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Family Formation Among Women in the U.S. Military: Evidence From the NLSY

Jennifer H. Lundquist, *University of Massachusetts - Amherst*
Herbert Smith, *University of Pennsylvania*

JENNIFER HICKES LUNDQUIST *University of Massachusetts—Amherst*

HERBERT L. SMITH *University of Pennsylvania**

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*Although female employment is associated with lower levels of completed fertility in the civilian world, we find family formation rates among U.S. military women to be comparatively high. We compare enlisted women with civilian women using the National Longitudinal Survey of Youth (*N = *3,547), the only data set to measure simultaneously the nuptiality and fertility of both populations. Using propensity score matching, we show that the fertility effect derives primarily from early marriage in the military, a surprisingly "family-friendly" institution. This shows that specific organizational and economic incentives in a working environment may offset the more widespread contemporary social and economic factors that otherwise depress marriage and fertility.*

The U.S. military is, to a first approximation, a "total institution" in Goffman's (1961) classic formulation. Activities are conducted in the same place under a hierarchical authority, in the company of like others charged with identical duties. Scheduling is severe and imposed from above, in service to a larger institutional plan. The sublimation of individual interests to institutional goals is extreme, up to and including the sacrifice of one's own life. Short of this, but still extreme in comparative perspective, are the time demands and dislocation fostered by episodic deployment overseas, on ship, and in bases scattered throughout the United States.

The U.S. military is also, in the post-Vietnam era, substantially staffed by young women. Total institutions are, in theory, incompatible with family life. But the volunteer military, which must compete for adherents, turns out to be quite "family friendly." In the civilian world, there appears to be a causal mechanism linking female employment to lower completed levels of fertility (Angrist & Evans, 1998; Goldin, 1997). Yet in the military, marriage is prevalent and levels of fertility are as high if not higher than those found among similar women in civilian life. We demonstrate this by comparing, for 1979–1984, the military sample of the National Longitudinal Survey of Youth (NLSY79) with selected women from civilian samples.

BACKGROUND

When an all-volunteer force replaced the U.S. military draft in 1973, a 2% cap on women's representation in the military effectively came to an end, resulting in an immediate increase in the population of enlisted women. The decision to increase the percentage of women in the

Social and Demographic Research Institute, Department of Sociology, University of Massachusetts—Amherst, Machmer Hall W34A, Amherst, MA 01003 (lundquist@soc.umass.edu).

*Population Studies Center, University of Pennsylvania, 3718 Locust Walk CR, Philadelphia, PA 19104-6298.

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military was controversial because there was concern that a reliance on female military personnel would compromise combat readiness. The primary argument against admission of women focused on biological sex differences, including pregnancy. Until 1975, the U.S. military had a policy of automatic discharge for any pregnant female soldier. Following a series of lawsuits, military policy was revised to give pregnant female soldiers the choice of whether to exit or remain (Francke, 1997). A 1976 Army review committee recommended that the mandatory discharge policy be restored because surveyed commanders reported that pregnancy caused enlisted women to lose twice the amount of time as men, that half of the lost time of female officers was attributable to pregnancy, and that pregnancy negatively affected the morale of other service members (Army Administrators, 1978). A 1982 Army report on enlisted women concluded that pregnancy was enough of a problem for the Reagan administration to call for a temporary halt to the further recruitment of women (Feinman, 2000). Ten years later, a commission undertaken to assess women's roles in the Persian Gulf War echoed similar concerns (*The presidential commission*, 1992).

The military releases few statistics regarding female enlistees and pregnancy. Most of what is publicly known derives from journalism. The Persian Gulf War and the intervention in Bosnia were the first major military engagements to involve female soldiers on a large scale. Newspaper headlines such as *Pregnancy Kept GI Jill Out of War*; *A Camouflage Baby Boom?*; *Sailor Pregnant to Avoid Tough Duty?*; and *70 GIs Leave Bosnia on Stork* shaped perceptions of the issue (Dietrich, 1988; Hackworth, 1998; Kennedy, 1996; Thompson, 1992).

There are a number of reasons to anticipate comparatively high pregnancy rates among servicewomen, the theoretical incompatibility of work with childbearing and childrearing notwithstanding. Low retention rates for soldiers in and following the Korean War led the government to conclude that family disruption was the primary reason for leaving the military, and to resolve to make the family an essential component of personnel policy and management (Bourg & Segal, 1999; Little, 1971). Upon the transition to an all-volunteer force, the military developed programs specifically for families, which include full family health coverage, family housing, day-care services, and school-age activity centers and programs.

For enlisted troops, marriage or single parenthood is a way out of the barracks and out from under the scrutiny of superiors. Although unmarried service members are not necessarily required to live in the rent-free barracks, they must pay their own housing and food expenses should they move off base. In contrast, service members with families are given an off-base housing allowance (which has varied over time and by region according to average housing costs) and a supplementary allowance for food expenses. For cases in which on-base housing is unavailable for all soldiers, the single soldier with authorization to move off base receives substantially less housing allowance than one with dependents. Married couples also receive higher moving allowances and a family separation allowance.

Earlier research indicated that divorce rates are unusually low, especially in the Air Force (Goldman, 1973). If benefits are encouraging and perhaps prolonging marriage in the military, there may be higher fertility rates not only for enlisted men, but also for the growing number of enlisted women, many of whom are married to enlisted men. That joint service marriages can compound the effect of family benefits for each spouse has been well apprehended in the military press. One article discusses the existence of "pseudomarriages," in which junior enlisted personnel marry one another temporarily in order to receive the benefits of married personnel (Until ETS, 1977). Another referred to an unmarried status pay penalty and the added incentive to marry for those already dating in the military (Pexton & Maze, 1995). Health care, child care, retirement, and family programs have all been enhanced significantly throughout the 1980s and early 1990s, and the percentage of married personnel has continued to increase over time (Office of the Under Secretary of Defense, 2003; United States General Accounting Office, 2002).

Women (47%) are much more likely than men (28%) to leave the military prior to the end of their enlistment terms (Richter, 1999). Although there are many other reasons for this, one is that female enlistees have had an option that men have not: an honorable discharge in the event of pregnancy. This was an official option at the time our data were collected, although since then, the Navy and Marines have

discontinued the policy (the Navy still allows separation requests for pregnant servicewomen.) In 1978, at the start of the NLSY panel, almost half of the pregnant women in the military discharged after taking their 6-week maternity leave (Francke, 1997). A related argument is that female soldiers become pregnant to avoid war or undesirable assignments. Dietrich (1988) profiled a female soldier with orders to report to a remote Indian Ocean Naval base who, as a result, was "desperately trying to get pregnant" (p. A3). According to a presidential commission (*The presidential commission*, 1992), pregnancy accounted for 47% of all female nondeployments during the Gulf War; a study of Naval pregnancy included commanders' anecdotal references to soldiers deliberately becoming pregnant to avoid work or service altogether (Thomas, Thomas, & McClintock, 1991). This said, in the early 1980s (the period of our analysis), onerous and dangerous overseas postings were fewer than they have subsequently become. Then, as now, service was voluntary. Attrition rates for these enlisted women were less than half the attrition rates from employment for civilian women of the same age (Waite & Berryman, 1986), although the fixed-duration nature of military enlistments may in part be responsible.

The idea that family benefits or avoidance may lead to high fertility rates among servicewomen assumes that military pregnancies are planned, but many are not. According to a study of prenatal care at the Madigan Army Medical Center, 55% of all births among active-duty soldiers were unplanned (Clarke, Holt, & Miser, 1998). A Naval survey found that 68% of pregnancies among low-rank servicewomen were unplanned (Skaine, 1999). Thomas and Edwards (1989) observed that most single-parent pregnancies in the Navy were unplanned, and that the fathers were usually servicemen.

The duration of military postings and close proximity of women to men, combined with the young ages of enlistees (*Army Demographics*, 2001), can make for a charged sexual environment. Qualitative studies have commented on the prevalence of romantic relationships and dating among enlisted men and women (Harrell & Miller, 1997). High levels of sexual fraternization among sailors at sea have featured in journalistic references to the "U.S.S. Love Boat" (Hackworth, 1991). In a report from Bosnia, one soldier explained, "It's going on all over the place. They've locked us down, so what else is there to do?" (Kennedy, 1996, p. 16). In 1990, 13% of Naval women at sea were transferred because of pregnancy; fewer than half were married, compared with three fourths of pregnant Naval women on land duty (Thomas et al., 1991; Thomas & Thomas, 1992). Thus, one variant of the argument relating exposure to fertility is that the close proximity of unmarried women to same-age men creates the prospect for sexual activity, leading to unplanned pregnancies (Hoiberg & White, 1992). Another is that the same circumstances form an active marriage market, which also can lead to increased fertility, albeit within marriage.

From one perspective, childbearing is antithetical to soldiering, in which case any fertility is too much fertility. A different perspective, and one that we have adopted here, is to ask how the fertility of women in the military compares with that of similar women in the civilian world. Any appearance of high levels of fertility must first be placed within the demographic and social context of the military. Women of military age are at ages associated with high sexual activity, fecundability, and, for married women in particular, fertility in the general population. Racial minorities, who have comparatively high fertility in their late teens and early 20s, are overrepresented in the military; African American women comprise 46% of women in the Army, 22% in the Marines, 31% in the Navy, and 28% in the Air Force (Department of Defense Equal Opportunity Management Institute, 2002).

Differences between women in the military and women in civilian life can be found in Table 1, which shows the population-weighted distributions, from the NLSY, of factors that may be determinants of marriage and fertility. These are the factors for which we control in our matched comparisons. Enlisted women were slightly older than civilians, an artifact of military policy on age of entry along with the timing of NLSY sample selection, and they were also less racially homogeneous. The civilian sample was more likely to have already had children. Both samples attributed the same ideal family size to others. Owing partly to age differences, military women were more likely than civilians to expect a birth in the next 5 years, yet they were also more likely to prefer childlessness. The military sample was more

TABLE 1. COMPARISON OF ORIGINAL (SEPTEMBER 30, 1978) MILITARY AND SAME-AGE CIVILIAN ANALYTIC WEIGHTED SAMPLES

Variables	Military (n = 456)	Civilian (n = 2,793)
Age in 1979 (%)		
18*	8	18
19*	20	26
20*	30	24
21*	31	26
22*	10	6
Race (%)		
White*	77	84
Black*	20	13
Other*	4	2
Children ever born, 1978 or before[a] (%)	13	22
Mean number of siblings (M)	3.7	3.5
Residence at age 14 (%)		
Rural	79	79
South	69	66
Years of education (M)		
Mother	11.6	11.5
Father*	11.5	11
In the military[b] (%)		
1979*	91.9	0.1
1980*	74.2	0.5
1981*	58.9	0.4
1982*	46.4	0.6
1983*	35.5	0.6
1984*	31.8	0.5
Marital status 1979[b] (%)		
Never married*	60	70
Married*	34	26
Previously married*	6	4
1981[b] (%)		
Never married*	34	56
Married*	53	35
Previously married*	13	9
1983[b] (%)		
Never married*	20	44
Married*	61	44
Previously married*	19	11
Number of children desired (M)		
As ideal for others	2.7	2.7
Wanted for self	2.7	2.5
None (%)*	11	7
Wants to have child in next 5 years* (%)	62	58
Educational attainment (%)		
HS diploma*	99	83
Attended college*	29	46
Social-psychological scales (M)		
External locus of control[c]*	8.2	8.6
Traditional family values[d]*	15.9	16.8

Note: All measurements are from the 1979 wave of the NLSY survey, except where noted. Not all totals add up to 100% because of rounding.

[a]Based primarily on retrospective fertility histories taken in 1983 and 1984. [b]From the wave for that year; that is, 1979 wave for 1979, 1981 wave for 1981, and so on. [c]Constructed from an NLSY79 scale measuring individual's opinion on her degree of control over her life. [d]Constructed from an NLSY79 scale measuring opinions on women's roles in the home.

*$p < .05$.

educationally homogeneous than the same-age civilian sample. Virtually the entire military sample had a high school diploma, whereas 17% of the civilian sample did not. However, the civilian sample had a higher proportion of women who had attended college. The military services generally mandate a high school degree as a requirement of enlistment, and service in the military in the late teens and early 20s restricts immediate access to college. Women ages 18–22 in 1979 were from the largest of the Baby Boom cohorts, and the economy during the late 1970s was one of high unemployment and high inflation, all circumstances enhancing the selection ability of the armed forces. Perhaps for this reason, father's but not mother's education was higher among military youth. The military sample also scored significantly lower on Rotter (1966) items measuring external locus of control and a scale of items indexing *traditional family values*. The samples did not differ significantly on childhood residence characteristics, except that enlisted women were raised in larger families.

METHOD

Our analysis focuses upon the 456 women in the military sample of 1979 NLSY (Center for Human Resource Research, 1999). It is important to note that the NLSY military data do not contain interviews with commissioned officers. Therefore, all references to military personnel in this article are to those of enlisted rank. Although the NLSY sample was selected almost 25 years ago, it is the only publicly available sample of military women that contains substantial information regarding fertility. There is some limited applicability to today's military in that at the time our sample was selected, the all-volunteer military was only 6 years old, and women comprised about 8% of the enlisted military. Their representation has almost doubled today; however, military downsizing in 1991 has kept the total number of women in the service at only slightly higher levels than in 1979 (Office of the Under Secretary of Defense, 2003). Many important gender integration reforms had already occurred as of our sample selection; men and women had begun serving in integrated units, and noncombat positions for women had expanded from ground operations to those on ships and planes (Skaine, 1999). But one significant change did not occur until 1993, when combat positions except those involving direct ground combat opened up to women. As such, female occupations today are less restrictive than they were at the time our sample was serving in the military. Nonetheless, enlisted women are still most highly represented in "traditional" fields of functional support and health today. At the time our sample was serving, approximately 37% of enlisted women provided functional support, and 12% served in health occupations; today, the figures have changed very little, to 34% and 15%, respectively (Defense Manpower Data Center, 2004; Office of the Under Secretary of Defense).

The design of the NLSY sample places certain limits on our ability to make population-based inferences regarding fertility rates. When combined with the NLSY civilian samples, however, these data allow us to draw inferences about the effects of military service on the fertility of young women. The NLSY military sampling frame comprised active duty personnel as of September 1978, born in the years 1957–1961. They were selected in a complex multistage process (with stratification and clustering) in which the primary sampling units were military units as variously defined across branches of service. Women were oversampled relative to men, but sampling within clusters (military units) was inversely proportional to cluster size. High-quality retrospective fertility histories were obtained for all but a handful of these women, so we can calculate fertility rates for the period through early 1984, the last year that this panel was resurveyed in toto. Many women who were in the military when the sample was defined, however, had discharged by subsequent years. Although the military may be a total institution in the sociological sense, it is not a closed population in the demographic sense. All of the women originally in the military sample remained in the total NLSY sample across all waves through 1984, but by 1982, more than half of the women were being interviewed in civilian life. For the purposes of our analysis, we are interested in considering military service as a "treatment"—albeit a treatment with strong selectivity by women who elect to join the military—and by the military, which can choose from among those seeking to enlist. Fertility prior to sample selection, regardless of whether it occurred while the subject was in the military or prior to her enlistment, may be determinative of the chance that she found herself in the

military in September 1978, and is thus not helpful for understanding the effect of military service on fertility. Fertility consequent to this date may, under appropriate circumstances, be attributed in part to military service.

What are "appropriate circumstances"? The effect of one variable on another is defined only in relative terms (Holland, 1986). Although we can speak of such matters as the rate of fertility among a cohort of women in the military, it makes no sense to speak of the effect of military service on fertility, absent a comparative reference. The logical comparison is women in the same birth cohort in the civilian, noninstitutionalized population. The available analytic sample of such women is quite large. These civilian data are based on a combination of (a) a cross-sectional sample representative of the 1979 noninstitutionalized civilian population of the United States born between 1957 and 1964; (b) a similarly defined oversample of civilian Hispanic, Black, and economically disadvantaged non-Hispanic, non-Black youth; (c) women at least age 18 at the time of the first interview; and (d) no one still in high school.

Although Table 1 is weighted for population comparison inference, we do not use such weights in the following analysis. Reweighting the data would dispense with anomalies such as the civilian oversample of minorities and economically disadvantaged youth, but it would not make the civilian sample more akin to the military sample, and this is the crux of our research method. We wish to ascertain what the fertility of military personnel looks like relative to the fertility of civilians who are like them with respect to characteristics that may (a) determine whether someone is in the military, and (b) bear on fertility. Our strategy instead is one of matching on propensity scores (Rosenbaum, 1995; Rosenbaum & Rubin, 1983, 1984, 1985; Smith, 1997). A discriminant function based on some of the variables in Table 1 is used to estimate the underlying probability that an individual in either sample (i.e., military or same-age, civilian analytic) is in fact in the military. We exploit the rich number of potential matches afforded by the large NLSY civilian sample without reference to the true distribution of variables in the civilian population.

Most of our independent variables in Table 1 are constant, but other variables change over time. The most conspicuously relevant are whether a woman is still in the military, and whether she is married. The former is an alternative statement of the treatment, the latter a canonical determinant of fertility that may be both cause and consequence of being in the military. As mentioned previously, attrition from military life is severe. Some women in the original civilian sample were also joining the military throughout the 6 years, but perhaps only 1 in 200, not a high enough percentage to reconstitute the cohort-specific military population on an annual basis after 1978–1979. We have thus excluded these few civilian women who subsequently joined the military from the pool of civilian women eligible for matching to the original military sample. Doing so remedies one of the potential biases in prospective case-control studies: that some of the controls may, in the future, turn out to be cases (Farewell, 1979).

Marital status also changes rapidly in both samples during the period of observation, as would be expected among a cohort of women first observed in their late teens and early 20s. Thirty-four percent of the military sample were married in 1979, and 61% 4 years later. Comparable civilian percentages are 26% and 44%. From these data alone, it appears that the military is especially congenial to marriage, but the marital status of the military sample is increasingly the marital status not just of women currently in the military, but also of women who used to be in the military. In the fertility analysis that follows, we match women currently in the military with women in the civilian sample, and also consider the extent to which being in the military is a determinant of marital status.

It would be preferable to know the values of all Table 1 variables as of September 1978, when the definition of the military sampling frame was determined, but we do not. Instead, these measures, taken anywhere from 4 to 12 months later in 1979, are assumed to proxy for those differences in these variables that had existed between both groups when the military sample was defined. As such, we were unable to use other conditioning variables provided by the NLSY (such as the Armed Forces Qualification Test and the Armed Forces Vocational Aptitude Battery), which were not administered until after the initial interview date of our samples. Some evidence in support of this proxy assumption arose when we compared the 8% of the women in the military sample who had already left the military by the time of their

1979 interview. They looked, on average, almost identical on all variables to the women who remained in the military, and correspondingly different from the civilian population that they joined subsequently.

Controlling for transfer rates between civilian and military samples, retention rates from the NLSY as a whole favored the military sample; as of 1983, 89% of the original civilian sample was still being interviewed, compared with 93% of the original enlisted sample. The military subgroup was followed through a final interview in 1984 before being dropped from the sample for funding reasons. For this reason, data from 1984 are incomplete because subsequent interviews could not take place to augment missed data from the remainder of the year following interview. Except for those who permanently dropped out of the NLSY sample, there are few missing data. The longitudinal nature of the NLSY data collection assures that many of our variables could be determined even for missed interview years, but some covariates were not collected annually, and missing data could not directly be inferred in some cases. Instead, we imputed missing data based on the joint distribution of independent variables with all cases present.

All of our independent variables are plausibly related to the chance that a young woman will or will not have intercourse, will or will not use contraception, and will or will not have an abortion in the event of a pregnancy (hence, will or will not have a child in the succeeding years). How do we adjust for these factors in examining the relative likelihood that a woman serving in the military will have a birth? Matching is a powerful, nonparametric alternative to the regression model that isolates the effects of a variable—in our case, military service—to the domain of covariates where the treatment is most prevalent (Smith, 1997; Winship & Morgan, 1999; Winship & Sobel, 2004). We examined fertility differences between military women and civilian women who were, on average, alike across a range of factors that also impinge on fertility.

Even using a large sample such as the NLSY, it was difficult to find women who were exactly alike on a large sequence of variables. A crucial insight is that "there is a sense in which all matching problems are one dimensional" (Rosenbaum, 1995, p. 70), and this occurs when matching is exact on a single propensity score that is a linear combination of any number of covariates. The score itself is the estimated propensity of a subject (in our case, a young woman) to be a "treatment unit" (i.e., to be serving in the military), as opposed to being a potential "control" (i.e., a civilian).

To estimate propensity scores, we ran a logistic regression where the two samples described in Table 1 were pooled, and the outcome variable was whether a woman was in the military sample. The predictor variables are most of those shown in Table 1; the remaining variables are reserved for exact matching. The resulting fitted logits are our estimated propensity scores. A logit is defined as $\Omega = \ln(\frac{p}{1-p})$, so fitted probabilities can be obtained from fitted logits as $\hat{p} = \frac{e^{\hat{\Omega}}}{1+e^{\hat{\Omega}}}$. An estimated propensity score of 0 corresponds to an estimated probability of .5 that a young woman with a given set of characteristics will be in the military rather than the civilian sample from the NLSY; for a propensity score of -2, the corresponding probability is .12, and so on.

Our analyses of fertility differentials between military and civilian women in the NLSY are based on a combination of exact matching on number of past children, race, marital status (depending on the outcome variable), and matching within calipers on propensity scores (Rosenbaum & Rubin, 1985). The pooled sample was stratified by number of past children and race for both the marriage and fertility analyses. This means that we are matching *exactly* on these important predictors of fertility and marriage.

Within strata, military women are randomly ordered. The first woman selected is matched to the closest civilian woman, where closeness is the absolute difference in estimated propensity scores. To be a match, the propensity score of the civilian woman must be within ± 0.1 fitted logits (the caliper)—an arbitrary distance, but one that will force the military woman and her civilian counterpart to be quite close in their linear combination of covariates. When a match occurs, the civilian who is matched is removed from the eligible sample; no civilian woman is matched to more than one treatment. This process repeats itself with the next randomly chosen military woman until each woman in the military sample has had a chance to "find" a civilian match. At that point, the military women are randomly reordered; each is allowed to seek a second match—up to six matches for

each woman in the military sample. The caliper assures that all matches are "good" matches; because the density of civilian cases at the highest estimated propensity scores is comparatively sparse, there are a variable number of matches per military woman, from zero to six.

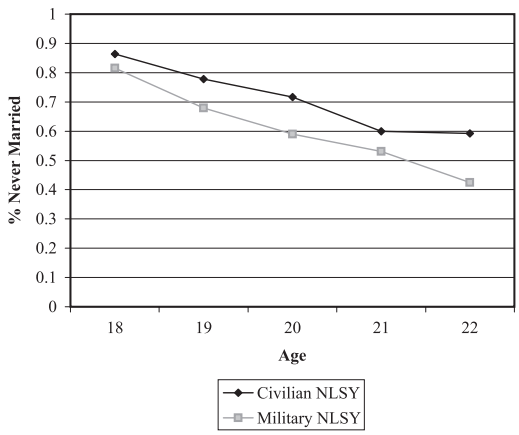
Despite our strict matching criteria (i.e., exact matches on specified variables and a very close match on the linear composite of other covariates or the propensity score), almost all of the women in the original military sample have at least one match. When we matched, for example, the original military sample with civilians interviewed in 1979 to predict marriage in 1980, only 1% of the military women did not "find" a match; the average number of matches for the single military women in 1979 who did have a match was four. By allowing for a variable number of matches per case based on a small caliper, we have ensured that the balance is good between our matched military sample and their counterpart controls. Matched sets are virtually identical in their propensity scores. In contrast to Table 1, where there are many significant differences between the military sample and the available pool of civilian controls, our matched samples have no significant differences.

Our analysis combines the pooled sample of matched treatments, or women in the military, and the controls to which they are matched or appropriately defined civilians. Following Allison (1999), we analyzed the matched cases via bivariate logistic regression models for each year. In the logistic regressions, controls are weighted by the inverse of the number of matches to their particular treatment case. This ensures that the estimate of differences between military and civilian women is not biased toward those with the highest number of matches. Because the set of matched predictors changes from year to year, our analysis is also the functional equivalent of a weighted event history analysis with time-varying covariates (Allison, 1984).

RESULTS

Figure 1 graphs the 1979 percentages of women never married ("single" women) by age for the NLSY military sample, along with our same-age NLSY civilian sample. The civilians were less likely to be married at ages 18–22 on the order of a 3%–18% difference. An analysis of

FIGURE 1. PROPORTION NEVER MARRIED 1979



the years ahead shows that single women in the military sample were more likely to marry than were their civilian counterparts. Table 2 shows the annual odds of marriage for military women as compared with that of civilian women. At every stage, single women in the military were more than twice as likely to marry as single civilian women. Among single women, military enlistees were 2.3 times more likely than civilians to marry in 1980. The likelihood of marriage for enlisted women increased over the next 2 years of membership in the military, rising to relative odds of 3.3 in 1981 and 1982. By 1983, when the majority of the sample still serving in the military had already married, the relative odds of marriage decreased slightly, to 2.3.

The greater tendency of military women to marry at younger ages places them at higher risk for fertility. Controlling for differences in marital status, were there fertility differences between military women and comparable civilians? Table 3 shows that there were. Throughout the observation period, military women's fertility levels were either higher or on par with those of their civilian counterparts.

When considering the potential for maternal role incompatibility with military service, there is a reasonable argument for limiting our civilian fertility comparisons to those with similar time commitments that tend to militate against childbearing and childrearing (Spitze, 1988). For this reason, we excluded civilian comparisons who were full-time homemakers. We show fertility outcomes before and after marital status

TABLE 2. ODDS OF MARRIAGE AMONG MATCHED MILITARY AND CIVILIAN WOMEN BASED ON YEAR-TO-YEAR CHARACTERISTICS AND SAMPLE STATUS

Annual Marriage Odds (Military vs. Civilian)	e^B	Average Matched Cases	Unmatched Treatments	Total Observations
1980	2.28***	4	11	1,085
1981	3.32***	4.2	15	755
1982	3.30***	4.5	10	514
1983	2.29**	5.2	3	342

Note: e^B = exponentiated B. Data for *B*s *SE*s are available upon request. Odds ratios predict the likelihood of marrying according to fixed propensity scores and year-by-year changing characteristics. Data for 1979 use marital status from 1979 rather than the year before because of lack of data prior to survey data. Each military woman (treatment) was matched to a maximum of five civilians (controls). All matches were randomly reassigned in three different orderings, with no change upon each trial.

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

is taken into account: first, to demonstrate the crude effect of marriage on fertility, and second, to assess levels of marital and nonmarital fertility separately.

Table 3 shows evidence of higher fertility among military women—compared with civilians—in their first 3 years of military service. The lower rows stratify fertility outcomes of civilian-military matches by their marital status and indicate that the high fertility effect was a factor for both married and never-married military women. Such differences, as were

TABLE 3. ODDS OF BIRTHS AMONG MATCHED MILITARY AND CIVILIAN WOMEN BASED ON YEAR-TO-YEAR CHARACTERISTICS AND SAMPLE STATUS

Annual Birth Odds (Military vs. Civilian)	e^B	Average Matched Cases	Unmatched Treatments	Total Observations
Military-civilian matches (without controls for marital status)				
1979	3.62***	3.0	30	1,707
1980	1.59**	3.1	24	1,621
1981	1.98***	3.3	27	1,330
1982	1.16	3.8	22	1,127
1983	1.34	4.1	15	960
Never-married military-civilian matches				
1979	2.98***	3.3	15	1,082
1980	1.77**	3.3	12	1,056
1981	1.37	3.5	13	636
1982	0.94	3.8	10	419
1983	1.92	4.5	5	274
Married military-civilian matches				
1979	1.90*	1.3	32	281
1980	0.94	1.8	28	300
1981	2.02**	2.3	28	372
1982	0.90	3.2	18	431
1983	0.86	3.2	21	426

Note: e^B exponentiated *B*. Data for *Bs* and *SEs* are available upon request. Odds ratios predict the likelihood of giving birth according to fixed propensity scores and year-by-year changing characteristics. Fertility is defined relative to the service status of women in the preceding year; for example, births in 1980 are compared between women who were in the military and those who were civilians at the time of the 1979 NLSY interview. In this sense, military versus civilian status is defined as of the time of (possible) conception. Each military woman (treatment) was matched to a maximum of five civilians (controls). All matches were randomly reassigned in three different orderings, with no change upon each trial.

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

significant for both never-married and married women, were concentrated in the early years of the panel, when they were younger on average, and, in the case of the military women, newer to their environment. In the earliest known year of military service (1979), both single and married military women were more likely to give birth than their single and married civilian counterparts. Never-married enlistees were almost three times as likely to give birth, whereas married enlistees were almost twice as likely to do so. The following year, the fertility effect continued for unmarried military women but attenuated from 2.9 to 1.8, disappearing altogether by 1981. For married military women, the higher fertility effect was absent in 1980, but then reappeared with odds of 2.0 the following year.

Pregnancies within the military can result from a desire to take advantage of family-friendly benefits, a desire to leave the military, or inadvertence. To get some sense of the relative effect of these factors, in Table 4 we partition the military samples into those who were still in the military in the following year (*stayers*), and those who had left (*dischargers*). Births among dischargers are assumed to have resulted from pregnancies conceived while the women were still in the service.

As of 1979, when the average duration of service among military women was comparatively low, those in the military—both married and never married—had higher odds of a birth than did civilian women (Table 4). This was especially true among never-married dischargers, who were 20 times more likely to give birth than never-married civilians. Married dischargers were seven times more likely than married civilians to give birth. Never-married dischargers were also more likely to give birth the following year; after that, any effects were nonsignificant.

TABLE 4. ODDS OF BIRTHS AMONG MATCHED MILITARY AND CIVILIAN WOMEN: THE EFFECT OF FERTILITY ON DISCHARGE STATUS

	Stayers				Dischargers			
Annual Birth Odds (Military vs. Civilian)	e^B	Average Matched Cases	Unmatched Treatments	Total Observations	e^B	Average Matched Cases	Unmatched Treatments	Total Observations
Military-civilian matches (no controls for marital status)								
1979	2.48***	3.1	20	1,641	9.10***	5.2	1	223
1980	1.02	3.9	13	1,194	3.94***	4.9	0	384
1981	1.57*	4.1	13	979	1.31	5.1	2	307
1982	1.04	4.7	13	809	1.45	5.2	4	287
1983	1.32	4.8	7	746	1.93	4.9	3	95
Never-married military-civilian matches								
1979	1.77†	3.5	13	1,082	20.4**	5.1	0	103
1980	1.02	3.9	9	793	2.97**	5.2	0	226
1981	1.55	4.0	9	487	0.38	4.8	1	140
1982	1.15	4.5	6	266	1.78	5.2	2	117
1983	0.84	4.7	3	176	7.7	4.3	1	21
Married military-civilian matches								
1979	1.95*	1.4	27	267	7.3***	3.6	3	64
1980	0.69	2.7	10	233	1.38	3.4	8	70
1981	1.96*	3.6	14	273	1.50	4.3	2	90
1982	0.74	4.3	14	328	0.55	4.6	4	118
1983	0.91	3.8	11	358	n/a	n/a	n/a	n/a

Note: e^B = exponentiated B. Data for *B*s and *SE*s are available upon request. Odds ratios predict the likelihood of giving birth according to fixed propensity scores and year-by-year changing characteristics. Each military woman (treatment) was matched to a maximum of five civilians (controls). All matches were randomly reassigned in three different orderings, with no change upon each trial.

†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Among women who remained in the military, married women were twice as likely as civilians to have a child also in 1981. For never-married stayers, military-civilian differences essentially disappeared after 1979.

Taken in combination, Tables 3 and 4 suggest that more fertility was initiated within the military than in the civilian world, especially among women new to the service, and that this was more strongly associated with a departure from the armed forces. Fertility in the NLSY military sample appeared to be duration specific. The effect of being in the military on fertility was strong for everyone in their earliest year of service—regardless of marital status—particularly for those who discharged. Beyond that, fertility was higher for military women in one additional year of service, but this varied by marital status. Female enlistees who remained in service showed a higher level of marital fertility, while unmarried females ultimately discharged from the military upon pregnancy.

Some additional bivariate (due to small sample sizes) analyses may further clarify motivations behind fertility beyond our multivariate analyses. Of all women who professed not wanting children at all, a significantly larger proportion were enlisted women. Interestingly, members of this group of enlisted women were more likely than civilians to end up with children during the sample period, despite initially espousing childlessness. Only a very small minority of these women withdrew from the military upon pregnancy. We also found that more unmarried women from the military sample reported abortions over the sample period than women in the civilian group, implying that more births in the military may also have been unplanned. There is some question as to whether trends continue for the women who leave military service, so we tracked their marriage and fertility propensities (also descriptively) across the sample years. We found some evidence for higher marital dissolution rates and, except for higher fertility among unmarried women in their first year out (as shown in Table 5), they did not differ from civilians in the years following military service.

CONCLUSION

The military environment may foster, not hinder, family formation for the young women who served during the NLSY period. We found that enlisted women married earlier and more pervasively than civilians. We also found that fertility rates were not only on par in some years, but also that they were often higher. Early marriage is linked to early childbearing, and thus, much of the perceived difference in fertility between servicewomen and civilians is simply that more of the former were married. Beyond differences in proportions married, fertility continued to be higher among enlisted women in certain instances. First, there seemed to be a timing effect in that fertility rates were higher for everyone in their earliest known year of service. Second, pregnancies appeared to be slightly more common in the military than were births, because many servicewomen discharged following conception. Third, although comparatively high nonmarital fertility was more frequent among dischargers, higher marital fertility was more strongly associated with those who stayed in the military.

Before considering our results in light of three common themes regarding military fertility in the mainstream media, we must first acknowledge the possibility of alternative explanations for the trends that we described in this analysis. A possible limitation in our study is the role of unobservable heterogeneity, operating not only in the selection of women into the military, but also in selectivity of women electing out of the military sample over time. We cannot rule out the existence of unmeasured, preexisting, or emerging differences between the military and civilian sample. The limited scope of our data did not allow us to discern between selection effects that might have attracted people with family-friendly characteristics into and out of the military, and separate effects of the military itself. Although addressing causality behind our findings is difficult, we can speculate that the higher rates of nonmarital pregnancies and abortion in the military may support the exposure-to-the-risk-of-conception argument. Certainly the elevated rates of marriage at early ages and the prevalence of joint service marriages suggest that there was widespread fraternization among servicemen and servicewomen.

The high incidence of attrition among pregnant women in the NLSY accords with the avoidance of duty argument. Did they become pregnant in order to leave the military, or did they leave the military because they became

pregnant? The least likely women to have children—those preferring childlessness from the outset—were more likely to become mothers if they were in the military sample. If they had then taken their leave from the service, evidence for the avoidance argument might be more clear; however, most remained in the military. This trend lends more credibility to the benefits argument.

It is likely that the marital trend relates to the military's family benefits, perhaps in conjunction with the increased opportunity to meet a future spouse. The majority of married military women in the NLSY were married to military men (86%), and joint service marriages may benefit from a compounded effect of family benefits that would accrue even if one partner exited the military. That marriages among women who leave the military appear more likely to dissolve than those of civilians suggests a loss of incentives that may have had a sustaining effect in the military context. If benefits can also be said to contribute to the fertility effect in the military, they seem to be an effective retention factor primarily in the case of married mothers, because single mothers are more likely to exit service.

The NLSY data we analyzed suggest that women ages 20–25 serving in the U.S. armed forces had marital and fertility patterns that differed from women in the noninstitutional civilian population. To draw further conclusions regarding the current relationship between the military and fertility will require not only an up-to-date fertility data set, including both civilian and military samples, but also a thorough spectrum of variables that captures the social dynamics in operation within the U.S. military with regard to fertility-related behavior. This analysis contributes to the literature on work and family compatibility, with implications for the role that specific organizational and economic incentives in a working environment may play in offsetting delays in marriage and fertility.

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