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# Is Love (Color) Blind? The Economy of Race among White Gay & Straight Daters

Jennifer H. Lundquist, *University of Massachusetts - Amherst*  
Ken-Hou Lin



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The Economy of Race among Daters

## Is Love (Color) Blind? The Economy of Race among Gay and Straight Daters

Jennifer H. Lundquist, *University of Massachusetts–Amherst*

Ken-Hou Lin, *University of Texas–Austin*

A drawback to research on interracial couplings is that it almost exclusively studies heterosexual relationships. However, compelling new evidence from analyses using the Census shows that interracial relationships are significantly more common among the gay population. It is unclear how much of this reflects weaker racial preference or more limited dating markets. This paper examines the interactions of white gay and straight online daters who have access to a large market of potential partners by modeling dyadic messaging behaviors. Results show that racial preferences are highly gendered, and do not line up neatly by gay or straight identity. White lesbians and straight men show the weakest same-race preference, followed by gay men, while straight women show the strongest same-race preference. Put differently, minority men are discriminated to a greater degree than minority women in both same-sex and different-sex dating markets. These results suggest that white gay men's higher rates of interracial cohabitation are driven more by constrained dating markets, while lesbians' appear to be driven by more open racial preferences.

### Introduction

A major drawback to existing research on interracial intimate relationships is that it largely studies heterosexual married relationships. This is because most studies rely on national intermarriage rates, which exclude the gay and lesbian population. Because this population is small, most alternative sources of data for nonmarried relationships contain too few cases to analyze. However, evidence from qualitative studies and a few analyses using the Census data suggest that interracial partnering is significantly more common among the gay population than among the straight population. This difference is commonly attributed to weaker racial preference among the gay population (Schwartz and Graf 2009), while others speculate that it is the result of a smaller, more constrained partner

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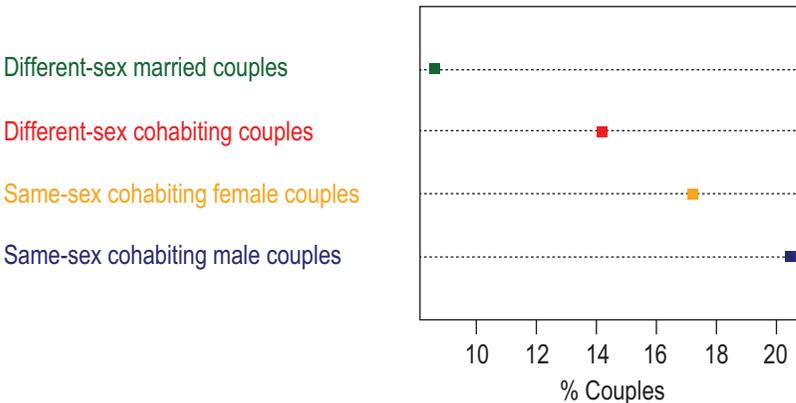
market (Ellingson 2004; Kurdek 2003, 2004). This paper brings unique interaction-level data to bear on this debate. By examining the behavior of white gay and straight daters on a large dating website, we provide new insight on whether white gay men and women have weaker racial preferences than straight daters at the very early stages of the dating process.

## Same-Sex Interracial Partnering

The literature on race and gay partnerships is small but growing. Some qualitative research suggests that interracial boundaries are more often crossed in same-sex couplings (Stacey 2011; Kennedy and Davis 1993). This was impossible to verify empirically until fairly recently, when the Census began collecting information about same-sex unions. Quantitative analyses of same-sex households in the US Census corroborate the findings of earlier qualitative studies. Descriptive statistics on household racial exogamy from the 2000 US Census show that gay householders are more likely to be in different-race partnerships than straights. Figure 1 shows percentages of co-residential partners of all races, ages 20–34, who differ from each other in their racial background. Heterosexual marriages display the lowest racial exogamy, at 9 percent. By contrast, 21 percent of gay male partners and 17 percent of gay female partners are exogamous.

Census data on cohabiting patterns are relatively new, and data pertaining to same-sex cohabiters are even more recent. Multivariate analyses show unexplained higher rates of interracial unions among same-sex households. In 1990, same-sex couples, particularly men, were more likely to be interracial than either different-sex married or cohabiting households (Jepsen and Jepsen 2002). Studies using later Census data yielded similar results, indicating that same-sex partnerships are more likely to be interracial than different-sex cohabiting partnerships, and especially more so than different-sex marital unions (Rosenfeld and Kim 2005; Schwartz and Graf 2009; Gates 2012). Furthermore, gay households are slightly more likely than lesbian households to be interracial (Schwartz and Graf 2009).

**Figure 1. 2000 Census: Percentage of age 20–34 same-sex and different-sex interracial households (data taken from weighted 5 percent 2000 IPUMS sample)**



While these studies shed the first light on differences in homogamy between same-sex and different-sex households, there are serious shortcomings. Because of sample size limitations, these Census studies do not go beyond an analysis of generic in-group/out-group pairings; thus, we don't know whether particular racial groups behave differently toward specific out-groups. One exception, however, shows that whites in same-sex households are least likely to be in an interracial partnership (21 percent), followed by blacks (46 percent), then Hispanics (63 percent) and Asians (80 percent), who are most likely to be in different-race same-sex households (Kastanis and Wilson 2014). Unfortunately, this report does not distinguish households by gender of couples and does not go beyond a bivariate analysis. Moreover, the Census provides data only on cohabiting relationships. Most importantly, severe misestimation of same-sex householding<sup>1</sup> in the Census data may make it an unreliable tool for examining trends among same-sex couples.

## Explanations

It is often argued that gays and lesbians are more progressive and liberal leaning than straights, even after controlling for differences in education and geography. Some evidence suggests that the lesbian and gay population is more socially and politically liberal (Pew Research Center 2013). Studies also show that same-sex couples report a more egalitarian division of labor in their cohabiting relationships than heterosexual couples (Weisshaar 2014; Kurdek 1993). Living as a marginalized sexual minority may lend itself to more socially progressive personal views, particularly if transgressing one normative boundary (sexual identity) enables one to more readily transcend other societal boundaries (Rosenfeld and Kim 2005). In the popular media, Apple CEO Tim Cook recently embraced this view when describing being gay as giving him a “deeper understanding of what it means to be in the minority” and providing “a window into the challenges that people in other minority groups face every day” (Cook 2014). Given greater alleged empathy for other minorities, lesbians and gays may thus draw less restrictive race boundaries around their intimate partner choices. We call this the “presumed progressive” hypothesis.

Further, Rosenfeld and Kim (2005) theorize that same-sex couples are less influenced by familial control, since they tend to live farther away from their families of origin. They may also be more emotionally alienated from family if they had an unsupportive coming-out experience. To the extent that intergenerational family influence has a conservatizing effect on offspring, gays and lesbians are likely to be less traditional in many of their behaviors, including partner choice.

An alternative argument to the foregoing hypothesis is constrained partner markets.<sup>2</sup> For a population that experiences stigma (albeit lessening in urban areas and among youth) in an already-small population demographic, locating similar potential partners may be challenging. One study of college men shows that gay men are disadvantaged in their search for romantic partners because they lack access to normative dating structures that straight men enjoy (Barrios and Lundquist 2012). Thus, the prevalence of cross-racial pairings may simply

reflect less opportunity for homophilous mate selection compared to different-sex couples (Ellingson 2004; Kurdek 2003, 2004). It has therefore been suggested that gay exogamy is driven more by the thin dating market than by greater race-open preferences.

This is influenced, in part, by other literature that paints a decidedly less race-friendly picture than the foregoing scholarship does. Gay minorities frequently report marginalization in what are seen as white-centered gay social settings (Stokes and Peterson 1998; Beeker et al. 1998). Studies of the gay movement have documented pervasive central exclusions along lines of race, gender, and class (Armstrong 2003). Indeed, most research documents the reproduction of the larger society's racial inequalities within the gay community (Chasin 2000). Racial sexual stereotypes are commonly described among the gay community, as well as stigmatic terms to describe gay men who date outside their race, such as "dinge queen" (Boykin 1996; Reid-Pharr 2001; Wilson 2009). Black men report that white men often treat them as hyper-masculinized sexual objects, while Asian men report stereotyping by white men as effeminate and sexually unappealing (Wilson et al. 2009).

The growing field of masculinity studies sheds light on the complexities of interracial sexuality and desire among gay men (this area continues to be understudied for lesbian women). The idealization and construction of hegemonically masculine norms has been documented among gay men (Connell 1992), which manifests itself in the intersection of racial stereotypes. Racialized images of black men as virile and hypermasculine have led to the fetishization of the black body by white gay men (Collins 2004; Green 2008; Reid-Pharr 2001; Wilson et al. 2009). The constrictive "erotic capital" of this black male archetype plays out in male escort services, where black dominants (tops) receive the highest price for their services, while more effeminate black men (bottoms) are the most penalized and least desired (Logan 2010). The erotic premium enjoyed by those black men who do not violate their sexually aggressive stereotype is unlikely to pay off beyond sexual relations, however. In 70 interviews with gay men, Green (2008) finds that Asian and black men alike more often experience romantic rejection compared to white men, who enjoy a privileged position of being desired by both minorities and whites alike.

Rather than having a liberalizing effect on other social boundaries, perhaps the transgression of one identity in the race, class, gender tripartite brings about greater pressure to conform to remaining boundaries. This effect has been shown in a study of identity formation among youth (Wilkins 2008), and homophobia among straight African American men has been attributed to this (Froyum 2007).

### ***Expressed Racial Preference Studies***

One way to gain leverage on the greater-race-openness hypothesis versus the constrained-dating-market theory is to examine expressed racial preferences of non-straight daters. Dating websites provide a glimpse into preference, since they are perhaps the only remaining social venue where it is normative to announce one's racial preferences—and exclusions. Two Internet-based preference studies examine the dating behaviors of same-sex adults. The first study found that

same-sex daters were overall more likely to prefer whites than straight daters (Tsunokai, Kposowa, and Adams 2009). The study did not test for interactions between gender and sexual identity or between race and sexual identity, so it is unclear how patterns may vary across gay versus lesbian identities or white versus minority gays. The other study, which focused only on male daters, found that gay white men were five times more likely than white straights to express a same race preference (Phua and Kaufman 2003).

While these studies suggest that gay daters are less race open than straights, a survey on ideal relationships among young people found conflicting results. Lesbians were the most open to different-race relationships, followed by straight women and gay men, and straight men were least open (Meier, Hull, and Ortyl 2009). An older study showing that lesbians deemphasize physical and economic characteristics of their potential dating partners (Deaux and Hanna 1984) suggests that lesbians may place less emphasis on race than straight women.

While literature on the racial boundaries among gays and lesbians remains sparse, recent studies utilizing alternative data sources have made significant progress in our understanding of the preferences among heterosexual daters. These studies consistently show that straights operate under strong same-group homophily preferences and behaviors (Feliciano, Lee, and Robnett 2011; Hitsch, Hortaçsu, and Ariely 2010). Studies that evaluate message-sending and -receiving behaviors among online daters have nuanced these findings by showing that same-race homophily is strongest when initiating first contact but weaker upon receiving a message from someone of a different race (Lewis 2013; Lin and Lundquist 2013). However, the response behavior is still tempered by a gendered and racialized hierarchy. While white men commonly respond to messages from every out-group except black women, white women still tend to ignore all but whites (Lin and Lundquist 2013).

Most of the dating preference and behavioral analyses consistently support a similar gender pattern, finding that straight white women exhibit more rigid race boundaries than straight white men (Fisman et al. 2006; Feliciano, Lee, and Robnett 2011; Robnett and Feliciano 2011; Tsunokai, Kposowa, and Adams 2009). This contradicts the assumption that women should be more race tolerant than men, based on feminine socialization toward more affective and cooperation-focused behaviors (Cross and Madsen 1997; Johnson and Marini 1998). Another explanation is the heterosexual beauty-status exchange hypothesis, whereby men are theorized to prioritize physical characteristics in selecting a mate whereas women prioritize income and economic stability (Goode 1996; South 1991). Since race historically has a strong predictive power over one's socioeconomic status, women may use it as a proxy to estimate potential partners' future income. But there has been considerable change in gender norms among younger generations. Some recent behavioral studies find no support for the beauty-status exchange hypothesis, showing that men and women equally prioritize physical attractiveness above many other factors in their dating partners (Eastwick and Finkel 2008; Luo and Zhang 2009; McClintock 2014). Yet, other studies continue to find evidence, albeit lessened, for a gendered exchange pattern, showing that female daters value income more highly than physical appearance compared to men (Hitsch, Hortaçsu, and Ariely 2010) and that men respond more strongly than women to

physical attractiveness (Fisman et al. 2006; Li et al. 2002; Li and Kenrick 2006). Nevertheless, this hypothesis fails to explain why Asian men, who on average earn no less than white men, are not as preferred.

## Data

An interactive, online-dating setting has far fewer partner market constraints than most social settings, and thus provides a unique opportunity to examine the racial preferences held by gay and lesbian daters. Census data provide information on a cohabiting relationship only after it has formed, offering little insight on the level of interracial exposure during the mate selection process. We examine whether white same-sex daters are more racially inclusive than their different-sex white counterparts when they are exposed to a wide range of potential partners. If they still are, we can confirm that the presumed progressive hypothesis at least partially explains the coupling patterns of gays and lesbians. On the other hand, if we find same-sex daters to be no different, or even less inclusive, we can conclude that market constraints may play a critical role in generating the interracial pairing differences between the gay and straight population.

Although there are clear limitations, including sample representativeness, our lack of messaging and photograph data, and the fact that online exchanges are less significant than formal marital and cohabiting relationships, examining the interactions among Internet daters gives us several analytical advantages. First, we are able to observe the entire dater pool for each individual dater, which allows us to take the opportunity structure into account when detecting racial preferences. Second, daters in our sample have a clear incentive to accurately report their sexual identity, and thus we avoid a major measurement issue in terms of sexual identity. Furthermore, daters operate under the assumption that their decisions are unobservable to most other daters, which alleviates the potential social desirability bias that could be common among preference statement studies.

Finally, data generated from dating websites allow us to examine interracial pairing behaviors at an unprecedented level of detail. Census studies have been unable to examine specific racial sorting patterns within gay and lesbian households. We examine whether similar sub-racial hierarchies exist within gay and lesbian partnering patterns as they do among straight women and men. Since our previous study indicates that whites have the most dominant racial status and appear to be the gatekeepers of interracial relationships (Lin and Lundquist 2013), we focus our analysis on white dater behavior. We ask, do white lesbians and gay men have weaker racial and in-group preferences than white straight women and men? And, if so, do such preferences vary by the specific racial identity of the out-group?

We obtained our data from one of the largest and most popular US dating websites,<sup>3</sup> which facilitates both heterosexual and same-sex dating for millions of active users. Registered users can create a personal profile, search and view other users' profiles, and contact others through a website-based messaging system. A typical user profile contains basic information such as sex, sexual orientation, geographical location, age, race, height, body shape, religion, language, lifestyle

and socioeconomic status, as well as photographs and short essays. Unlike most large dating websites that charge a membership fee to contact other users, this website places no restriction on usage, making it an advantageous data source for studying online dating behavior. The website does not recommend potential matches by ethnic-racial status. The only criteria used to select which profiles to appear first are geographical adjacency, age, sexual orientation, and the matching score, which is derived from personality questions.

While our sample is not representative of the US population, a growing literature indicates that Internet daters are not as selective as previously assumed. A recent study found that Internet daters differ little after controlling for Internet access and computer usage (Sautter, Tippett, and Morgan 2010). That said, online daters generally do tend to be younger and of higher socioeconomic status than those who lack access to the Internet. Furthermore, our particular dating site is believed to attract a slightly more educated and intellectual clientele even more so than other online sites. Since education status is associated with more positive attitudes toward interracial relations, we would expect the daters in our sample to have more inclusive racial preferences than the general population and perhaps than other sites. Moreover, Internet daters who use mainstream dating websites are likely to have more liberal attitudes toward dating across racial lines than those who use ethnic dating websites exclusively. Taking these together, we expect to underestimate the significance of racial preferences in the US dating market.

In addition, the digital divide is rapidly decreasing. Among Americans aged 18–49, 91 percent report using the Internet (Zickuhr and Smith 2012). Seventy-four percent of American Internet users who report looking for romantic partners have used the Internet to find dates; half of these individuals have gone on to date the people they met online, and 17 percent have entered into committed relationships as a result (Madden and Lenhart 2006). Nor is there evidence that interracial couples are more likely to have met on the Internet than in face-to-face settings (Rosenfeld and Thomas 2012). A nationally representative survey that examines relationship formation finds that the Internet is now one of the primary ways that heterosexual and same-sex couples meet each other (Rosenfeld and Thomas 2012). One study even found an association between the penetration of high-speed Internet access into geographical regions of the United States and an increase in marriage rates among young people in those areas (Bellou 2013).

Our original data set consists of approximately nine million registered users worldwide and 200 million messages, from November 2003 to October 2010. To facilitate the analysis, we filter the users in three steps. We limit our scope to users who reside in the 20 largest metropolitan areas in the United States. This enables the reconstruction of opportunity structure (discussed below) and brings down the sample size to about three million daters. We exclude users who did not send or receive at least one message, did not upload at least one photograph, who listed their birth year later than 1992 or earlier than 1911, or who fit the profile of spammer users. This is because, similar to most free-membership websites, some of the users did not actively engage or even return to the website after initial registration, and a few users are likely to be fake identities created by spammers. We thus retain only actively dating website members. In the profile creation process, individuals must first identify themselves as either male or female, and

then as heterosexual, gay, or bisexual. We exclude those identifying as bisexual, whom we analyze at another time.<sup>4</sup> Our final sample consists of 32,351 lesbians, 51,606 gay men, 405,021 straight women, and 528,800 straight men.

## Analytical Approach

Our main analytical inquiry focuses on dyadic interaction controlling for each individual's demographic and personal characteristics. We examine how the likelihood of sending and responding to an initial message among daters is shaped by the daters' race. Since interaction decisions are nested within individuals ( $i$  in the sending model and  $j$  in the responding model), a dependence structure is expected. We thus model both the sending and the responding behaviors by fitting a series of generalized estimating equations (Liang and Zeger 1986; Hanley et al. 2003; Zuur et al. 2009) with the logit link function and an exchangeable correlation structure.<sup>5</sup>

We control for confounding factors with the following covariate groupings: basic demographic information, lifestyle, socioeconomic status, and degree of online engagement. Basic demographic information includes age, height, body type, and geographic location. Lifestyle variables include smoking, drinking, drug use habits, and parental status/preferences. Socioeconomic status consists of education level, income level, and the number of languages one speaks. In addition, we control for the daters' degree of engagement, which includes total time spent on the website, total account lifetime (from registration to the last log-in), the number of photographs uploaded to the website, and the number of personality questions answered on the website.

We first examine, among all probable dyads, how the racial identity of the potential sender and that of the receiver jointly predict whether an initial message is sent. To do so, we randomly sample a subset of users and reconstruct their opportunity structure on the website,<sup>6</sup> which generates all probable dyads on the website for this subset of users. We then merge these dyads with the initial messages that were actually sent, yielding a binary outcome where 1 indicates that the probable dyad was realized and 0 otherwise. We specify the model predicting the sending behavior as

$$\begin{aligned} \text{logit}(y_{i,j}) = & \alpha_1 + \sum_k^K \beta_{1,k} G_k + \beta_2 O + \sum_k^K \beta_{3,k} G_k O \\ & + \sum_p^P \beta_{4,p} X_{p,i} X_{p,j} + \beta_5 W_{i,j} + \beta_6 M_i + \varepsilon_{i,j}, \end{aligned}$$

where  $y_{i,j}$  denotes whether an initial message was sent from  $i$  to  $j$ ,  $G$  denotes the sexual identity group of the sender,  $O$  denotes the out-group (i.e., non-white) status of  $j$ ,  $\beta_3$  denotes the interaction effects between  $G$  and  $O$ ,  $X$  denotes the attributes of user  $i$  and  $j$  in table 3,  $W$  denotes the log-transformed overlapping website membership periods between  $i$  and  $j$ , and  $M$  denotes the number of messages user  $i$  received per 100 days.

We next examine the likelihood of responding to an initial message. We estimate how the likelihood of a response is conditional on both the racial identity of the sender and that of the receiver, while controlling for all the other attributes of each partner. The sample of this analysis is all initial messages sent among the daters, with a dichotomous outcome indicating whether the recipient responded (1) or not (0). Similarly, we specify the model predicting the responding behavior as

$$\begin{aligned} \text{logit}(y_{j,i}) = & \alpha_2 + \sum_k^K \beta_{7,k} G_k + \beta_8 O + \sum_k^K \beta_{9,k} G_k O \\ & + \sum_p^P \beta_{10,p} X_{p,i} X_{p,j} + \beta_{11} S_{i,j} + \beta_{12} M_j + \epsilon_{j,i}, \end{aligned}$$

where  $y_{j,i}$  denotes whether user  $j$  responded to the initial message sent by user  $i$ ,  $\beta_9$  denotes the interaction effects between  $G$  and  $O$ ,  $S$  denotes the matching score<sup>7</sup> between  $j$  and  $i$ , and  $M$  denotes the number of messages user  $j$  received per 100 days. As in past studies (Lewis 2013; Lin and Lundquist 2013), we gauge response to be an indication of interest.

Our second set of models goes beyond the in-group/out-group divide and examines the details of racial preference. The sending model here is specified as

$$\begin{aligned} \text{logit}(y_{i,j}) = & \alpha_3 + \sum_k^K \beta_{13,k} G_k + \sum_q^Q \beta_{14,q} R_q + \\ & \sum_k^K \sum_q^Q \beta_{15,k,q} G_k R_q + \sum_p^P \beta_{16,p} X_{p,i} X_{p,j} + \beta_{17} W_{i,j} + \beta_{18} M_i + \epsilon_{i,j}, \end{aligned}$$

where  $R$  denotes whether  $j$  identifies as Asian, black, Hispanic, white, or other, with  $\beta_{15}$  allowing racial preferences to vary across the four sexual identity groups. Similarly, the responding model is specified:

$$\begin{aligned} \text{logit}(y_{i,j}) = & \alpha_3 + \sum_k^K \beta_{19,k} G_k + \sum_q^Q \beta_{20,q} R_q \\ & + \sum_k^K \sum_q^Q \beta_{21,k,q} G_k R_q + \sum_p^P \beta_{22,p} X_{p,i} X_{p,j} + \beta_{23} S_{i,j} + \beta_{24} M_i + \epsilon_{j,i}, \end{aligned}$$

where  $R$  denotes whether  $i$  identifies as Asian, black, Hispanic, white, or other.

To avoid unobserved heterogeneity bias by assuming each comparison group has the same residual variation, a problematic assumption with logit coefficients (see Allison 1999 and Mood 2010 for discussion), we contrast the racial preferences among sexual identity groups with predicted probabilities. We first measure the in-group preference as the ratio between the predicted probability of interacting with a non-white dater and that of interacting with a white dater. We second

measure the preference toward Asian, black, and Hispanic daters, respectively, as the ratio between the predicted probability of interacting with a dater from that racial group and that of interacting with a white dater.

### **Data Limitations**

As in other online-dating studies, confidentiality protections restrict our access to photographic data, messaging content, and the profile essay text. Access to the daters' photographs would enable us to code for visual appearance indicators like skin tone, potentially disentangling how dater appearance may mediate response to a dater's declared racial identity. Unfortunately, this is an omitted variable from our analysis. Furthermore, not knowing textual content could potentially lead to unobserved bias in two ways: (1) If white daters make their racial preferences known in the essay sections, it may keep minority daters from contacting them; and (2) If online rejection also occurs via direct rejection articulated in an e-mail message rather than non-response, we will misinterpret rejection for interest (in the response models only).

The website we use does not provide a category for users to indicate their racial preference; however, users may choose to express their racial preference in the essay section. To address point 1, we conducted extensive observations of hundreds of randomly selected profiles from the publicly accessible online website to assess whether racial preferences are informally included in users' texts. It is very rare for users to explicitly post racial preferences or, indeed, anything directly referencing race at all. This might reflect the prevalence of colorblindness culture and/or norms around social desirability.

Daters also are asked to answer or skip literally hundreds of personality questions generated at random, in order to create a conglomerated matching score that indicates how similarly users answered overall. In the time period we analyze, users are able to see others' specific answers to any given personality question only if the user chose to make it public. Therefore, to the extent that any race questions were randomly generated and then answered, it is rare for users to have access to the specific answer another user gave. In the data-cleaning process, we found that even among the most frequently answered race-related questions, none were answered by a majority of daters. Race-oriented personality questions asked whether it is racist to state that one is not attracted to people of other races, whether couples should be prohibited from adopting a different-race child, and whether daters believe that race and intelligence are linked; however, only about 1 to 5 percent of our subsamples answered these questions. Between 30 and 40 percent of daters answered either "*Would you strongly prefer to date someone of your own skin color/racial background?*" or "*If you were going to have a child, would you want the other parent to be of the same ethnicity as you?*" These questions, when answered, are rarely made public. We conclude that unobserved race signaling on profiles exists, but is rare. If it were more common, our analysis would overestimate the general willingness to interact with daters from other groups due to the selection process. However, such a bias would shift our estimates for all groups in the same direction and therefore has limited impact on our substantive findings and the conclusion. Nevertheless, the lack of essay content

overall will bias our results in unknown ways, since it would provide data around personality and preferences that our control variables may not be capturing.

The second issue is over how we measure rejection for the response models. Because we lack messaging content, we assume that if daters are interested, they will message back, and if they are not interested, they will not respond. Given confidentiality protections that restrict access to personal content, this approach is the accepted unit of measurement in other online dating studies as well (Lewis 2013; Lin and Lundquist 2013). Anecdotal evidence and emerging consensus in online-dating discussions suggest that polite but uninterested response (a false positive) is the exception to the rule for rejection in the online environment, given the low social costs of not responding.<sup>8</sup> While we acknowledge that some daters may nevertheless send direct rejection notification (and this may be more true of older generations of daters), it is not the prevailing norm. Our data show that sending a response is extremely rare (table 2), suggesting that the content of response messages is socially meaningful. As such, we interpret response messages as an approximation of reciprocated interest. Finally, we have no reason to think that false positive responses, to the extent that they occur, would vary by sexual identity, which is the driving comparison of our analysis.

Given the newness of web-based dating sites, knowledge is lacking about the culture and meta-practices of the online dating process. The emergence of big data is outpacing the evolution of standards and agreed-upon approaches to its analysis. Future research could shed light on these questions by interviewing online daters about their experiences.

### **Summary Statistics**

We identify a user's racial identity using the information on their personal profiles. There are ten ethnicity boxes users can check when they fill out their personal profiles. The options are Asian, Middle Eastern, black, Native American, Indian,<sup>9</sup> Pacific Islander, Hispanic/Latino, white, other, and undeclared. Users can check as many boxes as they prefer. We categorize those who did not check any box as undeclared and those who checked more than one box as multiracial. Our initial sample thus consists of 11 ethnic-racial groups, with the 10 default categories and the multiracial group.

Table 1 presents the ethnic and racial composition of our analytical sample. About half of the user populations self-identify as non-Hispanic white, although this number is slightly lower for gays than straights.<sup>10</sup> About 24 percent of the straight sample did not specify any ethnic and racial identity, compared to a slightly lower percentage of the gay sample, although the vast majority of these cases are incomplete profiles, as we found upon further analysis.<sup>11</sup> Once incomplete profiles are ruled out, the number of cases without a racial self-identification is closer to 7 percent. Blacks and Hispanics are significantly underrepresented in our sample, especially among straights. About 4 percent of the users identified themselves as black (this is only slightly higher when excluding "undeclared"), in contrast to 12 percent in the US population. Slightly higher percentages of the users identified as Hispanic/Latino, in contrast to 16 percent of the US population.<sup>12</sup> One group that is overrepresented is multiracial users (at between 7 and

**Table 1. Ethnic-Racial Composition of the Sample**

Race	Straight men	Straight women	Gay men	Lesbians
Asian	3.28%	3.69%	4.92%	2.63%
Middle Eastern	0.36%	0.26%	0.39%	0.32%
Black	3.35%	3.86%	3.67%	4.96%
Native American	0.23%	0.26%	0.12%	0.23%
Indian	0.81%	0.47%	0.51%	0.18%
Pacific Islander	0.25%	0.24%	0.60%	0.33%
Hispanic	4.97%	4.66%	7.83%	6.43%
White	52.05%	53.67%	50.59%	48.67%
Other	1.47%	1.48%	1.59%	2.21%
Undeclared/incomplete profile	25.24%	24.36%	19.63%	22.70%
Multiracial	7.99%	7.05%	10.15%	11.34%
N	528,800	405,021	51,606	32,351

8 percent for straights and 10–11 percent for gays), who are often counted as 2 percent in the national population.<sup>13</sup> For the analyses that follow in this paper, we focus on white users' messaging behaviors toward white, Asian, black, Hispanic,<sup>14</sup> and other users. As in the Census, whites are the largest group in our data, with a sample size that allows us to model the most detailed intergroup cross-racial interactions.

We model the likelihood of initial messages exchanged between any two users who both reside in the same metropolitan area. Table 2 presents the descriptive statistics on initial messages received by and sent from white daters. The first detail to note is that the likelihood of interaction, on the whole, is quite low across all the groups. We interpret this to indicate that when solicitations and, more rarely, responses do occur, they are indications of interest—even though we do not know the content of the messages themselves. Even considering that the express purpose of the website is for singles to find romantic partners, if there were a high degree of e-mail chatter between users, we might be less confident in deducing that messages indicate some degree of attraction between daters. Online interaction is asymmetrical in several ways (which can be observed only among the straight population). The pattern fits the gendered heteronormative expectation that men initiate contact: white straight men in our sample, on average, sent 70 percent more messages than their white straight women counterparts but received less than half their number of messages. Of the groups, initial messages sent by white straight men to women were the least likely to get a response. Only 2.8 percent of the messages sent by white straight men received a response, in contrast with 5.6 percent of messages sent by white straight women. Some of this difference may stem from the straight gender ratio imbalance we find in our data, at 12 percent more straight male users than straight female users. Among white gay daters, men have higher volumes of message exchange than lesbians,

Table 2. Descriptive Statistics on Initial Messages Exchanged among Users

	White straight men		White straight women		White gay men		White lesbians	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Avg. # of messages received	2.96	5.39	7.96	10.74	5.22	6.91	2.00	2.76
Avg. # of messages sent	6.03	30.18	3.52	13.54	4.74	18.01	1.95	7.66
Total # of messages received	814402		1730076		136264		31535	
Response rate	5.47%		2.58%		4.56%		5.03%	
Total # of messages sent	1658718		764749		123642		30754	
Others' response rate	2.82%		5.59%		5.04%		5.16%	

exchanging twice as many between each other compared to women. The difference between the distribution of messages sent and that received is also worth noting. For white straight men, gay men, and lesbians, the variance of the messages sent is significantly larger than that of the messages received, indicating a large degree of heterogeneity in the level of active participation.

### Control Variables

Table 3 presents the descriptive statistics for the control variables. The average age of the sample is younger than that of the general population. Gay and lesbian daters are about two years younger than straight daters. White daters also have higher educational attainment than the national population. Between 43 and 51 percent of gay and straight men and women report a college degree or more, in contrast with 32.8 percent of Americans aged 25 to 34.<sup>15</sup> The heights of male and female users are also about 10 centimeter/4 inches higher than the average American.<sup>16</sup> We suspect this is due to the tendency that users over-report their height, rather than the selectivity of Internet daters. While omitted-variable bias is certainly a concern in our data, we find it compelling that misreporting of the variables we *are* able to measure will not bias the results, since other daters are also using this same information, however exaggerated, to determine whether to interact with any given online dater.

Table 3 also shows that there are a number of gender differences between the groups. Regardless of sexuality, women are more likely than men to consider themselves overweight, while men are more likely to describe themselves as average or fit. While majorities of all four groups decline to disclose their income, straight men are least likely to do this. There are also differences in online engagement. Although straight women spend similar amounts of time on the website as men, they have the shortest account lifetimes.

**Table 3. Descriptive Statistics on Control Variables**

	White straight men	White straight women	White gay men	White lesbians
Age	30.54	30.14	28.68	27.92
(S.D.)	9.34	9.75	8.44	8.14
Height (in cm)	179.98	165.93	179.35	165.93
(S.D.)	7.41	7.07	7.21	7.14
Height—not specified	0.0096	0.0099	0.0079	0.0144
Height—top coded	0.0006	0.0004	0.0003	0.0004
Height—bottom coded	0.0008	0.0003	0.0002	0.0004
Body type				
Thin	0.08	0.10	0.16	0.10
Overweight	0.07	0.21	0.09	0.19
Average	0.21	0.20	0.24	0.21
Fit	0.29	0.14	0.23	0.18
Unspecified	0.34	0.35	0.28	0.32
Region				
Northeast	0.33	0.38	0.43	0.37
Southeast	0.10	0.09	0.07	0.09
Midwest	0.16	0.15	0.14	0.14
West	0.31	0.28	0.29	0.32
Southwest	0.10	0.09	0.07	0.08
Smoking				
Yes	0.27	0.24	0.26	0.36
No	0.69	0.71	0.69	0.59
Unspecified	0.05	0.05	0.05	0.05
Drinking				
Often	0.14	0.13	0.16	0.14
Socially	0.61	0.64	0.61	0.62
Rarely	0.15	0.14	0.13	0.14
Not at all	0.08	0.06	0.07	0.07
Unspecified	0.03	0.03	0.03	0.03
Drug use				
Never	0.74	0.79	0.74	0.66
Sometimes	0.11	0.07	0.11	0.15
Unspecified	0.15	0.13	0.15	0.19
Parental Status/ Preference				
Has Children	0.12	0.17	0.01	0.06
Likes Child	0.47	0.49	0.43	0.51

(Continued)

**Table 3. continued**

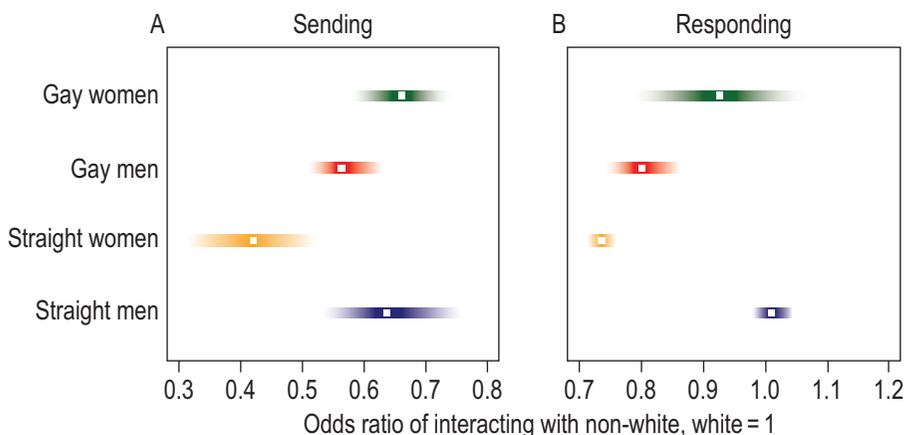
	White straight men	White straight women	White gay men	White lesbians
Doesn't like/want child	0.09	0.09	0.18	0.14
Unspecified	0.32	0.24	0.37	0.29
Education				
High School or Less	0.37	0.34	0.35	0.41
Some College	0.05	0.05	0.03	0.03
College	0.36	0.38	0.39	0.33
Professional	0.09	0.12	0.12	0.10
Unspecified	0.13	0.11	0.11	0.13
Income				
< 20,000	0.07	0.07	0.08	0.09
20,000–50,000	0.16	0.11	0.10	0.10
50,000–80,000	0.08	0.03	0.04	0.03
80,000–150,000	0.05	0.01	0.02	0.01
< 150,000	0.02	0.01	0.01	0.01
Unspecified	0.62	0.77	0.75	0.77
Engagement				
Online Time (in 15 min)	143.82	145.09	137.89	149.29
SD	527.82	518.95	499.09	503.99
Account Life Time (in day)	387.47	286.18	391.64	343.08
SD	478.11	400.82	464.99	430.22
Photos Uploaded	3.88	4.01	4.46	4.49
SD	2.56	2.62	2.64	2.74
Questions Answered	233.03	183.84	215.42	196.48
SD	407.34	339.43	345.40	344.51

This may be due to the gender ratio imbalance on the website, with straight women in greater demand and more quickly able to locate potential matches (or grow overwhelmed and give up). Men, both gay and straight, have longer account lifetimes and answer more personality questions on their profiles. Gay daters also upload greater numbers of their pictures than straights to the site, which may exacerbate omitted-variable bias more for non-straight daters than straight daters.

## Results

In our first group of models, we interact the characteristics of each dater's and their potential partners' characteristics with one another, including one's sexual orientation and their relative likelihood of interacting with *any* out-group member versus a same-race member. Figure 2 shows the relative likelihood of

**Figure 2. Predicted probabilities with confidence intervals of interacting with out-group relative to white in-group**



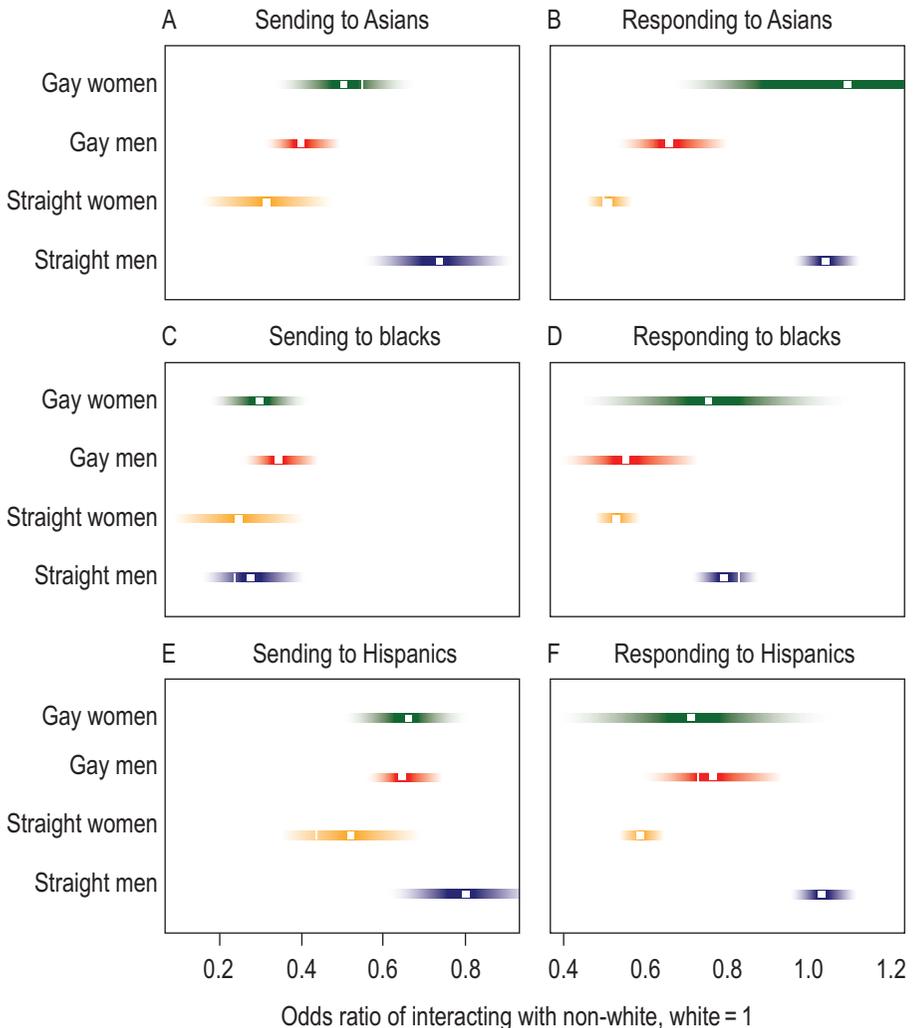
**Note:** These figures show interaction probabilities after controlling for all independent variables from table 3.  $n = 5,054,614$  for sending model;  $n = 2,712,277$  for responding model.

interacting with an out-group dater for each group. We generate predicted probabilities by holding all independent variables at their observed values, and we depict the relative predicted probability ratios by dividing the predicted probability of interacting with an out-group by the predicted probability of interacting with an in-group. Thus, the larger the ratio, the weaker the same-race preference. While the ratios show that each group is more likely to contact an in-group dater over an out-group dater, there are clear group differences in how *strong* same-race preferences are. Panel A depicts the relative probability of sending an initial message to a non-white group, while panel B shows the relative probability of responding to an out-group dater after first receiving a message from them (full coefficients from the GEE models are shown in appendix 1A).

Figure 2 shows that straight white women are less likely than any other group to send or respond to out-groups. Straight white men and lesbians, on the other hand, are most likely to contact and respond to out-groups. Gay white men fall somewhere between these two trends.<sup>17</sup> A notable difference between panels A and B is that responding ratios are substantially larger than sending ratios for all the groups.<sup>18</sup> This indicates that white daters are generally more likely to respond to out-groups than they are to initiate contact, even though they still respond most often to their white in-group (except for straight men, who are equally likely to respond to both). We theorize that response rates may more accurately reflect the “revealed preferences” of daters. That is, when a dater initiates first contact, their behavior is likely to be dictated by how they might anticipate other groups will respond to them. By contrast, there is little risk of rejection when someone has already reached out to them. Nonetheless, despite becoming more open to out-groups in the context of responding, the patterned hierarchy of how white gender and sexual identity groups respond does not change. This pattern also remains consistent when we estimate conditional predicted probabilities across each percentile of specific key variables (see appendix 2).

To what extent are the patterns in figure 2 being driven by *which* racial out-group white daters choose to contact? Our second group of models shown in figure 3 thus asks how the patterns shown in figure 2 break down when we examine interaction within each specific racial out-group. Panel A of figure 3 shows greater overall spread depending on which racial group is being contacted, indicating that, regardless of sexual identity and gender, all groups are less likely to contact black (versus white) daters. But as for how racial preference distributes itself across each of the white groups of daters, most of the same basic directional patterns hold from figure 2. For example, white straight women are still consistently the group

**Figure 3. Predicted probabilities with confidence intervals of interacting with each racial out-group relative to white in-group**



**Note:** These figures show interaction probabilities after controlling for all independent variables from table 3.  $N = 5,054,614$  for sending model;  $n = 2,712,277$  for responding model.

with the lowest probability of interacting with each out-group and straight men are consistently the group most likely to do so. But there are some new variations. When it comes to contact with Asian daters, the basic story is that straight men and lesbians are more likely to interact with Asians than other minorities, while straight women and gay men are less likely. Specifically, straight white men are the most likely group to initiate contact with Asian daters and lesbians and straight men are most likely to respond to messages from Asian daters. Straight white women and gay men are least likely to send messages to Asians, and straight women are the least likely group to respond to Asian daters' messages.

In predicting the probability of contacting black daters, the confidence intervals in figure 3 show considerable overlap among the white daters, indicating that all groups are about equally unlikely to send a message. But in responding to messages sent by black daters, white straight men and lesbians are the most likely groups to return a message. It is notable that, while straight men's greater likelihood of messaging Asians over black women fits with national trends in heterosexual intermarriage, white straight women's behavior does not. Although white women are more likely to be married to a black man than an Asian man, here we see that women daters ignore both Asian and black men about equally, which is consistent with previous findings (Lin and Lundquist 2013). Finally, Hispanic daters are most likely to be contacted and responded to by straight men and least likely by straight women. Gay men and lesbians both fall about equally between these two extremes. Appendix 1B, shows the corresponding coefficients from the GEE models. As in appendix 2, we estimated conditional predicted probabilities across each percentile of specific key variables, and the patterns shown in figure 3 are consistent. (Figures available upon request.).

How do these results square with what we know from the literature? Analyses using stated-preference data found that gay whites were equally exclusionary as straight white daters toward black daters, but that they were less open to Asians and more open toward Latinos (Tsunokai, Kposowa, and Adams 2009). We find this same pattern when comparing straight and gay *men* but not women. Our results also corroborate the findings of Phua and Kaufman (2003), which found that gay white men were overall more exclusionary than straight white men. But perhaps most notable of all is our finding that the biggest contrast in preference behavior is between white straight males and white straight females. Other studies have documented gender differences among straight daters (Hitsch, Hortaçsu, and Ariely 2010; Lin and Lundquist 2013; Lewis 2013), but when put in the context of a comparison to gay and lesbian daters, the pattern is particularly striking. It becomes clear that racial preference behavior may be linked more to gender identity than to sexual orientation identity, even though the debate until now has focused almost exclusively on straight versus gay behaviors. Stated another way, minority men are avoided by white daters, regardless of their sexual identity, while minority women fare considerably better.

## Discussion and Conclusion

Returning to the motivating question of this analysis, when white same-sex daters are privy to a large dating market, do they behave more race inclusively than

different-sex daters? The answer, as it turns out, is that it is highly dependent on the gender of the projected dater. Previous work suggesting that non-straight individuals are more race open than straight individuals used data that obscures gender, either by relying on couple-level data (Schwartz and Graf 2009) without examining behaviors of any specific racial group or by using data that does not distinguish lesbians from gay men (Tsunokai, Kposowa, and Adams 2009; Phua and Kaufman 2003). Our findings suggest that straight men and women differ significantly, and that more race-open preferences held by heterosexual men are similar to lesbians, while gay men's less race-open preferences are more similar to heterosexual women. The general pattern for inter-group interaction is that all four white groups are most likely to contact or respond to same-race daters; however, when interactions *do* occur with non-white daters, it happens most often among straight white men, second most often among white lesbians, third most often with gay white men, and least often with straight white women. Although same-sex users on this site still face a relatively smaller dating market than straights do in an online context, we find that gays and lesbians behave very differently from one another despite facing the same opportunity structure constraints. Gay men's greater avoidance of minority daters on this site would seem to indicate that market constraints might be the primary driving force for the high exogamy rate among gay cohabiters in the Census data.

In answer to the original question asking whether white same-sex daters are more racially inclusive than their different-sex white counterparts, the presumed progressive hypothesis, we conclude that the story is highly gendered. We tentatively surmise that the explanation for greater interracial pairing differences in the Census documented by Jepsen and Jepsen (2002) and Schwartz and Graf (2009) is constrained dating markets for white gay men, but does not appear to be the case for white lesbians. White lesbians exhibit more open interracial boundaries than gay men in a more expansive online-dating-market setting. Perhaps the most interesting finding to emerge in our analysis, however, is the polarization among white heterosexual daters. While we started out asking if there was a straight-nonstraight difference in racial preference behavior, analyses at the individual level revealed that the gender of the potential partner is the more salient distinction: minority men are less desired by white gay men and straight women, while minority women suffer far less of a penalty from white lesbians and straight men. Our findings suggest that it is more instructive to frame this question in terms of the race and gender identity of the potential target date than on the identity of the dater—and sexual orientation appears to have little to do with it.

There appears to be some process operating at the *dyadic-interaction level* among heterosexuals that results in fewer interracial unions than might otherwise be predicted by the more race-open behaviors among straight white men that we document here. Do white straight women have a race-conservatizing effect on straight men at the couple level? That is, if white straight women had similar preferences as straight men, would there be higher rates of interracial unions in the United States? Or is it that straight men are differently selective when it comes to household partners instead of more casual dating partners at this very early stage of potential relationship formation? Indeed, studies of heterosexual couples

show evidence of a winnowing process, whereby interracial coupling is most common at initial stages of relationships and decline as relationships become more serious (Joyner and Kao 2005). We can't speak to what the explanation may be in this paper, but we provide the first unique observation that homophily among straight whites may be highly dependent on dyadic–interaction level processes. Our unique data enable us to get a perspective on interracial interaction that raises new questions about the process of coupling.

Historically, (straight) women's lesser likelihood of outmarrying compared to (straight) men has been attributed to norms of patriarchal tradition where a woman's social status is dependent upon her spouse's social status (Root 2001; Spickard 1991). Accordingly, anti-miscegenation laws were gendered, more often policing the sexuality of white women than white men. Some of the original state formulations of such laws explicitly banned marriage between white women and nonwhite men, and those most often brought to court were marriages involving white women, not white men (Pascoe 1991). This vestigial dynamic may still undergird gendered differences today, in men's and women's in willingness to cross racial boundaries.

But because the behaviors we document are more similar among straight men and lesbian women and among straight women and gay men, the explanation may center on the gender positionality of their respective partners. Normative gender structures that operate conventionally for heterosexuals are sometimes reversed for this reason among the gay and lesbian community (Weinberg and Williams 2005; Kayzak 2010). Given the continuing gender and race gaps in income, it could be that straight women and gay men are more able to leverage race as a proxy for predicting a partner's potential SES status. This calculus might be less relevant for straight men and lesbians seeking female partners, since women have lower earnings potential regardless of race (and the race gap in wages among women is much smaller than among men). Such an explanation has more salience for straight women and gay men when considering potential male Latino and African American outpartners, but we note that it would not apply to Asian males. A recent study by Pew Hispanic (2013) showed that Asian-white couples had, by far, the highest household income of any other couple, same race or mixed race. Furthermore, modern changes in gender norms cast some doubt that this dynamic is still operating as strongly, with some studies even suggesting that women value physical appearance over earning potential the same as men (Eastwick and Finkel 2008; Luo and Zhang 2009; McClintock 2014).

Thus, we speculate that more cultural explanations are at play—explanations that have little to do with sexual orientation. Gendered racial formation theory asserts that societal notions of masculinity and femininity vary by race and ethnicity (Collins 2004; Nemoto 2006, 2008). Minority men are often stereotyped as either threatening or unappealing, while minority women are often stereotyped as sexually available and exotic. For example, the literature exposes depictions of black men as dangerously hyper-masculine and Asian men as effeminate. In contrast, Asian women are depicted as submissive and sexually appealing, and minority women are generally stereotyped as hyper-sexualized and exotic. All of these stereotypes, as distasteful and potentially harmful they are, may have

opposing effects in their impact on partner choices. In contrast to minority men, who are avoided by white straight women and gay men, minority women may be considered comparatively less threatening and more appealing than their male minority counterparts. Thus, sexual orientation of daters may have little to do with how racial hierarchies play out in the dating market; instead, whether a minority dater is male or female may be the determining factor of how they are seen by whites of all sexual orientations.

Future research should investigate whether race is being used as a proxy for SES by bringing in a comparison between daters who seek relationships (the sample analyzed in this paper) versus those who seek casual sex only. If race is being used by gay men and straight women daters to proxy for SES, presumably short-term liaisons will be less subject to racial boundaries. The present study could also be improved upon by adjudicating the role of omitted-variable bias in online interaction studies. One possibility is for a dating website company to code up the messaging and profile essay content, as well as the visual photographic data, prior to anonymizing and releasing the data to researchers.

It is notable that Census studies documenting greater interracial exogamy among gay and lesbian households rarely examine the specific racial composition of these couples. But a recent report suggests that same-sex *minority* households are more exogamous than same-sex white households (Kastanis and Wilson 2014). Perhaps it is minority gay and lesbian householding behavior that is driving the overall Census pattern shown in Schwartz and Graf (2009) and Jepsen and Jepsen (2002). There is some evidence that black, Latino, and Asian minority communities in the United States tend to be more socially conservative as a result of conservative religious and recent immigration histories. As such, minority gays and lesbians often report greater challenges in reconciling their ethnic and sexual identities, due to alienation from their ethnic communities (Greene 1997; Manalansan 1996; Dube and Savin-Williams 1999; Chan 1989; Collins 2004; Sherkat, De Vries, and Creek 2010; although see Moore 2010). Thus, it is possible that gay and lesbian minorities, even more so than their white counterparts, face a more constrained same-race dating market. Therefore, future studies with large enough samples should extend similar analysis to the behavior of non-white daters specifically to examine whether our findings are generalizable to all sexual minorities or primarily to gay and lesbian whites.

## Notes

1. Due to coverage error, census editing procedures and inconsistent reporting are due to regional variation in same-sex marriage policy, Census data on same-sex couples are likely to be inaccurate (Cohn 2011; O'Connell and Feliz 2011).
2. Constrained markets and racial preferences are not necessarily mutually exclusive explanations for same-sex interracial cohabitation patterns. Greater exposure to racial diversity is associated with positive changes in interracial attitudes and behaviors (Emerson et al. 2002; Sigelman and Welch 1993).
3. Due to an identity restriction clause in our contract with the dating site company, we are unable to name the data source.

4. Our preliminary data analyses find less fluidity than expected in bisexual messaging behaviors; the majority sent messages consistently to only one sex or the other. This may reflect closeted identities among gays and lesbians and/or a novel way for individuals to present themselves on the online market. We thus exclude bisexuals from the present analysis and focus on better understanding how bisexual self-identity may vary across daters in another paper.
5. The advantage to the GEE approach is its ability to address dependency among observations and optimize the statistical power of the correlated data by estimating clustered correlations. In contrast to mixed effects or hierarchical models, GEE makes little demand of within-cluster variance and is more suitable to our data, where a significant number of our observations are singletons and where user participation follows a power-law distribution. The exclusion of singletons would create serious selection bias, making a random intercept approach unsuitable for our analysis. In contrast to other, more network-oriented approaches, GEE requires less computing power and thus handles a much larger population. The drawback is that we must assume a correlation within each sender/responder but not within the other side. However, considering that each individual will have different evaluations of the unmeasured factors of the same individual and there is little network transitivity in the relation of interest (two alters of the same ego do not attract each other in our case), the GEE procedure is the best-suited approach.
6. In order to gauge the probability of sending an e-mail to someone, we must simultaneously take into account all of the people whom someone could have messaged but did not. Because the possibilities number in the hundreds of thousands, taking all of them into account is computationally untenable. Thus, for our sending analysis, we randomly sample 300 white users by sexual identity, gender, and from each metropolitan area who joined the website in the same year. We construct the opportunity space as such: say there are  $n$  partners of racial group  $i$  and sexual identity  $g$  and  $m$  partners of racial group  $j$  and sexual identity  $h$  in a given metropolitan area. Presumably, each partner can send  $m$  initial messages, and so the total number of potential combinations of initial messages from a person of group  $i$  to a person of group  $j$  is  $n \times m$ . Among these dyads, we exclude any cases where the account lifetime of the potential sender did not overlap with that of the potential receiver. We also exclude the cases where the potential receiver is younger or older than the potential sender's default age range. We calculate the overlap between two users for each dyad as a measure of exposure.
7. This is determined by the answers to the personality questions on the website, which is shown to both users as an indicator of compatibility.
8. See for example <http://www.sparkology.com/blog/tag/online-dating-etiquette/> and <http://www.match.com/cp.aspx?cppp=cppp/magazine/article0.html&articleid=6171>.
9. While Indians are conventionally categorized as Asian, we treat them here as an independent ethnic group and they are not included in the Asian category in this analysis.
10. Other data have shown that more gay-identified individuals than straights identify as non-white (Easton 2008; Barrios and Lundquist 2012).
11. We conducted three sensitivity tests around these respondents and determined that their missing ethnic identity more reflects tendency in reporting behavior than conscious omission. First, we had a group of undergraduates systematically code through photographs for respondents who left their race missing. In a sample of 150 profiles, no systematic pattern emerged where people of one particular ethnicity were any more or less represented. Second, we conducted factor and logistic analyses predicting the correlates of missing on race and found that being missing on height, on education, on smoking behavior, and on drinking behaviors correctly predicted being

- missing on race 93 percent of the time. Third, as table 1 indicates, racially undeclared daters receive among the fewest e-mails, indicating that other daters dismiss them as illegitimate or less engaged prospects because their profile is incomplete on other important factors as well.
12. Since Hispanic is often conceptualized as an ethnic rather than a racial category, those who are conventionally counted as Hispanic might identify with both Hispanic and white on the website. Our analysis shows that such inclusion would add two additional percentage points for the Hispanic population.
  13. Our ongoing analysis of biracial groups shows that users who identify as white-Asian, white-Hispanic, and white-Native American behave similarly to those who identify only as white and do not show particular preference to users of their minority identity. However, those who identify as white-black show preference to both users who identify as white only and those who identify as black only.
  14. Though Hispanic is officially defined as an ethnic rather than a racial category, we believe it is analytically meaningful to juxtapose it with Asian, black, and white as a distinct racial group. This is not only because Hispanics, along with Asians, are often considered as occupying the racial middle (Bonilla-Silva 2004), but also because scholars argue that the Hispanic population has been increasingly racialized in the past decades (Massey 2007).
  15. US Census Bureau, Current Population Survey, 2010 Annual Social and Economic Supplement: Table 3. Detailed Years of School Completed by People 25 Years and over by Sex, Age Groups, Race, and Hispanic Origin: 2010 (<http://www.census.gov/hhes/socdemo/education/data/cps/2010/tables.html>).
  16. <http://www.cdc.gov/nchs/fastats/bodymeas.htm>.
  17. In analyses not shown here, we ran the same analysis for the entire sample of all race daters to gauge whether in-group/out-group messaging was similar when not limited to white daters as the in-group. This also more closely approximates existing same-sex Census studies, which generically assess in-group/out-group pairings without regard to specific racial groups. Not surprisingly, since our data are also disproportionately weighted toward whites, the results were little different from those shown in figure 2 (and appendix 1A). The pattern was unchanged, with straight men of all races most likely to interact with out-group daters, followed by lesbians, and with gay men and straight women least inclined to send and respond to out-group daters.
  18. Note the slightly differing range shown on the *x*-axis between the sending and responding models. Because this paper examines intergroup differences, we chose to visually focus on this point rather than on the (equally interesting) overall trends in responding and sending, which is treated in another paper (Lin and Lundquist 2013).

## About the Authors

Jennifer Lundquist is a social demographer and Associate Dean at the College of Social and Behavioral Sciences, University of Massachusetts–Amherst. Her research examines the processes through which racial, ethnic, and gender inequalities are perpetuated and sometimes undone in institutional settings, such as the workplace, the dating/marriage market, and families. Her recent work has appeared in the *American Sociological Review*, *Journal of Marriage and the Family*, *Maternal and Child Health*, and *American Journal of Sociology*.

Ken-Hou Lin is an Assistant Professor of Sociology and Faculty Research Associate of the Population Research Center at the University of Texas–Austin. His interests include inequality, finance, organization, race, and quantitative methods. His work has appeared in the *American Journal of Sociology*, *American Sociological Review*, *North Carolina Banking Institute Journal*, and *Social Science Research*.

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