How Distinct Is Gay Neighborhood Change? Patterns and Variation in Gayborhood Trajectories

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Contents

Abstract

This paper contests prevalent assumptions about recent change in gay neighborhoods. Rising acceptance of LGBTQ people in US society may have led to widespread assimilation, while simultaneously

opening up gay neighborhoods to increased gentrification. Alternatively, some gay neighborhoods may have been coincidentally undermined by local urban processes. Either way, known cultural and institutional changes should be linked to observable material changes in gay neighborhoods. I directly examine neighborhood-level demographic and economic change across a profile of seven general characteristics, in 28 gay neighborhoods across 23 cities. I contextualize the nature and extent of this change by comparing gay neighborhoods to other similar neighborhoods, and to their cities overall. This study identifies gay neighborhoods using a novel digital listing of gay bars, and it uses 2006-2015 American Community Survey estimates for data on change over time. I find that gay neighborhoods share a common profile: they are relatively more educated, more male, whiter, and wealthier than average, while having fewer different-sex married-couple households. Instead of evidence for assimilation, I find that gay neighborhoods continue to be distinct in terms of gender and household type. I find only limited evidence in favor of increasing economic status, in the form of increased education levels. I conclude that observed gay neighborhood change is more local than widespread, and that LGBTQ acceptance has not brought about the integration or erosion of gay neighborhoods. This case contributes to the more general study of urban minority enclaves, providing an example for marginalized and minority groups seeking to understand change in their communities in light of historical shifts.

Introduction

> "When we use the phrase 'gay community' we are implying something more than a gay
> territory and an open gay life style. We are referring to a deliberate effort by gay people
> to set up their own organizations and institutions in all spheres of life."
>
> — Castells and Murphy (1983:161)

Neighborhood enclaves identified with particular minority communities are a feature of cities. They arise in response to forces such as social stigma and economic disadvantage pushing minority groups apart from the rest of urban society, and cultural factors such as language, religion, and a desire for community pulling them together. Because cities are large and heterogeneous, they can support the existence of homophilic and homogeneous enclaves, which can develop institutions and cultures of their own: "small worlds" or subcultures within the large world of the city (Fischer 1975; Wirth 1928, 1938). While these enclaves are most commonly thought of in terms of race and ethnicity, which do dominate the spatial organization of the American city, other social characteristics such as sexuality may also form the basis for a spatial community.

Conditions of isolation and disadvantage give rise to minority urban enclaves. What happens when those conditions change? Do minority neighborhoods respond to historical shifts, from isolation to more widespread acceptance, by integrating and thereby declining in distinctness? Or are any observed neighborhood changes instead part of the normal and continuous evolution and flux of urban spaces? Perhaps minority neighborhoods continue to fulfill some of their previous purposes even in absence of the pressures of stigma and isolation, or perhaps they otherwise persist simply through inertia. Change cannot be taken for granted, and the reasons for change cannot be assumed.

Gay neighborhoods provide a classic case of minority urban enclaves, alongside Jewish and Black ghettos (Castells and Murphy 1983:158). Important differences of history aside, they possess many of the same structural characteristics as these other enclaves (Levine 1979). Because they represent a distinct case, gay neighborhoods offer an opportunity to consider urban dynamics beyond race, ethnicity, and class. Studying them can add to our general knowledge of how minority enclaves change in response to their local urban contexts and broader shifting circumstances.

The point of departure for this study is the observation that some gay neighborhoods seem to be undergoing rapid cultural and institutional change, undermining their status and character as gay neighborhoods. The explanation proffered for this observed cultural change is demographic change: LGBTQ people move out of gay neighborhoods, and straight people move in.

Two processes potentially drive this demographic shift. First, increasing acceptance of LGBTQ people into heterosexual American society removes social barriers to assimilation. These social barriers had encouraged LGBTQ people to remain in gay enclaves, and had discouraged straight people from moving into them. Second, economic shifts in urban centers drive advanced gentrification in gay neighborhoods, resulting in the displacement of LGBTQ residents. These two processes are not mutually exclusive; they could occur in tandem. However, they are distinct, with distinct consequences and remedies. Therefore, we should consider which process predominates, and whether these processes are localized or widespread.

This phenomenon of recent, linked cultural and demographic change in gay neighborhoods is widely called "there goes the gayborhood" (Albright and Baume 2018; Brown 2014; Ghaziani 2014b; James 2017; Smart and Whittemore 2016). Assimilation and gentrification lead to demographic changes. Demographic changes lead to cultural and institutional changes. Cultural and institutional changes lead to the loss of recognizable gay neighborhoods.

The evidence for this phenomenon, however, comes from a limited number of cases. These studies are most often qualitative observations of cultural and institutional change, with the concomitant demographic change being presumed or implied. This study takes a broader view, examining demographic and economic change directly across a range of gay neighborhoods. This examination establishes the extent of different types of gay neighborhood change. By analytically leveraging other neighborhoods for comparison, it also lets us distinguish between causes of gay neighborhood change tied to the changing status of LGBTQ people, whether based in assimilation or gentrification, or causes tied to local urban changes.

Scholars have called for broad, comparative work to establish general trends in the dynamics of neighborhoods and cities, particularly with regard to sexuality (Brown 2014; Small 2014; Stone 2017). This study responds to that call by investigating profiles of demographic and economic change across

neighborhoods in 23 cities. I systematically classify gay neighborhoods across these cities by reviving a classic approach using the locations of gay institutions (Castells and Murphy 1983; Levine 1979). I update and extend this approach using contemporary digital techniques. Through geocoding, I link the classified gay neighborhoods to Census data at the tract level. Because data on same-sex couples are largely inadequate for exploring change over time at a fine spatial scale, and because most theories of change entail multiple kinds of change, I incorporate a broader profile of change in my analysis.

This study addresses two questions. First, to what extent are demographic and economic changes taking place in gay neighborhoods? Second, are gay neighborhoods experiencing changes beyond what would be expected for their cities? For changes in gay neighborhoods to have sprung from the shifting status of LGBTQ people in US society, whether solely or in combination with economic shifts, they should be recent and widespread. I find that the expected types of change largely are not.

Background and significance

I briefly describe the origins of gay neighborhoods, in order to elaborate on the possibilities of gentrification and assimilation introduced above. I discuss the existing evidence for change in gay neighborhoods, and assess the degree to which that evidence supports claims of assimilation or gentrification. I explain how the status of gay neighborhoods today is thought to differ from when they first formed, with particular attention to views about the contemporary meaning and impact of gay neighborhoods on LGBTQ lives. I position gay neighborhoods in relation to other urban neighborhoods and urban change more generally. Finally, I outline my intended contribution to this literature.

Minority neighborhoods contain not only residents of that group, but also group institutions and a visible local predominance of the group's culture (Wirth 1928). Accordingly, gay neighborhoods are urban places with concentrations of gay residents, gay institutions, and gay culture (Ghaziani 2014a, 2014b; Levine 1979). While not as long-established as Jewish and other immigrant neighborhoods (Wirth 1928), they have existed in various American cities since at least the second half of the 20th century (Bérubé 2011; D'Emilio 1992; Ghaziani 2014b). They arose to provide safety and visibility for LGBTQ people, and provided a defined space in which to build both a sense of community and political

clout (Armstrong 2002; Castells and Murphy 1983; Hanhardt 2013; Stewart-Winter 2016). Gay neighborhoods have become a common feature of major cities, an urban type. In the 1970s, only three of the neighborhoods that Levine (1979) investigates across five cities possessed all of the traits necessary to be gay neighborhoods in the sociological sense: the Castro in San Francisco, the West Village in New York, and West Hollywood in Los Angeles. Other neighborhoods, such as New Town in Chicago, possessed only some of these characteristics (people, institutions, culture, and isolation), and were accordingly perceived to be gay neighborhoods in varying degrees. By the 2000s, however, Ghaziani (2014b:2) can cite the existence of a dozen neighborhoods across as many cities. Known, visible gay neighborhoods have become established and have proliferated in the past several decades.

Gay neighborhoods are thought to originate in an initial wave of gentrification. For instance, before they were known as gay, the Castro was working-class Irish (Castells and Murphy 1983:156), while parts of Lakeview in Chicago were Puerto Rican (Enke 2007:73–77) and middle-class white (Stewart-Winter 2016:106–9). These existing residents were either replaced or displaced by gay newcomers. In this process, a typically working-class neighborhood, with affordable and run-down housing stock, is renovated and revitalized by this influx of LGBTQ people, often with only modest capital (Castells and Murphy 1983; Lauria and Knopp 1985). Though it has a basis in observed changes in neighborhoods like the Castro and Andersonville, this narrative draws on stereotyped traits to explain why LGBTQ people fix up and "spruce up" neighborhoods: lesbians are hardy urban pioneers, while gay men have artistic talent and valuable aesthetic tastes (Castells and Murphy 1983:166; Ghaziani 2014b:231–32). Following Ruth Glass and naming this process *gentrification* emphasizes the potential for displacement or other harms to existing residents from this change in neighborhood economic status (Hanhardt 2013:128).

The "amenities" produced through this initial gentrification process make once-undesirable neighborhoods more generally attractive. As a consequence, gay neighborhoods may then decline as the result of a second wave of gentrification. Brown-Saracino (2017) calls this process *advanced gentrification*, and notes that qualitative researchers have increasingly studied it even as quantitative research has neglected it. Collins (2004) fits advanced gentrification into a four-stage ecological model of gay neighborhood emergence in marginal areas, development, and integration, based on the case of Soho in London. Ultimately, an influx of heterosexuals may undermine the character or culture of the gay

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neighborhood, and lead to both the closure of local institutions and the dispersal of LGBTQ residents. It is not only that these residents can no longer afford to live in the gay neighborhood, but that the institutions that rendered it meaningfully gay no longer exist. In this model, gay neighborhoods and LGBTQ people play a specific intermediate role in urban change. They are both gentrifiers and subject to gentrification (Moskowitz 2017). This stage model implies that different gay neighborhoods could exist simultaneously in different stages of "development," across cities or even within the same city. In fact, over long periods of time gay neighborhoods do move; "new" and "next" gay neighborhoods emerge in cities like Chicago and New York (Ghaziani 2014b), though perhaps not everywhere (Ruting 2008).

Rather than only responding to possibly heterogeneous local urban trends, gay neighborhoods may have become more generally "passé" (Brown 2007) because of recent historical changes. In other words, increasing acceptance might lead to the spatial assimilation and cultural integration of LGBTQ people. Gay neighborhoods formed in response to stigma. But, since the formation of gay neighborhoods, LGBTQ people in the United States have won social and political victories. Legal achievements include the full decriminalization of homosexuality in 2003, and marriage equality in 2015. Socially, an unusually rapid shift in public opinion has taken place, with majorities now approving of homosexuality and same-sex marriage (Rosenfeld 2017). These national changes affect the urban places where LGBTQ people live. If one of the defining characteristics of "gay ghettos" was social isolation from mainstream American life (Levine 1979), this isolation could now be coming to an end. For LGBTQ residents of gay neighborhoods, reduced stigma and increasing acceptance may remove the external social forces limiting their residential options. For straight urbanites, as disgust gives way to tolerance or progressiveness, the prospect of living in a gay neighborhood may come to seem attractive rather than outré. The net result of this shift would be a pattern of residential assimilation.

Assimilation and gentrification are not mutually exclusive. In fact, they could be mutually enabling. In terms of influx, gay neighborhoods attract straight residents enticed by urban amenities, some of which exist as a result of initial gay gentrification. But this can occur only if straight people are willing to move into gay neighborhoods. In terms of outflow, a gay neighborhood could simultaneously be losing poorer and more marginalized gay residents to urban gentrification, while also losing more

affluent and more integrated gay residents to suburban assimilation. Provided that LGBTQ people are not being replaced by structurally equivalent straight people, these processes should be reflected in the economic and demographic profiles of these neighborhoods, in terms of incomes, rents, household types, and so on. By looking at these data, we can uncover possible evidence for recent, rapid change.

Evidence for change in gay neighborhoods is largely restricted to a handful of cities. Qualitative work documents changes in bar subcultures and street life in both San Francisco and New York (Hanhardt 2013; Mattson 2015). A recent *New York Times* article (James 2017) reiterating the "there goes the gayborhood" trope rests primarily on two cases: a *Seattle Times* analysis of Capitol Hill (Balk 2014) and Ghaziani's work on Boystown in Chicago. Ghaziani (2014b) uses qualitative interviews to document directed LGBTQ migration in Chicago, from Boystown to Andersonville and other queer "cultural archipelagos." While confirming the existence of change, his principle finding does not provide evidence for the assimilation or disappearance of distinct queer urban spaces. In addition to interview data from Chicago, Ghaziani collects media accounts of gay neighborhood change from many cities in the United States. While these accounts establish widespread interest in and concern over change in gay neighborhoods, they do not demonstrate the existence or nature of this change.

The most compelling evidence that gay neighborhood change is widespread comes from two studies examining Atlanta and Dallas. Both are major cities in the South, and they fall outside the cities that figure most prominently in journalism and research on gay neighborhood change. In Atlanta, Doan and Higgins (2011) analyze a combination of interviews, Census data, and planning documents. They find that, while LGBTQ people desire to live in gay neighborhoods like Midtown, they are increasingly unable to as gentrification affects the affordability of housing. As a result, the LGBT community has become dispersed to other neighborhoods. In Dallas, Smart and Whittemore (2016) examine change over time in the real estate listings advertised in a gay periodical. They find that these become increasingly dispersed over time, but largely in "hot spots" adjacent to existing enclaves. Nevertheless, they say, listings are still centered on the historic gay neighborhood of Oak Lawn. Though they note that homeowners expand more than renters, they take this as evidence of continued clustering rather than assimilation. The findings of these two studies each indicate some type of change, but point in somewhat different directions. Moreover, differences in method render these cases difficult to com-

pare and synthesize. Finally, each of these works focuses on one or at most two cities. In fact, since Levine (1979), no single researcher has examined even five cities concurrently.

By contrast to the narrowness of qualitative case studies, demographic evidence of assimilation is too broad. Studies of same-sex couples in urban areas do not examine gay neighborhoods specifically. At the metropolitan-area level, demographic research has shown a decline in segregation between same-sex and different-sex couples (Spring 2013). Unlike the present study, this research does not directly observe the demographics of gay neighborhoods. However, Spring argues that it indirectly implies assimilation in those neighborhoods. She examines 100 metropolitan areas, but she does not claim or demonstrate that all of those places contain gay neighborhoods. In fact, she notes that some cities with gay neighborhoods, like Chicago, are outliers, showing *increasing* segregation by sexuality for both male same-sex couples and female same-sex couples. In one of the only other studies of residential segregation by sexuality, Poston et al. (2017) also do not account for the role of gay neighborhoods in generating their hypotheses, nor do they distinguish between cities with and without gay neighborhoods in their analysis. This distinction is consequential: a concentration of LGBTQ residents does not automatically make a place into a gay neighborhood. Without "anchor institutions," even areas with large concentrations of LGBTQ residents are not perceived as gay neighborhoods (Ghaziani 2014a, 2014b). These concentrations are invisible.

The continuing significance of gay neighborhoods is a motivation to care not just about outcomes for LGBTQ people, but for gay places themselves. Gay neighborhood change matters because gay neighborhoods remain meaningful to LGBTQ people and continue to materially impact their lives. Gay neighborhoods originated out of a need for "everyday survival" (Castells and Murphy 1983) and safety from violence (Hanhardt 2013), then enabled political organization and the formation of social movements (Armstrong 2002). They continue to play a role in providing a sense of community, facilitating cultural reproduction, and finding sexual and romantic partners. Through interviews and media content analysis, Ghaziani (2014b) finds that LGBTQ residents of gay neighborhoods cite these reasons and more for choosing to live in them. And, whether they live in gay neighborhoods or not, LGBTQ people recognize that gay neighborhoods continue to be relevant. A national survey of LGBT Americans (Pew Research Center 2013) shows that a majority (56%) agree that "it is important to maintain places like

LGBT neighborhoods and gay and lesbian bars." The response indicates a divide among LGBTQ people over assimilation, with the remainder saying that "these types of places will not be important as LGBT people are more accepted into society." Gay men and those particularly invested in LGBT identity are the most likely to value gay neighborhoods, with two thirds of each naming them important. Finally, gay neighborhoods may hold particular importance for young queer and trans people of color, who are marginalized in multiple ways (Ghaziani 2014b:176–83). Because of economic barriers, these individuals often already experience these neighborhoods as "vicarious citizens" (Greene 2014) rather than as residents (Hanhardt 2013). Many LGBTQ people continue to perceive these spaces as a refuge, a mecca, or a home.

Gay neighborhoods and the changes they undergo attain broader significance for two reasons. First, they are linked to general urban processes. They ostensibly signal the attractiveness of a city to the "creative class" (Bereitschaft and Cammack 2015; Florida 2005). Through commodification, they draw in tourists looking for authentic queer life (Boyd 2011; Mattson 2015; Orne 2017; Oswin 2005). Second, they are a distinct case of the more general class of minority enclaves. Considering gay neighborhoods is essential for disentangling the abstract operation of majority-minority dynamics from the specific histories of social structures like race, ethnicity, religion, and sexuality. Racial redlining and anti-sodomy laws, for instance, are obviously nonidentical in their effects, but ethnic and sexual identities are held to make similar contributions to the multiculturalism of the city (Reed 2003). They raise similar questions about what the right to change the city means for the systematically disadvantaged (Harvey 2003), and what it is that members of minority groups want from their communities (Molotch et al. 2015). Carefully establishing the extent and nature of change in gay neighborhoods will lay an empirical foundation for future comparisons.

I have outlined my theoretical interest in assimilation and gentrification. Empirically, I proceed by measuring demographic change and economic change at the neighborhood level. This meso-level analysis bridges the gap between micro-level qualitative studies of single neighborhoods or cities and macro-level demographic analyses of all major metropolitan areas in the United States. Rather than focus on gay neighborhoods in isolation, I compare them to other neighborhoods in their local areas. By choosing the right scale and the right context for comparison, I contribute a novel degree of

analytic leverage.

I achieve the breadth I need to draw robust conclusions in two ways. First, I include many more cities than prior work. I cover as many US cities as I can be sure have gay neighborhoods, and aim particularly to include those beyond the coasts and Chicago. Second, I consider more characteristics as outcomes. If we do not anticipate pure assimilation, it is important to consider broad profiles of demographic and economic change. Because queer people of color stand to be particularly marginalized, I consider race through the proportion of white residents. Because gay neighborhoods have historically been the domain of gay men, I consider gender through the proportion male. If we suspect an influx of straight individuals, married-couple households provide a close proxy. If we anticipate advanced gentrification, changes in education levels, incomes, rents, and population density all provide clues. Widespread, consistent change on multiple of these measures would suggest assimilation (or gentrification) connected to increasing LGBTQ acceptance, particularly if the degree of change is distinct from non-gay neighborhoods. By contrast, variation and heterogeneity across gay neighborhoods, with gentrifying neighborhoods in gentrifying cities and unclear patterns elsewhere, would indicate that gay neighborhood change is fundamentally local. To adjudicate between these positions, I must systematically and comprehensively examine gay neighborhood change.

Data and methods

I proceed by identifying gay neighborhoods, selecting characteristics to examine, and modeling change over time comparatively. I identify gay neighborhoods consistently across a range of cities by using clusters of gay bars. I select seven Census tract features from the American Community Survey at two time points, spanning a ten-year period from 2006 to 2015, and use the values of those features at the earlier time period to match tracts within cities. I use linear models with appropriate controls to assess whether gay neighborhoods change differently from other neighborhoods over time.

Gay neighborhoods from gay bars

To demarcate gay neighborhoods, I use clusters of gay bars, because concentrations of gay institutions are part of the definition of gay neighborhoods. For this definition, I rely on Levine (1979), who writes that "an urban neighborhood can be termed a 'gay ghetto' if it contains gay institutions in number, a conspicuous and locally dominant gay subculture that is socially isolated from the larger community, and a residential population that is substantially gay." I use one part of this definition as proxy for the whole in my operationalization. Similarly to Levine, Castells and Murphy (1983) compare the locations of gay bars against four other indicators of gay neighborhoods: qualitative reports of gay residence, counts of multiple-male households, votes for a gay electoral candidate, and gay businesses. They find that these measures are generally consistent with each other. In terms of contemporary work, Mattson (2015) has documented the centrality of bars to gay cultural and neighborhood life, while Ghaziani (2014a) has called them "anchor institutions" and proposed their use to measure urban sexual cultures. As opposed to other measures, gay bars have the advantage of being widespread and consistently measurable, which enables an analysis spanning multiple cities.

I obtain my list of gay bars from GayCities, a gay travel website. GayCities (www.gaycities.com) was founded in 2005. It relaunched in 2008, and has since grown into Q.Digital, an LGBTQ marketing and media conglomerate (Q.Digital 2015). The site solicits crowdsourced opinions, reviews, and information from the LGBTQ community to provide a comprehensive picture of the places it lists. GayCities fulfills a similar role to traditional print gay travel guides and city guides. These guidebooks include the Gayellow Pages (Hayslett and Kane 2011) and the Damron's guides, which have a 50-year history and have been used in considerable previous research (Castells 1983:148 Map 14.3; Levine 1979; Mattson 2017). I choose GayCities over these print media source because, as an already-digital source, it is scalable and accessible. I can download bar listings for as many cities as are available, and easily extract the addresses of bars to geocode within Census tracts. For examining change in a recent time period, an internet-based data source has considerable advantages.

Because I am examining the present outcomes of past gay neighborhoods, my indicator of gay neighborhoods should be historical. To this end, I use an archived version of GayCities from 2007 to obtain bar listings, instead of the present version of the website. The Internet Archive, a non-profit

organization, automatically crawls and archives the internet, which is useful to social scientists for historical research (Gade 2017). I use their Wayback Machine tool, which provides snapshots of websites such as GayCities. The earliest relatively complete snapshot of GayCities is from July 28, 2007. I retrieve bar information from this archived version of GayCities through web scraping, the automated retrieval of unstructured data from the Internet (Boeing and Waddell 2017). Because GayCities' robots.txt is permissive of scraping and GayCities' terms prohibit only commercial use of their data, retrieving bar names and addresses in this way is justified.

In 2007, GayCities lists 902 bars across 63 cities. Of these, 840 bars are located in the US, with the remainder in Canada and Mexico. I exclude the six Canadian cities from consideration, and also choose to exclude nine locations that I classify as LGBTQ resort towns. These are places such as Provincetown and Fire Island. The remaining 48 US cities are candidates for my analysis. The number of bars per city ranges from 62 in New York City to 3 in Hartford, CT. (See Appendix A for a complete listing of cities.) Each GayCities web page also includes informative city-level and bar-level descriptions, which I inspect as context for my analyses.

I associate gay bars with Census tracts by geocoding their addresses, and aggregate adjacent tracts to form neighborhoods. I do this using two application programming interfaces for geocoding. I first send bar addresses from GayCities to the Google Maps Geocoding API, in order to obtain more precise addresses with zip codes. I manually adjudicate the 9 addresses for which Google Maps returns multiple results using GayCities bar descriptions. I batch code these refined addresses using the Census Geocoding API, a service that links addresses or coordinates to Census geographies. Finally, I geocode the 38 addresses for which the Census returns a tie or a failure to match an address through individual API calls, using the latitude and longitude provided by the Google Maps Geocoding API. In this way, I am able to successfully geocode all 840 bars within 488 Census tracts.

Many of these 488 tracts are adjacent to each other, indicating that gay bars frequently occur in spatially contiguous clusters of tracts. This is expected, because gay neighborhoods should contain concentrations of gay institutions. I merge these adjacent tracts in the final analysis for substantive and methodological reasons. Substantively, Census tracts do not correspond to neighborhoods, but urban demographers often lack principled ways of aggregating them. Spatial clusters of gay bars provide

a rationale for aggregation. Methodologically, this *regionalization* process has the ancillary advantage of reducing the margin of error in ACS variable estimates, which can be substantial at the tract level (Spielman and Folch 2015). I use the *sf* and *sp* packages for spatial data in R to generate lists of adjacent tracts, and I use the *igraph* package to assign numeric identifiers to the clusters produced by this adjacency list. In Appendix B, I show a network graph of these clusters, with the ones that I ultimately classify as gay neighborhoods highlighted. In this way, I move from gay bar locations to Census tracts to gay neighborhoods.

In connecting gay bars to gay neighborhoods, I am not concerned about selectivity in the GayCities listings. Any archival source is bound to be selective. But gay city guides have the appropriate incentives and the requisite cultural knowledge to document concentrations of gay institutions, gay culture, and gay people. Gay neighborhoods must be visibly gay; a neighborhood that was not known as gay could not have been subject to processes of assimilation and gentrification affecting gay neighborhoods specifically. Finally, while individual bars may open and close, clusters of bars do not spring up overnight.

In each city that I choose to include, I designate the largest cluster or clusters of gay bars as gay neighborhoods. Because they are large cities that have played outsized roles in LGBTQ urban history, I include the two largest neighborhoods in San Francisco and Chicago, and three in New York (Ghaziani 2014b; Hanhardt 2013; Mattson 2015). I rank the other cities based on the size of their largest cluster, and determine 21 to have gay neighborhoods, though I subsequently treat Long Beach, California, as if it were part of Los Angeles because they are both within the same county. I include some more peripheral cities based on their occurrence in prior research, such as New Orleans (Knopp 1990), Columbus (Hayslett and Kane 2011), and San Antonio (Stone 2017). In total, this gives me 28 gay neighborhoods. I combine neighborhood labels and descriptions from the GayCities data with information from the literature to assign descriptive names to each of them, which I list in Appendix A.

I exclude the other half of the 48 available cities in the GayCities data from my analyses entirely, because I cannot be sure that they have gay neighborhoods at all. The largest city excluded in this way is Phoenix, Arizona. I examine the spatial distribution of bars in all cities visually, and use city descriptions from GayCities, prior qualitative research, and media accounts as supplemental information in

making these choices. For instance, the GayCities description for Seattle notes that "Gay Seattle is primarily centered around Capitol Hill, a quaint, friendly neighborhood..." By contrast, the description of Portland, OR, begins by stating that "Although it has no gay district, Portland makes up for that with all that it does have to offer." On the basis of these descriptions, and on media coverage and research (Albright and Baume 2018; Atkins 2011; Balk 2014), I include Seattle and its Capitol Hill neighborhood in my analysis, but exclude Portland.

Not all clusters of gay bars are gay neighborhoods, so I use other aspects of Levine's definition to refine the filtering of my neighborhoods. Because gay neighborhoods should contain gay residential concentrations as well as institutions, I filter out warehouse districts in cities like Portland, Austin, and Minneapolis. Because gay neighborhoods are areas where LGBTQ people exert cultural dominance or "set the tone" (Chauncey 1994; Ghaziani 2014b), I exclude downtown or center city areas, under the assumption that LGBTQ people are not dominant in these areas. This means that I filter out bars with a "downtown" neighborhood label in cities like Columbus and Seattle, even when those bars are adjacent to gay neighborhoods. I rerun the clustering process described above with these restrictions.

This bar-based approach to gay neighborhoods has several implications that shape the scope of my findings. First, even though I include a broader range of cities and neighborhoods than prior work, my approach centers core gay spaces over peripheral ones. In that regard, it differs from approaches focused on queering space (Brown and Knopp 2008; Halberstam 2005; Oswin 2008), though some gay bar cultures are queer rather than homonormative (Kanai and Kenttamaa-Squires 2015; Mattson 2015). I categorically exclude non-urban gay spaces, such as Provincetown, from my study. Qualitative work has examined rural queer spaces in comparison with urban ones (Brown-Saracino 2010, 2017; Halberstam 2005), but I do not expect them to be quantitatively comparable. By contrast to rural resort towns, I do not categorically exclude lesbian women from consideration—unlike Castells and Murphy (1983) or Levine (1979). While more gay men than lesbian women live or have lived in gay neighborhoods—32% versus 18%—both groups are present (Pew Research Center 2013). Accordingly, most of the bars used to determine neighborhood locations and boundaries are bars for gay men, but lesbian bars such as the Lexington in San Francisco and the Wildrose in Seattle also form part of my bar listings. I expect and find an empirical bias toward men in my demographic data.

Measuring neighborhood change

I select seven demographic and economic variables from the US Census Bureau's American Community Survey, and use these to examine neighborhood change between two points over a ten-year period, from 2006 to 2015. The ACS has been conducted on a yearly basis since 2006, and the estimates are publicly available in 1-year, 3-year, and 5-year data sets. I use two non-overlapping 5-year ACS data sets, because tract-level data are only available at this temporal resolution. The 2006-2010 values of each variable are my covariates, and the 2011-2015 values are the outcomes. Based on the neighborhood classification described above, I create a binary indicator for whether or not a tract is part of a gay neighborhood. I retrieve ACS data for all tracts in all counties containing gay bars, using the *tidycensus* R package (Walker 2018). These data are the components of the models I describe in the following section.

The ACS has advantages and disadvantages. It is regular, recent, and frequent, and so better suited for examining short-term changes than the decennial Census. However, the fact that five years of data are combined into a single estimate could obscure temporal trends. Moreover, as a survey rather than a complete census, the ACS has relatively large margins of error in its estimates (Spielman and Singleton 2015). This problem of precision is particularly acute for small areas like Census tracts, and for small counts and proportions within those areas. In choosing among related variables, I select the variables that best mitigate these shortcomings.

The neighborhood changes of interest are both demographic and economic. In terms of demographic characteristics, I evaluate changes in the gender ratio using the proportion of male individuals, and changes in racial composition using the proportion of non-Hispanic white individuals. For education levels, I use the proportion of individuals with a college education or higher. My proxy for sexuality is changes in household type, measured by the proportion of married-couple households. In Census data, this refers only to different-sex married couples. I do not use the proportion of same-sex couple households as a measure, for two reasons. First, because this proportion is always small, even in gay neighborhoods, it has a large margin of error relative to its value. Second, counts of same-sex couples are systematically inflated due to small random errors in different-sex couples in recording their genders. Because the Census Bureau improved its form design to mitigate this problem between

2007 and 2008, the 2006-2010 counts are not comparable to the 2011-2015 counts (O'Connell and Feliz 2011). I cannot examine neighborhood changes in the proportion of same-sex couples over time. My other measures are sufficient to characterize demographic change in gay neighborhoods.

In addition to these four proportions, I select three other variables. I select two variables as economic indicators, median household income and median rent. While previous researchers have critiqued the ACS median rent measure as somewhat unreliable (McCabe and Ellen 2016), I prefer it over alternate housing-related measures, such as proportion of owner-occupied housing, largely because I anticipate gay neighborhoods to have a high proportion of renters. Where I present numbers, I have converted the 2010 values to 2015 dollars, using the conversion factor recommended by the Census for comparison. When I combine tracts, I take a population-weighted average of medians. Finally, I select population density to account for population dynamics more generally. Densification is a potential aspect of neighborhood change, and gay neighborhoods are generally found in dense urban areas to begin with. Population densities are taken from data prepared by Social Explorer (U.S. Census Bureau 2010, 2015).

To summarize, the seven outcomes are proportions college-educated, male, married, and white; median income and median rent; and population density. With these, I aim to capture information about the types of people anticipated to already live in gay neighborhoods, such as middle-class, white, gay men; the types of people predicted to move into these neighborhoods, such as straight, married couples; and the kinds of changes associated with gentrification more broadly, such as an influx of middle or upper class residents and a rise in rents. I have chosen variables that are both substantively informative and reliable.

Modeling change over time

My overarching question is whether gay neighborhoods show patterns of change like each other, because they are gay neighborhoods, or whether they are instead more similar to other neighborhoods in their respective cities. Put another way, does the fact that these are specifically *gay* neighborhoods matter for the kinds of contextual changes they experience? For each of the seven outcomes above, I use a linear model where the predictors are whether or not an area is a gay neighborhood, the value

of the outcome at the 2006-2010 time point, and the values of all of the other variables at the 2006-2010 time point. The units of observation are either individual tracts or aggregates of tracts into neighborhoods. These models take the following general form:

$$x_{t+1} \sim \mathcal{N}(\alpha + \beta_1 gay_t + \beta_2 x_t + X\beta_{controls}, \sigma^2)$$

For example, the proportion of college-educated individuals in a neighborhood in 2011-2015 would be modeled as depending on whether or not that neighborhood was gay, the proportion college-educated in 2006-2010, and a set of 2006-2010 characteristics as controls.

To answer the empirical question my models are oriented toward addressing, I must incorporate the structure of my data and select appropriate subsets of it for comparison. That is, I must account for systematic differences across cities, and choose non-gay areas that make for appropriate comparison units to the 28 gay neighborhoods. I adopt two separate strategies to address these issues. First, because the Census tracts in my data are grouped within 23 different cities, a multilevel modeling strategy is appropriate (McElreath 2016). These varying-intercept models take the form:

$$x_{t+1} \sim \mathcal{N}(\alpha_{city} + \beta_1 gay_t + \beta_2 x_t + X\beta_{controls}, \sigma^2)$$

$$\alpha_{city} \sim \mathcal{N}(\alpha, \sigma_\alpha^2)$$

The between-city variation modeled in this way can be compared to the variation between gay and other neighborhoods, and modeling it accounts for the impact of factors local to particular urban areas.

Second, rather than using all tracts from the same counties as the gay-neighborhood tracts, I can restrict my comparison to tracts that appeared similar in 2006-2010, but were not part of gay neighborhoods. I match each tract in every gay neighborhood to another tract in the same city that is similar on all seven covariates in 2006-2010. Unlike the gay neighborhood tracts, these matched tracts are not contiguous to each other; they form a synthetic neighborhood rather than an actual one. I include total population as an eighth matching characteristic to ensure that the aggregates of tracts are also comparable to each other. I use nearest-neighbor matching based on Mahalanobis distance and the

18

MatchIt R package (Ho et al. 2011). Because my "treatment" does not occur at a sharply-defined point in time, my goal is not to approximate causal inference (Ho et al. 2007; Stuart 2010), only to ensure a reasonable comparison. Models on the matched data can be fit at the tract level or at the neighborhood level, where neighborhoods are contiguous or synthetic groups of tracts. I present both approaches, but take the latter to be more substantively meaningful.

I compare models fit on this subset of matched observations to models fit on all tracts. By focusing on comparison with a subset of neighborhoods that are generally similar, I improve my ability to make claims about whether or not the cultural and institutional gayness of these neighborhoods is an important factor for change. Ultimately, because combining multilevel modeling and matching strategies into a single model does not improve model fit for any of the outcomes of interest, I analyze and present the results of these two approaches separately.

The small number of gay neighborhood tracts limits the statistical power of my models and the potential model complexity. More complex models might allow for correlations among outcomes (Zellner and Ando 2010), or incorporate ACS measurement error in a Bayesian framework (McElreath 2016), but I leave these innovations for future work.

Results

Demarcating gay neighborhoods

Before describing and comparing change over time, I first assess the effectiveness and reliability of my method for locating and demarcating gay neighborhoods. I do this qualitatively and visually, using the two cities of Chicago and Seattle as my principal examples. I choose these cities because both media accounts (Albright and Baume 2018; James 2017; Romano 2015) and analyses (Balk 2014; Ghaziani 2014b) have presented these cases as exemplars of gay neighborhood change. I similarly examine all 28 clusters included in my results below, as well as those excluded, and I discuss common patterns and notable discrepancies here.

Levine (1979) observes that the cultural centers of gay neighborhoods are often one or two named streets. Qualitative and historical research has documented these streets in many cases, and for my
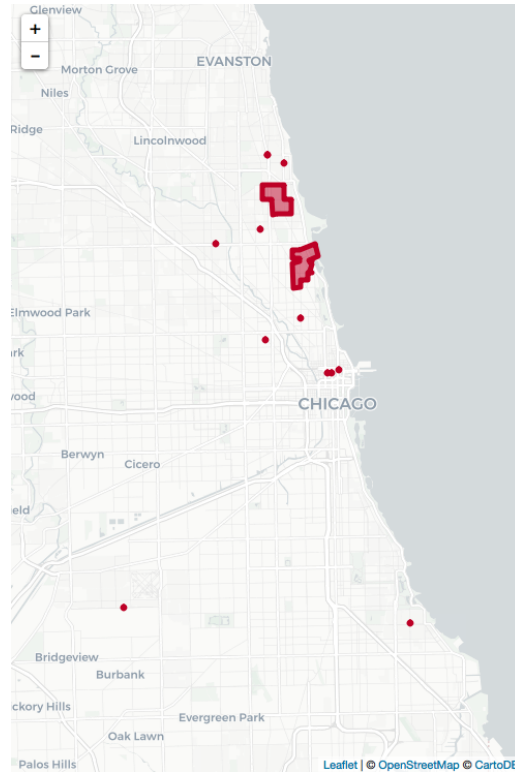
Figure 1: Chicago. Boystown and Andersonville are highlighted. Gay bars outside these neighborhoods are indicated with dots. Suburban bars are not shown.

method to be successful, it must have included them. Boystown in Chicago is centered on Halsted Street (Ghaziani 2014b; Stewart-Winter 2016). Capitol Hill in Seattle is centered on the Pike-Pine corridor and Broadway Avenue (Atkins 2011). My method recovers both of these gay neighborhoods. In these cases, it identifies a recognizable cultural object, centered in a gay culture area with gay institutions.

In Chicago, the largest cluster of gay bars that I observe, covering eight tracts and 18 bars, includes Halsted Street and corresponds to Boystown. It can be seen on the North Side along the shore of Lake Michigan in the map shown in Figure 1. In this figure, I also include a second cluster further to the north, with four tracts and seven bars, that corresponds to the secondary gay neighborhood of Andersonville (Ghaziani 2014b). This is the second-largest group of gay bars in Chicago. Bars in the downtown area on the near North Side, in other neighborhoods of the city, and in the suburbs are excluded from further consideration as not belonging to gay neighborhoods.

Figure 2: Seattle. Capitol Hill is highlighted. Gay bars outside this neighborhood, including an adjacent downtown bar, are indicated with dots.

In Seattle, the largest cluster of gay bars, four tracts and 11 bars, is centered on Pike and Pine Streets and includes parts of Broadway Avenue. This is Capitol Hill, and it is shown in the map in Figure 2. The map shows the overall success of this approach, but also indicates some of its complexities. For instance, the affluent residential areas of North Capitol Hill (Atkins 2011) are not included within my labeled gay neighborhood. At the same time, the boundaries of the Census tracts in the Pike-Pine corridor cross neighborhood borders to include portions of First Hill and the Central District to the south and east.

A bar-based method of identifying gay neighborhoods is better at identifying the general locations of these neighborhoods, rather than their precise boundaries. This is sufficient, because the edges of gay neighborhoods are not clearly and universally specified. That is, gay neighborhoods present a fundamental boundary definition problem (Bowker and Star 2000). In other contexts (Hwang 2016), the boundaries residents draw of their neighborhoods have been shown to differ systematically among individuals. Census tract borders do not and cannot correspond to these social boundaries; they are a statistical convenience. In any case, gay bars provide a more principled way of delineating the category of gay neighborhoods from other neighborhoods than the primary quantitative alternative, which would be to use the prevalence of same-sex couples (Gates and Ost 2004). Because prevalence is a continuous measure, using it to classify neighborhoods as gay or not gay requires imposing an arbitrary cutoff (Brown and Knopp 2006). While my approach also involves subjective and pragmatic decisions, it avoids that need.

Examining gay neighborhoods beyond Chicago and Seattle reveals two specific kinds of shortcomings to my method, while confirming its overall validity. In some cases, qualitatively distinct neighborhoods are merged together because they are adjacent to each other. In other cases, the opposite problem occurs, and a single neighborhood is fragmented because its bars are located in noncontiguous tracts.

Neighborhoods are combined in some cities with larger gay neighborhoods. In San Francisco, the Castro, the Mission, and SOMA merge together. The West Village and Chelsea are adjacent in New York, as are Rittenhouse Square and Washington Square in Philadelphia. Dupont Circle, Logan Circle, and Shaw/U Street in Washington, DC, are similarly connected. Qualitative researchers find these

differences important. For instance, both Hanhardt (2013) and Greene (2014) distinguish between the three DC neighborhoods, suggesting that they could be expected to undergo different types of change. However, as Compton and Baumle (2012) discuss with regard to the Castro and the Mission, drawing precise quantitative boundaries between even well-defined cultural enclaves is difficult. I do not attempt to divide these neighborhoods. Instead, I analyze them as combined units, and run the same models on individual tracts as a robustness check.

Neighborhoods are fragmented in other cities. Capitol Hill in Denver and South Beach in Miami are the two primary instances of this. While the neighborhood labels from GayCities confirm that these are single neighborhoods, I do not attempt to unify them. I use only the largest cluster of bars to stand for the neighborhood as a whole. Maps of the four cities with merged gay neighborhoods and the two cities with fragmented gay neighborhoods are shown in Appendix C.

In total, I identify 28 gay neighborhoods across 23 cities. They are diverse in size and geography. The largest gay neighborhoods by number of tracts and bars are the West Village and Chelsea in New York and the Castro and adjacent areas in San Francisco, which corroborates the historic centrality of these places to gay cultural life. The smallest gay neighborhoods are in Southern cities like San Antonio, Tampa, and Miami, which still exhibit substantial concentrations of gay spaces.

The high degree to which gay institutions are concentrated in gay neighborhoods can be illustrated as follows. Of the 295 Census tracts in these cities that contain at least one gay bar, only 146 tracts— 49.5% of the original number—fall in what I consider to be gay neighborhoods. However, these gay neighborhoods contain more than two thirds of all of the gay bars in these cities, numbering 346 of 529, or 67.3%. These 346 gay-neighborhood bars outnumber the 311 gay bars in the 24 other cities and nine resort towns combined. Though I do not produce similar measures of gay residential concentration, I take this uneven distribution to indicate the outsized importance of these neighborhoods for LGBTQ community life.

Descriptive results

Gay neighborhoods have distinct demographic and economic characteristics, a "signature" of traits not directly related to their residents' sexual identities. For some of these traits, the changes gay neigh-

Table 1: Average values for tracts in 23 included cities

	Gay neighborhood tracts		Matched tracts	
	N = 146		N = 146	
	2006-2010	2011-2015	2006-2010	2011-2015
college educated	0.54	0.60	0.55	0.58
male	0.54	0.54	0.53	0.51
married	0.19	0.20	0.22	0.24
white	0.60	0.60	0.59	0.57
median income	63916.50	68341.77	67155.78	68901.86
median rent	1229.51	1319.33	1270.25	1356.67
population density	29724.92	31188.73	28556.85	29748.92
	Other tracts with gay bars		All other tracts	
	N = 150		N = 13020	
	2006-2010	2011-2015	2006-2010	2011-2015
college educated	0.42	0.45	0.31	0.32
male	0.52	0.52	0.48	0.48
married	0.28	0.29	0.43	0.42
white	0.48	0.49	0.41	0.39
median income	56858.91	59269.48	62660.91	60144.23
median rent	1134.25	1248.99	1180.59	1218.56
population density	19776.80	21400.86	13978.71	14567.13

borhoods have undergone in the past decade are consistent with each other, and distinct from other neighborhoods. On other traits, however, gay neighborhoods exhibit considerable heterogeneity in how they change. I present tables and figures to illustrate these findings, and discuss both general trends and specific examples.

For the 23 cities that are the focus of my analysis, I present average tract values for the seven characteristics of interest in Table 1. I divide Census tracts into four groups: tracts located in gay neighborhoods, tracts matched to be as similar as possible to those neighborhoods in the 2006-2010 time period, tracts containing gay bars outside of gay neighborhoods, and all other tracts in the included counties. I show average values for 2006-2010 and 2011-2015 side-by-side to provide an overview of temporal change.

This is the demographic signature of gay neighborhoods: they are whiter and more educated than

most tracts in their areas. They have more men, and fewer married couples. They are denser, wealthier, and more expensive to rent in. This initial description of gay neighborhoods agrees with the work of previous scholars, such as Castells and Murphy (1983), Hanhardt (2013), and Ghaziani (2014b). Table 1 also shows that matching by Mahalanobis distance successfully achieved similarity across all seven variables in 2006-2010. Because gay-neighborhood tracts are unusual, this is important to confirm. Finally, the tracts with gay bars outside gay neighborhoods have different characteristics from those inside gay neighborhoods. These values are often intermediate between gay neighborhoods and other places, except for median income, which is consistently the lowest of all four categories of tracts. This suggests that excluding these tracts from my models is, in fact, appropriate.

Over the short period of time I examine here, the average change seen in gay neighborhoods is not dramatic. Gay neighborhoods hold relatively constant on most demographic characteristics. They become slightly denser, with somewhat higher median rents. The most substantial changes are increases in education levels and incomes. In my models below, I examine how robust these trends are to statistical controls.

Gay neighborhoods differ descriptively from other neighborhoods. To shed light on whether they differ from or are similar to each other, I describe their varying changes in more detail. In the subsequent figures, I present change at the neighborhood level, rather than the tract level. Neighborhoods, again, are aggregates of tracts. This allows me to show the variation across neighborhoods, and to highlight their different trajectories over time.

Figure 3 shows more comprehensively that gay neighborhoods differ demographically from their urban contexts. The four plots compare different demographic characteristics for each neighborhood against the county in which that neighborhood is located. Gay neighborhoods do not only differ on average from other places. Nearly every individual gay neighborhood is more educated, more male, less married, and whiter than its corresponding county. This is consistent with the notion that these neighborhoods are spaces for middle-class, white, gay men. However, the scale of variation differs by variable. Gay neighborhoods cluster narrowly between 50-60% male, which means that they are far from exclusively populated by men. They show much greater heterogeneity in racial composition, from under 25% white in Northcentral, San Antonio, to nearly 90% white in German Village, Columbus.
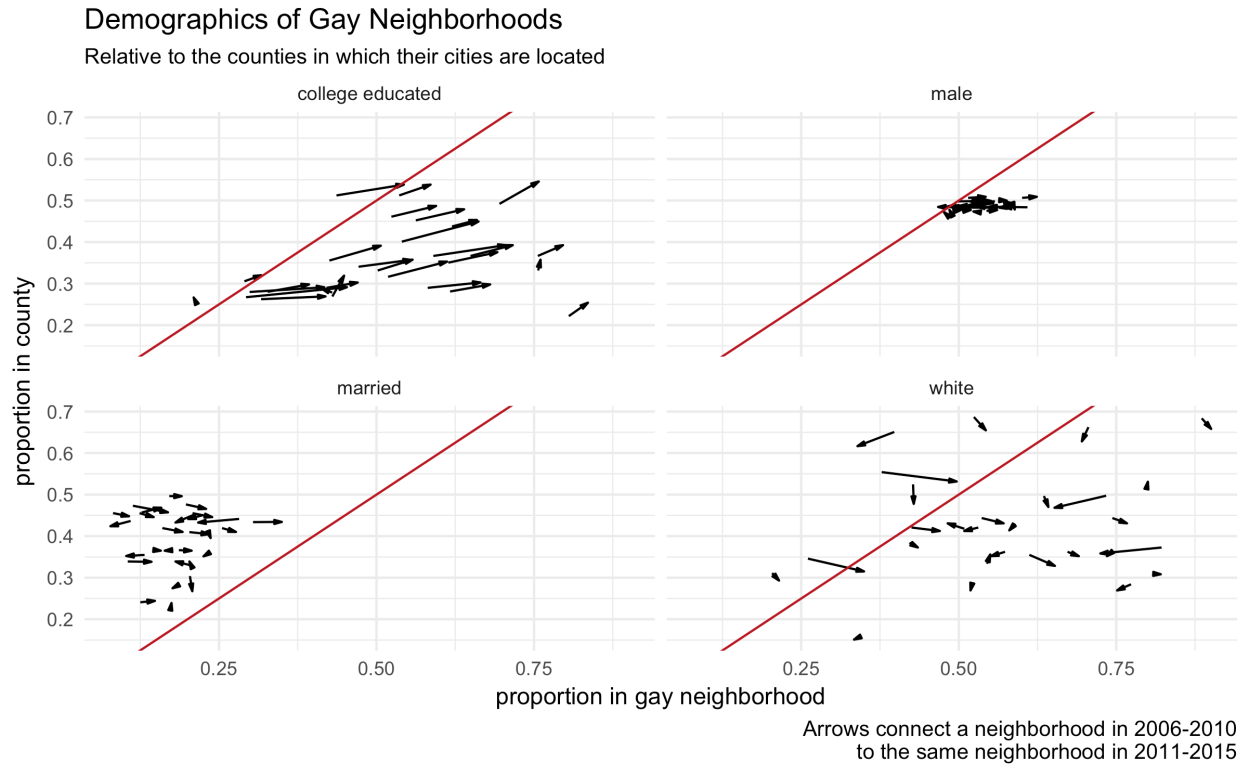
Figure 3: Gay neighborhoods in their local urban contexts. Red lines represent parity.

While generally similar to each other, gay neighborhoods are not universally white and male.

Figure 3 begins to show change over time in gay neighborhoods, but I use bivariate plots to make the process clearer. In Figures 4 and 5, each axis is a different variable, but both axes show neighborhood-level information. Directed arrows connect the data point for a given gay neighborhood in 2006-2010 to that same neighborhood's data point in 2011-2015. These plots thus simultaneously show the absolute levels of different characteristics and trajectories of change.

Figure 4 shows two variables that would, according to the there-goes-the-gayborhood model, indicate greater integration in gay neighborhoods. The proportion of households in different-sex marriages is a near-direct measure of a potential influx of straight individuals. The proportion male is tied to the continued presence or exodus of gay men, albeit less directly. These variables turn out to have heterogeneous, varying trajectories, rather than a consistent pattern. While some neighborhoods are becoming more married and less male, others are becoming both more married and more male. Others still are decreasing on both dimensions. The South End, in Boston, has the highest proportion of

Figure 4: Divergent trajectories.

Changes in median income and proportion college educated in gay neighborhoods
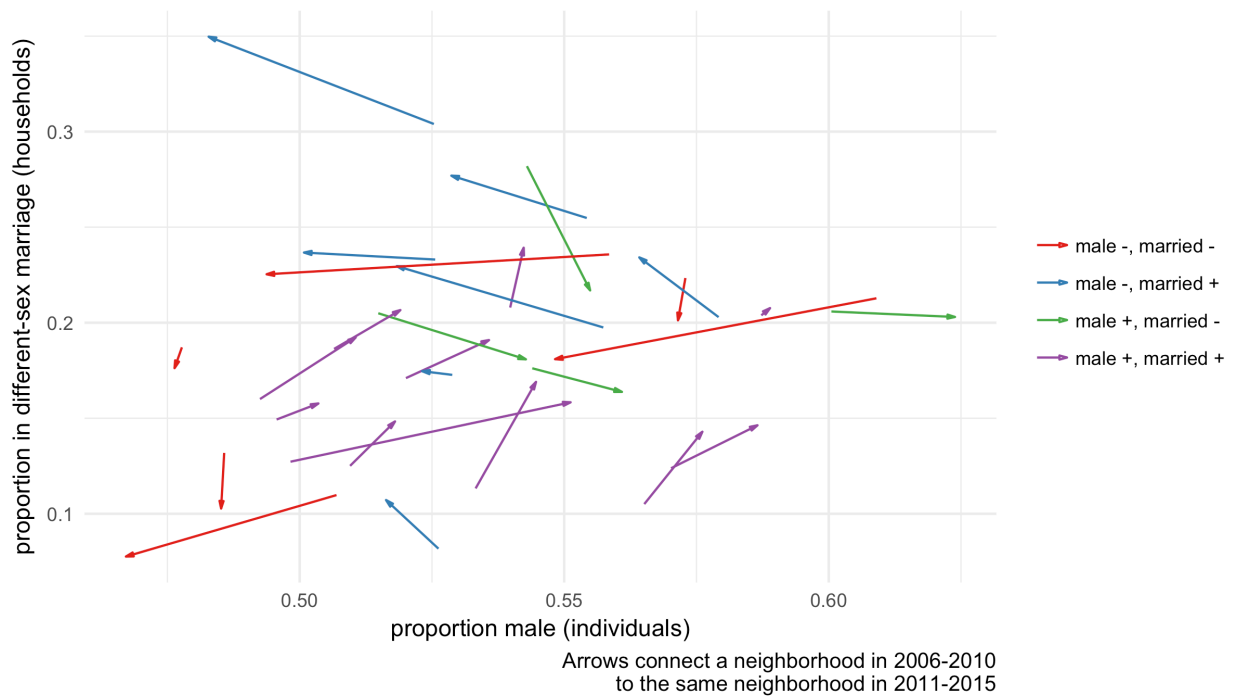Comparing neighborhood-level values for each characteristic
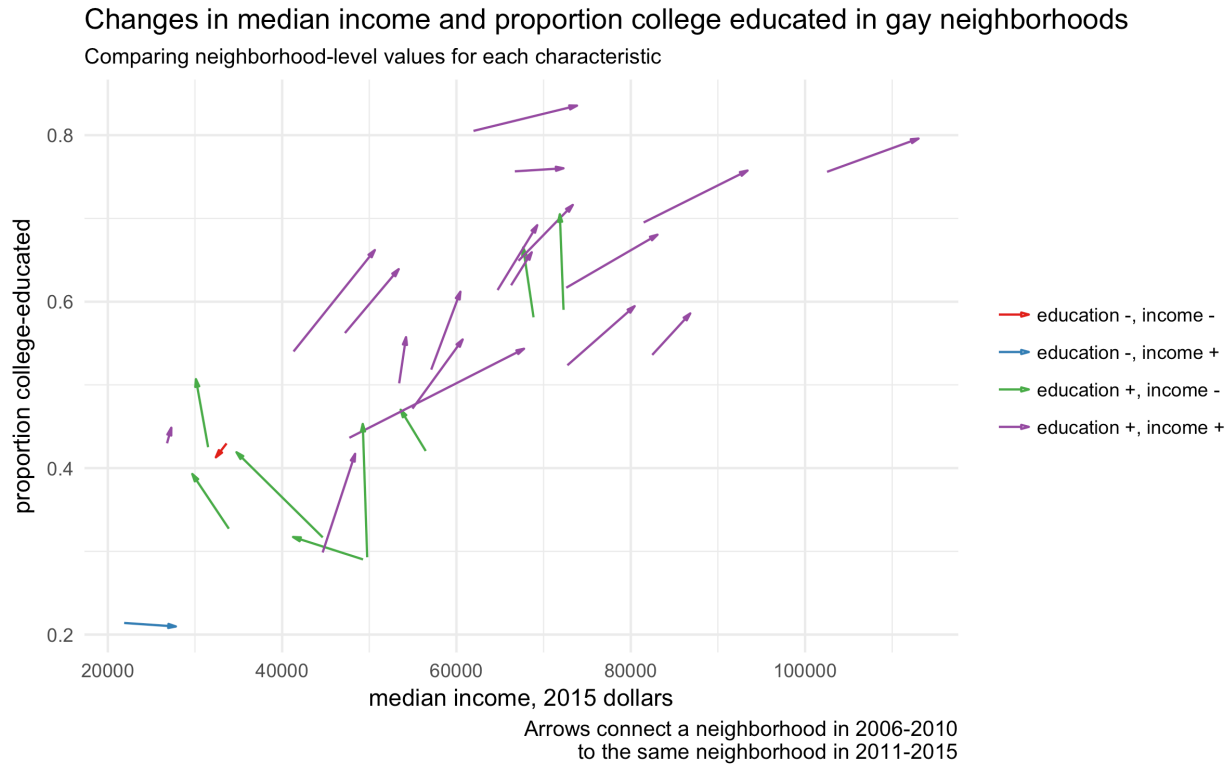

Figure 5: Coherent trajectories.

married couples overall, and this proportion increases over time. Fittingly, GayCities had declared in 2007 that it "*was* the traditional gay neighborhood and is still a pleasant area for a walk." Anderson-ville, a neighborhood Ghaziani (2014b) discovers to be a target for queer migration as Chicago's new gayborhood, is ironically among those becoming more married and less male. In the more traditional gay neighborhoods of San Francisco, both the Castro and Polk Street have become increasingly male and less married, although I raise an alternative explanation for this in the conclusion. In terms of gender and household type, no consistent narrative of change applies across all gay neighborhoods.

By contrast, Figure 5 shows two variables which have clear directional trends. The proportion of college-educated individuals and the median income of a neighborhood are both used in quantitative work as signals of potential gentrification (Brown-Saracino 2017). Descriptively, gay neighborhoods are generally becoming more educated and wealthier. There are only a few exceptions. A few neigh-borhoods in the lower end of the education and income range see their incomes fall. These include all three neighborhoods in Florida, as well as those in Baltimore and Milwaukee. The two highly edu-

cated places that see a slight decrease in income are West Hollywood and Hell's Kitchen. The latter is a "new" gayborhood, in Ghaziani's account; it stands opposed to Chelsea and the West Village, more established gay neighborhoods that have become wealthier. From Boystown and Capitol Hill to Midtown and Oak Lawn, a trend toward higher income and education levels is the general pattern.

Gay neighborhoods had various demographic and economic traits in common with each other in the recent past. In some ways, they are also changing in consistent ways. In other ways, gay neighborhood changes are more heterogeneous. Though I have broadened the number of cases I consider relative to prior work, the broader scope is not the source of variation. Better-studied gay neighborhoods, such as those in San Francisco, New York, Chicago, and Seattle, do not differ from less-studied ones. Gay neighborhoods, whether well-known or more obscure, show both patterns and variations in their trajectories.

Model results

The question is not just how similar or different gay neighborhoods are among themselves, but how distinct they are from other neighborhoods in how they change. To compare gay neighborhoods to other neighborhoods, I model change over time statistically. I present and interpret the results of statistical models in order to show which descriptive trends and differences persist with multivariate controls. With the multilevel models, I also account for variation across cities. Rather than discuss the associations of all covariates, I focus primarily on presenting estimates for $\hat{\beta}_{gay}$, the coefficient for the indicator variable for gay neighborhoods. Figure 6 displays estimates for this single coefficient across 28 models—four models for each of seven outcomes.

All models are multivariate linear regressions of the form shown in the Methods section. The first model ("All") compares gay neighborhood tracts to all other tracts in the same set of counties, excluding tracts which contain gay bars but which are not part of gay neighborhoods. The second model ("All (multilevel)") uses the same data, but allows model intercepts to vary across cities in a multilevel model. The third model ("Matched") restricts the sample of non-gay tracts to only individual matched tracts for comparison. The fourth model ("Aggregated") aggregates the gay neighborhood tracts into gay neighborhoods, and the matched tracts from the third model into synthetic comparison neigh-
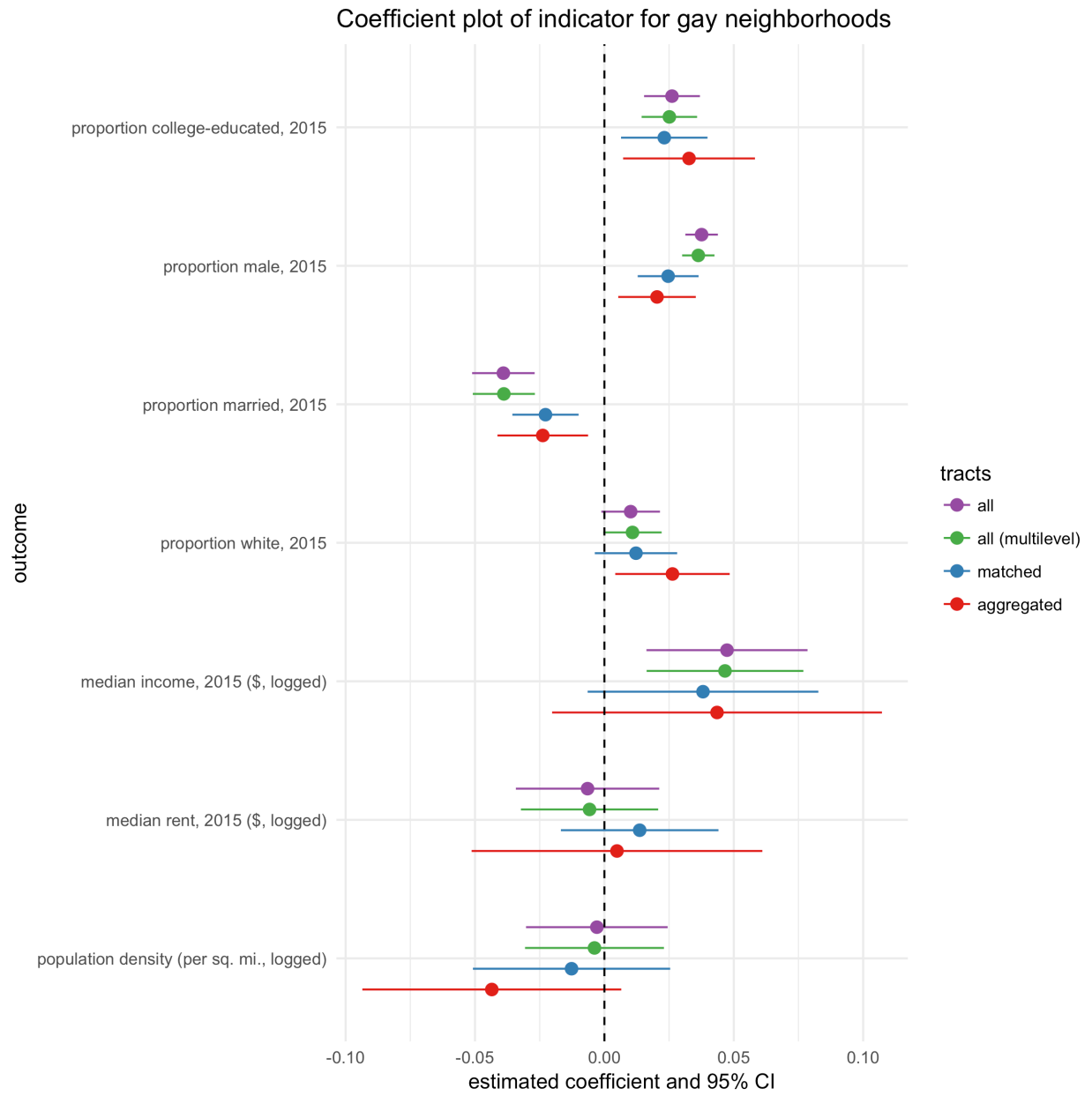
Figure 6: Model results.

borhoods.

All models incorporate the values of each outcome in 2006-2010 as additional covariates. In every case, the strongest predictor of an outcome in 2011-2015 is the same variable in 2006-2010. I include full tables of model coefficients for each outcome in Appendix D. I omit results for multilevel models for the matched and aggregated tracts, because the city-varying slopes in these models were not justified by improvements in model fit. Including the gay neighborhood indicator generally improved model fit. To show this, I include one model without the indicator for gay neighborhoods in each of the Appendix D tables.

The models shown in Figure 6 are generally consistent in relation to each other. One limitation is that the standard errors and displayed 95% confidence intervals do not incorporate the measurement error in the American Community Survey. One motivation for the fourth, aggregated model is that aggregation reduces the impact of this measurement error. This is true even as the standard errors increase due to a decrease in the number of observations. For both this reason and the fact that matching attempts to control heterogeneity, the matched and aggregated model provides the most reasonable and appropriate estimates and confidence intervals. These are the values I report in the text.

Proportion white and median income in 2011-2015 are less clearly different for gay neighborhoods. Gay neighborhoods emerge as whiter than their counterparts in the final model, by 2.6 percentage points, but in the other three models this association is not so pronounced. Gay neighborhoods are also weakly associated with increased median income, but the statistical power of my data is insufficient to say this with certainty, particularly in the matched models.

Finally, changes in median rent and population density appear to have no association with gay neighborhoods. The estimated coefficients for these outcomes are near zero, although gay neighborhoods are possibly weakly associated with decreased population density in 2011-2015.

To contextualize the magnitude of these associations, I compare them to inter-city variation. In Figure 7, I present random-effect plots for two outcomes, proportion college-educated and median rent. These plots show the variation in intercepts from the second set of models, the multilevel models of all tracts. This figure illustrates the substantial variation across cities in proportion college-educated
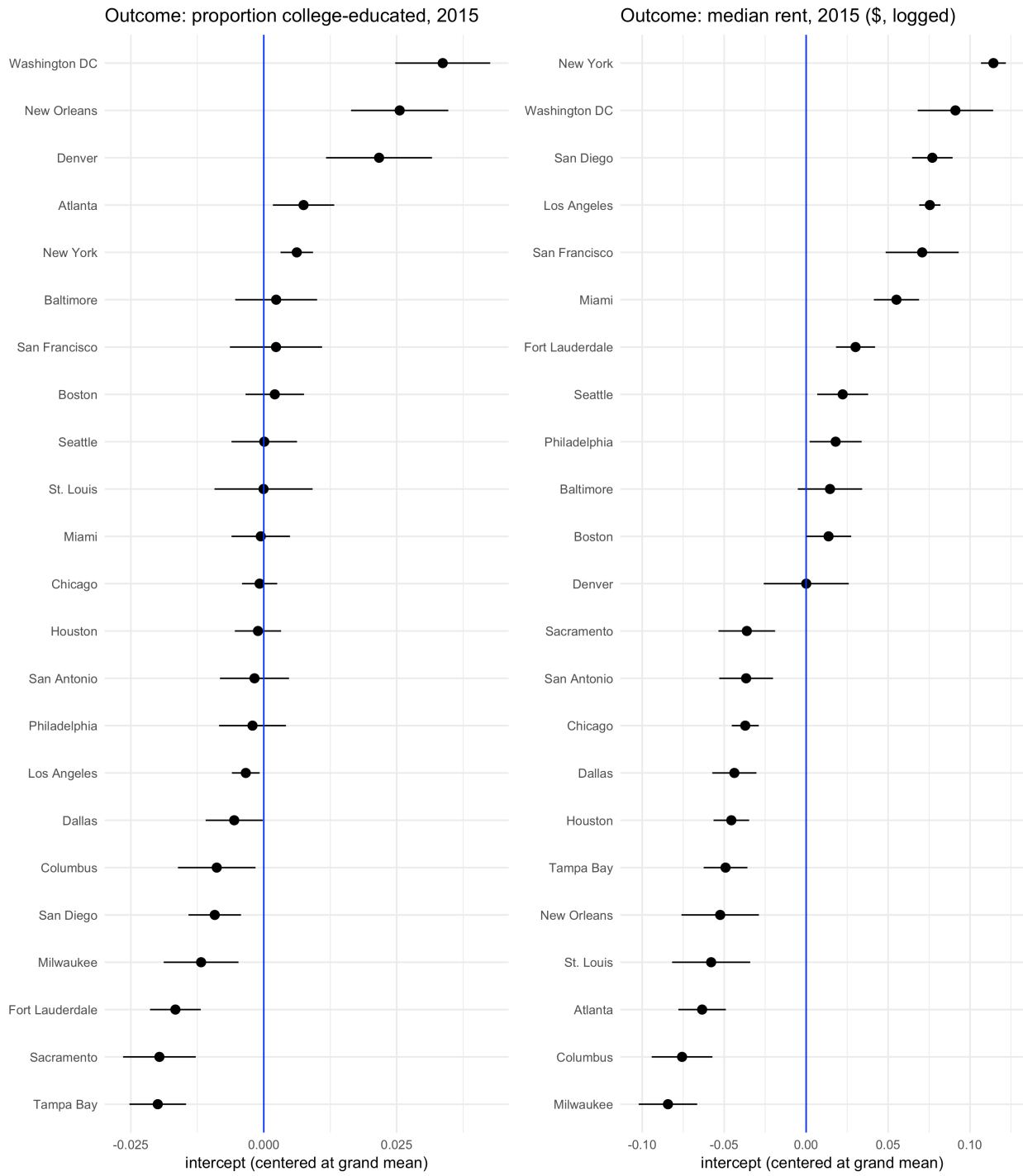
Figure 7: Comparison to random effects.

and median rents at the tract level, net of other tract characteristics. For proportion college-educated, the difference between gay neighborhoods and other neighborhoods is nearly equivalent to the difference between an outlier like Washington, DC, and a more average city like Chicago. For rents, by contrast, the minimal differences between gay and other neighborhoods are far outweighed by differences between cities.

From these models, the evidence for demographic displacement in gay neighborhoods between 2006 and 2015 is minimal. Earlier, I observed that some gay neighborhoods saw descriptive increases in the proportion of married-couple households. But these increases are actually less than what similar neighborhoods experienced over the same timeframe. The models provide a weak indication of increases in the median income of gay neighborhood residents, but the evidence is not strong enough to definitively conclude that these increases are disproportionate. Gay neighborhoods are not experiencing disproportionate change in median rents. Taken together, these results suggest that there is little evidence of the erosion of these neighborhoods.

Discussion and conclusions

It is premature to declare, as the *New York Times* has (Brown 2007; James 2017), that gay neighborhoods are going away. I find that gay neighborhoods were and are demographically and economically distinctive. They share commonalities with each other in what they look like, and in how they change over time. But I find no widespread evidence of assimilation in gay neighborhoods. Instead, I see some evidence of continuing differences. Evidence for a unique degree of advanced gentrification in gay neighborhoods is also limited.

My findings contrast with the "there goes the gayborhood" model. If the amenities and character of gay neighborhoods were uniquely attractive to straight newcomers, we would have seen a marked influx of different-sex married couples, and rents would have likely gone up to match. If LGBTQ people had used their increased acceptance into society to assimilate and integrate, then the integration of gay men would have been reflected in gay neighborhoods becoming less male. I see neither of these trends.

However, gay neighborhoods are not totally static. The moderate increases I observe in education and, to a lesser extent, income levels might eventually undermine status of these places as gay neighborhoods. Paradoxically, the LGBTQ people best positioned to benefit from increasing acceptance—middle-class, white, partnered gay men and lesbians—are also those most able to choose to remain in gay neighborhoods if they desire. Those with the greatest continuing need for LGBTQ spaces—queer youth, trans people, and queer people of color—are the most likely to be pushed out by change. If gay neighborhoods were ever inclusive spaces for the entire LGBTQ community, the risk is that they are now homogenizing, becoming more than ever the exclusive domain of affluent gay men.

My findings are limited in scope to specific material changes, not cultural ones. The cultural and institutional changes that qualitative researchers have observed in gay neighborhoods are real. Bars have closed; the tenor of street life has changed (Hanhardt 2013; Mattson 2015). But I do not see the broad demographic and economic upheaval that is supposed to have precipitated these changes. Rather than deny the extent of change, as quantitative researchers of gentrification sometimes do (Brown-Saracino 2017), I merely call into question the link between different types of change. When gay neighborhoods do change, they differ from other places mostly in terms of symbolic impact. This is why scholars such as Ghaziani (2014b) have been so attentive to shifts in the meaning of gay neighborhoods. LGBTQ people care about outcomes in these particular neighborhoods not because the processes of urban change are unique, but because their communities are uniquely impacted.

Despite their origins in social isolation, gay neighborhoods have persisted. With more heterosexual Americans expressing support for LGBTQ people than ever before (McCarthy 2018; Rosenfeld 2017), this persistence is noteworthy. The fate of Wirth's Jewish ghetto (1928) was eventual assimilation, and gay neighborhoods were expected to follow the same path. Instead, they continue to fulfill a role for LGBTQ communities, and to contribute to the fabric of their cities more generally. This finding lays the foundation for future comparisons. Gay spaces may remain distinct through unique advantages, such as economic heterogeneity, or they may hold broader lessons that generalize across marginalized and minority groups. The puzzle of persistence raises intriguing possibilities for future comparative work.

The two primary limitations of the current work relate to measurement and data. One is intrinsi-

cally difficult to solve; the other may be addressed by future work. First, there are inevitable shortcomings to the fact that I cannot measure neighborhood residents' sexualities directly. My method relies on straight and LGBTQ residents being demographically distinct from each other. However, young, single individuals—especially men—might be demographically indistinguishable, whether straight or gay. There are specific cases where this has the potential to be a problem. The West Coast cities of San Francisco and Seattle have experienced an influx of young, single, male technology workers, and this straight "tech bro" demographic is consequential for gay neighborhoods in these cities (Herzog 2015). In my results, technology workers provide a likely explanation for why the Castro and Polk Street neighborhoods are increasingly single and increasingly male—but possibly still "de-gaying." I mitigate this methodological problem by considering economic factors such as income—"tech bros" are high earners—alongside demographic traits. Fundamentally, however, sexual orientation cannot be measured at fine spatial scales using existing data.

Second, I am limited by the short time scale of the American Community Survey. The uptick in media accounts of gay neighborhood change is recent (Ghaziani 2014b), as is the surge of research on that change (Brown 2014). But data beginning in 2006 may be too recent to capture all relevant changes. Moreover, two time points are insufficient to uncover heterogeneity in rates of change across gay neighborhoods, or to account for the possibility that temporal trends are shifted or lagged. Observing heterogeneous or lagged change would provide evidence for the stage model of gayborhoods (Collins 2004), which explicitly allows for different gay neighborhoods to be in different phases of development or decline. That would, in turn, provide stronger support for the idea that gay neighborhoods change primarily in response to local urban conditions. While I have provided evidence against the competing model of a universal move toward assimilation, positive evidence in favor of heterogeneity would be ideal.

Future work should therefore examine change going back to at least 2000, using the decennial Census. It should be possible to confirm that the gay neighborhoods I observe from 2006 onward had similar demographic signatures in the past. Additional data, over a longer period of time, could confirm patterns of change and help to disentangle the reasons for variations. Using an even wider range of existing measures, such as economic heterogeneity or age structure, could more definitively

answer the question of who is leaving or being displaced from gay neighborhoods.

Places matter to people. Gay neighborhoods are significant to LGBTQ people, just as other places take on special meaning for other social groups. Qualitative research across history, geography, and sociology attests to this fact. If quantitative sociologists take this observation seriously, we can complement qualitative findings with our systematic and comparative lens. My work here is a first step toward productive dialogue across a methodological divide, and I believe this rapprochement can be generative for studying many aspects of social life.

Appendices

Appendix A: Cities and neighborhoods

Neighborhood labels are derived from a combination of GayCities bar labels and city descriptions and the historical, geographic, and sociological academic literatures.

City	Neighborhood	Tracts	Bars
New York	West Village - Chelsea	13	28
New York	East Village	5	9
New York	Hell's Kitchen	4	8
San Francisco	Castro - Mission - Folsom - SOMA	11	33
San Francisco	Polk Street	4	6
Chicago	Boystown	8	18
Chicago	Andersonville	4	7
Los Angeles	West Hollywood	6	18
Los Angeles	Alamitos Beach	2	6
Atlanta	Midtown	10	20
Baltimore	Mount Vernon	5	11
Boston	South End	4	6
Columbus	German Village	3	6
Dallas	Oak Lawn	6	19
Denver	Capitol Hill	4	5
Fort Lauderdale	Wilton Manors	8	14
Houston	Montrose	5	13
Miami	South Beach	2	4
Milwaukee	Walkers Point	3	10
New Orleans	French Quarter - Marigny	4	18
Philadelphia	Rittenhouse Square - Washington Square West	3	12
Sacramento	Midtown	2	7
San Antonio	Northcentral	1	6
San Diego	Hillcrest - North Park	10	20
Seattle	Capitol Hill	4	11
St. Louis	Manchester Avenue - Central West End	4	9
Tampa Bay	Ybor City	1	6
Washington DC	Dupont Circle - Logan Circle - Shaw/U Street	10	16

Other US cities: Albuquerque, Asheville, Austin, Charlotte, Cincinnati, Cleveland, Des Moines, Detroit, Fort Worth, Hartford, Hawaii, Indianapolis, Kansas City, Las Vegas, Memphis, Minneapolis, Nashville, Oakland, Orlando, Phoenix, Pittsburgh, Portland, Salt Lake City, San Jose

US resort towns: Fire Island, Key West, Laguna Beach, Ogunquit, Palm Springs, Provincetown, Rehoboth Beach, Russian River, Saugatuck

Canadian cities: Calgary, Edmonton, Montreal, Toronto, Vancouver, Winnipeg

Appendix B: Geographic network

Graph of clusters of tracts with gay bars. Nodes shaded red are included as gay neighborhoods.
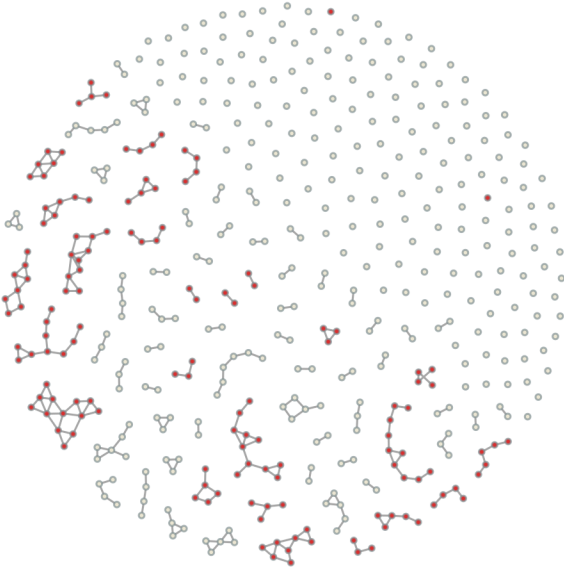
Appendix C: Maps

Maps of six cities discussed in the paper: San Francisco, New York, Philadelphia, Washington DC, Denver, and Miami.

Appendix D: Tables of model coefficients

Table 3: Outcome - proportion college-educated, 2015

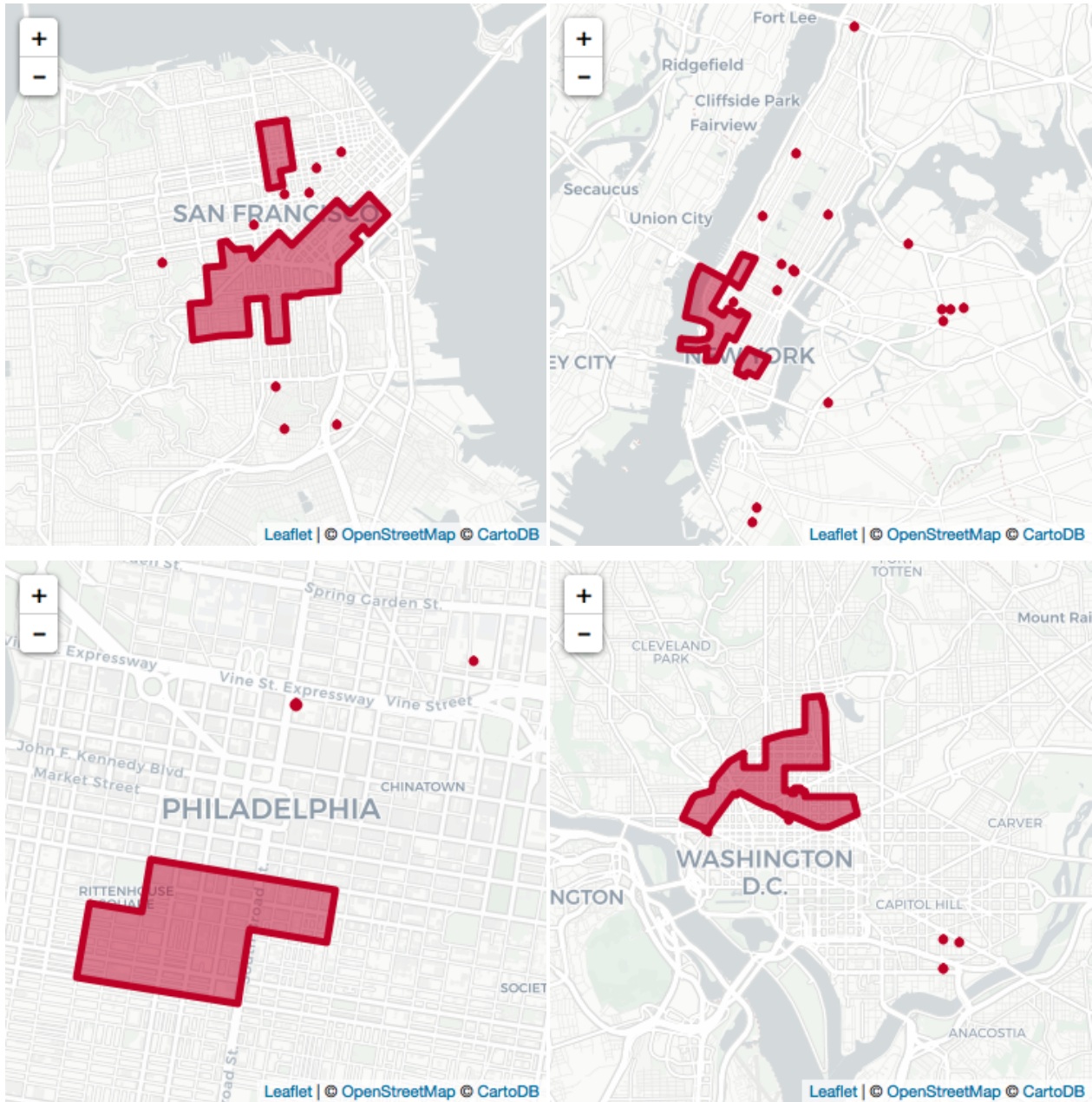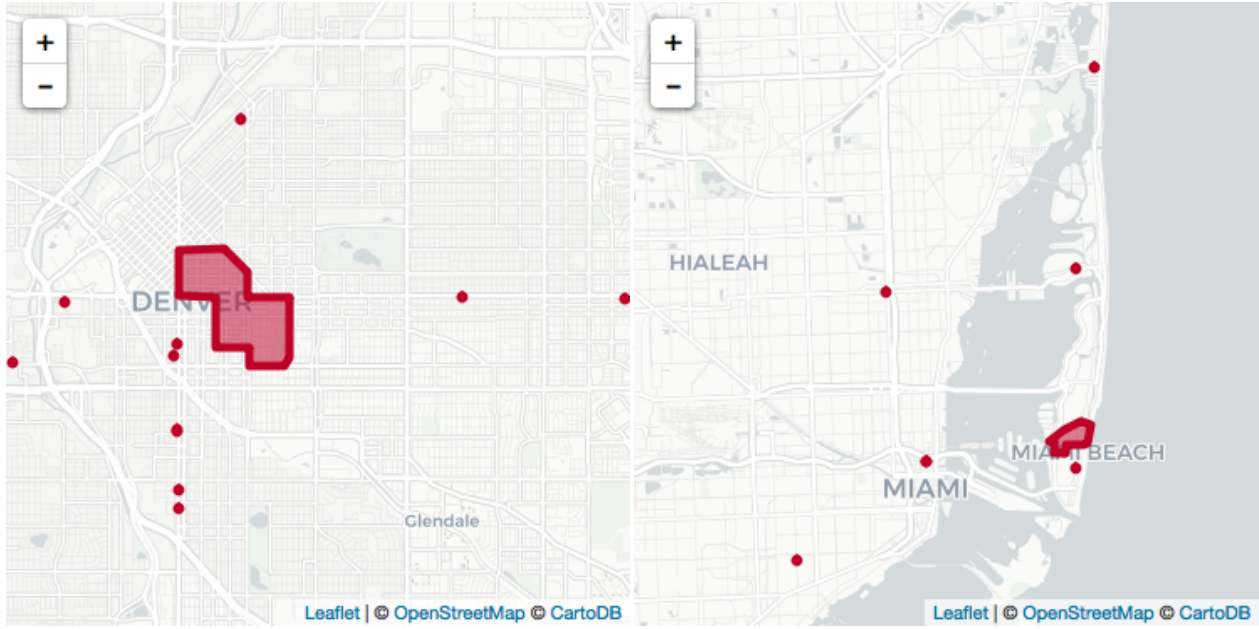|	Baseline	All tracts	Multilevel	Matched	Aggregated
indicator for gay neighborhood		0.026***	0.025***	0.023**	0.030*
		(0.006)	(0.005)	(0.009)	(0.013)
prop. college-educated, 2010	0.891***	0.891***	0.877***	0.757***	0.776***
	(0.005)	(0.005)	(0.005)	(0.048)	(0.105)
proportion male, 2010	0.056***	0.048***	0.051***	0.065	0.079
	(0.012)	(0.012)	(0.012)	(0.078)	(0.228)
proportion married, 2010	−0.099***	−0.095***	−0.091***	−0.055	0.091
	(0.005)	(0.005)	(0.005)	(0.063)	(0.147)
proportion white, 2010	0.053***	0.053***	0.063***	0.083*	0.095
	(0.003)	(0.003)	(0.003)	(0.033)	(0.059)
median income ($, logged)	0.028***	0.028***	0.024***	0.047*	0.071
	(0.003)	(0.003)	(0.003)	(0.022)	(0.060)
median rent ($, logged)	0.011***	0.011***	0.015***	−0.015	−0.092
	(0.002)	(0.002)	(0.003)	(0.025)	(0.060)
pop. density (per sq. mi., logged)	0.004***	0.004***	0.002***	0.018***	0.027*
	(0.001)	(0.001)	(0.001)	(0.005)	(0.011)
AIC	-34027.496	-34048.001	-34129.066	-704.764	-177.967
BIC	-33960.365	-33973.411	-34047.018	-667.997	-157.713
Log Likelihood	17022.748	17034.000	17075.533	362.382	98.983
Num. obs.	12823	12823	12823	292	56
Num. groups: city			23		
Var: city (Intercept)			0.000		
Var: Residual			0.004		

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05$

Table 4: Outcome - proportion male, 2015

	Baseline	All tracts	Multilevel	Matched	Aggregated
indicator for gay neighborhood		0.038***	0.036***	0.024***	0.021*
		(0.003)	(0.003)	(0.006)	(0.008)
prop. college-educated, 2010	0.001	−0.000	−0.004	−0.033	−0.042
	(0.003)	(0.003)	(0.003)	(0.034)	(0.060)
proportion male, 2010	0.387***	0.376***	0.363***	0.522***	0.634***
	(0.007)	(0.007)	(0.007)	(0.054)	(0.132)
proportion married, 2010	0.011***	0.016***	0.011***	−0.147**	−0.121
	(0.003)	(0.003)	(0.003)	(0.044)	(0.085)
proportion white, 2010	0.006***	0.006***	0.010***	0.005	0.046
	(0.002)	(0.002)	(0.002)	(0.023)	(0.034)
median income ($, logged)	−0.005***	−0.006***	−0.005***	0.026	0.005
	(0.001)	(0.001)	(0.002)	(0.016)	(0.035)
median rent ($, logged)	0.004**	0.004**	0.003*	−0.009	0.001
	(0.001)	(0.001)	(0.002)	(0.018)	(0.035)
pop. density (per sq. mi., logged)	−0.001	−0.001*	0.000	0.001	0.005
	(0.000)	(0.000)	(0.000)	(0.004)	(0.006)
AIC	-47781.886	-47916.508	-47952.089	-911.533	-239.308
BIC	-47714.755	-47841.918	-47870.040	-874.766	-219.054
Log Likelihood	23899.943	23968.254	23987.045	465.767	129.654
Num. obs.	12823	12823	12823	292	56
Num. groups: city			23		
Var: city (Intercept)			0.000		
Var: Residual			0.001		

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05$

Table 5: Outcome - proportion married, 2015

	Baseline	All tracts	Multilevel	Matched	Aggregated
indicator for gay neighborhood		−0.039***	−0.039***	−0.020**	−0.022*
		(0.006)	(0.006)	(0.006)	(0.008)
prop. college-educated, 2010	−0.044***	−0.043***	−0.046***	−0.041	−0.096
	(0.005)	(0.005)	(0.005)	(0.036)	(0.067)
proportion male, 2010	−0.004	0.008	−0.005	−0.067	0.071
	(0.013)	(0.013)	(0.013)	(0.058)	(0.145)
proportion married, 2010	0.745***	0.740***	0.721***	0.708***	0.670***
	(0.006)	(0.006)	(0.006)	(0.047)	(0.094)
proportion white, 2010	0.023***	0.023***	0.034***	0.039	0.071
	(0.003)	(0.003)	(0.003)	(0.024)	(0.038)
median income ($, logged)	0.051***	0.051***	0.051***	0.044**	0.092*
	(0.003)	(0.003)	(0.003)	(0.016)	(0.038)
median rent ($, logged)	0.021***	0.021***	0.016***	−0.002	−0.079*
	(0.003)	(0.003)	(0.003)	(0.019)	(0.038)
pop. density (per sq. mi., logged)	−0.004***	−0.004***	−0.006***	−0.008	0.005
	(0.001)	(0.001)	(0.001)	(0.004)	(0.007)
AIC	-31102.856	-31140.882	-31245.463	-876.635	-228.677
BIC	-31035.725	-31066.292	-31163.414	-839.867	-208.423
Log Likelihood	15560.428	15580.441	15633.732	448.317	124.338
Num. obs.	12823	12823	12823	292	56
Num. groups: city			23		
Var: city (Intercept)			0.000		
Var: Residual			0.005		

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05$

Table 6: Outcome - proportion white, 2015

	Baseline	All tracts	Multilevel	Matched	Aggregated
indicator for gay neighborhood		0.010	0.011	0.016*	0.031**
		(0.006)	(0.006)	(0.008)	(0.010)
prop. college-educated, 2010	0.072***	0.072***	0.075***	0.068	−0.004
	(0.005)	(0.005)	(0.005)	(0.044)	(0.080)
proportion male, 2010	0.050***	0.047***	0.056***	0.001	0.008
	(0.012)	(0.013)	(0.013)	(0.071)	(0.175)
proportion married, 2010	−0.027***	−0.026***	−0.015**	−0.019	0.229*
	(0.005)	(0.005)	(0.005)	(0.058)	(0.113)
proportion white, 2010	0.905***	0.905***	0.896***	0.827***	0.912***
	(0.003)	(0.003)	(0.003)	(0.030)	(0.045)
median income ($, logged)	0.002	0.002	0.000	0.048*	0.082
	(0.003)	(0.003)	(0.003)	(0.020)	(0.046)
median rent ($, logged)	−0.007**	−0.007**	−0.005	−0.062**	−0.127**
	(0.003)	(0.003)	(0.003)	(0.023)	(0.046)
pop. density (per sq. mi., logged)	−0.001	−0.001	−0.001*	0.012*	0.015
	(0.001)	(0.001)	(0.001)	(0.005)	(0.009)
AIC	-32800.476	-32801.563	-32862.824	-754.015	-207.985
BIC	-32733.345	-32726.973	-32780.775	-717.247	-187.731
Log Likelihood	16409.238	16410.781	16442.412	387.007	113.992
Num. obs.	12823	12823	12823	292	56
Num. groups: city			23		
Var: city (Intercept)			0.000		
Var: Residual			0.004		

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05$

Table 7: Outcome - median income, 2015 ($, logged)

	Baseline	All tracts	Multilevel	Matched	Aggregated
indicator for gay neighborhood		0.047**	0.047**	0.039	0.043
		(0.016)	(0.015)	(0.023)	(0.032)
prop. college-educated, 2010	0.419***	0.418***	0.408***	0.453***	0.483
	(0.014)	(0.014)	(0.014)	(0.127)	(0.255)
proportion male, 2010	0.042	0.028	0.028	0.156	−0.104
	(0.034)	(0.035)	(0.034)	(0.206)	(0.558)
proportion married, 2010	0.177***	0.183***	0.190***	0.208	0.490
	(0.014)	(0.015)	(0.015)	(0.168)	(0.359)
proportion white, 2010	0.073***	0.072***	0.094***	−0.007	0.041
	(0.008)	(0.008)	(0.008)	(0.087)	(0.145)
median income ($, logged)	0.705***	0.704***	0.669***	0.745***	0.909***
	(0.007)	(0.007)	(0.007)	(0.059)	(0.146)
median rent ($, logged)	0.114***	0.114***	0.135***	0.083	−0.201
	(0.007)	(0.007)	(0.008)	(0.067)	(0.146)
pop. density (per sq. mi., logged)	−0.001	−0.001	−0.018***	0.028*	0.047
	(0.001)	(0.001)	(0.002)	(0.014)	(0.027)
AIC	-6876.085	-6882.989	-7502.015	-133.962	-77.999
BIC	-6808.954	-6808.399	-7419.966	-97.194	-57.745
Log Likelihood	3447.043	3451.495	3762.008	76.981	48.999
Num. obs.	12823	12823	12823	292	56
Num. groups: city			23		
Var: city (Intercept)			0.004		
Var: Residual			0.032		

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05$

Table 8: Outcome - median rent, 2015 ($, logged)

	Baseline	All tracts	Multilevel	Matched	Aggregated
indicator for gay neighborhood		−0.007	−0.006	0.011	0.000
		(0.014)	(0.014)	(0.015)	(0.029)
prop. college-educated, 2010	0.187***	0.187***	0.217***	0.171*	0.163
	(0.012)	(0.012)	(0.012)	(0.086)	(0.226)
proportion male, 2010	0.099**	0.101**	0.106***	0.015	0.069
	(0.031)	(0.031)	(0.030)	(0.140)	(0.494)
proportion married, 2010	0.040**	0.040**	0.020	0.007	0.059
	(0.013)	(0.013)	(0.013)	(0.114)	(0.318)
proportion white, 2010	−0.039***	−0.039***	−0.009	−0.070	0.020
	(0.007)	(0.007)	(0.007)	(0.059)	(0.128)
median income ($, logged)	0.148***	0.148***	0.138***	0.101*	0.072
	(0.007)	(0.007)	(0.006)	(0.040)	(0.130)
median rent ($, logged)	0.679***	0.679***	0.603***	0.838***	0.830***
	(0.006)	(0.006)	(0.007)	(0.046)	(0.130)
pop. density (per sq. mi., logged)	0.022***	0.022***	−0.002	0.029**	0.034
	(0.001)	(0.001)	(0.002)	(0.009)	(0.024)
AIC	-9871.937	-9870.149	-10898.589	-359.652	-91.605
BIC	-9804.806	-9795.559	-10816.540	-322.884	-71.351
Log Likelihood	4944.968	4945.074	5460.294	189.826	55.803
Num. obs.	12823	12823	12823	292	56
Num. groups: city			23		
Var: city (Intercept)			0.004		
Var: Residual			0.025		

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05$

Table 9: Outcome - population density (per sq. mi. logged)

	Baseline	All tracts	Multilevel	Matched	Aggregated
indicator for gay neighborhood		−0.003	−0.004	−0.006	−0.040
		(0.014)	(0.014)	(0.020)	(0.025)
prop. college-educated, 2010	0.143***	0.143***	0.123***	0.141	0.101
	(0.012)	(0.012)	(0.012)	(0.109)	(0.199)
proportion male, 2010	−0.070*	−0.069*	−0.065*	−0.092	−0.237
	(0.030)	(0.030)	(0.030)	(0.177)	(0.435)
proportion married, 2010	−0.085***	−0.086***	−0.108***	−0.356*	−0.493
	(0.013)	(0.013)	(0.013)	(0.144)	(0.280)
proportion white, 2010	−0.042***	−0.042***	−0.028***	−0.121	−0.091
	(0.007)	(0.007)	(0.007)	(0.075)	(0.113)
median income ($, logged)	−0.033***	−0.033***	−0.027***	0.063	0.122
	(0.006)	(0.006)	(0.006)	(0.050)	(0.114)
median rent ($, logged)	0.039***	0.039***	0.027***	−0.011	−0.131
	(0.006)	(0.006)	(0.007)	(0.058)	(0.114)
pop. density (per sq. mi., logged)	0.971***	0.971***	0.961***	0.941***	0.975***
	(0.001)	(0.001)	(0.002)	(0.012)	(0.021)
AIC	-10185.385	-10183.429	-10597.465	-223.476	-105.738
BIC	-10118.254	-10108.839	-10515.416	-186.708	-85.485
Log Likelihood	5101.693	5101.714	5309.732	121.738	62.869
Num. obs.	12823	12823	12823	292	56
Num. groups: city			23		
Var: city (Intercept)			0.002		
Var: Residual			0.025		

$^{***}p < 0.001, ^{**}p < 0.01, ^{*}p < 0.05$

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