Patterns of Gay Male and Lesbian Partnering in the States and Metropolitan Areas of the United States in 2010

Dudley L. Poston, Jr.

Yu-Ting Chang

and

Danielle Xiaodan Deng

Department of Sociology

Texas A&M University

College Station, TX 77843

e-mail: d-poston@tamu.edu

Patterns of Gay Male and Lesbian Partnering in the States and Metropolitan Areas of the United States in 2010

Abstract

In this paper we use recently released 100 % data from the 2010 Census to analyze patterns of gay male partnering and lesbian partnering in the states and metropolitan areas of the United States. We first discuss the quality of the same-sex partnering data from the 2010 U.S. Census of Population. We develop indexes of gay male partnering and lesbian partnering for each of the fifty states using the data from the 2010 census counts and a second set of data adjusted for bias; two indexes are developed in each case. We next compare and contrast the index values calculated with data from the original census counts with values calculated from the preferred, i.e., adjusted data. We then test various hypotheses relating characteristics of the states with the gay male and lesbian partnering rates. It turns out that when estimating regression models to predict the prevalence of same-sex partnering across the states, it appears to make no difference in the results if one calculates the indexes with the original same-sex data or with the preferred same-sex data. Finally, we estimate similar multiple regressions among the metropolitan areas.

Patterns of Gay Male and Lesbian Partnering in the States and Metropolitan Areas of the United States in 2010

Introduction

In this paper we examine the degree of prevalence of partnered gay male households and partnered lesbian households in the states and metropolitan areas of the U.S. in 2010. Partnered gay males and lesbians live virtually everywhere in the U.S.; they live in all the states, and, moreover, most (around 85 percent) live in metropolitan statistical areas (Simmons and O'Connell, 2003: 2; Gates and Ost, 2004; Walther, Poston and Gu, 2011). However, prior research using data from the 1990 and 2000 censuses (Black et al., 2000, 2002; Walther and Poston, 2004; Gates and Ost, 2004; Walther et al., 2011; among others) shows considerable variation among the states and metropolitan areas with respect to the prevalence of gay male and lesbian partnering. These very different distributions of gays and lesbians are of interest if only for the fact that they are sometimes associated with the political and social visibility of gay males and lesbians. States and metropolitan areas where gay males and lesbians have settled have become, according to O'Reilly and Webster (1998), "gay spaces" with political force and activism. States and metropolitan areas with the largest proportional representations of gay males and lesbians, for instance, California and New York, and San Francisco, New York City, Houston, and Los Angeles, among other areas, are often the "gay spaces" that receive the most national attention. But as just mentioned, there are concentrations of gay males and lesbians in

all the states and in virtually all the metropolitan areas of the country, and these patterns and distributions are sometimes overlooked in research on gay males and lesbians.

There are several analyses of gay male and lesbian partner prevalence patterns using 1990 and 2000 U.S. census data (for examples, see Black et al., 2000, 2002; Walther and Poston, 2004; Gates and Ost, 2004; Baumle, Compton and Poston, 2009; Walther, Poston and Gu, 2011). There have been several methodological analyses of the recently released same-sex partnering data from the 2010 census (for examples, see Gates, 2010; O'Connell and Feliz, 2011; Virgile, 2011), and we will be discussing some of the methodological issues in the next section. But we know of no published work, to date, using 2010 census data in which researchers have undertaken statistical analyses of the degree to which characteristics of the states and metropolitan areas are associated with the gay male and lesbian partnering indexes; this is a major objective of this paper.

In this paper, however, we first examine the complete count data on same-sex partnering as reported in the 2010 U.S. Census, referred to here as the "original" same-sex partnering data. We report on the statistical analyses of these data by Census Bureau researchers and by researchers not affiliated with the U.S. Census Bureau, and we discuss the biases and other problems they have uncovered with these "original" data. We discuss the alternate data developed by the Census Bureau researchers, referred to here as the "preferred" same-sex partnering data. We then develop for each of the fifty states of the U.S. two separate rates of partnering for gay males and for lesbians using both the "original" and the "preferred" same-sex partnering data; the values for any one state, of course, differ depending on the index used and whether the original or the preferred same-sex data are used. Then we propose and test hypotheses to account for variability between the same-sex partnering rates and social and

ecological characteristics of the states. It turns out that when estimating regression models to predict the prevalence of same-sex partnering across the states, it makes no difference in the results if one calculates the indexes with the original same-sex data or with the preferred same-sex data. We then conclude our paper by doing the same for the metropolitan areas of the U.S.

In the next section we discuss the same-sex partnering data from the 2010 U.S. Census, their biases and problems, and the adjustments researchers have developed to address the problems.

Data and Data Problems

Until the conduct of the 1990 U.S. census, it was not possible to develop partnering indices for the lesbian and gay male populations residing in the different geographical areas of the U.S. In the 1990 and 2000 censuses an "unmarried partner" response was added to the other responses (husband, wife, son, grandfather, etc.) to the census question pertaining to the standard "relationship to the householder," i.e., the person in the household designated as person #1 (see the discussion about the development and generation of this specific response in Baumle, Compton and Poston [2009]). Person #1 is typically "the member of the household in whose name the home is owned, being bought or rented" (Barrett, 1994: 16). Every person in the household, except for person #1, thus responds to a question about his/her relationship to person #1. The "unmarried partner" response permitted researchers to identify persons in the household who are unrelated to person #1, but who have a "marriage-like" relationship with person #1. Census procedures in 1990 and 2000 allowed respondents to check the "unmarried partner" response irrespective of whether the person's sex is the same as that of person #1.

Researchers have analyzed the quality of the 1990 and 2000 same-sex partnering census data with regard to three main issues. The first pertained to the accuracy of the census data in

portraying the true numbers of partnered gay men and lesbians. How accurately do the census data reflect the true presence in the U.S. of partnered gay males and lesbians? The second concerned the variation across the geographic areas of the U.S. with respect to the prevalence of same-sex unmarried partners. How valid is this variation? The third regarded the extent to which there could be error in the same-sex partnering census data, perhaps due to sex miscoding errors.

We and others have addressed elsewhere in some detail these issues with regard to the 1990 and 2000 same-sex partnering census data. Comparisons have been undertaken with nationally representative non-census datasets, and their validity and sampling errors have been assessed (see e.g. Baumle, Compton and Poston, 2009; Baumle and Poston, 2011; O'Connell and Gooding, 2006; Black et al., 2002; Black et al., 2000; Fields and Clark, 1999). The consensus in much – although not all -- of this research is that partnered gay males and partnered lesbians are undercounted in the census data, but that their characteristics and geographic variation in the census data are similar to those reflected in other datasets (Black et al., 2000; O'Connell and Gooding, 2006; Baumle et al., 2009). We do not present here the results of these analyses of the 1990 and 2000 data, but instead refer the reader to the above sources which address the 1990 and 2000 data quality questions in some detail.

We now discuss the 2010 same-sex partnering data. Three issues deserve special attention. First, as already noted, same-sex partnering data were first gathered in the 1990 census, and then again in the 2000 censuses. However, as of the year of 2000, no states in the U.S. were legally performing same-sex marriage ceremonies. But as of the year of 2010, "five states (Connecticut, Iowa, Massachusetts, New Hampshire, and Vermont) and the District of Columbia [were issuing] … marriage certificates to same-sex couples. In addition, in May 2008, the California Supreme Court ruled that same-sex couples had a right to marry in California but that

ruling was overturned by a ballot initiative in November 2008. There were also three states that did not perform same-sex marriages but recognized them from other states (Maryland, New York, and Rhode Island)" (O'Connell and Feliz, 2011: 3). Thus the context in the United States with regard to gathering data on same-sex partner households changed between 2000 and 2010.

Second, as a consequence, the 2010 Census was the first decennial census in the U.S. in which census data on same-sex couple households were gathered on the basis of whether the couples reported themselves as living together as spouses, or whether the couples reported themselves as living together as unmarried partners (O'Connell and Feliz, 2011: 3). Same-sex couples were enumerated in the Census not only via the "unmarried partner" response on the relationship question, but also via the "husband or wife" response (see Figure 1).

*** FIGURE 1 ABOUT HERE ***

Third, a comparison of the data on same-sex partners from the 2010 Census and the 2010 American Community Survey (ACS) showed that "the 2010 Census number of same-sex couple households was 52 percent higher than the ACS estimate" (O'Connell and Feliz, 2011: 2).

Owing to the changes between 2000 and 2010 in state marriage laws, as well as to the other issues just mentioned, researchers decided that the newly available 2010 census data on same-sex partnering deserved special methodological attention. We now discuss and compare the "original" enumerated data on same-sex couples from the 2010 Census with the "preferred," i.e., adjusted, data on same-sex couples from the 2010 Census.

According to the officially reported data of the 2010 Census on same-sex partners, referred to here as the "original" data, there were 901,997 same-sex couple households enumerated, representing an increase of 51.8 percent over the count of same-sex couple

households in the 2000 census. By comparison, the total number of households was almost 117 million in 2010, which was an increase of 10.7 percent from 2000.

Figure 1 shows the portion of the census schedule containing the questions that produced data on same-sex partnered households; the data were based on answers to two different questions, namely, the person's "relationship to householder," and the person's sex. If a person's relationship to the householder was "unmarried partner" or "husband or wife," and if the two persons reported the same sex, then the household was classified as a same-sex partner household.

Based on the data produced from these two questions, of the 901,997 same-sex households enumerated in 2010, 552,620 were same-sex households where the persons identified themselves as unmarried partners, and 349,377 were same-sex households where the persons identified themselves as spouses.

When analyzing these data, however, Census Bureau researchers "discovered an inconsistency in the responses in the 2010 Census summary file statistics that artificially inflated the number of same-sex couples … the wrong box may have been checked for the sex of a small percentage of opposite-sex spouses and unmarried partners. Because the population of opposite-sex married couples is large and the population of same-sex married couples in particular is small, an error of this type artificially inflates the number of same-sex married partners. After discovering the inconsistency, Census Bureau staff developed another set of estimates to provide a more accurate way to measure same-sex couple households. The revised figures were developed by using an index of names to re-estimate the number of same-sex married and unmarried partners by the sex commonly associated with the person's first name" ("Census Bureau Releases Estimates of Same-Sex Married Couples," 2011).

The revised estimates from the 2010 Census, known here as the "preferred" data, indicate that in 2010 there was a total of 646,464 same-sex households, comprised of 131,729 same-sex households where the persons identified themselves as spouses, and 514,735 same-sex households where the persons identified themselves as unmarried partners. These "preferred" data from the 2010 Census, by the way, are much closer to the results of the 2010 American Community Survey (ACS) which found 593,324 same-sex households, comprised of 152,335 same-sex married couples and 440,989 same-sex unmarried partners.

The preferred same-sex data from the 2010 census "remove from the … counts those couples where the names of the respondents are inconsistent with their reported sex at an index level of 95 percent or more, strongly suggesting that they are opposite-sex couples. [As we have already noted], overall, the total number of same-sex couples declined from 901,997 to 646,464 or by 28 percent. The unmarried partner component declined by 7 percent while the spousal component declined by 62 percent" (O'Connell and Feliz, 2011: 27).

The Census Bureau noted in a "News Release" ("Census Bureau Releases Estimates of Same-Sex Married Couples," 2011) that they distributed their "preferred" estimates to several non-Census Bureau researchers for peer-review, including Dr. Gary Gates, a demographer with the Williams Institute on Sexual Orientation Law and Public Policy at UCLA, Dr. Philip Cohen, a professor in the Department of Sociology at the University of North Carolina at Chapel Hill, and Dr. Megan Sweeney, a professor in the Department of Sociology at UCLA. The Bureau stated that "these experts concluded the methodology behind these revised estimates was sound."

In the next sections of this paper, we first develop indexes of gay male partnering and lesbian partnering for each of the fifty states using the "original" and the "preferred" data from the 2010 census counts. The prevalence index values calculated with data from the original

census counts are then compared with values calculated from the adjusted data. Using the two sets of data, we then test various hypotheses relating characteristics of the states with the gay male and lesbian partnering rates. Finally, we do the same for the metropolitan areas, focusing in particular on the estimation of the models; but since we only have available "original" same-sex household data for the metropolitan areas, our results pertaining to the metro areas need to be examined with caution.

The Prevalence of Gay and Lesbian Partnering

Prior research on the prevalence of gay males and lesbians in different geographic areas of the U.S. using data from the 1990 and 2000 censuses (e.g., Walther and Poston, 2004; Gates and Ost, 2004; Baumle et al., 2009; Walther et al., 2011) has used several different kinds of rates and ratios to measure the degree of prevalence. Some have been based on individual data on gay male and lesbian partners in which the numbers of gay male partners (or lesbian partners) comprise the numerators, and the numbers of unmarried males (or females) usually of age 18 and above, or the numbers of married males (or females) of age 18+, or the numbers of all males (or females) of age 18+, have comprised the denominators (Walther and Poston, 2004; Baumle et al., 2009; Walther et al., 2011). Rates and ratios have also been developed with household data; in the household-based measures the numbers of gay male (or lesbian) partnered households are the numerators, and the denominators are the numbers of partnered households, or the numbers of all households (Walther and Poston, 2004; Gates and Ost, 2004). An interesting methodological finding in this research is that the various gay male partnering indexes are all highly correlated with one another, as are the various lesbian partnering indexes. This research seems to suggest a certain robustness of the indexes. It does not seem to matter whether persons or households are used as the numerator, or whether ever married, never married, or all persons of age 18 and over,

or partnered households or all households are used as the denominator; the variances in the various indexes have been shown to be very similar, and thus the correlations among and between them are high (for more detail, see Walther and Poston, 2004).

Prevalence Indexes of Gay Male and Lesbian Partnering Using "Original" and "Preferred" Data on Same-sex Couples

In this paper we use two different household-based indexes of gay male partnering and two household-based indexes of lesbian partnering using data for the states of the U.S., excluding from all calculations the District of Columbia. We do not include the District in our analyses of the states because geographically it is closer in context to a metropolitan area than to a state, and it is an outlier with regard to its index prevalence values for gay male partners and for lesbian partners. We first calculate indexes using the "original" same-sex data, and then generate the same indexes using the "preferred" data.

The first index uses the "original" same-sex data and follows the research of Walther, Poston and Gu (2011); we refer to this as the "Walther-original" prevalence index; it has as its numerator the number of gay male or lesbian partnered households in a state, and as its denominator the number of all partnered households in a state (i.e., the sum of male-male partnered households, female-female partnered households, male-female unmarried partnered households, and male-female married partnered households); the formula is as follows:

$$WALTHER\,GAY\,(LESBIAN)\;PREVALENCE\;INDEX_i = \left(\frac{\#\;of\;\;Gay\;(Lesbian)\;Households_i}{\#\;of\;\;All\;Partnered\;\;Households_i}\right) * 1{,}000 \qquad \textbf{(1)}$$

i:state

In Table 1-1 we present descriptive data for the Walther-original gay male and lesbian partnering indexes among the fifty states in 2010. The Walther-original rate for gay male households has an average value among the fifty states of 5.9, indicating that on average among the states, there are nearly six gay male households for every 1,000 partnered households (once again, partnered households are the sum of male-male partnered households, female-female partnered households, heterosexual cohabiting partnered households, and married couple households). New York has the highest index value with a score of over 9, and North Dakota the lowest. The Walther-original rate for partnered lesbian households has an average value among the states of 7.3. Vermont has the highest value, a score of almost 12; and North Dakota has the lowest index value.

*** TABLE 1-1 ABOUT HERE ***

The second index also uses the "original" same-sex data, but the index is different from that just discussed; it is the ratio used by Gates and Ost (2004) in their *The Gay and Lesbian Atlas*. Their index is a "ratio of the proportion of same-sex couples living in a [state] to the proportion of households that are located in a [state]… This ratio … measures the over- or underrepresentation of same-sex couples in a geographic area relative to the population" (Gates and Ost 2004: 24). An index value of 1.0 for a state indicates that "a same-sex couple is just as likely as a randomly picked household to locate" in the state (Gates and Ost, 2004: 24). An index value above 1.0 means that a same-sex couple is more likely to live in the state than a random household, and a value less than 1.0, less likely. We refer to these ratios as the "Gates-original" prevalence index; the formula is as follows:

$$GATES\ GAY(LESBIAN)\ PREVALENCE\ INDEX_i = \frac{\left[\#of\ Gay\ (Lesbian)\ Households_i \Big/ \#of\ Gay(Lesbian) households\ in\ all\ 50\ states\right]}{\left[\#of\ All\ Households_i \Big/ \#of\ All\ households\ in\ all\ 50\ states\right]} \quad \textbf{(2)}$$

i : *state*

Table 1-2 presents descriptive data for the Gates-original gay male and lesbian partnering ratios among the fifty states in 2010. The mean across the fifty states for gay male households is 0.91 and is about 1.00 for lesbian households. California has the highest gay male index value, 1.42, and Vermont has the highest lesbian index value, 1.70. The California value may be interpreted as indicating that a gay male couple is 1.4 times more likely than the "average" U.S. household to reside in California, or, in other words, 40 percent more likely. The Vermont index value indicates that a lesbian couple is 70 percent more likely to live in Vermont than an average U.S. household. North Dakota has the lowest values, 0.49 for gay males, and 0.54 for lesbians. Gay male couples are about one-half as likely to live in North Dakota as a randomly picked U.S. household.

*** TABLE 1-2 ABOUT HERE ***

The next two indexes use the "preferred" same-sex couple household data from the supplementary tables developed by O'Connell and Feliz (2011). We calculate "preferred" indexes for gay male partners and lesbian partners using the "Walther" equation (equation (1) above) and the "Gates" equation (equation (2) above). Table 1-3 presents descriptive data for the Walther-preferred partnering indexes among the fifty states. The mean value for gay male households across the fifty states for the Walther-preferred index is 4.2, and for lesbian

households it is 5.1. California and Vermont have the highest Walther-preferred gay and lesbian values, and North Dakota has the lowest values.

*** TABLE 1-3 ABOUT HERE ***

In Table 1-4 we show descriptive data for the Gates-preferred partnering indexes. The mean value for gay male households across the fifty states of the U.S. in 2010 for the Gates-preferred index is 0.87, and for lesbian households it is 0.99. As was the case with the Gates-original index values, California and Vermont have the highest Gates-preferred gay and lesbian values, and North Dakota has the lowest.

*** TABLE 1-4 ABOUT HERE ***

Variation in the Partnering Indexes Across the States

We now compare the degree to which these four sets of partnering indexes vary across the fifty states. Since the means for the rates are different, we should not compare their respective standard deviations. The third data columns of Tables 1-1 through 1-4 present values for the four sets of gay male partnering and lesbian partnering indexes of the coefficient of relative variation (CRV = standard deviation divided by the mean), a normalized measure of dispersion. The CRV is especially useful and preferred over the standard deviation when one wishes to compare data with different means because the standard deviation of data must always be interpreted with reference to the mean. The CRV is a standardized or normalized index allowing the researcher to compare the degree of dispersion across data sets with different means.

The CRV data for the Walther and Gates indexes using the original same-sex data (Tables 1-1 and 1-2) are all similar, ranging from 0.241 to 0.258, even though two of the indexes are based on the Walther equation (#1 above), and the other two are based on the Gates equation

(#2 above). However, the CRVs based on the preferred data are on average 50 percent higher than those calculated with the original same-sex data; the preferred data-based CRVs range from 0.337 to 0.360. There is more relative variation among the prevalence indexes calculated with the preferred same-sex data compared to those calculated with the original same-sex data.

Indexes Calculated with Original Data Compared to Indexes Calculated with Preferred Data

We now examine the partnering indexes calculated with the original same-sex data and compare them with those calculated with the preferred same-sex data. Table 2 presents ratios for each of the fifty states of the indexes based on original data divided by those based on preferred data. On average, the Walther-original indexes are 48 percent higher than the Walther-preferred indexes for gay male households; and they are 49 percent higher for lesbian households. This is not unexpected because the numerators for the Walther-original indexes are larger than those for the Walther-preferred indexes, while the denominators (all partnered households in the state) are the same for both the original-based and the preferred-based rates. In North Dakota, the Walther-original indexes for gay male households are twice as large as the corresponding Walther-preferred indexes, and the same result is found for lesbian households in North Dakota. North Dakota has the highest ratios of the Walther rates. The lowest ratio for the Walther rates for gay male households is in Delaware (1.220), and the lowest ratio for lesbian households is in Oregon (1.239).

*** TABLE 2 ABOUT HERE ***

These patterns, however, are not obtained with regard to the ratios of the Gates-original/Gates-preferred indexes. The average Gates ratio across the states is 1.09 for gay males, and 1.04 for lesbians. In some states the Gates ratios are above 1.0, in other states, below 1.0. This is understandable when one recalls that the Gates rates are calculated by dividing one

proportion by another, and that the denominator does not change. California has a higher Gates-preferred gay male index than a Gates-original gay male index, so its ratio of the two is less than 1.0, namely, 0.905. But North Dakota has a lower Gates-preferred gay male index than a Gates-original gay male index, so its ratio of the two equals 1.486.

To illustrate, following equation (2) above, for gay male households in California, the Gates-original index is (64,625 / 421,574) / (12,577,498 / 116,449,585) = 1.419,

where: 64,625 = original number of gay male households in California,

421,574 = original number of gay male households in all 50 states,

12,577,498 = number of households in California, and

116,449,585 = number of households in all 50 states.

By comparison, the Gates-preferred index is (52,490 / 309,994) / (12,577,498 / 116,449,585) = 1.568,

where: 52,490 = preferred number of gay male households in California,

309,994 = preferred number of gay male households in all 50 states,

12,577,498 = number of households in California, and

116,449,585 = number of households in all 50 states.

The ratio of the two Gates indexes for gay male couples thus is 1.419 / 1.568 = 0.905. Owing partly to the formulas used in their calculations, the Gates preferred indexes are closer on average to the Gates-original indexes, than are the Walther-preferred indexes to the Walther-original indexes. This will prove to be an important consideration later in this paper when choosing what kind of prevalence index to use for analysis, the Walther index or the Gates index. The Census Bureau has only provided "preferred" same-sex data for the states and for the District of Columbia. Thus if one wishes to calculate rates for other geographical areas, say, for

metropolitan areas or micropolitan areas or counties, one is seriously constrained in only having available the less accurate "original" same-sex data. Confronted with this situation, the researcher might be better off deciding to calculate prevalence indexes with the Gates equation rather than with the Walther equation. Our analysis of the states shows that the Gates prevalence indexes based on the original data are closer to Gates indexes based on the preferred data than is the case using the Walther indexes. When using only the available "original" data to develop indexes for other geographical areas, the researcher would appear to be better off using the Gates equation.

Correlations of Rates Based on the Original Data with Rates Based on the Preferred Data

We now examine and contrast the variation of the partnering rates calculated with original same-sex data with the variation of the partnering data calculated with the preferred same-sex data. Zero-order correlations are shown in Table 3. The correlations between the Walther-original and Walther-preferred indexes for gay males and lesbians are .987 and .988, respectively. Similarly, the correlations between the Gates-original and Gates-preferred indexes are .987 for gay males and .990 for lesbians. The Walther indexes based on the original data are always higher than the Walther indexes based on the preferred data; and the Gates indexes based on the original data are sometimes higher and sometimes lower than those based on the preferred data (see the descriptive data in Tables 1-1 through 1-4, and Table 2). Nevertheless, the Walther and Gates indexes are very similar with regard to their variability across the fifty states. Hence when one's concern is with the empirical relationship across the fifty states between a same-sex index calculated with the original data and one calculated with the preferred data, it makes virtually no difference whether one uses indexes calculated with the original or with the preferred data because the zero-order correlations between the original-data based indexes and

the preferred-data based indexes are all 0.99. This means that the variability of the original-data based indexes is practically identical with the variability of the preferred-data based indexes.

*** TABLE 3 ABOUT HERE ***

Comparison of Rates for Gay Male Partners with Rates for Lesbian Partners

Past literature on the geographic locations of same-sex partners (see, e.g., Walther and Poston, 2004; Gates and Ost, 2004; Baumle et al., 2009, Walther et al., 2011) has shown that across geographical areas the prevalence indexes of gay males and lesbians are positively related, but that lesbian partners tend to have slightly higher prevalence indexes than gay male partners. In Figure 2 we present four scatterplots comparing in each plot for the fifty states in 2010 the prevalence indexes for gay male partners with those for lesbian partners; the scatterplots differ according to whether original or preferred same-sex data are used, and whether the Walther index or the Gates index is used. The diagonal line in each figure is not a regression line, but, rather, a line representing equal gay male and lesbian partnering indexes. Observations above the diagonal line are states with higher gay male indexes than lesbian indexes; observations below the line are states with higher lesbian partnering indexes than gay male indexes.

*** FIGURE 2 ABOUT HERE ***

In all four comparisons in Figure 2, the prevalence indexes for lesbian partners are usually higher than those for male partners. This pattern of higher indexes for lesbian partners than for gay male partners is more pronounced with the Walther-based indexes than with the Gates-based indexes, and more pronounced when using the original same-sex data compared to when using the preferred same-sex data. Nevertheless, despite the fact that the prevalence indexes used different sets of same-sex data and were based on two different equations, we see in

Figure 2 the same general pattern of roughly higher lesbian partnering indexes than gay male partnering indexes.

Correlates of Gay Male and Lesbian Partnering in the States of the U.S.

We turn now to the issue of accounting for variation in the indexes of gay male and lesbian partnering. Among the states, why do California and New York have the highest gay male partnering indexes and Vermont the highest lesbian index? Why does North Dakota have the lowest same-sex partnering indexes? What kinds of social and ecological characteristics of the states might be brought to bear to answer these questions? In this section we draw on sociological human ecology and a literature dealing with gay and lesbian settlement patterns, and identify several characteristics of states that one could argue to be related to levels of gay male and lesbian concentration; we then propose and test a number of hypotheses in an attempt to address this issue.

The size of the state's total population should be associated in a positive way with the levels of gay male and lesbian concentration. There is good reason to expect higher levels of gay and lesbian concentration in areas with larger populations (Abrahamson, 2002; Gates and Ost, 2004). These expectations are based in part on the notion that the larger the size of the general population, the greater the likelihood for some of the residents to be gay males and lesbians.

Also, we have reason to expect that levels of gay male and lesbian concentration should be associated with levels of heterosexual cohabitation. If the social and political climate of an area is conducive to heterosexual cohabitation, the same should be the case for homosexual cohabitation (Black et al 2002; Florida, 2002; 2005). Thus states with high rates of unmarried heterosexuals who are cohabiting should have high rates of homosexual cohabitation, and vice versa.

We also hypothesize that the median age of the population in the state should be associated in a negative manner with levels of gay male and lesbian concentration. Given that older populations tend to be more conservative than younger populations, we hypothesize that the higher the median age of population, the lower the level of same-sex partnering (Florida, 2002; 2005).

We also expect that the mode of household occupancy should be associated with the prevalence of same-sex partnering. Among the states, we hypothesize that the higher the percentage of households that are renter occupied, the higher the prevalence of gay male and lesbian partnering. This hypothesis is based in part on the fact that rental housing tends to be more associated with younger and more mobile and dynamic populations that would be more receptive to same-sex partnering than populations characterized by high levels of owner-occupied housing, which are typically more permanent and perhaps staid (Hawley, 1950; Poston and Frisbie, 1998).

Finally, we expect that the higher the percentages of African Americans and Latinos in the populations, the larger the presence of same-sex partnering. This expectation is based in part on the fact that same-sex partners are themselves a minority population – albeit sexual and not racial/ethnic – and will tend to be more concentrated in areas with proportionally larger, rather than smaller, numbers of racial and ethnic minorities (Hawley, 1950).

Tables 4-1 and 4-2 present the results of four ordinary least squares (OLS) multiple regression equations modeling the prevalence of gay male partners and lesbian partners among the fifty states using Walther-original (Table 4-1) and Gates-original (Table 4-2) indexes; Tables 4-3 and 4-4 present the same regression results using the Walther-preferred (Table 4-3) and Gates-preferred (Table 4-4) indexes. We have placed positive or negative signs to the right of the

variable name indicating the direction of the variable's hypothesized relationship with the gay male (or lesbian) household index.

We note first that the statistical tolerances of the six independent variables are all acceptable. In the state equations, the tolerances range from a low of .49 (percentage Latino) to a high of .83 (percentage Black). The mean tolerance of the six independent variables in the state equations is .59. Multicollinearity does not appear to be an issue in any of the state equations presented here.

Looking at the regression results for the states using the Walther-original indexes (Table 4-1), of the six regression coefficients in the OLS equation predicting levels of gay male concentration (left panel of data of Table 4-1), five are signed in the hypothesized direction, and of these correctly signed coefficients, three are statistically significant. The larger the concentration of renter-occupied housing, and the larger the percentages of Blacks and Latinos in the state, the higher the level of gay male partnering as measured with the Walther-original index. The median age variable, however, is related positively, not negatively as hypothesized, with same-sex male prevalence. And the unmarried heterosexual rate and population size do not have statistically significant effects. The Latino variable and the renters variable have the largest relative effects on the Walther-original index of gay male partnering. For every one standard deviation increase in the percentage Latino in the state, there is a 0.44 standard deviation increase in the Walther-original gay male concentration rate, holding constant the effects of the other independent variables.

Let us compare the results of the regression predicting the Walther-original index of male partnering with the regression results of the Walther-preferred index of gay male partnering (Table 4-3). The results are exactly the same with respect to the statistical significance of the

independent variables and the magnitude of their relative effects on gay male partnering. Again, the Latino variable has the largest standardized effect on the Walther-preferred index, a value of 0.43, an almost identical relative effect as produced in the equation predicting the Walther-original rate. Also, the adjusted R^2 value is slightly higher with the original data, but not appreciably so. It seems to make little difference in the regression results whether one uses the preferred same-sex data or the original same-sex data with the Walther index of gay male partnering.

We look next at the regression results for the states predicting the Gates-original and the Gates-preferred indexes of gay male partnering, as presented in the left panels of Table 4-2 and 4-4. In the regression predicting the Gates-original index of gay male partnering (Table 4-2), five of the six predictors are correctly signed, but only two are statistically significant, namely, the renters variable and the Latino variable; and the Latino variable has the largest relative effect on the Gates-original index of gay male partnering. The results are almost exactly the same when using the Gates-preferred index of gay male partnering (Table 4-4); indeed the adjusted R^2 values are almost identical, with values of .535 using the original data and .536 using the preferred data.

The results of the OLS regression equations predicting gay male partnering, using either the preferred or the original same-sex data, are nearly identical when using the Walther index, and they are also almost identical using the Gates index. If one's sole objective was to model gay male partnering, using either the Walther index or the Gates index, it would make virtually no difference in the results if one used the original same-sex male partnering data or the preferred data.

The results, however, are somewhat similar, and somewhat different, when using either the Walther rate or the Gates rate to predict gay male partnering. The results are similar in that both the Latino variable and the renters variable are significant in both; but when we use the Walther rate, the Black variable is also significant, but it is not significant in an equation using the Gates ratio. Also, slightly more of the variation in the dependent variable is explained in equations using the Walther index than in equations using the Gates index. Although there are differences in the equations using the two indexes, the results are more similar than they are different.

We next look at the regression results predicting among the fifty states the prevalence of lesbian partnering. Equations using the Walther index and the original data and the preferred data are shown in the right panels of Table 4-1 and 4-3. In both equations using the Walther index, the same two variables are signed correctly and are statistically significant, namely, the Latino variable and the unmarried heterosexual prevalence rate; the Latino variable has the largest relative effect on lesbian prevalence in both equations, with standardized coefficients of 0.46 and 0.44. And the values of adjusted R^2 are also very close, 0.47 and 0.44.

Precisely the same regression results are found when using the Gates index to predict the prevalence of lesbian partnering; see the equations in the right panels of Tables 4-2 and 4-4. The most important predictor is the Latino variable followed by the unmarried heterosexual variable; and the adjusted R^2 values are both 0.38.

As was the situation in the equations predicting the prevalence of gay male partnering, when we predict the prevalence of lesbian partnering, it makes no difference in the regression results if one uses the original same-sex lesbian data or the preferred same-sex lesbian data. However, unlike the situation when predicting the prevalence of gay male partnering, when we

model the prevalence of lesbian partnering, the results are also virtually the same if we use the Walther index or the Gates index. We did not find this to be the case when predicting gay male prevalence.

In all the equations predicting gay male partnering or lesbian partnering, using either the original or the preferred same-sex data, using either the Walther index or the Gates index, the one independent variable that always has the largest relative effect on same-sex prevalence is the Latino variable; moreover, the population size variable is never statistically significant in any of the eight regression equations, and the median age variable is always incorrectly signed.

But the most important finding, in our opinion, is that it makes virtually no difference in the results of the OLS regressions if one uses the original same-sex data or the preferred same-sex data. This is a very important conclusion, in our view, because preferred same-sex data are only available for the states of the U.S., and are not available for other geographic units, such as metropolitan areas, micropolitan areas, and counties. If the results obtained in our regression analyses of states apply in regression analyses of other geographic units, then not having available the preferred same-sex data for these geographical areas would not appear to be a major problem. The big problem would be that the researcher would not be able to use indexes of same-sex partnering calculated for these non-state geographical areas with any confidence because the index values would be overstating the true level of same-sex prevalence. And this would be especially the situation if the indexes were calculated using the Walther index. But the regression results would not be appreciably dissimilar.

Correlates of Gay Male and Lesbian Partnering in the Metropolitan Areas of the U.S.

We turn finally to a discussion of the results of OLS regressions predicting the prevalence of gay male and lesbian partnering among the metropolitan areas of the U.S. Tables 5-1 and 5-2

present the results of four ordinary least squares (OLS) multiple regression equations modeling the prevalence of gay male and lesbian partnering among the 366 metropolitan areas in the United States. The dependent variable in the first set of analyses (Table 5-1) is the Walther index of same-sex partnering, and the original same-sex household data are used (preferred same-sex household data are not available for the metropolitan areas); the dependent variable in the second set of analyses (Table 5-2) is the Gates index of same-sex partnering, and, once again, the original same-sex data are used. We have placed positive or negative signs to the right of the variable name indicating the direction of the variable's hypothesized relationship with the gay male (or lesbian) household index.

The same six independent variables used above in the state analyses are used here. The statistical tolerances of these six variables are all acceptable, ranging from a low of .48 (percentage in rental units) to a high of .88 (population size). The mean tolerance of the six independent variables is .68. As was the situation above with the state-level equations, multicollinearity is not an issue in any of these equations.

Looking first at the regression results using the Walther index (Table 5-1), of the six coefficients in the OLS equation predicting levels of gay male concentration (left panel of data of Table 5-1), five are signed in the hypothesized direction, and all five are statistically significant. The larger the size of the population; the greater the prevalence of heterosexual unmarried partners; the larger the concentration of renter-occupied housing; the higher the percentage Black; and the higher the percentage Latino, the higher the level of gay male partnering. The median age variable, however, once again, is related positively, not negatively as hypothesized, with same-sex male prevalence.

The most influential of the independent variables in the equation predicting gay male prevalence with the Walther index is the percent renters variable. For every one standard deviation increase in the percent renters variable, there is more than a third of a standard deviation increase in the gay male household rate, holding constant the effects of the other independent variables. In order, the next most influential correctly signed independent variables are population size, the heterosexual unmarried partner rate, percent Latino, and percent Black. The structural variables account for over 38 percent of the variation in the gay male partnering rate among the 366 metro areas.

Very similar results are obtained when estimating gay male household prevalence among the metropolitan areas using the Gates index (left panel of data in Table 5-2). Major differences are that the percent Black variable is not statistically significant, and the order of the importance of the relative effects of the other independent variables is a little different. Also, the structural variables in the Gates equation account for slightly less of the variability in gay male partnering than was the case in the Walther equation.

The results of the OLS regression equation modeling the prevalence of lesbian partnering among the metropolitan areas are slightly different from those modeling the prevalence of gay partnering. Looking at the results using the Walther index (right panel of data in Table 5-1), only two of the variables that are signed as hypothesized have statistically significant effects in the lesbian partnering equation. The most influential of the two is the percentage in rental housing, and the other significant predictor is the unmarried heterosexual partnering rate. The structural variables account for almost 28 percent of the variation among the metropolitan areas in the lesbian household rate, which is an adjusted R^2 value 10 percentage points less than that in the equation predicting gay male household prevalence using the Walther index.

Almost identical results are obtained when predicting lesbian partnering using the Gates index of same-sex partnering (the right panel of data in Table 5-2). The same two independent variables are correctly signed and statistically significant, and the ordering of their relative effects on lesbian partnering is the same. The regression results using the Walther index or using the Gates index are much more similar when predicting lesbian partnering among the metro areas than when predicting gay male partnering. We turn now to a discussion of these results.

Discussion and Conclusion

In this paper we used recently released data from the 2010 Census to analyze patterns of gay male partnering and lesbian partnering in the states and metropolitan areas of the United States. A key concern with the 2010 census data on same-sex partnering is the quality of the data. When Census Bureau researchers first began to analyze the data, they discovered an error that produced an artificial inflation of the number of same-sex partners; some of the respondents apparently checked the wrong box for the census question asking about their sex. Census Bureau staff hence developed a set of adjusted data, known as the "preferred" data, which better reflected the true number of same-sex couple households. To do this, they used a name-consistency index to determine a more accurate number of same-sex married and unmarried partners by the sex that is usually associated with the person's first name.

In this paper we developed our indexes of gay male partnering and lesbian partnering for each of the fifty states using the original data from the 2010 census counts, and also using the preferred, i.e., adjusted data. We also used two separate indexes of same-sex partnering to measure same-sex prevalence, one used previously by Walther et al (2011), which we referred to as the Walther index, and a second used previously by Gates and Ost (2004), which we referred to as the Gates index. We then compared and contrasted the Walther and the Gates partnering

index values calculated with data from the original census counts with values calculated from the preferred, i.e., adjusted data. As expected, index values for any one state were often larger in magnitude when using the original data as compared to when using the preferred data. However, on average, the Gates index values using the preferred same-sex data were closer to those produced with the original data, than was the situation with the Walther index values.

We then tested various hypotheses relating characteristics of the states with the gay male and lesbian partnering rates. It turns out that when estimating regression models to predict the prevalence of same-sex partnering across the states, it makes no difference in the results if one calculates the indexes with the original same-sex data or with the preferred same-sex data. The regression results were essentially the same, and this was the case using either the Walther index or the Gates index.

Finally, we estimated similar multiple regressions among the metropolitan areas using only the original data (preferred same-sex data are not available for the metropolitan areas). When predicting gay male partnering among the metro areas, the regression results using the Walther index are somewhat similar to those using the Gates index; when predicting lesbian partnering, the Walther equation and the Gates equation are very similar.

We also showed in our paper that among the states, the gay male partnering rates and the lesbian partnering rates are highly and positively correlated. Owing to these positive correlations, we concluded that gay male households and lesbian households tend to be concentrated in similar states, although not at the same levels. Indeed we showed that in most of the states, the levels of lesbian partnering prevalence are greater than the levels of gay male partnering prevalence. Gay male partners tend to have a few favorite states, namely, Florida, New York, California and Nevada, where their prevalence rates surpass those of lesbian partners. Partnered

lesbians, on the other hand, tend to have concentrations that are greater than those of gays in most of the states, tending not to prefer certain states to the degree they are preferred by gay male partners.

As just noted, an important finding emanating from the statistical regressions is that it makes virtually no difference in the results of the OLS regressions of the states if one uses the Census Bureau's "original" same-sex data or the Bureau's "preferred" same-sex data. We argued that this is a very important finding because, currently, preferred same-sex data are only available for the states of the U.S., and are not available for other geographic units, such as metropolitan areas and micropolitan areas and counties. If the results obtained in our regression analyses of states apply in regression analyses of other geographic units, then not having available the preferred same-sex data for these geographical areas is not a major problem. The problem would be more one of using the original data to calculate same-sex index values for these non-state geographical areas with any confidence because the index values would be overstating the true level of same-sex prevalence. But the regression results would not be appreciably dissimilar.

As noted, throughout this paper, we measured the prevalence of same-sex partnering using two different indexes used by researchers in earlier studies, one used by Walther et al (2011), which we referred to as the Walther index, and a another used previously by Gates and Ost (2004), which we referred to as the Gates index. The Walther index measures the number of same-sex households in an area per 1,000 partnered households in the area. In contrast, the Gates index is a "ratio of the proportion of same-sex couples living in an [area] to the proportion of households that are located in the [area]" (Gates and Ost 2004: 24). An index value of 1.0 for a state indicates that "a same-sex couple is just as likely as a randomly picked household to locate"

in the state (Gates and Ost, 2004: 24). A value above 1.0 means that a same-sex couple is more likely to live in the state than would be a random household, and a value less than 1.0, less likely.

Past research using these and other rates with same-sex partnering data from the 1990 and 2000 censuses has shown that although the rates are different, they are highly correlated (Walther and Poston, 2004). We found the same result here. Across the states, gay male partnering rates using the Walther index are almost perfectly correlated with rates using the Gates index, and the same result obtains when indexing the prevalence of lesbian partners.

However, the Gates index has a more intuitively pleasing interpretation than the Walther index, so in that sense, it would seem to us that the Gates index might be preferred over the Walther index. Moreover, based on our analysis of the states, the Gates prevalence indexes based on the original same-sex data are closer in their values to Gates indexes based on the preferred data than is the case when using the Walther indexes. Thus when developing rates for other geographical areas where only the original same-sex data are available, the researcher would appear to be better off using the Gates index. So, one of our conclusions in this paper is a preference for the Gates index in analyses of 2010 census data on same-sex partners.

In this paper we also asked about the kinds of structural characteristics that influence and are related to the geographical locations of gay male and lesbian partners. Drawing on sociological human ecology and a more limited literature dealing with gay and lesbian settlement patterns, we identified several characteristics of states and metropolitan areas that could be argued to be related to levels of gay male and lesbian partnering concentration.

In the multivariate context, the variables that were most influential in predicting levels of gay and lesbian concentration were a variable capturing the degree of prevalence of rental housing, a variable measuring the relative presence of minority populations, especially Latinos,

and in some of the equations, a measure of heterosexual cohabitation. We need to further our research predicting levels of gay male and lesbian partnering. The multivariate analyses reported here are just beginning to address the question of why some states and metropolitan areas have high same-sex partnering rates and why other areas have low rates.

This paper has undertaken a quantitative examination of the prevalence of partnered gay male and partnered lesbian households in the states and metropolitan areas of the U.S. in 2010. It builds on and extends the previous and limited literature on the prevalence of gays and lesbians in geographical areas of the U.S. (Gates and Ost 2004; Black et al. 2000, 2002; Walther and Poston 2004; Baumle et al., 2009; Walther et al., 2011).

Quantitative assessments of the patterns of gay and lesbian prevalence in U.S. metropolitan areas are particularly relevant today given the active discussions in the political, religious, and social arenas with regard to homosexual marriage, the adoption of children by gays and lesbians, and other issues involving sexual orientation. As Gates and Ost (2004: 3) have written, these topics lead to intense discussions, arguments and debates, most of which are "marked by an astonishing lack of empirical data." It has been difficult if not impossible for policymakers, community activists, and gay and lesbian leaders to appraise the effects that homosexual marriage laws, domestic partnership benefits, adoption rights, and other related issues would have on the homosexual and heterosexual communities in the country because of the paucity of information about the locations of gays and lesbians. Aside from everyone seeming to know that there are a lot of homosexuals in San Francisco, the amount of knowledge about the prevalence of gay males and lesbians elsewhere in the U.S. is miniscule. It is hoped that the quantitative analyses of 2010 census data presented in this paper will contribute toward addressing this void.

Table 1-1: Means, standard deviations (SD), coefficients of relative variation (CRV), and minimum and maximum values: "Walther-original" indexes of gay male partnering and lesbian partnering: Fifty States of the U.S., 2010

Rate	Mean	SD	CRV	Maximum value State	Minimum value State
Walther-original Gay Index	5.902	1.523	0.258	9.230	3.232
				New York	North Dakota
Walther-original Lesbian Index	7.301	1.780	0.244	11.981	3.977
				Vermont	North Dakota

Table 1-2: Means, standard deviations (SD), coefficients of relative variation (CRV), and minimum and maximum values: "Gates-original" rates of gay male partnering and lesbian partnering: Fifty States of the U.S., 2010

Rate	Mean	SD	CRV	Maximum value State	Minimum value State
Gates-original Gay Index	0.906	0.224	0.247	1.419	0.490
				California	North Dakota
Gates-original Lesbian Index	0.995	0.240	0.241	1.695	0.535
				Vermont	North Dakota

Table 1-3: Means, standard deviations (SD), coefficients of relative variation (CRV), and minimum and maximum values: "Walther-preferred" rates of gay male partnering and lesbian partnering: Fifty States of the U.S., 2010

Rate	Mean	SD	CRV	Maximum value State	Minimum value State
Walther-preferred Gay Index	4.154	1.496	0.360	7.376	1.600
				California	North Dakota
Walther-preferred Lesbian Index	5.059	1.710	0.338	9.624	2.021
				Vermont	North Dakota

Table 1-4: Means, standard deviations (SD), coefficients of relative variation (CRV), and minimum and maximum values: "Gates-preferred" rates of gay male partnering and lesbian partnering: Fifty States of the U.S., 2010

Rate	Mean	SD	CRV	Maximum value State	Minimum value State
Gates-preferred Gay Index	0.866	0.303	0.350	1.568	0.330
				California	North Dakota
Gates-preferred Lesbian Index	0.989	0.334	0.337	1.951	0.390
				Vermont	North Dakota

Table 2
Ratios of Original-Index Values Divided by Preferred-Index Values: Fifty States of the U.S, 2010

State \ Ratio	Walther-Original/Preferred		Gates-Original/Preferred		State \ Ratio	Walther-Original/Preferred		Gates-Original/Preferred	
	Gay	Lesbian	Gay	Lesbian		Gay	Lesbian	Gay	Lesbian
Alabama	1.703	1.717	1.252	1.198	Montana	1.794	1.644	1.319	1.147
Alaska	1.631	1.432	1.199	0.999	Nebraska	1.540	1.631	1.133	1.138
Arizona	1.310	1.338	0.963	0.933	Nevada	1.254	1.363	0.922	0.951
Arkansas	1.663	1.653	1.223	1.153	New Hampshire	1.524	1.363	1.121	0.951
California	1.231	1.333	0.905	0.931	New Jersey	1.371	1.482	1.008	1.034
Colorado	1.305	1.291	0.960	0.901	New Mexico	1.400	1.297	1.029	0.905
Connecticut	1.334	1.396	0.981	0.974	New York	1.276	1.404	0.939	0.980
Delaware	1.220	1.309	0.897	0.913	North Carolina	1.499	1.480	1.102	1.033
Florida	1.279	1.442	0.941	1.006	North Dakota	2.020	1.968	1.486	1.373
Georgia	1.362	1.439	1.001	1.004	Ohio	1.432	1.471	1.053	1.027
Hawaii	1.235	1.398	0.908	0.975	Oklahoma	1.581	1.612	1.163	1.125
Idaho	1.700	1.517	1.250	1.059	Oregon	1.324	1.239	0.973	0.865
Illinois	1.330	1.495	0.978	1.043	Pennsylvania	1.444	1.558	1.062	1.087
Indiana	1.451	1.509	1.067	1.053	Rhode Island	1.308	1.322	0.962	0.922
Iowa	1.599	1.597	1.176	1.114	South Carolina	1.571	1.620	1.155	1.130
Kansas	1.550	1.533	1.140	1.070	South Dakota	1.978	1.923	1.454	1.342
Kentucky	1.596	1.618	1.174	1.129	Tennessee	1.479	1.514	1.088	1.056
Louisiana	1.464	1.539	1.076	1.074	Texas	1.417	1.486	1.042	1.037
Maine	1.435	1.323	1.055	0.923	Utah	1.466	1.506	1.078	1.051
Maryland	1.341	1.365	0.986	0.952	Vermont	1.426	1.245	1.049	0.869
Massa-chusetts	1.272	1.296	0.935	0.905	Virginia	1.392	1.490	1.024	1.040
Michigan	1.473	1.507	1.083	1.052	Washington	1.278	1.277	0.940	0.891
Minnesota	1.325	1.360	0.974	0.949	West Virginia	1.803	1.872	1.326	1.306
Mississippi	1.868	1.758	1.374	1.227	Wisconsin	1.525	1.455	1.121	1.015
Missouri	1.422	1.463	1.045	1.021	Wyoming	1.828	1.689	1.344	1.179

Summary

	Walther-Original/Preferred		Gates-Original/Preferred	
	Gay	Lesbian	Gay	Lesbian
MEAN	1.481	1.491	1.089	1.040
SD	0.197	0.168	0.145	0.117
CRV	0.133	0.113	0.133	0.113
MIN	1.220	1.239	0.897	0.865
MAX	2.020	1.968	1.486	1.373

Table 3
Zero-order Correlation Matrix:
Walther and Gates Same-Sex Partner Prevalence Indexes
Calculated with the Original Same-Sex Data and the Preferred Same-Sex Data:
Fifty States of the U.S., 2010

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Walther-original Gay Male	----	0.984	0.793	0.744	0.987	0.973	0.778	0.738
(2) Gates-original Gay Male		----	0.797	0.780	0.978	0.987	0.794	0.777
(3) Walther-original Lesbian			----	0.983	0.761	0.761	0.988	0.970
(4) Gates-original Lesbian				----	0.719	0.742	0.983	0.990
(5) Walther-preferred Gay Male					----	0.992	0.767	0.731
(6) Gates- preferred Gay Male						----	0.776	0.756
(7) Walther- preferred Lesbian							----	0.991
(8) Gates- preferred Lesbian								----

Table 4-1: Metric and Standardized Regression Coefficients from Multiple Regression Equations of Gay Male and Lesbian Household Partnering Prevalence (Walther-original Index) on Six Independent Variables: Fifty States of the United States, 2010

	Gay Male HH Rate			Lesbian HH Rate		
Variable	Metric		Standardized	Metric		Standardized
Unmarried Hetero HH rate(+)	0.020		0.211	0.042	*	0.383
Population Size(+)	0.000		0.036	0.000		-0.199
Median Age(-)	0.218	*	0.325	0.276	*	0.353
% Renting(+)	0.153	*	0.423	0.073		0.172
% Black(+)	0.044	*	0.273	0.039		0.212
% Latino(+)	0.067	*	0.439	0.082	*	0.460
Constant	-10.682	*		-11.012	*	
R2 (adj)	0.637			0.469		
* Coefficient statistically significant at p<.05						

Table 4-2: Metric and Standardized Regression Coefficients from Multiple Regression Equations of Gay Male and Lesbian Household Partnering Prevalence (Gates-original Index) on Six Independent Variables: Fifty States of the United States, 2010

	Gay Male HH Rate			Lesbian HH Rate		
Variable	Metric		Standardized	Metric		Standardized
Unmarried Hetero HH rate(+)	0.003		0.193	0.005	*	0.368
Population Size(+)	0.000		0.059	0.000		-0.170
Median Age(-)	0.028	*	0.289	0.033	*	0.308
% Renting(+)	0.020	*	0.373	0.006		0.107
% Black(+)	0.004		0.152	0.002		0.076
% Latino(+)	0.010	*	0.432	0.010	*	0.426
Constant	-1.257	*		-1.112		
R2 (adj)	0.535			0.381		
* Coefficient statistically significant at p<.05						

Table 4-3: Metric and Standardized Regression Coefficients from Multiple Regression Equations of Gay Male and Lesbian Household Partnering Prevalence (Walther-preferred Index) on Six Independent Variables: Fifty States of the United States, 2010

	Gay Male HH Rate			**Lesbian HH Rate**		
Variable	Metric		Standardized	Metric		Standardized
Unmarried Hetero HH rate(+)	0.017		0.189	0.043	*	0.405
Population Size(+)	0.000		0.056	0.000		-0.171
Median Age(-)	0.198	*	0.301	0.217	*	0.289
% Renting(+)	0.151	*	0.425	0.066		0.162
% Black(+)	0.035	*	0.225	0.024		0.137
% Latino(+)	0.064	*	0.428	0.075	*	0.438
Constant	-11.272	*		-10.700	*	
R2 (adj)	0.607			0.443		
* Coefficient statistically significant at p<.05						

Table 4-4: Metric and Standardized Regression Coefficients from Multiple Regression Equations of Gay Male and Lesbian Household Partnering Prevalence (Gates-preferred Index) on Six Independent Variables: Fifty States of the United States, 2010

	Gay Male HH Rate			**Lesbian HH Rate**		
Variable	Metric		Standardized	Metric		Standardized
Unmarried Hetero HH rate(+)	0.003		0.174	0.008	*	0.396
Population Size(+)	0.000		0.073	0.000		-0.146
Median Age(-)	0.037	*	0.275	0.037		0.254
% Renting(+)	0.028	*	0.387	0.009		0.112
% Black(+)	0.005		0.143	0.001		0.043
% Latino(+)	0.013	*	0.423	0.014	*	0.407
Constant	-1.986	*		-1.705	*	
R2 (adj)	0.536			0.383		
* Coefficient statistically significant at p<.05						

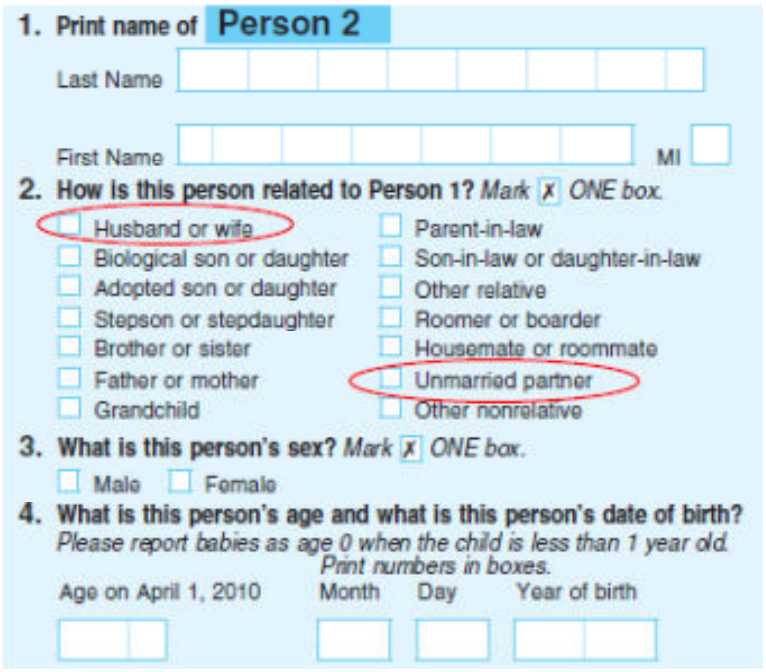
Table 5-1: Metric and Standardized Regression Coefficients from Multiple Regression Equations of Gay Male and Lesbian Household Partnering Prevalence (Walther-original Index) on Six Independent Variables: 366 Metropolitan Areas of the U.S., 2010

	Gay Male HH Rate			**Lesbian HH Rate**		
Variable	Metric		Standardized	Metric		Standardized
Unmarried Hetero HH rate(+)	0.016	*	0.169	0.037	*	0.317
Population Size(+)	0.000	*	0.356	0.000		0.049
Median Age(-)	0.144	*	0.357	0.127	*	0.248
% Renting(+)	0.121	*	0.376	0.165	*	0.406
% Black(+)	0.018	*	0.111	0.009		0.042
% Latino(+)	0.016	*	0.140	0.005		0.033
Constant	-6.405	*		-7.347	*	
R2 (adj)	0.384			0.276		
* Coefficient statistically significant at p<.05						

Table 5-2: Metric and Standardized Regression Coefficients from Multiple Regression Equations of Gay Male and Lesbian Household Partnering Prevalence (Gates-original Index) on Six Independent Variables: 366 Metropolitan Areas of the U.S., 2010

	Gay Male HH Rate			**Lesbian HH Rate**		
Variable	Metric		Standardized	Metric		Standardized
Unmarried Hetero HH rate(+)	0.002	*	0.120	0.004	*	0.281
Population Size(+)	0.000	*	0.370	0.000		0.059
Median Age(-)	0.020	*	0.357	0.016	*	0.258
% Renting(+)	0.014	*	0.311	0.017	*	0.345
% Black(+)	0.000		0.011	-0.002		-0.067
% Latino(+)	0.003	*	0.203	0.002		0.099
Constant	-0.658	*		-0.644	*	
R2 (adj)	0.351			0.234		
* Coefficient statistically significant at p<.05						

Figure 1: Segment of Questionnaire, 2010 Census of Population, United States



1. Print name of **Person 2**

Last Name

First Name MI

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

- Husband or wife
- Biological son or daughter
- Adopted son or daughter
- Stepson or stepdaughter
- Brother or sister
- Father or mother
- Grandchild
- Parent-in-law
- Son-in-law or daughter-in-law
- Other relative
- Roomer or boarder
- Housemate or roommate
- Unmarried partner
- Other nonrelative

3. What is this person's sex? *Mark ✗ ONE box.*

Male Female

4. What is this person's age and what is this person's date of birth?

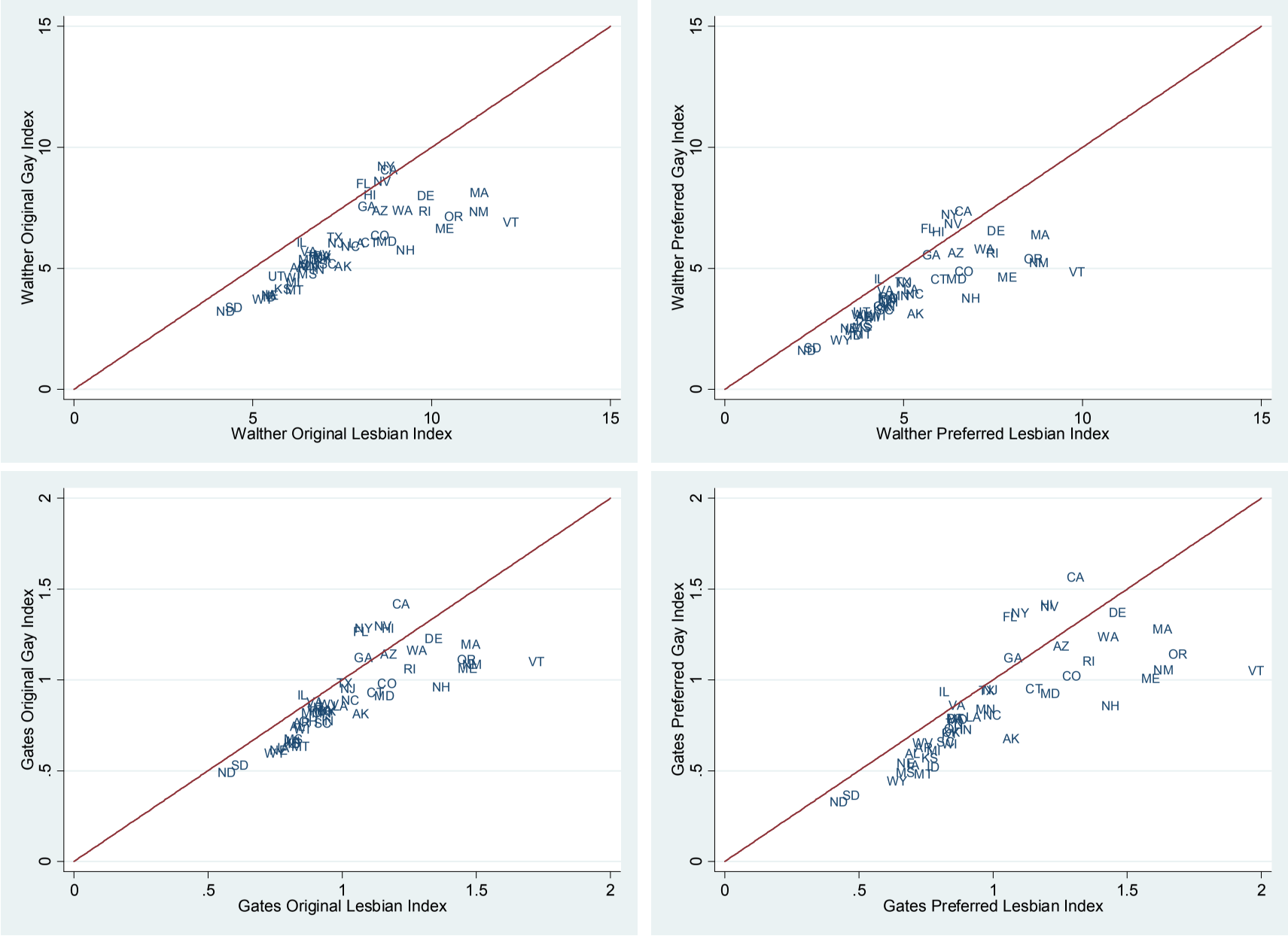
Please report babies as age 0 when the child is less than 1 year old.

Print numbers in boxes.

Age on April 1, 2010 Month Day Year of birth

Source: http://2010.census.gov/2010census/pdf/2010_Questionnaire_Info.pdf

Figure 2: Scatterplots comparing
Prevalence Index Values for Gay Males with Prevalence Index Values for Lesbians,
Calculated with "Original" Same-sex data, and with "Preferred" Same-sex Data,
Using the Walther Equation and Using the Gates Equation: Fifty States of the U.S., 2010



REFERENCES

Abrahamson, M. 2002. *Urban Enclaves: Identity and Place in America*. New York: St. Martin's Press.

Barrett, R. E. 1994. *Using the 1990 U.S. Census for Research*. Thousand Oaks, Calif.: Sage Publications.

Baumle, A. K., D. Compton, and D. L. Poston, Jr. 2009. *Same-Sex Partners: The Social Demography of Sexual Orientation*. New York: SUNY Press.

Baumle, A. K. and D. L. Poston, Jr. 2011. "The Economic Cost of Homosexuality: Multilevel Models." *Social Forces* 89: 1005-1032.

Black, D.A., G. Gates, S.G. Sanders, and L.J. Taylor. 2000. "Demographics of the Gay and Lesbian Population in the United States: Evidence from Available Systematic Data Sources." *Demography* 37: 139-154.

Black, D.A., G. Gates, S.G. Sanders, and L.J. Taylor. 2002. "Why Do Gay Men Live in San Francisco?" *Journal of Urban Economics* 51: 54-76 .

"Census Bureau Releases Estimates of Same-Sex Married Couples." 2011. *News Release* (September 27). Washington, DC: Bureau of the Census.

Fields, J. and C. L. Clark. 1999. "Unbinding the Ties: Edit Effects of Marital Status on Same Gender Couples." Population Division Working Paper No. 34, Fertility and Family Statistics Branch. Washington, DC: U.S. Census Bureau.

Florida, R. 2002. *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community, & Everyday Life*. New York, NY: Basic Books.

Florida, R. 2005. *The Flight of the Creative Class: The New Global Competition for Talent*. New York, NY: Harper Collins.

Gates, G.J. 2010. "Same-Sex Couples in the U.S. Census Bureau Data: Who Gets Counted and Why." Los Angeles, CA: The Williams Institute (August).

Gates, G.J. and J. Ost. 2004. *The Gay and Lesbian Atlas*. Washington, DC: The Urban Institute Press.

Hamby, C. 2005. "Utah's Mormon Influence Creates First Amendment Challenges." First Amendment Center, July 21, 2005. Retrieved on May 9, 2006 at: http://www.firstamendmentcenter.org/news.aspx?id=15569

Hawley, A. H. 1950. *Human Ecology: A Theory of Community Structure.* New York: Ronald Press.

Hawley, A. H. 1968. "Human Ecology." Pp. 323-332 in D. L. Sills (editor), *International Encyclopedia of the Social Sciences*. New York: Crowell, Collier, and Macmillan.

Hawley, A. H. 1981. *Urban Society*. Revised edition. New York: Ronald Press.

Montesinos, L. and J. Preciado. 2004. "Puerto Rico." Pp. 877-887 in Robert T. Francoeur (ed.), *The Continuum Complete International Encyclopedia of Sexuality, Updated, with More Countries.* New York, NY: The Continuum Publishing Company.

O'Connell, M. and S. Feliz. 2011. "Same-sex Couple Household Statistics from the 2010 Census." Working Paper Number 2011-26. Washington, DC: U.S. Census Bureau, Social, Economic and Housing Statistics Division

O'Connell, M. and G. Gooding. 2006. "The Use of First Names to Evaluate Reports of Gender and Its Effect on the Distribution of Married and Unmarried Couple Households." Paper presented at Population Association of America Annual Meeting, March 30-April 1.

O'Reilly, K. and G. R. Webster. 1998. "A Sociodemographic and Partisan Analysis

of Voting in Three Anti-Gay Rights Referenda in Oregon." *Professional Geographer* 50(4): 498-515.

Office of Management and Budget. 2010. *2010 Standards for Delineating Metropolitan and Micropolitan Statistical Areas; Notice***.** Washington, D.C. : Government Printing Office.

Poston, D.L., Jr., and W.P. Frisbie. 1998. "Human Ecology, Sociology, and Demography." Chapter 2 in M. Micklin and D.L. Poston, Jr. (editors), *Continuities in Sociological Human Ecology*. New York: Plenum Press.

Simmons, T. and M. O'Connell. 2003. "Married Couple and Unmarried-Partner Households: 2000." *Census 2000 Special Reports*. CENSR-5. Washington, D.C.: U.S. Bureau of the Census.

Virgile, M. 2011. "Measurement Error in the Relationship Status of Same-Sex Couples in the 2009 American Community Survey: Final Report." Washington, DC: U.S. Census Bureau, American Community Survey Research and Evaluation Program.

Walther, C.S. and D.L. Poston, Jr. 2004. "Patterns of Gay and Lesbian Partnering in the Larger Metropolitan Areas of the United States." *Journal of Sex Research* 41: 201-214.

Walther, C.S., D. L. Poston, Jr., and Y. Gu. 2011. "Ecological Analyses of Gay Male and Lesbian Partnering in the Metropolitan United States in 2000." *Population Research and Policy Review* 30: 419-448.