Patterns of Homosexuality in the Nonmetropolitan United States in 2000

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Introduction

This paper examines patterns and trends of same-sex unmarried partnering among males, and among females, in the nonmetropolitan counties of the U.S. in 2000. The 2000 U.S. census enumerated almost 1.2 million same-sex unmarried partners in the country. Although the data show that these persons are located virtually everywhere in the U.S., the largest number (over 85 percent) reside in metropolitan areas (Simmons and O'Connell, 2003: 2).This leaves a balance of over 178,000 same-sex unmarried partners (about 15 percent of the total) located in nonmetropolitan counties. Of these, over 82,000 are males, and over 94,000 are females.

In this paper we examine the patterns and trends of the prevalence of same-sex unmarried partners in the nonmetropolitan U.S. We argue that these data may be used to reflect the presence of partnered gays and lesbians in nonmetropolitan America, a subpopulation about which there is little quantitative information.

In the next section we review the limited literature on gays and lesbians in nonmetropolitan and rural America. We next discuss and evaluate the same-sex partnered data from the 2000 census, and inquire about the degree to which they represent the true number of partnered gays and lesbians in the U.S. in 2000. We then describe the basic data, and next construct male-male, and female-female, prevalence rates for all the nonmetropolitan counties with at least 20 same-sex male (or female) partners. Finally, we

propose and test an assortment of ecological hypotheses relating characteristics of the nonmetropolitan areas with the gay and lesbian partnering rates.

What Is Known About Gays and Lesbians in Nonmetropolitan America?

The above question is not a difficult one to answer. Recent reviews of the literature about gays and lesbians in nonmetropolitan and rural environments reveal a very limited amount of information. With the exception of the publication in 2004 of *The Gay and Lesbian Atlas* by Gates and Ost, virtually all the available literature is qualitative. Most of the quantitative analyses about homosexuals have been based on urban samples. We uncovered only a handful of articles and books on gays and lesbians living in rural settings.

There are three main types of literatures. One focuses on issues related to homosexual life in rural environments (Krieger, 1983; Lord and Reid, 1995; Cody and Welch, 1997; Friedman, 1997; Haag and Chang, 1997; Whittier, 1997; Howard, 1999; Blum, 2001; Oswald, 2002). Another deals with issues and experiences related to "growing up" as homosexual in rural settings (Fellows, 1996; Preston, 1992; Sears, 1991). A final category, and the largest of the three, deals with the provision of services to the homosexual population in rural settings (D'Augelli and Hart, 1987; Foster, 1997; Lindhorst, 1997; Mancoske, 1997; Mann, 1997; Smith, 1997).

In nonmetropolitan settings, while many people appear to be tolerant of homosexuality as long as it is not discussed, issues of confidentiality become very important for gay men and lesbians. The emphasis on privacy or semi-privacy seems to be a necessary strategy for surviving in unfriendly environments (Cody and Welch, 1997,

Kramer, 1995; D'Augelli, 1998). Rural homosexuals report that they tend to create private and guarded lives that emphasize relationships in closed support networks (Kramer, 1995; Cody and Welch, 1997; D'Augelli, 1998). Subsequently, the support networks become a vital element for them in the "coming out" process. These networks not only include friends and neighbors, but may also involve biological, legal, and chosen kin (Cody and Welch, 1997; Butler and Hope, 1999). Rural lesbians in particular often refer to their support networks as "the lesbian feminist community" (Krieger, 1983; D'Augelli, 1998; Butler and Hope, 1999).

According to Lindhorst (1997), isolation is a key problem for gay men and lesbians in rural settings. Those who fail to create private support networks often suffer from loneliness and seclusion. As a result, many homosexuals move to urban environments in search of resources and support, or prefer to live nearby or adjacent to such urban environments (D'Augelli and Hart, 1987; Kramer, 1995). Rural settings that are adjacent or close to metropolitan areas thus tend to be more attractive to homosexuals. Many lesbians and gays report relying on the Internet as a way to communicate with other homosexuals. Online "chat rooms" and "message boards" have become a place for obtaining information on issues of interest, such as homosexual news and criticism (Haag and Chang, 1997).

The literature indicates that rural peoples in general seem to be more interested and more aware of the details in each other's lives compared to urban residents. Smith (1997) notes that local values and beliefs are frequently not as open to diversity and social differences. These often have detrimental consequences for lesbians and gay men who fear

exposure and denial because they and others perceive them to be different (Charde and Viets, 1987). Thus in some rural communities, many lesbians and gay men choose, or are forced to choose, not to be known as homosexual, as a way of coping with everyday life.

We have noted above that most homosexual people live in urban areas, so it is not surprising that most studies of lesbian and gays have been conducted in urban environments. Little is known about the development of homosexuals and their families in nonmetropolitan and rural settings. Virtually all the research we uncovered used qualitative methodologies. Other than the recently published *The Gay and Lesbian Atlas* by Gates and Ost (2004), we know of no prior studies that have used quantitative methods to describe and analyze the patterns and prevalence rates of gays and lesbians in nonmetropolitan and rural areas. The research reported in this paper thus fills an important void.

Data

Until the conduct of the 1990 U.S. census, it was not possible to develop partnering indices for the lesbian and gay populations residing in the different geographical areas of the U.S. In the 1990 census 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. Person #1 is typically "the member of the household in whose name the home is owned, being bought or rented" (Barrett, 1994, p. 16). Every person in the household, except for person #1, hence responds to a question about his/her relationship to person #1. The “unmarried partner” response enables the identification of persons in the household

who are unrelated to person #1, but who have a "marriage-like" relationship with person #1. Census procedures allow respondents to check the "unmarried partner" response irrespective of whether the person's sex is the same as that of person #1. The "relationship to the householder" question has been reproduced in Figure 1.

One of the data tables available on Summary File 2 of the 2000 census, namely, Table PCT 22, gives for various levels of geography the number of households in the area in which person #1 is a male and another male in the household identifies himself as the unmarried partner of person #1; these are known as male-male households. A similar tabulation is provided for households in which person #1 is a female and in which another female identifies herself as the unmarried partner of person #1; these are known as female-female households. Because the "unmarried partner" response is meant to reflect a "marriage-like" relationship between the two persons, researchers make the assumption that these data on same sex households (male-male or female-female) represent households inhabited by partnered gays, or by partnered lesbians (Black et al., 2000, 2002; Simmons and O'Connell, 2003; Walther and Poston, 2004; Gates and Ost, 2004). To obtain the number of partnered gays in each nonmetropolitan area we multiplied by two the number of male-male households in the area, and we followed the same strategy to obtain the number of partnered lesbians.

An Appraisal of the Data

There are at least three methodological issues to be addressed in an appraisal of the same-sex partnering census data. The first asks about the accuracy of the 2000 census data in portraying the true numbers of partnered gay men and lesbians? Specifically, how well

have the 2000 census data on same-sex partners enumerated the actual numbers of partnered gays and lesbians living in the U.S. in 2000? A second issue concerns the variation across the geographical areas of the U.S. in the prevalence of same-sex unmarried partners. How valid is this variation? For instance, is there a relationship between this variation and the variation across geographical areas in the true prevalence of partnered gay men and lesbians? A third issue concerns the extent to which there could be error in the same-sex partnering census data, perhaps due to sex miscoding errors. We also introduce at the end of this section two additional reasons that give us reason to have confidence in the validity of the same-sex partner data.

We first address the validity of the census data on same-sex partners. To do this, we need to know the true numbers of gays and lesbians living in the U.S. in 2000. There are no such numbers available, but they may be estimated with data from a national survey that contains sexuality questions dealing with both self-identification and behavior.

The nationally representative survey of the U.S. population we use is Cycle 6 of the National Survey of Family Growth (NSFG) conducted in 2002 by the U.S. Department of Health and Human Services (U.S. Department of Health and Human Services 2004). This is a survey of 12,571 persons aged 15-44 in the noninstitutional population. The male and female respondents were asked questions about same-sex behavior and sexual identification. We selected persons identifying as homosexual and those who reported having exclusively same-sex sex partners in the past twelve months. We reasoned that these would be characteristics of persons who were captured as same-sex partners in the census data. We combined the two groups and developed an estimate of the percentages of

gays and lesbians in the U.S. in 2002 who self-identified as homosexual and/or engaged in exclusively homosexual behavior in the past year. Using weighted NSFG data, we determined that 2.55 percent of the males may be so classified as gay, and that 1.81 percent of the females as lesbian. The upper and lower 95 percent confidence bounds for the males are 3.2 percent and 2.1 percent, and for the females, 2.2 percent and 1.5 percent. These percentage estimates and 95% confidence intervals obtained from the 2002 NSFG are remarkably close to male and female homosexuality estimates and confidence intervals obtained from the only other nationally representative survey of the U.S. population that asked the same two sexuality questions, namely, the National Health and Social Life Survey (NHSLS) conducted in 1992 by Laumann and his associates (Laumann et al. 1994).

As noted, the NSFG gay and lesbian estimates pertain to persons aged 15 to 44. The U.S. population of males and females aged 15 to 44 counted in the 2000 census is comprised of 62,647,145 males and 62,026,997 females. When we multiply these numbers by the NSFG percentages of gays and lesbians, we obtain estimates of the numbers of gays and lesbians in the U.S. between the ages of 15 and 44 of 1,597,502 and 1,122,689, respectively. How many of these gay men and lesbians are living in committed relationships in the same households? Gates and Ost (2004, p. 13) have reviewed several studies to arrive at estimates "that 23.5 percent of gay men and 42.7 percent of lesbians are coupled." Using these figures, we estimate that in the U.S. in 2000, there were 375,413 gay men in committed relationships living in the same households (that is, 1,597,502 x 23.5%), and 479,388 committed lesbians living in the same households in the U.S. (or 1,122,689 x 42.7%), all between the ages of 15 and 44.

Using data from the 2000 Public Use Microdata Samples of the U.S. Census and the person weights to inflate the sample data to the population, we next determined that Census 2000 enumerated 334,220 same-sex male partners and 345,571 same-sex female partners, between the ages of 15 and 44. Comparing these figures with the NSFG-based estimates of the numbers of partnered gays and lesbians suggests that Census 2000 undercounted 41,193 committed gay men living in the U.S., for an undercount of 10.1 percent, and undercounted 133,817 committed lesbian partners, for an undercount of 27.9 percent.

But there are many problems with these estimates. For one thing, although the census questionnaire asks about identification, the identity pertains to whether or not one is an unmarried partner; the census questionnaire does not ask specifically about the actual sexual orientation, nor the sexual behavior, of the respondents. As have other researchers (Black et al. 2000, 2003; Simmons and O'Connell 2003; Walther and Poston 2004; Gates and Ost 2004), we are also assuming that the census numbers of same-sex male and female partners reflect the numbers of committed gays and lesbians in the population. Another issue is our use of the Gates and Ost (2004) estimates of the percentages of gays and lesbians living in committed relationships. There are no national level data available on male and female homosexual commitment, and different studies report different estimates. We used the male and female averages of the various studies as developed by Gates and Ost (2004). Nevertheless, we conclude that committed gays and lesbians were undercounted in Census 2000, a conclusion also reached by other scholars (Smith and Gates 2001; Gates and Ost 2004).

We turn now to the second question; it deals with the validity of the gay and lesbian prevalence indexes across the nonmetropolitan areas of the U.S. How valid is this variation? There are no reliable data available to answer this question. There are no data other than census data "for calculating even the most rudimentary statistics on the (geographic) locations of the gay and lesbian populations" (Black et al., 2000: 149).

However, it is possible to examine the face validity of the census-developed geographical distribution data of the partnered gay population by relating its variation with that of the spatial distribution of AIDS deaths. Unfortunately, data on AIDS deaths are only available for large metropolitan areas. We are thus only able to compare the variation in AIDS deaths with census-based prevalence rates of the partnered gay population for large metropolitan areas.

We are well aware that AIDS deaths are not restricted to homosexuals. Indeed in the past decade or so in the U.S. there have been increasing numbers of heterosexual deaths due to AIDS. But AIDS as a cause of death continues in the U.S. to be the most prominent for men who have sex with men (as do most male homosexuals) than for the heterosexual population (www.cdc.gov/hiv/stats.htm; www.statehealthfacts.org). One would thus expect that among geographical areas there should be a positive association between the prevalence of male homosexuals and the prevalence of AIDS deaths.

We obtained data on the reported number of AIDS cases for the 12 month period between July 1998 and June 1999 for the 99 metropolitan areas of the U.S. with populations over 500,000. Similar data are not available for smaller metropolitan areas, or for nonmetropolitan areas. We first examine this relationship in a relative way by

correlating the rates of partnered gays (per 1,000 unmarried males) with the rate of AIDS cases per 100,000 persons in the area (Figure 2). The correlation between the two rates across the 99 metropolitan areas is .52. Among the 99 metropolitan areas, the actual number of reported AIDS cases and the actual number of male-male households in the metropolitan area are highly skewed. We thus use their natural logs in a second examination of the relationship. The correlation between the logged values of number of AIDS deaths and number of male-male households is 0.86. The scatterplot is shown in Figure 3. Similar comparisons conducted with census and AIDS data for 1990 produced similar high positive correlations (Black et al. 2000; Walther and Poston 2004).

These tests increase our confidence in the quality of the partnered gay data obtained in the 2000 decennial census, particularly the validity of the geographical distribution of these data in large metropolitan areas. There are no similar data on AIDS deaths for the smaller metropolitan areas or for nonmetropolitan areas. But the fact that the two variances are so closely related in the large metropolitan areas gives us reason to believe that it is likely that the variances for other geographical areas would also be related.

There are no similar data available, of which we are aware, for examining the face validity of the partnered lesbian data from the 2000 Census. Other research shows, however, that partnered gay rates and partnered lesbian rates are themselves highly and positively related (Black et al., 2000; Poston et al 2003; Walther and Poston 2004). This provides some indication of the face validity of the lesbian data.

The third issue to be addressed is the degree to which there could be error in the same-sex partnering data, perhaps due to sex miscoding errors. In the 1990 census, if a

same-sex couple (a householder and an unmarried partner) checked themselves as being married, post-collection census editing treated this as an inconsistency, and "usually changed the sex as a consistency edit. This means that in data [for 1990] released by the Bureau the couple was coded as a heterosexual married couple" (Gates and Ost, 2004: 12). The Bureau changed this post-collection editing decision in the 2000 Census to treat it "as an inconsistency in the relationship to householder rather than in the spouse's sex. That is, the 'husband-wife' relationship designation was changed as a consistency edit to an 'unmarried partner' relationship. Since the sex variables were not changed [as they were in 1990], the couple was counted as a same-sex unmarried partner couple" (Gates and Ost, 2004: 12).

In the 2000 U.S. Census, there was a notable increase in the total number of individuals classified as same-sex unmarried partners, with 594,391 couples reported as same-sex couples in 2000 compared to 145,130 in 1990. The quadrupling of couples identifying as same-sex unmarried partners led researchers to speculate about the cause of the "increase."

It is known that a very small fraction of census respondents makes an error on the "sex" question and enters the incorrect sex. It is estimated that the degree of sex miscoding error among heterosexual couples in the 2000 census is no greater than 0.2 percent. Recall that if this occurred in the 1990 census and one person in a married couple checked the wrong sex, the sex would be changed in the editing process and the couple counted as a married (heterosexual) couple. But in the 2000 census, the marital status code was changed and the couple was counted as an unmarried same-sex couple.

Black and his associates (2002) have suggested that some of the same-sex couples counted as such as in the 2000 census might actually be heterosexual couples, misclassified by the Census Bureau as same-sex partners in attempts to rectify seeming contradictions between individuals' selected sex and marital status. Census Bureau analysts, however, have determined that this sex miscoding measurement error is very small (as just noted) and "does not have any significant effect on geographical distribution patterns" (Gates and Ost, 2004: 14).

Finally, two other points may be made about the validity of the same-sex partner data from the 2000 census. One pertains to the national "Make Your Family Count" publicity campaign that was initiated, sponsored, and conducted by the gay and lesbian communities prior to the conduct of Census 2000. Spearheaded by the Institute for Gay and Lesbian Strategic Studies and the Policy Institute of the National Gay and Lesbian Task Force, the campaign sought to encourage gay and lesbian couples to permit themselves to be counted by marking the "unmarried partner" category (Bradford et al. 2002, McManus 2003, Badgett and Rogers 2003). In the months of January through March of 2000, gay and lesbian organizations and communities publicized the 2000 Census via the internet, newspapers, and mailing lists to make their constituents aware that Census 2000 was about to be conducted. Furthermore, they encouraged gays and lesbians in partnered relationships to fill out the census questionnaire and to be sure to use the "unmarried partner" response when answering the census question on "relationship to the householder." Although we do not know the complete effects of the campaign, it has been

credited by some as helping to increase the numbers of same-sex unmarried partner respondents four-fold in 2000 from the 1990 census (Bradford et al. 2002).

A second point has to do with the fact that the actual numbers and rates based on the same-sex partnering census data for the census tract neighborhoods of many cities and metropolitan areas of the U.S. have been shown in many contexts to be large and high in precisely those neighborhood areas "known" to be gay and lesbian enclaves; and the opposite has been shown to be true for neighborhoods known as heterosexual areas. For example, the Castro District in San Francisco is well known and cited in the literature as being a major gay enclave in the U.S. (Abrahamson 1995; Murray 1992). According to the census data on same-sex unmarried partners, it does indeed have a very high concentration of male unmarried partners, as well as female unmarried partners (Poston et al., 2003; Gates and Ost 2004).

Similarly, a district in Oakland, California known by many to be a lesbian enclave reveals a high concentration of female unmarried partners in the census data (Zamora 2004; Gates and Ost 2004). Another well known gay enclave in the Southwestern U.S., the Montrose District of Houston, TX, also shows a very high concentration of male unmarried partners according to the 2000 Census data. Conversely, other areas of Houston, such as Kingwood and Sugarland, and areas of San Francisco, such as the Sunset and Parkside districts, which are known to be heterosexual neighborhoods, report 2000 Census data indicating very low numbers of same-sex unmarried partners (Gates and Ost 2004).

Description of the Same-Sex Partner Data in Nonmetropolitan America

Before developing prevalence rates of partnered gays and lesbians in nonmetropolitan areas, we first describe the basic data. Census 2000 enumerated 41,861 unmarried male partner households and 47,169 unmarried female partner households in nonmetropolitan areas. These are households with two same sex adults. We thus multiply the number of households by two. This results in a census count of 83,722 partnered gays in the nonmetropolitan U.S. in 2000, and 94,338 partnered lesbians. How are these committed gays and lesbians distributed among the counties of the U.S. that were designated as nonmetropolitan as of 1993 by the Economic Research Service of the U.S. Department of Agriculture (ERS, USDA, 1995)?

Table 1 presents descriptive data on the numbers of partnered gays and partnered lesbians and the total number of same-sex partners in the 2,267 nonmetropolitan counties for which we have sufficient data. We have dropped a few of the USDA-defined nonmetropolitan counties because of missing data, namely, many of the Alaska boroughs; Loving County, Texas; and Menominee County, Wisconsin. Figure 4 presents box plots describing these same-sex data.

A box plot, also known as a "box-and-whiskers plot," is a box showing at its base the 25th percentile of values and at its top the 75th percentile of values, known also as the inter-quartile range [IQR]; the line in the middle of the box is the median. The top and bottom lines that come out of the box are the whiskers, and they extend to the upper and lower adjacent values. The upper adjacent line is the largest data point that is less than or

equal to the 75th percentile plus 1.5 of the IQR; and the lower adjacent line is the smallest data point that is greater than or equal to the 25th percentile minus 1.5 of the IQR.

In Figure 4 there are many counties with values that are more extreme than the upper adjacent value. They are plotted separately with individual circles and are known as "outside values."

Table 1 and Figure 4 inform us that in the "average" nonmetropolitan country in 2000 there were 36 partnered gays and 41 partnered lesbians. There were 77 nonmetropolitan counties with no partnered gays and 73 with no partnered lesbians. Many counties have no or very few same-sex partners. Monroe County, Florida is the nonmetropolitan county with the largest number of partnered gays (780), and Ulster County, New York has the largest number of partnered lesbians (600).

Monroe County is on the southernmost tip of Florida, immediately west of Miami and includes the Florida Keys. Its county seat is Key West, a city which is long known as one of the most liberal and gay-friendly nonmetropolitan places in the United States (http://en.wikipedia.org/wiki/Key_West,_Florida). Ulster County is in upstate New York. The city of New Paltz, located in Ulster County, made national headlines in March of 2004 when its mayor presided over the first same-sex marriages to be performed in New York State.

We next examine the distributions of partnered gays and lesbians according to the Beale nonmetropolitan county codes (ERS/USDA, 1995). Beale's first four codes (numbered 0 through 3) refer to metropolitan counties. The next six codes (numbered 4 through 9) refer to nonmetropolitan counties, as follows:

4 Urban population of 20,000 or more, adjacent to a metropolitan area

5 Urban population of 20,000 or more, not adjacent to a metropolitan area

6 Urban population of 2,500-19,999, adjacent to a metropolitan area

7 Urban population of 2,500-19,999, not adjacent to a metropolitan area

8 Completely rural (no places with a population of 2,500 or more) adjacent to a metropolitan area

9 Completely rural (no places with a population of 2,500 or more) not adjacent to a metropolitan area

Figure 5 presents box plots of the numbers of partnered gays among the nonmetropolitan counties according to the Beale codes, and Figure 6 does the same for partnered lesbians. It is not surprising that the counties with the largest numbers of partnered gays and lesbians are those with urban populations of 20,000 or more (Beale codes 4 and 5). On average, those that are adjacent to a metropolitan area have more same-sex partners than those not adjacent.

The nonmetropolitan counties with the next largest numbers of partnered gays and lesbians are those with urban populations of 2,500 to 19,999 (Beale codes 6 and 7). In this group, counties that are adjacent to a metropolitan area also have more same-sex partners than those that are not adjacent. Completely rural counties (Beale codes 8 and 9) have the fewest same-sex partners. And even among the rural counties, those that are adjacent to a metropolitan area have more same-sex gays and lesbians than those not adjacent.

Our presentation thus far pertains to absolute numbers of census enumerated partnered gays and lesbians. We turn now to the development and analysis of indexes of gay and lesbian partnering in the nonmetropolitan counties of the U.S.

Gay and Lesbian Partnering Indexes

Prior Research on Index Construction

To the best of our knowledge, to date there is only one published analysis of prevalence rates of gays and lesbians using data from the 2000 U.S. census (Gates and Ost, 2004), and three using data from the 1990 U.S. census (Black et al., 2000, 2002; Walther and Poston, 2004). Gates and Ost (2004) used 2000 census data on same-sex partners and constructed gay and lesbian concentration indexes for the states, metropolitan areas, and counties of the U.S. in their *The Gay and Lesbian Atlas*. Their index "measures the over- or underrepresentation of same-sex couples in a geographic area relative to the population" (Gates and Ost, 2004: 24). The rate we develop below and analyze in this paper is highly correlated among the nonmetropolitan areas with the Gates and Ost rate, a correlation of .89 for partnered gays, and .90 for partnered lesbians.

Development of Numerators, Denominators, and Rates

In the research conducted for this paper as well as for prior analyses (Poston et al., 2003; Walther and Poston, 2004), we developed several different kinds of incidence rates of gay and lesbian partnering by altering both the numerators and denominators. For some of the rates we used partnered gays (or lesbians) and for other rates we used partnered gay (or partnered lesbian) households; among the denominators we used were unmarried males (or females) of age 18 and over, never married males (or females) of age 18 and over, all

males (or all females) of age 18 and over, same-sex male (or female) households, and all households. All the rates, however constructed, correlate highly with one another, at levels of .75 to .96 for partnered gays and .69 to .93 for partnered lesbians. This indicates a high degree of robustness of the rates. 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 same-sex households, or all households, are used as the denominator, the variances in the different sets of rates are very similar, and thus the correlations among them are high.

An Index of Gay and Lesbian Partnering

One way to construct a rate of gay (or lesbian) partnering for a nonmetropolitan county at a particular time is to divide the number of gay (or lesbian) partners by the number of unmarried males (females) in the population of age 18 or higher. The denominator is restricted to unmarried persons because according to the statistical and demographic definitions used here, as well as Census Bureau coding procedures, married persons are by definition heterosexual, and thus are not "at risk" (in a statistical sense) of being a gay or lesbian partner.

Our index of gay (lesbian) partnering is a straightforward rate defined as:

$$\text{GAY(LESBIAN) INDEX} = \left(\frac{\#\text{ of Gay (Lesbian) Partners}}{\#\text{ of Unmarried Males (Females) of age 18+}} \right) * 1{,}000$$

We calculate the gay and lesbian rates for all nonmetropolitan counties with at least 20 partnered gays (or 20 partnered lesbians). This constraint reduces the sample of nonmetropolitan counties to 1,305 for the partnered gay rates, and to 1,401 for the

partnered lesbian rates. Table 2 presents descriptive information for the partnered gay and lesbian rates for nonmetropolitan counties of the U.S. in 2000 with at least 20 partnered gays (or 20 partnered lesbians). The mean value for gays is 13.3. This means that across the 1,305 nonmetropolitan counties with at least 20 partnered gays, there was an average of over 13 gay cohabiters for every 1,000 unmarried males of age 18 or over. The partnered lesbian rate has a mean score of 12.3 among the 1,401 nonmetropolitan counties with at least 20 partnered lesbians.

The bottom part of Table 2 lists the counties with the ten highest partnered gay rates and those with the ten highest partnered lesbian rates; also shown are their numbers of partnered gays (or partnered lesbians) along with their Beale codes. Many of the counties with high rates are small counties with little or no widespread reputations as enclaves for gays or lesbians. Exceptions on the gay list are Monroe County, Florida and Sussex County, Delaware, and on the lesbian list, Franklin County, Massachusetts.

We have already noted Monroe County's known ties with the homosexual community. Sussex County, Delaware is the county where Rehoboth Beach and Bethany Beach, two widely known homosexual resorts, are located. Franklin County is a large urban county in northwestern Massachusetts, north of Springfield, west of Worcester, and east of Pittsfield. It is located within 25 miles north and northeast, respectively, of two of the "Seven Sisters" women's colleges, namely, Smith in Northampton, and Mount Holyoke in South Hadley.

We examine next the distributions of the gay and lesbian indexes according to the Beale county codes. Figures 7 and 8 show box plots of the indexes for partnered gays

(Figure 7), and for partnered lesbians (Figure 8), according to the Beale county codes. These figures reflect relative numbers of gays and lesbians and may be compared with Figures 5 and 6 which portray information on the absolute numbers of partnered gays and lesbians. The index values shown in Figures 7 and 8 indicate a greater relative propensity for partnered gays and partnered lesbians to reside in rural nonmetropolitan counties (Beale codes 8 and 9) than in urban nonmetropolitan counties. There is a very slight tendency for counties that are adjacent to metropolitan counties to have higher gay and lesbian index values than those that are not. We turn next to a consideration of the relationships between the gay and lesbian indexes.

Relationship Between the Gay and Lesbian Indexes

We consider here the extent to which the variation in the gay partnering index across the nonmetropolitan counties is associated with the variation in the lesbian partnering index. It is often assumed, correctly or incorrectly, that partnered gays and lesbians tend to reside in the same locations.

Figure 9 is a scatterplot of the partnered gay and lesbian index values for those 1,182 nonmetropolitan counties that have a minimum of 20 partnered gays and 20 partnered lesbians. Of the 1,182 counties shown in the scatterplot in Figure 9, two have exactly the same scores on the gay and lesbian indexes, namely, Charlevoix County, Michigan, and Lee County, Alabama. The majority of the counties, almost 59 percent, have gay index values larger than their corresponding lesbian index values. But as is shown in Figure 9, nonmetropolitan counties with high rates of gay partnering have high

rates of lesbian partnering, and areas with low gay rates have low lesbian rates. The correlation coefficient between the two indexes is .52.

Ecological Correlates of Homosexual Partnering

We turn finally to the issue of accounting for variation in the rates of gay and lesbian partnering. Why do some nonmetropolitan counties have high gay and lesbian partnering rates, and why do others have low rates? In other words, what kinds of ecological characteristics might be introduced to account for these differences? We propose and test several hypotheses to address this question. We begin by introducing an ecological orientation to provide theoretical justification for the hypotheses.

Our investigation of reasons for the variability in rates of gay and lesbian partnering is guided by the assumption that the prevalence of gay and lesbian partnering in the nonmetropolitan counties is to a significant degree the result of migration. A nonmetropolitan county does not have a high (or low) prevalence of gay and lesbian partnering because a large (or small) number of gays and lesbians were born in the county. Instead the degree of prevalence of partnered gays and lesbians is more due to migration. To assist in hypothesis development, we consider sociological human ecology and its specific focus on migration. From the perspective of human ecology, migration is the major mechanism of social change and adaptability for human populations. Knowledge of migration patterns tells us about how "populations ... maintain themselves in particular areas" (Hawley, 1950: 149). The ecological approach asserts that human populations redistribute themselves to develop an equilibrium between their overall size and the life chances available to them. Migration is the principal mechanism for effecting this

adjustment because it is a demographic response attempting to preserve or attain the best possible living standard by reestablishing a balance between population size and organization (Poston, 1981: 138; Poston and Frisbie, 1998: 30). Human ecology posits that, of the three demographic processes, migration is the most efficient agent for returning the human ecosystem to a state of equilibrium or balance between its size and organization (Poston and Frisbie, 1998).

An hypothesis often investigated in ecological studies of migration (e.g., Sly, 1972; Frisbie and Poston, 1978; London, 1986; Saenz and Colberg, 1988; Poston and Frisbie, 1998; among many others) is that that variability among human groups in their patterns of migration is a function of differences in their patterns of sustenance organization, technology, environment and population.

A nonmetropolitan county such as Monroe County in southern Florida has high rates of gay partnering because of ecological factors that draw gay migrants there, but also because of ecological considerations that draw migrants in general to the county.

Ecological theory asserts that an important ecological factor that should tend to pull migrants in general to a nonmetropolitan county is its level and type of sustenance-producing activities. We consider the following ecological factors of sustenance organization and hypothesize their effects on migration: whether the county is dependent on farming, whether the county is dependent on mining, and whether the county is a retirement county.

With data from the 1989 ERS County Typology Codes (ERS/USDA, 1995), we created three dummy variables for each county. The farming-dependent dummy variable is scored 1 if in the county "farming contributed a weighted annual average of 20 percent or more labor and proprietor income over the three years from 1987 to 1989" (ERS/USDA, 1995). The mining-dependent dummy variable is scored 1 if in the county "mining contributed a weighted annual average of 15 percent or more labor and proprietor income over the three years from 1987 to 1989." The retirement dummy variable is scored 1 if the county's "population aged 60 years and over in 1990 increased by 15 percent or more from 1980-90 through in-migration" (ERS/USDA, 1995). We assume that migrants to nonmetropolitan counties, including homosexual migrants, will be more likely to seek out farming- and mining-based counties, as well as those that are retirement counties. The nonmetropolitan migrants are likely seeking quiet and isolated spaces. We expect positive associations between whether the nonmetropolitan counties are farming-dependent, mining-dependent, and retirement-based, and their levels of partnered homosexual prevalence.

Following this line of reasoning, we also expect that rural counties, rather than urban counties, should be particularly attractive locations for migrants, including homosexual migrants, for many of the reasons just cited. The rural dummy variable is coded 1 if the county's Beale nonmetropolitan code was either 8 or 9 (see earlier discussion). Thus we hypothesize that there should be a positive relationship between whether the nonmetropolitan counties are rural and their levels of homosexual prevalence.

Moving next to a specifically socioeconomic aspect of the county's sustenance organization, we hypothesize that the levels of educational attainment of the nonmetropolitan counties should be positively associated with levels of gay/lesbian prevalence. Migrants to nonmetropolitan counties, particularly homosexual migrants, will tend to be attracted to areas with relatively educated populations. This owes in part to the generally higher levels of education of homosexuals compared to the general population. Therefore, the percentage of the population in the county of age 25 and over with college education in 1990 should be positively associated with the county's level of gay/lesbian prevalence.

In sociological human ecology, the environment is defined as "whatever is external to and potentially or actually influential on the phenomenon under investigation" (Hawley, 1968: 330). According to this definition, the environment includes not only the biotic or physical characteristics of an area, but also the non-physical "influences that emanate from other organized populations in the same and in other areas" (Hawley, 1981: 9).

An environmental factor that is expected to be negatively associated with the prevalence of migrants, as well as homosexual migrants, is the degree of crime in the area. Counties with high levels of crime should be less attractive destinations. We have data for each nonmetropolitan county on the number of serious crimes known to police in 1995 per 100,000 population. We hypothesize that the higher the county's crime rate, the less the prevalence of partnered gays and lesbians in the county.

An environmental factor of nonmetropolitan areas that may be hypothesized to specifically draw or repel gays and lesbians, but not necessarily heterosexuals, is political orientation. Black and colleagues (2002) have noted that an area's political attitudes should be related to the prevalence of gays and lesbians (see also O'Reilly and Webster [1998]).

Why should the prevalence of Republicans be negatively associated with the prevalence of gays and lesbians? The Republican Party has long been identified, rightly or wrongly, as having an anti-homosexual orientation. Although there is a vocal homosexual group in the Republican Party, namely, the Log Cabin Republicans, its influence on the party is thought to be minimal (O'Reilly and Webster, 1998: 501; Guth, 1995; Lisotta, 2004). We have gathered data for each nonmetropolitan county on the percentage of votes cast in the 1992 presidential election for the Republican candidate, George H. W. Bush. We hypothesize that the more Republican the voting pattern of the county, the lower the concentration of gay and lesbian partners.

Another characteristic of the nonmetropolitan county that we expect to be associated with the prevalence of gay and lesbians is whether or not the county is adjacent to a metropolitan area. Although previous hypotheses expect gays and lesbians to nonmetropolitan counties to be drawn to rural and farming/mining and retirement based counties, we expect that if the county is adjacent to a metropolitan area, the adjacency will be another draw for homosexual migrants owing to the county being contiguous to a metropolitan county with its associated social and cultural amenities. The adjacency dummy variable is coded 1 if the county's Beale nonmetropolitan code was either 4, 6, or 8

(see earlier discussion). We anticipate a positive association between whether the county is adjacent to a metropolitan county and its prevalence of gay/lesbian partners.

Table 3 presents zero-order correlations among the nonmetropolitan counties between the rates of gay and lesbian partnering and the eight ecological characteristics just discussed. The correlations with the gay rate were calculated for those counties with at least 20 partnered gays, and the correlations with the lesbian rate are for counties with at least 20 partnered lesbians Owing to missing data for one or more of the ecological characteristics, the gay correlations have been calculated for 1,267 nonmetropolitan counties, and the lesbian correlations for 1,364 nonmetropolitan counties.

Of the eight correlations of the ecological variables with the gay prevalence rate, six are signed, as hypothesized, although their magnitude varies; five of the correctly-signed correlations are statistically significant at $P < .05$ (one-tailed test). The highest correlations with the gay index are whether the counties are retirement counties, whether they are rural, and whether they are farm-dependent.

Of the eight correlations with the lesbian prevalence index, all are signed in the directions hypothesized, and four are statistically significant. As was the case with the correlations with the gay index, the highest correlations with the lesbian index are for the variables tapping whether the counties are rural, retirement and farm-dependent.

We turn finally to regression analyses of the gay and lesbian partnering indexes. We use the eight ecological characteristics of the nonmetropolitan counties shown in Table 3 as independent variables. And once again, we restrict the sample of nonmetropolitan counties to those with at least 20 partnered gays for the gay equation, and at least 20

partnered lesbians for the lesbian equation. The statistical tolerances of these eight independent variables are all above .905, with a mean tolerance of .952. There is no problem regarding the collinearity of these eight independent variables.

Table 4 reports the results of two ordinary least squares regressions, one with the gay rates and another with the lesbian rates. For the gay equation, the signs of six of the eight predictor variables are as expected; only the education and adjacency variables are not signed in the hypothesized directions. Of the six correctly signed coefficients, three are statistically significant. These are the farm-dependent, retirement, and rural coefficients; all three are positively associated with gay prevalence. If a nonmetropolitan county is a retirement county, on average it will have 2.7 more partnered gays per 1,000 unmarried males than counties that are not retirement counties, controlling for the other independent variables. If it is a farm-dependent county, it will have on average 1.7 more partnered gays than counties that are not farming dependent. If it is a rural county, it will have 3.8 more partnered gays than non-rural counties.

We may appraise the relative effects of the independent variables in the gay equation by examining their standardized regression coefficients (shown in Table 4 in parentheses below the metric coefficients). Although there is a problem in the interpretation of the meaning of standardized coefficients when the independent variable is a dummy variable (cf. Long, 1997), the standardized values nevertheless indicate the relative effects of the ecological variables on the gay prevalence rate. The rural variable has the greatest relative effect on the prevalence of gay partnering, followed by the retirement variable.

The multiple regression results for the lesbian equation are somewhat similar to those for the gay equation. As was the case with the gay equation, in the lesbian equation the farming, retirement and rural variables are all positive and significant. Unlike the results in the gay equation, however, in the lesbian equation, the mining, education and adjacency variables are also positive and significant; the other independent variables are not significantly associated with the prevalence of lesbian partnering.

The most influential ecological variables in the lesbian equation are the rural variable followed by the retirement variable and the farm-dependent variable; these were also the three more important predictors in the gay equation. The education variable is the next most influential, followed by the mining variable, and then the adjacency variable. Among the nonmetropolitan counties, for every one standard deviation increase in the percentage with a college education, there is a .13 standard deviation increase in the lesbian partnering rate.

The multiple regression equations reported in Table 4 were estimated for those 1,267 nonmetropolitan counties with at least 20 partnered gays (the gay equation), and for those 1,364 nonmetropolitan counties with at least 20 partnered lesbians (the lesbian equation). However, one might ask how similar or different the results would have been had the gay and lesbian equations been estimated for counties with greater (or lesser) minimum numbers of partnered gays and lesbians. We thus estimated the same multiple regressions among counties with at least 9 partnered gays (or lesbians), with at least 29 partnered gays (or lesbians), and with at least 39 partnered gays (or lesbians). The regression results of these equations, along with those from Table 4, are summarized in

Table 5. We report only the signs of the unstandardized *b* coefficients; the signs of the coefficients are asterisked if they are statistically significant at $P < .05$ (one-tail tests).

The results in Table 5 demonstrate the robustness of the results reported in Table 4. The regression results are essentially the same for equations estimated for counties with at least nine partnered gays (or lesbians), with at least 19 partnered gays (or lesbians), with at least 29 partnered gays (or lesbians), and with at least 39 partnered gays (or lesbians). In all the gay equations, the significant predictors of gay prevalence are whether the county depends on farming as a major sustenance activity, whether it is a retirement destination, and whether it is rural.

In all the lesbian equations, the significant predictors of lesbian prevalence are whether the county is a retirement county, whether it is rural, and its percentage of college educated people. In the lesbian equations this latter predictor is positively signed, as expected. In three of the four lesbian equations, the mining variable and the adjacency variable are positively signed and significant; only in the lesbian equation estimated for counties with at least 40 partnered lesbians are these two variables not statistically significant.

An ecological orientation provides an informative perspective for evaluating the prevalence of rates of gay and lesbian partnering among the nonmetropolitan counties of the U.S. in 2000. Moreover, the reported results hold fairly consistently irrespective of the minimum numbers of partnered gays and lesbians in the nonmetropolitan counties. That is, most of the same predictors of gay and lesbian prevalence are statistically significant when we estimate the equations among counties with greater (or lesser) minimum numbers of

partnered gays and lesbians. Even though there remains a considerable amount of the variance to be explained in the gay rates and in the lesbian rates, it is clear that structural characteristics of the counties are associated with the relative prevalence of partnered homosexuals in the counties. We turn now to a discussion of these results.

Discussion and Conclusion

In this paper we used census data to measure the numbers of partnered gays and lesbians in the nonmetropolitan counties of the U.S. in 2000, and to develop a rate to measure their relative prevalence in the counties. Although it appears that the census enumerations undercounted partnered gays and lesbians, these are the best county-level estimates available on gay and lesbian prevalence. The prevalence index we developed, moreover, was itself robust. We noted that it does not seem to matter whether persons or households were used as the numerator, or whether ever married, never married, or all persons of age 18 and over, or same-sex households or all households, were used as the denominator, the rate we selected to use in this paper was highly correlated with rates using alternative numerators and denominators

We also asked about the kinds of ecological characteristics that influence and are related to the geographical locations of gay and lesbian partners. Drawing on sociological human ecology, we identified various ecological characteristics of nonmetropolitan counties that could be argued to be related to levels of gay and lesbian concentration, such as whether the counties are farming-dependent and mining-dependent, whether they are retirement counties and rural counties, and whether they are adjacent to metropolitan areas.

We also considered the educational levels of the counties, the percentage voting Republican in the 1992 presidential election, and the crime rate.

The variables that were most influential in predicting levels of gay and lesbian concentration were whether the counties were retirement counties and whether they were rural; also significant was whether the county was farming-dependent. The education and adjacency variables were significant in the lesbian equation.

Our analysis indicates that more research is needed to determine the quality of census data on gays and lesbians and the methodology to be used that best captures their levels of geographic concentration. As just noted, we estimated that the 2000 census underreported the numbers of partnered gays and lesbians.

One way of studying this issue of data quality would be for a researcher to undertake in-depth qualitative interviews of samples of gay and lesbian households in nonmetropolitan counties and to ask them "how" and "why" they answered the question on the 2000 Census pertaining to "relationship to the Householder," and used or did not use the "unmarried partner" response. An influential and important research study published in the 1990s was *Ethnic Options* by Waters (1990). She interviewed persons and asked them about how and why they answered the "ancestry" question on the 1980 Census. She learned much about the dynamics of answering the "ancestry" question and the pros and cons in using these data to estimate the numbers of persons of different ancestries residing in the U.S. Similar research now needs to be undertaken among gay and lesbian couples. Such research would tell us a great deal about the advantages and disadvantages in using these data to enumerate gays and lesbians in the U.S.

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Table 1.
Descriptive Data:
Numbers of Partnered Gays and Lesbians:
2,267 Nonmetropolitan Counties of the U.S., 2000

Index	Mean	Standard Deviation	Minimum Value County	Maximum Value County
Partnered Gays	36	47	0 77 counties	780 Monroe County, FL
Partnered Lesbians	41	52	0 73 counties	600 Ulster County, NY
Partnered Gays and Lesbians	77	96	0 20 counties	1,118 Sussex County, DE

Table 2.
Means, Standard Deviations, and Lowest and Highest Values:
Rate of Gay Partnering and Rate of Lesbian Partnering:
1,305 (and 1,401) Nonmetropolitan Counties of the U.S., 2000

Rate	Mean	Standard Deviation	Lowest Value *County*	Highest Value *County*
Gay Rate	13.3	5.1	3.1 Riley County, KS	47.2 Monroe County, FL
Lesbian Rate	12.3	4.7	3.2 Madison County. ID	43.0 Gilpin County, CO

Counties with Ten Highest Partnered Gay Rates and Ten Highest Partnered Lesbian Rates

County (Beale Code)	Gay Index	Number of Partnered Gays
Forest County, Pennsylvania (9)	32.56	24
Sussex County, Delaware (6)	33.22	626
Duchesne County, Utah (7)	33.28	40
La Paz County, Arizona (7)	34.24	96
Comanche County, Texas (7)	34.35	46
Jackson County, Kansas (6)	34.43	44
Presidio County, Texas (7)	35.98	24
Warren County, Indiana (8)	36.54	30
Lyon County, Kentucky (9)	46.83	34
Monroe County, Florida (4)	47.22	780

County (Beale Code)	Lesbian Index	Number of Partnered Lesbians
Teller County, Colorado (6)	30.87	66
Windham County, Vermont (7)	31.14	240
Pushmataha County, Oklahoma (7)	31.29	48
San Juan County, Washington (8)	31.75	70
Presidio County, Texas (7)	32.98	28
Jefferson County, Montana (9)	37.15	36
Orange County, Vermont (9)	37.99	154
Franklin County, Massachusetts (4)	38.96	506
Park County, Colorado (8)	40.55	62
Gilpin County, Colorado (8)	42.98	26

Table 3.

Zero-Order Correlations:
Two Gay and Lesbian Partnering Indexes with
Eight Ecological Variables:
Nonmetropolitan Counties of the U.S., 2000

Ecological Correlate	Gay Rate	Lesbian Rate
Farm-dependent (+)	.134*	.153*
Mining-dependent (+)	.044	.042
Retirement (+)	.197*	.195*
Rural (+)	.320*	.318*
Percent w/ College Education (+)	-.127*	.068*
Serious Crime Rate (-)	-.047*	-.041
Percent Voting Republican (-)	-.010	-.004
Adjacent to Metropolitan Area (+)	-.069*	.013
Number of Nonmetropolitan counties	1,267	1,364

* Correlation statistically significant at $P < .05$, one-tail.

Table 4
Metric and Standardized Regression Coefficients from Multiple Regression Equations of Gay and Lesbian Partnering Rates on Eight Ecological Correlates: Nonmetropolitan Counties of the U.S., 2000

Ecological Correlate	Gay Rate	Lesbian Rate
Farm-dependent (+)	1.718* (.091)	2.224* (.132)
Mining-dependent (+)	0.762 (.035)	1.344* (.065)
Retirement (+)	2.720* (.176)	2.222* (.152)
Rural (+)	3.813* (.265)	3.746* (.295)
Percent w/ College Education (+)	-0.902 (-.097)	1.098* (.127)
Violent Crime Rate (-)	-0.000 (-.017)	-0.000 (-.017)
Percent Voting Republican (-)	-0.006 (-.013)	0.010 (.022)
Adjacent to Metropolitan Area (+)	-0.656 (-.065)	0.516* (.022)
Constant	14.003*	9.245
R^2 (adjusted)	.145	.152
Number of nonmetropolitan counties	1,267	1,364

* Coefficient statistically significant at $P < .05$, one-tail.

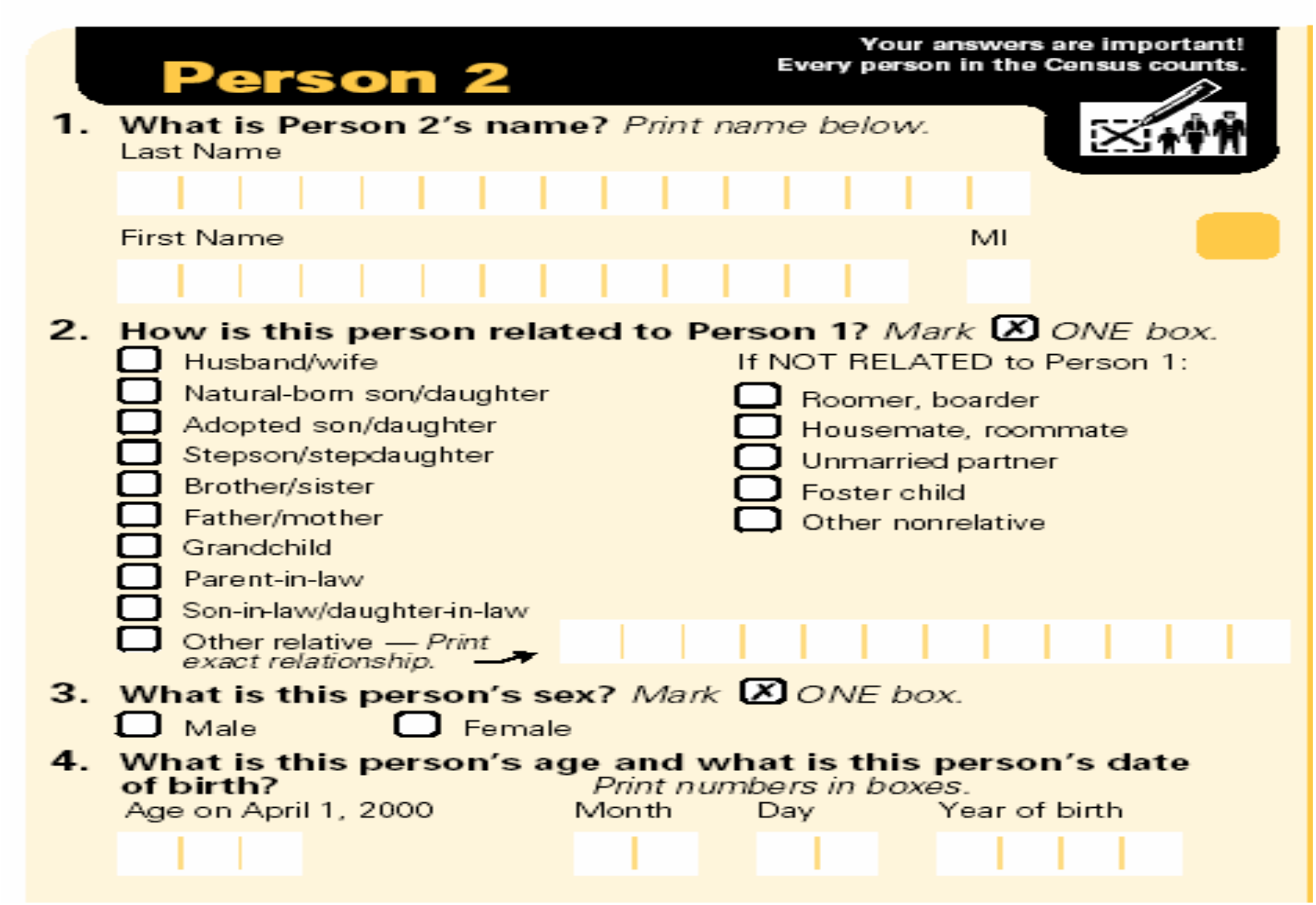
Standardized coefficients reported in parentheses.

Table 5
Signs of Metric Regression Coefficients from Several Multiple Regression Equations of Gay and Lesbian Partnering Rates on Eight Ecological Correlates: Nonmetropolitan Counties of the U.S., 2000

Ecological Correlate	10+ Counties		20+ Counties		30+ counties		40+ counties	
	Gay	Lesb	Gay	Lesb	Gay	Lesb	Gay	Lesb
Farm-dependent (+)	+*	+*	+*	+*	+*	+*	+*	+
Mining-dependent (+)	+*	+*	+	+*	-	+*	-	+
Retirement (+)	+*	+*	+*	+*	+*	+*	+*	+*
Rural (+)	+*	+*	+*	+*	+*	+*	+*	+*
Percent w/ College (+)	-	+*	-	+*	-	+*	-	+*
Violent Crime Rate (-)	+	-	-	-	-	-*	-	-*
Percent Republican (-)	-*	-	-	-	+	+	+	+
Adjacent to Met Area (+)	-	+*	-	+*	-	+*	-	+
Constant	+*	+*	+*	+*	+*	+*	+*	+*
R^2 (adjusted)	.11	.12	.15	.15	.16	.16	.14	.15
Number of counties	1,707	1,741	1,267	1,364	922	1,005	692	769

* Coefficient statistically significant at $P < .05$, one-tail.

Figure 1. Reproduction of the Question on Relationship to Householder From Census 2000



Person 2

Your answers are important!
Every person in the Census counts.

1. What is Person 2's name? *Print name below.*

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

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? *Print numbers in boxes.*

Age on April 1, 2000 Month Day Year of birth

Figure 2.

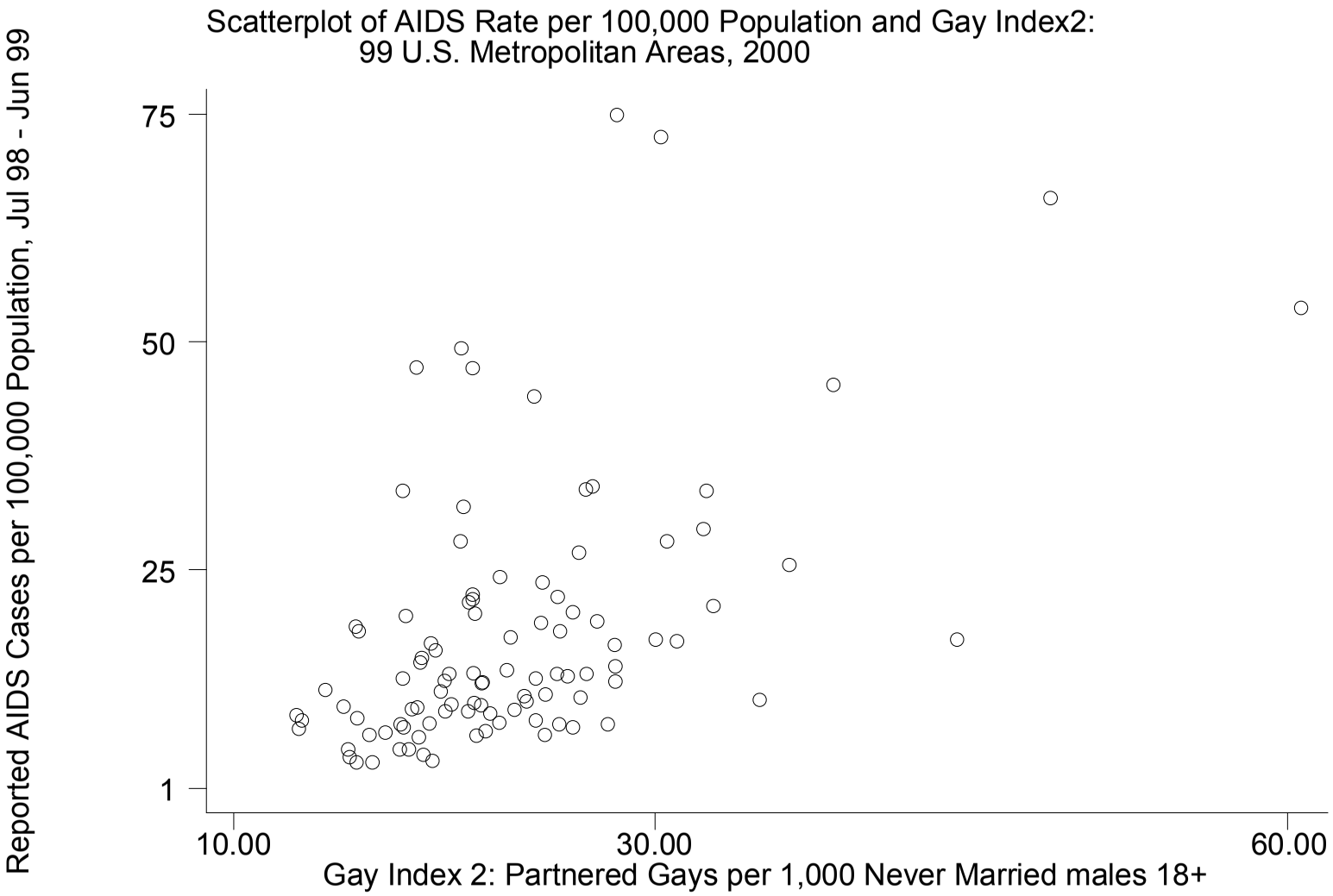

Scatterplot of AIDS Rate per 100,000 Population and Gay Index2:
99 U.S. Metropolitan Areas, 2000
Reported AIDS Cases per 100,000 Population, Jul 98 - Jun 99
75
50
25
1
10.00
30.00
60.00
Gay Index 2: Partnered Gays per 1,000 Never Married males 18+

Figure 3.

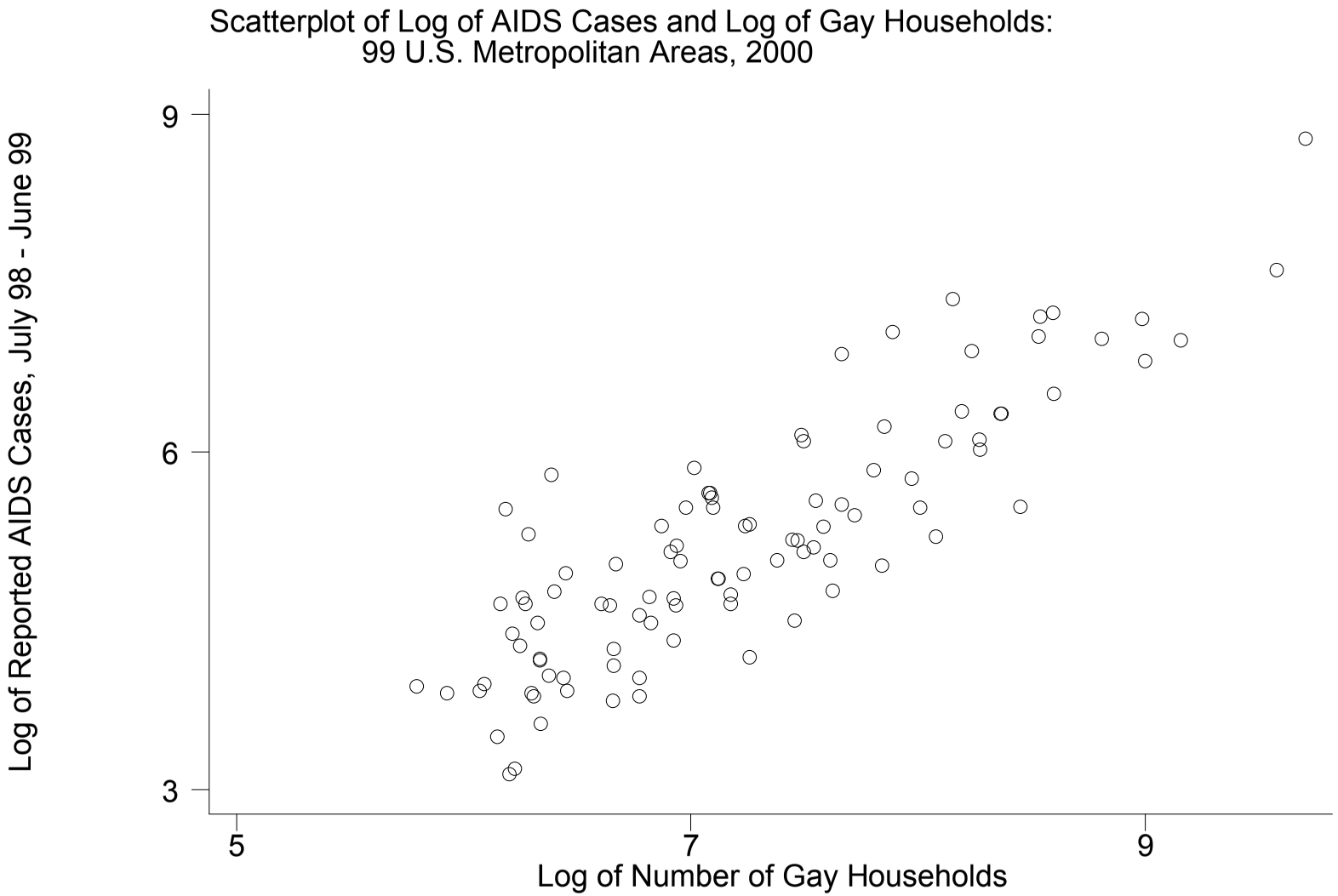

Scatterplot of Log of AIDS Cases and Log of Gay Households:
99 U.S. Metropolitan Areas, 2000
Log of Reported AIDS Cases, July 98 - June 99
9
6
3
5
7
9
Log of Number of Gay Households

Figure 4. Box Plots of Numbers of Partnered Gays & Lesbians:

2,267 Nonmetropolitan Counties of the U.S., 2000

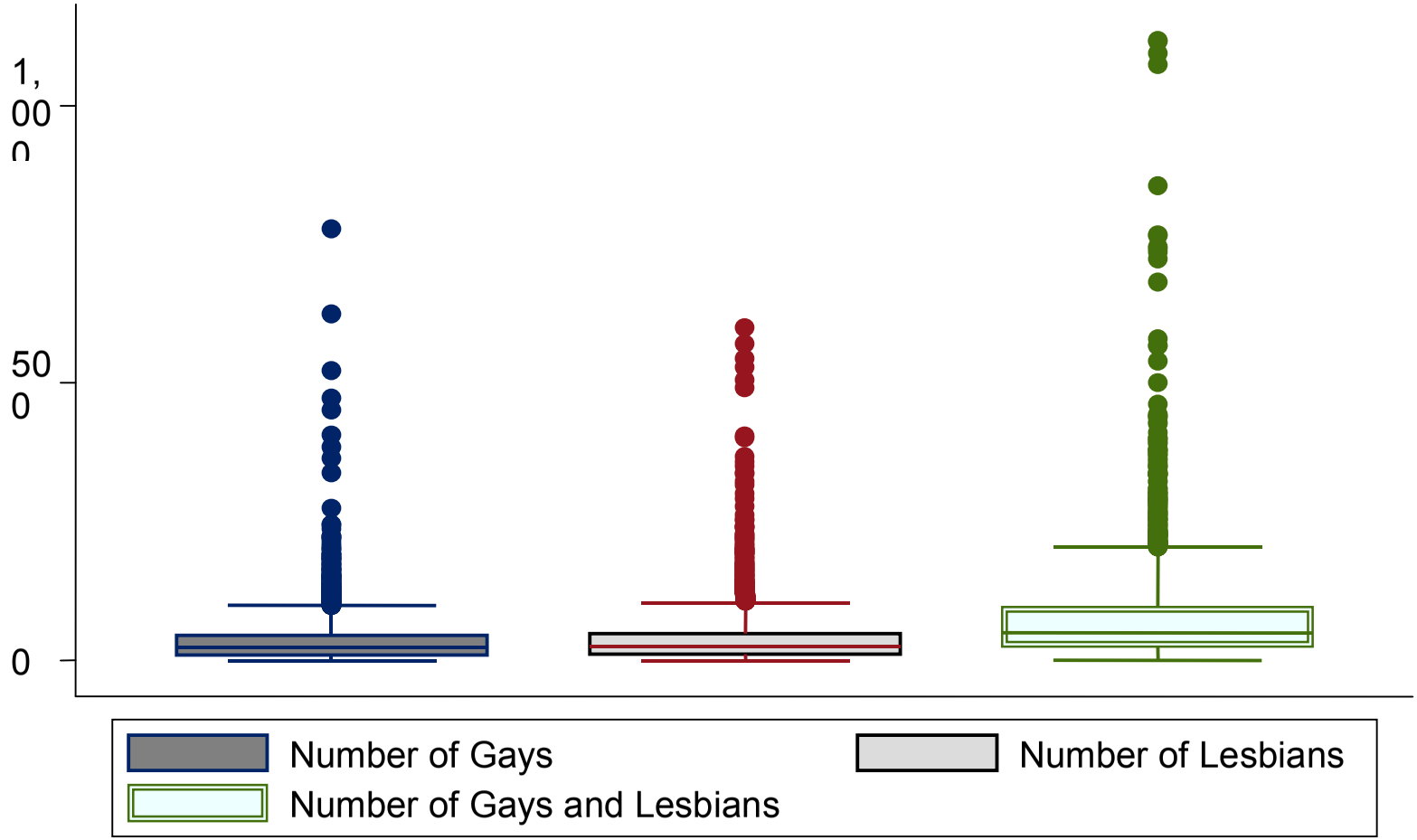


Figure 5.

Box Plots of Numbers of Partnered Gays by Beale County Codes:

2,267 Nonmetropolitan Counties of the U.S., 2000

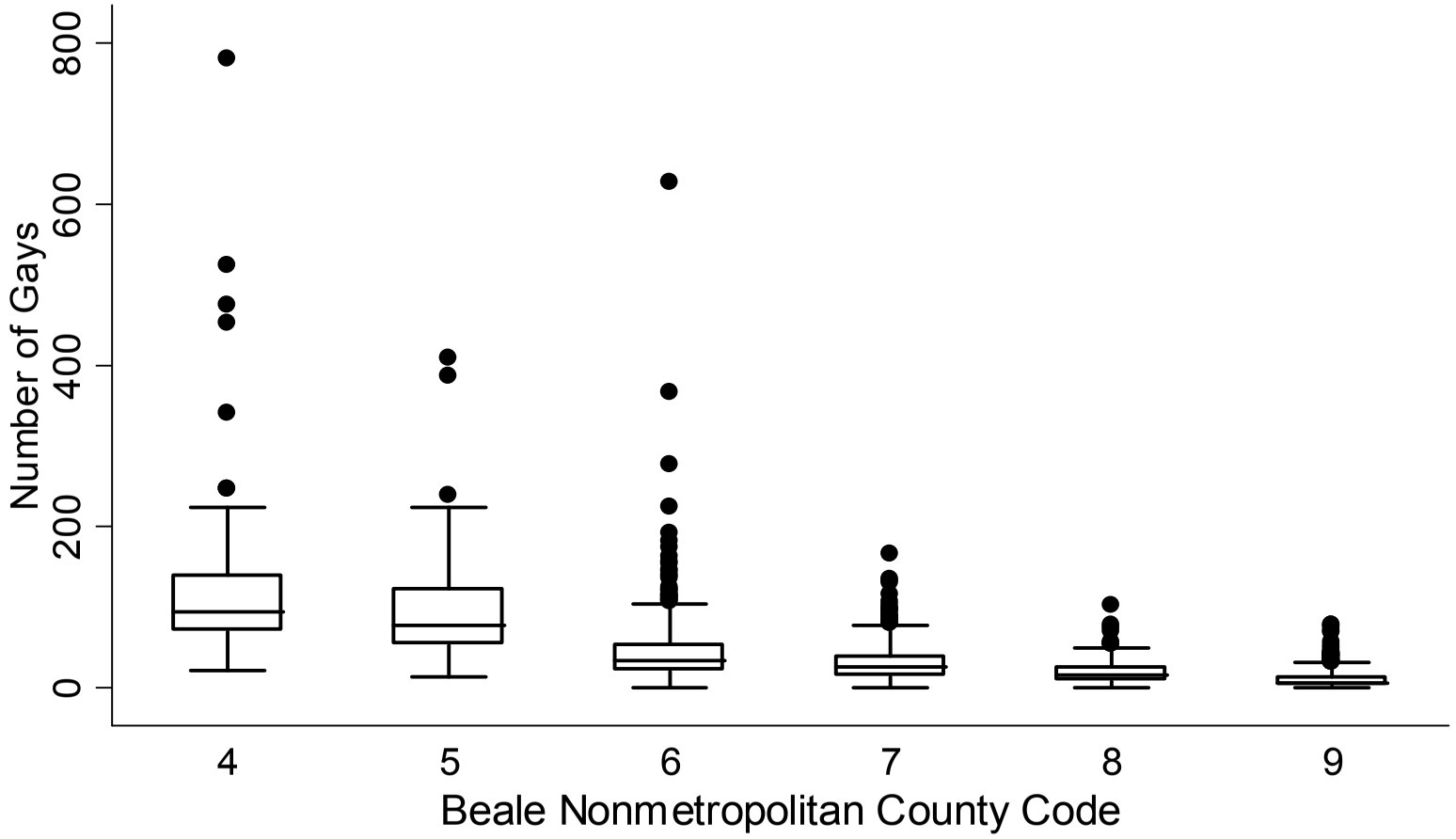


Figure 6.

Box Plots of Numbers of Partnered Lesbians by Beale County Codes:
2,267 Nonmetropolitan Counties of the U.S., 2000

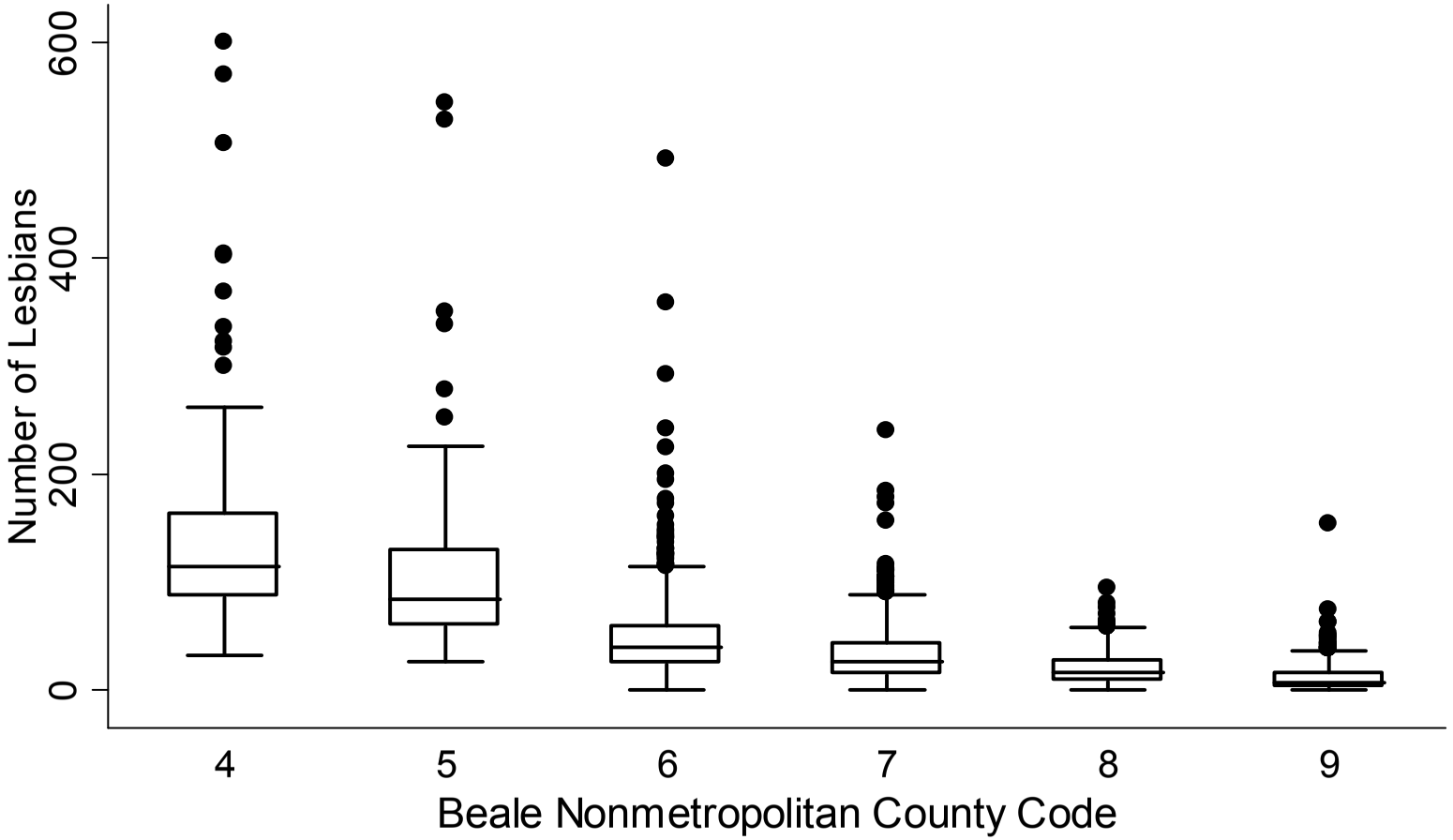


Figure 7.

Box Plots of Rates of Partnered Gays by Beale County Codes:
1,305 Nonmetropolitan Counties of the U.S., 2000

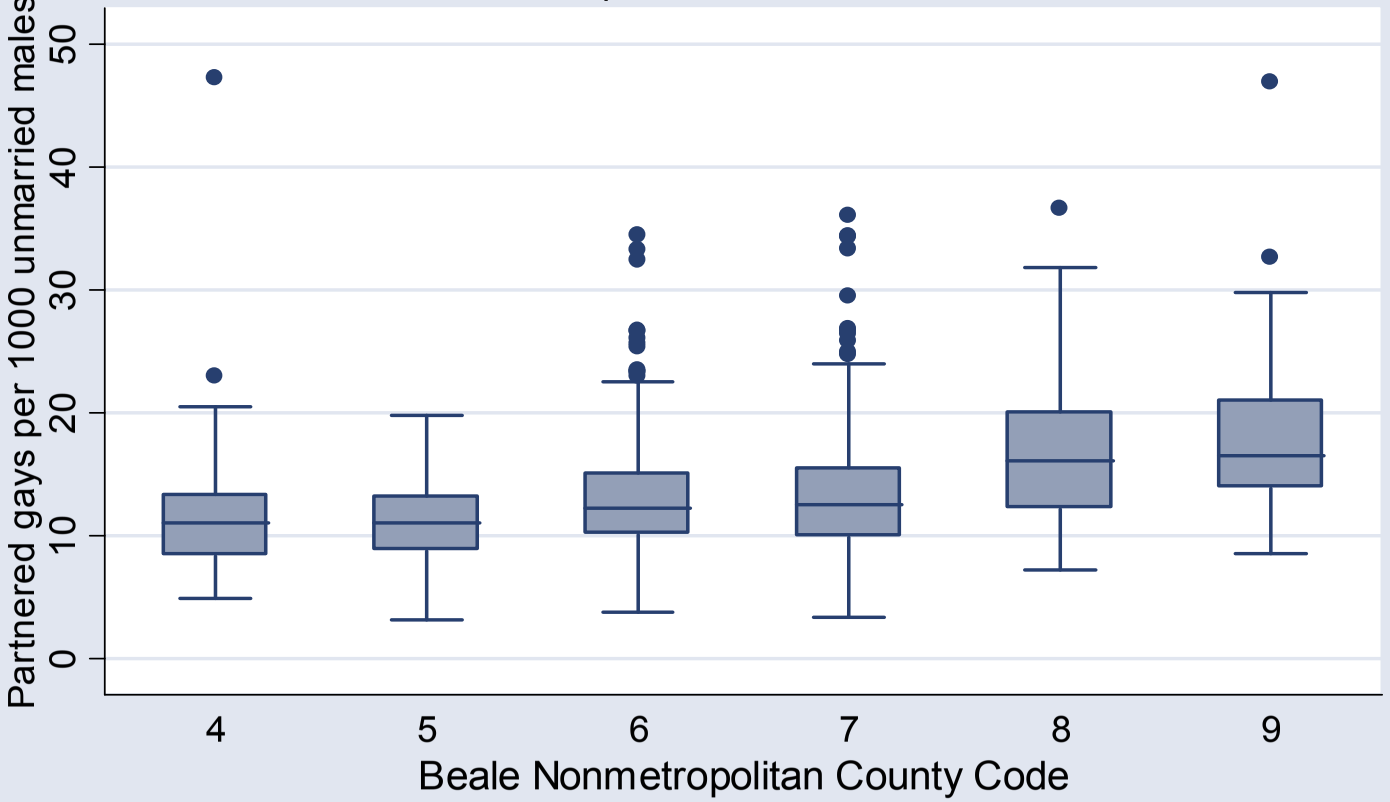


Figure 8.

Box Plots of Rates of Partnered Lesbians by Beale County Codes:
1,401 Nonmetropolitan Counties of the U.S., 2000

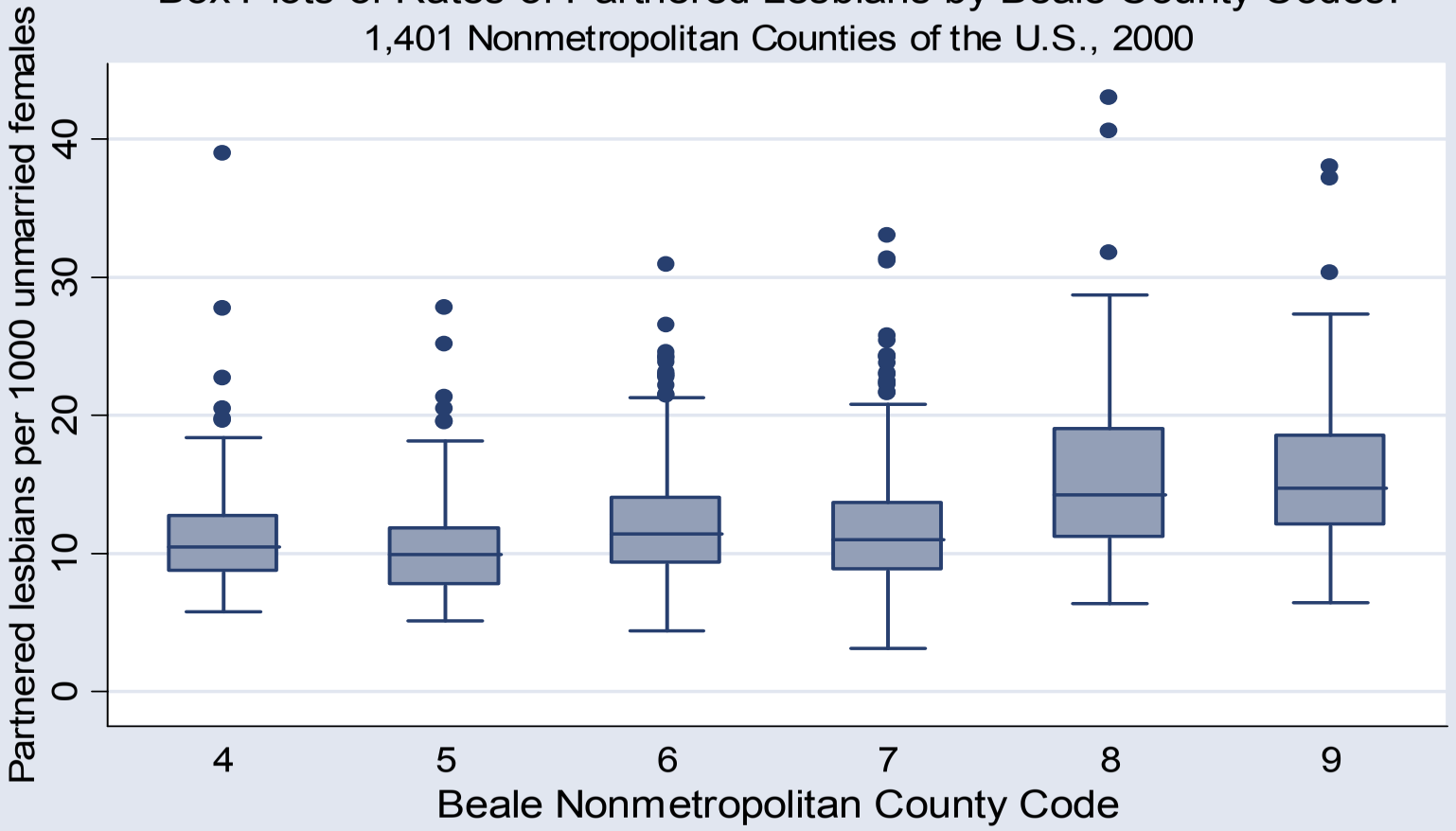


Figure 9. Scatterplot of Gay Index and Lesbian Index:
1,182 Nonmetropolitan Counties of the U.S., 2000