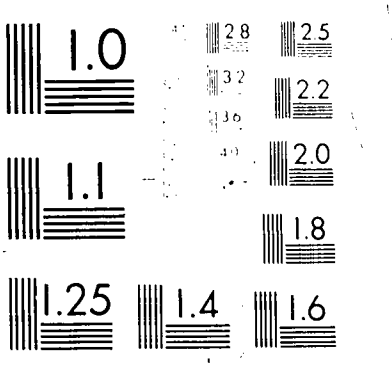
1.0
2.8
2.5
3.2
2.2
3.6
4.0
2.0
1.1
1.8
1.25
1.4
1.6

DOCUMENT RESUME

ED 169 243 CE 020 000

AUTHOR Waite, Linda J.; Spitze, Glenna D.
TITLE Female Work Orientation and Marital Events. The Transition to Marriage and Motherhood.
INSTITUTION Illinois Univ., Urbana. Dept. of Sociology.
SPONS AGENCY Employment and Training Administration (DOL), Washington, D.C.
REPORT NO WP7819
PUB DATE 78
GRANT DL-91-17-78-05; DL-91-17-78-11
NOTE 48p.; Paper presented at the American Sociological Association (San Francisco, September 1978)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Cohort Analysis; Cross Sectional Studies; *Females; Longitudinal Studies; *Marital Status; Marriage; *Mothers; Occupational Aspiration; Parent Influence; *Social Influences; *Social Science Research; Womens Education; *Work Attitudes

ABSTRACT

A study was conducted on the factors which influence young women to marry or have their first child at a given age. The data used were taken from the National Longitudinal Survey of Young Women conducted by the Center for Human Resource Research at Ohio State University, during which a sample of 5,159 young women aged 14 to 24 in 1968 were interviewed yearly between 1968 and 1973. It was found that taste for market work, school enrollment, and mother's education all decrease the likelihood of a first marriage or birth at a given age. Young women in the South and those in rural areas are likely to marry and have their first child earlier than those in other regions or in urban areas. Black women are less likely to marry at almost any age than are white. The analysis showed that while in early adulthood current employment status has a small positive impact on the likelihood of a first marriage or birth at most ages, those variables which indicate a preference or preparation for future employment cause postponement of family formation. The analysis also provided evidence that the current trends in timing of family formation, women's educational attainment, and labor force participation are linked to a rise in general level of preference for market work among young women. (Tables of data and a list of references are appended.) (LMS)

FEMALE WORK ORIENTATION AND MARITAL EVENTS

The Transition to Marriage and Motherhood

WP/819

Linda J. Waite
Glenna D. Spitze
The University of Illinois
Urbana-Champaign

This research was supported by The Employment and Training Administration, U.S. Department of Labor, under Grant Numbers 91-17-78-05 and 91-17-78-11. Since contractors performing research under Government sponsorship are encouraged to express their own judgment freely, the report does not necessarily represent the department's official opinion or policy. Authorship of this paper is joint and shared equally by Waite and Spitze. This paper was prepared for presentation at the American Sociological Association meetings, San Francisco, September 1978. We would like to thank our colleagues Joan Huber, Reeve Vanneman, and Walt Saveland for helpful comments on earlier drafts of this paper. Any errors are, of course, our own.

The Transition To Marriage And Motherhood

Much attention has been focused recently on the consequences of teenage childbearing. No one is surprised to find that these are substantial and long lasting: early motherhood is related to rapid subsequent births and a relatively large completed family size (Trussell and Menken, 1978), to an increased probability of marital dissolution (Bumpass and Sweet, 1972), to relatively low levels of educational attainment (Waite and Moore, 1978) and of economic well being (Hofferth and Moore, 1978). Societal consequences of shifts in mean age at first birth are also important, as Rindfuss (1978) points out. These include levels of welfare dependence, need for labor in various occupations, demand for housing, among many others. Age at first birth and age at first marriage are intimately connected, with one often precipitating the other. In fact, pregnancy currently follows within months of the average American marriage (U.S. Bureau of the Census, 1978). Some of the consequences which have been connected with youthful childbearing many actually result from early marriage (Moore and Waite, 1977). Whereas research on the consequences of age at first birth and age at first marriage is accummulating rapidly, very little is known about the determinants of the age at which these events occur. Policy makers cannot attempt to design social programs to avert the consequences of untimely marriage or parenthood until they know why some individuals manage to avoid these occurences and some do not. In this paper we examine the factors which influence the transition to matrimony and the transition to parenthood. For young women who were single or childless at a given age we focus, in separate analyses, on the likelihood that they wed or gave birth soon after. Hypotheses about the factors which precipitate marriage

or first childbirth at a given age are developed and tested.

Getting married and bearing children are both steps which, ideally, are undertaken in the belief that the introduction of the spouse or child into one's life will improve one's wellbeing. Maximization of economic wellbeing has, in the past, been an important component of this calculus. Marriage involved an exchange of household production services by the wife for financial support by the husband. Children, in return for parental care and support, could be expected to provide labor in their youth and care for elderly parents in later years. Clearly this formulation is not adequate to describe the situation where both spouses work outside the home, and perhaps share responsibility for home work as well. And currently the majority of wives with school-aged children are in the labor force (U.S. Department of Labor, 1977). The decreasing specialization of mates within marriage and the increasing overlap of marital roles may signal a shift from economic to psychic benefits of wedlock--individuals may be satisfying a taste for companionship through matrimony or may be responding to norms which specify that adults should marry. In addition, economies of scale may still make wedlock attractive to two wage earners. For those who want to have and raise children marriage provides a legitimate arena for doing so, although this might cease in the future to be the only arena (Westoff, 1978).

The process culminating in a first marriage can be viewed as occurring in two different stages. One can conceive of people as deciding to enter a "marriage market" in which they search for a suitable partner (Freiden, 1974; Becker, 1974). At some point a person will decide that

further search is not worthwhile and settle on a partner. At each stage, costs and benefits of marriage in general, and then of marriage to a given partner are assessed. Factors impinging upon this process may, first, affect the decision to start searching or not - for example, current employment and ability to support one's self financially may have a negative impact on the decision to begin the search. Second, these factors may affect the likelihood of finding a willing and suitable mate, for example by influencing one's own attractiveness and one's exposure to a variety of other people.

The economic perspective on childbearing flows directly from the economic perspective on marriage. Couples are seen as maximizing their lifetime utility by allocating their scarce resources, primarily time and the money into which it can be converted in the market place, between children and the other goods and activities. Parents are satisfying a taste for children in this formulation (Turchi, 1975; Becker, 1960). Parents decide on the quantity of children they will have, and also on their quality, operationalized as how much is invested in them. Those with high incomes should, ceteris parabis, have larger families than those with low incomes. (Becker, 1960) Easterlin (1968) also argues that young couples who feel relatively affluent should marry and begin childbearing earlier than those who feel relatively impoverished (see also D. Freedman, 1963). While most economists have focused on only one dimension of reproductive behavior, ultimate completed family size (Cain and Weininger, 1973; DeTray, 1973; Willis, 1973), this perspective may be usefully applied to analyses of other aspects of fertility such as its timing.

Clearly in deciding when and whether to marry and when and whether to have a first child most individuals consider more than the economics of the situation. At least this seems clear to a sociologist. Norms about marriage and parenthood are strong and pervasive in most societies (Freedman, 1963), including ours. The vast majority of all persons marry at some point in their adult lives, and most have children (U.S. Bureau of the Census, 1978). The individual who does not follow this pattern, who remains single or who marries but remains childless, is often subject to severe social pressure to give up the deviant status (Veevers, 1972). And a woman can achieve the valued status of "mother" only by acquiring offspring (Blake, 1971). These pronatalist pressures operate to insure that people do marry and become parents eventually. But the ages at which it is considered appropriate for individuals to wed and procreate are also normatively restricted (Rindfuss and Bumpass, 1976) with pressures operating to keep these events from occurring either too early or too late. Variations in these norms across social groups or geographical areas, and in ability to enforce them may affect whether young women wed or bear children and the age at which they do so.

In this paper we study the process culminating in a woman's first marriage and first birth at a given age. The next two sections include hypotheses regarding how various factors affect these transition probabilities by influencing the tastes, costs and benefits associated with marriage and childbearing at different ages. However, because the form of the hypotheses is tied closely to the plan of analysis used to address them, let us first briefly describe this plan.

Plan of Analysis

Analyses of age at first (or last) birth and age at marriage share a common problem: to calculate an average age at first marriage or birth, one must wait until everyone in the group of interest who will ever marry or bear a child has done so, at which point the data are out of date and the results no longer interesting. One solution is to use the proportion ever married or with a first birth at a particular age or age range (Preston and Richards, 1975; Freiden, 1974). Another is to examine whether individuals who are single at a given age marry by the time they reach the next age. In an analysis of age at first birth one looks at whether childless individuals of a certain age become mothers. The first approach is suitable only for aggregate-level, the second for individual-level, analyses. We use the second approach since we are concerned primarily with characteristics of individual women which make them more or less likely to marry or bear a child at a particular age. We are essentially examining the factors which, for those in one status, affect the transition to another. (For an example of a similar transition approach, see Moore and Caldwell, 1976).

The strategies for analyzing the transitions to marriage and motherhood are essentially the same so only the former is described here. We begin with young women who have never married by a particular age, say, 14. We then take as the dependent variable, marriage (or non-marriage) during the following year. Characteristics of the young women at the beginning of the period are used to predict whether they will marry in the next twelve months. An analysis of this type is done separately for each age, 14 through 28. The age range 14 through 28 was selected since the vast majority

of first marriages and first births in the U.S. take place after 14 and before 29 (Glick, 1977). Using this analytic strategy we can determine (1) the important factors influencing marriage at a particular age and (2) variations in the effect on marriage of the same factor over the age range 14 through 28.

Hypotheses

Transition to marriage. The probability that a young woman who is never married at a given age weds within the next year is the dependent variable we seek to explain. In general, variables which tend to increase age at marriage should have a negative effect on the likelihood of matrimony at young ages; those factors which decrease age at marriage should have a positive effect. Some factors will depress the probability of early nuptiality but raise the likelihood of marriage at or after the average age for this event. That is, their impact will vary, depending on the age being considered. And some variables will have the same effect (positive or negative) on likelihood of marriage over the entire age range. We now try to sort the factors mentioned earlier into these categories.

Black women should be less likely than whites to wed at all ages for at least two major reasons. First, they are less likely to gain economically from marriage, and therefore less likely to search actively for a marriage partner.

Economic gains to a woman from matrimony increase with the disparity between male and female incomes (Becker et al., 1977; Preston and Richards, 1975) because wives traditionallyshare in their husbands' financial resources and also share their own income with their spouses. Since the male-female earning gap is larger for whites than for blacks (U.S. Bureau of the Census, 1978), black women can expect fewer financial rewards from marriage than can

white women and should, for this reason, be less likely to wed at all ages. Even if they do search, however, black women are less likely to find a suitable partner than are whites, because the sex ratio for blacks is much less favorable - In 1974 this ratio was 1.12 for 15 to 24 year old blacks compared to 1.03 for whites, and was appreciably higher for older blacks but not for older whites (US Bureau of the Census, 1976) This could make the racial difference in the probability of marriage greater in the mid to late twenties, even if the relative costs and benefits of marriage for black women remained the same.

A young woman who comes from a small, two parent family of relatively high status should have more resources at her disposal while she is unmarried and living at home or still being supported by her parents than do other women. Since parents generally stop supporting children when they marry, such a woman would have much to lose during those years when parental support is normative, through high school and college. Any potential mate would be unlikely to be in a position to support her at that level, nor would she herself be able to do so. Thus, status of family of origin should negatively affect probabilities of marriage through the normal college years, or until the age of 21. After this time unmarried women even from high status families are increasingly likely to support themselves, so they would lose little economically by marriage and might gain through economies of scale by setting up housekeeping with another person such as a marriage partner. They might also be more attractive marriage partners due to the higher level of resources made available to them earlier, so family status could have a positive impact on marriage probabilities after the college years.

A young woman's educational attainment should have little effect on the likelihood of marriage at the ages when most are still enrolled (prior to high school graduation). At these ages, variations among individuals in years of schooling completed probably reflect progress through the educational system. Those who are in a higher grade than is typical for their age would then show a relatively high educational attainment. Since Voss (1976) found that young women who graduate from high school early tend to marry early, grade advancement might be positively related to probability of nuptiality. A seventeen or eighteen year old girl who has completed high school certainly has less to lose through marriage in terms of education or parental support than does one who is still attending high school. At ages above 18, variations in educational attainment mostly reflect college attendance.

Attending college could increase the probability of marriage after the completion of this schooling by increasing exposure to potential mates--or by increasing a woman's attractiveness in the marriage market. In addition, husband's occupational prestige tends to be related positively to the educational attainment of the wife (Taylor and Glenn, 1976). The relatively high earnings of men in prestigious occupations should increase the financial gains to their potential wives from marriage and thus, should raise the likelihood that well-educated women find someone whom it is worthwhile to marry. However, alternatives to wedlock and their attractiveness (such as high income employment) should be related positively to formal schooling for women, perhaps decreasing the probability that marriage is a good bargain. The net effect of educational attainment on the likelihood of nuptiality at older ages is difficult to predict.

School enrollment, unlike its consequence, educational attainment, should have a negative influence on the probability of marriage at all ages. This would be particularly true for high school and undergraduate enrollment since (as mentioned earlier) students are more likely than nonstudents to be supported by their parents if they are unmarried. This is less true for education beyond the bachelor's degree, although the student and wife roles may be somewhat incompatible at all ages. Thus school enrollment should continue to have a negative but weaker effect on marriage probabilities beyond age 21.

For women who are not enrolled in school, employment offers an alternative source of financial support to marriage, which suggests that market work would delay entry into the marriage market. But the vast majority of young single women who are not in school are in the labor force. Those who are not participating may be kept out by health or personality problems which would also tend to decrease their attractiveness as mates. Employment also increases exposure to potential spouses raising the chances that a suitable partner will be found. On balance, the impact of employment of women on the likelihood of marriage may be positive, negative or zero. There is no reason to expect that this effect varies by age.

Never-married women who have borne a child may be less desirable as potential wives to all men but the child's father. The chances of marrying the father of the child may be increased by the child's birth, but the chances of marrying anyone else may be decreased. However, the gains from matrimony to a woman with a child should be larger than the benefits to her childless counterpart since a husband would share in support of the

child and in childrearing. The net effect of the presence of a child borne out of wedlock on the likelihood that its mother marries depends on her ability and willingness to marry the child's father and on her alternatives to wedlock. These alternatives might include support from AFDC, her own employment, or informal support arrangements with the child's father.

Tastes for paid employment (a relative preference for market over home work) may affect the likelihood that a young woman enters wedlock at various ages. Among those 21 to 23 years old, women who planned to be housewives by age 35 were more likely than those who planned employment to marry within the next two years (Cherlin, 1978). Delay of marriage to allow preparation for a career by those who planned long-run employment was hypothesized by Cherlin to be responsible for the observed difference in likelihood of marriage. Women who want to work appear to be more likely than those who prefer to be housewives to invest in job training (Sandell and Shapiro, 1978). But such training is not incompatible with marriage unless it involves full-time formal schooling. The advantages of marriage to women who plan long-term labor force participation should be substantially less than the benefits to those who plan on home work. The greater the specialization of marriage partners--traditionally, the male in market work and the female in homemaking and childrearing--the larger the benefits for women of wedlock over singleness (Becker et al., 1977). Since women who prefer employment to homework do not plan to specialize in the latter, their gains from marriage are reduced. Tastes for paid employment should therefore decrease the likelihood of marriage at all ages.

Being reared in an area where sex-role norms are more traditional should lower the age at which a young women starts actively searching for a mate. This is probably more true in the South and in rural areas than in other more industrialized regions or in large cities. Indeed, the mean age at first marriage has been found to be lower in the South than in other regions (Carter and Glick, 1977). This tendency to search earlier in rural areas should be partially counteracted by the greater degree of exposure to potentially suitable mates in a larger city. Preston and Richards (1975:217) report a small negative effect of city size on the proportion of ever married among females 22 to 24 years old in 1960.

These hypotheses are tested here by examining, for women single (never-married) at a particular age, the effects of each of these factors on the probability of marriage within the next year. Before turning to that analysis, we present hypotheses about the effects of various factors on the likelihood of a first birth at different ages.

Transition to motherhood. Many of the forces which predispose a young woman toward early marriage also (perhaps as a consequence) increase the likelihood of an early first birth. But childbirth does not follow as inexorably on the nuptial ceremony as it used to: a higher proportion of births occur outside of marriage now than at any time in the recent past (Moore and Caldwell, 1976:6), and improvements in contraceptive technology have given couples a good deal of control over occurence and timing of fertility (Westoff, 1976). Thus, some factors which affect age at marriage may have no impact on age at first birth. The reverse is also possible.

The probability that a childless woman bears a first child at a given age should depend on her relative taste for market work and home-oriented activities, the social and economic costs of childbearing at that age to her and her family; the income available for support of the child, her degree of sexual activity, and the availability of and attitudes toward birth control.

Women from families with relatively more resources per child should be less likely than others to experience an early first birth. Two-parent families, those with highly-educated and higher status parents, and those with fewer children, should have more time and money to provide their daughters with attractive alternatives to motherhood. Early and out-of-wedlock childbearing would involve a high cost in social stigma for high status families, providing further incentive for its avoidance. In later years, however, the social costs of being childless increase. Women in their mid- to later-twenties from higher status families are likely to have adequate resources for child support. So we would expect childless young women from families with many resources to be less likely to bear first children at a given age during the teen years, and more likely during the mid and late twenties, than those women from families with fewer resources.

Taste for market work relative to that for home-centered activities should affect the likelihood that a young woman will begin or avoid childbearing at a given age. Childbearing is costly for women who prefer market work to home work and plan longterm careers, since it must compete for time during the years used in preparing for and beginning a career. Women who want to work later in life expect to have one child less in their

lifetime than women who later want to be housewives (Waite and Stolzenberg, 1976). This smaller family size, reflecting differences in tastes, may mean a later age at the beginning of childbearing. Women who prefer market work may delay or avoid family building to allow them to complete formal schooling and job training, and to get their careers established. Another strategy which may be used by women with a taste for market work is to have children rather early upon completion of the desired level of education, space them closely, and return quickly to training or the labor force. This pattern seems to be followed frequently by highly educated women (Ross, 1974). If followed by most women with a preference for long-run market work this strategy could produce a positive effect of taste for employment on the lifelihood of a first birth at relatively young ages. However, the pattern of delayed or foregone maternity appears to be more common and we expect a negative effect of preference for employment on the probability of motherhood at all ages.

Other factors such as the mother's work status and whether she is the sole head of the family, may affect timing of first birth indirectly through taste for work. Mothers who work and those who head families act as role models for market-oriented roles for their daughters, who should avoid early childbearing in order to prepare for their future work.

Enrollment in school full time should have the same negative effect on the probability of maternity as it is expected to have on marriage. This effect should be virtually the same at all ages. School attendance often acts as an alternative to motherhood since both are costly in time and energy. A young woman enrolled in school is unlikely herself to earn enough to support a child, and if married her spouse may be a student as well. In addition, a young women enrolled in school is exposed to

attitudes and pressures from teachers and peers which discourage childbearing.

The amount of formal schooling completed by a young woman should be related negatively to the probability of a first birth at all ages. However, at ages younger than 19, educational attainment has been found to depend on, as well as to influence age at first birth (Hofferth and Moore, 1978). This reciprocal causation means that we must exercise caution in interpreting the effect of years of schooling completed on the probability of a first birth for young women 18 or younger. At older ages, Hofferth and Moore's results indicate that causation runs only from educational attainment to age at first birth, and the effect is strongly negative. On the basis of these results, we expect years of schooling completed to reduce the probability of a first birth at ages over 18, with a diminution of the strength of this effect at older ages. The costs of childbearing increase with the educational attainment of the women, since the opportunity cost of staying home increase but educated women tend to stay home with infants to as great an extent as other women (Leibowitz, 1974). Education may also increase taste for market work relative to family building.

Black women experience first births approximately two years earlier than whites (Presser, 1971). This may be due to earlier and more premarital sexual experience than whites, along with ineffective use of contraception and abortion. Black women desire fewer children than whites, and a high proportion of their first births are unplanned (Presser, 1971). However, the costs to a young black woman of an early or premarital birth appear to be smaller than those to whites, since an early first birth does not curtail a black woman's education (Moore and Waite, 1977).

Since early unwed childbearing is more common in the black than in the white community, it may involve less social stigma. In addition,

relatives may be available to care for the child. Thus we would expect black childless women to be more likely than whites to bear a first child during the teen years. But black women who avoid early motherhood may be no more likely than their white counterparts to have a first birth during the twenties.

Two areal characteristics may affect timing of first birth due to differences in attitudes toward and availability of contraception and abortion, or general attitudes toward women's role. Young women raised in the south and those raised in rural areas should be more likely than others to bear a child at early ages due to those factors. To the extent that a woman remains in the area where she was raised, cost factors may play a part in this differential if adequate child care is more readily available in some areas than others.

The last, and possibly most important, factor affecting whether childless women of a given age have a birth in the following year is their marital status at the beginning of the year. Married women at any age should be substantially more likely to give birth than those still single, since childbearing is socially acceptable and expected for married persons, and more resources are available for child support and care within marriage. The length of time married also should influence the probability that a first birth occurs with the chances increasing through the first three or four years of marriage due to increasing social expectations toward parenthood, and remaining constant or decreasing as the permanently childless become a larger and larger component of the nonparents. The effect of marital status on the likelihood of motherhood among childless women is expected to differ by race with a stronger impact for whites than for blacks. The substantially higher rates of out-of-wedlock childbearing among blacks than whites (Moore and Caldwell, 1976) lead us to this hypothesis: this racial differential should exist at all ages.

Having presented and discussed hypotheses about the factors affecting the transition to marriage and the transition to motherhood at various ages, we now turn to a description of the data and methods used in this analysis.

Data and Methods

The data used in this study are taken from the National Longitudinal Survey of Young Women conducted by the Center for Human Resoure Research at Ohio State University. A sample of 5159 young women age 14 to 24 in 1968 were interviewed yearly between 1968 and 1973. Attrition rates were low - by 1972, 90% of the young women were still being interviewed. Since the women in the sample were age 19 to 29 in the final year of the survey, we can follow them through the ages 14 to 29 when the vast majority of first marriages and first births take place. The variables used in this analysis are coded as follows: the dependent variables are both dichotomies; marriage during a one-year interval is simply coded 1 if a woman in the never-married sample for that year of age is married by the survey date one year later, 0 if not. Birth is coded 1 if a childless woman in a particular age category had a first birth during the period from 6 to 18 months after the survey date. We are interested in predicting births over a one-year period, but any child born during the first six months after the survey date will have been conceived from three to nine months before that date. The woman certainly will be aware of her pregnancy and accordingly will have started to make adjustments in her behavior. The causal ordering between variables measuring current behavior and the probability of a birth then would be questionable. By predicting births 6 to 18 months after the survey date we make arguments of causal ordering as clearcut as possible.*

Independent variables which relate to family of origin were all measured in 1968, as follows. Mother's and father's education are coded in years of schooling completed. Mother's work history is a dichotomy--coded 1 if the mother

* While predicting births 9 to 21 months after the survey data would have been preferable according to this argument, the coding of age-of-children variables in the NLS data prevented this.

was employed when the young woman was age fourteen, 0 if not. The occupational status of the head of household when the woman was fourteen is coded on the Duncan prestige scale. Race is coded 1 for blacks, 0 for nonblacks. Number of siblings is the respondent's number of siblings at age fourteen. Girls living in intact families (i.e., with either a natural or stepmother and father) at age fourteen are coded 1 on this variable; others are coded 0.

Young women living in the South at age fourteen are coded 1 for region; others are coded 0. Citysize is categorized ranging from 1=urbanized areas of 3 million or more to 8=rural.

Taste for work is measured by the question, "What kind of work would you like to be doing when you are 35 years old?" Women could state either a specific occupation or that they wanted to be married. keeping house, and raising a family. This variable was coded 1 if woman named an occupation, 0 otherwise. All women who express a preference for being in the labor force rather than being a housewife are assumed to have a taste for work. A measure of the strength of each individual's preference for market versus home work would be superior to the simple dichotomy available here. But an advantage of this measure is that by the time these women are 35 years old nearly all of their children will be school age (Glick, 1977). This is the stage of the life cycle during which employment of mothers appears to be most discretionary (Blood and Wolfe, 1960). This measure of taste for employment, then, should discriminate between women who would prefer to work outside the home, given a choice, from those who would prefer home work. This question was asked every year, 1968 through 1973, so a measure of taste for work at the beginning of the year in question can be included for each equation.

Other variables measured yearly describing the young woman's current situation are coded as follows: If the woman has any of her own children living with her at the beginning of the year in question, Kids is coded 1;

otherwise it is 0. Education is coded as the number of years of formal schooling completed at the beginning of the year. Enrollment status is coded 1 if the woman is enrolled in school full time, 0 if not. Employment status is coded 1 if the woman has a job during the survey week, 0 if not.

To control for the effects of secular changes during the period under study, a variable called year is included which is coded according to the beginning year from which a particular woman's data are taken in a given analysis--from 1968=1 to 1972=5.

The dependent variable in each of these analyses is dichotomous - whether a never-married woman in the age category gets married within the subsequent year and whether a woman childless at a certain age has a birth during the period from 6 to 8 months later. This can be conceptualized as a probability-a situation in which probit analysis is an appropriate technique. While dummy variable regression and probit analysis yield similar results when the mean of the dependent variable ranges from 25% to 75% (Goodman, 1976), the percent of women getting married during any of the yearly periods studied here is generally in the 10-20% range. For this reason ordinary least squares estimation is not suitable.

Probit analysis is a maximum-likelihood technique for fitting a normal ogive rather than a linear model. It is especially appropriate for predicting a dichotomous variable because it constrains the predicted probabilities to a range of 0 to 1, and allows independent variables to have different levels of effects at differing points along the curve. When a linear model is used for a dichotomous dependent variable, the effects of continuous independent variables are underestimated relative to those of dichotomous predictors (Vanneman and Pampel, 1977).

The normal agive curve does not have the constant slope of a simple linear relationship. The slope varies with the associated probability levels - it is

steepest at a 50% rate and levels off asymptotically at higher or lower probability levels. Probit analysis takes account of the varying slopes and thus does not mistake the steeper gradient near the 50% level for stronger associations between the independent variables on the dichotomy. This is important in this analysis since it will compare marriage/birth transitions at different ages when the transition probabilities are quite different. To permit cross-equation comparisons, we report probit slopes evaluated at the same point along the curve. Those predicting marriage probabilities are reported at a probability level of .20, which is close to the actual mean probabilities for most age levels. Those predicting birth probabilities are reported at a probability level of .10.

We are interested in the likelihood that a woman with particular characteristics changes from a never-married to a married state, or from being childless to being a parent. For this reason the data are restructured into observations on each respondent over a one-year period. The periods were separated by age of respondent at the beginning of the year. Since the NLS young women were 14 to 24 in 1968 and 19 to 29 in 1973, observations on one-year transitions from ages 14 to 15 through 28 to 29 were available. The number of observations on each age differed considerably, as no young women became 14 during the survey period, but many became 19 through 24. For example, the transition from 14 to 15 included all young women who were 14 years old in 1968, whereas the 21 to 22 transition comprised those who turned 22 at any time from 1969 to 1973. This latter group included those 21 in any year, 1968 through 1972. Table 1 (in the appendix) shows the number of respondents eligible for each transition.

A total of fifteen samples were created--each involving observations on individuals over a one-year period. The samples for the analysis of first marriage included all women who had never married by the age in question. The samples from transition to motherhood included those who were childless at a particular age. This approach yielded thirty separate samples--an unwieldy

number. To simplify the analysis and to make the results easier to report, these samples were grouped as follows: The 14 to 15 and 15 to 16 samples were combined. The same was done with the samples for 16 to 17 and 17 to 18, 18 to 19 and 19 to 20, 20 to 21 and 21 to 22, 22 to 23 and 23 to 24, 24 to 25 and 25 to 26. The oldest three samples--26 to 27, 27 to 28 and 28 to 29--were combined. The result was seven samples each for the analyses of marriage and motherhood. This consolidation of two or in one case, three contiguous age groups, while simplifying the analysis, required some changes in it. The same woman could potentially appear in one combined sample twice, for example once in the 14 to 15 and once in the 15 to 16 group. This inclusion of two observations on the same individual in one analysis could produce problems of auto correlation of error terms (Johnston, 1972) which means that standard errors are underestimated severely and tests of significance meaningless. To avoid this situation we randomly selected age groups from various years so that no individual is included in a single sample more than once. The number of observations in each sample is reduced but the problems of correlated observations avoided by this procedure.

Results

Transition to marriage. Let us begin our tests of the hypotheses presented earlier on the factors affecting the probability of matrimony at various ages with the characteristics of the young woman's family of origin. Coming from a relatively high status family, we reasoned, should keep a woman from contracting a marriage at a very young age, say, earlier than 18. In high status families (those in which the parents had completed a good deal of education and in which the head was in a high status occupation) and in small, intact families, more resources such as time and money would be available to provide attractive alternatives to early marriage and to supervise the activities of the children. These same resources might make the children attractive potential partners at later ages (that is, more acceptible for marriage). As we expected, having a highly educated mother significantly reduces the probability of nuptials before

age 18 by 1 to 3 percentage points for each additional year of formal schooling completed by the mother. At ages 16 to 18, an additional 1 percentage point decrease in the likelihood of marriage is provided by each year of the father's education. Neither of these variables has a significant impact on wedlock between ages 18 to 24 (the most common ages of first marriage), although all the coefficients are negative. We expected the effects of these factors to become positive at older ages, but this pattern appears only for mother's education and only at ages 26 to 29. The effect of father's education remains negative.

There are several possible explanations for these results. The sample of single young women should become increasingly limited to two groups, at progressively older ages; those who could marry but have deliberately delayed and those who would like to marry but are prevented from doing so by personality, health, economic or social circumstances. Those with highly educated mothers should be disproportionately represented in the former group, the delayers. After the age of 26 these young women should be relatively attractive spouses, should they decide to marry, because of the familial resources available to them. Father's education appears to provide no additional advantage in the marriage market once mother's formal schooling is taken into account.

The occupational status of the household head shows approximately the same pattern as mother's education (the pattern we expected to find) but shows it weakly. A significant negative effect on the likelihood of marriage between 16 and 18 is present with each additional point of head's occupation on the prestige scale decreasing the probability of matrimony by 0.1 percentage points. As with parental education, occupational status of head shows no effect during the popular ages of first marriage, 18 to 24, and shows a positive effect from 24 to 26. The marriage chances of young women still single by

their mid-twenties are improved by 0.6 percentage points for each extra point of occupational status. Since in the NLS data this scale ranged from 3 to 96, a hypothetical change in occupational status of the head from one end of the scale to the other would raise the probability of the marriage of the daughter by 56 percentage points. No effect appears at older ages.

Coming from an intact family, which should have more resources than a single-parent family, was also expected to reduce the occurence of marriages during the early teens. Such an effect is present with those raised by two parents experiencing a probability of nuptiality before age 18 of 10 to 12 percentage points lower than those raised in other types of families. At older ages, as the conditions of one's upbringing become less salient to one's decisions, the effect of structure of family of origin disappears.

Since the more children in a family, the less time and money available per child, we expected the number of siblings to affect matrimony in much the same way as other indicators of parental resources. In fact, coming from a relatively large family decreases the chances of marriage before age 16 by 6 percentage points for each additional sibling. No significant effect appears at older ages. Perhaps this variable reflects religious preferences (not available in these data), since Catholics tend to have larger families and an older average age at marriage than other religious groups (Ryder and Westoff, 1971:68,304).

Being black, we hypothesized, would reduce the likelihood of wedlock at all ages since black women tend to marry at older ages and apparently have less to gain from matrimony than do white women. Our reasoning is supported generally. The likelihood of marriage between the ages of 16 to 29 is reduced by from 9 to 41 percentage points by being black. Below age 16 no significant effect of race exists.

We hypothesized that young women enrolled in school would be less likely

than those not attending to wed at any age. This effect was expected to be especially strong during the high school years when the student and spouse role are most incompatible. This is exactly what we find. Between the ages of 16 and 20, the probability of marriage is reduced by 13 to 15 percentage points for students. At older ages this effect is still negative but not significant. The significant negative effect for the age group 18 to 20--when most young women have finished high school--suggests that during the first two or three years of college or other post-high school training, marriage and school enrollment do not fit well together. Those young women who are not attending school are much more likely to wed than students, but perhaps some are not in school because they plan to marry. Causality cannot be determined completely.

As we expected young woman's educational attainment has no significant effect on the probability that she marries between the ages of 14 and 16. Virtually everyone is enrolled at those ages and years of schooling completed varies little. But, at ages 16 and over the likelihood of nuptiality is directly related to educational attainment; increasing by about 2 to 3 percentage points for each additional year of formal schooling completed. This positive effect may mean that, net of school enrollment, the relatively highly educated are more attractive marriage partners and therefore more likely to have a chance to wed, that they are less likely than the less educated to want to delay marriage, or that resources which allow or facilitate marriage are related positively to educational attainment.

Employment, which may provide young women with an alternative to marriage, tends to have a positive effect on the likelihood of matrimony. We suggested earlier that for young women not attending school being out of the labor force or out of a job might be indicative of health or personality problems which would impede marriage. Having a job also may increase exposure to potential mates and increase the chances of finding a suitable partner. Employed young women may

be better able to afford to marry than those without a job. Whatever the explanation, from the ages of 18 to 20, and 22 to 24, young women holding jobs are significantly more likely to wed than those who are not working.

Taste for employment, unlike actual market activity, tends to decrease the probability of marriage. This effect is statistically significant for four of the seven age groups and six out of seven of the coefficients are negative. Explaining the effect at older ages is straightforward: women who want to stay home at age 35 have to find some way to support themselves without working. Marriage is the most popular choice. Those who prefer to work have less to gain from matrimony since they can support themselves than do women who prefer to be full-time housewives. Marriage and employment are not mutually exclusive; most women combine these activities at some point in their lives. But women who want to stay home are practically forced to marry to achieve this end; women who prefer to hold a job are not. Between the ages of 16 and 19, the last years of high school and beginning years of college, wanting to work at age 35 decreases by 5 percentage points the probability of marrying in a given year.

The one other characteristic of the woman which is considered here is whether she had a child of her own living with her at the beginning of the year. Since only never-married women are included in this analysis, all those with children had borne them out to wedlock. We suggested that the probability of marriage for a woman with an illegitimate child depended on her ability and willingness to marry the child's father. If she could and would do so, her chances of marriage should be higher than those of a childless woman, if not, they should be lower. The results indicate that up to the age of 24 women with children borne out of wedlock are significantly more likely to wed than those without children. For the youngest women, having a child increases the probability of marriage in the next year by 54 percentage points. Most of these young mothers probably do marry the father of their child. At older ages the social and economic pressures to

marry might decrease; alternatives to wedlock might improve; and mothers who do not want to wed become a larger component of the never married. By age 24 no significant effect of presence of children exists.

Two characteristics of the area in which the woman lived--the size of the place and region of the country--were hypothesized to influence the likelihood of marriage. Larger cities were expected to delay the nupitals by providing attractive alternatives to marriage and to speed them by increasing exposure to potential mates. On balance, as we can see from Table 1, the larger the place, the less likely a single woman between the ages of 18 and 22 is to wed. No significant effect exists at other ages. It is possible that nubile young women who want to delay marriage migrate to metropolitan areas, or that being in an urban environment somehow causes a decline in the likelihood of marriage around the typical age for this event. Our results indicate that urban young women do marry; they are just more likely to delay the ceremony than their rural counterparts. Young women who live in the South were expected to be somewhat more likely to marry young than those in other regions. Evidently 14-to 16-year-olds are not considered any more nubile in the South than in the rest of the country, but from 16 to 20, Southerners are more likely to wed than others. This effect disappears from ages 20 to 24, but from 24 to 26, living in the South raises by 22 percentage points, the likelihood that a single young women marries. Perhaps those who have avoided wedlock until age 24 are under more social pressure in the South to marry than are those who live elsewhere.

The last variable we consider essentially captures a time period effect. The year in which the woman became the relevant age indicates whether there has been a change over time in the probability of marriage independent of the effects of the other variables in the equation. These results confirm our casual observations and other information on this topic. From 1968 to 1973 the probability of matrimony between 16 and 18 showed no significant change. A slight increase (about 2 percentage points a year) in the likelihood of marriage between 18 and

20 occurred. Women became less likely to wed between the ages of 20 to 22 (traditionally the most popular years) over the period 1968 to 1973, and more likely to marry between 24 and 26. Clearly, marriages were increasingly delayed over the period from the very early twenties to the mid twenties.

Let us briefly summarize the results of the analysis of transition of marriage. Those characteristics of the young woman's family of origin which may reflect availability of parental resources (for example, the parents' educational attainment, the occupational status of the household head, whether the family was intact) tend to decrease the chances of marriage during the early teens. These variables have little effect during the most common ages of first marriage, 18 to 24, and two of them, mother's education and head's occupational status, increase the likelihood of matrimony at some older ages. We reasoned that familial resources could prevent an untimely, early marriage but facilitate nuptiality at a later, more socially acceptible age.

Black women were found to be substantially less likely to take weddin ws at almost any age than were whites. The lower gains to matrimony for blacks than for whites is suggested as the cause.

Conflicts between the student and wife roles, especially during high school and the first two or three years of post-high school training, are probably the reason for the negative effect of school enrollment on marriage during the mid-to-late teen ages. Educational attainment, net of school enrollment, appears to facilitate nuptiality at virtually every age, probably by increasing the young woman's attractiveness as a potential spouse. Employed young women may also be more attractive, among those not enrolled, than those who are unemployed or out of the labor force.

Having a child borne out of wedlock greatly increases chances of matrimony at the youngest ages with the strength of this effect decreasing at older ages and disappearing after age 24. Most very young mothers, and fewer older mothers, probably marry the father of their child. A preference for paid

employment over homemaking substantially decreases the probability of marriage at the youngest and oldest ages, perhaps because women who want to keep house full time are almost forced to marry to achieve this end--women who want to hold a job are not.

Two characteristics of the area in which a woman lives affect the likelihood that she marries. Young women in the South and those in rural areas are more likely to wed than those in other regions or in more urban places. Differences in norms about marriage, availability of partners and attractiveness of alternatives to wedlock are suggested as possible causes.

Transition to motherhood. Several characteristics of a young woman's family of origin are expected to affect the likelihood of a first birth at various ages. A highly educated mother should act as a role model for her daughter, encouraging educational attainment and perhaps pursuit of a career, and discouraging childbearing. As Table 2 shows, this effect exists and is significant from ages 16 to 23 with the likelihood of a first birth decreasing by about 1 percentage point for each year of schooling completed by the mother. Father's education, which we hypothesized to have an inhibiting effect on teenage motherhood and a positive impact, if any, on later childbearing, shows the expected pattern. Up to age 22, years of schooling completed by a young woman's father has no significant influence on the likelihood that she becomes a mother, although the coefficients for this variable are all negative. From 22 to 27 this effect is positive with the likelihood of a first birth rising by about 1 percentage point for each additional year of education completed by the young woman's father. This effect is not statistically significant at the older ages, probably because of the small sample size. We reasoned that father's education is a rough index of familial resources available to help prevent a first birth during the teens but which may make it possible for an older daughter to afford a first birth a little sooner than she otherwise could have. The occupational status of the household head, which should also reflect familial resources, has virtually no effect on the probability of motherhood at any age. Perhaps these variables are both tapping the same underlying phenomenon. Availability of time and money to prevent teenage childbearing should also be reflected by the structure of the parental family and its size; small, intact families should provide their daughters with attractive alternatives to teenage motherhood and the supervision to prevent its accidental occurrence. Table 2 shows that young women

raised by two parents are significantly less likely than those raised in another type of family to have a first birth during their teens. The size of this effect ranges from 4 to 7 percentage points. At age 20 and over, this variable has little impact, except for the 24 and 25-year age groups. Contrary to our expectations, size of the family of origin also has no influence on the transition to motherhood at any age. This variable may be confounded with religious preference, a variable not included in this data set. The last measure of a characteristic of the family of origin is whether the young woman's mother worked. Working mothers could provide less direct supervision to their daughters than full-time housewives, we reasoned, perhaps increasing the chances of a first birth during the teens. No such pattern appears in our results. In fact, having had a working mother has virtually no influence at any age on the probability of a first birth.

We hypothesized earlier that although black women are less likely to wed at any age than are white women, they would be more likely to first become mothers during the teens. Rates of out-of-wedlock childbearing are almost ten times higher for blacks than whites (Moore and Caldwell, 1976), and much of it takes place among women in their teens. The results shown in Table 2 strongly support our reasoning. Between the ages of 14 and 21, black women are substantially more likely than white women to have a first birth. The racial differential is strongest at the youngest ages, during which being black raises the probability of a first birth by 18 percentage points. As we expected, if black women avoid motherhood until at least age 22 they are no more likely than whites to bear a first child at later ages.[1]

---

[1] We hypothesized that racial differences in out-of-wedlock childbearing would result in a different effect of marital status on the probability of a first birth for blacks than for whites. No significant race-marital status interaction exists at any age, and these interaction terms have been deleted from the analysis. However, the sign of the coefficients indicates that marital status has less impact on the likelihood of a first birth for blacks than for whites, as we expected.

Being enrolled in school, we hypothesized, should decrease the likelihood of a first birth among childless women of all ages. First, the student and mother roles are substantially less compatible than the student and wife roles. Second, school attendance is an alternative activity to motherhood, providing students with some motivation to avoid pregnancy and childbearing. Since we are examining here the effect of school enrollment, at one point, on the likelihood of a birth 6 to 18 months later, we can be fairly certain that causality runs predominantly from enrollment to childbearing. The effect of attending school is consistently negative, as we expected, and although statistically significant for only the 20 and 21 year age groups, school enrollment decreases the probability that a young woman bears a first child 6 to 18 months later by 5 to 7 percentage points. This effect is smallest at about and immediately after the ages of high school graduation, 16 to 19, and strongest early in the high school years and at ages 22 to 25 when those still in school are probably in college, graduate or professional training. As might be expected, a very small proportion (between 3 and 12%) of all single women are still fulltime students at these older ages.[2]

Educational attainment was hypothesized to have a negative influence on the likelihood of a first birth at all ages over 18. Before this age, causality between age at first birth and educational attainment appears to be reciprocal (Hofferth and Moore, 1978), and the specification of the model used here is inappropriate. But our results show no evidence of any effect of years of schooling completed at any age, net of school enrollment and other variables in

[2]These equations were re-estimated, including part-time with full-time enrollment. For women between the ages of 22-25, this change causes coefficients for enrollment to become strongly negative and significant. Full or part-time enrollment decreases the probability of a first birth by 15 to 20 points. This probably reflects the part time nature of most graduate work.

the model. Most analyses of the relationship between age at first birth and educational attainment have either examined the effect of the former on the latter (Waite and Moore, 1978) or restricted the analysis to those who had become mothers by a certain age (Hofferth and Moore, 1978). We are interested in the effect of educational attainment on the probability of a first birth at various ages, a very different problem. Educational attainment may partially determine age at first birth among those who are mothers by a certain age (27 in the Hofferth and Moore analysis) but not influence the probability of a first birth among the currently childless. The proportion permanently childless among non-mothers increases with age of the woman. Since at least half of all childlessness appears to be involuntary (Veevers, 1972) years of schooling completed may be unrelated to the probability of motherhood at older ages because the occurrence of this event is, to a substantial degree, outside of a person's control. At younger ages, say 23 and below, current enrollment rather than years of schooling completed may be the crucial variable.

Employment, like educational attainment, generally shows no effect on likelihood of a first birth at any age. Labor force status is, for young women, extremely changeable. Being currently employed does not preclude pregnancy and childbearing, or even decrease their probability, since one may always leave a job on rather short notice. In addition, labor force participation and childbearing are not as incompatible now as they were in the past (Waite, 1976; Smith, 1977). These facts may also account for the weak effect that an expressed taste for market work has on the chances of motherhood at various ages. In only three of the seven age groups, 16 and 17, 22 and 23 and 24 and 25, is the effect of preferring market to home work at age

35 on the likelihood of a first birth significant. In all these cases this effect is negative, as it is in five of the seven age groups. As we argued earlier there are several childbearing strategies available to the woman who wants to hold a job later in life. First, she may forego motherhood entirely, an option chosen by relatively few women (U.S. Bureau of the Census, 1978). Second, she may have her children while she is young and space them closely, returning quickly to the labor market or job training. Third, she may delay childbearing until her schooling is completed and her job or career settled. The results of our analysis shed little light on the most commonly chosen option. But wanting to work later in life does slightly decrease the probability of a first birth at rather young ages, suggesting that either delay or permanent avoidance of motherhood may be more widely used strategies than early and closely-spaced childbearing.

Two measures of the characteristics of the area in which the woman lives have some effect on the likelihood of a first birth during the teens. The less urban the place in which a young woman was raised the greater the likelihood that she has a first child during her early teens. The scale of city size ranges from 1 (urbanized area of 3 million or more) to 8 (rural), so a hypothetical change from the largest to smallest place would raise the chances of teenage motherhood 4 to 12 percentage points. A similar effect exists at ages 20 and 21 but at no other age. Different norms about teenage childbearing in rural and urban areas, or different amounts of parental supervision may be responsible for this relationship. These same factors may account for the significantly lower probability of a first birth during the early teens among young women living in the South than among those in other regions. This effect of region also appears during the early twenties; net of all other factors in

the equation, living in the South reduces the chances of a first birth during the early twenties by 4 to 5 percentage points. This effect is statistically significant but substantively quite small.

The factors we expected to have the most powerful effect on the probability of a first birth at any age are marital status and marital duration. In preliminary analyses these two measures were combined into a series of dummy variables: marital duration of 0 to 2 years, of 3 to 4 years, and 5 or more years, with the category "not currently married" omitted from the equation. However, coefficients for all three marital durations were highly similar and we decided to collapse them into a single dummy variable, with "currently married" coded as 1 and "not currently married" coded as 0.

The effect of being currently married on the probability of bearing a child 6 to 18 months later is large and significant for all age groups except the youngest. Being currently married increases this probability by 11 to 32 percentage points, the largest impact being felt in the oldest age group. This oldest group is composed of those who are 26 or 27 at the beginning of the period and are between 27 and 29 by the end of the period under consideration. It probably includes many who have purposely delayed childbearing, who feel that they are approaching the biological constraints on motherhood and so may feel some pressure to produce at least one offspring before age 30.

The explanation for no impact of marital duration on the probability of a first birth may lie in two opposing forces. Women may feel increasing pressure to bear a child as their marital duration increases, but those who are childless at higher marital durations will include an increasing proportion of those who cannot or have chosen not to bear children.

Our analysis of the transition to motherhood shows that the likelihood of a first birth during the early teens is reduced by having a highly educated mother, by being enrolled in school, coming from an intact family, being white, being raised in a large rather than a small place, by living in the South, and by being single. At older ages fewer variables influenced the likelihood that those still childless became mothers but the factors which increased the chances of this event included not being enrolled in school, being employed and being currently married. The implications of these results, and of those from the analysis of the transition to marriage, are discussed next.

Discussion

The results of our analysis show that while in early adulthood current employment status has a small positive impact on the likelihood of a first marriage or birth at most ages, those variables which indicate a preference or preparation for future employment cause postponement of family formation. Taste for market work, a variable indicating a preference for paid employment over full time home work at age 35, motivates women to postpone marriage at least until the early twenties, and childbearing until the late twenties. School enrollment also decreases the likelihood of experiencing these transitions at most ages examined here. It can be assumed that much of this education, especially that which occurs after the typical age for high school graduation, is related to preparation for future work. Finally,

mother's education also decreases the likelihood of a first marriage or birth at a given age, perhaps due to its influence on a daughter's work plans.

Although there is as yet no empirical evidence of a relation between taste for work and employment status among young or middle-age women, these results provide support for an indirect linkage. Women who experience the transitions to marriage and motherhood at later ages have more time during which to experience work-related alternative sources of gratification, and to acquire valuable education and labor market experience. They are then more likely than others to be in the labor force at later ages (Sobol, 1973; Groat, Workman and Neal, 1976).

This analysis also provides individual-level evidence that the current trends in timing of family formation, women's educational attainment and labor force participation are linked to a rise in general levels of preference for market work among young women. Since 1960 the percent of women unmarried in the early twenties has nearly doubled (US Bureau of the Census, 1978) as has the percent childless in their late twenties (US Bureau of the Census, 1977). Marital dissolution, which increases in likelihood with market work preferences (analyses not shown), has become the expected outcome of at least 40 percent of marriages currently contracted (Glick and Norton, 1977).

These trends in family formation, as well as increased female college enrollments, (US Bureau of the Census 1978) seem to indicate that recent cohorts of young women are experiencing higher levels of taste for paid employment than did their older sisters and mothers. Evidence of such a trend is, however, only indirect. While we know that attitudes toward employment of women in general have become more liberal since the mid-sixties (Mason et al, 1976), there has been no similar assessment of changes in women's attitudes toward their own employment.

We should also keep in mind that, while levels of taste for work and other factors which encourage postponement of family formation may be decreasing, pressures toward marriage and childbearing are laso decreasing. The idea of an unmarried couple living together is gaining acceptance (Glick and Norton, 1977) and pro-natalist pressures are decreasing with publicity surrounding the issue of overpopulation. Thus any interpretation of these results should be tempered by an awareness of the complex set of factors, only some of which are measured here, which lead to a decision to wed or to bear a first child.

Appendix Table A-1. Number of women never married at beginning of year for whom data are available the following year.

Age in 1968-initial survey date

Age at beginning of year	14	15	16	17	18	19	20	21	22	23	24
14	387										
15	377	541									
16	367	519	527								
17	342	479	489	490							
18	285	429	411	419	419						
19		356	350	334	371	327					
20			303	293	302	265	300				
21				248	237	211	246	220			
22					192	189	184	155	169		
23						159	154	128	131	103	
24							133	117	116	86	89
25								104	107	73	89
26									101	73	83
27										72	82
28											77

Appendix Table A-2. Number of women childless of beginning of year for whom data are available on childbearing during the period from 6 to 18 months later.

Age at beginning of year	Age in 1968-initial survey date										
	14	15	16	17	18	19	20	21	22	23	24
14	388										
15	386	533									
16	369	518	512								
17	354	480	487	476							
18		435	440	437	427						
19			407	388	401	361					
20				350	368	318	327				
21					330	283	292	270			
22						256	258	246	197		
23							228	212	178	134	
24								179	160	118	121
25									146	104	104
26										91	97
27											86

Appendix Table A-3. Means for variables in marriage analysis

	14-15	16-17	18-19	20-21	22-23	24-25	26-28
Taste	.31	.40	.43	.45	.47	.52	.53
Ed	9.52	10.76	11.84	12.60	13.17	13.13	12.68
Enroll	.89	.88	.52	.40	.14	.07	.01
Employ	.22	.33	.50	.60	.79	.84	.76
Kids	.01	.03	.05	.07	.09	.13	.16
Intact	.83	.82	.85	.84	.82	.79	.77
Mothed	10.97	11.12	11.28	11.30	11.13	10.94	10.78
Fathed	10.91	10.98	11.15	11.21	10.80	10.42	10.27
City size	5.23	5.13	4.97	4.80	4.64	4.49	4.31
Headocc	35.78	36.24	36.30	37.33	36.85	36.79	37.79
Race	.13	.13	.13	.13	.15	.20	.23
Nsibs	3.41	3.35	3.11	2.95	2.89	2.96	3.07
Year	—	2.01	2.97	2.96	3.10	3.70	—
Region	.19	.20	.19	.19	.19	.22	.23

Appendix Table A-4 Means for variables in childbearing analysis

	14-15	16-17	18-19	20-21	22-23	24-25	26-27
Taste	.30	.39	.41	.37	.36	.48	.42
Ed	9.52	10.76	11.74	12.46	13.21	13.51	13.34
Enroll	.89	.87	.49	.33	.12	.03	.04
Employ	.22	.34	.50	.63	.78	.84	.79
Intact	.82	.82	.84	.86	.87	.87	.85
Mothed	10.98	11.11	11.23	11.17	11.29	11.47	11.17
Fathed	10.92	10.98	11.01	10.97	10.96	10.88	10.49
City size	5.23	5.15	5.03	4.86	4.60	4.20	4.27
Headocc	36.01	36.29	35.75	36.66	38.82	41.36	38.64
Race	.12	.11	.10	.09	.08	.09	.12
Moth work	.40	.37	.34	.30	.28	.30	.31
Nsibs	3.37	3.33	3.12	2.84	2.69	2.56	2.50
Year		2.01	2.44	2.37	2.48	3.10	———
Region	.19	.20	.19	.20	.21	.23	.26
Mstat	.01	.03	.13	.27	.44	.51	.51

Table 1

Probability of marriage within one year for those never-married at a given age. Probit slopes at p=.20

	Age at beginning of year						
	14-15	16-17	18-19	20-21	22-23	24-25	26-28
Taste for work	-.268*	-.054*	-.051*	-.029	.011	-.058	-.157**
Education	.036	.025*	.022*	.011	.010	.017	.030*
Enrollment	.212	-.154*	-.132*	-.006	.089	-.060	-1.246
Employment	.027	.004	.059*	-.001	.090*	.148	-.063
Kids	.535*	.168*	.101*	.057	.144*	-.161	.179
Intact	-.115	-.096*	.034	.002	.051	-.008	.050
Mother ed	-.035*	-.011*	-.002	-.004	-.003	-.028*	.033*
Father ed	.002	-.014*	-.005	-.004	-.002	-.018**	-.012
City size	.011	.006	.018*	.014*	-.001	-.016	-.022
Head Occ. Stat	.000	-.001**	.001	.000	.000	.006*	-.004
Race	.049	-.217*	-.090*	-.117*	-.125*	-.005	-.406*
# Siblings	-.058*	-.005	.003	-.004	.001	.003	.033
Year	—	.019	.021*	-.023*	.004	.070*	—
Region	.026	.101*	.046*	.040	-.007	.164*	.004
R^2	.06	.07	.07	.03	.03	.08	.16
N	904	1793	1975	1380	715	316	131
Marriage Probability	.01	.08	.16	.20	.20	.12	.14

* p<.05

** .05<p<.10

Table 2

Probability of first birth between 6 and 18 months after date, for those still not mothers at given age (probit slopes at p=.10)

	Age at beginning of year						
independent variables	14-15	16-17	18-19	20-21	22-23	24-25	26-27
taste for work	-.013	-.074*	.005	-.023	-.041*	-.057*	.048
education	.014	.002	.006	-.001	-.001	.001	.011
enrollment	-.028	-.025	-.005	-.052*	-.071	-.025	.065
employment	-.071	.006	.008	.004	-.010	.114*	.034
intact	-.061**	-.043*	-.065*	-.021	.049	.121*	.045
mother ed	-.002	-.009*	-.011*	-.006**	-.014*	.008	.008
father ed	-.003	-.003	-.004	-.004	.007**	.003	.005
city size	.017*	.007*	.005	.008*	-.001	.007	-.003
head occ	.001	-.000	.001	-.000	.000	-.000	.000
race	.183*	.111*	.083*	.051**	.055	-.000	.038
mother work	-.004	-.009	-.006	.025	.036	-.008	-.008
# siblings	.009	-.015	.004	.006	.003	.011	.020
year	——	.012	-.001	.009	.007	.039*	——
region	-.081**	.025	-.025	-.037**	-.044**	.014	.027
marital status	.138	.173*	.178*	.110*	.210*	.196*	.321*
R^2	.06	.08	.09	.07	.12	.12	.21
N	921	1823	1975	1565	984	471	147
first birth prob.	.027	.059	.070	.091	.106	.107	.107

*p<.05 ** .05<p<.10

REFERENCES

Becker, Gary S.
1960 "An economic analysis of fertility." In Demographic and Economic Change in Developed Countries. Universities-National Bureau Conference Series II. Princeton: Princeton University Press.

Becker, Gary S.
1974 "A Theory of marriage: Part II" Journal of Political Economy 82 (Part II): S11-S26.

Becker, Gary, Elizabeth Landis and Robert T. Michael
1977 "An economic analyses of marital instability" Journal of Political Economy 85:1141-87

Blake, Judith
1971 "Reproductive motivation and population policy." Bioscience, 21:215-20.

Blood, Robert Jr. and Donald M. Wolfe
1960 Husbands and Wives: The Dynamics of Married Living. New York: Macmillan,

Bumpass, Larry and James A. Sweet
1972 "Differentials in marital instability: 1970." American Sociological Review 37 (December): 754-66.

Cain, Glen C. and A. Weininger
1973 "Economic determinants of fertility: results from cross-sectional aggregate data." Demography 10(May): 205-23.

Carter, Hugh and Paul C. Glick
1976 Marriage and Divorce: A Social and Economic Study. Cambridge: Harvard University Press.

Cherlin, Andrew
1978 "Postponing marriage: The Influence of schooling, working and work plans for young women". Paper presented at the meetings of the American Sociologial Association, San Francisco.

DeTray, Dennis T.
1973 "Child quality and the demand for children" Journal of Political Economy. 81(2,Part II): S70-95.

Easterlin, Richard A.
1968 Population Labor Force, and Long Swings in Economic Growth. New York: National Bureau of Economic Research.

Freedman,Deborah
1963 "The relation of economic status to fertility". American Economic Review LIII (June): 414-26

Freedman, Ronald
1963 "Norms for family size in underdeveloped areas." Proceedings of the Royal Society, B, 159:220-45.

Glick, Paul C, and Arthur Norton
1977 Marrying, Divorcing and Living Together in the U.S. Today. Vol. 32, No. 5. Washington,D.C.: Population Reference Bureau

Freiden, Alan
1974 "The United States Marriage Market." Journal of Political Economy 82(2 part II):S34-S53.

Glick, Paul C.
1977 "Updating the life cycle of the family" Journal of Marriage and the Family 39:5-14.

Goodman, Leo A.
1976 "The relationship between modified and usual multiple-regression approaches to the analyses of dichotomous variables." Pp. 83-110 in Sociological Methodology David Heise (ed). San Francisco: Jossey-Bass.

Groat, H. Theodore, Randy L. Workman, and Arthur G. Neal
1976 "Labor force participation and formation: A Study of working mothers." Demography 13:115-25.

Hofferth, Sandra L. and Kristin A. Moore
1978 "Age at first birth and later economic wellbeing". Paper presented at the meetings of the Population Association of America.

Leibowitz, Arleen
1974 "Education and the allocation of women's time." Pp. 171-97 in F. Thomas Juster (ed.), Education, Income, and Human Behavior. New York: McGraw-Hill.

Mason, Karen Oppenheim, John L. Czajka, and Sara Arber
1976 "Change in U.S. Women's sex-role attitudes, 1964-1974" American Sociological Review 41:573-96.

Moore, Kristin A. and Steven B. Caldwell
1976 Out-of-Wedlock Pregnancy and Childbearing. Working Paper 992-02. Washington, D.C.: The Urban Institute.

Moore, Kristin A. and Linda J. Waite
1977 "Early childbearing and educational attainment." Family Planning Perspectives 9(5):220-5.

Presser, Harriet B.
1971 "The timing of the first birth, female roles and black fertility" Milbank Memorial Fund Quantivly 49:329-59.

Preston, Samuel H. & Alan Thomas Richards
1975 "The influence of women's work opportunities on marriage rates." Demography (May) 12(2):209-22.

Rindfuss, Ronald and Larry Bumpass
1978 "Changes in the timing of fertility: Implications for industrialized societies" Paper presented at the American Sociological Association meetings, San Francisco, September.

Ronald Rindfull & Bumpass, Larry
1976 "How old is too old: Age and the sociology of fertility . Family Planning Perspectives" 8:226-30

Ross, S.G.
1974 The Timing and Spacing of Births and Women's Labor Force Participation: An Economic Analyses. Ph.D. Dissertation: Columbia.

Ryder, Norman and Charles F. Westoff
1971 Reproduction in the United States: 1965. Princeton: Princeton University Press.

Sandell, Steven H. and David Shapiro
1978 "Work expectations, human capital accumulation, and the wages of young women. Center for Human Resource Research. The Ohio State University.

Smith, Ralph E.
1977 "Sources of growth in the female labor force, 1971-75." Monthly Labor Review 100:27-9.

Sobol, Marion G.
1973 "A dynamic analysis of labor force participation of married women of childbearing age" The Journal of Human Resources 8:497-505.

Taylor, Patricia Ann and Norval D. Glenn
1976 "The utility of education and attractiveness for females' status attainment through marriage" ASR 41(June): 484-98.

Trussell, James and Jane Menken
1978 "Age at first birth and the pace and components of subsequent fertility." Paper presented at the meetings of the Population Association of America, Atlanta.

Turchi, Boone A.
1975 "Microeconomic Theories of fertility: A Critique" Social Forces 54:107-25

U.S. Bureau of the Census
1976 Premarital Fertility. Current Population Reports. Series P-23, No. 63. Washington, D.C.: U.S. Government Printing Office.

U.S. Bureau of the Census
1976 "A Statistical Portrait of Women in the U.S." Current Population Reports Special Studies Series P-23, no. 58. Washington, D.C.: US Government Printing Office

U.S. Bureau of the Census
1978 "Population Profile of the United States: 1977." Current Population Reports. Series P-20, No. 324 Washington, D.C.: U.S. Government Printing Office.

U.S. Department of Labor
1977 U.S. Working Women: A Data book. Washington, D.C.: US Government Printing Office

Vanneman, Reeve and Fred C. Pampel
1977 "The American perception of class and status" American Sociological Review 42:422-37

Veevers, Jean
1972 "Factors in the incidence of childlessness in Canada: An analysis of census data." Social Biology 19(3):266-74.

Voss, Paul R.
1976 "Social determinants of age at first marriage in the United States." Unpublished Ph.D. dissertation, Department of Sociology, University of Michigan.

Waite, Linda J.
1976 "Working wives: 1940-1960." American Sociological Review 41(February):65-80.

Waite, Linda J. & Ross M. Stolzenberg
1976 "Intended childbearing and labor force participation of young women: Insights from nonrecursive models." American Sociological Review 41-235-52.

Waite, Linda J. and Kristin A. Moore
1978 "The impact of an early first birth on young womens educational attainment" Social Forces 56:845-65

Westoff, Charles F.
1976 "The decline of unplanned births in the United States." Science 191:38-41.

Westoff, Charles F.
1978 "Some speculations on the future of marriage and fertility" Family Planning Perspectives 10:79-83.

Willis, R.
1973 "A new approach to the economic theory of fertility behavior." Journal of Political Economy 81 (March/April):S14-64.