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Declining Segregation of Same-Sex Partners: Evidence from Census 2000 and 2010

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Abstract

Despite recent media and scholarly attention describing the “disappearance” of traditionally gay neighborhoods, urban scholars have yet to quantify the segregation of same-sex partners and determine whether declining segregation from different-sex partners is a wide-spread trend. Focusing on the 100 most populous places in the United States, I use data from the 2000 and 2010 Decennial Census to examine the segregation of same-sex partners over time and its place-level correlates. I estimate linear regression models to examine the role of four place characteristics in particular: average levels of education, aggregate trends in the family life cycle of same-sex partners, violence and social hostility motivated by sexual orientation bias, and representation of same-sex partners in the overall population. On average, same-sex partners were less segregated from different-sex partners in 2010 than in 2000, and the vast majority of same-sex partners lived in environments of declining segregation. Segregation was lower and declined more rapidly in places that had a greater percentage of graduate degree holders. In addition, segregation of female partners was lower in places that had a greater share of female partner households with children. These findings suggest that sexual orientation should be considered alongside economic status, race, and ethnicity as an important factor that contributes to neighborhood differentiation and urban spatial inequality.

Keywords

Residential segregation; Same-sex partners; Gay and lesbian population; Sexual orientation; Neighborhoods

Introduction

A recent wave of media attention described the shifting demographic composition of traditionally gay neighborhoods such as San Francisco's Castro district and Chicago's Boystown neighborhood (Ghaziani 2010). With headlines like “Culture Clash: Boystown Shifting as More Families Move In” (Kyles 2007) and “S.F.'s Castro District Faces an Identity Crisis” (Buchanan 2007), these articles described the disappearance of gay residents and gay symbols and the influx of heterosexual residents in traditionally gay neighborhoods. Shifts in the residential distributions of same-sex and different-sex partners have been met with mixed reactions—some residents and activists view the changes as a sign of greater equality, whereas others say gay neighborhoods are losing their identity (Buchanan 2007; Ghaziani 2010).

Despite the concern for the future of gay neighborhoods, urban scholars have yet to quantify the segregation of same-sex partners from different-sex partners at the city level, in order to gain a better understanding of how separated these two populations truly are. A lack of high-quality, large-scale data has hindered in-depth empirical analyses of the geographic distributions of same-sex partner households. Census 2010, combined with Census 2000, provides the first real opportunity to analyze the segregation of same-sex partners over time.

The purpose of this paper is to document changes in residential segregation of same-sex partner households from different-sex partner households in large cities between 2000 and 2010 using data from the US Decennial Census. Same-sex partners are compared to different-sex partners because the household types are similar in structure (both consist of partners who may be married or unmarried cohabitators), but the difference of being same- or different-sex partners may contribute to residential separation. A secondary purpose is to explore the cross-sectional correlates of segregation and predictors of change at the place level, focusing on average levels of education, aggregate trends in the family life cycle of same-sex partners, violence toward LGBT (lesbian, gay, bisexual, and transgender) individuals, and representation of same-sex partners in the population. The findings may have positive and negative implications for same-sex partners, because lower segregation opens up residential possibilities while also rendering the LGBT community less visible in urban space (Ghaziani 2010). In addition, lower segregation may increase intergroup contact between same-sex partners and other household types, potentially reducing prejudice toward same-sex partners (Allport 1954) and decreasing stigma toward same-sex union formation (Rosenfeld 2007).

This paper also has implications for the broader body of research on residential segregation. This study firmly implants sexual orientation on the list of characteristics, including economic status, race, and ethnicity, that contribute to neighborhood differentiation and urban spatial inequality. In fact, I will show that levels of segregation of same-sex partners are on par with the other, more researched types of segregation. I begin with a brief historical review of the segregation of same-sex partner households, followed by a discussion of the theoretical links between segregation and place characteristics.

Literature Review

Historical Segregation of Same-Sex Partner Households

The first distinct gay neighborhoods arose when many homosexual men and women serving in World War II were dishonorably discharged, but rather than return home, settled in port cities like San Francisco (Ghaziani 2010). According to Ghaziani (2010), it was during this time that the “closet era”, during which gay locales were discrete, gave way to the “coming-out era”, which was characterized by the development of formal gay neighborhoods like the Castro. Gay neighborhoods provided protection, access to social networks, enhanced visibility of the gay community, political power, and a sense of community pride.

Some scholars have argued that gay life in the United States is now so open, despite a persistent privileging of heterosexuality by the government, societal institutions, and popular culture, that we are beginning to witness the “unraveling” of gay neighborhoods (Seidman 2002; Ghaziani 2011). Sociologist Amin Ghaziani (2010, 2011) has contended that the new “post-gay” era, as it has been called, is characterized by an assimilation of gay individuals into mainstream society. According to Ghaziani (2010), assimilation contributes to an expansion of the gay “residential imagination” to encompass entire cities rather than just specific streets. Assimilation also motivates some gay individuals to think of their sexuality as indistinguishable from heterosexuals, and this compels them to select residences outside of gay neighborhoods (Ghaziani 2010). At the same time, gay residential and commercial

zones have become increasingly visited by the public at large, and this consumption of gay neighborhoods by a broader, non-gay public disrupts gay space's homogeneity (Rushbrook 2002). These neighborhood shifts come together to impact the overall degree of residential separation between same-sex and different-sex partners within a city.

Growth in the number of same-sex partner households has accompanied the transformation of gay neighborhoods. Same-sex partners were first distinguished from ordinary roommates in the 1990 US Census. The population of same-sex partners roughly doubled between 1990 and 2000 (Rosenfeld 2007), and increased by another 80 % the following decade to approximately 313,577 male–male partner households and 332,887 female–female partner households in 2010 (Gates and Cooke 2012). There are several weaknesses to Census counts of same-sex partners: the Census did not ask sexual orientation directly, it did not tabulate same-sex couples outside of marital or cohabiting unions, and some individuals may have been unwilling to report living with a same-sex partner (Badgett and Rogers 2003; Gates 2010). Even with its weaknesses, the Census provides the best available estimates of the number of same-sex partners in the United States, and with data available at multiple points in time, a large-scale study of segregation can finally be undertaken.

Cross-Sectional Correlates of Segregation and Predictors of Change

In addition to estimating segregation scores, this study also seeks to identify place-level correlates of segregation and predictors of change. No study has examined the correlates of same-sex partners' segregation from different-sex partners; however, there is a growing literature that describes what makes a city an attractive location for same-sex partners from which the predictor variables for the present segregation study are drawn (Florida and Gates 2001; Florida 2005; Black et al. 2002; Cooke and Rapino 2007). Some of the most influential research on the topic, conducted by Florida and Gates (2001), Florida (2005), and Black et al. (2002), has established a fairly consistent relationship between same-sex concentration, concentration of college-educated residents, property values, and local amenities. Although the presence of children in same-sex households has not been included as a place-level correlate in the aforementioned studies, researchers acknowledge its importance. Indeed, a key assumption of Black et al.'s (2002) amenity argument is that same-sex partner households are able to spend more income on housing and living in amenity-rich regions because they are less likely to include children. At the neighborhood level, Hayslett and Kane (2011) identified a spatial correlation between concentrations of same-sex partners, net of other neighborhood characteristics like education, percent children, home values, and amenities. They suggest that the geographic clustering may be a protective mechanism to shield same-sex partners from the threat of violence directed toward LGBT individuals (Hayslett and Kane 2011). There is mixed evidence that the presence of an existing gay population influences the location decisions of same-sex partners. Cooke and Rapino (2007) found that net migration of female same-sex partners was directed to regions with a large, existing, female same-sex partnered population, whereas the net migration of male partners was directed toward regions rich in amenities without regard to the absolute or relative size of the population of same-sex partners. In sum, previous research has found that education (which is also related to local amenities and property values), the presence of children, and, to some extent, greater representation of same-sex partners all predict larger city-wide populations of same-sex partners, and the threat of violence is thought to encourage greater concentration within a city. However, the implications of each of these variables for segregation remain unclear, and are discussed in further detail below.

Education—There are two reasons to expect that average levels of education in a place and the segregation of same-sex households are negatively correlated. First, Florida and others have argued that both same-sex partners and “knowledge workers” seek out high-

amenity areas that offer cultural and other “adult-related” amenities (Florida and Gates 2001; Florida 2005). “Knowledge workers” are a highly educated population, and Florida argues that knowledge workers and same-sex partners tend to have overlapping residential distributions because both prefer to live in high-amenity locations and have the economic means to do so (Florida and Gates 2001; Florida 2005). There is debate over whether same-sex unions have higher incomes than husband–wife unions (Badgett 1995; Black et al. 2003), but same-sex unions are generally assumed to have more disposable income because they are less likely to have children, and the corresponding expenses (Black et al. 2002). A greater prevalence of knowledge workers in a place may indicate that there are plentiful opportunities to live in high-amenity neighborhoods, promoting lower segregation.

Second, previous studies have found that favorable attitudes toward same-sex households and education are positively related (Herek and Capitanio 1996; Barth et al. 2009). For instance, Barth et al. (2009) found a 22 percentage point difference in support for an anti-gay rights referendum between those in the lowest educational category (no high school diploma) and those in the highest educational category (postgraduate education). Higher levels of education in the place may be accompanied by more favorable attitudes toward same-sex households, promoting lower segregation. Social attitudes have not proven to be strongly related to the concentration of same-sex partners (Black et al. 2002; Cooke and Rapino 2007). Black et al. (2002) found strong binary correlations between same-sex partner concentration and the percentage of the population believing that sex between members of the same sex was always wrong. But, the magnitude of the correlation was substantially reduced once housing costs were taken into account. Similarly, Cooke and Rapino (2007) found that gay-unfriendly and gay-friendly state laws were unrelated to the migration of same-sex partners to the area. However, the implications of social attitudes and education on segregation have not been studied. We would expect segregation to be lower in places with higher levels of education.

Family Life Cycle—One of the reasons to expect segregation between different-sex and same-sex partners is their differential rates of having children. Nationally, about 17 % of male same-sex partner households and 28 % of female same-sex partner households included own children under age 18 (children by birth, adopted children, or stepchildren), compared to 42 % of husband–wife households and 39 % of male–female unmarried partners (US Census Bureau 2010). Households with and without children, with their differing housing needs and preferences, ascribe different importance to residential factors like the quality of local schools, age of the housing stock, cost of housing, and homeownership (Rossi 1980). On average, different-sex partners may seek out more “child-oriented” neighborhoods than same-sex partners. This has not explicitly been studied; however, if we look at Census data for the ten metropolitan areas identified by Gates and Ost (2004) in *The Gay and Lesbian Atlas* as having the highest concentration of same-sex partners, they all had below-average representation of households with children. Gates and Ost (2004) also found that same-sex partners with children were more likely than same-sex partners without children to live in cities where more households had children overall. According to Gates and Ost (2004), it may be that same-sex couples with children tend to live in areas where all couples are more likely to have children, or that same-sex couples with children move near other couples with children (and the better child-oriented amenities such as schools and parks that likely go with them) rather than locating near other same-sex couples (Gates and Ost 2004). Either way, this evidence suggests a link between aggregate trends in the family life cycle of same-sex partners and segregation. In places where the proportion of same-sex partners with children approaches the proportion of different-sex partners with children, we would expect segregation to be lower.

Violence and Social Hostility—Some scholars have suggested that geographic clustering of same-sex partners may be a protective mechanism to shield themselves from violence and social hostility directed toward LGBT individuals (Ghaziani 2010; Hayslett and Kane 2011), but no study of same-sex residential patterns has incorporated direct measures of hate crime. Hate crimes are typically defined as unlawful conduct motivated by animus against the victim's perceived race, religion, ethnicity, or sexual orientation, and include violent crimes as well as destruction of property, harassment, or trespassing (Green et al. 2001). Hate crimes based on sexual orientation occur frequently in the United States—in 2010, over 19 % of hate crimes reported to the FBI resulted from sexual orientation bias (US Department of Justice 2010). Even a few well-publicized crimes have the potential to have a lasting effect on perceptions of safety in the city (Skogan 1986). It follows that cities with fewer hate crimes directed at LGBT individuals would be less segregated. The hate crime hypothesis has not explicitly been studied. As previously mentioned, intolerance of same-sex unions and gay-unfriendly state laws have not proven to be related to the distribution of same-sex partners (Black et al. 2002; Cooke and Rapino 2007). However, social attitudes toward same-sex partners and the prevalence of hate crimes are two distinct considerations, and are not as strongly correlated at the collective level as one might assume (Green et al. 2001). Hate crimes are influenced by the perpetrator's attitudes toward LGBT individuals, but also by the availability of potential targets. Indeed, Green et al. (2001) noted that gay men are frequently attacked in relatively tolerant gay neighborhoods rather than in neighborhoods known to be hostile to them. Cities with more same-sex partners, and even more favorable attitudes toward LGBT individuals overall, may harbor greater risk of violence and social hostility toward LGBT individuals. We would expect that places with more frequent hate crimes motivated by sexual orientation will also be more segregated.

Representation of Same-Sex Partners—Representation of same-sex partners refers to the percentage of total households that are same-sex partner households. Research on racial segregation has found that representation of minority group members is positively associated with segregation (Logan et al. 2004). Researchers have deemed the positive association as support for the minority group preferences hypothesis: a large minority group allows its members to create their own social institutions and a racially homogenous community by choice (Patterson 1997; Thernstrom and Thernstrom 1997). It is uncertain how much preference to live in distinctly same-sex neighborhoods contributes to the segregation of same-sex partners. Castells (1997) research in San Francisco and Hayslett and Kane's (2011) research in Columbus concluded that the geographic concentration of gay males reflected a desire to live in gay-defined space. In their analysis of migration of same-sex partner households, Cooke and Rapino (2007) found that independent of amenities, tolerance, and other characteristics, certain places dominated as destinations for gay and lesbian migrants. They remarked “these places all share a culturally accepted role as destinations for gay and lesbian migration...these patterns reflect information, accurate or not, from the gay and lesbian community as well as popular culture about idealized places for partnered gays or lesbians to live” (Cooke and Rapino 2007:297). Cooke and Rapino (2007) also found that the presence of a large, existing, female same-sex partnered population predicted greater net migration of female same-sex partners to the region. Yet a poll conducted by the *Advocate*, a leading gay-interest magazine, found that 69 % of its readers “prefer to live in an integrated neighborhood rather than a distinct gay ghetto” (Advocate 2007:10).

Researchers have also deemed the positive association between minority representation and segregation as support for the racial-threat hypothesis: a larger minority group increases the salience of the group's location for whites (Blalock 1967). A well-documented literature describes the procedures through which whites restrict the residential options of blacks in response to such a perceived threat (Farley et al. 1994). Using the same logic, we can hypothesize that same-sex partners' residential options are restricted by heterosexual

individuals in response to a perceived threat. Indeed, several studies have documented concerted efforts by landlords to discriminate against same-sex households in the rental housing market (Ahmed and Hammarstedt 2009; Lauster and Easterbrook 2011), and a recent study by Christafore and Leguizamon (2012) found evidence of prejudice and discrimination against same-sex partners when analyzing home prices in politically conservative neighborhoods. Thus, we would expect segregation to be higher in places with greater representation of same-sex partners.

Gendered Patterns of Segregation

Previous research has consistently identified differences in the spatial distribution of male and female same-sex partners (Castells 1983; Bell and Valentine 1995; Black et al. 2002; Anacker and Morrow-Jones 2005; Hayslett and Kane 2011). Male same-sex partners are more likely to inhabit segregated neighborhoods and distinct gay territories, whereas female same-sex partners tend to be less segregated or establish less visible neighborhoods. Some have argued that this reflects differences in men's and women's need to establish territory and control space (Escoffier 1975; Castells 1983). Others have argued that this reflects the lower economic status of women (Adler and Brenner 1992; Bouthillette 1997). In addition, although female same-sex partners are less likely to have children than different-sex partners, they are more likely to have children than male same-sex partners (Black et al. 2000), and may be more likely to seek out child-friendly areas outside of gay neighborhoods. For those reasons, I analyzed male and female same-sex partners separately.

Research Methods

I investigated the segregation of same-sex partners from different-sex partners in the 100 largest census-defined places based on 2010 population size. Places were defined as consolidated cities, incorporated places, and census-designated places.¹ It is important to keep in mind that the analysis is about places, and inferences cannot be made about neighborhoods or individuals. Furthermore, this research cannot speak to the specific motivations of a household to locate in a more or less segregated neighborhood.

Data

Segregation scores were based on complete count data from the 2000 US Decennial Census Summary File 1 (US Census Bureau 2000), and the 2010 US Decennial Census Summary File 1 in 2000 boundaries provided by Geolytics Inc. (2010). Using constant boundaries ensures that changes in segregation cannot be attributed to shifts in geographic boundaries. The Census Bureau did not ask sexual orientation directly, but rather, identified householders living with spouses or unmarried partners of the same sex. Thus, the Census data do not represent the entire LGBT population, and inferences can only be made about cohabiting same-sex partners for whom sexual orientation can only be inferred. "Unmarried partner" was defined as a person who was not related to the householder but had a "close personal relationship" with them. The Census Bureau recoded responses of "same-sex spouse" to "unmarried partner". Some same-sex partners may have been unwilling to identify themselves on the Census form. Census follow-up studies have assessed the undercount of same-sex partners and have estimated that 16–19 % of same-sex partners failed to identify themselves in Census 2000 (Badgett and Rogers 2003), and 10 % of same-sex partners failed to identify themselves in 2010 (Gates 2010).

¹Census-designated places are the statistical counterparts of incorporated places. They are settled concentrations of population that are identifiable by name but are not legally incorporated under the laws of the state in which they are located.

Even with the undercount, initial counts of same-sex partners in the 2010 Census were higher than expected based on comparisons with the 2010 American Community Survey. The Census Bureau estimated as many as 28 % of same-sex partners were likely to be different-sex partners who mismarked their gender or were miscoded during processing (O'Connell and Feliz 2011). The Census Bureau re-estimated the number of same-sex partners using micro-data level files of respondents' first names and an index of the sex commonly associated with their names (see O'Connell and Feliz 2011 for a detailed description of the methodology). The methodology behind the revised estimates was peer-reviewed by demographers and sociologists, and the revised counts are thought to be reasonably accurate (O'Connell and Feliz 2011). Revised counts for 2000 and 2010 were released by the Census Bureau at the state level. I calculated revised census tract estimates based on a procedure outlined by Gates and Cooke (2012), which applied the state error rate to individual tracts.² Additional measures were drawn from the 2005–2009 American Community Survey 5-Year Estimates (US Census Bureau 2009), and the 2005–2009 Federal Bureau of Investigation Uniform Crime Reports (US Department of Justice 2005–2009).

Variables and Methods

I investigated segregation of same-sex partners with two dependent variables: (1) cross-sectional segregation scores, measured with the index of dissimilarity in 2010, and (2) change in segregation, measured as the percentage change in the index of dissimilarity between 2000 and 2010. I began the analysis by examining descriptive statistics that describe national averages of segregation scores in 2000 and 2010, and maps that display individual cities with the highest and lowest segregation scores. Next, I estimated the effects of place characteristics on each dependent variable: (1) cross-sectional segregation scores in 2010, and (2) changes in segregation scores between 2000 and 2010. I estimated ordinary least-squares (OLS) regression equations for both the cross-sectional and change models. OLS regression was appropriate in this case because the dependent variables were continuous and their distributions were approximately normal.³ I conducted the appropriate regression diagnostics to ensure that the data comply with the assumptions of OLS.⁴ Last, I present a supplementary regression model which provides support for the perspective that

²The adjustment procedure involved four steps: First, I developed estimates of the state error rate (the percent of different-sex, husband-wife and unmarried partner households that miscoded the sex of a spouse or partner) using data from the Census Bureau (available from <http://www.census.gov/hhes/samesex/>). Second, I multiplied the state error rate for husband-wife households by the original number of husband-wife households (separately for male-headed and female-headed households), and then did the same for different-sex unmarried partner households, in order to obtain the estimated number of miscodes by sex and marital status. Third, I subtracted the estimated number of miscodes from the original number of comparable same-sex couples in each tract to obtain the adjusted number of male and female same-sex couples. This involved subtracting miscoded different-sex couples with a male householder from the same-sex male counts and vice versa for females. Census 2000 did not tabulate the sex of the householder in husband-wife households, so counts of male- and female-headed husband-wife households were estimated using the ratio of male- and female-headed husband-wife households in the tract in 2010. Fourth, I added the estimated number of miscodes to the original counts of husband-wife and different-sex unmarried partner households to obtain adjusted estimates. Take census tract 205 in San Francisco, California as an example. The California state error rate was estimated to be 0.4 % for husband-wife households and 0.5 % for different-sex unmarried partners in 2010. The 2010 original data reported that census tract 205 contained 212 male same-sex partner households, 32 female same-sex partner households, 163 male-headed husband-wife households, 24 male-headed different-sex unmarried partner households, 72 female-headed husband-wife households, and 33 female-headed different-sex unmarried partner households. The 2010 adjusted number of male same-sex partners is $212 - (0.004 \times 163 + 0.005 \times 24)$, the adjusted number of female same-sex partners is $32 - (0.004 \times 72 + 0.005 \times 33)$, the adjusted number of husband-wife households is $(163 + 72) - (0.004 \times 163 + 0.004 \times 72)$, and the adjusted number of different-sex unmarried partners is $(24 + 33) - (0.005 \times 24 + 0.005 \times 33)$. In 2000, the California state error rate was estimated to be 0.4 % for husband-wife households and 0.5 % for different-sex unmarried partners. The 2000 original data reported that census tract 205 contained 207 male same-sex partner households, 23 female same-sex partner households, 200 husband-wife households (male- and female-headed not reported separately), 30 male-headed different-sex unmarried partner households, and 24 female-headed different-sex unmarried partner households. Using the 2010 ratio of husband-wife households that were male-headed ($163/235 = 0.69$) and female-headed ($72/235 = 0.31$), the number of male-headed husband-wife households in 2000 is estimated to be $138 (0.69 \times 200)$ and the number of female-headed husband-wife households is estimated to be $62 (0.31 \times 200)$. The 2000 adjusted number of male same-sex partners is $207 - (0.004 \times 138 + 0.005 \times 30)$, the adjusted number of female same-sex partners is $23 - (0.004 \times 62 + 0.005 \times 24)$, the adjusted number of husband-wife households is $200 - (0.004 \times 200)$, and the adjusted number of different-sex unmarried partners is $(30 + 24) - (0.005 \times 30 + 0.005 \times 24)$.

the observed declines in segregation are true declines, and not simply artifacts of reporting bias. Measurement of the dependent and independent variables is described in further detail below.

Dependent Variables

Cross-Sectional Segregation Scores—Segregation scores were calculated separately for male-male partners and female-female partners from different-sex partners. Different-sex partners include husband-wife households and male-female unmarried partners. The key measure of segregation is the index of dissimilarity (D), the most commonly used measure of urban segregation (Duncan and Duncan 1955; Massey and Denton 1988, 1993; Logan et al. 2004). The index compares two groups at a time and values represent the percentage needing to change residences (in this case, move into a census tract where they are underrepresented) in order to achieve an even distribution. The index was computed for each place as:

$$D = \frac{1}{2} \sum_{i=1}^n \text{ABS} \left[\frac{x_i}{X} - \frac{y_i}{Y} \right] \times 100$$

where x_i is the number of same-sex partner households in tract i , y_i is the number of different-sex partner households in tract i , X is the number of same-sex partner households in the whole place, and Y is the number of different-sex partners in the whole place, which is subdivided into n census tracts⁵. The index ranges between zero and one hundred. As a general guideline, dissimilarity scores below 30 are considered low, scores between 30 and 60 are moderate, and scores above 60 are considered high (Massey and Denton 1993).

The index of dissimilarity is statistically independent of the relative size of the two groups used in its computation, so places with a small ratio of same-sex to different-sex partners may still be compared to places with a larger ratio (Zoloth 1976; Logan et al. 2004). The index is sensitive if the population of one group is small compared to the number of census tracts used in its calculation (Johnson and Farley 1985). For the most part, limiting the analysis to the 100 most populous places excluded places with very small populations of same-sex households.⁶ Finally, because this study seeks to describe the typical extent of segregation experienced by same-sex partners, I weighted the index by the number of male (or female) same-sex partner households in the place in 2010, following the model specification put forth by Logan et al. (2004). The index for San Francisco, with its 7,219

³The dependent variable in the cross-sectional female model did exhibit a non-normal distribution which was somewhat skewed to the right. As a result, the model disturbances also exhibited heteroscedasticity. An appropriate solution would be to transform the dependent variable so that it approximates a normal distribution, and logging achieved this goal. However, the substantive results of the transformed model were identical to the un-transformed model, so for simplicity, I chose to report the latter.

⁴I conducted diagnostics tests for normality of the dependent variable, endogeneity, heteroscedasticity, multicollinearity, spatial autocorrelation, and nonlinear relationships between the dependent variables and each of the independent variables. Based on these diagnostics, I am confident that the assumptions of OLS are met, apart from the discussion of the female cross-sectional model in the previous footnote.

⁵Census tract boundaries did not perfectly align with place boundaries, and occasionally straddled more than one place. Using ArcGIS software, tracts were assigned to places if the majority of their land area fell within the place's boundaries.

⁶Seventeen places in the sample were a concern, having fewer than 100 male-male partner households in 2000 or 2010. The seventeen places are Augusta, GA; Chesapeake, VA; Chula Vista, CA; Colorado Springs, CO; Corpus Christi, TX; Fremont, CA; Garland, TX; Glendale, AZ; Hialeah, FL; Lincoln, NE; Lubbock, TX; Modesto, CA; Montgomery, AL; North Las Vegas, NV; Plano, TX; San Bernardino, CA; and Virginia Beach, VA. I conducted a supplementary analysis excluding those seventeen places. Because there are only a few concerning places and the original results were weighted by the size of the male partnered population, results of the supplementary analysis were almost identical to the original analysis, and therefore are not reported. No places in the sample had fewer than 100 female same-sex partner households in 2000 or 2010.

male–male partner households, counts much more than the index for Chesapeake, with its 50 male–male partner households.

Change in Segregation—For the change model, the dependent variable is the percentage change in the index of dissimilarity between 2000 and 2010 (i.e., $[D_{2010} - D_{2000}]/D_{2000} \times 100$). Coefficients in the change model were also weighted by the number of male (or female) same-sex partner households in the place in 2010.

Independent Variables

Education—Education was measured as the percentage of the population 25 years and over with a graduate degree (M.A., Ph.D., or professional degree). Data were drawn from the 2005 to 2009 American Community Survey 5-Year Estimates.

Family Life Cycle—Trends in the family life cycle of same-sex partners were operationalized as the percentage of male (or female) same-sex partners with “own” children (children by birth, adoption, or step-children) who were under age 18 living in the household, using data from the 2010 Decennial Census Summary File 1.

Violence and Social Hostility—I measured violence and social hostility as the total number of hate crimes motivated by sexual orientation bias in the previous 5 years, based on data from the FBI's Uniform Crime Reports from 2005 to 2009. The Uniform Crime Reports warned that some jurisdictions failed to report on hate crimes for all four quarters of every year. For this reason, I included the number of quarters the jurisdiction submitted a report (including a report of zero crimes) as a control variable. Seven places did not submit any reports over the 5-year period. The missing values were imputed with multiple imputation.⁷ The Uniform Crime Reports also warned there may be differences in enforcement and reporting practices across jurisdictions. Thus, results for hate crimes should be interpreted with caution.

Representation of Same-Sex Partners—Representation of same-sex partners was measured as the percentage of total households that were same-sex households in the place, using data from the 2010 US Decennial Census.

Additional Controls—Previous research has identified home values and population size as additional place characteristics associated with the number and concentration of same-sex partners (Black et al. 2002; Cooke and Rapino 2007). The theoretical implications for segregation are unclear, but I included these characteristics as control variables because they had the potential to confound the relationship between segregation and the focal independent variables. In particular, according to Florida's (2005) amenities argument home values are inter-related with average education, so controlling for home values should provide more precise estimates for education. Home values were drawn from the 2005 to 2009 American Community Survey 5-Year Estimates, and measured as the median value (in hundreds of thousands of dollars) for owner-occupied housing units. Population size was drawn from the 2010 Decennial Census Summary File 1, and was logged to adjust for the skew produced by a few places with very large populations. Models also controlled for two variables drawn from the racial segregation literature: new housing and region. Racial segregation tends to

⁷The seven places that did not submit any crime reports from 2005 to 2009 were Birmingham, AL; Augusta-Richmond County, GA; Honolulu, HI; Baton Rouge, LA; Paradise, NV; Toledo, OH; and Arlington, VA. Imputed values of total hate crimes from 2005 to 2009 were estimated from a multiple imputation model using the negative binomial method for overdispersed count variables. Predictor variables were the outcome variable, the total number of crime reports submitted from 2005 to 2009, logged population, population density, percent of the population age 25+ with a graduate degree, percent of the population in poverty, median household income, percent of the population that was a racial/ethnic minority, percent of housing units built in the previous 10 years, and region.

be lower in the West and in places with more new construction (Logan et al. 2004), presumably because new construction provides increased opportunities to seek housing outside of segregated communities, and because the West has less of a history of entrenched segregation. New housing was measured as the percent of housing units built since 2000, and region was divided into the Northeast, Midwest, South, and West. Data were drawn from the 2005 to 2009 American Community Survey 5-Year Estimates.

Results

Segregation of Same-Sex Partner Households, National Averages 2000–2010

Table 1 presents the mean segregation scores in 2000 and 2010, weighted by the number of male (or female) same-sex partner households in the place, for the 100 most populous places in 2010.⁸ The data confirm that the general trend was declining segregation of same-sex partners from different-sex partners, just as researchers and journalists have speculated (Buchanan 2007; Kyles 2007; Ghaziani 2010). Whether in comparison to all different-sex partners, husband–wife households only, or male–female unmarried partners only, male and female same-sex partners were on average less segregated in 2010 than in 2000. Despite declines, average segregation scores for male same-sex partners in 2010 remained in the moderate range (between 30 and 60). Female same-sex partners were less segregated, with 2010 average scores in the low range (below 30). In comparison to racial and economic segregation, same-sex segregation was on par. The mean index of dissimilarity of the poor from the non-poor in the same 100 places in 2010 was 33.13 (weighted by the size of the population in poverty). The index of all non-white racial/ethnic groups from the white population was 52.26 (weighted by the size of the non-white population). These figures show that segregation of same-sex partners rivals that of other types of segregation and should be considered alongside economic status and race as an important factor in urban spatial patterns.

The remaining analyses compare male and female same-sex partners to all different-sex partners, and do not make separate comparisons to husband–wife households or male–female unmarried partners. All different-sex partners are the most appropriate comparison group because they may be married or unmarried, just as same-sex partners. Furthermore, segregation scores from all different-sex partners fell in between husband–wife and unmarried partner households, representing a good middle ground.

The overall trend was declining segregation, but not every place declined. Table 2 categorizes the 100 most populous places by the direction of change in segregation scores between 2000 and 2010. Segregation of male same-sex partners from different-sex partners declined in 87 out of 100 places, from an average index of 47.3 to 42.7. If we randomly selected a male same-sex partner household, it was likely to be located within a place where segregation declined. Segregation of female same-sex partners from different-sex partners also declined in most, but not all, places. Over 93 % of female same-sex partner households within the 100 most populous places were located in the 95 places where segregation declined. The remaining 7 % lived within the 5 places where segregation increased. The places where segregation increased included, among others, Dallas, Chicago, Detroit, San Bernardino, and Chesapeake (for males), and Chicago, Fresno, Boston, and Chesapeake (for females). It is difficult to determine what the increasing places have in common, because they vary substantially in terms of population size, number of same-sex partners, suburban or urban location, and region of the country.

⁸Using places as the units of analysis resulted in lower estimates of the index of dissimilarity compared to using metropolitan areas as the units of analysis. I chose to use places because the estimates were more conservative, and because place boundaries align with the jurisdictional boundaries used in the FBI Uniform Crime Report data.

Segregation Trends in Individual Places

Behind the national averages are variations in segregation scores among individual places. Of special interest are the outliers—places with the highest and lowest segregation of same-sex partners. Figure 1 depicts the ten places with the highest and lowest segregation scores of male same-sex partners from different-sex partners across the country, their segregation scores in 2000, and the direction and extent of change. Segregation scores in 2010 ranged from a low of 18.2 to a high of 72.4, whereas the rate of change ranged from a decline of 53 % to an increase of 26 %. Some places with the highest segregation scores may be outliers because they had fairly small populations of male same-sex partners (for example: Chesapeake, Hialeah, and Fremont). Other places (for example: San Diego, New York, and Houston) had some of the highest segregation scores and also had large populations of male same-sex households. Figure 1 also shows that the most and least segregated places were distributed fairly evenly throughout the country. In fact, places with high and low segregation were sometimes located within close proximity of one another (for example: Oakland and Fremont).

Figure 2 displays the most and least segregated places for female same-sex partners. Female segregation scores ranged from 13.7 to 37.1, whereas the rate of change ranged from a decline of 43 % to an increase of 17 %. None of the most segregated places in 2010 had segregation scores in the “high” range (an index greater than 60). San Francisco, the most segregated city for female partners, still only had a segregation score of 37.1 in 2010. Three of the top ten “most segregated” cities, Tulsa, Sacramento, and Cincinnati, actually had 2010 segregation scores in the low range (under 30). These findings suggest only a handful of places can be characterized as segregated for female same-sex partners. However, many of those were large places that were each home to thousands of female same-sex partner households (for example: San Francisco, San Diego, and Boston).

Multivariate Models of Segregation in 2010

To gain a better understanding of the place characteristics associated with segregation of same-sex households, I began with cross-sectional models for 2010. Descriptive statistics and correlations among the variables are reported in Table 3. Not surprisingly, segregation scores in 2000 and 2010 were highly correlated ($r = 0.83$ for males and 0.78 for females). Variable means and standard deviations differ depending on whether they were weighted by the number of male same-sex partners or female same-sex partners in the place, giving some indication of the different contexts in which male and female same-sex partners were likely to reside. For instance, the mean number of hate crimes in the previous 5 years was 83.58 when weighted by the number of male partners, and 64.85 when weighted by the number of female partners. This suggests that compared to female partners, male partners were more likely to live in places that had more hate crimes. The bivariate correlations between segregation in 2010 and the percent of the population with a graduate degree, the percent of partners with children, the number of hate crimes, and representation of same-sex partners were not all in the expected directions, perhaps because they were confounded with other variables. The multivariate models, to which I turn next, provide a more complete assessment of their relationships with segregation.

Table 4 reports coefficients from ordinary least-squares equations for male and female same-sex partner segregation in 2010. Here, the dependent variable was the cross-sectional segregation score in 2010, measured with the index of dissimilarity. Cases were weighted by the number of male (or female) same-sex partner households in the place. This analysis gives support to the hypothesis that higher average education was associated with lower segregation of male partners, net of other place characteristics. The effect of education may be attributable to more positive attitudes toward same-sex partners throughout the place, to a

greater prevalence of high-amenity neighborhoods attractive to both knowledge workers and same-sex households, or both. I found no indication of a relationship between the distribution of male same-sex partners and their rates of having children, the number of hate crimes, or representation of same-sex partners.

In addition, population size and location in the South were significant predictors of segregation. Larger population size was associated with greater segregation, even after controlling for potentially confounding factors like the representation of same-sex partners, number of hate crimes, and age of the housing stock. To understand why segregation was so strongly associated with larger population size, we might refer to the classical urban theories of Louis Wirth (1938). According to Wirth (1938), larger population size contributes to greater heterogeneity among individuals, which gives rise to spatial segregation as individuals gravitate toward others who are similar to them. Wirth (1938) also writes that within a large city the individual has very little power, and becomes effective only as he acts through organized groups. It is more imperative in a large city that individuals belong to larger groups (potentially in the form of a segregated community) so that their interests can be represented and acknowledged within the larger urban populace (Wirth 1938). Finally, places in the South had higher segregation than places in the West, potentially due to variation in historical segregation patterns, variation in attitudes toward same-sex partners, or other unmeasured regional factors that distinguish the South from the West.

Turning to the female model, there were indications of the influence of family life cycle, home values, and region on female partner segregation, although it was clear that the final model did not fit as well for female same-sex partners as it did for males (the adjusted $R^2 = 0.31$ for the former and 0.48 for the latter). Unlike the male model, average education had no bearing on the segregation of female partners, but aggregate trends in the life cycle of female partners did. As predicted, segregation scores were lower in places that had a greater percentage of female same-sex partners with children. Female same-sex partners with children may be more likely to seek housing outside of segregated communities, in neighborhoods that fulfilled preferences for schools, parks, and other “child-oriented” amenities (Rossi 1980). The female model did not support the hypotheses that segregation was higher in places that had more hate crimes or greater representation of female same-sex partners.

The female model did indicate that places with greater median home values were more segregated, even after adjusting for education and other place characteristics. One plausible explanation is that gay and lesbian neighborhoods have become an amenity which contributes to a city's status, property values, and ability to attract a higher-income population. Florida and Mellander (2010) made this type of argument when they suggested that gay residents affect housing values on the supply side by creating a premium for the cultural amenities they produce and the desirable esthetics of their neighborhoods. Cities with high female partner segregation and high median home values (relative to the weighted sample mean of \$329,700) include San Francisco ($D = 37.1$, median home value = \$800,526), San Diego ($D = 36.7$, median home value = \$570,749), and Boston ($D = 35.4$, median home value = \$440,042). Finally, segregation was almost 5 points higher in the Midwest than in the West.

Multivariate Models of Change in Segregation, 2000–2010

This portion of the analysis investigated the place characteristics associated with changes in segregation from 2000 to 2010. I tested whether the characteristics from the cross-sectional models that were associated with lower segregation were also associated with more rapid desegregation over time. The dependent variable was the change in segregation between 2000 and 2010, measured as the percentage change in the index of dissimilarity between the

two time points. Cases were once again weighted by the number of male (or female) same-sex partner households in the place. The explanatory variables were the same as those in the cross-sectional models, with one addition. Following the model specification put forth by Logan et al.'s (2004) analysis of racial segregation, the change model controlled for the index of dissimilarity at the initial time point (2000). Table 5 reports results of the change model. Negative coefficients indicate that increasing values of the explanatory variables were associated with larger declines (or smaller increases) in segregation, whereas positive coefficients indicate the variable was associated with smaller segregation declines (or larger increases).

The male model indicated that segregation in 2000, education, hate crimes, population size, home values, and new housing were all associated with changes in segregation between 2000 and 2010. The original segregation score for male partners was negatively associated with the rate of change. A negative relationship is not surprising, since the original segregation score was also factored into the denominator of the dependent variable. However, this statistical relationship has a substantive interpretation: the higher the segregation at the beginning, the greater the percentage decline in segregation over the next decade.

Segregation of male partners declined more in places that had a greater representation of graduate degree holders, possibly due to increased tolerance and more positive attitudes toward same-sex households. The negative coefficient for hate crimes contradicted the original hypothesis and indicated that places with more hate crimes experienced greater declines in segregation. An immediate concern is that the model picked up an endogenous relationship between segregation and crime—i.e., as segregation declined and same-sex partners became more prevalent in neighborhoods previously dominated by different-sex partners, the number of hate crimes may have increased. This would be consistent with research that finds hate crimes against racial minorities occur most frequently in predominantly white areas experiencing a recent in-migration of minorities (Green et al. 1998). But when I re-estimated the model using counts of hate crimes from 1996 to 2000 (before the period of change captured in the dependent variable) the coefficient for hate crimes remained negative and statistically significant (results not shown). The persistent negative coefficient may represent a more complex link between segregation and unmeasured correlates of hate crimes, including historical, cultural, economic, and political factors (Green et al. 2001). Alternatively, poor quality of the hate crime data may have given rise to the unexpected negative coefficient. Although I controlled for failure of some jurisdictions to submit crime reports, it could be that some hate crimes were never reported in the first place. If hate crimes in more segregated cities more often went unreported than hate crimes in less segregated cities, the results would be biased toward producing a negative relationship between segregation and crime.

The percentage of male partners with children and the representation of male same-sex partners were not associated with changes in segregation. However, the coefficient for logged population indicated that larger city population was associated with increases (or smaller declines) in segregation. This positive relationship between population size and segregation was consistent with the cross-sectional model and with Wirth's (1938) theories on population, heterogeneity, and segregation. Greater median home values were associated with increases (or smaller declines) in segregation. Thus, although high-value places were not necessarily more or less segregated for male partners, they did resist segregation declines. If, as some have argued (Rushbrook 2002; Florida and Mellander 2010), gay territories are city amenities which contribute to higher property values, cities may have a stake in maintaining gay territories and perhaps as a consequence, maintaining segregation. Finally, a greater percentage of new housing in a city was associated with greater declines

(or smaller increases) in segregation. This finding suggests that new housing plays a similar role in reducing same-sex partner segregation and racial segregation, by potentially opening up new residential possibilities (Logan et al. 2004).

The female model also showed a negative relationship between the percentage change in segregation and the original segregation score, consistent with the male findings. The female model lends some support to the hypothesis that segregation declines were greater in places that had a greater percentage of the population with a graduate degree. The female model results provided no support for the hypotheses about family life cycle, hate crimes, or representation of female partners. In addition, the female model indicated that segregation declined less (or increased more) in places that had higher median home values. This finding echoed that found in the female cross-sectional model and in the male change model, and lends further support to the idea that segregation was more resistant to change in high-value cities. Finally, segregation declined less (or increased more) in the Midwest compared to the West. This was not surprising since the cross-sectional models indicated that the Midwest was the most segregated region in 2010.

Real Declines in Segregation or an Artifact of Reporting Bias?

A potential concern is that decreasing segregation does not represent real change, but rather, is a statistical artifact of reporting bias. It is likely that more same-sex partner households reported themselves in Census 2010 than in Census 2000. This becomes a problem for comparing segregation scores across years if those who did not report themselves in 2000, but did report themselves in 2010, were more likely to live outside of gay neighborhoods. Segregation scores in 2000 would be artificially increased, making the decline to 2010 appear more dramatic than it actually was. I conclude with a brief analysis of whether changes in reporting behavior may have influenced the findings for segregation.

There is no way to know whether same-sex partners identified themselves on the Census without asking them directly. Badgett and Rogers (2003) and Gates (2010) did so for small samples of same-sex partner households following Census 2000 and 2010. Badgett and Rogers (2003) estimated that 81–84 % of same-sex partners identified themselves in Census 2000, and Gates (2010) estimated that 90 % of same-sex partners identified in Census 2010—an increase of approximately 6–9 %. Same-sex couples who were not identified as such generally described their relationship as roommates or non-relatives rather than as spouses or unmarried partners, largely because they were concerned about disclosure, they felt that the category choices did not accurately reflect their relationship, or as a matter of protest (Gates 2010). Badgett and Rogers (2003) found that high-income, highly educated respondents, and respondents living outside of the Midwest were more likely to report their partnership in 2000. The “missing” couples in Census 2000 may be those with lower household income, lower levels of education, and those living in the Midwest. Of course, the Census follow-up studies were also subject to sampling and reporting bias of their own.

I investigated the influence of reporting bias by calculating associations between changes in segregation of same-sex partners and three predictor variables: income segregation, educational segregation, and Midwest location. If the results for same-sex segregation were driven by increased reporting in 2010 compared to 2000, places that were highly segregated by education and income and places in the Midwest should have had the greatest declines in segregation of same-sex partners. Table 6 reports the results of an ordinary least-squares regression model predicting the percentage change in the index of dissimilarity. The results do not support the claim that changes in reporting behaviors drove declines in the segregation of same-sex partners. Changes in the segregation of same-sex partners are unrelated to educational segregation, income segregation, or Midwest location. In other words, segregation of same-sex partners did not decline more rapidly in places that had high

levels of income and educational segregation, and they did not decline more rapidly in the Midwest compared to other regions.

Discussion and Conclusion

Data from Census 2000 and 2010 indicated that declining residential segregation of same-sex partner households is a wide-spread trend. On average, male same-sex partners and female same-sex partners were less segregated from different-sex partners in 2010 than they were in 2000. The general trend toward lower segregation may have both positive and negative implications for same-sex partners. Lower segregation can be interpreted as a sign of greater equality and increased residential choices for same-sex partners. At the same time, urban gay neighborhoods may lose their identity and character, and the LGBT community may be rendered less visible. The desegregation of same-sex partners may also have broad societal implications. Less residential segregation may increase social contact between LGBT and heterosexual populations and promote tolerance and reduce prejudice toward the other group.

Despite overall declines in segregation, 2 out of 100 places remained in the “high” range of segregation for male same-sex partners from different-sex partners, and 86 out of 100 were in the “moderate” range. Some places with the highest segregation scores may be outliers because they had fairly small populations of male same-sex partners (for example: Chesapeake, Hialeah, and Fremont), but other places (for example: San Diego, New York, and Houston) had some of the highest segregation scores and also had large populations of male same-sex households. No city had 2010 segregation scores that were in the “high” range for female same-sex partners, and only 7 out of 100 had scores in the “moderate” range. Whatever the absolute values of segregation, the vast majority of same-sex partners—87 % of male partners and 93 % of female partners—lived in cities where segregation declined since 2000. Thus, most same-sex partners lived in environments of declining segregation.

The index of dissimilarity describes the evenness of the residential distribution between same-sex and different-sex partners, although it does not tell us the extent to which same-sex partners are leaving traditionally gay neighborhoods or different-sex partners are moving in. Many of these processes may be happening all at once. Some same-sex partners may be leaving or bypassing gay neighborhoods and settling in more integrated spaces, while different-sex partners are increasingly viewing traditionally gay spaces as attractive, amenity-rich residential locations. Few empirical studies have attempted to disentangle these neighborhood processes, making it a ripe avenue for future research.

The biggest contribution of the multivariate models in this study was to demonstrate the link between greater education, lower cross-sectional levels of segregation, and greater segregation declines. The findings for education may be attributable to more positive attitudes toward same-sex partners throughout the place, based on research that finds individuals with greater education tend to have more favorable attitudes toward same-sex partners (Herek and Capitanio 1996; Barth et al. 2009). In addition, the link between education and segregation may also be attributable to a greater prevalence of high-amenity neighborhoods attractive to both knowledge workers and same-sex households, whose residential distributions tend to overlap (Florida and Gates 2001; Florida 2005). Favorable attitudes in the wider population and a greater prevalence of attractive neighborhood destinations both expand same-sex partners' residential options and may promote declining segregation.

Another important contribution of the multivariate models was to demonstrate the relationship between segregation and trends in the family life cycle of female same-sex

partners. The female cross-sectional model indicated that segregation was lower in places where a greater percentage of female partners included children. This finding lends support to the hypothesis that same-sex partners with children, more than same-sex partners overall, seek housing outside of segregated neighborhoods. It also demonstrates that theories linking the presence of children to differences in housing needs and preferences, which were built around different-sex partners (Rossi 1980), are also applicable to same-sex partners. However, I found no support for the family life cycle hypothesis in the male models. The difference between the male and female results may stem from the fact that about 28 % of female partner households included children and fewer than 18 % of male same-sex partner households included children in 2010 (US Census Bureau 2010). The small percentage of male same-sex partners with children may not be enough to influence the distribution of male same-sex partners overall.

I found no support for the hypothesis that the frequency of hate crimes based on sexual orientation bias was associated with greater segregation of same-sex partners. In fact, I identified a competing relationship between hate crimes and segregation in the male change model, which indicated that segregation declined more rapidly in places with more hate crimes, irrespective of whether hate crimes were measured before or during the period of change. What can be made of this unexpected finding? It may represent a more complex link between segregation and unmeasured correlates of hate crimes, which include historical-cultural factors, economic factors, and political factors (Green et al. 2001). Alternatively, it may represent under-reporting of hate crimes in more segregated cities. A correlation between reporting and segregation is plausible, if victims tend to feel less empowered to report a crime or if a hate crime motivated by sexual orientation bias is more likely to be misclassified into a general crime category within places where the population is deeply divided by sexual orientation.

The models did not identify an effect of the representation of same-sex partners on segregation or changes in segregation. In studies of racial segregation, a positive association between minority representation and segregation has been interpreted as support for the minority group preferences hypothesis (Patterson 1997; Thernstrom and Thernstrom 1997) and the racial-threat hypothesis (Blalock 1967). Thus, I found no evidence that preferences and perceived threat operate in the same way for same-sex partners as they do for minority racial groups. The lack of findings for representation also means that I found no evidence that segregation is caused by same-sex partners' desire to live in gay-defined space, or that discrimination against same-sex partners, while certainly present, leads to segregation.

Two other variables drawn from racial segregation research were found to operate in a similar manner for same-sex partners: new housing and region. Although the results were not consistent across the male and female models, new housing and region were affiliated with segregation in expected ways. Segregation of male partners declined more in places with more new housing, potentially because new housing provides increased opportunities to move outside of segregated neighborhoods. Segregation was lower in the West compared to the South (for males) and the Midwest (for females), possibly due to regional variations historical segregation, political climate, attitudes toward same-sex partners, or other unmeasured regional factors.

The models also identified a positive relationship between segregation of male partners and population size. The results can be explained by Wirth's (1938) theories of population size and heterogeneity, but it is puzzling why population size is not also significant for female partners. Perhaps it is because female partners are more prevalent in moderate- to small-sized urban regions (Cooke and Rapino 2007), and the low representation of female partners in more populous places make a relationship between segregation and population size

difficult to detect. This leads to the question of whether the results of this study, which focused on the 100 most populous places, can be generalized to smaller cities and rural areas. There are two main reasons I would caution against generalizing to small places. First, small cities and rural areas may not have the population size and density of same-sex partners necessary to develop segregated neighborhoods, or to accurately assess the extent of segregation. For instance, the small town of Northampton, MA, is known for a relatively public lesbian community; but even here the lesbian population, although numerically large and centered around a service core, lives at rather low densities (Forsyth 1997). Even total integration at low densities in places like Northampton may still feel segregated, because there are fewer opportunities for intergroup contact. Second, there may be differences in the characteristics of same-sex partners living in small cities and rural areas compared to those living in larger urban areas. Kirkey and Forsyth (2001) identified differences in race, income, and social class in the gay men living in the more rural parts of their study location, compared to the gay men living in the more urban areas. These differences echoed some of the urban–rural differentials in the overall population (Kirkey and Forsyth 2001).

Home values were associated with greater cross-sectional segregation of female partners, and smaller declines (or greater increases) in the segregation of male and female same-sex partners. Drawing on Rushbrook (2002) and Florida and Mellander (2010), it may be that gay neighborhoods have become a special amenity of the city that promotes higher housing values overall. Thus, cities have an interest in maintaining gay neighborhoods, which may make the neighborhoods more resistant to change and, by default, may perpetuate segregation.

One of the main weaknesses of this analysis is that Census data are not representative of all LGBT people, even though they are also affected by declining (or in some cities, persistent or increasing) segregation over time. Without the proper data we cannot be sure how segregation of non-partnered LGBT individuals stacks up, but there are reasons to expect that they are more segregated than same-sex partners. The literature on “mating markets” suggests that a single relationship status may produce a preference for gay neighborhood living among single LGBT individuals (Laumann et al. 2004), which would exacerbate segregation. Census data are not even representative of all same-sex partner households, since some may be unwilling to report their partnership on the Census. The supplementary analysis showed that changes in reporting behaviors were not likely to bias the results I presented for segregation. However, the estimated 10 % of same-sex partners who still were not counted in Census 2010 continue to be missing from the entire picture. In the future, social scientists need more data on same-sex partners and LGBT people who are not in partnered relationships that identifies this population accurately and thoroughly, whether those data come from the Census Bureau or other sources. Otherwise, what we as researchers can understand about residential patterns and more general demographic trends in the LGBT population will continue to be limited.

Even with its weaknesses, the Census provides the best available data to track the location of same-sex partners. This study was unique in using this data to describe residential separation between same-sex and different-sex partners. Reports of declining segregation in individual cities have emerged in the media (Kyles 2007; Buchanan 2007) and academic sources (Ghaziani 2010), but we are just beginning to have the large-scale data available to verify these reports and assess whether they represent a wide-spread trend. Indeed, this study found that segregation of same-sex partners exists at levels that rival that of economic and racial segregation. Therefore, sexual orientation should be considered alongside economic status, race, and ethnicity, as an import factor that sorts individuals amongst neighborhoods within a city and contributes to urban spatial inequality. Furthermore, this study showed that declining segregation of same-sex partners is indeed the norm in large US cities. What

exactly declining segregation means for same-sex partners and the structure of US cities remains to be investigated further and fully understood. This study constituted an important first step by describing segregation and establishing a pattern of declining segregation that can inform future research.

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Fig. 1. Cities with the highest and lowest segregation of male same-sex partners from different-sex partners

Fig. 2. Cities with the highest and lowest segregation of female same-sex partners from different-sex partners

Table 1
Segregation of same-sex partners from different-sex partners in the 100 most populous places in 2000 and 2010 (weighted by the number of male or female same-sex partner households in 2010)

	Mean index of dissimilarity		Mean % change in index 2000–2010
	2000	2010	
A. Segregation of male same-sex partner households			
From all different-sex partner households	47.2	43.4	–8.1 % ***
From husband–wife households	48.5	45.0	–7.2 % ***
From male–female unmarried partners	41.9	39.1	–6.2 % ***
B. Segregation of female same-sex partner households			
From all different-sex partner households	29.6	25.5	–13.6 % ***
From husband–wife households	30.9	27.2	–12.2 % ***
From male–female unmarried partners	27.7	25.1	–9.0 % ***

 $p < 0.001$ for paired t test

Table 2
Change in the segregation of male and female same-sex partner households from different-sex partner households in the 100 most populous places by the direction of change

	Places by direction of change, 2000–2010		
	Declining segregation: index of dissimilarity was lower in 2010 than in 2000	Increasing segregation: index of dissimilarity was higher in 2010 than in 2000	All places
A. Male same-sex partners from different-sex partners			
Number of places	87	13 ^c	100
Mean segregation, 2000 ^a	47.3	46.0	47.2
Mean segregation, 2010 ^a	42.7	47.6	43.4
Total number of male–male partner households, 2010	94,806	14,126	108,932
% Of male–male partner households, 2010	87.0 %	13.0 %	100 %
B. Female same-sex partners from different-sex partners			
Number of places	95	5 ^d	100
Mean segregation, 2000 ^b	29.5	30.1	29.6
Mean segregation, 2010 ^b	25.1	31.0	25.5
Total number of female–female partner households, 2010	92,776	6,641	99,417
% Of female–female partner households, 2010	93.3 %	6.7 %	100 %

^aWeighted by the number of male same-sex partner households in the place in 2010

^bWeighted by the number of female same-sex partner households in the place in 2010

^cThe 13 places with increasing male partner segregation (ordered from low to high) were Phoenix, AZ; Anaheim, CA; Dallas, TX; Chicago, IL; Irving, TX; Santa Ana, CA; San Jose, CA; Augusta, GA; Yonkers, NY; Detroit, MI; San Bernardino, CA; Chesapeake, VA; and Hialeah, FL

^dThe 5 places with increasing female partner segregation were (ordered from low to high) Chicago, IL; Fresno, CA; Boston, MA; Stockton, CA; and Chesapeake, VA

Table 3
Correlations and descriptive statistics of place characteristics: male same-sex partners in bold below the diagonal and female same-sex partners above the diagonal (weighted by the number of male or female same-sex partners in the place)

	Segregation 2010	Segregation 2000	% change in segregation	% with graduate degree	% male (or female) same-sex partners with children	# hate crimes, 2005-2009	Male (female) same-sex partners as % of total hhs	Population (logged)	Median home value	% new housing units	Northeast	Midwest	South	West	Mean	Standard Deviation
Female Same-Sex Partners																
Segregation 2010	1.00	0.78 [*]	0.56 [*]	0.23 [*]	-0.14	0.39 [*]	0.15	0.001	0.40 [*]	-0.35 [*]	0.31 [*]	0.10	-0.26 [*]	-0.07	25.52	4.95
Segregation 2000	0.83[*]	1.00	-0.07	0.26 [*]	-0.26 [*]	0.17	0.07	0.03	0.11	-0.27 [*]	0.18	0.05	-0.05	-0.13	29.58	4.72
% change in segregation	0.58[*]	0.03	1.00	-0.01	0.13	0.40 [*]	0.14	-0.04	0.49 [*]	-0.20 [*]	0.24 [*]	0.09	-0.34 [*]	0.06	-13.63	10.18
% with graduate degree	-0.26 [*]	-0.13	-0.30 [*]	1.00	-0.64 [*]	0.27 [*]	0.03	0.44 [*]	0.05	-0.11	0.09	-0.09	-0.06	0.06	12.19	4.41
% male (or female) same-sex partners with children	0.26 [*]	0.19	0.21 [*]	-0.59 [*]	1.00	0.05	0.10	-0.57 [*]	0.23 [*]	0.03	0.17	-0.01	0.08	-0.21 [*]	24.96	5.02
# hate crimes, 2005-2009	0.42 [*]	0.25 [*]	0.36 [*]	0.25 [*]	-0.01	1.00	0.01	-0.10	0.72 [*]	-0.43 [*]	0.57 [*]	-0.21 [*]	-0.37 [*]	0.05	64.85	19.78
# crime reports submitted, 2005-2009	0.08	0.04	0.09	0.03	-0.10	-0.001	1.00	0.20 [*]	0.14	0.04	-0.09	-0.12	-0.04	0.20 [*]	17.74	4.65
Male (female) same-sex partners as % of total households	-0.13	-0.12	-0.07	0.65 [*]	-0.63 [*]	0.20	0.24 [*]	1.00	0.23 [*]	-0.07	-0.24 [*]	-0.06	-0.22 [*]	0.44 [*]	0.50	0.21
Population (logged)	0.66 [*]	0.39 [*]	0.57 [*]	-0.09	0.15	0.78 [*]	0.07	-0.12	0.47 [*]	-0.30 [*]	0.56 [*]	-0.10	-0.26 [*]	-0.12	13.69	1.11
Median home value	0.20 [*]	0.06	0.27 [*]	0.49 [*]	-0.26 [*]	0.72 [*]	0.14	0.62 [*]	1.00	-0.31 [*]	0.25 [*]	-0.33 [*]	-0.43 [*]	0.46 [*]	32.97	18.87
% new housing units	-0.27 [*]	-0.09	-0.35 [*]	-0.07	-0.09	-0.49 [*]	0.002	-0.14	-0.035 [*]	1.00	-0.39 [*]	-0.19	0.34 [*]	0.14	7.94	5.21
Northeast	0.31 [*]	0.20 [*]	0.23 [*]	0.001	0.22 [*]	0.55 [*]	-0.12	-0.18	0.18	-0.40 [*]	1.00	-0.21 [*]	-0.30 [*]	-0.35 [*]	0.18	--
Midwest	-0.02	-0.04	0.02	-0.16	0.08	-0.27 [*]	-0.05	-0.15	-0.037 [*]	-0.15	-0.22 [*]	1.00	-0.29 [*]	-0.33 [*]	0.16	--
South	-0.15	0.04	-0.31 [*]	0.06	-0.12	-0.09 [*]	-0.06	-0.08	-0.41 [*]	0.41 [*]	-0.32 [*]	-0.26 [*]	1.00	-0.49 [*]	0.30	--
West	-0.11	-0.18	0.07	0.06	-0.14	0.09	0.20	0.35 [*]	0.51 [*]	0.07	-0.39 [*]	-0.32 [*]	-0.46 [*]	1.00	0.36	--
Mean	43.36	47.17	-8.13	13.33	7.16	83.58	17.85	0.69	38.23	7.27	0.21	0.15	0.28	0.36		
Standard Deviation	8.38	7.62	9.77	4.87	3.78	22.60	4.44	0.47	20.29	4.68	--	--	--	--		

* $p < 0.05$ for two-tailed test

Table 4
Place characteristics associated with segregation of male and female same-sex partner households from different-sex partner households, 2010 (weighted by the number of male or female same-sex partner households in 2010)

Dependent variable	Male same-sex partner segregation		Female same-sex partner segregation	
		(SE)		(SE)
<i>Independent variables</i>				
Percent with graduate degree, 2005–2009	−0.48 [*]	(0.20)	−0.16	(0.22)
Percent male (or female) same-sex partners with children, 2010	0.29	(0.26)	−0.32 [*]	(0.15)
Hate crimes based on sexual orientation, 2005–2009	−0.04	(0.03)	−0.02	(0.02)
Hate crime reports submitted, 2005–2009	0.07	(0.18)	0.23 ^{**}	(0.08)
Male (or female) same-sex partner households as percent of total households, 2000	2.81	(4.19)	−2.67	(3.22)
Population (logged), 2010	5.98 ^{***}	(1.15)	1.21	(1.05)
Median home value (\$100,000s), 2005–2009	0.11	(0.11)	0.15 [*]	(0.06)
Percent new housing units, 2005–2009	−0.19	(0.14)	−0.09	(0.09)
Region (referent = West)				
Northeast	1.23	(2.35)	4.15 ⁺	(2.46)
Midwest	2.21	(2.61)	4.79 [*]	(1.81)
South	4.40 [*]	(1.98)	1.99	(1.69)
Constant	−40.26 [*]	(16.04)	11.07	(14.72)
R^2	0.54 ^a		0.39 ^a	
Adjusted R^2	0.48 ^a		0.31 ^a	

⁺ $p < 0.10$;

^{*} $p < 0.05$;

^{**} $p < 0.01$;

^{***} $p < 0.001$ for two-tailed test

^a Based on Fisher's z transformation

Table 5
Place characteristics associated with change in segregation of male and female same-sex partner households from different-sex partner households, 2000–2010 (weighted by the number of male or female same-sex partner households in 2010)

Dependent variable	Percent change in male same-sex partner segregation		Percent change in female same-sex partner segregation	
		(SE)		(SE)
Independent variables				
Index of dissimilarity, 2000	−0.34 [*]	(0.13)	−0.38 [*]	(0.16)
Percent with graduate degree, 2005–2009	−0.85 ^{***}	(0.21)	−0.60 ⁺	(0.31)
Percent male (or female) same-sex partners with children, 2010	0.22	(0.29)	−0.17	(0.23)
Hate crimes based on sexual orientation, 2005–2009	−0.07 ^{**}	(0.03)	−0.04	(0.04)
Hate crime reports submitted, 2005–2009	0.07	(0.18)	0.30	(0.20)
Male (or female) same-sex partner households as percent of total households, 2000	3.55	(3.13)	2.04	(4.56)
Population (logged), 2010	7.66 ^{***}	(1.73)	4.25 ⁺	(2.53)
Median home value (\$100,000s), 2005–2009	0.22 [*]	(0.10)	0.34 ^{***}	(0.09)
Percent new housing units, 2005–2009	−0.47 ^{**}	(0.18)	0.09	(0.15)
Region (referent = West)				
Northeast	0.21	(2.95)	5.87	(4.34)
Midwest	1.46	(3.09)	10.02 ^{**}	(3.57)
South	2.42	(2.86)	2.01	(3.19)
Constant	−92.00 ^{***}	(22.18)	−67.88 [*]	(33.15)
R ²	0.59 ^a		0.41 ^a	
Adjusted R ²	0.54 ^a		0.33 ^a	

⁺ $p < 0.10$;

^{*} $p < 0.05$;

^{**} $p < 0.01$;

^{***} $p < 0.001$ for two-tailed test

^a Based on Fisher's z transformation

Table 6
Association of income segregation, educational segregation, and midwest region with change in the segregation of male and female same-sex partners from different-sex partners, 2000–2010 (weighted by the number of male or female same-sex partner households in 2010)

Dependent variables	Male same-sex partners		Female same-sex partners	
		(SE)		(SE)
<i>Independent variables</i>				
Historical segregation				
Index of dissimilarity, 2000	0.06	(0.15)	−0.27	(0.28)
Income segregation				
Index of dissimilarity of the poor from the non-poor, 2000	−0.34	(0.35)	−0.12	(0.31)
Educational segregation				
Index of dissimilarity of the population with a college degree from the population without a college degree, 2000	0.15	(0.25)	0.38 ⁺	(0.21)
Region				
Midwest	1.51	(4.44)	2.71	(3.67)
Constant	−6.03	(12.88)	−17.01	(10.95)
R ²	0.03		0.08	

⁺ $p < 0.10$;

^{*} $p < 0.05$;

^{**} $p < 0.01$;

^{***} $p < 0.001$ for two-tailed test