

How Does POSSLQ Measure Up? *Historical Estimates of Cohabitation*

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Abstract

In this paper, we provide an overview of the indirect and direct methods used to measure cohabitation prevalence. We then use March Current Population Survey (CPS) data from 1977 to 1997 to produce a new historical series of indirect cohabitation prevalence estimates. We compare our new indirect estimates with the old series and evaluate the relative strengths of the new estimates. We then examine the characteristics of cohabitators in 1997 using our new direct estimates and compare them with the indirect estimates to investigate whether biases exist in the indirect estimates. Finally, we use our new indirect estimates to describe how the prevalence of cohabitation has changed over the two decades, and note the differences between the new indirect estimates and the old ones. We conclude that the traditional indirect method of estimating cohabitation prevalence undercounts cohabitators among those aged 35 to 54, those who are divorced or separated, black and Hispanic men, and most especially among those with children. We also conclude that indirect measures produce relatively unbiased estimates of the characteristics of cohabitators.

Many researchers have lamented the lack of good historical estimates of the prevalence of cohabitation in the United States (e.g., Bumpass 1989; Macklin 1978). The only data sources used to produce nationally representative estimates of cohabitation prevalence back to the 1960s are the Decennial Census and the Current Population Surveys, both of which rely on indirect estimation techniques. Despite their limitations, these indirect historical estimates continue to be cited widely to document increases in cohabitation. Researchers have attempted to provide better estimates in the past ten years through the use of various nationally representative surveys which directly measure cohabitation. While these surveys have presumably produced better recent cohabitation estimates, a dearth of information on historical cohabitation rates -- and the implications of the techniques used to estimate them -- still exists.

This paper has four objectives. First, we provide an overview of the indirect and direct methods used to measure cohabitation prevalence. Second, we produce a new historical series of cohabitation prevalence estimates, and evaluate its strengths and weaknesses. For this we use the March Current Population Survey (CPS) from 1977 to 1997. In an effort to gauge the validity of this new series of estimates, we compare recent alternative direct and indirect estimates to those reported in other nationally representative data sets, discussing differences where they exist. Third, we use our new direct estimates to examine the characteristics of cohabitators in 1997, and investigate whether biases occur when using indirect estimates to examine the characteristics of cohabitators. Finally, we use our new indirect estimates to describe how the prevalence of cohabitation has changed over the past two decades and compare these estimates with the existing estimates so commonly cited.

BACKGROUND

The study of cohabitation has slowly evolved from small-scale studies of a "deviant" population in the early 1970s to nationally representative surveys such as the National Survey of Families and Households (NSFH), the National Survey of Family Growth (NSFG), and the Current Population Survey. In the early 1970s, research regarding cohabitation consisted of small unrepresentative samples, ranging from 10 to 100 people, who were generally interviewed in a university setting. Macklin (1978) noted that because these studies were small and not representative, they produced conflicting findings. To counteract this welter of confusing cohabitation literature, researchers at the Census Bureau developed nationally representative estimates of the number of cohabitators and their characteristics in the late 1970s (Glick and Norton 1977; Glick and Spanier 1980; Glick 1984). The lack of direct data on cohabitation -- that is, survey questions that asked respondents to identify nonmarital cohabitation relationships -- required the Census Bureau to infer rates based on household composition, resulting in the measure that became known by the term POSSLQ (pronounced 'pa-sul-cue) -- "Persons of the Opposite Sex Sharing Living Quarters." This concept and its acronym became cultural fixtures of the time, as witnessed by book titles in the 1980s such as *There's Nothing That I Wouldn't Do If You Would Be My POSSLQ* (Osgood 1981), and *Will You Be My POSSLQ?* (Bunting 1987). The POSSLQ concept had a number of problematic assumptions, but researchers embraced these better estimates despite their limitations and continue to refer to them today. As recently as 1998, a Washington Post article trumpeted the "eightfold increase" in the number of POSSLQ households (Vobejda 1998).

For the past few decades, many cohabitation studies have referred to the increase in the prevalence of cohabitation as demonstrated by the Census Bureau's POSSLQ estimates. Some of these citations were direct references to articles containing POSSLQ estimates. Others were indirect references -- citations of other research containing direct references and statements asserting that the increases were known fact. Of the 91 articles we reviewed whose main topic was cohabitation, about two-thirds contained either direct or indirect references to the POSSLQ estimates; 28 percent referred to the POSSLQ estimates directly and another 35 percent referred to them indirectly.¹ Thus, despite the problems with these estimates, they came to be cited quite widely, even if wasn't quite clear how they were constructed or where they came from.

Other research was conducted primarily to provide a demographic profile of cohabitators and to examine which populations were most responsible for the noted increases (Chevan 1996; Glick 1984; Glick and Spanier 1980; Hatch 1995; Spanier 1982).

Researchers described the distribution of cohabitators and the prevalence of cohabitation by such characteristics as age, gender, race, presence of children, marital status, metropolitan status, educational attainment, and income.

We believe that improving upon the traditional POSSLQ estimates is essential; they are the only consistent estimates available for assessing the trends in the prevalence of cohabitation from the 1960s to the present. Further, these new estimates have implications for other areas of cohabitation research because they provide a better picture of how cohabitation rates have changed, not just among people who cohabited before their first marriage, but among all cohabitators.

In the next section, we present an overview of how cohabitators are identified and some of the direct and indirect methods researchers have used to produce previous estimates. We focus mainly on the traditional POSSLQ measure developed by the Census Bureau to shed light on how this measure is constructed and its shortcomings. This overview provides us with the information necessary for understanding the limitation of indirect methods that were used in the past and for evaluating the new estimates we present in this paper. In this section we also suggest reasons why direct estimates may differ across surveys.

Indirect methods

Indirect methods have been used by the Census Bureau and other researchers to identify cohabiting couple households.² With the Decennial Census, the CPS has been the primary source of Census Bureau estimates of cohabiting adults since 1960. In 1990, the Decennial Census began to include "unmarried partner" as a category on the relationship to the householder question, which could be used to develop a direct measure of cohabitation. This option did not become available in the CPS until 1995. Thus, until the 1990s, the Census Bureau had to employ indirect methods using household composition to identify nonmarital cohabitation. POSSLQ households are identified as all those that contained two and only two adults (age 15+) who are unrelated and of the opposite sex. With the definition restricted to those households with only two adults, group living situations are excluded. However, a significant number of simple roommate situations are presumably still captured by the definition. The definition thus misses cohabitators who share households with other adults, and at the same time includes adults who live together without being couples, such as college roommates.

Several problems are apparent in using the POSSLQ measure as an indicator of cohabiting couples. First, related adults are included in the count of total adults, so that households with two unrelated adults and, for example, one 15-year-old child are excluded. As a result, by definition POSSLQ households never include own children or other relatives 15 years old or older. The POSSLQ measure thus *underestimates* the "true" POSSLQ population which is probably an *overestimate* of the unmarried partner population because of its inclusion of roommates (Bachrach 1987:624; Hatch 1995:4). A second and numerically much smaller problem is that foster children (technically not related to the householder) are not excluded, so that, for example, a single adult living with a 15-year-old foster child of the opposite sex would be counted as a POSSLQ household.

Since the Census Bureau does not include a POSSLQ variable on its public use files for either CPS or the Decennial Census, analysts have been required to implement

the designation themselves. In the process, several studies have adjusted the traditional POSSLQ definition in beneficial if not consistent ways.

Chevan noted the problem of excluding unmarried-couple households based on counts of related adults, and did not include related adults when applying a two-adult limit to his "modified indirect" measure (1996:657). Chevan's is the only study of which we are aware that employed an indirect measurement method when a direct measure was available.³

Similarly, Hatch (1995) did not exclude couples with children aged 15-18 (who were excluded from the Census Bureau's POSSLQ designation). However, she apparently included other related adults (such as siblings or parents of householders) when applying the two-adult limit. To avoid including households in which older individuals share living arrangements with younger people out of convenience or necessity, Hatch also offered a second modified designation, in which couples were excluded when the woman was more than 10 years older than the man, or when the man was more than 20 years older than the woman.

In a study of women receiving AFDC payments, Moffitt, Reville and Winkler (1998) used March 1990 CPS data to construct a sample of cohabiting women living with unrelated men that does not restrict the number of related adults. In their study of increases in father-only families over time, Garasky and Meyer (1996) used indirect methods for identifying nonmarital cohabitation, taking into account age differences of unmarried, unrelated adults.

Direct methods

Recall that the CPS began including "unmarried partner" as a self-identified relationship category on the household roster for the first time in 1995, an option which first appeared on the Decennial Census in 1990. It is important to note that in both the Census and the CPS this relationship is only identified for individuals who are not householders -- the person in whose name the house is owned or rented. Because the relationship question asks how everyone in the household is related to the householder, the designation of "unmarried partner" does not identify how non-householders are related to each other. Unmarried couples in which one partner is not the householder cannot be identified.

The NSFH, NSFG, the National Longitudinal Survey of Youth (NLSY), and the Survey of Income and Program Participation (SIPP) also identify cohabitators directly. Because cohabitation may be an informal relationship which is subjectively or culturally defined by either or both partners, its identification is unusually prone to variation depending on the measurement techniques employed. Of the national surveys, the CPS appears to have the most narrow measurement -- asking only non-reference people about their present relationship to the reference person.

In the 1995 NSFG (Cycle V) women aged 15 to 44 were asked their relationship to every other person in the household, with "male partner" appearing as one of the choices. If they specified anyone in the household as a male partner, they were coded as cohabiting on an alternative marital status variable (NCHS 1997). In the NSFG, cohabitators can also be identified in the cohabitation history section of the interview: if a respondent indicates that she has ever lived with a partner and that she is still living with him, she is reclassified as cohabiting. CPS, SIPP, NSFH and NSFG respondents are all shown a

flashcard indicating that the partner category is an acceptable response. In a separate household relationship matrix, the SIPP asks about the relationship of each household member to every other member, similar to what is done in the NSFG. In this manner cohabiting couples that do not include a household reference person can also be identified. The NLSY asks a separate question "Are you currently living as a partner with someone of the opposite sex?" (Moffitt, Reville and Winkler 1998). Census Bureau public use data do not include marital status recodes that include cohabitation.

Given taboos and possible stigmas associated with cohabitation, it may be significant that some surveys take steps to make respondents feel more comfortable identifying themselves as cohabitators. In the NSFH for example, interviewers introduce the issue in the "over-sample screener" section of the interview by stating, "Nowadays, many couples live together without being married. Is this true of *anyone* who lives in the household? " The survey thus can identify couples that do not include householders before official rostering even takes place. Also, in addition to offering a "lover/partner" category on the household roster, the survey also allows respondents to be recoded as cohabitators if their current cohabitation spell extends to the current date (Bumpass 1989). About 3 percent of cohabitators who are not identified on the household roster apparently are recoded subsequently as cohabitators in this fashion.

Given the fact that the POSSLQ measure traditionally has been used as a basis for historical estimates, and given the problems with this measure, we turn now to our second research objective of improving upon the POSSLQ estimates. We first create an alternative POSSLQ measure. We then evaluate our new estimates against the traditional POSSLQ CPS indirect measure, the self-identified partner CPS direct measure, and other estimates from different data sets.

NEW HISTORICAL ESTIMATES OF COHABITATION PREVALENCE

Methods

In this section of the paper we develop a new indirect method for measuring the historical prevalence of cohabitation. The new method uses data from the March Current Population Surveys, 1977 to 1997, and applies an adjustment to the traditional POSSLQ measure.⁴

Adjusted POSSLQ Measure

Cohabiting adults may be "living together" alone, with any combination of other relatives, or with other unrelated adults. To improve upon previous indirect estimates by the Census Bureau, in this paper we introduce an "Adjusted POSSLQ" designation that still restricts unmarried couple households to two unrelated adults, but does not exclude households with multiple related adults. The great majority of these related adults are in fact 15- to 17-year-old children of one of the unrelated adults. Research on cohabiting patterns has demonstrated that post-marital cohabitation is increasingly common (Bumpass and Sweet 1989), and these unions often take place in the presence of children from a previous marriage (McLanahan and Casper 1995). The POSSLQ definition excludes such households, leading to an underestimate of cohabiting couples with older children.

We define Adjusted POSSLQ households as those that meet the following criteria: (1) a reference person (householder); (2) one other adult (age 15+) of the opposite sex who is not in a related subfamily, not a secondary individual in group quarters, and not

related to or a foster child of the reference person; (3) no other adults (age 15+) except foster children, children or other relatives of the reference person, or children of unrelated subfamilies.

This definition still excludes households in which a reference person lives with a cohabiting partner and that partner's non-child relatives. However, since CPS only records relationships to householders and family or subfamily reference people, these cases are impossible to distinguish from groups of unrelated individuals. More importantly, this definition includes as couple households those situations in which a householder's relative is living with a nonmarital partner. For example, a householder's daughter and her boyfriend might both be present. In such cases, the Adjusted POSSLQ would correctly identify the household as a couple household, but it would incorrectly designate the mother and the daughter's boyfriend as partners.⁵ Thus, the adjusted measure probably more correctly estimates the number of unmarried-couple households, but might also introduce some patterned biases with regard to partner characteristics. The traditional POSSLQ definition may avoid this latter problem by excluding all such households.

Table 1 shows the number of cohabiting couples as indicated by the Adjusted POSSLQ and traditional POSSLQ methods for 1977 to 1997. The increase in the POSSLQ couples is the now-familiar story of the rapid and nearly linear increase in unrelated couple households, from less than 1 million in 1977 to more than 4 million in 1997. The Adjusted POSSLQ trend reveals the extent of the traditional POSSLQ undercount of potential partner households based on the exclusion of households with related adults. This undercount has increased from about 129,000 in 1977 to 731,000 by 1997, or from about 13 percent to about 18 percent.

Comparisons With Other Data Sets

In 1997, CPS produced a weighted estimate of 3.1 million unmarried partners, 4.1 million traditional POSSLQs, and 4.9 million Adjusted POSSLQs (Table 2). (To compare how the POSSLQ, Adjusted POSSLQ, and unmarried partner CPS measures treat various household scenarios, refer to Appendix A.) Compared to POSSLQ, the Adjusted POSSLQ increases the false-positive rate for unmarried partners slightly from 39.2 percent to 40.7 percent. However, for the three years 1995-1997, the traditional POSSLQ definition did not identify 16.7 percent of the self-identified unmarried partners, excluded because of the number of adults present in these households. In comparison, the Adjusted POSSLQ measure, which only excludes households with more than two unrelated adults, only missed 4.9 percent of the self-identified partners.

To get a better idea of the accuracy of these CPS estimates, we compare estimates achieved with POSSLQ, Adjusted POSSLQ, and our direct measure, with similar estimates from the NSFH, the NSFG, the SIPP and the Consumer Expenditure Survey (CE). Table 3 presents national estimates of cohabitation rates among unmarried women ages 25-44, by age group, for 1987 and 1995. Bumpass and Lu (1998) compared the 1987 NSFH to the 1995 NSFG to measure trends in cohabitation; we use their estimates to evaluate our alternative historical estimates. To their table of direct estimates we add CPS estimates based on POSSLQ, Adjusted POSSLQ, and self-identified partner rates from the 1995 CPS. We also include an indirect estimate from the Consumer Expenditure Survey and a direct estimate from the SIPP.

Direct estimates from the NSFG and NSFH obtain substantially higher rates of cohabitation than all the CPS measures. In 1995, for example, the NSFG estimate of the

percentage of unmarried women who are cohabiting in the 35-39 year-old age group is about 13 percentage points higher than the CPS direct measure. The Adjusted POSSLQ measure -- the highest indirect estimate -- is much closer to the estimates in the other two surveys, but for some age groups even this estimate is up to 7 percentage points lower.⁶ Note, however, that the Adjusted POSSLQ estimates are closer to the 1987 NSFH estimates than they are to those produced by the NSFG in 1995. The direct estimates from SIPP most closely conform to the Adjusted POSSLQ measure. When comparing SIPP estimates with Adjusted POSSLQ estimates, the largest difference is among unmarried women 25 to 29 -- 4 percentage points.

Our only comparison using indirect estimates is with the CE. In their definition, these indirect estimates most closely resemble the traditional POSSLQ: two unmarried adults (16+) of the opposite sex living in a consumer unit. The results are thus close to the CPS POSSLQ estimates.

There are several ways the direct measures of cohabitation prevalence from other surveys could produce higher estimates than the CPS indirect measures. First, they allow identification of partners other than those of the household reference person. For example, about 3 percent of the cohabitators identified in the first wave of the NSFH were not reference people or partners. Second, they may allow multiple couples per household. Third, both the NSFH and NSFG have multiple questions to identify people who are living together who may not have been identified as partners in the relationship questions; this safeguard might also act to boost rates.

Fourth, in some surveys people may say they are "living together" with someone who in the CPS would not be counted as an official member of the household, or who might also be counted as a member of another household because they also have their own home or apartment. That is, "living together" as a relationship state does not necessarily correlate perfectly with official definitions of household membership. Thus, differences in the construction of the household roster and who is or is not considered to be a member may be contributing to some of these differences. For instance, the NSFH roster includes everyone who stays at the house "half the time or more," and NSFG respondents are asked to define relationships with those "people who live and sleep here most of the time." In CPS, the rules for household membership are much more strict. Instructions to CPS interviewers state that a household member "ordinarily stays here all the time," and specifically excludes those who maintain a residence elsewhere (including students).

Fifth, the topic of the survey may influence the identification of cohabitators. For example, more cohabitators might be identified in a survey such as the NSFH whose primary focus is families, or in the NSFG whose primary focus is women's fertility, than in a labor force survey such as the CPS. Sixth, the NSFG only surveys females. To the extent that women are more likely to say they are in a committed relationship (e.g., cohabiting), the NSFG's survey design would identify more cohabitators than a survey such as the CPS which collects information from any knowledgeable respondent.

On the other hand, some have argued that direct measures may undercount cohabitators if people are reluctant to describe cohabiting relationships or think they are not of concern to interviewers. However, to the extent that interviews provide leading phrases to put respondents at ease, undercounting for desirability purposes would be reduced.

Assessing the New Indirect Estimates

In addition to comparing the Adjusted POSSLQ measure to estimates derived from other sources, we also seek to identify potential problems in using the Adjusted POSSLQ to describe trends over time. For the years 1995-1997, the March CPS offers the opportunity to examine the difference between those households identified by the Adjusted POSSLQ measure and those who self-identified as unmarried partners. By modeling this relationship and applying the model to data in previous years, we are able to ascertain if the changing composition of Adjusted POSSLQ households over time differentially affects the validity of the estimates.

The CPS direct measure produces estimates that are lower than the Adjusted POSSLQ measure for the years 1995-1997. To simulate this direct measure for the historical period, we use logistic regression to model self-identified partners as a subset of Adjusted POSSLQ households. We then apply the logistic equation to data from the years 1977-1997 to predict a new estimate of unmarried partner households for those years. In the years 1995-1997, 62 percent of Adjusted POSSLQ households are also self-identified partner households. If the predicted series deviates substantially from the baseline 62 percent, we might have reason to be concerned about using Adjusted POSSLQ as a historical indicator. For example, unmarried couples with children are more likely to be partners than those with no children, and the percentage of couple households with children increased substantially from the 1977 to 1997. Absent other factors, this would suggest that a greater proportion of couple households are unmarried partners today.

Because the Adjusted POSSLQ measure captures more of the self-identified unmarried partners than the POSSLQ measure (Table 2), the Adjusted POSSLQ population appears to be a better universe from which to predict unmarried partners. We use a logistic regression to model unmarried partner households as a subset of Adjusted POSSLQ households for the years 1995-1997 (Table 4). We restrict our analysis to variables that are available in the March CPS for the years 1977-1997, so that the equation may be used to estimate the unmarried partner population for previous years.⁷ Variable specifications were chosen based on observed bivariate relationships; in the final model some variables no longer have significant effects.⁸

Figure 1 shows the number of traditional POSSLQ and Adjusted POSSLQ households for 1977-1997, and the number of unmarried partner households for 1995-1997. The figure also includes two estimates for the number of unmarried partners, one based on the assumption that the unmarried partner population has remained a constant 62 percent of the size of the Adjusted POSSLQ population, and the other the predicted population from the logistic equation. The prediction model produces estimates somewhat higher than the .62 constant model from 1978 to 1988, and slightly lower than the constant model for the years 1989 to 1997. This suggests that the Adjusted POSSLQ measure is slightly more likely to overestimate the actual unmarried partner population in more recent years, but the predicted trend does not deviate substantially from the constant series. Therefore, we conclude the Adjusted POSSLQ is an acceptable measure for historical trends in the prevalence of cohabitation.

In this section, we have compared the direct and indirect CPS measures of cohabitation with those obtained from other data sets. We have also used direct estimates to evaluate whether our new Adjusted POSSLQ measure yields valid estimates over time. These analyses have been instructive in that they have exposed the limitations of various approaches to measuring cohabitation. Given the advantages and limitations, which series of estimates is better for use in describing historical trends and which is better for

examining the changing composition of cohabitators? The Adjusted POSSLQ measure produces estimates that appear closer to the intended definition of cohabitation than the traditional POSSLQ measure, and resolves some of traditional POSSLQ's known shortcomings. Because of this, and because the Adjusted POSSLQ appears to hold up well over time, we conclude that the new Adjusted POSSLQ measure is a better measure for monitoring aggregate historical trends.

CHARACTERISTICS OF COHABITORS: SELF-IDENTIFIED UNMARRIED PARTNER, POSSLQ, AND ADJUSTED POSSLQ

Existing evidence would suggest that none of the indirect estimates is of sufficient quality to examine the changes in characteristics of cohabitators over time. Studies have shown that estimates of characteristics of the POSSLQ and Adjusted POSSLQ populations may be biased (Bachrach 1987). However, to our knowledge the biases associated with these indirect estimates have not been documented using data from the same survey. The self-identified unmarried partner data which became available in 1995 make it possible for us to use data from the same source to assess whether there are indeed biases in the characteristics of cohabitators associated with indirect measures.

We now turn to our third objective: to investigate whether there are biases associated with the indirect POSSLQ and Adjusted POSSLQ measures. We use the self-identified unmarried partner measure for this purpose and compare these estimates with the traditional POSSLQ and Adjusted POSSLQ estimates to uncover any differences that might result using these indirect measures.

Table 5 shows the distribution of cohabitators by selected socioeconomic and demographic characteristics in 1997 using the new direct measure and the two indirect measures -- POSSLQ and Adjusted POSSLQ. When we compare the characteristics of cohabitators based on the self-identified partner measure with those based on the POSSLQ measure, a few patterned differences occur. The greatest difference occurs in the presence of children in the household. None of the POSSLQ households have children 15 or older by definition. The indirect POSSLQ measure underestimates this group by the full 12 percentage points, when compared with the self-identified partner estimate. POSSLQ underestimates the proportion of cohabitators who live with children of any age by 11 percentage points. This difference is diminished, but still relatively large when we consider cohabitators with children under 15; the POSSLQ measure underestimates this proportion by 4 percentage points.

The POSSLQ estimates tend to count fewer cohabitators in the 35-44 age range for women and the 45-54 age range for men, while counting more in the older age groups. Similarly, fewer divorced male cohabitators are counted using POSSLQ, while widowed male cohabitators are more common. POSSLQ tends to count more female cohabitators who have 16 or more years of education. However, note that overall, these differences are small and there are not as many significant differences as other research would have suggested.

When we compare the distributions based on the direct measure with those based on the Adjusted POSSLQ measure, there are fewer significant differences and those differences are smaller. The most important difference between the Adjusted POSSLQ and the POSSLQ indirect estimates is the extensive improvement of the Adjusted POSSLQ in estimating the proportion of unmarried partners living with children. There are significant differences between the direct estimates and the indirect Adjusted POSSLQ

estimates for those with any children and those with children 15 or older. The Adjusted POSSLQ underestimates the proportion of cohabitators with children under 15 by about 3 percentage points. However, this estimate is still closer to the self-identified partner estimate than the POSSLQ.

To summarize our findings, neither the Adjusted POSSLQ nor the POSSLQ measures produce characteristics of cohabitators that differ substantially from the self-identified estimates. Further, our findings indicate that the Adjusted POSSLQ estimates result in fewer significant differences than the POSSLQ when compared with the partner estimates, and the differences that did result were generally smaller. The biggest difference between the two indirect estimates is in the percent of cohabitators with children: the Adjusted POSSLQ estimate is much closer to the partner estimate.

HOW DOES POSSLQ MEASURE UP?

We have now established that the characteristics of cohabitators produced with the indirect methods are not much different than those produced with the direct methods, and that the Adjusted POSSLQ is a better historical measure than the traditional POSSLQ. But what do the differences in these two indirect measures imply for previous research on the prevalence of cohabitation? To answer this question, we describe how the prevalence of cohabitation has changed from 1977 to 1997. Here, we compare the traditional and Adjusted POSSLQ prevalence rates along various demographic dimensions to demonstrate the bias that occurred in previous research based on the traditional POSSLQ measure.

Estimates of the prevalence of cohabitation produced by Adjusted POSSLQ and POSSLQ are quite different with regard to age, marital status, the presence of children and race. This finding is not unexpected given that these variables are highly correlated with the types of people the Adjusted POSSLQ measure added: people who were more likely to be middle-aged, divorced or separated, and those with older children.

Figure 2 shows the percent of unmarried women in different age groups who were cohabiting from 1977 to 1997. The Adjusted POSSLQ measure increased the rate of unmarried women who were cohabiting in 1997 the most among those in the middle age categories: 35 to 44 (42 percent), and 45 to 54 (36 percent). In contrast, Adjusted POSSLQ yielded a cohabitation rate only slightly higher than POSSLQ for the younger age groups. The fact that the Adjusted POSSLQ measure made the most difference among unmarried women 35 to 54 years of age is not surprising given that this is the age range in which women are the most likely to have children 15 or older. The estimates in this figure demonstrate that cohabitation has consistently been the most common among unmarried women aged 25 to 34.

The percentage of men and women who were cohabiting is shown for those of different marital statuses in Figure 3. The Adjusted POSSLQ measure substantially increased the percentage of divorced and separated men and women who were cohabiting when compared with the traditional POSSLQ measure. In contrast, the Adjusted POSSLQ added only slightly to the percentages cohabiting among never-married men and women, and even then only in the 1990s.

This figure also shows that cohabitation has consistently been the most common among divorced and separated men and women, most especially among men. In 1997,

about 18 percent of divorced and separated men were cohabiting compared with about 14 percent of divorced and separated women.

Figure 4 shows the percent increase in the number of Adjusted POSSLQ households by gender and marital status from 1977 to 1997 using 3-year moving averages. The greatest increase was apparent among never-married men and women -- the number of cohabitators in this group increased more than 400 percent. Separated and divorced women also experienced a large increase, as did separated and divorced men, although the men's increase was not as substantial as the women's. Widowed men and women have experienced only a slight increase.

The proportion of unmarried adults of different races and both genders who are cohabiting according to the Adjusted POSSLQ and POSSLQ measures is shown in Figure 5. The percentage of cohabitators added by Adjusted POSSLQ is the greatest for black and Hispanic men, although significant increases are noted among all race and gender groups.⁹ The differences between the Adjusted POSSLQ and POSSLQ measures increase over time for all groups, but most especially for men.

The Adjusted POSSLQ measures show that the level of cohabitation varies within a narrow band for unmarried men and women of different races across years. The percentage cohabiting for the different race/gender categories ranges from 3 to 5 percent in 1977 to 7 to 12 percent in 1997. In 1997, cohabitation appears to be the most prevalent for white men (12 percent) and the least prevalent for black women (7 percent).

Figure 6 shows the percent increase from 1977 to 1997 in cohabitation rates among unmarried, white, black, and Hispanic women. The figure indicates that white women and Hispanic women have experienced a greater increase in the rate of cohabitation than black women. Rate increases around 200 percent indicate that unmarried white women and Hispanic women were about 3 times as likely to be cohabiting in 1997 compared with 1977. Blacks were only twice as likely to be doing so. In 1997, about 10 percent of unmarried Hispanic men and women were cohabiting, compared with 5 percent in 1977.

The proportion of unmarried couple households containing children is greatly increased when the Adjusted POSSLQ measure is used instead of the traditional POSSLQ measure (Table 5). For example, in 1997, 43 percent of unmarried couple households contained children using Adjusted POSSLQ, compared with 34 percent using POSSLQ. Using the Adjusted POSSLQ measure, the proportion of unmarried couple households containing children has increased from 29 percent in 1977 to 43 percent in 1997. Figure 7 shows that, using Adjusted POSSLQ, nearly one in twenty children under age 18 (5 percent) now resides in an unmarried-couple household. This estimate compares with only 3.5 percent using the POSSLQ measure -- a difference of nearly 1 million children.

SUMMARY AND CONCLUSIONS

In this paper, we have produced a new historical series of estimates of cohabitation prevalence. Based on our analysis, we conclude that the measure we term "Adjusted POSSLQ" is an improvement over the traditional POSSLQ for estimating historical trends in cohabitation prevalence dating back to the 1970s. Our Adjusted POSSLQ estimates indicate that the number of cohabiting households increased from 1.1 million in 1977 to 4.9 million 20 years later in 1997. Cohabiting households made up 1.5 percent of all

households in 1977, increasing to 4.8 percent by 1997. We conclude that the most serious undercounts resulting from the use of the traditional POSSLQ measure were among those in the middle age ranges (35 to 54), people who were divorced or separated, black and Hispanic men, and especially households with children. This new series of estimates is particularly important given that most research which has cited the increase in the prevalence of cohabitation occurring since the 1960s has referred to the traditional POSSLQ estimates.

Some have argued that while indirect estimates are acceptable for documenting historical trends, they may produce patterned biases in estimating the characteristics of cohabitators. However, we have demonstrated here that both the POSSLQ and Adjusted POSSLQ measures produced relatively unbiased estimates of the characteristics of cohabitators, at least in 1997. When compared to the self-identified partner estimates, the Adjusted POSSLQ measure produced less biased estimates than the POSSLQ measure, particularly in regard to the proportion of partners who live with children.

The Adjusted POSSLQ measure, unlike the traditional POSSLQ, captures almost all of the CPS self-identified unmarried partners. Only those with more than two unrelated adults in the household are not identified with this measure. The Adjusted POSSLQ may also identify some partners who are missed by the CPS self-identified measure: those who fail to self-identify for whatever reason, and some of those who are partnering with people who are not householders. Compared to the POSSLQ, however, the adjusted measure also captures more noise. In some cases, it will misidentify specific partners within a partner household. In such cases, one of the two partners will introduce incorrect characteristic data into the measure, and one will not. The opposing effects of these different sources of error result in an Adjusted POSSLQ population that is remarkably similar in its characteristics to the self-identified partners, although the total population is more than half-again as large.

We have argued that differences in survey designs and the conceptualization of cohabitation influence the estimates of cohabitation prevalence. Direct estimates of the number of cohabitators and the prevalence of cohabitation from the 1995-1997 CPS surveys are low compared with both the POSSLQ and Adjusted POSSLQ estimates as well as the estimates from other surveys. These discrepancies may be the result of the more narrow conceptualization and measurement of cohabitation used in the CPS compared with other surveys. Differences in household rostering techniques, the ability to identify multiple partners, the numbers of questions asked, the type of questions asked, and the focus of the survey all contribute to these discrepancies.

The large differences in these estimates suggest that researchers should exercise caution in comparing cohabitation estimates across surveys and should consider the particular study design used in describing the data presented. Moreover, our findings suggest a need for conducting cognitive studies to ascertain the best methods for collecting reliable data which will accurately reflect our conceptualization of cohabitation. But first, we need to consider more carefully how cohabitation ought to be conceptualized, and whether it should be conceptualized differently across surveys depending on the purpose of the survey.

The importance of cohabitation has greatly increased in the past decade. Cohabiting relationships have important implications for the decline in marriage (Bumpass, Sweet and Cherlin 1991), family formation and fertility (Bachrach 1987; Bumpass and Lu

1998), race and ethnic differences in family structure (Manning and Landale 1996; Loomis and Landale 1994), single-parent families (Bumpass and Raley 1995) and step-families (Bumpass, Raley and Sweet 1995). For these studies, other national surveys have proven themselves invaluable. However, for consistent historical estimates of cohabitation prevalence, the CPS and Decennial Census remain the only available datasets. We argue that documenting changes in cohabitation over time using this data is the first step in assessing how shifts in the composition of the cohabiting population may have implications for some of these other types of research. For example, we have shown that cohabitation is increasing faster among Hispanic and white women than among black women. What does this trend portend for Hispanic fertility rates in the future? What about fertility rates overall?

Understanding the nature and extent of nonmarital cohabitation has important implications for child well-being and economic statistics as well. Because real poverty rates for children may be overestimated if the economic contributions to families by cohabiting partners are excluded (Carlson and Danziger 1998; Manning and Lichter 1996), the Census Bureau is considering counting cohabitators in the definition of families for purposes of poverty designations (Weinberg, Short and Hernandez 1998). This endeavor follows up on a report from the Committee on National Statistics (1996) which concluded that "the definition of 'family' should be broadened for purposes of poverty measurement to include cohabiting couples." To include the income of cohabitators in family measures for purposes of poverty estimation, more information will be needed about the duration and nature of the cohabiting relationships (Bauman 1997). Our results imply that using the current CPS unmarried partner designation may be problematic because of potential undercounting and biases in identifying cohabiting couples.

¹ Direct citations include, for example, Bianchi and Spain 1996; Bumpass and Sweet 1989; Manning 1993; McLanahan and Casper 1995; Nock 1995; Tanfer 1987; and Yamaguchi and Kandel 1985. Examples of indirect references include Bumpass, Sweet, and Cherlin 1991; Manning and Smock 1995; Raley 1996; and Schoen 1992.

² Indirect estimates techniques are typically used when direct identification of a phenomenon is not possible either because of a lack of information or because the validity of available information is suspect.

³ Chevan (1996) argues that, in order to avoid taboos regarding nonmarital partnering, some partners selected "housemate/ roommate" in the 1990 Census. However, we disagree with his inclusion of the "housemate/ roommate" category in addition to "unmarried partner." His measure undoubtedly overestimates cohabitators because of the number of non-partners who select the housemate/ roommate category (especially among the elderly, which is his focus).

⁴ We use CPS public use files prepared by Unicon Research Corporation (1997). These files may differ from the latest files released by the Census Bureau in some years.

⁵ The opposite-sex restriction presumably excludes about one-half of such situations (i.e., a male householder living with his daughter and her boyfriend). On the other hand, the opposite sex restriction would allow householders to be misidentified as the nonmarital partners of their relatives' same-sex partners.

⁶ Comparing 1982 NSFG to the traditional POSSLQ in CPS (using a March 1982-1983 average to match the NSFG interview midpoint), Bachrach (1987) found that NSFG identified 3.5 percent more cohabitators among women ages 15-44. However, unlike in the 1995 results, the NSFG number for that period is 7.4 percent lower than the Adjusted POSSLQ.

⁷ School enrollment is only specifically indicated after 1985. In earlier years, this variable is recoded from the "major activity" question, which produces much lower estimates of school enrollment; we include this variable anyway because of its substantive importance. Keeping house is indicated when either partner said that "caring for home/family" was the reason they were not employed the previous year. Incomes for past years are adjusted to 1996 dollars.

⁸ The logistic equation estimation technique employed here is appropriate for estimating the number of unmarried partner households based on the 1995-1997 model. However, there are a significant number of false-positives and false-negatives produced in the model years -- 19.7 percent of each -- which means it is problematic to analyze characteristics of the predicted partners beyond their total numbers.

Predicted probabilities for households in all years are obtained by the following equations:

$$\text{logit}(p) = \log\left(\frac{p}{1-p}\right) = \alpha + \beta X$$

and

$$p = \frac{e^{\text{logit}p}}{1 + e^{\text{logit}p}}$$

Where A is the intercept parameter from the logistic equation, B is the vector of slope parameters, X is the vector of explanatory variables, and p is the predicted probability. To identify predicted nonmarital partners, we select a cutoff point in the predicted probability distribution above which households are categorized as predicted partner households. The cutoff point (.596) was chosen such that in the years 1995-1997 the number of false-positives equaled the number of false-negatives and the total number of predicted partner households was closest to the actual number of partner households among the Adjusted POSSLQs. We use this cutoff-point method because the primary goal of the predictions was to estimate the total number of partner households as accurately as possible. A higher cutoff point, for example, would have reduced the number of false-positive partner households but led to an underestimation of the total number. To test the vulnerability of the model to variable choice and the inclusion of non-significant variables, we re-estimated the logistic equation using a stepwise procedure which included only significant variables. When this alternative model produced historical prediction estimates that were almost identical, we reverted to the full model.

⁹ "Black" and "white" refer to the combined race/ethnicity categories of Black, not Hispanic and White, not Hispanic, respectively.

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