
COHORT ESTIMATES OF NONMARITAL FERTILITY FOR U.S. WOMEN*

LAWRENCE L. WU

Historical trends in U.S. nonmarital fertility have been compiled almost exclusively from vital statistics on births. This paper complements this historical record by providing cohort estimates of nonmarital fertility for cohorts of U.S. women spanning approximately 50 years of cohort experience. Life table estimates using retrospective marital and fertility histories in the June 1980, 1985, 1990, and 1995 Current Population Surveys reveal nonnegligible levels of nonmarital fertility historically. For women born between 1925 and 1929, nearly 1 in 10 had at least one nonmarital birth by age 30. For women born between 1965 and 1969, more than 1 of 4 had one or more nonmarital births by age 30, with roughly 1 of 5 white, 3 of 5 black, and 1 in 3 Hispanic women having at least one nonmarital birth by age 30. Life table estimates reveal a twofold increase between ages 20 and 30 in the percentage of women with at least one child outside of formal marriage for all cohorts of white and Hispanic women, and an increase of roughly two-thirds for all cohorts of black women. I also document qualitative differences in nonmarital fertility by race/ethnicity, with the percentage of nonmarital births following a divorce or marital separation for white women approximately twice that for black or Hispanic women. Finally, I introduce a new measure, the cohort nonmarital fertility ratio (CNMFR), which provides a cohort complement to the standard period nonmarital fertility ratio. Conservative estimates reveal a roughly threefold increase in the CNMFR for women born from 1925–1929 to 1950–1954 for both whites and blacks, despite substantially higher levels of nonmarital fertility among black women. Overall, these findings reveal surprisingly high levels of nonmarital fertility for women born since the 1920s and confirm that nonmarital fertility has become an increasingly substantial component of overall U.S. fertility.

To date, knowledge of historical trends in nonmarital fertility in the United States has been compiled almost exclusively from vital statistical records on *births*. This paper complements this historical record by estimating nonmarital fertility in the United States for birth cohorts of *women* spanning approximately 50 years of cohort experience. Demographers have long understood that period and cohort estimates can yield quite different results (see, e.g., Preston and McDonald 1979) in that measures constructed for any given period will reflect a mixture of the experiences of different cohorts. Historical trends in U.S. nonmarital fertility based on period measures of the nonmarital fertility ratio—the ratio of nonmarital births to all births—will be further complicated by trends in (and the age structure of) both marital and nonmarital fertility (Smith, Morgan, and Koropeckyj-Cox 1996). Cohort measures, in which individuals age together, provide a standard demographic technique by which to control for these potentially confounding factors (Ryder 1965).

A second motivation for complementing official tabulations (Bachu 1999; Ventura and Bachrach 2000; Ventura et al. 1995) of the period nonmarital fertility ratio (PNMFR) with estimates obtained from retrospective marital and fertility histories is that although official

*Lawrence L. Wu, Department of Sociology, New York University, Puck Building, 295 Lafayette Street, 4th floor, New York, NY 10012-9605; E-mail: lawrence.wu@nyu.edu. Funding for this research was provided by the National Institute of Child Health and Human Development (HD 29550), which is gratefully acknowledged. Earlier versions of this paper were presented at the 2005 annual meetings of the Population Association of America, at the Carolina Population Center, and at the Center for Demography and Ecology. I thank Sheera Olasky and Miodrag Stojnic for helpful research assistance; Cheryl Knobloch for expert programming assistance; Larry Bumpass, Stephanie Ventura, and participants at the Carolina Population Center and Center for Demography and Ecology for invaluable discussions; and the anonymous reviewers for their comments.

tabulations are often taken as authoritative, many birth certificates lack data on mother's marital status at birth, particularly in earlier periods and for earlier cohorts of women. As a result, the comparison of estimates of the PNMFR using two different data sources provides a rough but important means by which to cross-validate estimates of the PNMFR.

A final motivation for the paper is that children born outside of marriage and their mothers are likely to spend more of their lives in poverty, with differences in the economic resources available to children born outside of formal marriage likely to be mirrored in the social and emotional resources available to them. Given increases in the proportion of children born outside of formal marriage, both policy makers and social scientists have viewed these mothers and their children as an especially disadvantaged population and have been increasingly concerned about the socioeconomic well-being of these mothers and children. This paper contributes to this literature by providing historical data on the nonmarital fertility of successive cohorts of women.

The plan of this paper is straightforward. I begin by comparing period measures of the nonmarital fertility ratio taken from vital registers with those estimated from the retrospective marital and fertility histories in the June 1980, 1985, 1990, and 1995 Current Population Surveys (CPS). I then decompose nonmarital births in the CPS into those occurring to single never-married women and those occurring after a marital separation, divorce, or the death of a spouse. I then turn to estimates of historical trends using successive birth cohorts of U.S. women. Life table estimates for the occurrence of any nonmarital birth reveal steady increases in nonmarital fertility for white, black, and Hispanic women. Estimates of completed fertility and completed nonmarital fertility show similar patterns and are used to construct estimates of the cohort nonmarital fertility ratio (CNMFR), a cohort complement to the standard PNMFR. Conservative estimates reveal striking increases in the CNMFR, with a roughly threefold increase for both white and black women when comparing cohorts of women born between 1925 and 1929 with those born between 1950 and 1954.

DATA

The data used in these analyses pool information contained in the retrospective marital and fertility histories from the June 1980, 1985, 1990, and 1995 CPS. The CPS sample universe consists of the U.S. civilian noninstitutionalized population aged 15 and older and hence provides a largely nationally representative sample of U.S. women (and of their births) that spans a long historical period. These June supplements contain additional questions on fertility and marriage, which were asked of married women aged 15 or older and never-married women aged 18 or older. In the first three surveys, respondents were first asked about their marital history, including the number of marriages, followed by data on the dates (calendar month and year) of the first two marriages and the most recent marriage—data on when their marriage began and, if a marriage ended, the dates (as relevant) of widowhood, separation, and divorce. In 1995, this was altered slightly to encompass the first three marriages and the most recent marriage. Thus, these data provide complete marital histories for respondents with four or fewer marriages at the June 1995 CPS survey and respondents with three or fewer marriages for respondents in the earlier June CPS surveys. Unfortunately, these data are limited to formal marriage; no comparable information on cohabiting unions was obtained.

Respondents were then queried about their childbearing histories. Women were first asked about the number of children ever born¹ and then were prompted for the dates of birth

1. In 1980, 1985, and 1990, the instrument item asked respondents "How many babies has [R] ever had? (*Do not count stillbirths*)," with responses of none, 1, . . . , 9, and 10+; in 1995, the item was modified slightly to read "How many live births, if any, has [R] ever had? (*No stillbirths.*)," with responses of 0 through 20.

Table 1. Unweighted Counts of Births by Period and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Period	All	White	Black	Hispanic	Other
Before 1945	14,057	11,627	1,534	526	370
1945–1949	20,701	17,354	2,002	805	540
1950–1954	31,417	26,178	3,063	1,363	813
1955–1959	40,741	33,492	4,093	2,002	1,154
1960–1964	43,384	34,959	4,641	2,434	1,350
1965–1969	42,300	32,964	5,008	2,775	1,553
1970–1974	42,204	31,926	5,124	3,369	1,785
1975–1979	43,179	31,903	5,534	3,803	1,939
1980–1984	32,058	23,459	4,118	2,962	1,519
1985–1989	20,768	14,682	2,770	2,232	1,084
1990–1995	9,100	6,193	1,171	1,168	568
Total	339,909	264,737	39,058	23,439	12,675

(in calendar month and year) for their first four children and their most recent child, thus yielding a complete fertility history for women with five or fewer births.

It is perhaps important to emphasize that the paper-and-pencil instrument in the June supplements provides no lead-in instructions for interviewers to read to respondents to alert them of the substantive content of the June marital and fertility supplemental items. As a result, the standard CPS items (labor force participation, hours worked, and so on) are followed immediately by the marital and fertility supplement, with a woman's marital history obtained before her fertility history. Thus, because respondents have no knowledge while responding to the marital history items that these questions will be followed by a fertility history, this ordering plausibly reduces the tendency of women to underrepresent nonmarital fertility to the extent that women will quickly recall and accurately report the birth dates (month and year) of their children.

Although the CPS employs no oversampling of racial or ethnic minorities, pooling provides sufficiently large samples for many racial and ethnic categories.² Table 1 presents unweighted counts of all births recorded in the retrospective fertility histories from the four surveys. As Table 1 shows, these data provide large samples of births, even when disaggregated by period and the race/ethnicity of the mother.

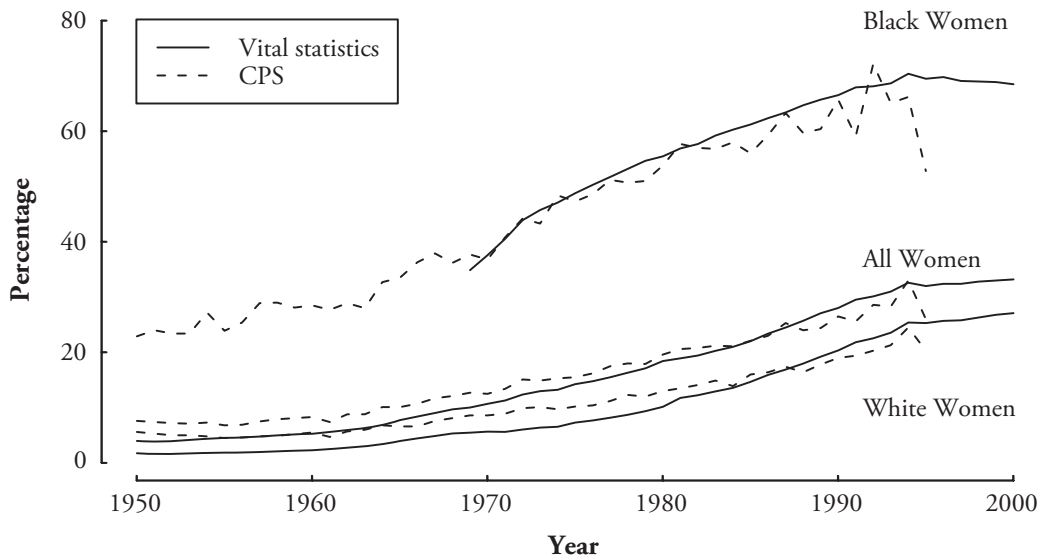
RESULTS

As noted earlier, available evidence concerning U.S. trends in nonmarital fertility has relied nearly exclusively on period estimates of the nonmarital fertility ratio—defined as the ratio of nonmarital births to all births—as compiled from the national registration system for U.S. births. Figure 1 presents this historical series from 1950 to 2000 (Bachu 1999; Martin et al. 2002; Ventura and Bachrach 2000; Ventura et al. 1995). Comparable estimates from the CPS are also presented and extend a similar series presented in Wu, Bumpass, and Musick (2001).³

2. Unless otherwise noted, I use the racial/ethnic categories of white, black, and Hispanic to refer to non-Hispanic whites, non-Hispanic blacks, and Hispanics.

3. Weighted estimates are used throughout unless otherwise noted. For comparability with published series, the CPS curves in Figure 1 for whites and blacks include Hispanic whites and Hispanic blacks, respectively.

Figure 1. Period Nonmarital Fertility Ratio, 1950–2000



Sources: Vital statistics on natality; June 1980, 1985, 1990, and 1995 Current Population Surveys.

Although Figure 1 shows relatively good agreement between these two series, the CPS PNMFR is somewhat higher than the vital register PNMFR until about 1985, after which it is slightly lower. There are several ways in which these two series will differ. First, the CPS PNMFR will be affected by the truncation of the CPS fertility histories to parity 4 or 5 births.⁴ Because higher-parity births were more prevalent in earlier periods, this truncation will downwardly bias CPS estimates of births in any given period (the denominator of the PNMFR) by excluding higher-order births, which will in turn upwardly bias the CPS PNMFR, particularly in earlier periods. Second, in the most recent periods, the CPS estimates will systematically miss births to women who fall outside of the CPS sampling frame. Because the sample universe for the June CPS supplements consists of married women aged 15 or older and never-married women aged 18 or older, the 1995 CPS PNMFR, for example, will miss births to unmarried adolescent women aged 17 or younger, yielding a downwardly biased estimate of the PNMFR.

Second, although the vital register PNMFR is usually taken as authoritative, data on birth certificates varied widely by counties and states over much of the period analyzed in this paper. For example, an inspection of public-release natality data on all U.S. births (National Center for Health Statistics 1968–1995) reveals that mother's marital status at birth was either not gathered or was missing for roughly 30% of all births in 1968 and 40% of all births in 1979. As a result, NCHS imputed marital status, for example, by using the proportions married and unmarried by race within nine broad geographical regions when marital status was not reported on the birth certificate (see, e.g., National Center for Health Statistics 1975: technical appendix) and by coding all women as married when marital status was routinely reported but missing on a particular birth certificate (Stephanie Ventura, personal communication, April 9, 2007). Clearly, if nonmarital childbearing were systematically higher or lower than average in nonreporting states or counties, this would bias

4. Use of the retrospective fertility (and marriage) histories is necessary to determine the period in which a birth took place and to determine if the birth was within or outside of formal marriage.

Table 2. Nonmarital Births by Type and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Type of Nonmarital Birth	All	White	Black	Hispanic	Other
Single, Never-Married Women	73.1	61.3	85.3	79.4	75.9
After Separation, Before Divorce	10.5	13.8	7.1	9.0	7.9
After Divorce, Before Remarriage	14.4	22.3	6.4	9.6	13.0
After Widowhood, Before Remarriage	2.0	2.6	1.3	2.0	3.3
Total	100.0	100.0	100.1	100.0	100.1

official estimates of the PNMFR, and the magnitude of bias would depend on the specific imputation procedure used.⁵

Estimates from the two series can also be expected to diverge in directions that are difficult to predict because some retrospectively reported births and marriages in the June CPS will have occurred outside of the United States, an issue of particular relevance to immigrant populations; likewise, U.S. births to out-migrants not residing in the United States at the time of June survey are absent in these data. The CPS and vital register PNMFR will also differ if there is substantial differential mortality between women with marital births and those with nonmarital births, although the direction and magnitude of the resulting bias is again difficult to predict. Discrepancies can also occur in retrospective reports through inaccurate recall (or interviewer miscoding or coder error) of marital and fertility histories. Wu, Martin, and Long (2001) provided additional analyses on the reliability of the retrospective fertility (but not marital) histories in the June CPS.

In Figure 1, I follow the convention used in official statistics, which count births to women who are married but separated from their spouses as marital births. A potential difficulty with this definition is that the period between separation and divorce can be lengthy, with the timing of a formal divorce decree often an endogenous response to various factors, such as a woman's desire to remarry or to bear children within a remarriage. A similar issue arises if a child is conceived prior to a marital separation but the child's father is not the woman's husband; in such cases, a marital separation could in fact be the *consequence* of such a conception. Similarly, for socioeconomically disadvantaged populations, the cost of divorce may deter some who separate from proceeding to formal divorce, particularly if marital prospects are low or if cohabitation following a marital separation is not stigmatized. As a result, I henceforth adopt an operational definition that shifts emphasis from formal to *de facto* marital status, thus including as nonmarital those births that occur between separation—marking the informal but behavioral dissolution of a marital union—and divorce—marking the formal dissolution of a marital union.

To gauge how alternative definitions of a nonmarital birth might affect estimates, Table 2 decomposes nonmarital births into four categories: (1) births to single, never-married women; (2) births occurring after a marital separation but before divorce; (3) births occurring after divorce but before a subsequent marriage; and (4) births occurring after the

5. The procedures used by NCHS to impute mother's marital status varied over time, depending on the information available for particular nonreporting states. For example, prior to an increased emphasis on paternity establishment, some states (such as California) inferred mother's marital status by comparing the surnames of the parents and child, with imputation procedures often slightly different across nonreporting states (see, e.g., Ventura and Bachrach 2000; Ventura et al. 1995:73–74). Akerlof, Yellen, and Katz (1996) speculated on possible biases in the June CPS data, reporting that comparisons of estimates of nonmarital fertility from the June 1990 and 1980 CPS show higher levels of nonmarital fertility in the 1990 survey relative to the 1980 survey for the same sampled cohorts of women. Preston, Lim, and Morgan (1992), analyzing the 1910 census, found an excess of widowhood among young black mothers, given prevailing levels of black male mortality, and concluded that some of the discrepancies they found appear “to reflect a propensity to legitimate a birth outside marriage” (p. 1).

Table 3. Cumulative Percentage Distribution of Nonmarital Births After Marital Separation but Before Remarriage or the Survey, by Duration (in months) and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Duration	Cumulative Percentage			
	All	White	Black	Hispanic
0	0.6	0.6	0.6	0.9
1	5.9	6.9	3.5	6.1
2	10.5	12.3	6.0	10.8
3	14.9	17.8	8.4	13.1
4	18.8	22.9	10.0	15.5
5	22.2	27.1	12.0	18.2
6	25.6	31.1	14.2	20.3
7	28.7	34.7	16.6	22.0
8	31.7	38.2	18.9	24.1
9	34.5	41.7	20.3	26.4
10	37.1	44.9	21.7	28.4
11	39.5	47.9	23.0	30.1
12–24	58.8	68.9	40.2	44.9
25–36	67.5	77.7	48.4	53.6
37+	100.0	100.0	100.0	100.0

death of a spouse but before a subsequent marriage. Because the death of a spouse is rare in these data, births occurring to widowed women constitute less than 4% of nonmarital births for all racial and ethnic groups. However, births between separation and divorce account for a nontrivial fraction of all nonmarital births—particularly for white women—ranging from approximately 7% of black nonmarital births to just under 14% of white nonmarital births.

Table 3 presents the distribution of durations between marital separation and a subsequent birth that occurs before either divorce or the date of survey. Births occurring less than nine months following a marital separation must have been conceived prior to separation, with the vast majority these births likely to have been conceived to the married couple. However, the same logic would suggest that births occurring at longer durations following a marital separation are less likely, on average, to be conceived by the separated married couple. Table 3 shows that although a substantial proportion of births that occur following a marital separation but before a divorce or the survey fall within the first 11 months after marital separation, more than 3 of 5 of such births occur 12 or more months following marital separation (52% of white postseparation births, 77% of black births, and 70% of Hispanic births), with these births plausibly regarded as nonmarital. Thus, these results indicate how official statistical tabulations may understate actual levels of nonmarital childbearing and thus underestimate the PNMFR by following the convention of counting all births to separated women that occur prior to divorce as marital births.

As a practical matter, researchers must typically make some decision about whether (and when) to classify a birth following a separation as nonmarital; however, the results in

Table 4. Estimates of Nonmarital Births by Period, Type, and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Period	All		White		Black		Hispanic	
	Never Married	After Marriage	Never Married	After Marriage	Never Married	After Marriage	Never Married	After Marriage
Before 1945	77.7	22.3	70.2	29.8	86.9	13.1	87.6	12.4
1945–1949	70.0	30.0	61.1	38.9	83.6	16.4	77.1	22.9
1950–1954	70.4	29.6	61.5	38.5	79.5	20.5	82.7	17.3
1955–1959	69.9	30.1	56.4	43.6	83.6	16.4	79.9	20.1
1960–1964	69.5	30.5	58.0	42.0	81.7	18.3	79.7	20.3
1965–1969	69.7	30.3	56.1	43.9	84.2	15.8	78.2	21.8
1970–1974	71.1	28.9	58.4	41.6	84.6	15.4	77.8	22.2
1975–1979	72.9	27.1	60.2	39.8	84.8	15.2	78.8	21.2
1980–1984	73.7	26.3	61.0	39.0	86.6	13.4	77.6	22.4
1985–1989	77.8	22.2	66.6	33.4	89.5	10.5	81.8	18.2
1990–1995	80.8	19.2	74.2	25.8	89.1	10.9	79.5	20.5

Tables 2 and 3 highlight the arbitrariness inherent in operational definitions that rely on the relative timing of a birth and women's marital status (Wu 2001).

Table 4 examines period trends in nonmarital births, distinguishing between births to single never-married women and a combined category of births to women following a marital separation, divorce, or death of a spouse. Although estimates fluctuate somewhat, trends are at best modest. Overall, Table 4 indicates that the percentage of nonmarital births after marriage is roughly twice as high for white births as for black or Hispanic births across all periods.

The results presented thus far have focused on period estimates, with the birth as the unit of analysis. I now turn attention to results in which the woman is the unit of analysis, with trends estimated using women's birth cohort. Table 5 presents unweighted counts for CPS women by cohort and race/ethnicity. A comparison of the unweighted counts in Tables 1 and 5 shows that there are 339,909 births for the 201,033 women in these data. Note, in particular, that women who have no births are excluded from the results presented previously but are an integral part of the analyses presented henceforth.

A complication when examining successive birth cohorts of women is that the marital and fertility histories of recent cohorts of women will necessarily be censored at their age at survey. To address this issue, I use life table methods in Table 6 to deal with the resulting right censoring in the marital and fertility histories that occurs in the most-recent cohorts of CPS women.

Table 6 reports life table estimates of the percentage of women who had at least one nonmarital birth by ages 20, 25, and 30. Cohort trends are presented for all women, as well as for white, black, and Hispanic women. I report estimates through age 30 because estimated percentages rise only modestly after this age.⁶ Table 6 reveals nonnegligible levels of nonmarital childbearing even in the earliest cohorts of women, with 10% of all CPS women

6. Results for some Hispanic women will be especially affected by in- and out-migration because the life table results for many Hispanic women will reflect non-U.S. childbearing. For trends in overall childbearing after age 30, see Martin (2000).

Table 5. Unweighted Counts of Women by Birth Cohort and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Birth Cohort	All	White	Black	Hispanic	Other
Before 1925	13,708	11,894	1,124	397	293
1925–1929	12,301	10,337	1,101	502	361
1930–1934	14,302	11,706	1,469	686	441
1935–1939	15,060	12,150	1,533	860	517
1940–1944	18,049	14,674	1,767	962	646
1945–1949	22,688	18,077	2,353	1,311	947
1950–1954	25,639	20,139	2,769	1,633	1,098
1955–1959	27,604	21,386	3,196	1,915	1,107
1960–1964	23,033	17,487	2,767	1,769	1,010
1965–1969	13,189	9,752	1,603	1,209	625
1970–1974	9,824	6,993	1,319	987	525
1975+	5,636	3,975	789	565	307
Total	201,033	158,570	21,790	12,796	7,877

born between 1925 and 1929 having at least one nonmarital birth by age 30. For white women born between 1925 and 1929, 7% had at least one nonmarital birth by age 30; the corresponding percentages for black and Hispanic women are 29% and 16%, respectively. Although nonmarital childbearing is often associated with early fertility, these results also show that a substantial amount of nonmarital fertility has always occurred at later ages: the percentage of women with at least one nonmarital birth doubles between ages 20 and 30 across all cohorts of white and Hispanic women and increases by roughly two-thirds across all cohorts of black women.

Table 6 also reveals persistent racial/ethnic differences in nonmarital fertility. Very high levels of nonmarital fertility are observed throughout this period for black women. By age 30, the percentage of black women with at least one nonmarital birth increases monotonically from 26% for black women born before 1925 to 61% for black women born between 1965 and 1969.

Cohort trends in Table 6 show a nearly monotonic increase in nonmarital births over the roughly 50 years of cohort experience represented in these data. Overall, the percentage of women having at least one nonmarital birth by age 30 triples over successive cohorts of all CPS women, rising from about 9% to 27%. Trends for white women are equally dramatic, rising from approximately 7% to 20%. For women born between 1970 and 1974, about 1 in 5 white women, 1 in 2 black women, and 1 in 3 Hispanic women had at least one nonmarital birth by age 25.⁷

With these data, it is also possible to estimate completed fertility and completed nonmarital fertility. Because the retrospective fertility histories in the June CPS provide event-history data for at most five births, relying on the retrospective fertility histories will produce downwardly biased estimates of completed fertility, but for births at parity 6 and

7. Appendix Table A1 reports the difference between the life table estimates in Table 6 and life table estimates in which births between a marital separation and divorce are treated as marital births.

Table 6. Life Table Estimates of the Percentage of Women With at Least One Nonmarital Birth by Ages 20, 25, and 30, by Birth Cohort and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Birth Cohort	All Women			White Women			Black Women			Hispanic Women		
	20	25	30	20	25	30	20	25	30	20	25	30
Before 1925	3.9	7.1	8.8	2.3	5.2	6.7	17.4	23.5	26.4	7.6	13.4	16.4
1925–1929	4.4	8.2	10.0	2.8	5.9	7.4	16.9	25.3	28.5	6.5	11.6	15.9
1930–1934	5.4	9.3	11.4	3.4	6.1	7.8	19.5	28.6	33.2	7.3	15.9	20.2
1935–1939	6.2	10.9	13.2	3.7	7.1	9.0	22.5	33.8	38.6	10.2	17.6	20.5
1940–1944	6.8	12.1	14.7	4.2	8.4	10.5	25.6	37.5	42.1	7.3	13.3	19.2
1945–1949	7.2	13.0	15.6	4.3	8.8	10.9	28.0	41.6	46.0	8.8	16.9	22.1
1950–1954	8.7	14.8	18.2	5.1	9.3	12.0	31.4	46.8	53.0	9.2	20.1	25.5
1955–1959	9.8	16.7	20.4	5.5	10.4	13.4	32.7	49.1	56.4	13.0	23.9	27.9
1960–1964	11.5	19.8	23.8	6.8	13.0	15.9	34.9	52.4	60.6	15.8	28.0	33.7
1965–1969	13.4	22.7	26.9	8.7	15.8	19.6	36.5	54.9	61.2	14.9	27.2	31.0
1970–1974	15.1	25.8		11.0	19.7		31.3	50.9		19.5	30.4	
1975+	19.9			14.3			45.3			21.6		

higher, it is not possible to determine if such births occurred within or outside of marriage. To deal with this issue, I estimate completed fertility by relying on the questionnaire item for the number of children ever born, but estimate completed nonmarital fertility relying solely on the retrospective marital and fertility histories.

Table 7 presents estimates of completed fertility, completed nonmarital fertility, and the CNMFR for women aged 40 or older at survey, by birth cohort and race/ethnicity. The restriction to women aged 40 or older at survey is arbitrary, reflecting a compromise between selecting an age at which both marital and nonmarital childbearing is largely completed and obtaining sufficiently large sample sizes, particularly for black and Hispanic women and for later birth cohorts. Restricting the analyses in Table 7 to women aged 40 or older at survey eliminates cohorts of women born after 1955 but otherwise reduces sample sizes only for women born in 1945 or later. Note also that the estimates in Table 7 yield *conservative*

Table 7. Estimates of Completed Fertility, Completed Nonmarital Fertility, and the Cohort Nonmarital Fertility Ratio (CNMFR) for Women Aged 40 or Older at the Survey, by Birth Cohort and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Birth Cohort	All Women				White Women			
	Completed Fertility		CNMFR	Sample Size	Completed Fertility		CNMFR	Sample Size
	All	Non-marital			All	Non-marital		
Before 1925	2.62	0.17	6.3	13,531.2	2.53	0.12	4.7	11,705.3
1925–1929	2.96	0.19	6.5	12,387.9	2.85	0.13	4.6	10,273.5
1930–1934	3.06	0.23	7.5	14,198.4	2.93	0.14	4.9	11,451.5
1935–1939	2.92	0.26	9.0	15,013.5	2.79	0.16	5.8	11,912.8
1940–1944	2.50	0.29	11.7	13,028.1	2.38	0.19	7.9	10,341.4
1945–1949	2.14	0.30	13.8	10,418.3	2.02	0.18	9.1	8,131.7
1950–1954	1.98	0.37	18.9	6,010.3	1.87	0.24	13.0	4,537.3
Birth Cohort	Black Women				Hispanic Women			
	Completed Fertility		CNMFR	Sample Size	Completed Fertility		CNMFR	Sample Size
	All	Non-marital			All	Non-marital		
Before 1925	3.06	0.54	17.7	1,194.8	3.42	0.36	10.5	441.4
1925–1929	3.52	0.58	16.4	1,216.9	3.58	0.37	10.5	609.0
1930–1934	3.70	0.74	19.9	1,579.6	3.53	0.44	12.4	834.0
1935–1939	3.54	0.83	23.6	1,664.1	3.43	0.48	14.1	1,017.7
1940–1944	2.93	0.92	31.6	1,451.1	3.13	0.49	15.6	835.4
1945–1949	2.47	0.96	38.8	1,145.8	2.86	0.54	19.0	775.1
1950–1954	2.12	1.01	47.7	770.0	2.61	0.55	21.0	496.0

estimates for completed nonmarital fertility, with the use of the retrospective marital and fertility histories in effect assuming that all births at parity 6 or higher for a given woman occurred within marriage.⁸

Estimates of completed fertility in Table 7 for all U.S. women follow expected patterns. Completed fertility rises from 2.62 children per woman for women born before 1925 to a peak of 3.06 children per woman for women born in the early 1930s, with these latter women bearing their children during the baby boom period. Completed fertility then declines steadily in later cohorts, with a decline of nearly one child born per woman occurring during the 15-year period separating the 1930–1934 cohort (3.06 children per woman) and the 1945–1949 cohort (2.14 children per woman). As expected, the completed fertility of white women is slightly lower relative to the completed fertility of all U.S. women. However, trends for the two groups resemble each other very closely, with a difference of roughly 0.1 child per woman across all cohorts. For white women born before 1925, completed fertility rises from roughly 2.5 children per woman to a peak of just under 3 children per woman for women born in the early 1930s, and declines by approximately one child during the 15-year period separating the 1930–1934 and 1945–1949 cohorts of white women.

By contrast, trends in nonmarital fertility for these two groups of women exhibit a steady rise: completed nonmarital fertility increases by a factor of more than two over these cohorts—from 0.17 and 0.12 children per woman for the pre-1925 cohort of all women and white women, respectively, to 0.37 and 0.24 children per woman for the 1950–1954 cohort of all women and white women. Because of the steady rise in completed nonmarital fertility and the nonmonotonic rise and decline in completed fertility, the CNMFR exhibits an even steeper increase over time: estimates range from 6.3% and 4.7% of children born outside of formal marriage for the pre-1925 cohort of all women and white women, respectively, to 18.9% and 13.0% of children born outside of formal marriage for the 1950–1954 cohort of all women and white women. Thus over the 30-year period from the early 1920s to the early 1950s, the average number of children per woman born outside of formal marriage increased twofold, and the CNMFR increased threefold, for all U.S. women and white U.S. women.

Completed fertility and completed nonmarital fertility are substantially higher for black and Hispanic women relative to white women. For black women born before 1925, the average woman bore roughly 3.1 children; this figure rises to a peak of 3.7 children for the 1930–1934 cohort and declines to 2.5 children for the 1945–1949 cohort—a decrease of 1.2 children over this 15-year period. Hispanic women exhibit slightly higher overall levels of completed fertility, with levels peaking at roughly 3.4 children for the 1925–1929 cohort and declining to 2.9 children for the 1945–1949 cohort—a decrease of 0.5 children over this 15-year period. But paralleling trends for white women, completed nonmarital fertility rises monotonically by cohort, nearly doubling from 0.54 to 1.01 for black women and increasing by 50% (from 0.36 to 0.55) for Hispanic women over the 30-year period from the early 1920s to the early 1950s. Likewise, the black CNMFR increases nearly threefold (from 16.4% to 47.7%) and the Hispanic CNMFR increases twofold (from 10.5% to 21.0%) for women born in the early 1920s to the early 1950s. Note, however, that results for Hispanics will be especially affected by in- and out-migration, with many Hispanic women at the time of the survey having had some of their childbearing experience outside of the United

8. The estimates of completed fertility in Table 7 are quite close to those in U.S. vital statistic reports (cf. cumulative fertility of all women and for white women through ages 40–44 (National Center for Health Statistics 2003: table 1-31); the exception is for all women in the 1925–1929 and 1930–1934 cohorts, for whom the CPS estimates of 2.96 and 3.06, respectively, deviate somewhat from the vital statistic figures of 3.08 and 3.20. They are also close to Schoen's (2006) estimates using cohort-specific fertility rates but are slightly lower than Schoen's estimates using parity-specific cohort fertility rates.

States, and with the U.S. childbearing of Hispanic women not residing in the United States at the time of the survey absent from these data.

DISCUSSION

The cohort estimates of nonmarital fertility presented in this paper for U.S. women reveal nonnegligible levels of nonmarital fertility, even for the earliest cohorts of women in these data. Based on retrospective marital and fertility histories, fully 1 in 10 women born between 1925 and 1929 reported having at least one nonmarital birth by age 30. For white women born between 1925 and 1929, 7% of women reported having at least one nonmarital birth by age 30; for black and Hispanic women in this cohort, 29% and 16% of women, respectively, had one or more nonmarital births.

The estimates in this paper also show that the proportion of women reporting bearing one or more children outside of formal marriage rose monotonically for successive birth cohorts of women. For the population of all U.S. women born between 1965 and 1969, I estimate that by age 30, 1 out of every 4 women had at least one birth outside of formal marriage, with roughly 1 of 5 white women, 3 of 5 black women, and 1 of 3 Hispanic women having one or more nonmarital births. For black and Hispanic women, the proportion having one or more nonmarital births by age 30 increased nearly twofold in the 40-year period separating the 1925–1929 and 1965–1969 birth cohorts of women; for white women in these cohorts, the proportion having one or more nonmarital births increased nearly threefold.

Nonmarital fertility is commonly regarded as closely associated with teen childbearing (Ventura et al. 1995), especially for past cohorts of women. The results in this paper, while confirming this stylized fact, also show that a substantial proportion of nonmarital fertility has always occurred at later ages. Thus, estimates of the proportion of women bearing at least one child outside of formal marriage double between the ages of 20 and 30, a pattern that holds across all cohorts of white and Hispanic women, with an increase of roughly two-thirds holding across all cohorts of black women.

The results in this paper also show that historically, nonmarital fertility differed not only in level but also qualitatively by race/ethnicity: the percentage of nonmarital births following a divorce or marital separation for white women is approximately twice that for black or Hispanic women. Although a substantial proportion of births after separation but prior to divorce occur within the first 11 months of a marital dissolution, many of these births occur 12 or more months following a marital separation (31% of white births, 60% of black births, and 55% of Hispanic births).

These data also permit the estimation of the completed fertility and completed nonmarital fertility for cohorts spanning a nearly 35-year period, and thus permit the estimation of a new measure, the *cohort* nonmarital fertility ratio (CNMFR), which provides a cohort complement to the standard *period* nonmarital fertility ratio (PNMFR). Conservative estimates of the CNMFR reveal a threefold increase in the CNMFR for both white women and black women for cohorts born in the early 1920s compared with those born in the early 1950s, despite substantially higher levels of nonmarital fertility among black women. As expected, this increase in the CNMFR is due to both a decline in completed fertility and a steady rise in nonmarital births for successive birth cohorts of women.

More generally, the findings of this paper point to possible disjunctures in discussions of U.S. nonmarital fertility by policy makers and social scientists. Consider, for example, the objectives of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) to foster marriage and to decrease out-of-wedlock births. Stated counterfactually, an assumption arguably inherent in the policy objectives of PRWORA is that if a nonmarital birth is averted, such a birth would be replaced either by no birth or by a marital birth. Yet social scientists and demographers have long recognized that the

aggregate consequences of a birth averted almost certainly do not reduce total fertility by one birth or leave total fertility unchanged. Thus in the aggregate, any policy intended to reduce nonmarital births presumably should also weigh the possibility that even if the policy succeeds in averting a nonmarital birth to a woman at a particular age, the consequence of such of a policy may not be to replace a nonmarital birth by a corresponding marital birth (Preston 2004); instead, there are three potential consequences of averting a nonmarital birth that must be logically considered: (1) a marital birth at some later age, (2) a nonmarital birth at some later age, or (3) no subsequent birth. Similarly, many important policy questions, such as the effect of PRWORA on the welfare of children born within and outside of marriage, should presumably address the complexities stemming from such possibilities.

For demographers, these issues assume even greater importance given the recent and unprecedented shift to strikingly low levels of nonreplacement fertility in an increasing number of highly industrialized societies (see, e.g., Kohler, Billari, and Ortega 2002; Rindfuss, Guzzo, and Morgan 2003). In this respect, the United States has been a relative outlier, with overall fertility hovering near replacement levels. Nevertheless, those advocating policies intended to lower nonmarital fertility presumably also need to assess the risk of lowering overall U.S. fertility to below replacement levels. As the empirical evidence in this paper clearly illustrates, the near replacement levels of U.S. fertility rest in part on levels of nonmarital childbearing that differ markedly across racial and ethnic subpopulations. There is also evidence that this potential relationship is not isolated to the United States, with Rindfuss et al. (2003) documenting a strong positive association between levels of nonmarital fertility and the total fertility rate in 22 industrialized nations, with low-fertility nations typically characterized by low levels of nonmarital fertility.

Similarly, only a handful of policy experiments or policy changes to date can arguably be said to have increased marriage or reduced nonmarital fertility (see, e.g., Moffitt 2001; Moynihan, Smeeding, and Rainwater 2004), and the magnitude of effects on total nonmarital fertility and the generalizability of such policies to larger populations is difficult to assess. As a result, efforts to reduce nonmarital fertility may face two potential barriers in that individual behaviors in the domains of marriage and childbearing may be only marginally responsive to such policies, and efforts to reduce nonmarital fertility in the United States may carry the risk of reducing overall fertility to nonreplacement levels. Given that nonmarital fertility has become an increasingly substantial component of the overall fertility for successive cohorts of U.S. women, an alternative policy objective (see, e.g., Preston 2004; Wu 2001) would be to insure adequate levels of social, private, and public investments in all children, irrespective of their circumstances of birth.

Appendix Table A1. Difference Between Life Table Estimates of the Percentage of Women With at Least One Nonmarital Birth by Ages 20, 25, and 30 Under Two Alternative Definitions of Nonmarital Birth, by Birth Cohort and Race/Ethnicity: June 1980, 1985, 1990, and 1995 Current Population Surveys

Birth Cohort	All Women			White Women			Black Women			Hispanic Women		
	20	25	30	20	25	30	20	25	30	20	25	30
Before 1925	0.3	1.2	1.8	0.3	1.1	1.7	0.7	1.9	2.5	0.0	1.8	2.9
1925–1929	0.4	1.3	1.8	0.3	1.2	1.6	0.7	2.4	3.3	0.8	1.3	2.4
1930–1934	0.3	1.1	1.8	0.3	1.0	1.5	0.7	1.7	3.0	0.3	1.9	3.0
1935–1939	0.5	1.4	2.1	0.4	1.2	1.8	0.9	3.1	4.7	0.4	0.7	1.3
1940–1944	0.5	1.7	2.7	0.5	1.7	2.5	0.6	1.9	3.7	0.5	1.6	4.0
1945–1949	0.5	1.7	2.6	0.4	1.5	2.3	0.6	2.8	4.2	0.7	2.2	3.5
1950–1954	0.5	1.5	2.5	0.4	1.4	2.2	0.6	2.4	4.0	0.4	1.6	3.0
1955–1959	0.4	1.4	2.1	0.4	1.3	2.0	0.4	1.5	2.4	0.2	1.7	2.9
1960–1964	0.4	1.3	1.9	0.4	1.3	1.7	0.3	1.2	1.8	0.9	2.2	3.6
1965–1969	0.3	1.2	2.1	0.3	1.2	2.0	0.3	1.4	2.5	0.5	1.1	2.0
1970–1974	0.3	1.4		0.3	1.3		0.4	1.4		0.1	1.6	
1975+	0.1			0.2			0.0			0.0		

Note: See footnote 7 of the text for additional details.

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