 2001 when they were essentially between ages 16 and 22. We consider several issues. First, because of the paucity of recent data available for male youth, we present a variety of tabulations that describe the progression of these youth into relationships and fatherhood. We examine overall trajectories and statuses as of the fifth wave in 2001. We focus particularly on the older youth, ages 20-22 as of 2001, for whom we are able to provide some comparative tabular and multivariate information with their similarly aged counterparts from the NLSY79. Finally, there are a number of methodological points to be made (although not as extensive) on earlier conjectures drawn from the NLSY79 data set.

Table 6 describes the relationship status of the youth year by year as they age into incipient adulthood. For the most part, until age 19, the percent in a relationship at specific survey points is quite low and marriage rates are especially low. Only for the 20 to 22 year-old age group does the percent in a relationship reach double digits: about 10 percent cohabiting and about 6 percent married. A comparison of Tables 6 and 7 illuminates the extent to which survey point status at these young ages may proxy for longer term marital but not cohabitation status. Very few of the youth have been married

more than once, and only small numbers have left a marriage, so current marital status is a reasonable proxy for ever-married status.

Table 7 utilizes the relationship history information available to suggest the extent to which the cross-sectional information for cohabitation substantially under-represents cohabitation propensities (defined generally as a sexual relationship lasting at least a month, but subject to considerable "fuzziness"). For ages 18 onward, the proportion that has ever reported cohabitation is substantially larger than the end-point (as of 2001) ages. For example, of those who are 20 to 22 years old, 9.9 percent report a current cohabitation (Table 6) and 22 percent (in Table 7) report having cohabitated at some point in the longitudinal record between 1997 and 2001. Overall, for this 20 to 22 year-old age group, about one of four men report that they are, or have been, in a relationship at some time. Having said this, it is clear that these numbers only become substantial by age 20 or so.

It is useful to briefly emphasize the considerable importance of collecting a continuous longitudinal record on relationships, even in a panel survey where cross-sectional status is frequently asked. In our earlier work with the 1979 cohort, based on the *survey point* cohabitation status reports (the partnership status reported on the annual household record), we inferred that if we cumulated partnership status from a series of early survey points we would probably obtain reasonable "ever-cohabitation" statistics for younger male respondents. While contemporary higher cohabitation levels may negate this earlier premise, it may also be that we significantly underestimated cumulative cohabitation rates at the younger ages for these younger NLSY79 respondents. We base this on some more appropriate evaluations that draw on the 1997

cohort data that we highlight in Tables 8 and 9. In these two tables we contrast ever cohabitation statistics drawn from the full relationship history with ever cohabitation statistics derived by cumulating cohabitation status at the various 1997 through 2001 survey points. At all ages, from 18 onward, the differences based on using these two approaches are quite substantial. By ages 20 to 22, the relationship history indicates that about 22 percent have ever cohabited compared with only about 15 percent using the survey point approach! Table 9 shows for this oldest age group that black and non-black disparities are similar. It is also worth noting that black and non-black cohabitation levels are also quite similar.

Having set the stage with this description of relationship trajectories for these contemporary (NLSY97) youth, we now shift to our primary focus, the transition into fatherhood. Table 10 provides a more concise synthesis of the relationship and fertility estimates. About 12 percent of the 20 to 22 year-olds report having fathered a child. It is emphasized that these statistics have not undergone as extensive an evaluation as what we were able to do with the 1979 cohort; one of our more important findings was that misreporting was most prevalent at the younger ages, for a variety of reasons. One such reason relates to the substantial residential disconnect between father and child for many of these younger fathers. For example, for this 1997 cohort, even by ages 20 to 22, only 57 percent of identified fathers have at least one of their children in their home. This statistic is 48 percent for 19 year-olds, and a very low 35 percent for fathers below the age of 19. This separation is of course only a manifestation of the complexity of the relationships and family interactions at these ages, factors conducive to lower levels of ultimate paternal acknowledgement as well as reduced levels of factual information by

the father about his acknowledged children. It is fair to state that fatherhood reports are quite rare below age 19. The average number of children born to the full cohort is also very low, and for this reason we will focus on ever-fatherhood in the following discussion.

COMPARISONS OVER TIME

The overall estimates mask racial differences of some importance. As may be noted in Table 11, whereas black and non-black cumulative relationship patterns are quite similar, fatherhood levels are very different from each other. Black young men are twice as likely to report having attained fatherhood. In additional research currently underway, we are exploring more directly the linkages between fatherhood and relationship status for the two groups. While not emphasized in this presentation, it may be noted from Table 4 that the strength of the relationship between early entry into fatherhood and years spent in either a cohabitation or marriage was much stronger for white than for black young men for the earlier 1979 cohort. In ongoing research, we will clarify this connection for the 1997 cohort.

In our final two tables we attempt, in an admittedly preliminary way, to compare some basic patterns over the approximate 1979-2001 period, with one important caveat: there may be unspecified systematic biases between the two data collection efforts, particularly since we are comparing NLSY79 estimates for 20-22 year olds from the first 1979 wave of that data collection with NLSY97 estimates from the fifth wave in 2001. Clearly, even cross-sectional cohabitation estimates may reflect somewhat different concepts. The fertility data have been subject to somewhat different processing, and in

our preliminary multivariate comparison some of the explanatory variables we include do not precisely match. Having said this, we suggest that some of the results may be sufficiently robust to warrant comparative statements. Table 12 summarizes relationship and fatherhood status by race for youth who attained ages 20-22 in 1979 and 2001 respectively. A first summary point that seems clear, even given the above caveats, is that even though the proportion in a relationship at ages 20-22 is very similar for black and non-black youth, the mix between marriage and cohabitation has fundamentally changed. Marriage by these ages is down sharply, and there is almost a one to one increase in cohabitation!

Overall, fatherhood is down a bit, from about 14.5 to 11.9 percent, but this masks a major racial transition. Over the two decades, the reported fatherhood rate for non-black men declined from 12.2 to 10.5 percent, but the black decline fell from a reported 31.3 to 19.6 percent. So although the black rate remains well above that of whites, there has nonetheless been a major racial convergence over this time period.

The above is a brief summary of the trends. Perhaps of greater interest is whether or not the characteristics of these young fathers have changed in substantial enough ways to inform potential policy interventions. For this, we employ a multivariate perspective. While not quite reduced in form, we only include a limited set of explanatory variables that were available for both cohorts and which, with limited but exceptions, may be considered as exogenenous to the early fatherhood process, or at least measured at points prior to the potential fatherhood event.[2] The two exceptions are rural residence and

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[2] As a general comment, there is a tendency to view endogeneity issues in fertility analyses as gender neutral. In all likelihood, this is at least partially inappropriate, since "disconnect" between employment and education-linked behaviors and childbearing is undoubtedly substantially greater for men. We will explore this issue empirically in subsequent research.

religious service attendance; variables that were only first available for the 1979 cohort at that initial survey point, when the 20-22 year olds were already at their outcome age. To maintain comparability, we selected comparable inputs for the 1997 respondents as of 2001.

Previous research (Hanson, Morrison & Ginsburg 1989; Pirog-Good 1995; Pirog-Good 1992; Lerman 1993; Marsiglio 1987) suggests a multitude of factors may increase the likelihood of early fatherhood, such as: being black, going steady, having unorthodox views regarding illegitimate births, growing up in a poor, unstable and/or economically disadvantaged upbringing, lower educational attainment, participation in illegal activities, and lower self-esteem. For the overall sample, similar predictive patterns appear for the 20 to 22 year-olds in 1979 and their comparably aged counterparts in 2001. The figures presented in Table 13 indicate that, regardless of survey year, lower levels of educational attainment for both the respondent and his mother were associated with early fatherhood. In contrast (using some statistical license!), a stable (two-parent) background and being raised Catholic are each linked with below-average early fatherhood in 1979 and 2001. With respect to race and ethnicity, while Hispanic origin is linked with above average fatherhood propensities in 1979 and 2001, it is of interest to note that the connection between African-American status and early fatherhood appears to have lessened over time. Of some importance, and this is a universal finding that runs across all the racial/ethnic groups, frequent church attendance which had been unrelated to early fatherhood in 1979, is now a strong systematic predictor of below-average fatherhood. While the basis for this connection is uncertain, it is certainly consistent with a premise

that the meaning of church attendance for young males in all racial/ethnic groups is perhaps quite different now than was true a generation ago.

In many respects, the patterns evidenced for the non-Hispanic, non-black group mirror the overall patterns. Also, although limited education is associated with above average early fatherhood propensities for all groups, it is useful to note that the least educated black youth, perhaps because they may now be an even more select group than in 1979, show a stronger linkage with early fatherhood than had been true for their predecessors in the 1970s. This is consistent with the notion that the meaning of less education, in that it represents a much smaller proportion of the population, has perhaps changed considerably. This may parallel, in some ways, the apparent increased association between *maternal* education and son's early fatherhood propensities over time for white and Hispanic youth. In general, the basis of the connection between low education and early fatherhood, and how it appears to be changing over time, warrants more careful evaluation and analyses.

SOME CONCLUDING COMMENTS

In this paper, we have tried to blend together a variety of substantive and methodological results that complement each other in various ways. The NLSY79 data set has permitted us to clarify, to some extent, male fertility patterns for a national cohort of men who were 33 to 41 by 1998, and thus well into their "fathering" years. Our best estimates are based on data that has been evaluated and "cleaned" as much as we were able to, and on the surface appear reasonable. While we found a substantial number of cases that involved dating issues (which was beyond the scope of our discussion in this paper), somewhat surprisingly we found only a modest percentage of cases where we

believe the man was misrepresenting paternity at some point in his reproductive life cycle. By that, we mean that over the 19-year survey window, a man at some point was changing his mind about whether he was claiming paternity with respect to at least one of his putative children. For approximately 92 percent of all births, we are quite comfortable about the indicated paternity. For the remainder, we are either quite comfortable, based on our evaluation, that the man is not the biological father, or else major uncertainty remains. An important caveat remains, in that some over-time inconsistency must appear before a birth can even become suspect! Thus, a child that is consistently reported or not reported could fly under our radar screen, if you will.

To the extent that our evaluation was valid, it would appear that it modestly reduces our fertility profile. A couple of useful caveats are, however, in order. First, a disproportionate share of reports related to child dis-acknowledgement occurs among younger adults, and thus the magnitude of the difference in profile between the original and revised data heavily reflects discrepancies from these earlier lifecycle points. Dis-acknowledgement is less common among older men, for the reasons we have described. The issue of misdating, which we do not focus on in this paper, is certainly significant in that it can modestly alter the shape of the cumulative fertility profile, although it has little impact on final levels. It is important to be mindful, however, that cumulative fertility as of any specific outcome year (in a longitudinal survey) can of course be impacted on by dating errors, and more importantly can impact on the dynamics of micro-level analyses. The same can be said for the dates of relationships, partly because relationship acknowledgement and/or relationship dates, as our various papers have described, are linked in important ways with the various fertility dating issues.

From a substantive perspective, the combined availability of the NLSY79 and NLSY97 data have permitted us to describe in some detail male relationship and fertility patterns for important contemporary nationally representative cohorts. The NLSY79 is admittedly cohort bound, in that it is limited to a national sample of men who were 14 to 21 on the first day of January in 1979. It is thus limited to men who had been part of the original sample, and who attained ages 33 to 41 at the 1998 interview point. Specifically, it therefore excludes in-migration over the 19-year gap, a non-trivial exclusion. Having said that, one can fairly generalize from this group to a very large segment of men who are currently in their peak childbearing years. We have also been able to use these two data sets together to highlight some changes and similarities over time in male adolescent relationship and fertility trends. From the 1979 data, it is clear that the pace of minority entrance into fatherhood was more rapid, although by 1998 the gap narrowed considerably. This of course is consistent with our multivariate work that shows how the factors related to selection into fatherhood is reduced substantially by the time men are in their thirties. It does, nonetheless, appear that even after taking account of racial and ethnic differences in the number of years that men are in a relationship over the interval, that some differences in fertility still remain.

Using the NLSY97 data set permits us to make a few preliminary statements about youthful male fertility, how it has changed over the past two decades, as well as modestly clarify a couple of methodological caveats relating to data quality in adolescent relationship and fertility patterns. First, from a data quality perspective, while perhaps intuitive, it is nonetheless useful to quantify the very large proportions of younger men who are not in residence with their acknowledged children. This, of course, is a major

reason they have trouble reporting precise demographic information about these kids. It also represents a "red flag" regarding the probability that some significant portion of these children will vanish from the men's radar screen down the road! A second methodological point relates to the rather substantial number of youth who reported having ever cohabited at a relatively early age but do not report this cohabitation at any annual survey point. If this had indeed been true when we developed our cohabitation profile for the 1979 men, then our analyses for that cohort will have understated cumulative relationship probabilities at young ages. Whether this has significance for our early fertility analyses for that cohort remains in question. What is clear is that even a high quality panel survey that collects survey point information fairly frequently (in this case annually) can miss the boat in important respects without the availability of event history information that fills in the between-survey gaps. Two potentially important changes, however, relate to the possible increasing importance of religion for delayed fatherhood, and the apparent increased connection between very low educational attainment and early fatherhood for black youth. Both of these factors may be linked with the increasing selectivity of youth who remain in these categories. These findings warrant further investigation.

Finally, from a substantive perspective, acknowledging all the possible methodological constraints, even our fairly perfunctory comparisons of relationship and fertility profiles for the young men ages 20 to 22 (two decades apart), suggest some important changes--as well as similarities over time. By these ages, the proportion in a relationship has changed little; what has changed is the mix between marriage and cohabitation, with the former down sharply and the latter up substantially. The modest

decline in fatherhood for this group is evidenced for both white and non-white youth, although the black rate remains substantially above that for white youth. Our preliminary multivariate results suggest that even though levels of early childbearing have declined sharply, for the most part similar factors predict early fatherhood in both 1979 and 2001.

We would be remiss if we did not at least acknowledge that focusing solely on the biological child is only part of the story. As some of our earlier research has shown, at any given point, many men acknowledge important connections with children they have not fathered. For example, using unique data from the NLSY79 cohort, it can be shown that at any survey point, particularly as the men age into their late twenties and thirties, a significant number acknowledge the importance of step and other non-biological children; this includes not only step-children in residence, but also non-trivial numbers who are not in residence. The biological concept is an important one, particularly from a demographic perspective. However, it is far from the whole story!

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Table 1. Distribution of Confidence Level for Selected Relationship Patterns, 1979 to 1998 (Unweighted, NLSY79)

	Paternity Likely (Code 1 or 2)	Paternity Unclear (Code 3)	Paternity Not Likely (Code 4 or 5)	N
Child Appears Belatedly on Fertility Roster	51.7	26.8	21.6	486
Dad Present at Birth (1979-1998)	97.3	0.7	2.0	6819
Dad Not Present at Birth	81.4	9.9	8.7	1742
Child Never Present in Home	82.1	15.0	3.0	1216
Child Has Multiple Entries and Exits	89.0	2.3	8.7	345
Child Has One Entry and One Exit	82.0	5.1	12.9	606
Child Has One Entry or One Exit	90.1	2.9	7.0	1792
Child Always Present	96.0	0.8	3.2	5282

Table 2. Odds of Having "Low Confidence" in Paternal Fertility Reports for Selected Samples by Race (NLSY79)

	Odds Ratios					
	All Children			All Children Born 1979-1998		
	Total	White	Black	Total	White	Black
Father H.S. Dropout	1.032[a]	0.671[b]	1.259	1.156	0.800	1.306
Father 12 Years of School	0.973	1.036	0.865	1.153	1.186	1.066
Dad Age at Birth < 20	5.849[a]	9.291[a]	4.202[a]	2.321[a]	3.471[a]	1.920[a]
Dad Age at Birth 20-24	1.727[a]	1.924[a]	1.743[a]	1.528[a]	1.544[b]	1.596[a]
Race = Black	1.287[b]	—	—	1.454[a]	—	—
Race = Hispanic	0.865	—	—	0.958	—	—
Number of Years Spouse Present	0.923[a]	0.916[a]	0.931[a]	0.937[a]	0.939[a]	0.934[a]
Number of Years Partner Present	0.923[a]	0.956	0.909[a]	0.928[a]	0.957	0.921[b]
Number of Years Interviewed	1.050[a]	1.073[a]	1.048[c]	1.054[b]	1.117[a]	1.002
Number of Spouses and Partners	1.146[b]	1.085[a]	1.091	1.185[a]	1.241[b]	0.976
Child Never in Dad Home	1.301[c]	2.313[a]	0.817	2.281[a]	4.562[a]	1.245
Child Enters and Leaves Once	2.083[a]	3.644[a]	1.238	2.373[a]	4.020[a]	1.555[c]
Child Enters and Leaves > 1	1.123	1.653[c]	0.556[c]	1.117	2.303[b]	0.446
Child Enters or Leaves Once	1.551[a]	1.760[a]	1.153	1.836[a]	2.036[a]	1.381
Sex of Child	1.006	0.930	0.941	1.061	1.013	0.960
Number of Children (Last Point)	1.210[a]	1.207[a]	1.202[a]	1.245[a]	1.169[a]	1.277[a]
N	9149	5787	2704	8234	5277	2356

[a] = significant at P < .01
[b] = significant at P < .05
[c] = significant at P < .10

Graph 1: Mean # Kids by Confidence Level, Men Interviewed All Years 1979-1998, Weighted
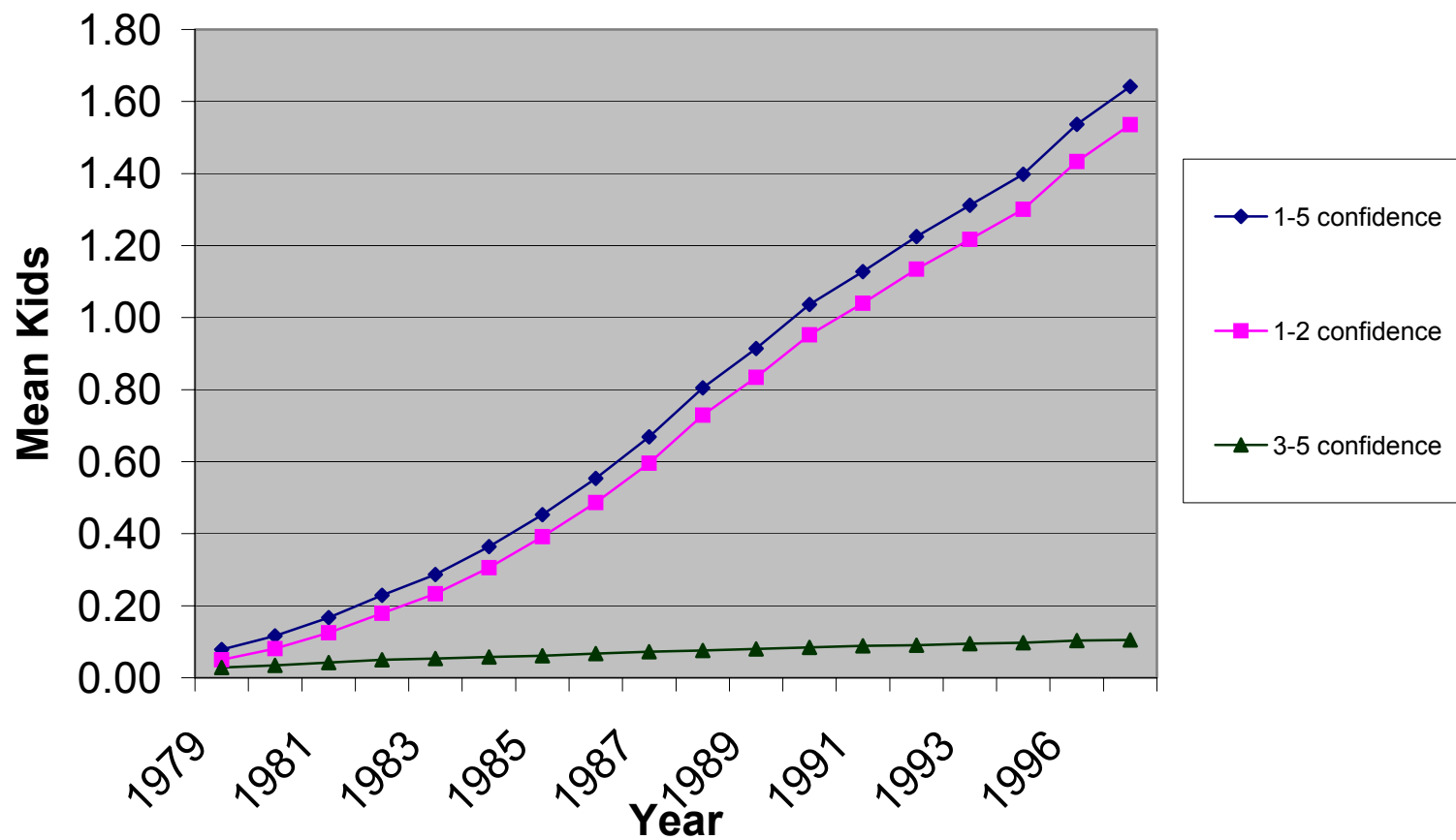
Table 3. Fertility Summary for NLSY Men Age 14-17 in 1979
(Weighted Estimates, NLSY79)

	Percent Ever Father			Percent with 2 or More Children			Mean Number of Children		
	1985	1990	1998	1985	1990	1998	1985	1990	1998
TOTAL	15.8	42.3	68.9	3.5	20.0	48.0	0.20	0.69	1.42
White	12.6	38.6	67.0	2.5	17.3	47.1	0.16	0.60	1.35
Black	28.9	57.9	75.4	7.2	29.1	49.2	0.38	1.02	1.64
Hispanic	26.5	56.9	79.4	7.3	34.4	57.1	0.36	1.07	1.82

Table 4. Odds Ratios: Parity Progression to First and Second Births by 1985 by Race/Ethnicity.
(Sample Limited to 14-17 Year Old NLSY79 Non-Fathers in 1979)

	Total				White				Black				Hispanic			
	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2
Total Years Married by 1985	—	—	3.96ª	1.41ª	—	—	4.17ª	1.66ª	—	—	2.55ª	1.33ᶜ	—	—	6.57ª	1.14
Total Years Cohabited by 1985	—	—	2.88ª	1.37ᵇ	—	—	3.02ª	1.56ᵇ	—	—	2.29ª	1.42	—	—	3.84ᵇ	1.18
Age 79	1.42ª	1.35	1.11ᶜ	1.24ᶜ	1.59ª	1.61ª	1.03	1.34	1.44ª	1.14	1.26ᵇ	1.06	1.20ᶜ	1.48ᶜ	1.04	1.47
Black	1.72ª	0.79	5.42ª	0.42ª	—	—	—	—	—	—	—	—	—	—	—	—
Hispanic	1.93ª	0.85	2.03ª	0.84	—	—	—	—	—	—	—	—	—	—	—	—
Rural 79	0.98	1.02	0.84	0.92	1.25	0.99	1.00	0.75	0.73	1.29	0.73	1.38	0.65	0.68	0.68	0.61
Mom H.S. Dropout	2.77ª	1.19	2.61ª	1.14	3.43ª	1.12	2.56ª	0.96	2.00ᵇ	0.76	2.41ᵇ	0.78	3.68ᵇ	—	2.84	—
Mom 12 Years School	1.96ª	0.77	1.97ª	0.75	1.56ᶜ	1.06	1.41	0.87	2.13ᵇ	0.38	2.53ᵇ	0.40	3.51ᵇ	—	2.05	—
Mom Alone 1979	1.31ª	1.18	0.84	1.07	1.66ᵇ	1.27	0.80	1.12	1.00	1.08	0.91	1.08	1.10	1.11	0.65	0.99
Mom & Step	1.18	1.25	1.21	1.38	1.31	1.77	1.69ᶜ	2.63ᶜ	0.91	1.31	0.88	1.27	1.57ᶜ	1.09	2.24ᵇ	1.14
No Sibs 1979	0.83	1.25	0.91	1.04	0.98	1.91	1.09	1.35	0.55	.001	0.64	<.001	0.73	2.88	1.33	2.85
One or 2 Sibs 1979	0.75ᵇ	0.76	0.86	0.80	0.71ᵇ	0.70	0.77	0.83	0.87	0.83	1.04	0.98	0.84	0.58	0.80	0.58
Catholic	0.67ª	1.22	0.94	1.36	0.74	1.12	1.08	1.40	0.60	4.12	0.55	3.25	0.66	0.80	1.40	0.84
Regular Church Attendance	0.76ª	1.00	0.78ᶜ	1.03	0.70ᵇ	1.18	0.73	1.41	0.69ᵇ	1.13	0.70ᶜ	1.12	1.10	0.82	1.33	0.82
Traditional Attitude	1.06ᵇ	1.07	1.05	1.06	1.07ᶜ	1.14	1.08	1.13	1.04	1.01	1.04	1.00	1.05	1.03	1.00	1.03
N	2503	532	2503	532	1403	224	1413	224	673	193	673	193	417	115	417	115

Note: a = significant at P<.01; b = significant at P<.05; c = significant at P<.101

Table 5. Odds Ratios: Parity Progression to First and Second Births by 1998 by Race/Ethnicity.
  (Sample Limited to 14-17 Year Old NLSY79 Non-Fathers in 1979)

	Total				White				Black				Hispanic			
	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2	0->1	1->2
Total Years Married by 1998	—	—	1.48[a]	1.25[a]	—	—	1.52[a]	1.31[a]	—	—	1.41[a]	1.19[a]	—	—	1.45[a]	1.37[a]
Total Years Cohabited by 1998	—	—	1.33[a]	1.17[a]	—	—	1.33[a]	1.20[a]	—	—	1.37[a]	1.16[a]	—	—	1.34[a]	1.24[a]
Age 79	1.10	1.07	0.90[c]	0.93	1.10	1.14	0.82[b]	0.92	1.24[b]	0.94	1.11	0.85	0.91	1.09	0.80	0.96
Black	1.33[b]	1.41[b]	3.69[a]	0.68[b]	—	—	—	—	—	—	—	—	—	—	—	—
Hispanic	1.62[c]	0.97	1.73[b]	0.87	—	—	—	—	—	—	—	—	—	—	—	—
Rural 79	0.91	1.31	0.79	1.25	0.96	1.67[b]	0.72	1.54[c]	0.99	0.91	1.05	0.97	0.55	1.50	0.70	1.34
Mom H.S. Dropout	1.27	0.70	1.14	1.00	1.47[c]	0.97	1.10	0.70	0.93	2.34[b]	1.15	2.75[a]	2.06[c]	0.47	1.50	0.47
Mom 12 Years School	0.99	1.00	0.91	0.96	0.99	0.83	0.89	0.74	0.91	1.96[c]	1.09	2.26[b]	1.67	0.75	1.05	0.66
Mom Alone 1979	1.30	0.89	1.28	0.86	1.11	0.80	0.96	0.69	1.80[c]	1.08	1.95	1.16	1.34	0.82	1.36	0.73
Mom & Step	0.84	1.17	0.91	1.23	0.85	0.92	133	1.31	0.87	1.26	0.81	1.20	0.89	1.26	0.86	1.20
No Sibs 1979	0.60[c]	0.42[b]	0.60	0.38[b]	0.81	0.41[b]	1.00	0.37[c]	0.31[c]	0.21[c]	0.30[b]	0.18[b]	0.61	0.95	0.52	1.03
One or 2 Sibs 1979	0.80[c]	0.72[b]	0.93	0.80	0.80	0.58[a]	0.89	0.60[b]	0.73	1.75[c]	1.07	2.33[a]	0.86	0.42[a]	0.83	0.38[b]
Catholic	0.90	1.14	1.22	1.25	0.75[c]	1.27	1.00	1.40	1.76	1.39	1.55	1.30	1.65	0.78	2.50[c]	0.93
Regular Church Attendance	0.95	1.05	0.88	0.90	1.08	0.89	1.15	0.93	0.73	0.91	0.57[b]	0.73	0.99	1.86[b]	0.91	1.92[c]
Traditional Attitude	1.10[a]	1.01	1.11[a]	1.02	1.04	1.02	1.03	1.01	1.08	0.95	1.14[b]	0.97	1.30[a]	1.10	1.28[c]	1.12
N	1744	1237	1744	1237	924	619	924	619	499	366	499	366	321	252	321	252

Note: a = significant at P<.01; b = significant at P<.05; c = significant at P<.101

Table 6. Percent Married or Cohabiting at Survey Points for Selected Cohorts by Age at 2001 Interview (NLSY97 Youth)

	2001	2000	1999	1998	1997
% Married					
20-22	6.4	3.7	1.4	0.3	0.0
19	2.0	0.4	0.2	-	-
18	0.4	0.0	-	-	-
16 or 17	-	-	-	-	-
% Cohabiting					
20-22	9.9	8.2	3.7	2.1	0.6
19	6.9	3.2	1.4	-	-
18	2.6	0.4	-	-	-
16 or 17	0.7	-	-	-	-
% Married or Cohabiting					
20-22	16.4	11.9	5.1	2.4	0.6
19	8.9(761)	3.6	1.6	-	-
18	3.0(770)	0.4*	-	-	-
16 or 17	0.7(786)	-	-	-	-

Table 7. Cumulative Marriage and Cohabitation Trajectories for Selected Cohorts by Age at 2001 Interviews (NLSY97 Youth)

	2001	2000	1999	1998	1997
% Ever-Married					
20-22	7.2	4.1	1.4	0.4	0.0
19	2.1(763)	0.6	0.2[*]	-	-
18	0.4(770)	0.0[*]	-	-	-
% Ever-Cohabited					
20-22	22.3	15.4	7.5	3.3	1.2
19	10.9	5.4	2.5[*]	-	-
18	5.7	1.6[*]	-	-	-
% Ever Married or Cohabited					
20-22	26.0	17.9	8.4	3.5	1.2
19	12.1	5.7	2.6[*]	-	-
18	6.1	1.6[*]	-	-	-
% Ever Father					
20-22	11.9	8.6	4.7	2.6	0.3
19	6.5	4.1	1.5	0.5	0.1
18	1.5	0.9	0.1	0.1	0.0
Mean Children Ever Born					
20-22	0.13	0.09	0.05	0.03	0.00
19	0.08	0.04	0.02	0.01	0.00
18	0.02	0.01	0.00	0.00	0.00

Note: All except asterisked estimates are for sample interviewed in 2001. Sample size in parentheses.

Table 8. Comparing Cumulative Survey Point and "Ever" Statistics (NLSY97)

	"Ever" Report	Survey Point Cumulation
% Ever Married		
Total 18 and over	4.3	4.3
20-22	7.2	7.1
19	2.1	2.2
18	0.4	0.4
% Ever Cohabited		
Total 18 and over	15.4	10.7
20-22	22.3	15.5
19	10.9	8.1
18	5.7	2.9
% Ever Married or Cohabited		
Total 18 and over	17.7	13.9
20-22	26.0	20.7
19	12.1	10.0
18	6.1	3.4

**Table 9. Comparing Ever Cohabited in 2001 for 20-22 Year Olds by Race:
Cumulative Point Estimates and Cohabitation History (NLSY97)**

	Cohabitation History	Point Estimates	% Identified at "Point"
Black	23.8	15.1	63.4
Non-Black	22.0	15.6	70.9

**Table 10. Summary of Relationship and Fertility Statuses by Age in 2001
(NLSY97 Youth)**

	% Married	% Cohabited	% Married or Cohabited	% Ever Married	% Ever Cohabited	% Ever Married or Cohabited	% Father	Mean Children Ever Born
20-22	6.4	9.9	16.4	7.2	22.3	26.0	11.9	0.14
19	2.0	6.9	8.9	2.1	10.9	12.1	6.5	0.08
18	0.4	2.6	3.0	0.4	5.7	6.1	1.5	0.02
16-17	0.0	0.7	0.7				1.3	0.01

Note: Limited to men interviewed every year

Table 11. Cumulative Relationship and Fertility Statistics in 2001 by Race (NLSY97)

	% Ever Cohabited	% Ever Married	% Ever Cohabited or Married	% Father
20-22				
Black	23.8	3.0	25.6	19.6 (518)
Non-Black	22.0	7.9	26.0	10.5 (976)
19				
Black	9.0	1.7	9.8	13.5 (214)
Non-Black	11.8	2.2	12.5	5.1 (549)

Note: Limited to respondents interviewed all years; Sample size in parentheses.

Table 12. Current Relationship and Fertility Statistics for 20-22 Year Olds in 1979 and 2001 by Race

	% Cohabited	% Married	% Married or Cohabited	% Father
1979 (NLSY79)				14.5
Black	2.5	8.3	10.7	31.3
Non-Black	1.2	16.0	17.0	12.2
2001 (NLSY97)				11.9
Black	10.9	2.8	13.7	19.6
Non-Black	9.8	7.1	16.9	10.5

Table 13. Estimating Fatherhood for Male Youth Ages 20 to 22 in 1979 and 2001 by Race/Ethnicity (Log Odds)

	Total		Black		Hispanic		Non-Black Non-Hispanic	
	1979	**2001**	**1979**	**2001**	**1979**	**2001**	**1979**	**2001**
Age	1.41^a	1.58^a	1.33^c	1.04	2.22^a	2.08	1.34^b	1.78^b
Race = Black	1.76^a	1.35	--	--	--	--	--	--
Race = Hispanic	1.47^c	1.71^b	--	--	--	--	--	--
Rural Residence	0.96	1.07	0.59	1.79	--	0.28	1.41	1.06
Military Residence	1.02	--	0.66	--	0.78	--	1.26	--
Mother has < H.S. Degree	1.46^c	1.85^b	1.35	0.62	1.76	4.09^b	1.47	2.67^a
Mother has 12 Years of School	1.23	1.54^c	1.44	1.09	1.01	3.12^c	1.17	1.36
Lived w/ Both Biological Parents	0.76^b	0.77	0.89	1.57	0.75	0.72	0.63^b	0.52^b
Youth has No Siblings	1.01	0.60	1.12	1.35	1.05	0.54	0.81	0.34
Youth has 1 or 2 Siblings	0.84	1.05	0.50^b	1.15	2.01	0.38	0.87	1.14
Religious Services at Least Monthly	1.09	0.59^b	1.18	0.53^c	1.11	0.49^c	1.09	0.70
Raised Catholic	0.77	0.61^b	0.58	--	0.90	0.72	0.83	0.59
Respondent has < H.S. Degree	3.95^a	5.34^a	1.86^c	6.80^a	5.51^a	3.04^b	5.09^a	6.42^a
Respondent has H.S. Degree Only	2.54^a	1.79^a	1.58	2.70^a	2.15	0.88	3.60^a	2.06^b
N	1823	1342	395	304	215	291	1203	733
Pseudo R^2	0.08	0.13	0.04	0.11	0.12	0.14	0.08	0.17

Note: Reference categories are Non-Black/Non-Hispanic, urban residence, mother has more than H.S. degree, did not live with both biological parents, youth has 3 or more siblings, attended religious services less than once per month, and raised non-Catholic. Data limitations in 1979 prevented us from determining whether respondents in the military were stationed in urban or rural areas. For respondents in the 1979 sample, living with both parents was derived from a retrospective question referencing their household situation at 14 years of age. For the 2001 sample we determined whether both parents were present in the household at the 1997 survey point (when respondents were between 14 and 16 years of age). In 1979 respondents reported the religion in which they were raised. For the 2001 sample we relied upon a question from the 1997 survey round that asked what religion they identified with most at that point in time (and they were between 14 and 16 years of age). The following coefficients are not reported because none of the respondents in that particular subgroup fell into that category: blacks in the 2001 sample who were raised Catholic, and Hispanics from the 1979 sample living in a rural residence.

a = significant at P < .01, b = significant at P < .05, c = significant at P < .10