

The Rise of Cohabitation in the United States: New Historical Estimates

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The rise of cohabitation in the United States in the late twentieth century is an important component of the dramatic changes in marriage, family formation and childbearing (e.g., Bumpass, Sweet and Cherlin 1991; Bumpass and Lu 2000; Casper and Bianchi 2002; Manning 1995). This increase, first noted in the 1970s, was initially inferred from household composition because few data sources collected direct information on couples “living together” (Glick and Norton 1977, Glick and Spanier 1980). Research on cohabitation exploded in the 1980s as the trend accelerated and when longitudinal data sources, such as the National Survey of Families and Households, provided nationally representative datasets designed for studying cohabitation.

Despite a wealth of new information on cohabitating couples—including the implications of cohabitation on family formation, relationship stability, childbearing and child well-being—there are few estimates of cohabitation that assess the dramatic change over time (e.g., Bumpass and Sweet 1989, Bumpass and Lu 2000). Studies that examine cross-sectional differentials, such as race, educational attainment and place of residence, are even rarer.

This paper improves on previous attempts to infer cohabitation from the decennial census. The 1990 and 2000 censuses included specific responses for “unmarried partner” in the relationship question; previous censuses classified these individuals in broader “partner/roommate” or “partner/friend” categories. Our goal is to infer as best we can which individuals in the censuses of 1960 through 1980 would have described themselves as opposite-sex unmarried partners if that option had been available on the census. We do this by first developing rules to identify households that are likely contain an unmarried partner, and then by applying a regression model to refine these measures.

POSSLQ and Adjusted POSSLQ

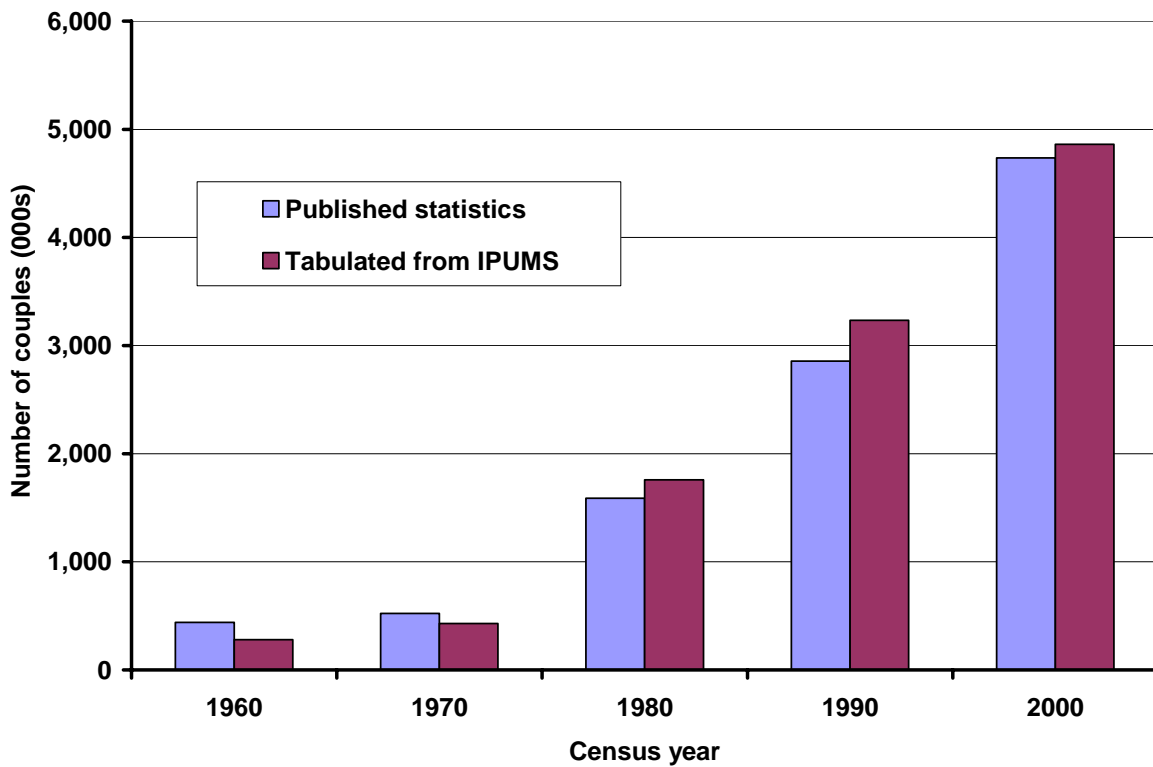
The acronym POSSLQ—“Persons (or Partners) of Opposite Sex Sharing Living Quarters”—was coined by Census Bureau staff in the late 1970s. POSSLQ households—termed “Unmarried Couple Households” by the Census Bureau—are composed of two unrelated adults of the opposite sex (one of whom is the householder) who share a housing unit with or without the presence of children under 15 years old. According to this definition, unmarried couple households may contain only two adults (Casper and Cohen 2000). Scholars use POSSLQ (or unmarried couple) households to estimate the number of cohabiting couples. The number of unmarried couple households from the decennial censuses of 1960 to 1980 serves as one of the few measures of cohabitation in that period (e.g., Smock and Manning 2004).

These widely-cited census statistics on the number of POSSLQ households are flawed. The numbers cited for 1960 and 1970 derive from the census volumes on “Persons by Family Characteristics” (U.S. Census Bureau 1964: Table 15; 1973: Table 11), and refer not to unmarried-couple households but to the total number of persons residing with primary individuals of the opposite sex.² This measure misses many actual POSSLQ households because it does not allow for the presence of children of the household head who are under 15 years old. Much more problematic, however, the measure is not a count of couples, but rather of all individuals residing with a head of the opposite sex. Thus, for example, a household containing an elderly female head with four male lodgers has been interpreted as four separate POSSLQ households. These errors are easily corrected using census microdata, and the corrections have a significant impact on the trend over time.

² Primary individuals are persons residing in households with no family members and with or without non-family members.

Figure 1 compares the published unmarried-couple statistics (U.S. Census Bureau 2004) with new estimates from the Integrated Public Use Microdata Series (IPUMS) (Ruggles et al. 2004). The published numbers for 1960 and 1970 are significantly overstated compared with the IPUMS estimates, and those for 1980, 1990 and 2000 are slightly understated. The latter discrepancy probably arises from a difference in the source; the IPUMS numbers are tabulated from the decennial census and the published numbers for 1970 through 2000 come from the Current Population Survey. Using a consistent measure with a consistent source suggests that the increase in cohabitation between 1960 and 2000 was more than 60% greater than previously recognized.

Figure 1. Comparison of published and tabulated estimates of unmarried couple (POSSLQ) households



Several authors have suggested refinements of the POSSLQ measure (Chevan 1966; Hatch 1995; Moffit, Reville, and Winkler 1998). The most influential of these changes was implemented by Casper and Cohen (2000), who broadened the definition to allow other adults in the household. In particular, Casper and Cohen’s “Adjusted POSSLQ” measure permits any number of adults related to the householder and any adult children in unrelated subfamilies. Casper and Cohen correctly noted that the traditional measure excludes cohabitators who have children aged 15 or older, and the adjustment was designed to capture these cases. Table 1 compares the rules for POSSLQ and Adjusted POSSLQ.

Table 1. Rules for designating POSSLQ households

POSSLQ

- a. Household must have a householder aged 15+
- b. Household must include one other person aged 15+ who is unrelated and of the opposite sex as the householder
- c. Household cannot include any other persons aged 15+

ADJUSTED POSSLQ (Casper and Cohen 2000)

- a. Household must have a householder aged 15+
 - b. Household must include one other person aged 15+ who is unrelated, not a foster child, and of the opposite sex as the householder
 - c. Household cannot include any other persons aged 15+, except for relatives of the reference person and persons listed as a child in an unrelated subfamily
-

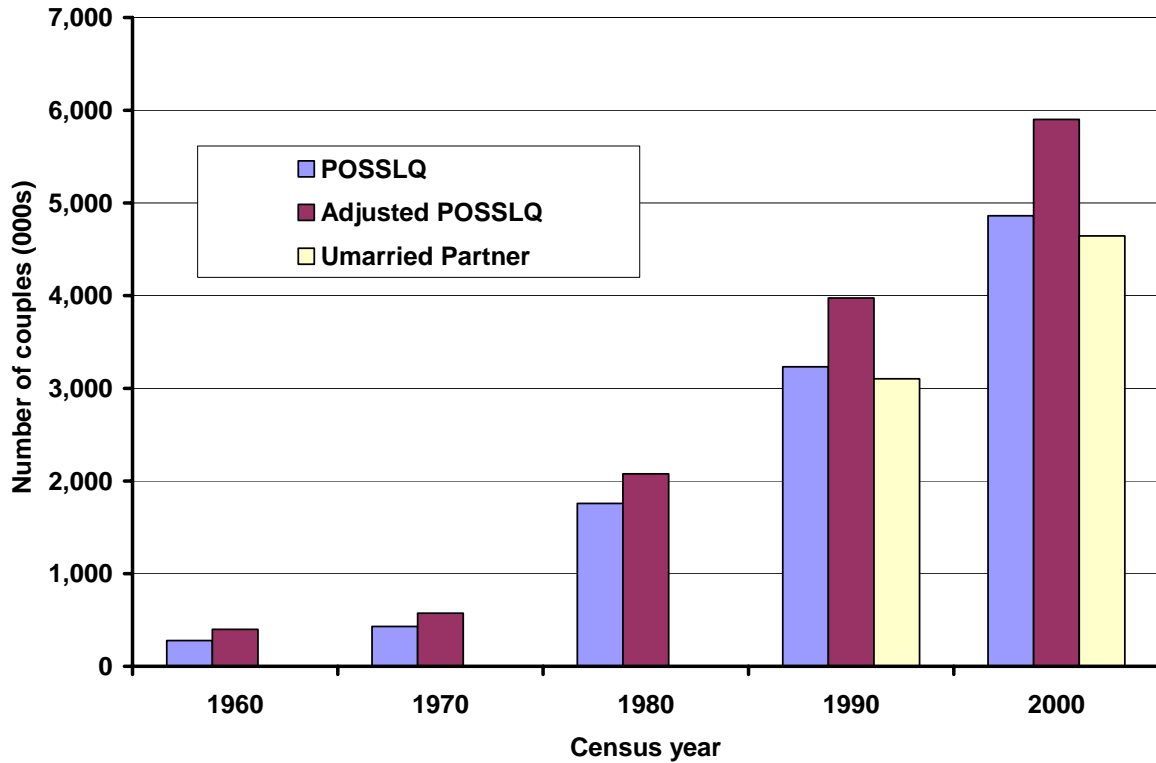
Figure 2 compares POSSLQ and Adjusted POSSLQ for the period 1960 to 1980 and compares both POSSLQ measures with opposite sex “Unmarried Partners” in 1990 and 2000.³

The relationship to householder question on the census forms in 1990 and 2000 included an explicit category for unmarried partners (see Figure 3), instead of the vaguer categories of

³ The census, unlike the Current Population Survey (CPS) did not classify unrelated subfamilies after 1960. To implement Adjusted POSSLQ in the census, we therefore inferred unrelated subfamily status from the IPUMS family interrelationship variables (Ruggles 1995). Since the CPS subfamily variables are problematic, this implementation of Adjusted POSSLQ is probably more accurate than the CPS-based version (Ruggles and Brower 2003).

partner, friend, or roommate that were enumerated in previous census years. As shown in Figure 2, the Adjusted POSSLQ measure yields substantially higher estimates than either POSSLQ or unmarried partners in all census years.

Figure 2. Comparison of number of cohabiting households according to POSSLQ, Adjusted POSSLQ, and Unmarried Partner measures



Both the POSSLQ and the Adjusted POSSLQ measures capture many persons who were not actually cohabiting, especially in the earlier census years. Between 30 and 40 percent of households identified by these measures in 1990 and 2000 do not include an unmarried partner. Moreover, when we examine individual census records in earlier census years, most of the cases do not look like cohabiting couples. Table 2 shows some typical examples, drawn from the beginning of the 1960 census sample. Most of the POSSLQ households in this period appear to

be typical boarding or domestic service arrangements, and we have little reason to suspect that they were actually cohabitators.

Figure 3. Census 2000 inquiry on relationship to householder

Person 2

Census information helps your community get financial assistance for roads, hospitals, schools and more.

1 What is this person's name? *Print the name of Person 2 from page 2.*

Last Name

First Name MI

2 How is this person related to Person 1? *Mark ONE box.*

- Husband/wife
- Natural-born son/daughter
- Adopted son/daughter
- Stepson/stepdaughter
- Brother/sister
- Father/mother
- Grandchild
- Parent-in-law
- Son-in-law/daughter-in-law
- Other relative — *Print exact relationship.*

If NOT RELATED to Person 1:

- Roomer, boarder
- Housemate, roommate
- Unmarried partner
- Foster child
- Other nonrelative

Table 2. Examples of POSSLQ households in 1960

Relationship	Age	Sex	Race	Marital Status
Head	51	Female	White	Widowed
Child	11	Male	White	Never married
Boarder	32	Male	White	Divorced
Head	30	Female	White	Married, spouse absent
Child	12	Female	White	Never married
Child	11	Female	White	Never married
Child	1	Female	White	Never married
Boarder	42	Male	White	Widowed
Head	44	Male	Black	Widowed
Child	13	Female	Black	Never married
Child	12	Female	Black	Never married
Child	11	Male	Black	Never married
Child	8	Male	Black	Never married
Child	8	Female	Black	Never married
Child	7	Female	Black	Never married
Child	5	Female	Black	Never married
Child	3	Female	Black	Never married
Child	3	Male	Black	Never married
Employee	53	Female	Black	Widowed
Head	45	Female	White	Divorced
Employee	46	Male	Black	Separated

Potential Unmarried Partners

Our goal is to infer unmarried partner status in census years before it was a specific census category. We do not attempt to uncover cohabitation that would not have been revealed by the census in 1990 or 2000. In essence, we seek to estimate how many people acknowledged cohabitation in each census; thus, we focus on self-identified cohabitation. Self-identified cohabitation is analogous to the census concept of self-identified race. Like racial categories, categories of relationships between couples, such as cohabitation and marriage, are socially

constructed. Just as the race question does not attempt to measure genetic heritage, we do not attempt to estimate the number of legally unmarried coresident persons with a sexual relationship. Clearly, estimation of sexual relations is impossible with census data for any period; acknowledged cohabitation is the salient measure for study of historical change in living arrangements.

Other sources, such as the National Survey of Households and Families (NSFH) and National Survey of Family Growth (NSFG), ask multiple questions on cohabitation and uncover higher numbers of cohabitators than are self-identified in the census (Casper and Cohen 2000). Some of this difference may occur because cohabitators intentionally or unintentionally fail to identify themselves as unmarried partners in the census. In other cases, people may cohabit informally but still maintain two residences, and so are not enumerated in the same household by the census. In the NSFH, for example, persons are counted as cohabitators if they “stay in the household half the time or more,” regardless whether or not they also have a separate household. Moreover, the census only identifies persons who are partners of a householder, whereas surveys can identify persons cohabiting with other household members; the NSFH data suggest that the census thereby misses about 3 percent of cohabitators (Casper and Cohen 2000).

Both POSSLQ and Adjusted POSSLQ identify many households without unmarried partners, and exclude many households that do have an unmarried partner. To better identify households likely to include an unmarried partner, we developed a new measure, which we term potential partner. We have upper- and lower-bound definitions of potential partner, termed maximum potential partners and minimum potential partners respectively. These measures impose restrictions on age and marital status that do not appear in the POSSLQ measures, but they impose no restrictions on the number of adults in the household. The minimum potential

partner measure also imposes restrictions on the relationship to householder. The definitions for these measures appear in Table 3.

The definition of potential partners differs slightly from the POSSLQ rules. We restricted potential partners to persons aged 17 or more. Unmarried partners under 17 are extremely rare; exclusion of persons aged 15 or 16 eliminates a trivial percentage of cohabiting couples while greatly reducing the number of cases falsely identified as potential partners. We also eliminated currently married persons as potential unmarried partners. The 2000 census microdata do not include any married persons listed as unmarried partners, presumably because of post-enumeration editing. Because married persons were apparently ineligible to be unmarried partners in 2000, we made them ineligible in earlier years as well.

Table 3. Rules for Identifying Potential Unmarried Partners

MAXIMUM POTENTIAL PARTNER (Upper bound)

- a. Must be age 17 or older and opposite sex as the householder
- b. Must be first unrelated person listed in the household
- c. Neither householder nor partner can be currently married

MINIMUM POTENTIAL PARTNER (Lower bound)

- a. Must be age 17 or older and opposite sex as the householder
 - b. Must be first unrelated person listed in the household
 - c. Must be listed as partner, roommate, or friend
 - d. Neither householder nor partner can be currently married
-

For the lower-bound minimum potential partner measure, we also restricted the relationship categories for potential partners. POSSLQ and Adjusted POSSLQ allow any unrelated person to be a partner, as long as they are at least fifteen and of the opposite sex as the householder. We consider it unlikely that a true unmarried partner prior to 1990 would have been enumerated as an employee, boarder, or lodger. We therefore restricted the minimum potential

partners to the categories of partner, friend, housemate, or roommate (see the Appendix for details on the census relationship question in each census year).

If cohabitators in the period from 1960 through 1980 frequently identified themselves as lodgers or domestic servants, the minimum potential partner measure would understate the cohabitation in that period. If, however, we are correct in thinking that few people listed as lodger or employee in 1960, 1970, or 1980 would have identified themselves as unmarried partner if that response had been offered on the census form, then the minimum potential partner measure is justified.

In one respect, we broadened the POSSLQ definition. A substantial number of unmarried partners reside in households that contain multiple adults, and the prohibition of such households may significantly bias the characteristics of cohabitators. We therefore have no restriction on the number of related or unrelated adults in the household. We did, however, impose a rule that the potential unrelated partner must be the first-listed person in the household who is unrelated to the householder. Virtually all unmarried partners in 2000 (99.4 percent) were in fact the first unrelated person listed. In the few cases with preceding unrelated individuals in the household, we suspect that these unmarried partners are not actually unmarried partners of the householder, but rather unmarried partners of another unrelated adult. Moreover, by imposing this rule we limit each household to a single potential partner, which simplifies analysis.

Figure 4 compares the potential partner measures with the POSSLQ measures and with the unmarried partner variable. Of the four measures, the original POSSLQ comes closest to matching the number of unmarried partners in 1990 and 2000, but this apparent reliability is deceptive. Table 4 shows the number of false positives and false negatives for each of the four measures. False positives are households identified by each measure that do not include an

unmarried partner; false negatives are households with unmarried partners that are not identified by each measure. The original POSSLQ fares well only because the high percentage of false positives is canceled out by the high percentage of false negatives. The Adjusted POSSLQ reduces the false negatives significantly, but at the price of a high rate of false positives. Our maximum potential partner misses fewer unmarried partners than the POSSLQ measures, and our minimum potential partner measure also substantially reduces the number of falsely identified partners.

Figure 4. Comparison of POSSLQ, potential Partners, and unmarried partners, 1960-2000

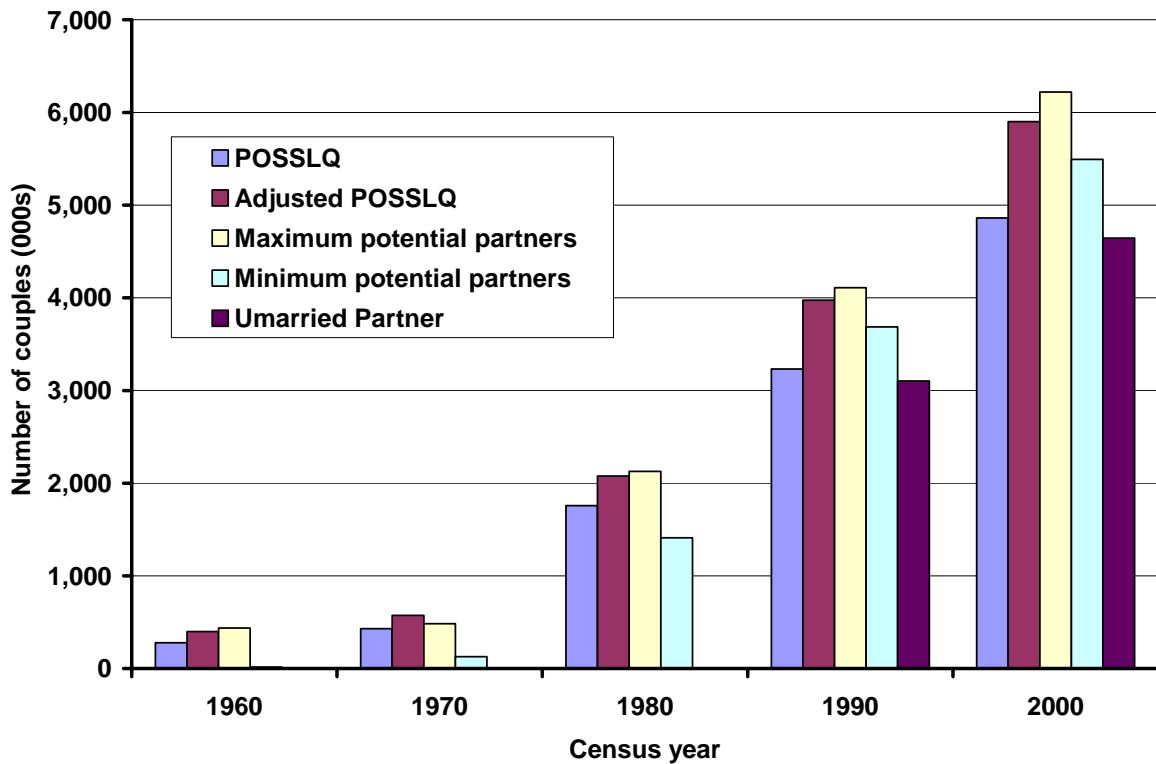


Table 4. Error rates for alternate inferred measures of cohabitation

	a. False positive	b. False negative	c. Total error (a+b)
1990			
POSSLQ	25.8	22.7	48.5
Adjusted POSSLQ	28.6	8.5	37.1
Maximum Potential Partner	28.9	5.8	34.7
Minimum Potential Partner	20.7	5.8	26.5
2000			
POSSLQ	23.4	20.0	43.4
Adjusted POSSLQ	25.9	6.2	32.1
Maximum Potential Partner	25.8	0.7	26.5
Minimum Potential Partner	16.2	0.7	16.9

Note: false positive is the percent of households identified by the measure that do not include an unmarried partner; false negative is the percent of households with unmarried partners not identified by measure.

Our goal for the potential partner measures was to make the definition as narrow as possible without discarding a significant number of unmarried partners. In 1990, however, our measures fail to identify 5.8 percent of the opposite-sex unmarried partners listed in the census microdata. Two-thirds of these cases were excluded based on the marital status rule we imposed for consistency with Census 2000. As noted, Census 2000 editing procedures did not permit persons who were currently married to be listed as unmarried partners. Some of these cases, no doubt, actually represent cohabitators, but the Census 2000 editing rule may be sound: many of these married cohabitators probably represent coding errors. Excluding false negative cases that were edited in Census 2000, the 1990 potential partner measures would yield just 1.9 percent false negatives.⁴

⁴ The remaining false negatives among potential partners in 1990 occurred because the unmarried partner was not the first-listed unrelated person in the household or because the head or partner was under age 17. In many of these cases, however, we suspect that the relationship may be miscoded.

Extending these measures backwards in time highlights the inappropriateness of inferring cohabitation for persons listed as boarders, lodgers, and employees. Figure 5 shows the percentage of all couple households (married and unmarried couple households) that are estimated to include unmarried couples according to each of the four methods, for the entire period 1880 through 2000. Figure 6 shows the same statistics for the period from 1880 to 1960. According to most of the measures, the 1960 census represented the low point of cohabitation, and cohabitation was much more common in the early-twentieth century. This is not because cohabitation actually declined over the first half of the twentieth century. Rather, these measures reflect that boarding, lodging, domestic service, and farm labor were much more common before 1950, and often involved residence with unrelated persons of the opposite sex (Goeken 1999).

In the period before 1940, we have access to the actual words used by enumerators to describe living arrangements. We have recorded 28 cases listed explicitly as concubine or mistress, several hundred companions, and several thousand partners and friends (most of whom were apparently business partners). It may have occasionally happened that an enumerator would record lodger or servant for a person who acknowledged cohabitation, but it was probably rare. In all periods, the number of cohabitators erroneously enumerated as boarders or employees must have represented a tiny minority of total persons enumerated in these categories.

Figure 5. Unmarried couples as a percentage of all couple households, 1880-2000

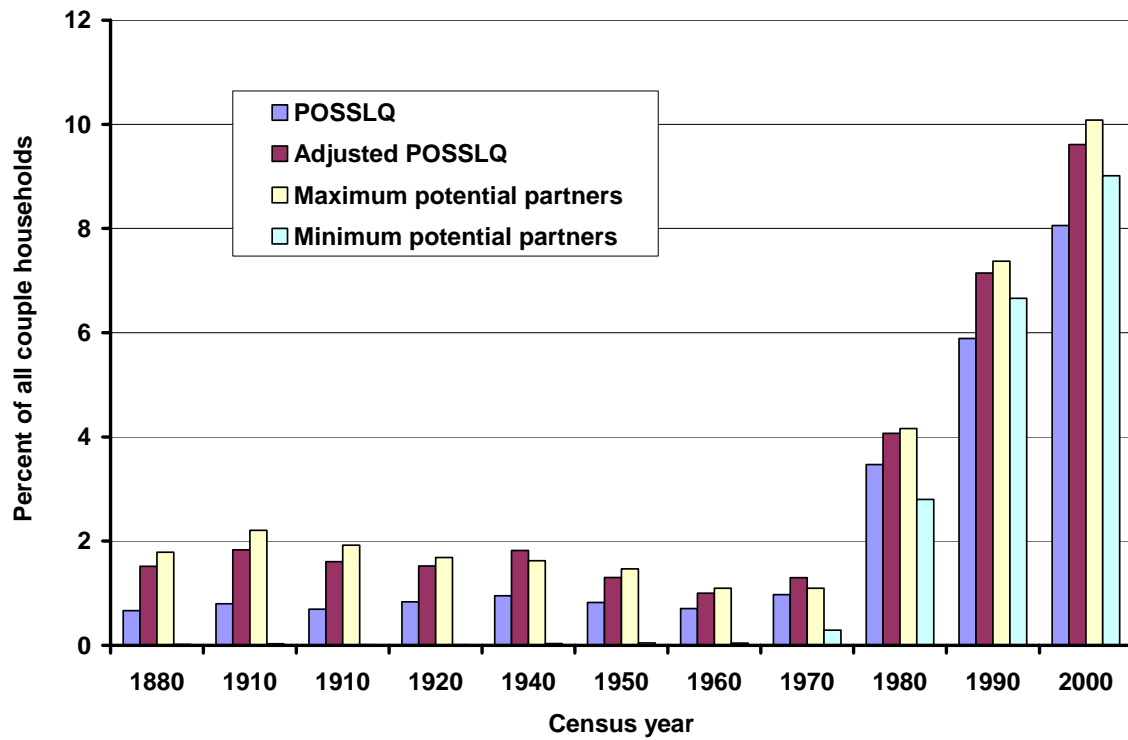
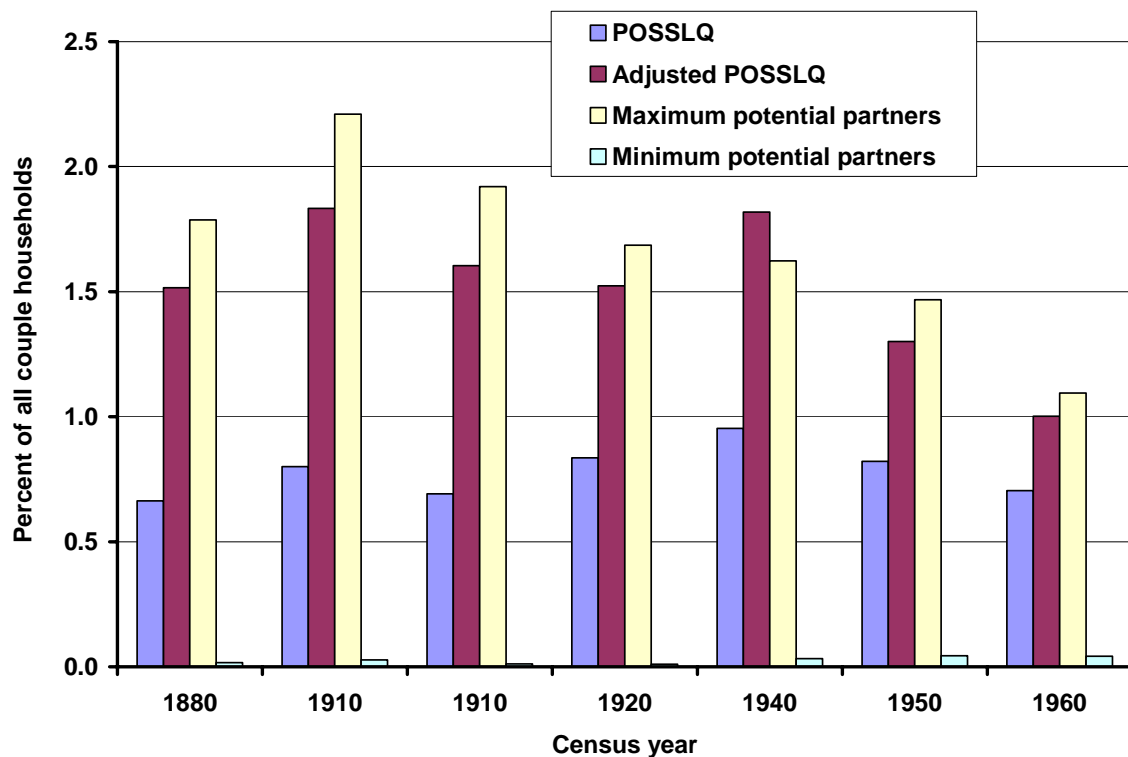


Figure 6. Unmarried couples as a percentage of all couple households, 1880-1960



Predicting potential partners

The potential partner measures include virtually all unmarried partners as they were defined in Census 2000, but they also include a substantial number of households that did not contain unmarried partners. To refine the measures further, we used binary logistic regression to impute a set of unmarried partners probabilistically. Our strategy was to predict unmarried partner status for potential partners in 1990 and 2000, and then to calculate the predicted probability of being an unmarried partner for all potential partners from 1960 to 2000.

Table 5 describes the variables used in the models. We ran four models, separating male and female potential partners in each potential partner universe (maximum and minimum potential partners). The dependent variable in each case is a dichotomous variable indicating whether or not a potential partner was an unmarried partner. We selected the independent variables for their predictive power, and the relationships differ from those cited in the literature on cohabitation. Most studies contrast cohabitators and married couples (Smock and Manning 2004); our analysis seeks to identify the characteristics that distinguish roommates or other unrelated persons from unmarried partners. We include census year in the model, since the overall proportion of potential partners who were actually unmarried partners increased slightly between 1990 and 2000. We tested for interactions between census year and the other independent variables but did not find any significant relationships.

The regression results are shown in Table 6. The strongest predictors of unmarried partner status were age difference between householder and potential partner, number of adults in household, presence of own children, presence of children under five, home ownership, age, and census year.

Table 5. Independent variables for regression analyses

Variable short name	Variable description
Household	
Year	Census year (coded 100 for 2000, 99 for 1990, 98 for 1980 and so on)
Region	Region (dummy variables: Northeast, Midwest, South and West)
Metro	Households residing in a metropolitan area, as defined in each census year (coded 1=yes and 0=no)
Owns	Housing unit is owned (coded 1=yes and 0=no)
Num of Adults	Number of other adults in the household in addition to householder and potential partner and excluding adult children
Person	
Div-sep	Potential partner is divorced or separated (coded 1=yes and 0=no)
HH div-sep	Householder divorced or separated (coded 1=yes and 0=no)
Child	Potential partner's own child(ren) present (coded 1=yes and 0=no)
HH child	Householder's own child(ren) present (coded 1=yes and 0=no)
HH child5	Householder's own child(ren) under age 5 present (coded 1=yes and 0=no)
Age	Potential partner age groups (dummy variables; see regression)
Age diff	Age difference between the householder and potential partner (dummy variables; see regression)
School	Potential partner in school (coded 1=yes and 0=no)
HH school	Householder in school (coded 1=yes and 0=no)
Education	Potential partner's educational attainment (dummy variables: has not finished high school, completed high school, some college, and 4+ years of college)
Educational diff.	Difference in educational attainment levels between householder and partner
HH income	Householder's income in 1000s--adjusted to 2000\$; topcode of 150,000 (1960 topcode in 2000\$); all negative values coded 0
Income diff.	Difference in householder's and potential partner's income (measured as above)
Unemployed	Potential partner is unemployed (coded 1=yes and 0=no)
HH unemp.	Householder is unemployed (coded 1=yes and 0=no)
Not in labforce	Potential partner is not in the labor force (coded 1=yes and 0=no)
HH not in labforce	Householder is not in the labor force (coded 1=yes and 0=no)

When we use the coefficients in Table 6 to estimate the predicted number of unmarried partners in earlier census years, the results suggest that previous estimates of cohabitation before 1990 may be dramatically overstated. Figure 7 compares our predicted number of unmarried partners in each census year with the number of POSSLQ households. In 1980, our maximum estimate of unmarried partners is two thirds of the Adjusted POSSLQ measure, and in 1960 and 1970 our maximum estimate is less than half that obtained from Adjusted POSSLQ. Our

Table 6. Binary logistic regressions of unmarried partner status: potential partners, 1990-2000

Variables	<u>Minimum potential partners</u>		<u>Maximum potential partners</u>	
	Male partners	Female partners	Male partners	Female partners
	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Year	1.399 ***	1.335 ***	1.197 ***	1.114 ***
Region				
<i>Northeast</i>				
Midwest	0.942	0.944	0.927 ***	0.944 ***
South	0.816 ***	0.848 ***	0.822 ***	0.854 ***
West	0.737 ***	0.772 ***	0.785 ***	0.816 ***
Metro	0.836 ***	0.836 ***	0.809 ***	0.825 ***
Ownership	1.338 ***	1.344 ***	1.136 ***	1.153 ***
Num. of adults	0.626 ***	0.659 ***	0.582 ***	0.623 ***
Div-sep	1.057	1.023	1.057 ***	0.976 ***
HH div-sep	1.079 *	1.107 **	1.084 ***	1.134 ***
Child	1.499	0.895	1.066	0.830 ***
HH child	1.646 ***	1.975 ***	1.233 ***	1.787 ***
HH child5	1.519 ***	1.714 ***	1.586 ***	1.970 ***
Chid*div-sep	0.946	1.402 **	1.118 **	1.429 ***
HHchild*HHdiv-sep	0.769 ***	0.669 ***	0.784 ***	0.545 ***
Age				
17-19				
20-24	1.270 *	0.883	1.284 ***	0.957 ***
25-29	1.344 **	0.934	1.370 ***	1.031 ***
30-34	1.257 *	0.866	1.271 ***	0.977 ***
35-39	1.249 *	0.843 *	1.208 ***	0.908 ***
40-44	1.104	0.843 *	1.036 ***	0.875 ***
45-49	0.989	0.790 **	0.847 ***	0.791 ***
50-59	0.873	0.583 ***	0.647 ***	0.580 ***
60-69	0.664 **	0.469 ***	0.462 ***	0.408 ***
70-79	0.575 ***	0.384 ***	0.372 ***	0.347 ***
80+	0.469 ***	0.323 ***	0.285 ***	0.260 ***
Age diff.				
less than -35	0.873	0.417	0.428 ***	0.268 ***
-34 thru -30	0.761	0.095	0.731 ***	0.045 ***
-29 thru -25	0.904	0.362 **	0.839 ***	0.264 ***
-24 thru -20	0.787	0.498 **	0.920 ***	0.386 ***
-19 thru -15	0.970	0.753	1.005	0.655 ***
-14 thru -10	1.178 *	0.816 *	1.215 ***	0.878 ***
-9 thru -5	1.072	0.913	1.079 ***	0.959 ***
4 thru -2	1.042	0.939	1.032 ***	0.960 ***
-1 thru 1				
2 thru 4	0.906 *	1.135 **	0.890 ***	1.105 ***
5 thru 9	0.737 ***	1.018	0.694 ***	1.001
10 thru 14	0.580 ***	0.851 **	0.489 ***	0.818 ***
15 thru 19	0.390 ***	0.722 ***	0.224 ***	0.622 ***
20 thru 24	0.189 ***	0.483 ***	0.074 ***	0.348 ***
25 thru 29	0.110 ***	0.452 ***	0.033 ***	0.255 ***
30 thru 24	0.082 ***	0.282 ***	0.022 ***	0.135 ***
35 +	0.082 ***	0.299 ***	0.012 ***	0.066 ***
School	0.764 ***	0.820 ***	0.760 ***	0.805 ***
HH school	0.767 ***	0.688 ***	0.792 ***	0.726 ***
Education				
Some high school	1.623 ***	1.479 ***	1.308 ***	1.203 ***
Completed high school	1.384 ***	1.282 ***	1.184 ***	1.131 ***
Some college	1.224 ***	1.258 ***	1.142 ***	1.167 ***
4+ years of college				
Educational diff.	0.960 *	0.908 ***	0.971 ***	0.929 ***
HH income	1.007 ***	1.006 ***	1.006 ***	1.004 ***
Income diff.	0.997 ***	0.998 *	0.997 ***	0.999 ***
Unemployed	1.105	0.951	1.010 *	0.895 ***
HH unemployed	0.967	0.857 *	0.955 ***	0.845 ***
Not in labforce	0.886 **	0.965	0.897 ***	0.785 ***
HH not in labforce	0.934	0.814 ***	0.777 ***	0.916 ***
Constant	0.000 ***	0.000 ***	0.000 ***	0.000 ***

Figure 7. Predicted partners compared with POSSLQ measures, 1960-2000

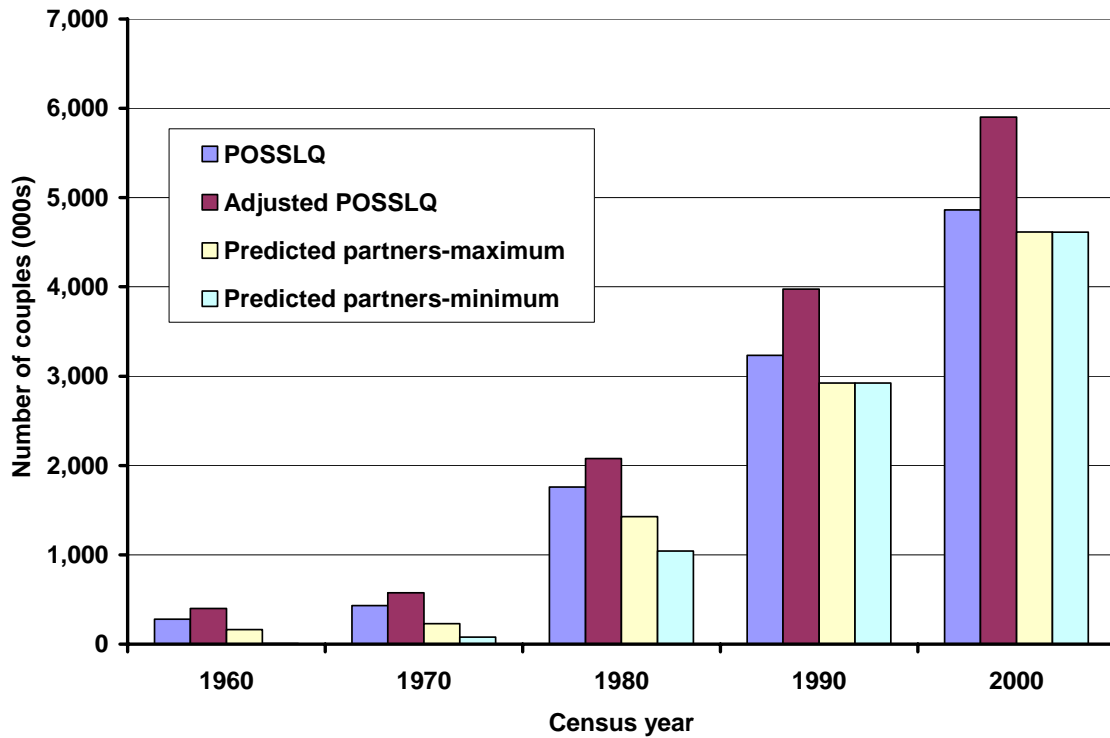
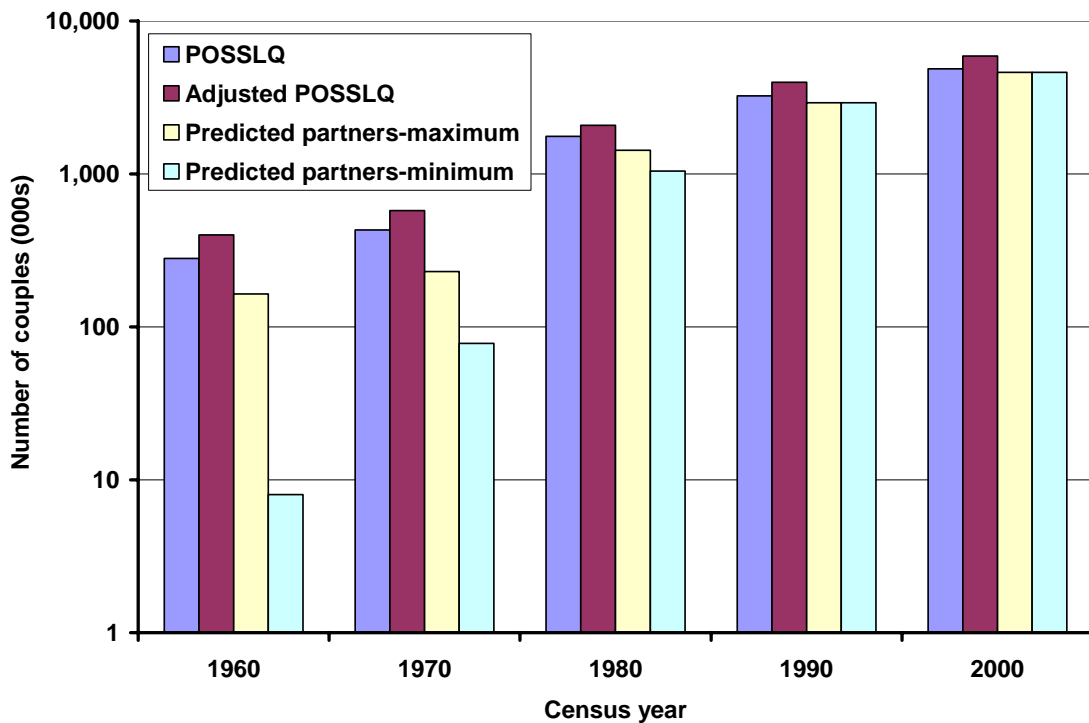


Figure 8. Predicted partners compared with POSSLQ measures, 1960-2000 (log scale)



minimum estimates—which we consider more realistic—are so small that they are difficult to see on the graph in the early census years.

Figure 8 presents the same data as Figure 7 on a log scale, to allow easier comparison. Our minimum measure suggests that just 8,000 people in 1960 would have listed themselves as unmarried partners had the category been available, 78,000 in 1970, and just over a million in 1980. Many more couples in 1960 must have been living together without being legally married, but because of the stigma associated with cohabitation in that period, these couples may have reported themselves as husband and wife. In other cases, respondents may simply have neglected to acknowledge the presence of an unmarried partner.⁵ Our goal, however, is to estimate self-identified unmarried partners. The low number of cohabitators in 1960 estimated by the model may indeed approximate the number of persons who identified themselves as unmarried couples.

Discussion

This analysis expands the chronological scope of research on cohabitation in the United States. We hope that these estimates will provide a baseline for understanding one of the most profound changes in household formation of the late twentieth century. These estimates can also provide further insight into other demographic phenomena, such as rising marriage ages and the uncoupling of nuptiality and fertility. Our approach moves beyond the simple set of rules used in both versions of the POSSLQ measure; instead, our analysis of the 1990 and 2000 census years examines which characteristics distinguish unmarried partners from roommates (or other groups of unrelated persons). Instead of a simple dichotomy, the predicted probability approach provides a continuous measure and new analytic possibilities.

⁵ We consider it more likely that cohabiting opposite-sex couples in 1960 were reported as spouses or omitted than that they were reported as employees or boarders. The more inclusive measures of cohabitation, such as POSSLQ, cannot account for such misreporting any more than does our minimum potential partner measure.

Previous estimates of pre-1990 cohabitation have understated the magnitude and pace of change during the period from 1960 to 1990. The published estimates for 1960 and 1970 overstate the number of households that meet the POSSLQ definition. More important, the POSSLQ and Adjusted POSSLQ definitions greatly overstate cohabitation before 1990. Even if it is justified to count relationship types such as boarders and domestic servants as cohabitators, the POSSLQ measures probably overstate cohabitation in 1960 and 1970 by at least a factor of two. We favor a more conservative approach that focuses on self-identified cohabitation. By this standard, the traditional measures overstate cohabitation before 1980 by an order of magnitude.

These revisions make a significant difference. Table 7 summarizes the estimates presented in Figures 1, 2, 4, and 7. The widely-accepted published POSSLQ measures suggest an increase in cohabitation of just over 10-fold between 1960 and 2000. Our predicted partner measure, by contrast, implies an increase between 28-fold (under the upper-bound universe) and 576-fold (under the lower-bound universe). The timing of change also varies by estimation method. According to the more inclusive methods, there were already several hundred thousand cohabitators by 1960 but there was only a modest rise in cohabitation during the 1960s. Under our lower-bound estimates, however, there was very little cohabitation in 1960, and there was a dramatic increase (in percentage terms) during the following decade.

Our methods improve the potential for individual-level analysis of cohabitation in the pre-1990 censuses. The POSSLQ measures are of limited use for this purpose, since they introduce substantial biases with respect to household size, education, race, and presence of children (Baughman, Dickert-Conlin, and Houser 2002). Our preliminary analysis suggests that these problems are dramatically reduced for predicted partners, using either the lower-bound or

upper-bound universe. In future work, we plan to use these measures to assess changes in the characteristics of cohabitators during the 1960s and 1970s.

Table 7. Comparison of cohabitation estimates, 1960-2000

	1960	1970	1980	1990	2000	Percent change	
						1960-2000	1990-2000
POSSLQ, published	439	523	1,589	2,856	4,746	1,081	166
POSSLQ, corrected	280	430	1,759	3,232	4,861	1,736	150
Adjusted POSSLQ	399	575	2,077	3,975	5,900	1,479	148
Potential partners-maximum	437	485	2,127	4,110	6,219	1,423	151
Potential partners-minimum	17	128	1,412	3,686	5,505	32,382	149
Predicted partners-maximum	164	230	1,428	2,923	4,615	2,814	158
Predicted partners-minimum	8	78	1,042	2,923	4,613	57,663	158
Opposite sex unmarried partners				3,102	4,646		150
Unmarried partners, restricted*				2,982	4,646		156

*Opposite sex unmarried partners under Census 2000 editing rules (both partners currently married).

We have not yet addressed the issue of same-sex unmarried partners. We plan to apply similar techniques to analyze this population, but we are not optimistic about our prospects for successfully identifying same-sex cohabitators before 1980. We suspect that it will be difficult to distinguish same-sex unmarried partners from roommates and business partners. Nevertheless, because of the importance of the topic and the paucity of alternative sources, it is worth investigating the feasibility of historical analysis.

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Appendix: Census Questions on Unrelated Household Members 1960-2000

Relationship information in the 1960 census

Write names in this order

Head of household on first line

Wife of head

Unmarried children, oldest first

Married children and their families

Other relatives

Others not related to head of household *If "Other not related to head," also give exact relationship, for example, partner, maid, etc.*

What is the relationship of each person to the head of this household? *(For example, wife, son, daughter, grandson, mother-in-law, lodger, lodger's wife)*

Relationship information in the 1970 census

Head of household

Wife of head

Son or daughter of head

Other relative of head - *Print exact relationship*

Roomer, boarder, lodger

Patient or inmate

Other not related to head - *Print exact relationship*

If "Other not related to head," also give exact relationship, for example, partner, maid, etc.

*If two or more unrelated people live together and share the rent, mark the first one you list **Head of household**. Mark the rest **Other not related to head** and print "partner" in the space. A stepchild or legally adopted child of the head should be marked **Son or daughter**."*

Relationship information in the 1980 census

If not related to person in column 1:

- Roomer, boarder
- Partner, roommate
- Paid employee
- Other nonrelative _____

"Fill a circle to show how each person is related to the person in column 1. A stepchild or legally adopted child of the person in column 1 should be marked **Son/daughter**. Foster children or wards living in the household should be marked **Roomer, boarder**."

1990-2000 "unmarried partner" category

Relationship to householder question:

- How is this person related to person 1?
- If not related to person 1:
 - Roomer, boarder
 - Housemate, roommate
 - Unmarried partner
 - Foster child
 - Other nonrelative