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Vital statistics data are merged with census data to examine the impact of women's marriage opportunities on family formation and dissolution. Measures of the quantity and quality of potential spouses specific for a woman's age, race, education, and area of residence are linked to rates of marriage, divorce, and nonmarital fertility. Greater marriage opportunities increase rates of marriage and divorce, and decrease illegitimacy ratios. Unemployment among prospective husbands reduces marriage and divorce rates, but increases illegitimacy. Racial differences in marriage opportunities account for a moderate proportion of the racial difference in female marriage.

Recent research on marital timing and family formation has begun to emphasize the importance of the sex composition of populations for women's demographic behavior. Whether explicitly invoking the notion of a marriage squeeze (e.g., Goldman, Westoff, & Hammerslough, 1984; Schoen, 1983; Schoen & Kluegel, 1988) or more broadly concerned with imbalanced sex ratios (e.g., Guttentag & Secord, 1983; South & Trent, 1988), more and more studies have posited a causal link between the number of men and women's marital, familial, and economic behavior (Fossett & Kiecolt, 1990, 1991a; Heer & Grossbard-Shechtman, 1981; Lichter, LeClere, & McLaughlin, 1991; Wilson, 1987). The shortage of men is thought to be especially acute among African-Americans (Espenshade, 1985; Spanier & Glick, 1980; Tucker, 1987), and is believed by some to be partially responsible for wide, and often increasing, racial differences in marriage rates and family structure (Bennett, Bloom, & Craig, 1989; Darity & Myers, 1984; Staples, 1985; Testa, Astone, Krogh, & Neckerman, 1989; cf. Schoen & Kluegel, 1988).

This paper extends prior studies of the consequences of unfavorable marriage opportunities for women's marital behavior by exploring the effects of imbalanced sex ratios on U.S. women's rates of marriage, divorce, and nonmarital fertility, factors which together create female-headed families. While prior studies have recognized that women's marriage opportunities vary by age (e.g., Goldman et al., 1984), race (e.g., Lichter et al., 1991), educational attainment (e.g., Schoen & Kluegel, 1988), and geographic area (e.g., Fossett & Kiecolt, 1991a), no study has yet incorporated all four of these marriage market characteristics simultaneously. The failure to consider all of these dimensions in a single analysis may partly explain the discrepant findings in the literature. This study builds on earlier research by finely disaggregating measures of the marriage squeeze and its hypothesized outcomes; by examining the impact of imbalanced sex ratios for women outside the normative marital ages; by using more precise measures of women's marital opportunities; by distinguishing the quantity from the "quality" of potential mates; and by testing for differential ef-

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fects of marriage opportunities for blacks and whites.

Theory

The potential impact of imbalanced sex ratios on women's sociodemographic behavior has been approached from several disciplines. Demographers stress that, all else equal, a shortage of men of the normative marriageable ages must either reduce women's marriage rates or propel women to marry men much older or younger than themselves (Akers, 1967; Schoen, 1983). Economists see marriage market disequilibria influencing the rewards and costs of marriage and thus the levels of marriage and patterns of assortative mating (e.g., Becker, 1981). And sociologists describe how imbalanced sex ratios bestow power on the sex in short supply, and hence condition exchanges between men and women (Guttentag & Secord, 1983).

Despite their different emphases, all of these theoretical perspectives suggest important influences of marriage opportunities on women's behavior. First, all three theories anticipate a positive impact of women's marriage opportunities on women's marriage rates. A surfeit of men will enable women to marry if they wish, and to attract a higher quality mate in the process. Conversely, when women outnumber men, their marriage rates will be low because of a scarcity of possible mates and because the increased alternatives for men will enable men to avert or delay marriage (Fossett & Kiecolt, 1990, 1991a).

A female marriage squeeze is also likely to influence the ratio of nonmarital to marital births. By reducing female marriage rates, a deficit of marriage opportunities increases the population at risk of nonmarital childbearing, and thus raises the ratio of out-of-wedlock to marital births. A scarcity of men also decreases the likelihood that premaritally pregnant women will marry. If the compensation offered by potential husbands is too low, unmarried mothers may find that the benefits of singlehood outweigh those from marriage. Welfare payments are generally available only to the unmarried, and marriage has other costs for women, including lower physical and mental health and diminished status (Bernard, 1972). Further, some have suggested that, faced with a deficit of men, unmarried women may be pressured to engage in sexual intercourse to attract a mate (Spanier & Glick, 1980; Hogan & Kitagawa, 1985).

Finally, women's marriage opportunities may also affect the divorce rate, although here the direction of the relationship is not as clear. On the one hand, a surfeit of marriageable men presents more alternatives to married women, alternatives that have been linked to marital disruption (Udry, 1981). On the other hand, more alternatives for wives generally mean fewer for their husbands, who will be motivated to maintain an existing marriage (Guttentag & Secord, 1983). Presumably, when women are scarce men are more committed to marriage and the family, and will use their power to limit women's options. Although women's growing independence may make this strategy less viable, the net effect of women's marriage opportunities on divorce will nonetheless be a function of the relative impact of these conflicting forces.

Another aspect of the female marriage squeeze emphasizes the quality, rather than the mere quantity, of potential spouses as a determinant of marriage and family structure (Wilson, 1987). Here it is the deficit of men with desirable economic prospects—especially steady employment—and not simply a dearth of men that reduces women's gains from marriage, thereby lowering women's marriage rates (Lichter et al., 1991; O'Hare, 1988; Wilson, 1987). Oppenheimer (1988) criticizes conventional marriage models for ignoring the economic attributes of potential husbands, and suggests that the retreat from early marriage is as much a function of the declining financial situations of men as the rising economic independence of women. The high rates of unemployment and the low educational attainments of African-American men place unusually severe constraints on the marital opportunities for black women, especially high-status black women (Spanier & Glick, 1980; Tucker & Taylor, 1989). Hence, an analysis of the impact of female marriage opportunities on women's marriage behavior should consider not only the number of men in a woman's field of eligibles, but the quality of those men as well.

Prior Research and Emerging Issues

While some studies of the female marriage squeeze are primarily descriptive and focus on national-level trends and differentials (e.g., Spanier

& Glick, 1980), most analyses recognize that marriage markets are geographically limited and that multivariate models are required to assess the effect of sex ratios on women's roles. In an early study, Cox (1940) finds a positive relationship for blacks between the sex ratio and the proportion of women who are married in U.S. cities. More recently, Frieden (1974), Preston and Richards (1975), and White (1981) all find positive relationships between the sex ratio and the proportion of women married in U.S. metropolitan areas. Fossett and Kiecolt (1990) report strong effects of the sex ratio on African-American marriage and family structure, including the presence of female-headed families and the rate of nonmarital fertility, across nonmetropolitan Louisiana counties.

However, while Lichter et al. (1991) report generally positive relationships between the sex ratio and the proportion of women aged 20 to 29 who are married across U.S. labor markets, these relationships are not consistently significant. Rather, Lichter et al. find that male economic status has stronger effects than male availability on female marriage patterns. Similarly, O'Hare (1988) finds that black male employment, but not the black sex ratio, has significant effects on the growth of African-American female-headed families; and White (1979) finds no significant effect of the sex ratio on the illegitimacy rate across urban areas. Finally, Schoen and Kluegel (1988), using a demographic model of marriage attraction, find that only a small proportion of recent changes in both marriage propensity and racial differences in marriage rates can be explained by the shortage of men.

Each of these various analytic approaches has strengths and weaknesses, and these differences could account for some of the discrepant findings reported above. The current study extends these analyses by combining their best features and adding new ones, thereby describing more completely the impact of imbalanced marriage markets on women's marriage behavior.

First, prior theory and research clearly indicate the need to consider the economic status, as well as the sheer number, of men in a woman's field of eligibles. It is also important to *distinguish* the effects of these factors, inasmuch as policies to reduce male joblessness or high school dropout rates may be quite different from those designed to increase the numbers of men per se (e.g., by lowering mortality and incarceration rates). Unfortunately, Wilson's (1987) male marriageable pool index (MMPI), the ratio of employed men to women of the same race and age group, confounds the effects of male employment with male availability. The research reviewed above is equivocal on whether the number of all men, or the number of men with desirable economic qualities, has a stronger effect on family formation and structure.

Second, most studies of the marriage squeeze recognize that marriage markets are local rather than national (Keyfitz, 1977). Some studies capitalize on the significant inter-area variation in women's marriage opportunities (e.g., Lichter et al., 1991), but others rely on data from a single area (Schoen & Kluegel, 1988).

Third, it is generally understood that the pool of eligible men differs substantially by women's age, race, and educational attainment (Goldman et al., 1984; Schoen & Wooldredge, 1989). Most studies, however, ignore variation by age and education, focusing instead on a single age (e.g., Preston & Richards, 1975) or race group (O'Hare, 1988), and commingling women of different educational levels (Fossett & Kiecolt, 1990; Lichter et al., 1991). Importantly, no study has incorporated in a single design the variation in women's marriage opportunities across categories of age, race, education, and geographic area.

Moreover, most analyses measure women's marital opportunities rather crudely, often relying on the ratio of men to women in the same, or slightly younger, age group. Some studies limit the sex ratio to the unmarried population, but several do not (e.g., Fossett & Kiecolt, 1991a; Lichter et al., 1991). Either way, such measures ignore the fact that women of a given age will be "competing" with women in adjacent age groups for the same men (Goldman et al., 1984). For example, women aged 25 to 29 may be the most likely partners for men of that age, but those men will surely also consider marrying women aged 20 to 24. The selection of a measure of women's marriage opportunities is important because the most popular measures are not entirely interchangeable (Fossett & Kiecolt, 1989).

An additional limitation of much prior research is the reliance on prevalence, rather than incidence, measures of marriage. That is, the most common dependent variable is the percentage of women of a certain age who are married, rather than a true marriage rate (e.g., Preston & Rich-

ards, 1975). A serious problem with the former measure is that most censuses and surveys do not specify where and when those women married, and hence the marriage market conditions, including the sex ratio, that prevailed at the time and place of the marriage cannot be determined. Some studies try to circumvent this problem by focusing only on young or recently married women, most of whom can be assumed to have been married where the census or survey was taken (e.g., Lichter et al., 1991). But this sample restriction often necessitates that older women (e.g., 25 and older, as in White, 1981; or 30 or older, as in Lichter et al., 1991) be excluded from the study. Given secular increases in age at marriage, the omission of women who marry after their mid-to-late 20s is difficult to justify. In contrast, with a marriage incidence rate the relevant marriage market conditions are known for all marriages, allowing a larger age range of women to be considered in the analysis.

Finally, most theories guiding this research imply effects of sex ratios that go beyond marriage rates. In particular, much of the concern in this area is with the growth of female-headed families, which are generated by low marriage rates, high divorce rates, and high nonmarital fertility (Smith & Cutright, 1985). Some designs readily allow for an examination of the effect of the female marriage squeeze on behaviors other than marriage (e.g., South & Trent, 1988); other designs, however, do not (e.g., Schoen & Kluegel, 1988).

This analysis uses a research design that distinguishes between the effects of male availability and male employment on women's behavior; that recognizes the importance of inter-area differentials in women's marriage opportunities; that simultaneously incorporates variation in women's marriage opportunities and behavior across age, race, education, and geographic area; that uses incidence, rather than prevalence, measures of family formation and dissolution; that examines the experiences of women with different educational attainments and of women from across a wide age spectrum; that employs a conceptually appropriate measure of marriage opportunities; and that goes beyond a narrow focus on marriage to include effects of imbalanced sex ratios on divorce and nonmarital fertility.

Data and Methods

The data for this study come primarily from two sources: the National Center for Health Statistics (NCHS) data files on annual marriages, divorces, and births in 1980 and 1981 (NCHS, 1983a, 1983b, 1983c, 1984a, 1984b, 1984c); and the 5% A sample of public use microdata (PUMS) from the 1980 U.S. census (U.S. Bureau of the Census, 1983a). The NCHS data are used to calculate the number of marriages, divorces, and births (both marital and nonmarital) simultaneously specific for women's race (white, black), age (in seven 5-year age groups from 15–19 to 45–49), and state of residence. Additional analyses further disaggregate these counts by women's education (three categories of years of school completed: 0–8, 9–12, and 13 or more). The counts of marriage and divorce constitute numerators for the marriage and divorce rates, while the percentage of all births that occur to unmarried women operationalizes the nonmarital fertility ratio. To increase the stability of these figures, averages for the years 1980 and 1981 are used.

One cost of using incidence rather than prevalence measures of marriage and divorce is that states (and the District of Columbia) are the smallest geographic division for which individual marriage and divorce records are identified. Although states are probably inferior to metropolitan areas as the spatial units for marriage markets, they are clearly superior to the national-level data used by many prior studies. Moreover, states have been used to separate marriage markets by other recent studies (Schoen & Kluegel, 1988; Schoen & Wooldredge, 1989). A related liability is that not all states both participate in the marriage and divorce registration systems and record the necessary data. For rates disaggregated only by age and race, 34 states can be used for the marriage rate analyses and 26 for the divorce rate analyses. When the rates are further disaggregated by education, only 18 states can be included in the analyses of marriage and divorce. Fortunately, all but three states (California, Texas, and Washington) provide the necessary information to compute nonmarital fertility ratios specific for age, race, and education.

The numerators for the marriage and divorce rates are constructed by cross-tabulating for each available state the number of marriages and divorces occurring to women by age, race, and, in

some analyses, education. The nonmarital fertility ratio is computed by cross-classifying births by age, race, education, and marital status of the mother. Where necessary, these counts are weighted according to the NCHS sampling frame, and adjustments are made for missing data within each state by apportioning the cases with missing values across the cells according to the distribution of nonmissing observations. For the marriage rates and divorce rates disaggregated by education, this cross-tabulation results in a maximum sample of 756 (18 states × 7 age groups × 2 races × 3 educational categories) groups of women, representing about 15 million individual women, over a million marriages, and almost 600,000 divorces. In the analyses not disaggregated by education, the respective sample sizes are 476 (34 states × 7 age groups × 2 races) and 364 (26 states × 7 age groups × 2 races) for the marriage and divorce rates, respectively. Because 48 states are available for analyzing the nonmarital fertility ratio (with or without the education breakdown), the corresponding maximum sample size for this part of the analysis is 2,016, representing approximately 45 million women and about 5.5 million births. The effective sample sizes will be less than the maximum because some of the cells will contain too few observations to support analysis (see below).

The PUMS data are used in two ways. First, denominators for the marriage and divorce rates are created by extracting the number of unmarried and married women, respectively, in each age/race/state and age/race/education/state category. The marriage rate is expressed per 1,000 single women, and the divorce rate is expressed per 1,000 married women. Second, the PUMS data are used to construct a measure of marriage opportunities available to each category of women, as well as a measure of the employment and educational status of the men in each woman's field of eligibles.

The primary measure of women's marriage opportunities is the availability ratio developed by Goldman et al. (1984), adapted to these data with minor modifications. In its most detailed form, the availability ratio has as its numerator the number of suitable men available to women of a particular age, race, education, and place, and as its denominator the average number of women who are suitable for the men in the numerator (i.e., the number of women competing with each woman in that demographic category). Like most prior studies, suitability entails that prospective husbands and wives be currently unmarried, of the same race, and living in the same state. Placing age and educational constraints on the men available to women (and vice versa) is more difficult. Following Fossett and Kiecolt (1991b), the strategy used here is to weight the number of unmarried men (and the women available to them) by the proportional distribution of marriages at the national level occurring to those women (and men) in 1980. Formally, for women of a given age and educational level, the availability ratio (AR) is computed by

$$\mathrm{AR} = [\Sigma_j \Sigma_i m_{ij} M_{ij} / (\Sigma_j \Sigma_i w_{ij} W_{Mij} M_{ij} / \Sigma_j \Sigma_i m_{ij} M_{ij})] \times 100,$$

where M_{ij} denotes the number of suitable men age i in educational level j; W_{Mij} denotes the number of women suitable for the M_{ij} men; m_{ij} are weights reflecting the proportion of brides who marry grooms of age i and educational level j; and w_{ij} are weights reflecting the proportion of grooms of age i and educational level j who marry brides of age i and educational level j.

Availability ratios greater than 100 imply a favorable sex ratio for unmarried women, while ratios less than 100 indicate a deficit of men. The availability ratio as computed here has several key advantages over simpler but more popular sex ratios: It includes education as a factor influencing marriage opportunities; it takes into account competition for the same men from women in all other age and education categories; it can be computed for women in various age groups; it limits the marriage market to currently unmarried persons; it excludes men in correctional institutions and military bases overseas who are generally considered ineligible to marry; and it derives preferences for spouses with given characteristics from observed marriage patterns rather than hypothetical models.

Although we view the availability ratio as the most appropriate measure of women's marriage opportunities for purely conceptual reasons, we recognize that alternative measures of mate availability have been proposed (see Fossett & Kiecolt, 1991b, for a review of these measures). Hence, we also examined the impact of three other measures: the sex ratio of unmarried persons in each age, race, and education group; the sex ratio of all per-

sons in each group; and the ratio of *employed* men to unmarried women in each group, a measure similar to Wilson's (1987) MMPI. In general, the findings using these alternative measures of marriage opportunities are quite similar to those for the availability ratio. We note in the text the few instances where one of these other measures displays a significant effect while the availability ratio does not.

The employment status of the men suitable to a particular group of women is the (weighted) percentage of men in the availability ratio's numerator ($\Sigma\Sigma m_{ij}M_{ij}$) who report being not employed, that is, either unemployed or out of the labor force. Thus, while the availability ratio measures the total number of men available to a given woman, the variable labeled male nonemployment measures the desirability of those men in terms of their employment status (cf. Wilson, 1987). Like the availability ratio, male nonemployment takes into account, for each category of women, the distribution of men across all age and education groups, and not simply the employment status of men in a woman's own age group. And the measure is specific to women in each age/race/education/state category.

The analyses take into account the educational attainments of prospective husbands in two different ways. In the first set of equations, the availability ratio (and male nonemployment) ignore education as a marriage market characteristic, and instead we include the education of potential spouses as a separate explanatory variable, much like the male nonemployment variable described above. The particular measure used is the percentage of unmarried men in the appropriate age/race category having less than a high school education. In these initial analyses, the dependent variables are not disaggregated by education. Subsequent analyses then incorporate the educational characteristics of potential husbands into the availability ratio, as described above. In this conceptualization of the marriage market, marriage opportunities for women of different educational attainments are presumed to be constrained by the supply of men in various educational categories. This treatment of male education as a factor influencing the quantity of potential spouses is consistent with the work of Goldman et al. (1984) and Schoen and Kluegel (1988). In these more detailed analyses, the dependent variables are disaggregated by education, as well as age and race.

Factors other than age, race, education, and the quantity and quality of potential spouses might also explain variation in rates of marriage, divorce, and nonmarital fertility. Of particular concern here are those characteristics of marriage markets that might be related to both women's marriage opportunities and male nonemployment, on the one hand, and women's sociodemographic behavior, on the other. Following recent studies in this tradition (Fossett & Kiecolt, 1990; Lichter et al., 1991), included as independent variables are average Aid to Families with Dependent Children (AFDC) payments per recipient family and the percentage of the state population that is urban (U.S. Bureau of the Census, 1982); the race-specific median earnings of full-time, year-round female and male workers, in thousands of dollars (U.S. Bureau of the Census, 1983b: Table 81); and a dummy variable for location in the census South.

The analytical strategy is to increase the efficiency of the parameter estimates by pooling the observations over all age, education, and state groups, and to estimate ordinary least squares regression equations separately for each of the three dependent variables. Because preliminary analyses indicated that the effects of the availability ratio and male nonemployment are often significantly different for blacks and whites, the equations are estimated separately for the two racial groups. In order to increase the stability of the rates, only those cells in which the (unweighted) denominator of the dependent variable (i.e., unmarried women, married women, or total births) is 10 or greater are selected. To give more weight to those cells containing a larger number of women, each category of women is weighted according to its proportional share of the denominator of the dependent variable. That is, for the marriage rate the cells are weighted by the proportion of unmarried women, the divorce rate equations weight by the proportion of married women, and the nonmarital fertility ratio equations weight by the total proportion of births.

Results

Table 1 shows the distribution of the mean availability ratios across the 47 states and District of Columbia by age, race, and educational attainment. For the sample as a whole, there are 82.5 unmarried men "available" for every 100 unmar-

TABLE 1. MEANS AND STANDARD DEVIATIONS FOR MALE AVAILABILITY RATIO FOR WOMEN, BY AGE, EDUCATION, AND RACE: 47 STATES AND DISTRICT OF COLUMBIA

	White	Black	Total
Age			
15-19	105.2	91.2	102.9
	(10.7)	(15.4)	(12.8)
20-24	101.2	74.2	96.0
	(12.7)	(11.7)	(16.4)
25-29	73.2	52.0	68.5
	(12.6)	(6.8)	(14.6)
30-34	54.1	39.8	50.8
	(9.7)	(5.7)	(10.8)
35-39	40.0	31.8	38.1
	(7.0)	(5.3)	(7.4)
40-44	33.6	28.5	32.5
	(4.7)	(5.6)	(5.4)
45-49	31.5	30.6	31.3
	(4.1)	(8.1)	(5.1)
Years of school			
0-8	86.8	73.0	83.5
	(26.2)	(27.9)	(27.2)
9-12	81.6	64.3	78.3
	(30.2)	(25.1)	(30.0)
13 or more	90.1	59.1	85.4
	(27.6)	(22.6)	(29.1)
Total	86.4	66.2	82.5
	(28.3)	(26.1)	(29.0)

Note: Means with standard deviations in parentheses.

ried women. The often discussed racial difference in women's marriage opportunities is readily apparent; the mean availability ratio is over 20 points higher for whites (86.4) than for African-Americans (66.2). Not surprisingly, for both whites and blacks the availability ratio declines sharply with age, although the drop is slightly less precipitous among African-Americans. Both excess male mortality and higher remarriage rates among men than women contribute to the relative deficit of eligible husbands at older ages (Goldman et al., 1984).

Among whites, the availability ratio varies little across the three education categories. Women with some high school education have the least favorable marriage prospects, largely because they compete with women from both of the other educational levels for the same men. Education is more strongly related to marriage opportunities among black women, with the availability ratio declining monotonically with years of school completed. As suggested by others (e.g., Tucker & Taylor, 1989), the marriage market for highly educated black women is especially weak, with fewer than 60 men available for every 100 women. An analysis of variance not shown here reveals that the relationship between education and the availability ratio is indeed significantly different for white and black women.

Tables 2 and 3 present the regression analyses. The equations that do not incorporate male education into the availability ratio, but instead treat male education as a separate explanatory variable, are shown in Table 2. The first two columns show the marriage rate equations for whites and blacks. Positive effects of the availability ratio are observed for both races, but the coefficient is significant only for whites. However, in results not shown here we do find a significant positive effect of the sex ratio of unmarried persons on the black marriage rate (beta = .25). Also as predicted, male nonemployment is inversely related to the marriage rate for both whites and blacks. The educational attainment of potential husbands is not significantly related to the marriage rate in either equation. This result should be viewed with some caution, however, because of the high, but unsurprising, correlation between male nonemployment and male low education (r = .87) for whites, r = .69 for blacks). In fact, the coefficient for male education does achieve significance for whites if male nonemployment is omitted from the equation.

Three of the other variables also have significant (but not entirely consistent) effects. For both whites and blacks, marriage rates are lower in Southern states and states with higher AFDC payments. And, at least in this sample, states with comparatively large urban populations have significantly higher black marriage rates.

In the equations predicting the divorce rate, the coefficients for the availability ratio are positive and statistically significant for both whites and blacks. Hence, a relative surplus of men tends to increase the probability that a woman will divorce, as well as marry. An abundance of alternatives to a woman's current spouse increases the probability of marital dissolution, an effect of imbalanced sex ratios *not* anticipated in the theoretical literature (Guttentag & Secord, 1983; Wilson, 1987). As indicated by the significant coefficients for male nonemployment and low education, the economic characteristics of those alternative husbands also matter. The stronger effects are for education, and suggest that women are less likely to dissolve their current marriage when the pool

TABLE 2. REGRESSION ANALYSIS OF WOMEN'S AGE-SPECIFIC RATES OF MARRIAGE, DIVORCE, AND NONMARITAL FERTILITY, U.S., 1980

Independent Variables	Marriage Rate		Divorce Rate		Nonmarital Fertility Ratio	
	White	Black	White	Black	White	Black
Age[a]						
20–24	83.03**	47.33**	-10.80	45.25*	-14.03**	-27.06**
	(.59)	(.69)	(-.25)	(.38)	(-.64)	(-.60)
25–29	107.56**	44.33**	-5.02	30.89**	-20.25**	-47.47**
	(.57)	(.52)	(-.14)	(1.00)	(-.93)	(-.92)
30–34	88.90**	27.09*	-2.39	30.78**	-21.69**	-56.00**
	(.39)	(.27)	(-.07)	(1.00)	(-.78)	(-.81)
35–39	71.14**	7.21	.96	27.92**	-21.37**	-57.63**
	(.26)	(.06)	(.02)	(.85)	(-.40)	(-.48)
40–44	55.81*	-2.54	-.30	25.06*	-20.74**	-56.41**
	(.19)	(-.02)	(-.01)	(.71)	(-.15)	(-.22)
45–49	45.59**	-6.62	-4.28	18.82*	-24.07*	-58.36**
	(.16)	(-.05)	(-.10)	(-.52)	(-.04)	(-.05)
Availability ratio	1.14**	.07	.59**	.42**	-.02	-.09**
	(.48)	(.05)	(.81)	(.50)	(-.04)	(-.08)
Male nonemployment	-1.08*	-1.09**	.36*	.42**	.18**	.30**
	(-.17)	(-.40)	(.15)	(.22)	(.13)	(.15)
Male low education	-.63	.17	-.61**	-.40**	.14	-.03
	(-.23)	(.12)	(-.51)	(-.45)	(.22)	(-.03)
AFDC payments	-.38**	-.23**	-.07**	-.00	.00	-.01
	(-.48)	(-.60)	(-.44)	(-.01)	(.03)	(-.06)
Percentage urban	-.24	.34**	.10	.30*	.12**	.25**
	(-.05)	(.15)	(.07)	(.27)	(.14)	(.15)
Female income	-4.46	2.87	-1.86	-6.48**	2.94**	1.44*
	(-.06)	(.14)	(-.12)	(-.78)	(.27)	(.11)
Male income	.84	-1.85	.10	2.13**	-1.49**	-.38
	(.02)	(-.15)	(.01)	(.36)	(-.25)	(-.04)
Census South	-16.22**	-20.97**	-2.49	-.26	-2.43**	-1.88
	(-.13)	(-.35)	(-.08)	(-.01)	(-.11)	(-.04)
Constant	165.00	100.47	33.26	-.96	8.04	56.76
n	238	172	182	131	323	267
R^2 (adjusted)	.88	.86	.83	.75	.90	.96

Note: Metric coefficients with standardized coefficients in parentheses.
[a]Reference category is age 15–19.
*$p < .05$. **$p < .01$.

of marriage eligibles have low education. Somewhat surprisingly, the coefficients for male nonemployment are positive. One possible explanation for these effects is that nonemployment in the field of eligibles also reflects a higher probability of joblessness for a woman's current spouse. Husband's nonemployment is known to increase the probability of divorce (South & Spitze, 1986). Several of the control variables have significant coefficients. The white divorce rate is inversely related to AFDC payments, while the black divorce rate is positively related to percentage urban and male median income and inversely related to female income.

The equations in the last two columns of Table 2 examine the nonmarital fertility ratio, that is, the percentage of all births that occur to unmarried women. For blacks, a significant effect in the hypothesized direction is observed for the availability ratio, indicating that a greater availability of potential husbands reduces the nonmarital fertility ratio. And, for both blacks and whites, the degree to which men in the field of eligibles are not employed is positively linked to nonmarital childbearing.

The results in Table 2 also indicate that, for both blacks and whites, the nonmarital fertility ratio is significantly higher in more urban states and states with high female earnings. In addition, among whites nonmarital fertility is inversely related to male income and is lower in the South.

Table 3 presents the regression analyses that incorporate the educational distribution of potential husbands into the availability ratio and that

TABLE 3. REGRESSION ANALYSIS OF WOMEN'S AGE- AND EDUCATION-SPECIFIC RATES OF MARRIAGE, DIVORCE, AND NONMARITAL FERTILITY, U.S., 1980

Independent Variables	Marriage Rate		Divorce Rate		Nonmarital Fertility Ratio	
	White	Black	White	Black	White	Black
Age[a]						
20–24	84.33**	32.13**	2.08	24.98**	-22.32**	-24.27**
	(.35)	(.31)	(.03)	(.34)	(-.97)	(-.51)
25–29	97.54**	44.38**	-.80	42.71**	-29.68**	-42.57**
	(.30)	(.34)	(-.01)	(.71)	(-1.29)	(-.79)
30–34	71.22**	36.02*	-6.12	39.79**	-31.64**	-50.28**
	(.18)	(.23)	(-.12)	(.67)	(-1.08)	(-.69)
35–39	47.44*	26.18	-8.89	34.66**	-32.01**	-53.46**
	(.10)	(.14)	(-.15)	(.55)	(-.57)	(-.42)
40–44	25.92	26.78	-12.87	30.63**	-31.77**	-54.45**
	(.05)	(.13)	(-.20)	(.46)	(-.22)	(-.20)
45–49	20.16	28.18	-15.77*	22.91*	-34.97**	-57.60**
	(.04)	(.13)	(-.24)	(.33)	(-.04)	(-.04)
Years of school[a]						
9–12	172.61**	72.13**	29.30**	46.22**	-6.77**	-4.56**
	(.78)	(.74)	(.65)	(.95)	(-.30)	(-.09)
13 or more	31.39**	38.44**	4.10	22.04**	-10.79**	-20.62**
	(.15)	(.39)	(.09)	(.42)	(-.47)	(-.37)
Availability ratio	.77**	.44	.29**	.40**	-.09**	-.03*
	(.22)	(.26)	(.32)	(.29)	(-.19)	(-.03)
Male nonemployment	-1.43*	-.30	-.31*	.35*	.12**	.24**
	(-.11)	(-.07)	(-.11)	(.12)	(.06)	(.10)
AFDC payments	-.26**	.05	-.08**	-.05*	.00	-.02**
	(-.20)	(.08)	(-.29)	(-.22)	(.01)	(-.07)
Percentage urban	.75**	-.29	.16*	-.25	.08**	.24**
	(.09)	(-.08)	(.08)	(-.11)	(.09)	(.14)
Female income	-16.22*	-26.38**	.59	-.50	3.16**	1.58**
	(-.14)	(-.90)	(.03)	(-.03)	(.27)	(.12)
Male income	3.97	7.51*	-.95	-.19	-1.48**	-.24
	(.08)	(.42)	(-.07)	(-.01)	(-.24)	(-.03)
Census South	-2.81	-23.33*	-3.75	-12.23**	-2.17**	-2.73**
	(-.01)	(-.25)	(-.07)	(-.24)	(-.09)	(-.06)
Constant	82.54	134.32	33.59	-12.16	35.17	60.58
n	374	211	373	214	894	653
R^2 (adjusted)	.84	.74	.72	.80	.90	.95

Note: Metric coefficients with standardized coefficients in parentheses.
[a]Reference categories are age 15–19 and 0–8 years of school completed.
*$p < .05$. **$p < .01$.

disaggregate the marriage, divorce, and nonmarital fertility rates by women's education, as well as by age and race. As noted above, for the analysis of marriage and divorce this strategy entails the loss of several states, but the degrees of freedom actually increase because the rates are simultaneously broken down by both age and education. In essence, some geographic variation in marriage markets is sacrificed in order to accommodate variation in marriage opportunities by women's educational level.

The availability ratio again reveals several significant associations with these dimensions of women's sociodemographic behavior. Among both whites and blacks the relative surplus of potential husbands increases the probability of marriage and divorce. (The coefficient for the availability ratio in the black marriage rate equation just barely fails to attain statistical significance: $p < .10$.) Moreover, for both whites and blacks, the availability ratio is significantly and inversely related to the nonmarital fertility ratio, although the coefficient for blacks is quite small. Here again, however, alternative measures of marriage opportunities have stronger effects.

Male nonemployment also exhibits significant associations with the dependent variables. As was the case in Table 2, nonemployment among the

pool of potential spouses decreases female marriage rates, although here the coefficient for blacks is not statistically significant. The effect of male nonemployment on divorce appears to differ for whites and blacks. For whites, male nonemployment reduces the probability of divorce, but for blacks, male nonemployment increases the divorce rate. This result may suggest that, at least for whites, the male nonemployment variable more accurately gauges the attractiveness of alternative husbands when male education is considered an influence on the quantity, rather than the quality, of spouses (as in Table 2). Alternatively, differences in the effects of male nonemployment on divorce between Tables 2 and 3 may result from differences in the particular states suitable for these analyses. In any event, given these discrepancies, substantive conclusions regarding the effects of male employment status on divorce should be made cautiously. As in Table 2, male nonemployment is significantly and positively related to the nonmarital fertility ratio among both blacks and whites.

Racial differences in two of the three dependent variables are substantial. In this sample the mean white female marriage rate (per 1,000 unmarried women) is 113.1, compared to a rate for black women of 41.3. And the mean white nonmarital fertility ratio of 10.4 is considerably below the black ratio of 56.5. The racial difference in the divorce rate is more modest, with means of 30.0 and 32.5 for whites and blacks, but still worth exploring. Accordingly, we also performed regression decompositions to determine the extent to which racial differences in female marriage, divorce, and nonmarital fertility can be attributed to racial differences in the quantity and quality of potential mates. These regression decompositions use the white population as the standard. While different results would be obtained using a different standard population, assigning the white means to the black equations allows an assessment of how racial differences in marriage, divorce, and nonmarital fertility might look if African-American women operated in a marriage market similar to that for white women. These decompositions suggest that about 17% of the racial difference in the female marriage rate is attributable to racial differences in mate availability, with another 8% of the difference attributable to racial differences in male nonemployment. The former value is close to prior estimates by Schoen and Kluegel (1988), who report that between 10% and 25% of the racial difference in female marriage rates can be attributable to population composition, the exact percentage depending on education. Like Schoen and Kluegel (1988) and Lichter et al. (1991), this decomposition also shows that significant racial differences in marriage rates persist even after racial differences in mate availability are taken into account. Hence, while characteristics of the marriage market can explain some of the difference, a complete explanation of racial differences in marriage behavior will clearly require consideration of nondemographic variables.

Racial differences in male nonemployment also account for some of the racial differences in the nonmarital fertility ratio and the divorce rate. However, less than 9% of the racial difference in nonmarital fertility appears attributable to male unemployment, and differences in the divorce rate are rather modest to begin with. The availability ratio does little to explain differences in these variables. Overall, then, marriage market differentials between white and black women do not appear to be the primary cause of racial differences in the creation of female-headed families.

Discussion and Conclusion

Recent research on the consequences of imbalanced sex ratios for women's marital behavior has produced conflicting results. While some studies (e.g., Fossett & Kiecolt, 1990) report strong effects of women's marital opportunities on their marriage probabilities, others do not (Farley & Bianchi, 1987; Goldscheider & Waite, 1986; Schoen & Kluegel, 1988). And, while some studies suggest that the sheer number of eligible males is salient (Spanier & Glick, 1980; Tucker & Taylor, 1989), others report that the number of potential mates with desirable economic characteristics is the deciding factor (Lichter et al., 1991; O'Hare, 1988). The results reported here strike a middle ground among these positions. While our findings are partially dependent on how women's marriage opportunities and men's educational characteristics are measured, we find generally moderate and usually statistically significant effects of mate availability on women's rates of marriage, as well as divorce and nonmarital fertility. These associations are neither overwhelming nor trivial. Moreover, we find evidence that both the numbers of eligible men and their employment and educa-

tional status have independent effects on women's marriage behavior.

It is also worth noting that a deficit of marriage opportunities does not always produce female-headed families. Although the female marriage squeeze tends to reduce rates of marriage and increase the ratio of nonmarital to marital births, a scarcity of eligible men is actually associated with lower than average divorce rates. Presumably this is so in part because the marriage squeeze diminishes the number of desirable alternatives to a woman's current spouse, thereby rendering divorce a less attractive option. Hence, the key mechanisms linking the female marriage squeeze to the growth of female-headed families (Wilson, 1987) are low marriage probabilities and high nonmarital childbearing.

The race-specific analyses of the marriage rate and nonmarital fertility ratio show that the effects of female marriage opportunities appear to be somewhat stronger or subject to less variability among whites than among African-Americans. A test for interactions using the equations in Table 3 reveals that the impact of the availability ratio on these variables tends to be weaker among blacks than whites. The proximate source of this discrepancy is not immediately clear, but one possibility is that black male undercount injects an unknown amount of error into the measurement of the availability ratio. If black male undercount, or more precisely the sex difference in the undercount among blacks relative to the sex difference among whites, covaries for whatever reason with female marriage rates, then the effect of mate availability on female marriage among African-Americans could be underestimated.

Finally, these results are consistent with Wilson's (1987) argument that, among blacks, high levels of singlehood and nonmarital fertility are more attributable to the deficit of marriageable and desirable men than to the munificence of welfare programs. Policies that would improve the socioeconomic status of black men might enhance the stability of the African-American family both directly, by increasing the number of marriageable men with steady employment, and indirectly, by reducing mortality and incarceration rates that restrict the marriage pool for black women. While such policies are unlikely to completely eliminate racial differences in family formation and structure, they may well prove more successful than intervention strategies that reduce public assistance to the nation's poor.

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