DOCUMENT RESUME

ED 164 698 UD 018 973

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TITLE The Consequences of Age at First Childbirth: Marriage, Separation and Divorce. Working Paper: 1146-03.
INSTITUTION Urban Inst., Washington, D.C.
SPONS AGENCY National Home Study Council, Washington, D.C. Accrediting Commission.
PUB DATE Jul 78
CONTRACT NO1-HD-62829
NOTE 85p.; For related documents, see ED 149 002, UD 018 971-977; Several Tables may not reproduce well due to print size
AVAILABLE FROM The Urban Institute, Program of Research on Women and Family Problems, 2100 M Street, N.W., Washington, D.C. 20037 ($3.00)

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS *Age; *Birth; Blacks; *Divorce; Educational Background; Employment Experience; Family (Sociological Unit); Females; *Marital Status; Racial Factors; Socioeconomic Influences; *Teenagers; Young Adults
IDENTIFIERS Michigan Panel Study of Income Dynamics; National Longitudinal Survey of Young Women

ABSTRACT

Examined in this document are the prevalence of early marriage and childbearing, and the relationship of early marriage and childbearing to divorce and separation. The report focuses on three hypotheses: (1) that marriage between young, unprepared teenagers ends more frequently in divorce regardless of the presence or absence of a child; (2) that early marriage and childbearing are only associated with divorce in the case of premarital pregnancies; and (3) teenage marriage alone, without the extra financial, emotional, and physical drains of parenthood, is viable, but that the particular burden of parenthood makes these marrriages fragile. Reviews of related literature and data from the Michigan Panel Study of Income Dynamics and the National Longitudinal Survey of Young Women are used in exploring these hypotheses. Factors considered include race, social and economic background, educational and work experience, and family income. Findings presented indicate that the marriage of women who first wed during the teenage years are less viable than those of older brides. In addition, it is pointed out that although the analysis conducted does not indicate that teenage childbearing increases the risk of marital dissolution in later life, it is not totally unrelated. (Author/EB)

WORKING PAPER: 1146-03 July, 1978

THE CONSEQUENCES OF AGE AT FIRST CHILDBIRTH: MARRIAGE, SEPARATION AND DIVORCE

by

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ACKNOWLEDGEMENTS

This project was funded by the Center for Population Research, National Institutes of Health, under contract number NO1-HD-62829. The contents of this publication do not necessarily reflect the views or policies of the Department of Health, Education and Welfare.

Opinions expressed are those of the authors and do not necessarily represent the views of the Urban Institute or its sponsors.

The excellent computer assistance provided by programmer Russ Jones of Group Operations, Inc., is gratefully acknowledged. The technical support provided by staff members Cathy Cataldo, Bonnie Trumbule, Bobbie Mathis, John Fortunato-Schwandt, Barbara Kratchman, Nancy Bertaux, Copper Wilson, Laura von Behren, Director of Research on Women and Families, Nancy Barrett, and former Director Isabel Sawhill made production of this report possible; the assistance of each is much appreciated.

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INTRODUCTION

Divorce and separation are events with important effects on women's social and economic position. The break-up of a marriage, whether through divorce or separation, often catapaults women and the children dependent on them into poverty and sometimes into welfare dependency. More than half of all female-headed families are formed as a result of divorce or separation, and a third of all families headed by women were at or below the poverty level in 1976, compared to about one in twenty of the families with male heads (Johnson, 1978).

While the economic cost of marital break-up is high, both for the individuals involved and for the society as a whole, the personal, emotional price paid by parents and children for family disorganization is also great (Weiss, 1976). For these reasons it is important to determine to what extent those who enter into marriage and those who become parents while very young are more likely than others to experience a marriage break-up. In these analyses, we attempt to make such a determination. First, the prevalence of early marriage and childbearing and then relationship to divorce and separation will be examined.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Although the median age at marriage in the U.S. for women has risen to 21 (U.S. Bureau of the Census 1976), a substantial number of women still marry while in their teens. Among recent cohorts of women, approximately a third wed by age 18--37 percent of blacks and 32 percent of whites. A high proportion of these young marriages were accompanied by a premaritally conceived birth. Among female adolescents who married at 14 to 18 years of age, approximately thirty percent of the whites and sixty percent of the blacks had borne a child by eight months of marriage (U.S. Bureau of the Census, 1974). Since some evidence indicates that adolescent pregnancy is typically unintended (Zelnik and Kantner, 1974), a high proportion of all teenage marriages might not have been contracted when they were had a conception not occurred (see also Furstenberg, 1976b).

Previous research has established a strong link between early marriage and subsequent divorce (Glick and Norton, 1977; Ross and Sawhill, 1975; Weed, 1974; Bumpass and Sweet, 1972). Several researchers have also explored the association between premarital pregnancy and marital disruption (Furstenberg, 1976b; Bumpass and Sweet, 1972; Coombs and Zumeta, 1970.) However, the interrelationships among early pregnancy, youthful marriage, and marital instability have not been evaluated. Teenage marriage and pregnancy so often occur together that to examine one without considering the other is likely to give an incomplete picture. The unique difficulties posed by the combination of early marriage plus parenthood are unlike those suffered by those who simply marry young but postpone childbearing and unlike those experienced by an older couple faced with an untimely pregnancy. Therefore, it seems critical to try to separate out the impact of each.

Numerous difficulties presented by adolescent childbearing can be suggested. Teenage parenthood implies the early assumption of several highly demanding roles as parent, spouse and breadwinner, roles for which a young couple may have little preparation. Having a child while a teenager disrupts the usual sequence of events in educational attainment (Waite and Moore, 1978), and in maturation. The young couple may not have resolved their own adolescent crises or developed and tested their relationship. The immediate financial and emotional demands of an infant, coupled with high teenage unemployment rates, and quite possibly exacerbated by a lack of occupational skills on the part of the young father and mother suggest a frustrating environment short on security, relaxation, and material comfort. The parents of the couple may be resentful and critical of the marriage. If their friends are still unmarried and in school, the social life of the young couple may be limited, and friends may not be understanding or supportive of the difficulties experienced by the young parents. The combined effect of even some of these difficulties would tax most marriages.

However, early marriage in and of itself can also pose problems. The individuals may have had only limited exposure to potential mates and may therefore have picked less wisely than they would have done after obtaining a greater familiarity with the field of eligibles. Couples who marry while still maturing may find themselves moving in different directions. They may lack the emotional and social skills acquired by peers who allow themselves more time before assuming such an intense relationship as marriage. In addition, their early entrance into marriage roles may propel them into jobs that provide few material rewards and little security, thereby placing strain on the marital bond. Thus, teenage marriage may be inherently problematic, even without the arrival of children.

But there are several factors which may make teenage parents less likely than others to dissolve their marriage. The presence of preschool children has been found by Cherlin (1977) to decrease the probability of marital disruption. Thornton (1977) reports that parents of moderate-sized families are less likely to divorce or separate than either the childless or those with large families. The presence of a child or children may increase the emotional and economic cost of marital dissolution for both partners by decreasing the availability of alternative roles for the woman, who will typically retain custody of the offspring, and by making the man financially responsible for people he will not live with after the break-up of the marriage. In addition, separations or divorces may be taken more seriously by the couple and by others when there are children involved than when there are not. Also, those who have children soon after marriage may simply be more family-oriented than those who delay parenthood, and for that reason less willing to divorce.

Hypotheses

To understand the relationship between early marriage, and early parenthood, it is important to know how these factors, individually and in combination, affect marital stability. We suggest the following possibilities. (1) Perhaps it is simply early marriage which leads to divorce. It is possible that marriage between young, unprepared teenagers ends more frequently in divorce regardless of the presence or absence of a child. On the other hand, (2) it is possible that early marriage and childbearing are only associated with divorce in the case of premarital pregnancies (U.S. Census Bureau, 1976; Coombs and Zumeta, 1970); perhaps young couples who marry because they wish to and who only later experience a first pregnancy are not especially prone to divorce. (3) It is also possible that teenage

marriage, alone, without the extra financial, emotional, and physical drains of parenthood, is highly viable--that it is the particular burden of parenthood which so often characterizes these marriages that makes them fragile. Exploring which, if any, of these factors can be said to make teenage marriages unstable is the central focus of the current paper.

These factors lead us to hypothesize, first, that women who marry while still quite young will be more likely to dissolve their marriages[1] than those who wed at older ages. We also expect that, other things equal, teenage parents will more often separate and divorce than those who marry at the same age but delay parenthood. That is, age at marriage is expected to interact with age at first birth to influence marital dissolution with those who both marry and bear children while very young facing increased probability of disruption.

Control Variables

Other researchers have suggested a variety of other factors that might affect or that have been documented to affect the probability of divorce. We will try to control for these in this analysis. For example, blacks have been found to have a higher likelihood of marital disruption than whites (Norton and Glick, 1976; Ross and Sawhill, 1975). Low education, occupation, and income have all been found associated with a greater probability of disruption; although, when these variables were considered together, income was found to be of far more importance than education or occupation (Cutright, 1971). Ross and Sawhill (1975) report no straightforward effect of income,

1. Separation is being included with divorce in these analyses for several reasons. First, we wish to study marital instability, and separation is certainly a measure of instability. Second, separation rather than divorce is a course more frequently followed by black women than white women (Norton and Glick, 1976), often being described as equivalent to divorce among blacks; therefore, we would underestimate the incidence of marital disruption among blacks if separations were ignored.

however. Lower husband's earnings relative to expected earnings and the experience of unemployment by the husband were found to be related to marital disruption. Higher earnings by wives were also found to increase the likelihood of dissolution, perhaps because wives with earnings can afford to divorce and support themselves, a factor that may affect both the wife's and the husband's propensity to divorce (see also Cherlin 1977). A high salary may also increase marital conflict because of the threat that it poses to a husband's self concept (Komarovsky, 1973).

Marital instability has also been reported to occur less frequently when a couple own a home (Levinger, 1976), and generally when they possess material assets (Cherlin, 1977; Ross and Sawhill, 1975). The probability of disruption has been found to be higher in the central city (Ross and Sawhill, 1975) and on the West Coast than elsewhere (U.S. Department of Health, Education, and Welfare, 1976b), presumably reflecting differing levels of acceptability of divorce. Marriages between individuals of different races (Norton and Glick 1976), of disparate ages and of differing religions (Bumpass and Sweet, 1972), and from a family background of marital disruption (Pope and Mueller, 1976) tend to be less stable as well. Marriages of longer duration have also been found less likely to dissolve (Cherlin, 1977; Ross and Sawhill, 1975).

The impact of governmental income transfers has also been assessed by a number of investigators. Since welfare payments are typically made only to women who have children and who are <u>not</u> living with a spouse, it has been argued that the provision of welfare assistance creates an incentive for family dissolution. Several studies have found an association between the level of welfare payments and the frequency of welfare dependency (Honig, 1973) or between payment level and the ratio of separated women with children to married women with children (Moles, 1976). On the other hand, both Cherlin

(1977) and Cutright and Scanzoni (1973) report no association between benefit levels and the propensity to be married. In a national sample of couples followed over a five-year period, Bawhill et al., (1975), found no association between benefit levels and marital dissolution; however, a lower frequency of remarriage was noted for women who were welfare recipients. Hannan et al., (1977) find that income maintenance, an income-transfer program that retains some similarities to welfare, substantially increases rates of marital dissolution. Given the lack of consensus on this matter, it seems cautious to at least consider the possible impact of welfare benefit levels on divorce and separation.

Other variables which seem theoretically plausible influences on the probability of divorce are more difficult to measure and/or were not measured in the current survey. For example, sexual satisfaction, esteem for the partner, attitudes toward divorce, perceptions of alternatives to the current marriage, attitude similarity between spouses, and competence in marital roles seem likely to affect marital satisfaction, but it has only been possible to measure a few of these concepts. A measure of the proportion of total family income that is earned by the wife captures in part the adequacy of the male's performance as a breadwinner; it also measures, of course, the independence experienced by a wife who earns a relatively high income.

DATA

Analyses were conducted on two national longitudinal data sets, the National Longitudinal Survey of Young Women (NLS) and the Panel Study of Income Dynamics (PSID). Both surveys were initially fielded in 1968 and in each case respondents were interviewed annually. While similar in their focus on economic and employment issues, the two surveys sample quite different populations. Because neither data set provides a marital history, it is only possible to study disruptions that occur during the survey years. Analyses reported here include interviews between 1968 and 1972 for the NLS and between 1972 and 1976 for the PSID. Each data set will be described in turn.

The National Longitudinal Survey of Young Women

The National Longitudinal Survey of Young Women (NLS) is funded by the U.S. Department of Labor to study the labor market experiences of contemporary young women. It is designed by the Center for Human Resource Research of Ohio State University and fielded by the U.S. Census Bureau. The initial wave in 1968 sampled over 5,000 young women between the ages of 14 and 24. Attempts to reinterview these young women were made annually from 1969 through 1975. Sample retention has been very good. By 1972, the last year considered here, 4625 respondents--90 percent of the original sample--remained in the survey. Since the initial response rate was 94 percent, data on nearly 85 percent of the sample that was initially drawn are available for the current analysis. While these data are among the best available, sample attrition may have reduced the original representativeness, and some caution in generalizing to the entire population is necessary.

In order to produce statistically reliable estimates for black women, households in enumeration districts known to be predominantly black were

selected at a rate three times greater than the rate for white enumeration districts. In 1968, 3638 white women and 1459 black women were interviewed. (Sixty-two young women of other races were interviewed but have been consistently excluded from these analyses because of their diversity.) A sample weight was assigned to each individual case to correct for the fact that different groups of the population had different probabilities of selection. The weights were computed so that the sum of the weights would equal the sample size of 5159.

The NLS data are especially well-suited for a study of the consequences of early childbearing because they follow young women through the teenage and young adult years when family-building typically takes place. For a large proportion of the sample, data on marriage and childbearing are not retrospective but are gathered as the events occur. Because extensive information on the educational and work experience as well as the social and economic background of respondents was obtained, detailed comparisons can be made between women who became mothers while teenagers and other young women who postponed their childbearing. Such extensive data are not frequently available for so large or contemporary a sample. Although divorces that are quickly followed by re-marriage before the 1968 interview were not captured by the NLS questionnaire, the NLS women were so young in 1968 (14 to 24) that not many are likely to have married, divorced and remarried. However, those most likely to have done so would have been those who married at the youngest ages.

The Michigan Panel Study of Income Dynamics

The Panel Study of Income Dynamics was inaugurated in 1968 to provide information on short run changes in the economic status of families and individuals. To this end, approximately 5,000 families have been interviewed

annually through 1978. Data obtained through 1976 are included in the current analyses.

The original sample consisted of a cross-section sample of dwelling units within the continental United States plus a subsample of families interviewed in 1967 by the U.S. Bureau of the Census. Since 1968, the sample has consisted of all panel members living in families that were interviewed the previous year plus newly-formed families that include any adult panel member who had moved out of the sample household since 1968. The addition of newly-formed families has resulted in an increased sample size despite sample attrition.

Panel losses were considerable (24 percent) in the first year but have been relatively minor in recent years. However, the cumulative response rate including initial and subsequent losses, is only 55 percent. The data were weighted in 1972 to adjust both for different sample fractions and for different rates of nonresponse. Since that time, attrition has not been sufficiently great to warrant further adjustment, and the authors present evidence that estimates made from PSID correspond closely with estimates obtained from the Current Population Reports (Survey Research Center, 1976).

The PSID was explicitly initiated to provide the best possible measures of respondents' family incomes, individual wages, and employment history. The income measures are generally considered to be superior to estimates from the Current Population Survey (Minarik, 1975), and tabular comparisons of both data sets show a high degree of congruence on the weighted distributions of most standard demographic variables (Sawhill et al., 1975). Despite the reassurance that this provides, it seems extremely important to use caution in generalizing from results to the entire United States population.

For the years 1968 to 1975, all information is related to the head of the household. Consequently, little information is available on married women, since they are not defined as heads. Fortunately, in 1976, wives were also interviewed, and detailed information on wive's labor force participation, family background, and earnings was obtained. In addition, wives supplied information on their age at marriage and age at first childbirth, data that cannot be reliably obtained from some of the interviews held with the husband, who is defined as the head of the household.

The PSID data, like the NLS, do not contain a complete marital history. Consequently it is not possible to conduct an analysis of the impact of early childbearing on the probability of ever being divorced. With both data sets, therefore, we will be exploring the probability of marriage break-up over a five-year time period. This necessity poses more of a liability with the PSID data because many of the respondents are old enough to have divorced and re-married. We will be able to explore whether there is a lingering effect of an early birth on the probability of divorce and we will be able to examine the effect of an early birth among those married only a short time with the PSID; however, most of our attention will be focused on the NLS data in which the measure of divorce and separation during the survey more closely approximates a measure of ever being divorced.

ANALYTIC STRATEGIES

The basic hypothesis being explored is that a young age at the birth of a first child is directly associated with a higher probability of divorce or separation. In addition, a premarital conception is believed to increase the likelihood of marital instability, as is a young age at first marriage. These three variables are hypothesized to each have an impact that remains when the three variables are considered simultaneously.

Initially, the gross association between age at first birth and the proportion married among the NLS women, controlling only for respondent race and socioeconomic status, will be examined to see whether the sample eligible for divorce and separation is representative of the sample of early childbearers. We will also explore the impact of age at first birth on the probability of marriage. Then, among those ever-married NLS women at ages 18, 21, and 24, the gross association between age at first birth and the percent calculated to have been ever-divorced or separated will be examined, controlling again for race and socioeconomic status. Similarly, the percent ever-divorced or separated will be evaluated by the timing of the first birth relative to first marriage.

Following exploration of simple associations we will proceed to multivariate analysis of divorce and separation so that the effects of age at first birth, premarital pregnancy, and age at first marriage, plus appropriate control variables, can be evaluated simultaneously.

An initial multivariate analysis will focus on those NLS women who turn 24 during the years of the survey. Because this strategy catches all the young women at the same age, it partially controls for the enormous life cycle variation in the lives of young women who ranged in age between 14 and 24 in the first year of the survey. Only those women who turn 24 during the survey are studied, since only for these women is there sufficient information for a multivariate analysis. The age 24 was chosen since by this age a relatively large proportion will have had occasion to marry and be exposed to the possibility of divorce or separation. This "attainment at age 24" approach produces an estimate of the probability of having been divorced or separated by age 24[1] as a function of age at first birth and other relevant independent variables.

In the second set of multivariate analyses, we estimate the effect of age at marriage, age at first birth and the timing of first birth relative to marriage on marital dissolution, either separation or divorce, during the period 1968 to 1972. We chose this approach to supplement the ever-divorced approach rather than an examination of current marital status in a particular year or at a particular age for several reasons. First, as Hannan et al. (1977) point out, use of current marital status to analyze marital instability entails the assumption that divorce is a state which individuals occupy rather than an

1. Respondents were asked their marital status at each interview during the five-year period of the survey. Since one of the choices is "never married," of those women not married in 1968 we know whether or not they had ever been married and what the outcome of that marriage (divorce, widowhood) was. However, there remains a group of women, of unascertainable size, for whom the 1968 marriage was a second (or later) marriage. Such women cannot be included in the ever-divorced or separated group since we know only their current marital status. If, as we suspect, this is a substantial portion of those ever-divorced, our predictive equations are considerable weakened. To reiterate, by "ever-divorced by 24" we actually mean "divorced and not remarried before 1968 or divorced between 1968 and by age 24." The "1968 to 1972 experience" approach does not have this problem, and, for this reason, serves as a more accurate test of our hypothesis, even though the period it covers is restricted to five years.

event which may or may not occur to them. Thus, those who divorce and remarry immediately are much less likely than those who remain unmarried to experience marital dissolution if current marital status is used as the measure. In a cross-sectional analysis the likelihood of divorce is confounded with the speed of remarriage. An examination of the occurrence of marital disruption over time does not have this problem. An additional advantage of the longitudinal over the cross-sectional approach for our purposes arises from the data used in this analysis. As noted above, the panel studies which provide the information to be used here contain little data on divorces which took place before the survey began in 1968. In addition, many of the important control variables to be used in this study, for example characteristics of the husband, are only available for the years 1968 to 1972. We therefore selected women who were currently married in 1968 and examined the factors which influenced their possible divorce or separation by 1972 with the NLS. With the PSID, women married in 1972 were followed to 1976.

Our third strategy examines the year by year probability of marital dissolution. Among those married at one interview, the probability of divorce by the time of the next interview is explored. This transition probability approach also focuses on the population at risk of an event, for example, the population attending school who are at risk of dropping out, the population of women who are employed who might become unemployed, or, in this case, the population who are married who might become separated or divorced. Within that population, the impact of an event, such as a birth, on a change, such as divorce during the year at risk, can be estimated.

MEASUREMENT OF AGE AT FIRST BIRTH

Neither the NLS nor the PSID contain a childbearing history for women. Consequently it was necessary to construct such a record for all respondents. The procedure by which this was done for each data set will be described.

The National Longitudinal Survey of Young Women. To develop a measure of the young woman's age at first birth, the household record in 1968 was searched for any sons or daughters of the respondent. The age of the oldest of the respondent's children was subtracted from the respondent's age in 1968 to yield age at first birth. First births which occurred in subsequent survey years were identified by searching the household records of childless respondents. When a first birth was identified, the respondent's age at the last interview was assigned as her age at first birth. Since exact birth dates are not known for either the respondent or her children and age is coded only in full years for respondents and children over three, the measure of age at first birth contains some error. Where some uncertainty existed our decision rule erred by assigning the older age at first birth.

The measure of age at first birth used here does not include children who were given up for adoption shortly after birth, who were stillborn, who died in early childhood, or those who were sent to live outside the respondent's household. Own children of the respondent cannot be distinguished from adopted children. We are, then, in effect, measuring the impact of the age at which a young woman takes on the duties and responsibilities of motherhood, the age at which she becomes a parent in a social sense. The variable used here should be a fairly unbiased measure of sociological, if not of biological, motherhood.

Panel Study of Income Dynamics. The measure of age at first birth was determined differently for wives and for female heads. For the 1701 women in

the sample who completed the survey for wives in 1976, the age of her oldest child as reported by the wife was subtracted from the wife's age. No similar information was available for female household heads; consequently the measure of age at first birth for the 773 women who were household heads in 1976 was based on the household record. If a first birth occurred during the survey years, the woman's age in the year of the birth was assigned. Otherwise, the household record for 1968 was searched for the age of the oldest child and this age was subtracted from the woman's own age. Since women in the sample in 1968 could have been as old as 42 in that year, it is possible that some of their children would have grown up and left home. This, of course, would result in an incorrect assignment of age at first birth. This would only be a problem for women approximately 32 to 42 years of age in 1968-- 38 percent of the sample of female household heads or 12 percent of the total sample of women. However, the children most likely to be missed are those born to the youngest mothers, since they are most likely to have grown up and left home before she turned 40. Because of this problem, analyses are done not just for all women but separately for women under age 35 and age 35 or older; analyses among younger women should not be affected by this problem. Analyses among wives are also unaffected.

Comparison of Age at First Birth Distributions with Current Population Reports

Table 1 presents the weighted proportions of women in the NLS and PSID samples in several age-at-first-birth categories. These distributions can be compared with distributions calculated from data from the 1971 and 1975 Current Population Reports for first births that occurred after the year 1960. The distributions are strikingly similar, although both the NLS and PSID samples have a higher proportion of births among women at older ages. The highest proportion occurs among the total PSID sample, which, as noted above, is

probably elevated by the loss of some early births among older family heads. The young women in the NLS and in the young women PSID sub-sample have few first births that occurred as early as 1960, and since the younger the

Table 1: The Distribution of Women by their Age at First Birth, 1971 and 1975 Current Population Survey (First Births Occurring After 1960), National Longitudinal Survey and Panel Study of Income Dynamics

Age at First Birth	1971 CPS	1975 CPS	NLS at age 24	PSID Total	PSID 35
17	.128	.129	.113	.112	.113
18	.095	.092	.095	.062	.071
19-20	.259	.248	.186	.214	.212
21+	.518	.530	.607	.633	.605

sample, the more likely the women would have taken part in the trend toward delayed childbirth (U.S. Bureau of the Census, 1978), it seems likely that some of the difference represents true societal changes over time. While the overall correspondence of the NLS and PSID data with Census Bureau data is most encouraging, it should be kept in mind that some inaccuracy due to coding and missing information was unavoidable. As always, our results should be considered within the context of the findings of other researchers, as well as one's own theoretical expectations.

RESULTS

Variable definitions, means and standard deviations for variables used in the several analyses are reported in the Appendix (see Appendix Tables 1 and 2).

The Simple Association Between Age and Timing of First Birth and Marriage (NLS)

Table 2 reports the proportion of NLS respondents married by age at first birth, race, and background socioeconomic status. Clearly, the major difference in the proportion married is between those young women who have ever had children, regardless of their age at first birth, and childless women.

At all ages, nearly all white mothers are or have been married. Even among non-mothers, whites are more likely than blacks to have been married at any given age. By age 24, however, a majority among both blacks and whites have married, the major exception being childless black women. While fewer than half of the black non-mothers have married by age 24, 76 percent of all black females in the sample had married by age 24, and 88 percent of the black mothers had married. Nearly 88 percent of all white females had married by 24, 71 percent of the non-mothers, and over 99 percent of the mothers. As Table 3 indicates, even the majority of women who bore their first child out-of-wedlock had married by age 24.

Thus, it appears that the overwhelming majority of women who bear children marry, even among those whose first child is from outside of marriage. Moreover, the majority of both blacks and whites are eligible for the analysis of divorce and separation.

Table 2: Percent of Respondents Ever Married by Ages 18, 21, and 24, by Respondent's Age at First Birth, by Race, and by Socioeconomic Background (SES) (Weighted) (National Longitudinal Survey)

Age of Respondent at First Birth	Percent of Respondents Ever Married... ...at age 18	...at age 21	...at age 24
ALL RACES			
≤15	63% (67)	93% (38)	96% (48)
16-17	83 (228)	93 (183)	98 (180)
18		93 (179)	98 (192)
19-20		94 (353)	98 (372)
21-23			97 (401)
No children by 18,21,24	24 (1989)	53 (1395)	69 (784)
ALL WHITES			
≤15	96% (29)	100% (22)	100% (32)
16-17	94 (162)	98 (133)	100 (139)
18		97 (152)	99 (169)
19-20		98 (300)	100 (335)
21-23			98 (366)
No children by 18,21,24	25 (1811)	54 (1287)	71 (726)
Low SES			
≤15	100% (11)	100% (9)	100% (10)
16-17	100 (41)	100 (45)	100 (60)
18		93 (38)	100 (44)
19-20		100 (70)	100 (84)
21-23			95 (68)
No children by 18,21,24	46 (229)	66 (153)	72 (85)
Medium/High SES			
≤15	93% (16)	100% (9)	100% (14)
16-17	92 (102)	96 (75)	100 (62)
18		97 (96)	99 (102)
19-20		99 (196)	100 (214)
21-23			99 (264)
No children by 18,21,24	21 (1470)	53 (1043)	71 (580)
ALL BLACKS			
≤15	38% (38)	84% (16)	89% (16)
16-17	56 (66)	81 (51)	90 (41)
18		71 (26)	90 (23)
19-20		70 (52)	89 (42)
21-23			83 (35)
No children by 18,21,24	19 (179)	35 (108)	45 (58)
Low SES			
≤15	41% (19)	83% (7)	76% (8)
16-17	59 (30)	84 (21)	89 (22)
18		70 (14)	95 (12)
19-20		70 (25)	88 (21)
21-23			65 (14)
No children by 18,21,24	23 (79)	41 (43)	45 (29)
Medium/High SES			
≤15	55% (8)	~ (3)	~ (3)
16-17	42 (17)	65% (12)	100% (7)
18		76 (8)	90 (8)
19-20		75 (21)	92 (14)
21-23			95 (14)
No children by 18,21,24	15 (64)	28 (48)	44 (20)

~: n < 5
-: n = 0

SES measured as the mean of four variables--occupation of head of household, mother's education, father's education, and presence of reading materials in the home of origin. Variables were standardized to have a mean of 10 and a standard deviation of 3.
N's in parentheses.

Table 3: Percent of Respondents Ever Married by Ages 18, 21, and 24 by Respondent's Age at First Birth Relative to Age at First Marriage, by Race, and by Socioeconomic Background (SES) (Weighted) - Premarital First Births Only (National Longitudinal Survey)

Age at First Birth Relative to Age at First Marriage	Percent of Respondents Ever Married...					
	...at age 18		...at age 21		...at age 24	
ALL RACES						
Premarital	44%	(112)	69%	(146)	83%	(184)
ALL WHITES						
Premarital	71%	(37)	84%	(73)	89%	(113)
Low SES						
Premarital	100%	(5)	84%	(16)	85%	(33)
Medium & High SES						
Premarital	66%	(28)	83%	(46)	91%	(62)
ALL BLACKS						
Premarital	31%	(75)	54%	(73)	74%	(71)
Low SES						
Premarital	31%	(34)	55%	(33)	68%	(37)
Medium & High SES						
Premarital	26%	(18)	46%	(21)	85%	(19)

The Impact of a Birth on the Probability of Marriage: Transition Probabilities

To evaluate the impact of a pregnancy or birth on the likelihood of marriage, special samples were created comprised of young women who were single at the start of a year. The probability of marriage over the course of the year (that is, between interviews) was studied as a function of a set of independent variables, including the occurrence of a birth. Results of regressions on both data sets indicate the importance of pregnancy and birth to the initiation of married life.

Adjusted marriage probabilities related to selected independent variables are presented in Table 4. Among young NLS respondents, the overall probability of marriage was 12.5 percent. The 2.5 percent of the sample who experienced a first birth in the current year experienced a marriage probability of 51 percent. A prior first birth also elevated the likelihood of marriage but only to 14 percent.

All single PSID women were included in a comparable analysis, whether they were daughters, female household heads, sisters, or single women living alone. Separate analyses were done for women 15-17, 18-20, and 21-23. Adjusted probabilities for selected variables are presented in Table 5. (Older women were not studied because our primary interest here is in the impact of an early birth on marriage formation.) Again, a current year first birth has a strong positive effect on the probability of a marriage. Among girls 15-17, only 6 percent married overall. However, of those having a current birth, the probability was 28 percent. Among young women 18-20 and 21-23, the overall likelihood of marriage is of course higher; 24 percent of of the single women were married by the end of the year. However, a current birth elevates the probability from 24 to 54 percent. Moreover, a prior birth also seems to have raised the probability of marriage to 18 percent.

Table 4: The Probability of Marriage and Remarriage: Adjusted Transition Probabilities (National Longitudinal Survey)

Independent Variables	Dependent Variables: FIRST MARRIAGE — Percent in Each Category	FIRST MARRIAGE — Predicted Probability of First Marriage[1]	REMARRIAGE — Percent in Each Category	REMARRIAGE — Predicted Probability of Remarriage[2]
I. FIRST BIRTH				
More than one year ago	3.7	.14	58.8	.33
Within the past year	1.2	.14	6.8	.49
Within the current year	2.5	.51	5.1	.51
No first birth yet	92.6	.11	29.4	.38
II. SELECTED OTHER CHARACTERISTICS				
Enrolled full time in school	61.9	.12	6.2	.26
Not enrolled full time in school	38.1	.12	93.8	.38
Received public assistance	05.6	.12	19.6	.30
Did not receive public assistance	94.4	.12	80.4	.39
III. OTHER MAJOR LIFE CHANCES IN CURRENT YEAR				
Second or later birth	1%	.30	8.5%	.49
No second or later birth	99	.12	91.5	.36
R^2		.113		.20
F		61.0		18.8
N		11,553		1,183

1 Predicted probabilities are calculated for each category by adding the adjusted B for that category to the overall mean. The adjusted B's are net of a number of other variables not included in this table. For a display of these variables see Appendix

Table 5: The Probability of Marriage: Adjusted Transition Probabilities for Women Aged 15-17, 18-20, and 21-23 (Panel Study of Income Dynamics)

	15-17		18-20		21-23	
	% In Category	Probability Of Marriage	% In Category	Probability Of Marriage	% In Category	Probability Of Marriage
Overall Probability of Marriage:		.06		.24		.24
I. FIRST BIRTH						
First Birth 2 or More Years Ago	10	.18	9	.09	15	.24
First Birth 2 Years Ago			3	.21	4	.19
First Birth 1 Year Ago			5	.57	5	.24
First Birth in Current Year	8	.28	8	.54	7	.54
No First Birth Yet	82	.02	75	.21	69	.23
II. SELECTED OTHER CHARACTERISTICS						
Worked at Least 30 Hours Last Year	33	.05	64	.25	75	.22
Did Not Work 30 Hours Last Year	67	.06	36	.23	25	.29
White	92	.06	86	.25	83	.27
Black	8	.03*	14	.21	17	.10
F_2	4.8		11.8		3.5	
R^2	.150		.187		.094	
N	425.		835.		558.	

This latter finding helps resolve some of the questions that necessarily arise as to causality.

A birth that occurs in the same year as a marriage cannot automatically be assumed to have precipitated the marriage. Certainly, some proportion of these births were conceived after marriage. However, in most cases, the conception probably preceded marriage, since the marriage would have had to occur in the first months of the year of exposure and be followed by an immediate conception in order for a birth to occur during the current year. Moreover, the fact that even a birth in the previous year exerts an ongoing pressure toward marriage argues that the birth is a causal factor toward marriage. In addition, a birth is associated with a greater probability of re-marriage as well as first marriage (see Table 4). Of course, only data that provide exact dates by month would allow us to make a certain statement to the temporal ordering of events; but the data certainly are in line with the expectation that pregnancy often leads to marriage.

Occurrence of a birth is overall the best predictor of marriage in this model. (The full models with unadjusted coefficients are presented in Appendix Tables 5 and 6). Among women 21 to 23, women who worked more than 30 hours in the previous year have a lower marriage probability. Though only of borderline significance ($p = .06$), the same tendency can be noted in the NLS data. This may represent an independence effect due to having an alternate source of income. Unemployed women are significantly more likely to marry. Also, in both analyses, whites and women living in the South are more likely to enter marriage, as are the older women in these young samples. Finally, a birth more than two years ago seems to depress rather than raise the probability of marriage.

These analyses confirm the frequent linkage between an early pregnancy

or birth and an elevated probability of marriage. This leads to a question of greater debate. Are the marriages formed under such circumstances unstable? What is the association between early childbearing, early marriage, and marital disruption?

The Simple Association Between Age at First Birth and the Proportion Ever-Divorced or Separated (NLS)

Table 6 presents the proportion of ever-married NLS respondents who have ever been divorced or separated by age 18, 21, or 24, controlling for respondent's race and socioeconomic background. A clear association between early childbearing and an elevated probability of marital disruption is visible; the only exception is an occasional upturn in the monotonic trend among women who are still childless at age 24. Since we will be using dummy variables to measure age at first birth when doing regressions, this will not be obscured. Using the disruption measure that combines both divorce and separation, no notable trends by race and socioeconomic status are apparent.

Table 7 reports the proportion divorced or separated by the timing of the first birth relative to the first marriage. Overall, the young women with premarital births are more likely to be divorced by age 21 or 24; but this finding is not replicated among all race and SES categories. Indeed no clear pattern of association between timing of birth and the proportion of marriages that are disrupted is apparent.

Multivariate Analysis of Marital Disruption: Attainment by Age 24 (NLS)

Table 8 presents the results of two analyses in which the probability of divorce or separation by age 24 among ever-married NLS women was regressed on a series of independent variables. In one regression, age at first birth, age at first marriage, and timing of first birth relative to marriage (all in dummy form) are included in the same analysis. In the second regression, only age at first birth and timing are included. When the dummy variables for respondent's age at first marriage are included, the effects of age at first birth and education on divorce are no longer significant. The timing of the first birth relative to marriage does not contribute to divorce at age 24. The probability of divorce by age 24 does appear to be affected by the age

Table 6: Percent of Ever-Married Respondents Ever-Divorced by Ages 18, 21, and 24 by Respondent's Age at First Birth, by Race and by Socioeconomic Background (SES) (Weighted) (National Longitudinal Survey)

Age of Respondent at First Birth	Percent of Ever Married Respondents Ever Divorced... ...at age 18		...at age 21		...at age 24	
ALL RACES						
≤15	26%	(42)	27%	(35)	27%	(46)
16–17	9	(189)	24	(171)	18	(176)
18			12	(166)	16	(188)
19–20			5	(332)	13	(371)
21–23					5	(388)
No children by 18,21,24	2	(479)	6	(733)	9	(538)
ALL WHITES						
≤15	17%	(27)	26%	(22)	26%	(32)
16–17	9	(153)	20	(130)	13	(139)
18			11	(147)	15	(167)
19–20			6	(295)	12	(333)
21–23	2	(446)			5	(359)
No children by 18,21,24			6	(695)	9	(512)
Low SES						
≤15	4%	(11)	18%	(9)	28%	(10)
16–17	11	(41)	26	(43)	7	(60)
18			11	(35)	12	(44)
19–20			6	(70)	19	(84)
21–23					4	(65)
No children by 18,21,24	3	(104)	7	(101)	9	(61)
Medium/High SES						
≤15	29%	(15)	47%	(9)	40%	(14)
16–17	8	(93)	18	(72)	15	(62)
18			10	(94)	15	(101)
19–20			6	(194)	9	(214)
21–23					5	(261)
No children by 18,21,24	1	(304)	5	(549)	8	(413)
ALL BLACKS						
≤15	43%	(15)	30%	(13)	30%	(15)
16–17	9	(36)	36	(41)	36	(37)
18			21	(19)	26	(21)
19–20			4	(37)	24	(38)
21–23					14	(29)
No children by 18,21,24	3	(34)	5	(38)	8	(26)
Low SES						
≤15	50%	(8)	31%	(6)	22%	(6)
16–17	7	(18)	35	(18)	38	(20)
18			24	(9)	25	(11)
19–20			5	(17)	26	(19)
21–23					17	(9)
No children by 18,21,24	2	(18)	7	(18)	10	(3)
Medium/High SES						
≤15	~	(4)	~	(3)	~	(3)
16–17	10%	(7)	23%	(8)	43%	(7)
18			17	(6)	31	(7)
19–20			5	(15)	18	(13)
21–23					19	(13)
No children by 18,21,24	3	(10)	0	(13)	8	(9)

~: n < 5
-: n = 0

SES measured as the mean of four variables—occupation of head of household, mother's education, father's education, and presence of reading materials in the home of origin. Variables were standardized to have a mean of 10 and a standard deviation of 3.
N's in parentheses.

Table 7: Percent of Ever Married Respondents Ever Divorced by Ages 18, 21 and 24 by Respondent's Age at First Birth Relative to Age at First Marriage, by Race and by Socioeconomic Background (SES) (Weighted) (National Longitudinal Survey)

Age at First Birth Relative to Age at First Marriage	Percent of Ever Married Respondents Ever Divorced...					
	...at age 18		...at age 21		...at age 24	
ALL RACES						
Premarital	10%	(50)	19%	(100)	15%	(152)
Ambiguous	8	(105)	11	(290)	10	(426)
Post-marital	19	(77)	12	(314)	11	(746)
ALL WHITES						
Premarital	11%	(26)	13%	(61)	13%	(100)
Ambiguous	3	(84)	9	(246)	9	(381)
Post-marital	17	(70)	12	(287)	9	(698)
Low SES						
Premarital	7%	(5)	24%	(13)	19%	(28)
Ambiguous	0	(24)	14	(54)	7	(109)
Post-marital	19	(23)	11	(91)	14	(145)
Medium & High SES						
Premarital	14%	(18)	13%	(38)	13%	(57)
Ambiguous	5	(54)	8	(169)	8	(228)
Post-marital	17	(36)	12	(162)	8	(483)
ALL BLACKS						
Premarital	8%	(23)	27%	(39)	18%	(53)
Ambiguous	27	(21)	21	(43)	24	(45)
Post-marital	32	(7)	17	(27)	33	(48)
Low SES						
Premarital	0%	(11)	26%	(18)	18%	(25)
Ambiguous	25	(12)	17	(19)	23	(21)
Post-marital	~	(3)	25	(13)	40	(21)
Medium & High SES						
Premarital	7%	(5)	18%	(10)	20%	(16)
Ambiguous	34	(6)	8	(16)	34	(14)
Post-marital	~	(1)	12	(7)	15	(16)

Table 8: Partial Regression Coefficients (Standardized and Unstandardized) of the Probability of Ever Being Divorced at Age 24 on Age at First Birth, and Controls for Respondent Background, With and Without Age at First Marriage, Among Respondents Ever Married (National Longitudinal Survey)

	With Age of Marriage		Without Age of Marriage	
Independent Variables	b's	Betas	b's	Betas
Age at First Birth				
10-15	.043	.022	.177 *	.092 *
16-17	-.026	-.025	.082 *	.080 *
18	-.024	-.024	.075 *	.074 *
19-20	.002	.002	.054	.070
≥ 21	a	a	a	a
Age at First Marriage				
10-15	.208 *	.097 *	b	b
16-17	.148 **	.165 **	b	b
18	.150 ***	.180 ***	b	b
19-20	.058 *	.085 *	b	b
21-23	a	a	b	b
Parental Socio-Economic Status	.006	.045	.006	.047
Education (In Years)	-.009	-.061	-.014 *	-.102 *
First Birth Premarital	.001	.001	-.055	-.050
Intact Family of Origin	.005	.006	.001	.001
Pacific Coast	.083 **	.092 **	.087 **	.096 **
Metropolitan Area	.031	.046	.030	.045
Age in 1968	-.023 **	-.105 **	-.025 ***	-.114 ***
Race	-.139 ***	-.131 ***	-.125 ***	-.118 ***
AFDC Benefit Level in Region	.000	.020	.000	.003
Unemployment Rate	-.007	-.058	-.007	-.058
Constant	.726		.900	
R^2	.079		.061	
F	3.826		3.74	
N	873.		873.	

* $p < .05$
** $p < .01$
*** $p < .001$
a = omitted category
b = omitted from regression

at which a young woman enters marriage. Since age at first birth and age at first marriage are so highly correlated, their effects are hard to disentangle. We tentatively conclude that since the effect of age at first birth disappears when age at first marriage is included, the former effect simply reflects the impact of youthful marriage. Comparison of beta coefficients across columns of Table 8 suggests that even the negative association between years of education and the probability of divorce is due to the respondent's age at marriage.

The predominance of age at first marriage in explaining the probability of divorce is an extremely interesting finding. Other work with these data and the PSID indicate that age at first birth is the more critical determinant of the cumulative number of children born to a woman. Here it seems that it is the duration of marriage and/or the youthfulness of the partners, represented by the respondent's age at first marriage, that are the more critical determinants of the cumulative probability of divorce or separation. This finding will be pursued in the 1968 to 1972 analysis.

Although this regression includes only an abbreviated list of independent variables; several anticipated effects can be noted. Blacks have a considerably higher probability of experiencing marital disruption than do whites, as do respondents who live on the Pacific coast. The AFDC (Aid to Families with Dependent Children) benefit level in the respondent's region of residence does not predict to divorce, nor does parental socioeconomic status. The secular increase in the incidence of divorce is clearly visible in the variable controlling for cohort change; respondents who were older in 1968 had a probability of experiencing divorce or separation by age 24 that is lower by more than two percent for each year of age. Metropolitan residence is associated with a higher probability of divorce; but the coefficient falls just short of statistical significance. The one surprising finding is the

negative relationship between the level of unemployment and the probability of divorce. Presumably the unemployment variable is serving as a proxy for some contextual variable that is not included in the analysis; the experience of unemployment by the individuals in the study would be a better variable to use to explore the impact of unemployment on marital stability.

Multivariate Analysis: 1968 to 1972 Experience Approach (NLS)

A larger array of variables could be included in the analysis of divorce among respondents married at the time of the initial interview in 1968. Table 9 presents regression results from the 1968 to 1972 experience analysis. The sample on which this analysis was done comprises 1,277 respondents who were married at the time of the first interview in 1968. By 1972, 191 or 13 percent of these women had divorced or separated. To estimate the effect of age at first marriage and age at first birth, net of each other and of other theoretically important factors, single-equation, linear multiple regression models were estimated with ordinary least squares. Multicollinearity between age at first marriage and age at first birth casts doubts on the findings when both are included in a single equation, but to obtain their separate effects it is essential to control for one while estimating the impact of the other on marital dissolution. For this reason, and because several of our hypotheses deal with interactions between these two variables, models of marital instability were also estimated separately for various ages of first marriage. This allowed a test of the hypothesis that, given a young first marriage, youthful child bearing increases the likelihood of dissolution. In addition, this strategy overcomes the confounding effect of multi-collinearity between these two important variables.

Ideally, one would wish to have measures of the couple's status in the year of or before the divorce or separation. Unfortunately, this creates a

Table 9: Partial Regression Coefficients of the Probability of Being Divorced by 1972 Among Young Women Married in 1968, with and Without Measures of Age at First Birth and Age at First Marriage (National Longitudinal Survey)

Independent Variables	Without Age at First Birth and Without Age at First Marriage		With Age at First Marriage Only		With Age at First Birth Only		With Age at First Birth and With Age at First Marriage	
	b	beta	b	beta	b	beta	b	beta
Age at First Birth								
<15	-	-	-	-	.012	.007	- .077	- .047
16-17	-	-	-	-	.009	.010	- .079	- .085
18	-	-	-	-	- .011	- .011	- .072	- .072
19-20	-	-	-	-	.017	.022	- .015	- .020
≥21	-	-	-	-	a	a	a	a
Age at First Marriage								
<15	-	-	.092	.056	-	-	.148*	.090*
16-17	-	-	.103**	.125**	-	-	.151**	.184**
18	-	-	.080*	.099*	-	-	.112**	.138**
19-20	-	-	.047	.066	-	-	.054	.075
≥21	-	-	a	a	-	-	a	a
Parental Socioeconomic Status	.012*	.081*	.011*	.072*	.012*	.082*	.011*	.073*
Education in 1968								
<12 years	a	a	a	a	a	a	a	a
=12 years	- .066**	- .097**	- .045	- .066	- .065*	- .096*	- .055*	- .082*
13-15 years	- .113**	- .114**	- .075	- .076	- .112**	- .113**	- .086*	- .087*
≥16 years	- .195***	- .133***	- .136*	- .093*	- .191***	- .130***	- .144**	- .098**
Intact Family of Origin	- .035	- .039	- .034	- .038	- .035	- .038	- .034	- .037
AFDC Benefit Level	.000	.012	.000	.021	.000	.012	.000	.024
Unemployment Rate in 1968	- .002*	- .072*	- .002*	- .072*	- .002*	- .071*	- .002*	- .072*
Metropolitan Area	.030	.043	.035	.050	.030	.044	.031	.045
Assets								
≤$0	a	a	a	a	a	a	a	a
$1-$1000	- .010	- .014	- .008	- .011	- .011	- .015	- .011	- .016
>$1000	- .060*	- .085*	- .056*	- .080*	- .060*	- .085*	- .056*	- .080*
Children Under Age 3								
1	.015	.022	.012	.018	.014	.021	.026	.038
≥2	.032	.030	.032	.029	.034	.031	.022	.020
None	a	a	a	a	a	a	a	a
Husband's Income								
$0	a	a	a	a	a	a	a	a
$1-$3000	- .018	- .018	- .026	- .026	- .020	- .020	- .022	- .022
$3001-$6000	.047	.065	.043	.059	.045	.062	.049	.068
$6001-$9000	.055	.076	.054	.075	.054	.074	.062	.086
$9001-$12000	.006	.007	.011	.011	.005	.005	.018	.019
>$12000	.007	.004	.008	.005	.005	.003	.017	.010
Respondent's Contribution to Family Income								
0%	a	a	a	a	a	a	a	a
1-25%	.039	.054	.040	.055	.041	.057	.042	.058
26-50%	.044	.055	.052	.066	.046	.058	.051	.064
51-70%	.098*	.070*	.111*	.079*	.102*	.072*	.110*	.078*
>70%	.143*	.078*	.151*	.083*	.146*	.080*	.159**	.087**
Race (1 = White)	- .192***	- .169***	- .191***	- .168***	- .192***	- .169***	- .198***	- .174***
West Coast Residence	.076**	.081**	.073*	.078*	.077**	.082**	.075**	.080**
Duration of Marriage								
<2 years	.009	.013	.046	.064	.008	.010	.044	.062
2-3 years	.033	.046	.061	.086	.032	.044	.034	.075
4-5 years	.002	.003	.022	.027	.000	.000	.019	.022
>5 years	a	a	a	a	a	a	a	a
Timing of First Birth: Premarital or in Same Year as Marriage	.023	.021	.036	.032	.022	.020	.061	.055
Constant	1.228		1.118		1.222		1.124	
F_2	4.016*		3.771		3.520		3.474	
R^2	.080		.086		.080		.089	
N	1277		1277		1277		1277	

a = $p < .05$
$p < .01$
$p < .001$

a = omitted category
- = omitted from regression

problem in selecting data for the control population of couples not experiencing marital disruption, since there is no comparable year from which data can be selected. Therefore, the status of each couple in 1968, the baseline year in which all were married, is utilized for all variables (except background variables.

To begin to examine the impact of age at first marriage and age at first birth on marital dissolution, net of each other, four equations were estimated. First, a model of marital disruption between 1968 and 1972 was estimated which contained all the independent variables mentioned earlier except age at first marriage and age at first birth. Then age at first marriage was added to the equation and the increment in R^2 examined. Next, age at first birth was added to the equation without age at first marriage and, finally both of these measures were included along with the other variables in a single equation.

As the reader will note, adding either age at first marriage or age at first birth increases the explanatory power of the model by about the same modest amount. However, age at first birth never has a statistically significant impact on the likelihood of divorce or separation. This is the case whether age at first marriage is included in the equation (model 4) or not (model 3). A relatively young age at first marriage does appear to increase the probability of marital instability even when age at first birth is controlled. Those who first wed at 16 or 17 experienced a likelihood of divorce or separation 15 percentage points higher than that for couples who delayed marriage until they were at least 21. Marriage at 18 increased the probability of disruption by 11 percentage points relative to those who married later. Given that 13% of those who were married in 1968 had divorced or separated by 1972, the increase in probability of disruption associated with a young first marriage is quite large.

One anomaly exists in these findings--those who first married at ages 10 to 15 were not significantly more likely to disrupt their marriages by 1972 than those who first wed at 21 or older. We suspect that this unexpected result is due to the fact that these very young brides were more likely than others to already have dissolved their first marriages and remarried by 1968. (As noted, the NLS data contain information on age at first marriage for those married at the 1968 interview, but it cannot be determined whether women were still in that first marriage). It should be noted, however, that the coefficient for first marriage at 15 or younger has the expected sign and is large; it is simply not statistically significant.

The results presented in Table 9 suggest that teenage marriages are less stable than those contracted later and that this relationship holds whether or not youthful parenthood accompanies these marriages. A first birth at a young age does not appear to increase marital instability even if age at marriage is not controlled. In fact, as Table 9 shows, all the coefficients for the measures of early childbearing are negative when age at marriage is in the equation, suggesting that, given an early first marriage, a first birth during the teens reduces the likelihood of disruption. This finding, which is not statistically significant, cannot be attributed solely to the presence of young children since a measure of this effect is explicitly included in the equation.

Before turning to a more rigorous examination of this issue, we will briefly review the effects of other variables in our model on the probability of marital disruption.

Much of the research on this topic has been restricted to white women (Bumpass and Sweet, 1972; Cherlin, 1977) but when race has been considered, blacks have been found to be more likely to separate or divorce than whites

(Ross and Sawhill, 1975). The results reported in Table 9 indicate that after differences between racial groups in the effect of demographic and socio-economic factors are removed, the likelihood of dissolution is 20 percentage points lower for white than for black women. Speculations concerning the cause of this relationship include the discrimination and greater economic instability faced by black than for white women because of the relatively high earnings of black women compared to black men, and possibly racial differences in attitudes toward marriage (Ross and Sawhill, 1975). Whatever the explanation, the effect is quite strong.

We find also, as do Bumpass and Sweet (1972), that the likelihood of dissolution decreases with the educational attainment of the woman. Cherlin (1977) finds no statistically significant effect of years of schooling completed on marital instability among older women. The effect shown in Table 9 is substantial--the probability of separation or divorce is 14 percentage points lower for college graduates than for high school drop-outs. Bumpass and Sweet (1972) find that much of the initial difference in marital stability by education is due to differences in age at marriage--once this factor is controlled the dissolution rates for various levels of educational attainment are quite similar. The lack of agreement between our findings and those of Cherlin (1977) and Bumpass and Sweet (1972) may be due to differences in the sample studied. We are examining dissolution very early in marriage. Respondents in our sample were 14 to 24 in 1968; Cherlin's were 30 to 44 in 1967; and those studied by Bumpass and Sweet were under age 45 in 1970. We suggest the possibility that the wife's educational attainment may be a more important factor in marriage stability when she is young and relatively fresh from the educational system than later in her life when experiences since school become more central.

Some aspects of the economic situation faced by the couple were found to influence marital stability; others had no effect. Among young wives, as among those closer to mid-life studied by Cherlin (1977), having assets in excess of $1000 significantly diminished the likelihood of divorce or separation. The income of the husband does not have a significant effect, which is consistent with results reported by Ross and Sawhill (1975). Perhaps possession of substantial assets reflects the willingness and ability of the couple to plan and to exercise control over important aspects of their lives, characteristics which should increase the chances for a stable marriage. This variable might also indicate an income in excess of basic needs and so might reflect the performance of the husband as bread winner.

Four other factors were found to be significantly related to the probability of divorce or separation. Coming from a family with a relatively high socio-economic status appears to increase marital instability, perhaps by providing the resources to allow a woman to leave a bad marriage. Women from relatively high status family backgrounds might also have more difficulty in finding a mate who meets their expectations. Marital disruption is significantly more common among those living on the west coast, possibly because of different attitudes toward marriage and divorce in that area. And women whose earnings constitute a substantial proportion of total family income are considerably more likely to dissolve their marriages than those who have no earnings or who have relatively low earnings. Wives in unsatisfactory relationships may find a good job in anticipation of divorce; work by the wife may weaken the marriage; or women who have a way to support themselves may be less likely to tolerate a bad marital situation; causality is impossible to determine. In addition, those who live in areas with high unemployment are less likely to divorce or separate than others. The unemployment rate may indicate the difficulty with which a woman could find a job--often a necessity for those

who dissolve their marriages. Uncertainty about employment may make marriage more attractive to both spouses, since at least one is likely to locate work.

The results in Table 9 also indicate that several factors expected to affect marital stability did not do so. Several studies have found evidence of intergenerational transmission of marital instability (Pope and Mueller, 1977; Bumpass and Sweet, 1972). We find no such effect. Divorce and separation rates are highest in metropolitan areas (Cherlin, 1977; Ross and Sawhill, 1975) but no impact of residence in an SMSA is evident in our results. In addition, presence of very young children does not appear to reduce the probability of divorce among young wives: those who have any children under three years of age are no more likely to remain married than those who have none. Among older wives Cherlin (1977) found children to be a deterrent to divorce or separation only when they were preschool age, 5 or younger. Since only children 0 to 2 are considered here, these results are not directly comparable. We found, as did Cherlin (1977) no effect of the level of AFDC benefits in the region on the probability of disruption. In addition, no effect of a premarital or ambiguously timed first birth was evident, perhaps because of the crudeness of the measure available.

To summarize briefly, we have found a substantial impact of age at first marriage on marital stability whether age at first birth is controlled or not. Teenage childbearing does not appear to increase the likelihood of divorce or separation. However, the multicollinearity between these two variables, mentioned earlier, makes these results subject to question. For this reason and because we hypothesized that the effect of some factors would depend on age at first marriage, we divided the sample on this variable and estimated the equations separately within each group. Since within groups, age at first marriage is constant, we can examine the impact of age at first birth without encountering multicollinearity. The results of this analysis are presented in Table 10.

Table 10: Partial Regression Coefficients of the Probability of Being Divorced or Separated by 1972 Among Young Women Married in 1968, by Age at First Marriage (National Longitudinal Survey)

	AGE OF WOMAN AT FIRST MARRIAGE									
	≤17		18		19-20		21+		All Ages	
	b	beta	b	beta	b	beta	b	beta	b	beta
Age at First Birth										
<17	- .071	- .087	- .003	- .002	.002	.001	- .070	- .046	.021	.023
18	- .060	- .054	- .112	- .151	- .065	- .045	- .003	- .002	- .001	- .001
19-20	- .001	- .001	- .125	- .171	.015	.024	.073	.072	.022	.029
≥21	a	a	a	a	a	a	a	a	a	a
Parental Socioeconomic Status	.031*	.161*	- .009	- .059	.021*	.140*	.002	.022	.016**	.097**
Education in 1968	- .024	- .104	- .003	- .012	- .024	- .127	- .015	- .129	- .024***	- .146***
Intact Family of Origin	.016	.019	- .024	- .024	- .031	- .030	- .080	- .104	- .030	- .033
Metropolitan Residence (1 = Metro)	.031	.040	.045	.063	.024	.036	.066	.114	.032	.047
Assets										
≤$0	a	a	a	a	a	a	a	a	a	a
$1-$1000	.026	.030	.075	.097	- .021	- .031	- .103*	- .184*	- .010	- .014
>$1000	- .067	- .080	.051	.068	- .124**	- .186**	- .121*	- .229*	- .061*	- .086*
Children Under Age 3										
1	.050	.065	.049	.070	.042	.063	- .079	- .135	.025	.036
≥2	.053	.045	.074	.072	- .035	- .034	- .248**	- .227**	- .019	- .018
None	a	a	a	a	a	a	a	a	a	a
Husband's Income										
$0-$3000	a	a	a	a	a	a	a	a	a	a
$3001-$6000	.113	.142	.110	.147	.037	.052	- .005	- .009	.067*	.092*
$6001-$9000	.130	.153	.100	.133	.148*	.220*	- .022	- .038	.083*	.115*
$9001-$12000	.169	.137	- .013	- .012	.088	.102	- .007	- .010	.038	.040
$12000	.262	.139	- .020	- .012	.003	.002	- .057	- .047	.028	.017
Respondent's Contribution to Family Income										
0%	a	a	a	a	a	a	a	a	a	a
1-25%	.053	.067	.063	.084	.022	.031	- .035	- .097	.040	.056
26-50%	.069	.065	.123	.133	.061	.084	- .048	- .087	.054	.068
51-70%	.141	.050	.170	.110	.287**	.202**	- .139	- .181	.109*	.077*
>70%	.212	.082	.517**	.193**	.083	.057	.089	.070	.168**	.092**
Race (1 = White)	- .294***	- .257***	- .044	- .036	- .120	- .102	- .236***	- .261***	- .183***	- .161***
West Coast Residence	- .028	- .025	.079	.083	.080	.092	.064	.088	.049	.053
Duration of Marriage in 1968	- .026*	- .160*	- .017	- .090	.005	.025	.025	.103	- .005	- .028
Constant	.369		.232		.215		.621		.361	
F_2	1.580		1.723		1.873		2.713		3.914*	
R^2	.122		.126		.110		.226		.073	
N	274		287		335		227		1116	

* = p < .05
** = p < .01
*** = p < .001

a = omitted category

Multivariate Analysis: 1968 to 1972 Experience Approach by Age at Marriage (NLS)

The analysis presented in Table 10 allows us to test more rigorously our earlier finding that age at marriage influences marital stability but age at first birth does not. The results shown in Table 10 confirm the earlier conclusion.

Given age at first marriage, age at first birth has no significant effect on divorce or separation. Among those who wed at 17 or younger the pattern of coefficients suggests that the earlier the age at first birth the lower the likelihood of disruption compared to those who first became parents at 21 or older.[1] A similar pattern appears for those who first married at 18 but not for women who became brides at any older age. We find, therefore, no support for the hypothesis that teenage childbearing is the reason for the relationship between youthful marriage and instability--those who wed while teenagers and delay parenthood fare no better than their classmates who also had their first child while in their teens. Furthermore, those women who bore their first child before their first marriage do not exhibit a higher probability of divorce.

Table 10 shows several other interesting patterns; the impact of a number of independent variables on marital stability seems to differ among groups who first married at different ages. The disruptive impact of higher parental socio-economic status noted earlier appears to occur only among those who married while quite young--no effect of this factor exists among those who wed at 21 or older when parents may feel less responsibility for supporting divorced children. (It should be pointed out that in all cases the coefficients are

1. Among those who married at 18 or younger, so few were still childless at 24 that it was not possible to include a childless category. Thus, the highest age-at-first-birth category, 21 or over, includes some parents and childless couples.

quite small, and so our discussion must be highly speculative.) Presence of children under three years of age has no influence on marital stability among young brides but has a significant inhibiting effect among those who delayed first marriage until at least 21. This pattern might explain the difference between our earlier finding of no effect of presence of young children and Cherlin's (1977) report of a large, significant effect. Cherlin examined presence of young children among women 30 to 44 in 1967. These children must all have been born after the mother was in her late twenties. Apparently young children inhibit the break up of marriage among older but not among younger couples. Perhaps the young child of an older couple is more typically a wanted child and so less of a strain. Perhaps grandparents are more willing to house and support their daughter, with her child, if she married young, compared to a daughter who had probably already left home before first marrying in her twenties.

The stabilizing influence of assets on marriages, noted earlier, also appears to occur only among those who first wed at older ages. Among women who became brides at 18 or younger, being relatively well-off financially, at least as indicated by assets, has no effect on the likelihood of marital dissolution. However, among the youngest brides marital stability appears to increase substantially with the income of the husband. This is true in no other age-at-marriage group. In fact, among those who first married at the oldest ages, stability decreases with increases in husband's income. Although in neither case are these coefficients significant, the patterns are suggestive. We speculate that a low husband's income among those first married at 21 or older often reflects his preparation for a professional career--college, medical school and the like. Thus, a very low income may indicate superior long-run income prospects for this group. For younger brides very low husband's

income more probably reflects unemployment and poor performance of the traditional breadwinner role--factors which have often been related to marital break up (Ross and Sawhill, 1975).

The effect of the wife's earnings is quite strong among couples who were under 20 when they married. The greater the proportion of the family income earned by the wife, the greater the probability that the marriage will end. This tendency does not hold, however, among the couples married when the wife was at least 21. Again, though, this exception may be due to couples in which the woman is putting a husband through school or a husband is beginning a career. The interpretation of this effect is uncertain; but it certainly merits further consideration.

The only other factor which appears to affect marital stability differently depending on age at first marriage is whether the woman was raised in an intact family. This variable has no effect among those who first married at the youngest ages and is increasingly negative among successively older brides. Intergenerational transmission of marital instability appears to occur only among those who marry at around the average age and not among those who wed while teenagers. Although the effects are not statistically significant, the result is intriguing.

These results, when taken as a whole, seem to suggest that first marriages contracted by very young brides are different in some fundamental respects from those entered by older women. Many of the factors that buffer the marriages of those who wed at or near the typical age for this event do not protect those who marry while very young. Having young children, possessing substantial assets, coming from an intact family or one of relatively high status increase marital stability among those who marry in their late teens or early twenties but do not protect young brides.

In general, it might be noted that our model of marital disruption does not work as well for couples who married when the wife was a teenager. Overall, doing separate analyses among groups similar in their age of marriage increases the proportion of variance explained substantially--from 7 percent among the total sample to between 12 and 23 percent within the several sub-groups. However, the model, built (by necessity) only with measures of social, demographic, and economic status, does a considerably better job of explaining marital disruption among couples marrying in their twenties (R^2 = .226) than it does among teen couples (R^2 = .122). Presumably, variables that measure more psychological or social psychological constructs would predict better. Perhaps those who marry young disproportionately possess attitudes or personal characteristics that dispose them to divorce, for example, perhaps they tend to be risk-takers, or they are less able to delay gratification. Or perhaps they are not able to develop the coping skills that their unmarried peers have the leisure to work out. On the other hand, since a great deal of maturation follows rather than precedes the wedding, perhaps young couples simply face a greater likelihood of growing apart. Understanding the processes that underlie disruption presents an interesting research challenge; but one we cannot attack with the data at hand.

Multivariate Analysis: Race Differences (NLS)

One of the major predictors of marital disruption in our analyses thus far has been race. In these regressions, race has been included as a simple additive variable; however the possibility that the effects of other factors depend on respondent race should not be ignored. To explore this issue, regressions have been run separately for blacks and for whites. These results are presented in Table 11.

Early childbearing does not seem to increase the probability of marital break-up among whites. If anything, an early birth seems to reduce the chances of disruption. Among blacks, there is an association between teenage childbearing and marriage break-up; but it becomes statistically non-significant when age at marriage is also included in the regression. Among whites, early marriage is associated with a greater frequency of divorce; but the relationship among blacks is not statistically significant. These results suggest that among blacks early marriage and early childbearing both increase the chances of disruption slightly though not significantly. Among whites, early marriage seems to predict to divorce, while early childbearing actually seems to be associated with a lower likelihood of divorce.

Among both blacks and whites, wives who earn a relatively large proportion of the family income are more likely to dissolve their marriages over the five-year period. This is the strongest similarity evident in the data. The effects of several other variables seem to depend on race. Education, for example, seems to reduce the probability of divorce for whites but not for blacks. Among blacks, having children under the age of three significantly lowers the probability of marital break-up. Also, those blacks married at least six years in 1968 are considerably more likely to remain together.

Table 11: Partial Regression Coefficients (Standardized and Unstandardized) of the Probability of Being Divorced by 1972 Among Respondents Married in 1968 on Age at First Birth, Age at First Marriage and Controls for Respondent Background (National Longitudinal Survey)

Independent Variables	Whites							
	Without Age at First Birth and Without Age at First Marriage		With Age at First Marriage Only		With Age at First Birth Only		With Age at First Birth and With Age at First Marriage	
	b	beta	b	beta	b	beta	b	beta
Age at First Birth								
<15	-	-	-	-	- .073	- .042	- .162	- .094
16-17	-	-	-	-	- .032	- .035	- .123*	- .134*
18	-	-	-	-	- .021	- .023	- .087	- .093
19-20	-	-	-	-	- .006	- .009	- .032	- .045
>21	-	-	-	-	a	a	a	a
Age at First Marriage								
<15	-	-	.046	.029	-	-	.159	.100
16-17	-	-	.097*	.124*	-	-	.171**	.219**
18	-	-	.087*	.115*	-	-	.129**	.171**
19-20	-	-	.062	.093	-	-	.076*	.114*
>21	-	-	a	a	-	-	a	a
Parental Socioeconomic Status	.012*	.081*	.010	.071	.012*	.082*	.010	.070
Education in 1968								
<12	a	a	a	a	a	a	a	a
=12	- .063*	- .099*	- .054	- .085	- .080*	- .127*	- .070*	- .110*
13-15	- .107**	- .117**	- .083	- .091	- .126**	- .138**	- .099*	- .109*
>16	- .189***	- .142***	- .137*	- .103*	- .206***	- .155***	- .149*	- .112*
Intact Family of Origin	- .012	- .014	- .015	- .017	- .016	- .017	- .015	- .017
AFDC Benefit Level	.000	.008	.000	.017	.000	.007	.000	.023
Unemployment Rate	- .001	- .058	- .001	- .056	- .001	- .057	- .001	.055
Metropolitan Area (1 = Metro)	.025	.038	.030	.047	.023	.036	.025	.039
Assets								
<$0	a	a	a	a	a	a	a	a
=$1-$1000	- .012	- .018	- .009	- .013	- .014	- .020	- .012	- .018
>$1000	- .054	- .084	- .050	- .076	- .055	- .084	- .050	- .077
Number of Children Under Age 3								
1	.022	.034	.019	.030	.025	.038	.038	.059
>2	- .008	- .008	- .007	- .006	- .008	- .008	.009	.008
None	a	a	a	a	a	a	a	a
Husband's Income								
<$0	a	a	a	a	a	a	a	a
$1-$3000	- .022	- .023	- .026	- .027	- .018	- .018	- .014	- .015
$3001-6000	.051	.075	.049	.071	.053	.077	.061	.088
$6001-9000	.055	.082	.057	.084	.058	.087	.072	.107
$9001-12000	.007	.009	.013	.015	.009	.010	.025	.029
>12000	.002	.001	.007	.005	.004	.003	.022	.015
Respondent's Contribution to Family Income								
0%	a	a	a	a	a	a	a	a
1%-25%	.044	.065	.046	.068	.044	.065	.046	.068
26%-50%	.047	.064	.056	.076	.046	.063	.053	.072
51%-70%	.123*	.093*	.135*	.102*	.122*	.092*	.133*	.100*
>70	.139*	.084*	.144*	.087*	.141*	.086*	.153*	.093*
West Coast Residence	.079*	.093*	.077*	.090*	.082*	.096*	.078*	.091*
Number of Years Married								
0-1 years	- .007	.010	.025	.038	- .017	- .026	.021	.031
2-3 years	.014	.021	.036	.055	.004	.005	.024	.037
4-5 years	- .016	.021	- .003	- .004	- .026	- .033	- .010	- .013
≥6 years	a	a	a	a	a	a	a	a
Timing of First Birth: Premarital	.014	.012	.026	.022	.029	.024	.071	.059
Constant	1.020		.920		1.049		.920	
F_2	1.720		1.700		1.540		1.684	
R^2	.051		.058		.053		.065	
N	857		857		857		857	

* p < .05
** p < .01
*** p < .001

a = omitted category
- = omitted from regression

Table 11: Continued

Independent Variables	Blacks: Without Age at First Birth and Without Age at First Marriage		With Age at First Marriage Only		With Age at First Birth Only		With Age at First Birth and With Age at First Marriage	
	b	beta	b	beta	b	beta	b	beta
Age at First Birth								
≤15	-	-	-	-	.361**	.251**	.151	.111
16-17	-	-	-	-	.262*	.263*	.180	.180
18	-	-	-	-	.047	.035	.031	.023
19-20	-	-	-	-	.074	.066	.116	.105
≥21	-	-	-	-	a	a	a	a
Age at First Marriage								
≤15	-	-	.346*	.199*	-	-	.245*	.141
16-17	-	-	.141	.136	-	-	.035	.033
18	-	-	- .022	- .020	-	-	- .089	- .079
19-20	-	-	- .166	- .161	-	-	- .196	- .190
≥21	-	-	a	a	-	-	a	a
Parental Socioeconomic Status	.016	.076	.012	.057	.013	.060	.014	.066
Education in 1968								
<12	a	a	a	a	a	a	a	a
=12	- .062	- .064	.019	.020	.026	.027	.020	.021
13-15	- .091	- .060	.036	.024	.012	.008	.034	.022
≥16	- .099	- .034	- .010	- .004	.008	.003	- .023	- .008
Intact Family of Origin	- .133*	- .139*	- .090	- .095	- .107	- .112	- .091	- .095
AFDC Benefit Level	.000	.052	.000	.042	.000	.037	.000	.045
Unemployment Rate	- .002	- .110	- .002	- .077	- .002	- .083	- .001	- .063
Metropolitan Area (1 = Metro)	.061	.065	.049	.053	.084	.090	.055	.058
Assets								
≤$0	a	a	a	a	a	a	a	a
$1-$1000	.010	.011	.056	.060	.027	.029	- .057	.062
>$1000	- .184	- .143	- .193*	- .149*	- .180	- .139	- .177	- .137
Children Under Age 3								
1	- .071	- .076	- .111	- .120	- .119	- .129	- .136	- .147
≥2	- .201*	- .171*	- .215*	- .183*	- .224*	- .191*	- .222*	- .189*
None	a	a	a	a	a	a	a	a
Husband's Income								
$0	a	a	a	a	a	a	a	a
$1-$3000	.161	.149	.092	.085	.168	.155	.112	.103
$3001-$6000	.152	.165	.085	.092	.150	.162	.103	.112
$6001-$9000	.134	.113	.118	.100	.136	.115	.140	.118
$9001-$12000	.019	.009	.053	.024	.002	.001	.032	.014
>$12000	- .079	- .009	- .161	- .019	.005	.001	- .100	- .012
Respondent's Contribution to Family Income								
0%	a	a	a	a	a	a	a	a
1-25%	.033	.035	.075	.081	.042	.046	.086	.093
26-50%	.035	.031	.121	.109	.060	.054	.127	.114
51-70%	- .108	- .059	- .068	- .037	- .071	- .039	- .053	- .029
>70%	.509	.119	.628*	.146*	.583*	.136*	.618*	.144*
West Coast Residence	- .006	- .003	- .023	- .013	.005	.003	- .018	- .010
Number of Years Married								
0-1 years	.130	.136	.284*	.298*	.181	.190	.262*	.275*
2-3 years	.220*	.223*	.380***	.384***	.289**	.292**	.361**	.365*
4-5 years	.189	.166	.346**	.303**	.244*	.214*	.333**	.292*
≥6 years	a	a	a	a	a	a	a	a
Timing of First Birth: Premarital	.080	.084	.123	.123	- .006	- .006	.063	.066
Constant	.041		- .167		- .178		- .227	
F_2	.490		1.970		1.738		1.830	
R^2	.145		.209		.189		.220	
N	255		255		255		255	

* = p < .05
** = p < .01
*** = p < .001

a = omitted category
- = omitted from regression

There are no corresponding effects among whites. On the other hand, residence on the West Coast affects the probability of divorce only among whites. Coming from an intact family reduces the likelihood of break-up among blacks, but not significantly so, while having a premarital birth, having no assets, and living in a metropolitan area are all associated with non-significant increases among both blacks and whites. Finally, parental socioeconomic status, AFDC benefit level, the unemployment rate, and the husband's earnings are similarly unimportant for blacks and whites.

The strongest predictors of divorce among whites are a teenage marriage, low education, West Coast residence, and a wife who earns most of the family's income. Among blacks, being childless, being relatively newly married, and having a wife who earns more than 70 percent of the family's income are most strongly predictive of marital dissolution.

Results concerning the effects of early marriage and childbearing, reported earlier, seem to reflect the experience of white respondents, which is not surprising, since whites predominate numerically. Early marriage, but not early childbearing, is associated with a higher probability of divorce or separation for whites. Among blacks, an early marriage or birth is associated with marital instability; however neither variable reaches statistical significance when both are considered together.

Multivariate Analysis: 1972 to 1976 Experience Approach (PSID)

Analyses conducted on the National Longitudinal Survey of Young Women (NLS) data suggest that an early marriage is associated with a considerably higher probability of marital break-up. However, when age at marriage is controlled, early childbearing does not seem to lead to a higher likelihood of disruption. In fact, a teenage birth is actually associated with a slightly, though non-significantly, lower probability of divorce or separation. The

impact of early childbearing and early marriage on marital stability will now be explored using a different data set, the Panel Study of Income Dynamics (PSID), but a similar list of variables.

Since women in the PSID range in age from 22 to 50 in 1976, the absence of a complete marital history is more of a handicap. Respondents have had many years in which to divorce and re-marry. Consequently, many of the initial marriages formed during the teen years and twenties have already dissolved by the time of the survey. For this reason, our analysis of divorce and separation between 1972 and 1976 among all couples married in 1972 will be discussed only briefly. Results are presented in Table 12.

The probability of divorce or separation by 1976 seems to be lower for couples who had a child by age 24, compared to those who delayed childbearing. In addition, those whose first marriage was entered in the teen years still have a somewhat higher probability of divorce. Those married in the early twenties have the highest relative likelihood of dissolution; however, this may be because some of those who married at the very youngest ages have dissolved their first marriages and re-entered marriage before the survey years. Given our inability to measure whether a respondent had ever been divorced, we had not expected to uncover evidence of lingering effects of any early birth or an early marriage; however, these results are quite similar to results obtained with the NLS data. The effects are weaker but the pattern is the same: early marriage but not early childbearing is associated with a greater likelihood of marital dissolution.

The effects of other variables in the model are also quite similar. For example, well-educated wives have a considerably lower probability of divorce, while women whose earnings constitute a substantial portion of the family income are far more likely to end their marriages. Homeownership,

Table 12: Partial Regression Coefficients (Standardized and Unstandardized) of the Probability of Being Divorced by 1976 Among Respondents Married in 1972, With and Without Measures of Age at First Birth and Age at First Marriage (Panel Study of Income Dynamics)

Independent Variables	Without Age at First Birth and Without Age At First Marriage		With Age at First Marriage Only		With Age at First Birth Only		With Age at First Birth and Age at First Marriage	
	b	beta	b	beta	b	beta	b	beta
Age at First Birth								
≤13	-	-	-	-	- .042	- .015	- .049	- .018
16-17	-	-	-	-	- .055	- .053	- .077*	- .075
18	-	-	-	-	.034	.025	.019	.014
19-20	-	-	-	-	- .070***	- .087***	- .063*	- .079
21-23	-	-	-	-	- .067***	- .088***	- .072***	- .094
≥24	-	-	-	-	a	a	a	a
Age at First Marriage								
≤13	-	-	.008	.004	-	-	.054	.031
16-17	-	-	.051	.061	-	-	.089*	.106
18	-	-	- .006	- .006	-	-	.040	.043
19-20	-	-	- .005	- .007	-	-	.044	.059
21-23	-	-	.076**	.100**	-	-	.101***	.133
≥24	-	-	a	a	-	-	a	a
Husband's Income								
$0-$6000	a	a	a	a	a	a	a	a
$6001-$9000	.043	.047	.033	.036	.044	.048	.037	.040
$9001-$12000	.010	.011	.006	.007	.009	.010	.005	.005
≥$12000	.057*	.085*	.051	.076	.054*	.080*	.048	.071
Number of Children Under Age 3								
1	- .016	- .021	- .018	- .022	- .007	- .008	- .013	- .01
≥2	.013	.005	.016	.006	.026	.010	.029	.01
None	a	a	a	a	a	a	a	a
Parental Socioeconomic Status	.007*	.048*	.007*	.049*	.006	.045	.006	.044
West Coast Residence	.030	.028	.032	.029	.033	.030	.033	.030
Metropolitan Area (1 = Metro)	.043*	.057*	.041*	.055*	.042*	.056*	.042*	.056
Home Owned (1 = Yes)	- .107***	- .152***	- .100***	- .142***	- .110***	- .155***	- .102***	- .144
AFDC Acceptance Rate in 1972	- .001	- .029	- .002	- .039	- .001	- .020	- .001	- .029
AFDC Benefits in 1972	.0003***	.106***	.0003***	.105***	.0003***	.098**	.0003***	.101
Race (1 = White)	- .306***	- .302***	- .290***	- .287***	- .290***	- .287***	- .281***	- .277
Religion (1 = Catholic)	- .096***	- 129***	- .099***	- .133***	- .096***	- .130***	- .096***	- .130
Unemployment Rate in 1972	- .023*	- .061*	- .024*	- .064*	- .022*	- .059*	- .022*	- .059
Female Wage in 1972	- .016**	- .061**	- .016**	- .061**	- .017**	- .064**	- .017**	- .064
Respondent's Contribution to Family Income								
0%	a	a	a	a	a	a	a	a
≤25%	.072***	.101***	.066***	.092***	.070***	.097***	.062***	.086
26%-50%	.067***	.079***	.069***	.081***	.067***	.079***	.067***	.079
51%-70	.104*	.049*	.094*	.044*	.082	.039	.078	.037
>70%	.452***	.103***	.422***	.097***	.419***	.096***	.390***	.089
Timing of First Birth: Premarital or in Same Year as Marriage	- .052*	- .043*	- .044*	- .045*	- .046*	- .047*	- .037	- .037
Wife's Education								
<12 Years	a	a	a	a	a	a	a	a
= 12 Years	.005	.007	.011	.016	.009	.013	.008	.013
>12 Years	- .110***	- .140***	- .101***	- .128***	- .111***	- .142***	- .105***	- .133
Husband's Education								
<12 Years	a	a	a	a	a	a	a	a
= 12 Years	.042*	.058*	.039*	.055*	.040*	.056*	.038*	.054
>12 Years	.108***	.158***	.098***	.143***	.096***	.141***	.091***	.135
Number of Years Married								
≤2 Years	a	a	a	a	a	a	a	a
3-5 Years	.103*	.086*	.104*	.087*	.098*	.082*	.096*	.080
6-10 Years	.153***	.190***	.152***	.187***	.152***	.188***	.149***	.184
>10 Years	.132***	.189***	.132***	.188***	.134***	.191***	.129***	.184
Constant	.285		.291		.288		.263	
F	26.825		23.685		23.732		21.239	
R^2	.294		.304		.304		.312	
N	1770		1770		1770		1770	

* = $p < .05$
** = $p < .01$
*** = $p < .001$

like having financial assets, protects against divorce, while being black increases the likelihood of dissolution substantially. Again, a significantly lower divorce probability is associated with high unemployment in the respondent's local community. Replication of this finding suggests that labor market uncertainties may encourage couples to stay together, even though as Sawhill et al. (1975) found, the individual experience of unemployment tends to precipitate dissolution. Further research to disentangle the effects of employment and unemployment is certainly warranted.

Other similarities with the NLS analyses are evident. Neither husband's income, the presence of children under age 3, nor the timing of the first birth relative to first marriage have any impact on dissolution. However, a number of differences are also apparent. The slight but significant positive effect of parental socioeconomic status noted in the NLS is not replicated in the PSID, perhaps because the status of one's parents is less relevant to couples who are themselves older or because older parents cannot take their middle aged children in with them as they might do for a daughter who divorces in her twenties.

The NLS analysis found that dissolution was more common in the West but that being in the metropolitan area had no effect. The PSID analysis produces exactly the opposite pattern of effects. Unless there has been some reversal over the time periods, such that California has lost its uniqueness as a high-divorce area, while city dwellers are more likely to divorce, these results cannot be reconciled. The effect of marital duration also differs in that there is a strong negative association between duration and dissolution among PSID respondents; the NLS data revealed no overall association, and no association among whites, but a strong negative association among blacks. Because PSID respondents are older and more varied in age, the potention for marital

duration to affect dissolution is, of course, greater. Finally, a higher AFDC benefit level does seem to be associated with a higher likelihood of divorce in this analysis, though the effect is very, very small: an increase of $100 in the monthly benefit level is associated with only a .03 percentage point (.0003) increase in the incidence of marital dissolution. There is no similar effect in the NLS regressions; but that AFDC variable of necessity described AFDC benefits in the region of residence, rather than the state, which weakened that analysis.

Several new variables were available for inclusion in this analysis, and these may account for some of the increase in variance explained. (The NLS R^2 of .07 has jumped to .31 for the PSID equation.) One important new variable is respondent religion. As anticipated, Catholics are considerably less likely to divorce. In addition, as the typical female wage declines relative to the typical male wage, the probability of divorce also declines. This provides further evidence that the propensity to end a marriage is related to women's earning possibilities.

Earlier we noted that the education of the wife is negatively related to marital dissolution. This analysis suggests that the opposite is true for males. Net of all other influences, the better-educated husband is more likely to experience divorce. Since husband's income was included in the equation (and had no effect), this coefficient probably does not tap the husband's ability to support two households. Glick and Norton (1977) note that the level of divorce has risen fastest among men with some education past high school; perhaps this recent change is what has been caught in our regression.

Intriguing as these results are, this analysis is not the best analysis for consideration of our central issue -- the effect of early childbearing and early marriage on marital dissolution. To continue that task, a sub-sample

of the PSID respondent group was selected: all white respondents married in 1972 who had been married for ten years or less. Because these couples are nearer to the inauguration of their marriage, our hope is that more of them were still in their first marriages in 1972. Also, the impact of an early birth or marriage is sufficiently recent that its effects should be more salient. Blacks were excluded because their numbers were so small as to suggest the young married blacks in the PSID sample may not be representative of the black population.

Multivariate Analysis: 1972 to 1976 Experience Approach (PSID:duration≤10 years)

The results (presented in Table 13) confirm our earlier finding that early marriage but not early childbearing heightens the probability of marital dissolution. Couples who entered the marriage when the wife was not yet twenty experience a much higher probability of divorce, particularly when the wife was 18 or younger. Net of other factors, an early birth is associated with less marital dissolution. We do not find that premarital or ambiguously timed births are associated with a significantly higher probability of disruption; however, there is a non-significant trend in that direction.

Again, only early marriage really stands out as a factor that disposes marriages to break up. This pattern now seems sufficiently robust to warrant testing by other researchers using other data sets to see whether different results emerge when the dependent variable is "ever-divorced" or "divorced within five or ten years of marriage" is used. It would also be interesting to differentiate the impact of a wanted or intended birth at whatever age on subsequent marital dissolution, compared to the impact of no birth and an unwanted birth.

Several results from this analysis replicate previous findings. For example, marital duration has no effect in this sample, which echoes our

Table 13: Partial Regression Coefficients (Standardized and Unstandardized) of the Probability of Being Divorced by 1976 Among Those Married Ten Years or Less in 1972 Controlling For Respondent Background, Whites Only (Panel Study of Income Dynamics)

Independent Variables	With Age at First Birth and Without Age at First Marriage		With Age at First Marriage Only		With Age at First Birth Only		With Age at First Birth and With Age at First Marriage	
	b	beta	b	beta	b	beta	b	beta
Age at First Birth								
<17	-	-	-	-	- .048	- .049	- .193**	- .197**
18	-	-	-	-	- .014	- .013	- .139*	- .127*
19-20	-	-	-	-	- .062	- .095	- .149***	- .229***
21-23	-	-	-	-	.001	.001	- .023	- .038
≥24	-	-	-	-	a	a	a	a
Age at First Marriage								
<17	-	-	.048	.064	-	-	.176*	.235*
18	-	-	.064	.085	-	-	.156**	.208**
19-20	-	-	.002	.003	-	-	.054	.093
21-23	-	-	- .013	- .012	-	-	- .006	- .010
≥24	-	-	a	a	-	-	a	a
Husband's Income								
$0-$6000	a	a	a	a	a	a	a	a
$6001-$9000	- .036	- .046	- .039	- .049	- .039	- .049	- .046	- .059
$9001-$12000	- .063	- .095	- .067	- .101	- .060	- .091	- .065	- .098
>$12000	- .072	- .131	- .075	- .138	- .070	- .128	- .075	- .137
Children Under Age 3								
1	.011	.020	.005	.009	.016	.029	.010	.018
≥2	.072	.054	.057	.043	.075	.057	.057	.044
None	a	a	a	a	a	a	a	a
Parental Socioeconomic Status	.018**	.158**	.018**	.153**	.018**	.155**	.016**	.137**
West Coast Residence	- .044	- .052	- .051	- .060	- .041	- .049	- .046	- .055
Metropolitan Area (1 = Metro)	.037	.065	.043	.075	.035	.060	.044	.076
Home Owned (1 = Yes)	- .020	- .036	- .016	- .028	- .021	- .038	- .008	- .014
AFDC Acceptance Rate in 1972	- .001	- .034	- .001	- .032	- .001	- .037	- .002	- .045
AFDC Benefits in 1972	- .000	- .042	- .000	- .032	- .000	- .047	- .000	- .026
Religion (1 = Catholic)	- .053	- .085	- .048	- .077	- .058*	- .094*	- .053	- .085
Unemployment Rate in 1972	.049**	.155**	.047**	.015**	.046**	.147**	.045**	.143**
Female Wage in 1972	.021*	.103*	.022*	.107*	.021*	.100*	.021*	.104*
Respondent's Contribution to Family Income								
0%	a	a	a	a	a	a	a	a
1-25%	.008	.012	- .000	- .000	.009	.014	- .002	- .003
26-50%	.069*	.106*	.065	.099	.067*	.102*	.055	.084
51-70%	- .008	- .004	- .013	- .007	- .011	- .006	- .019	- .010
>70	- .051	- .017	- .062	- .021	- .067	- .023	.075	- .026
Timing of First Birth: Premarital or Same Year as Marriage	- .004	- .006	- .001	- .001	.014	.018	.068	.089
Wife's Education								
<12 years	a	a	a	a	a	a	a	a
=12 years	- .039	- .072	- .027	- .050	- .048	- .089	- .045	- .082
>12 years	- .110*	- .093*	- .087	- .057	- .120*	- .211*	- .104*	- .181*
Husband's Education								
<12 years	a	a	a	a	a	a	a	a
=12 years	.031	.055	.029	.051	.028	.050	.019	.033
>12 years	.037	.067	.038	.070	.034	.061	.030	.055
Number of Years Married								
≤2 years	a	a	a	a	a	a	a	a
3-5 years	.025	.039	.019	.030	.030	.047	.015	.023
6-10 years	.072	.126	.058	.102	.077	.135	.053	.094
Constant	- .189		- .212		- .143		- .123	
F_2	1.696		1.634		1.632		1.934	
R^2	.079		.088		.088		.116	
N	520		520		520		520	

* .05
** .01
*** .001

a = omitted category

finding among young white NLS respondents. Higher parental socioeconomic status raises the probability of divorce, as it did among the NLS young women. Again, better-educated wives are less likely to experience divorce, while neither the presence of children nor the timing of the first birth relative to the first marriage affects the probability of dissolution. For the first time, the respondent's contribution to family income does not affect dissolution; however, the contextual variable representing the relative wages of women to men again indicates that labor market opportunities favorable to women are associated with more frequent termination of marriage. Interestingly, being Catholic has no statistically significant effect on marital stability among these younger couples. In general, fewer variables were found to be related to the probability that a couple will end their marriage. The R^2 is lower than the overall PSID analysis and more on the level of the NLS analysis. Perhaps it is the case that among couples who have not been married long, more individual-level factors lead to marital break-up. Perhaps those marriages that survive initial adjustments are later more affected by external factors, such as earnings, unemployment, and asset position.

In the final section, we will explore the impact of a birth on marital stability employing a different strategy, the transition probability approach.

The Impact of a Birth on the Probability of Marital Dissolution: Transition Probabilities

For this analysis, special samples were constructed from both the NLS and PSID data sets that consisted of all women in each year who were married at the start of the year, by definition, the group eligible for marital break-up. Among this sample, the probability of divorce or separation over the course of the year's time is measured. Couples who split up are coded "one." Couples who remain married are coded "zero" and remain in the sample during the following year, when they are again eligible for marital dissolution.

We noted earlier that the occurrence of a birth has a strong effect on marriage formation. Specifically, many marriages seem to be precipitated by the occurrence of a pregnancy or birth. What, if any, influence on marital stability does a birth exert?

Analyses of the NLS young women (Table 14) indicate that the occurrence of a birth does not increase the incidence of divorce, at least not in the short run. A birth in the current year or in the previous year significantly depresses the likelihood of divorce or separation during that year. Women who have not yet had children and women whose first child was born more than a year ago have equal and slightly higher probabilities of marital dissolution. Among these young women, it is the group who have a second child who seem to experience a particularly high probability of divorce and separation.

The comparable analysis based on PSID data indicates a considerably smaller proportion of young couples experiencing divorce and separation. This weakens the analysis not only because low probabilities with a dichotomous dependent variable strain the assumptions of ordinary least squares regression but also because it seems likely that some divorcing couples were lost to the survey.

Table 14: The Probability of Marital Dissolution: Adjusted Transition Probabilities for Married Women (National Longitudinal Survey)

	Percent in Each Category	Predicted Probability of Marital Split[1]
Overall Probability of Marital Dissolution:		.07
I. FIRST BIRTH		
More Than One Year Ago	52.4	.08
Within the Past Year	12.4	.02
Within the Current Year	10.5	.01
No First Birth Yet	24.7	.08
II. SELECTED OTHER CHARACTERISTICS		
Enrolled Full Time in School	2.7	.07
Not Enrolled Full Time in School	97.3	.07
Received Public Assistance	3.2	.07
Did Not Receive Public Assistance	96.8	.07
III. OTHER MAJOR LIFE CHANGES IN CURRENT YEAR		
Second or Later Birth	14.0	.12
No Second or Later Birth	86.0	.06
F_2	34.6	
R^2	.089	
N	7,672.	

1 Predicted probabilities are calculated for each category by adding the adjusted B for that category to the overall mean. The adjusted B's are net of a number of other variables not included in this table. For a display of these variables see Appendix.

Approaching the data in Table 15 with due caution, we at least find no evidence that challenges the NLS findings. Young women experiencing a birth are no more likely to divorce than are other wives. In fact, among teenage wives, the childless couples are the most likely to separate. Again, working women and blacks are slightly more likely to end their marriages. However, in this analysis, no lingering effect of a prior birth on subsequent divorces can be detected.

In sum, this strategy yields no evidence suggesting that a current birth among young couples lead to marriage break-up. Moreover, the probability of dissolution among couples with a previous first birth is no higher than it is among childless couples. Presumably, the aging of a child removes that initial depressing influence of a birth on marital dissolution. The occurrence of a second birth then, at least among the young NLS sample, seems to actually raise the likelihood of marital break-up. This may not reflect the effect of a second birth per se but the impact of rapid, unwanted childbearing or excessive childbearing given the young age of the couples. An important control variable to add to this analysis would be information on whether a particular birth was wanted or planned; unfortunately, such information is not available for either of the data sets with which we have been working.

TABLE 15 : THE PROBABILITY OF MARITAL DISSOLUTION: ADJUSTED TRANSITION PROBABILITIES FOR MARRIED WOMEN AGED 15-19 AND 20-24 (PANEL STUDY OF INCOME DYNAMICS)

	Age 15 - 19		Age 20 - 24	
	Percent in Category	Probability of Dissolution	Percent in Category	Probability of Dissolution
Overall probability of marital dissolution:		.03		.01
I. FIRST BIRTH				
More than 2 years ago	15	.02	42	.02
Two years ago	18	.01	11	.02
Within the past year	24	.02	11	.00
Within the current year	17	.03	05	.01
No first birth yet	26	.05	31	.01
II. SELECTED OTHER CHARACTERISTICS				
Worked at least 30 hours last year	71	.04	73	.01
Did not work at least 30 hours	29	.02	27	.00
Whites	89	.03	90	.01
Blacks	11	.05	10	.02
F_2		5.5		2.5
R^2		.225		.017
N		242		1786

SUMMARY AND CONCLUSIONS

Although many teenage pregnancies and births, particularly among black teenagers, occur to young women who are unmarried, the vast majority of mothers have married by their early twenties. Indeed, a high proportion of marriages seem to be precipitated by pregnancy or birth. Not only is a current first birth highly associated with the probability of marriage, but a birth in the previous year is also related to a higher likelihood of entering marriage. Young women who have not married within two years of the birth of their first child, though, seem to experience a slightly lower probability of marriage.

The confirmation of a link between early pregnancy and early marriage confirms our everyday observations. A question of greater debate is whether the marriages formed under such circumstances are particularly unstable. The unique difficulties posed by the combination of early marriage plus parenthood are unlike those suffered by couples who simply marry young but postpone childbearing. In addition, couples who marry after or in response to a premarital pregnancy may face special difficulties. On the other hand, marriages between young people not yet done with their schooling and personal growth may be inherently unstable, while the presence of children may present many reasons to young parents to remain married. Several research strategies were employed with two national longitudinal data sets to approach these issues. The essential question is whether an early birth or an early marriage leads to a higher probability of marriage break-up.

The weight of the evidence that we have generated suggests that it is teenage marriage that is associated with a higher probability of marital dissolution. Regardless of the age of the mother at first childbirth and

far more important than the timing of the birth relative to the marriage, the youthfulness of the couple, as measured by the wife's age, seems to be a critical determinant of divorce and separation.

In an initial analysis of young women interviewed between 1968 and 1972 in the National Longitudinal Survey of Young Women (NLS), the probability of having ever been separated or divorced by age 24 was found to be strongly affected by the woman's age when she contracted her first marriage. When age at marriage was controlled for statistically, age at first childbirth had no impact on the incidence of divorce or separation. A premarital first birth also had no effect on marital dissolution. A higher probability of having experienced marital break-up was noted among women with lower education, women living on the Pacific Coast, blacks, and young women from more recent birth cohorts.

Another analysis of the same NLS data explored the incidence of divorce over the survey years among young women who were married in the initial year. Again, age at first marriage was a critical predictor of marital dissolution over the period between 1968 and 1972, while age at first childbirth had no effect on marital stability. Also, black women, women with lower education, and women living on the Pacific Coast were more likely to terminate their marriages, as were women who themselves earned the majority of the family's income. Couples with relatively substantial assets were particularly likely to remain married. Net of these other factors, the husband's income, the presence of children under age three, the AFDC benefit level in the region of residence, marital duration, and the timing of the first birth relative to the marriage all had no impact on the probability of marriage break-up.

Because age at first marriage and age at first childbirth are so highly correlated (r = .71), the NLS sample was broken down into sub-samples according

to the woman's age at first marriage. Even among these groups of woman all married at about the same age, the woman's age at first childbirth was not found to be related to the probability of divorce or separation. The model was found to explain marital dissolution considerably better among couples who wed when they were at least age 21, suggesting that more individualistic and idiosyncratic factors affect couples who marry at younger ages. Among couples married when the wife was 17 or younger, the only factors found to predict the marital stability were the number of years already married, race and parental socioeconomic status. Whites were found to be less likely to experience separation or divorce, while wives from higher status families are more likely to end their marriages if they wed while teenagers. Among couples who married at closer to the usual age at marriage, having financial assets, the presence of a young child and being white all lessen the likelihood of divorce.

Because of the importance of race to the likelihood of divorce and separation in these analyses, separate regressions were conducted for NLS whites and for blacks. This analysis clearly indicates the importance of age at first marriage in predicting to marital instability among whites. Whites who wed as teenagers experience a significantly higher probability of divorce and separation. However, when age at marriage is controlled, age at first childbirth has no positive impact on instability; if anything, white teenage parents have a lower probability of divorce, net of age at marriage. Among blacks, both early marriage and early parenthood predict to a slightly higher probability of marital instability, but neither effect is statistically significant.

The association between age at first childbirth, age at first marriage, and marital dissolution was then examined with a second national longitudinal survey, the Panel Study of Income Dynamics (PSID). Respondents in this survey

were of all ages, and it was not possible to ascertain whether respondents had ever been divorced in the past. Consequently, the experience of divorce and separation over the years 1972 to 1976 was examined. Again teenage marriage but not teenage parenthood was associated with marriage break-up. However, many of the couples in this sample were sufficiently old to have experienced both divorce and re-marriage. Therefore, a smaller sub-sample was identified, composed of only those couples married for ten years or less in 1972, and the incidence of marital break-up among these couples was examined.

In this sample, too, couples who wed when the woman was a teenager experienced a considerably higher incidence of divorce and separation over the period from 1972 to 1976. Again, teenage childbirth was negatively associated with the probability of marital break-up, when age at marriage was controlled. Also, the timing of the first birth relative to marriage had no statistically significant association with marriage break-up, nor did the presence of young children, husband's income, husband's education, or the duration of marriage. Higher female wages and a higher unemployment rate in the local labor market, predict to a higher probability of marital dissolution, while better-educated wives tended to experience fewer break-ups.

In a final analysis, the year-by-year probability of marital dissolution was examined with each data set, and no evidence was found to suggest either that a current first birth or a past first birth serves to significantly increase the probability that a marriage will end.

In sum, none of the analyses conducted on these data sets indicate that teenage childbearing increases the risk of marital dissolution later in life. Moreover, women experiencing a first birth before or in the same year as marriage are not more likely to subsequently experience a marriage break-up.

However, this does not mean that teenage childbearing is unrelated to the incidence of divorce and separation. As noted earlier, many marriages are entered during the teenage years under the press of an early pregnancy or birth. Certainly many of these young marriages would never have been formed or would not have been formed at the time if the pregnancy had not occurred. And our analyses strongly indicate that marriages entered during the teenage years are far less likely to succeed. Furthermore, divorce when it occurs may impose greater economic hardship on the family if the young mother has failed to complete her education and acquire work experience and if the young father has curtailed his education in order to support a family. Young parents may also fail to acquire the assets and education that seem to serve as a buffer against marital break-up. In addition, the hardship imposed by a divorce or separation probably tends to be greater when children are involved than when a childless couple splits up.

Our finding that teenage marriages appear to be particularly prone to end, whether the young couple have children or postpone the first birth, should certainly be evaluated using other research strategies and other data sets, particularly data sets that permit controls for whether the first birth was intended at the time it occurred and which permit analysis of whether a person has ever experienced a divorce or separation. However, the conclusion from these analyses is clear. The marriages of women who first wed during the teenage years are less viable than those of older brides. This relationship is not accounted for by the association between teenage marriage and teenage parenthood, by the relatively poor economic prospects faced by those who wed while very young, or to differences in family background, social, or demographic characteristics associated with early marriage. Early marriage itself appears to be responsible. Given this finding, the current trend toward delayed marriage is a hopeful sign, one which may signal a decline in the frequency of divorce in the future.

APPENDIX TABLES

Appendix Table 1: Means and Standard Deviations for Analysis Variables, for Each Age at Marriage Group

	Age of Woman at First Marriage									
	≤ 17		18		19-20		21+		Total	
	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
Age at first birth (AFB)										
< 16	.157	.365	.001	.033	.005	.071	.011	.106	.044	.205
16 - 17	.505	.501	.096	.295	.010	.097	.020	.139	.156	.363
18	.138	.345	.355	.479	.052	.222	.019	.136	.134	.341
19 - 20	.115	.319	.369	.483	.451	.498	.074	.262	.272	.445
No birth at 21	.085	.279	.179	.384	.482	.500				
21 - 23	-	-	-	-	-	-	.393	.489	.197	.398
No birth at 24	-	-	-	-	-	-	.484	.501	.197	.398
Parental Socio-Economic Status	9.17	2.01	9.95	2.27	10.45	2.18	10.64	2.37	10.07	2.27
Education 1968	10.179 yrs.	1.638 yrs.	11.53 yrs.	1.39 yrs.	12.22 yrs.	1.68 yrs.	12.99 yrs.	2.25 yrs.	11.70 yrs.	2.01 yrs.
Intact family	.727	.446	.844	.363	.886	.319	.867	.340	.832	.374
Metro residence	.531	.500	.548	.499	.619	.486	.717	.451	.601	.490
Assets										
< $1000	.411	.493	.354	.479	.302	.460	.210	.408	.323	.468
= $1000	.284	.451	.305	.461	.319	.467	.336	.473	.310	.463
> $1000	.305	.461	.341	.475	.379	.486	.455	.499	.367	.482
No children	.379		.407		.501		.655		.480	
# of children = 1	.495	.501	.455	.499	.390	.488	.283	.451	.410	.492
# of children > 1	.126	.332	.138	.345	.109	.312	.062	.242	.110	.313
Husband's income:										
= 0	.021		.018		.017		.082		.031	
≤ 3000	.149	.357	.119	.324	.125	.331	.142	.350	.133	.340
3001 - 6000	.368	.483	.344	.476	.294	.456	.277	.448	.321	.467
6001 - 9000	.307	.462	.334	.473	.356	.479	.274	.447	.322	.467
9001 - 12000	.111	.314	.135	.342	.170	.376	.175	.380	.148	.355
> 12000	.044	.205	.050	.219	.038	.190	.050	.219	.045	.207
Respondent contributes:										
0% to family income	.411	.493	.390	.489	.331	.471	.152	.360	.329	.470
1-25% to family income	.389	.488	.356	.480	.298	.458	.307	.462	.336	.473
25-50% to family income	.158	.366	.181	.386	.264	.442	.361	.481	.238	.426
50-70% to family income	.019	.136	.055	.229	.055	.228	.135	.342	.062	.241
> 70% to family income	.023	.150	.018	.133	.052	.222	.046	.209	.036	.185
Race (1 = white)	.870	.337	.909	.288	.918	.275	.906	.293	.901	.298
West Coast Residence in 1968	.137	.344	.165	.372	.168	.374	.153	.361	.157	.363
Respondent working (1 = yes)	.557	.497	.607	.489	.680	.467	.805	.397	.658	.475
Number of years married since 1968	3.94 yrs.	2.36 yrs.	3.12 yrs.	1.92 yrs.	2.38 yrs.	1.61 yrs.	1.40 yrs.	1.08 yrs.	2.76 yrs.	2.02 yrs.
Age at first marriage										
10 - 15	-	-	-	-	-	-	-	-	.045	.206
16 - 17	-	-	-	-	-	-	-	-	.215	.411
18	-	-	-	-	-	-	-	-	.228	.419
19 - 20	-	-	-	-	-	-	-	-	.330	.471
21 - 23	-	-	-	-	-	-	-	-	.176	.381
Not married at 24	-	-	-	-	-	-	-	-	.007	.081

Appendix Table 2: Variable Definitions, Means and Standard Deviations for Analysis of Separation or Divorce by 1972 Among Respondents Married in 1968 (National Longitudinal Survey)

Independent Variables	Whites		Blacks	
	Mean	Standard Deviation	Mean	Standard Deviation
Age at First Birth				
<15	.034	.183	.132	.340
16-17	.140	.347	.310	.464
18	.133	.340	.140	.348
19-20	.277	.448	.221	.416
≥21	.416	.493	.197	.400
Age at First Marriage				
<15	.041	.199	.076	.266
16-17	.209	.407	.270	.445
18	.229	.421	.212	.410
19-20	.336	.473	.277	.449
21-23	.178	.383	.158	.366
≥24	.007	.081	.007	.086
Parental Socioeconomic Status	10.243	2.201	8.223	2.146
Education in 1968				
<12 years	.286	a	.515	a
=12 years	.514	.500	.356	.480
13-15 years	.140	.347	.103	.305
≥16 years	.060	.238	.026	.159
Intact Family of Origin	.855	.353	.629	.485
Metro Residence in 1968	.601	.490	.596	.492
Assets in 1968				
≤$0	.295	.456	.444	.499
$1-$1000	.314	.464	.407	.493
≥$1000	.392	.488	.150	.358
Number of Children in 1968				
1	.405	.491	.455	.500
≥2	.102	.032	.190	.394
None	.493	a	.355	a
Husband's Income in 1968				
$0	.031	a	.006	a
$1-$3000	.123	.328	.236	.426
$3001-$6000	.304	.460	.491	.502
$6001-$9000	.335	.472	.188	.392
$9001-$12000	.158	.365	.046	.209
>$12000	.049	.216	.003	.054
Respondent's Contributions to Family Income				
0%	.337	.473	.253	.437
1-25%	.324	.468	.449	.499
26-50%	.240	.427	.218	.415
51-70%	.061	.239	.069	.254
>70%	.038	.192	.012	.108
West Coast Residence in 1968	.165	.372	.076	.266
Timing of First Birth: Premarital or in Same Year as Marriage	.383	.482	.695	.462
Age in 1968	21.505	2.096	20.933	2.405
Duration of Marriage in Years As of 1968				
0-1 years	.326	.469	.373	.485
2-3 years	.342	.475	.318	.467
4-5 years	.207	.406	.205	.405
≥6 years	.125	.330	.104	.306
Divorced or Separated by 1972 If Married in 1968	.113	.317	.306	.463

a = omitted category

Appendix Table 3: Variable Definitions, Means, and Standard Deviations for Analysis of Separation and Divorce by 1976 Among Respondents Married in 1972 (Panel Study of Income Dynamics)

	Total Sample		Marital Duration ≤ 10 Years	
	Mean	Standard Deviation	Mean	Standard Deviation
Age at First Birth				
≤15	.015	.120	.084	.278
16-17	.116	.321		
18	.067	.251	.066	.249
19-20	.218	.413	.225	.418
21-23	.254	.436	.297	.458
≥24	.330	.470	.328	.470
Age at First Marriage				
≤15	.038	.190	.158	.365
16-17	.196	.397		
18	.145	.352	.157	.364
19-20	.276	.447	.320	.467
21-23	.257	.437	.277	.448
≥24	.089	.285	.088	.283
Husband's Income in 1972				
$0-$6,000	.095	-	.104	-
$6,001-$9,000	.156	.363	.138	.346
$9,001-$12,000	.170	.376	.215	.411
>$12,000	.577	.494	.532	.499
Number of Children Under Age 3				
1	.208	.406	.422	.494
≥2	.018	.133	.045	.206
None	.774	.418	.534	.499
Parental Socioeconomic Status	10.465	2.283	11.251	2.349
Pacific Coast Residence in 1972	.105	.307	.118	.323
Metropolitan Area (1 = Metro)	.729	.445	.659	.475
Home Owned (1 = Yes)	.670	.470	.619	.486
AFDC Acceptance Rate in 1972	81.652	6.828	80.655	7.138
AFDC Benefits in 1972	341.133	108.857	321.214	107.814
Race (1 = White)	.880	.328	100.000	.000
Religion (1 = Catholic)	.275	.447	.259	.438
Unemployment Rate in 1972	3.208	.905	3.017	.865
Female Wage in 1972	3.347	1.275	3.443	1.325
Respondent's Contribution to Family Income				
0%	.470	.499	.487	.500
1-25%	.311	.463	.259	.438
26-50%	.188	.391	.225	.418
51-70%	.025	.157	.021	.143
>70%	.006	.076	.009	.094
Timing of First Birth: Premarital or in Same Year as Marriage	.131	.337	.148	.366
Wife's Education				
<12 Years	.268	.443	.157	.364
=12 Years	.499	.500	.493	.500
>12 Years	.233	.423	.350	.477
Husband's Education				
<12 Years	.308	.462	.187	.390
=12 Years	.317	.466	.369	.483
>12 Years	.374	.484	.444	.497
Number of Years Married				
≤2 Years	.042	.200	.115	.320
3-5 Years	.084	.277	.242	.429
6-10 Years	.215	.411	.642	.480
>10 Years	.660	.474	.000	.000
Divorced between 1972 and 1976	.126	.332	.081	.273

Appendix Table 4: Transition Probability Analysis: First Marriage, 1968-72
(National Longitudinal Survey)

Eligible: Women never married at t
Dependent Variable: = 1 if not ever married at t+1; mean = .125

Independent Variables	Mean of Independent Variable	B	Beta
I. FIRST BIRTH			
(1) Prior First Birth	4.9%	.03*	.02*
II. SELECTED CHARACTERISTICS			
(1) Intact Family of Origin	88%	.03**	.03**
(2) Parental SES	10.9%	-.010***	-.07***
(3) Age 14-15	13%	.13***	.14***
16-17	31%	.16***	.22***
18	16%	.17***	.19***
19-20	20%	.10***	.12***
21-23	15%	.14***	.15***
24-28	4.7%	a	a
(4) Birth Cohorts 1952-54	54%	-.07***	-.11***
1948-51	35%	-.03	-.04
1944-47	11%	a	a
(5) White	88%	.10***	.10***
(6) Year 1968	30%	-.12***	-.17***
1969	27%	-.10***	-.13***
1970	23%	-.09***	-.12***
1971	20%	a	a
(7) Grades Completed 8	8%	-.09***	-.08***
9-11	43%	-.10***	-.15***
=12	29%	.00	.01
(8) Worked 0 Weeks	30%	.05***	.07***
(9) SMSA Central City Resident	28%	-.03***	-.03***
SMSA Suburb Resident	32%	-.02**	-.03**
Non SMSA Resident	40%	a	a
(10) South	24%	.03***	.04***
(11) Wage Rate	$1.11	.023***	.09***
III. CURRENT MAJOR LIFE CHANGES			
(1) First Birth	2.5%	.22***	.10***
(2) Birth, First or Later	3.4%	.18***	.10***
Constant		.123	

R^2 = .113
F = 61.0
N = 11553

*p <.05
**p <.01
***p <.001
a = dummy variable, omitted category

Appendix Table 5: Marriage Probability: Regression Coefficients for Women 15-17, 18-20 and 21-23 years old (Panel Study of Income Dynamics)

Independent Variables	Age 15-17 b	Age 15-17 Sample Mean $\bar{Y}$ = .06	Age 18-20 b	Age 18-20 Sample Mean $\bar{Y}$ = .24	Age 21-23 b	Age 21-23 Sample Mean $\bar{Y}$ = .24
First Birth Timing:						
No First Birth Yet	a	.82	a	.75	a	.69
First Birth in Current Year	.26***	.08	.33***	.08	.31***	.07
First Birth One Year Ago	.16***	.10	.36***	.05	.01	.05
First Birth Two Years Ago			.00	.03	- .04	.04
First Birth Over Two Years Ago			- .12*	.09	- .05	.15
School Status:						
Student in Last Two Years	- .02	.92	-	-	-	-
Dropped Out Last Year	- .06	.03	-	-	-	-
Not Student At Start of Last Year	a	.05	-	-	-	-
Work Status:						
Worked > 30 Hours Last Year	- .01	.33	.02	.64	- .07	.75
Worked < 30 Hours Last Year	a	.67	a	.36	a	.25
Welfare Status						
Received AFDC Last Year	- .12*	.032	- .14*	.063	- .13	.059
Did Not Receive AFDC	a	.968	a	.937	a	.941
AFDC Benefit Levels	-7.7×10^{-5}	$328.00	2.9×10^{-4}	$328.00	7.8×10^{-5}	$318.00
Unemployment Rate	- .018	3.10	- .037*	3.14	.01	3.19
Mother's Education:						
<9 Years	.00	.16	.02	.18	- .05	.26
9 - 11 Years	.04	.24	.03	.17	- .01	.13
≥12 Years	a	.60	a	.65	a	.61
White	.03	.92	.04	.86	.17**	.83
South	- .00	.28	.15***	.23	.08	.22
Age:						
15/18/21	- .12***	.17	- .17***	.33	.00	.38
16/19/22	- .09**	.34	- .06	.33	.00	.35
17/20/23	a	.49		.34	a	.27
Birth Cohort:						
1945-1947	-	.00	.00	.00	- .08	.03
1948-1950	-	.00	- .40***	.08	- .09*	.47
1951-1952	-	.00	- .17***	.55		
1953-1954	- .06	.15	a	.37	a	.50
1955	a	.85				
Constant	.16		.34		.13	
F	4.8 ***		11.8 ***		3.5 ***	
R^2	.150		.187		.094	
N	425.		835.		558.	

* = p < .05
** = p < .01
*** = p < .001

a = omitted category
- = omitted from regression

Appendix Table 6: Transition Probability Analysis: Remarriage Probability, 1968-72 (National Longitudinal Survey)

Eligible: All women except never married and married, spouse present at t
Dependent Variable: = 1 if married, spouse present at t+1; mean = .37

Independent Variables	Mean of Independent Variable	B	Beta
I. FIRST BIRTH			
(1) Prior First Birth	6%	-.14**	-.14**
(2) Prior First Birth One Year Ago	7%	.20***	.11***
(3) Prior First Birth: Timing Uncertain	2%	.13***	.11***
Post Marital	1.2%	a	a
II. SELECTED CHARACTERISTICS			
(1) Age 14-15	.5%	a	a
16-17	3.6%	a	a
18	5.7%	.25**	.12**
19-20	19%	.27***	.22***
21-23	44%	.29***	.30***
24-28	28%	.14	.13
(2) Enrolled Full Time	6%	-.14*	-.07*
(3) Received Public Assistance	20%	-.15***	-.12***
(4) SMSA Central City Resident	31%	-.10**	-.09**
SMSA Suburb Resident	40%	a	a
(5) Occupational Status (Duncan Score)	35	.0013	.05
(6) Annual Hours	856	-.00003	-.05
(7) Number of Children Under 6	.96%	-.047*	-.09*
(8) Divorced	28%	-.15***	-.14***
III. CURRENT MAJOR LIFE CHANGES			
(1) First Birth	5%	.05	.02
(2) Birth, First or Later	14%	.12*	.09*
Constant Term		.301	
		R^2 = .175	
		F = 14.6	
		N = 1183	

*p <.05
**p <.01
***p <.001
a = dummy variable, omitted category

Appendix Table 7: Transition Probability Analysis: Marital Dissolution, 1968-72 (National Longitudinal Survey)

Eligible: Women married, spouse present, at t and not widowed at t+1
Dependent Variables: = 1 if not married, spouse present at t+1 mean = .067

Independent Variables	Mean of Independent Variable	B	Beta
I. FIRST BIRTH			
(1) Prior First Birth	65%	.01	.02
(2) Prior First Birth One Year Ago	12%	-.06***	-.08***
II. SELECTED CHARACTERISTICS			
(1) Age 14-15	.26%	a	a
16-17	2.1%	a	a
18	3.9%	-.05	-.04
19-20	16%	-.15***	-.22***
21-23	41%	-.15***	-.27***
24-28	36%	-.16***	-.32***
(2) Birth Cohorts 1952-1954	5.6%	a	a
1948-1951	40%	.03***	.07***
1940-1947	54%	a	a
(3) Year 1968	21%	.02*	.04*
Year 1969	23%	.01	.02
Year 1970	27%	.04***	.07***
Year 1971	29%	a	a
(4) Grades Completed 8	5.2%	.01	.01
9-11	20%	.01	.02
=12	53%	.02**	.05**
>12	21%	a	a
(5) Husband's Attitude Toward Wife Working	3.08	.011***	.07***
(6) Worked 0 Weeks	34%	.21***	39***
(7) SMSA Central City Resident	28%	a	a
SMSA Suburb Resident	36%	.02***	.04***
Non SMSA Resident	36%	a	a
(8) Pacific	17%	.05***	.08***
(9) Unemployment Rate	4.9%	.0051**	.04**
(10) Worked 0 Weeks x Husband's Attitude Toward Work	1.29	-.06***	-.43***
(11) Number of Children Under 18	1.07	-.01*	-.02*
III. CURRENT MAJOR LIFE CHANGES			
(1) First Births: Current age			
14-15	.1%	a	a
16-17	.7%	.09	.01
18	.7%	.18***	.06***
19-20	3.9%	.19***	.06***
21-23	3.2%	.12***	.09***
24-28	1.9%	.15***	.11***
(2) Birth; First or Later	25%	.09***	.05***
Constant Term		.102	

R^2 = .101
F = 27.6
N = 7962

*p < .05
**p < .01
***p < .001
a = dummy variables, omitted category

Appendix Table 8: Marital Dissolution Probability: Regression Coefficients for Women 15-19 and 20-24 Years Old (Panel Study of Income Dynamics)

	Age 15-19		Age 20-24	
Independent Variables	b	Sample Mean $\bar{Y}$ = .031	b	Sample Mean $\bar{Y}$ = .011
First Birth Timing:				
No First Birth Yet	a	.26	a	.31
First Birth in Current Year	- .02	.17	- .00	.05
First Birth One Year Ago	- .03	.24	- .01	.11
First Birth Two Years Ago	- .04	.18	.01	.11
First Birth Over Two Years Ago	- .03	.15	.01	.42
School Status:				
Student at Start of Year	.01	.28	- .00	.14
Not Student	a	.72	a	.86
Work Status:				
Worked > 30 Hours Last Year	.02	.71	.01	.73
Worked < 30 Hours Last Year	a	.29	a	.27
Welfare Status:				
Received AFDC Last Year	.99 ***	.006	.08 ***	.011
Did Not Receive AFDC	a	.994	a	.989
AFDC Benefit Level	1.6×10^{-4}	$293.	1.3×10^{-5}	$307.
Female/Male Employment Opportunities	- .013	2.35	.005 *	2.25
White	- .01	.89	- .01	.90
Unemployment Rate	- .005	2.92	.004	3.29
Year:				
1968-1969	-	.00	-	.00
1970-1971	-	.00	-	.00
1972-1973	- .01	.70	- .006	.43
1974-1975	a	.30	a	.57
Constant	.06		- .017	
F_2	5.5 ***		2.5 **	
R^2	.225		.017	
N	242.		1,786.	

* = p < .05
** = p < .01
*** = p < .001

a = omitted category
- = omitted from regression

METHODOLOGICAL APPENDIX

Estimating Flow Models: Transition Probabilities

The transition probability approach relies on multivariate models which partition the variance in binary dependent variables. In every case the dependent variable is assigned a one if the woman reports moving to a new status at year t+1, compared to her status at year t. A zero is assigned if the woman remains in the same status at year t+1 as she was in at year t. For example, the schooling exit dependent variable is one if a woman moves out of full-time school enrollment by t+1, given that she was fully enrolled at t. The exit variable is set equal to zero if she remains fully enrolled at t+1. Similarly, if a married woman divorces, the dependent variable is set to one. If she remains with her husband at t+1, the dependent variable is set to zero.

The definition of eligible observations is critical. For example, a woman is eligible for inclusion in the schooling exit sample if she reports being enrolled full-time in school at the start of any year. A woman is eligible for the school re-entry sample if she reports being <u>not</u> enrolled full-time in school at the start of any year. The observational unit is a person-year, which always includes status information both at the start and the end of the year for a particular woman. Given information on status at two points in time, it is possible to define status change variables, such as the dependent variable (e.g., school exit or reentry), but also any number of independent variables.

Both level and change variables are included as predictors. However, for binary status variables (e.g., enrolled full-time in school vs. not enrolled full-time in school) care must be excerised to avoid redundancy. To represent level alone, two dummy variables are defined but only one of them

is included in the equation:

A. Two level measures: (use only one)

(1) Enrolled full-time in school in year t

(2) Not enrolled full-time in school in year t

If change variables are preferred, four dummy variables are defined and three are used:

B. Four change measures: (use only three)

(1) Exit from school between year t and year t+1

(2) Remain in school

(3) Reenter school

(4) Remain out of school

Note, however, that to use three change variables implicitly specifies level, so that both level and change are completely described (e.g., if one either exits from school or remains in school, then one necessarily was in school at t). Including one level together with three change measures is therefore redundant and would cause matrix inversion problems. Care was taken to avoid doing so.

The transition probabilities strategy has taken advantage of the panel data to pool observations. For example, there are five waves of the NLS panel, each woman has four defined person-years: 1968 to 1969, 1969 to 1970, 1970 to 1971, and 1971 to 1972. It is possible for all four of these person-years to be included as observations in a single equation. For example, if a woman is single in 1968, 1969, 1970, and 1971, all four of her person-years would be eligible for inclusion in the first marriage equation.

In ordinary least squares estimation, autocorrelated disturbances do not bias parameter estimates, but they do bias estimates of the standard errors of parameter estimates. Typically the standard errors are biased downwards. One

gets the impression that one's parameter estimates are more efficiently estimated than is truly the case. The heart of the problem is that if a single woman contributes up to four person-year observations, there is something less than four full degrees of freedom in those four observations. Autocorrelation thus typically leads to improper inclusion of variables in an equation based on upwardly biased t-statistics.

Note, however, that parameter estimates with pooling are still unbiased. Moreover, the degree of pooling in these equations is relatively small, since typically fewer than four person-year observations from a single woman are pooled.[1] Where pooling is negligible or absent, our results appear comparable to results with the most pooling. Pooling is most frequent in analyses of the first marriage, marital split, high school drop-out and public assistance entry. In these cases care has been used to be conservative in the use of significance tests.

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1. In the education equations, reentry is estimated with no pooling, and the high school and college graduate exit equations should have virtually no pooling. Where transition rates are high (e.g., over 20 percent), pooling is minimized, as in the re-marriage, first birth (married women), college drop-out, work entry, work exit and public assistance exit equations. The hours and wage equations also minimize pooling.

Dichotomous Dependent Variables

The ideal model form for a binary dependent variable is the logit or a related model. The linear model creates heteroscedartic disturbances and the more basic problem of a misspecified model, especially at the extremes. A maximum-likelihood logit model solves these problems, but it creates other problems:

(1) cost: especially (a) with large data files such as the ones we are using, and (b) with a large number of independent variables and (c) with the likelihood of one or two reestimates of the equation, the very substantial estimation costs must be weighed against the benefits of improved information.

(2) complexity: results of ordinary least squares are easier to understand and communicate by an order of magnitude than maximum likelihood logit estimates. Until the use of maximum likelihood logit grows more familiar, this must be weighted as a cost, especially in policy research.

Goodman has argued convincingly (1976) that ordinary least squares provide virtually identical information as maximum likelihood logit, especially

(1) where n is large and

(2) where the mean of the dependent variable is not too close to the bounds. In all cases, we use an n that is large by Goodman's standards and in most cases the means of our dependent variables are far enough from the bounds by his standards (i.e., between .20 and .80). Caution is warranted for the few equations in which the mean was close to zero (e.g., school re-entry, public assistance entry, and first birth to unmarried women).

S. Caldwell

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