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Marriage-Market Constraints and Mate-Selection Behavior: Racial, Ethnic, and Gender Differences in Intermarriage

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Abstract

Despite theoretical consensus that marriage markets constrain mate selection behavior, few studies directly evaluate how local marriage market conditions influence intermarriage patterns. Using data from the American Community Survey, we examine what aspects of marriage markets influence mate selection; assess whether the associations between marriage market conditions and intermarriage are uniform by gender and across pan-ethnic groups; and investigate the extent to which marriage market conditions account for group differences in intermarriage patterns. Relative group size is the most salient and consistent determinant of intermarriage patterns across pan-ethnic groups and by gender. Marriage market constraints typically explain a larger share of pan-ethnic differences in intermarriage rates than individual traits, suggesting that scarcity of co-ethnic partners is a key reason behind decisions to intermarry. When faced with market constraints, men are more willing or more successful than women in crossing racial and ethnic boundaries in marriage.

Keywords

Marriage; mate selection; interracial marriages

Over the past four decades, the United States has witnessed an unprecedented demographic diversification accompanied by geographic dispersal of the foreign born, a rise of multi-ethnic places, and return migration of Blacks to the South (Fong & Shibuya, 2005; Frey 2015; Tienda & Fuentes, 2014; Tolnay, 2003). How these demographic trends play out in coupling behavior is uncertain, however. On the one hand, greater heterogeneity in the pool of potential spouses can promote boundary crossing in mate selection, particularly when accompanied by commensurate changes in attitudes and tolerance (Alba & Nee, 2003). On the other hand, growth in minority and immigrant populations can foment the maintenance of ethnic boundaries by replenishing the availability of same-group partners (Jimenez, 2010; Lichter et al., 2007; Lichter, Carmalt, & Qian, 2011).

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Prior research has established the impact of local market conditions on family formation (e.g., Lewis & Oppenheimer, 2000; Lichter et al., 1991, 1995; Raley 1996), but there is less evidence about intermarriage. A central theoretical premise in the intermarriage literature is that local marriage markets constrain partnering behavior, yet with a few recent exceptions (Hou et al., 2015; Kalmijn & Van Tubergen, 2010; Lichter et al., 2007), empirical work does not consider how specific market conditions influence intermarriage patterns, and in particular *which* market characteristics influence mate selection. As discussed below, methodological considerations, specifically the reliance on log-linear modeling approaches, are largely responsible for the relative neglect of marriage market characteristics in the empirical literature (Harris & Ono, 2006; Lichter et al., 2007). Moreover, several studies show that marriage norms, propensities to intermarry, and marriage market conditions differ across racial and ethnic groups (Schwartz 2013), but there is also limited work assessing whether marriage market conditions *uniformly* influence the intermarriage patterns of members of distinct racial and ethnic groups.

By examining how marriage market conditions influence the partnering behavior of men and women belonging to the four major pan-ethnic groups, this study contributes to the intermarriage literature in several ways. Rather than focus on specific pairings involving a White partner (Hou et al. 2015; Lichter et al., 2007) or members of contemporary immigrant groups (Kalmijn & Van Tubergen, 2010), our analyses consider interracial pairings that involve all four of the major pan-ethnic groups, including the foreign-born. Further, instead of analyzing marital sorting behavior for a *stock* of marriages, we investigate how local marriage market conditions in the period preceding marriage influence the mate selection behavior of *newlyweds*. This methodological improvement over prior studies is possible because recent ACS data distinguishes between new marriages (formed within 12 months of the interview date) and marriages of longer durations. Finally, we assess whether the association between specific marriage market conditions and intermarriage is uniform among male and female newlyweds across the major four pan-ethnic groups.

Theoretical considerations

Partner preferences

The cultural and socioeconomic resources that potential mates can bring to unions as well as norms about the relative attractiveness of social groups as partners largely determine partner preferences (Becker, 1981; Kalmijn, 1998). Single men and women typically display strong preferences for partners with similar values, tastes, and knowledge (Kalmijn, 1998; Schwartz, 2013). These commonalities increase possibilities for building harmonious unions where couples enjoy similar activities, share a mutual basis for conversation, draw on analogous cultural toolkits for problem solving, and forge consensus about personal matters (Kalmijn, 1998). Preferences for spouses with similar cultural backgrounds contribute to the high prevalence of endogamy (Qian & Lichter, 2007; Schwartz, 2013).

Socioeconomic attributes also influence the desirability of potential mates. Singles strive to optimize their long-term wellbeing by choosing partners that can bring adequate economic resources and social status to the union (Becker, 1981; Kalmijn, 1998; Mare, 1991; Schwartz, 2013). High competition for economically attractive partners generally results in

socioeconomic homogamy because singles generally sort along class lines (Becker, 1981; Sweeney, 2002). Marital exogamy often results when high-status mates cross ethnic and racial boundaries to maintain class homogamy, or when economically disadvantaged Whites use marriage as an avenue for social mobility by partnering with high status minority mates (Alba & Nee, 2003; Blackwell & Lichter, 2000; Choi et al., 2012; Fu, 2001; Kalmijn, 1993).

The attractiveness of potential mates also depends on the positioning of their group in the social status hierarchy. Notwithstanding secular improvements in racial attitudes, there remains considerable resistance to interracial dating and intermarriage, particularly unions involving Black partners (Bany, Robnett, and Feliciano, 2014; Johnson, Farrell, & Guinn, 1997). There are also salient gender differences in perceived attractiveness of minority and nonminority mates. In stereotypical terms, Black men are perceived as sexually virile, but Black women are perceived as more aggressive and less feminine than White, Hispanic or Asian women (Bany, Robnett, & Feliciano, 2014; Collins 2005). By contrast, Asian men are stereotyped to be weak and un-masculine, whereas Asian women are deemed delicate and feminine (Balistreri, Joyner, & Kao, 2015). These perceptions likely hinder Black women's and Asian men's opportunities to form romantic unions across racial lines (Bany, Robnett, & Feliciano, 2014; Wang, 2012).

Third parties, such as parents or clergy, also impact mate selection. Endogamy rates are typically higher in groups where third parties influence mate selection as way of maintaining group cohesion and control over offspring (Kalmijn, 1998). The amount of influence third parties exert on mate selection differs appreciably by demographic groups. In Asian subgroups where the family name and inheritance are transmitted through the male bloodline, men endure strong family-imposed sanctions for marrying out of their subgroup; this partly accounts for the higher intermarriage rates among Asian women relative to their male counterparts (Wang, 2012). Arranged marriages also reinforce cultural norms favoring endogamy. Anti-miscegenation laws were declared unconstitutional in 1967, but single men and women still display strong resistance towards unions involving Black partners (Bany, Robnett, & Feliciano, 2014). Partly due to the ambivalence of Hispanicity in the US racial hierarchy and partly because racial boundaries are less sharply defined in Latin America compared with the United States, Hispanics are more likely than other minorities to intermarry (Telles & Sue, 2009; Tienda & Mitchell, 2006).

Marriage markets: Constraints on partner preferences

Coupling behavior largely occurs within geographically defined social spaces; therefore, the local availability of potential partners influences the success singles have in marrying their ideal mate (Becker, 1981; Choi & Mare, 2012; Kalmijn, 1998; Schwartz, 2013). Two theoretical perspectives are commonly invoked to understand how the demographic composition of marriage markets influences mate selection behavior. Focusing on group size, *structural theory* predicts higher intermarriage rates for minority groups both because members of small groups experience more relative out-group contacts than members of larger groups, and because frequent interactions with out-group members reduce social distance (Blau, 1984; Lewis & Oppenheimer, 2000).

These generalizations are subject to variations in social preferences, some of which have ecological analogues. Assuming proclivities to wed along ethnic lines, immigration may reduce marital exogamy both by replenishing the pool of co-ethnic partners and by altering group size (Jimenez, 2010; Lichter et al., 2007). Furthermore, because singles simultaneously sort by race, ethnicity and socioeconomic status, the educational composition of co-ethnics in local marriage markets also influences partner choice (Mare, 1991; Schwartz & Mare 2005). Specifically, within lesser-educated groups, such as Hispanics, the highly educated will likely experience greater difficulty finding a comparably educated partner that also satisfies endogamous preferences (Kalmijn & Van Tubergen, 2010). If social class is more salient than ethnicity in shaping partner preferences, highly-educated singles from educationally disadvantaged groups living in places with small shares of co-ethnics will be more likely to marry outside of their ethno-racial group (Blau, 1984; Kalmijn & Van Tubergen, 2010). Shortages of co-ethnic potential partners, as often occurs in new immigrant destinations, will also encourage singles to expand their pool of potential partners beyond co-ethnics, thus fomenting marital exogamy (Kalmijn & Van Tubergen, 2010; Lewis & Oppenheimer, 2000).

Contact theory is also relevant for understanding how intergroup relations facilitate or inhibit intermarriage. In its generous formulation, the contact perspective of intergroup relations implies that comingling fosters acceptance of out-groups, which is an important step toward reducing social distance and enabling primary group relations, including intermarriage. There are important exceptions, however. Ethnic diversity may not facilitate marital exogamy in settings where intermarriage was formerly banned or in locales with high levels of residential segregation that limit intergroup relations. Exogamy is typically uncommon in locales characterized by intergroup competition for economic resources or longstanding hostilities that reinforce racial and ethnic boundaries (Pettigrew & Tropp, 2006; Tolsma, Lubbers, & Coenders, 2008).

Drawing from these theoretical insights, we use six contextual measures to characterize marriage markets: *relative group size*; *percent of co-ethnics*; *percent of similarly educated co-ethnics*; *the sex ratio*; *marriageable male/female index*; and *ethnic diversity*. Prior studies also use subsets of these measures to characterize local marriage markets (e.g., Kalmijn & Van Tubergen, 2010; Lichter et al., 2007; Raley, 1996).

Marriage markets and mate selection: the empirical record

Notwithstanding theoretical consensus that marriage market conditions influence partner choice, the empirical evidence is thin because most studies of intermarriage use log-linear models to estimate intermarriage proclivities. By “netting out” group size differences, these models avoid understating intermarriage rates among members of large groups, but they essentially eliminate variations in the composition of marriage markets that are correlated with partner choice (e.g., Harris & Ono, 2006; Lichter et al., 2007). Log-linear statistical approaches also cannot accommodate covariates measured on interval scales, such as shares of foreign-born co-ethnics or diversity indices. The data intensiveness of log-linear methods also limits the number of attributes—both individual and aggregate—that can be simultaneously considered (Agresti 2002; Choi & Mare, 2012).

Motivated by the geographic scattering of Hispanic and Asian immigrants, an emerging body of work considers how intermarriage trends are linked to changing marriage market conditions. Early studies examined regional variations in marital exogamy patterns. Analyzing intermarriage patterns in eight metropolitan areas, Rosenfeld (2001) describes regional differences in the extent to which pan-ethnicity serves as a meaningful boundary for marital exogamy. Fu (2003) illustrates regional variations in the odds of intermarriage in the United States, whereas, Lee and Boyd (2008) document variations in intermarriage patterns across US regions and Canadian provinces. None explicitly investigates whether the demographic composition of local marriage markets influence mate selection behavior.

Three recent studies that use multi-level modeling techniques do consider how marriage market compositions influence intermarriage. Lichter and colleagues (2007) use fixed effects hierarchical models in 155 US metropolitan areas to identify the market conditions responsible for the decline in Hispanic-White intermarriage during the 1990s. Kalmijn and Van Tubergen (2010) estimate multilevel logistic regression models to ascertain statewide marriage market conditions that facilitate (or deter) marriages across national origin groups. Hou and colleagues (2015) use multilevel probit models to assess how variations in the demographic composition of the metropolitan areas enable White-Black and White-Asian intermarriage rates in Canada and the United States.

Collectively, these studies offer valuable insights about the impact of local marriage markets on mate selection, but they share two limitations that compromise the internal and external validity of their findings. First, due to data limitations, these studies examine how the demographic composition of local marriage markets is associated with intermarriage patterns for the *stock* of marriages. This approach implicitly assumes that there was little change in the availability of partners in the local marriage markets between the marriage and interview dates. In fact, the study periods covered by these studies—1994 to 2006 (Kalmijn & Van Tubergen, 2010); 1990 to 2000 (Lichter et al., 2007); and 2005-2007 (Hou et al., 2015) – witnessed a spike in immigration from Asia and Latin America that was accompanied by an unprecedented geographic dispersal of these groups (Frey, 2015; Tienda & Fuentes, 2014) and a proliferation of multi-ethnic places (Fong & Shibuya, 2005). Moreover, by focusing on the salience of nativity and generational variations in the intermarriage patterns, these studies perforce restrict their scope to specific immigrant groups: White-Hispanic intermarriages (Lichter et al., 2007) and first generation immigrants who arrived before age 17 and their second generation peers (Kalmijn & Van Tubergen, 2010). Hou and colleagues (2015) are the only exception by examining White-Black and White-Asian intermarriages in Canada and the United States; however, they do not consider intermarriages involving two minority groups.

Therefore, two largely unanswered questions remain: (1) *how does the demographic composition of local marriage markets influence the propensity to intermarry for a diverse array of pan-ethnic groups* and (2) *is the influence of local marriage market conditions uniform across pan-ethnic groups, and also by gender?* Using recent data from the 2005 and 2008-2011 American Community Surveys, we evaluate empirically how the demographic composition of local marriage markets in 2005 influences the intermarriage behavior of White, Black, Hispanic and Asian men and women who married between 2007 and 2011.

Based on the prior theoretical discussion, we expect that intermarriages will be more common among members of smaller groups; among men and women whose educational attainment bears little resemblance to that of their co-ethnic neighbors; among men and women living in areas with lower shares of foreign-born co-ethnics; among respondents residing in ethnically diverse places. We also anticipate that the effect of marriage market conditions will not be uniform across racial and ethnic groups.

Data, Measures and Methods

Our analyses use the 1 percent sample of the Integrated Public Use Microdata (IPUMS) files of the 2005 and 2008-2011 American Community Surveys (Ruggles et al., 2015). We use the former to derive measures of local marriage market conditions approximately three to five years prior to the new marriages captured in the pooled 2008-2011 surveys and the latter to measure intermarriage patterns and individual determinants of sorting behavior. The *Consolidated Public Use Micro-data Areas* available in the 2005-2011 American Community Surveys (ACS) data provide identifiers for consistently defined geographic units (Ruggles et al., 2010), which we use to characterize the demographic composition of 669 marriage markets and link these contextual measures with couple-level data.

Recent ACS data are especially well suited to study intermarriage behavior for several reasons. First, the micro-data files include a spousal locator, which permits matching co-resident spouses and assessing intermarriage patterns. Second, the 2008-2011 ACS data is one of the few datasets to distinguish *newlyweds* (married within 12 months of the interview date) from more established couples (married one or more years). This eliminates the need for strong assumptions about migration or changes to local marriage market conditions. Finally, the ACS includes dates of marriage and for the foreign-born, year of immigration. These items permit identification of marriages formed abroad; provide information needed to evaluate claims that ethnic replenishment via immigration dampens intermarriage rates; and obviate the need to approximate foreign marriages by excluding women who migrated during adulthood (Hou et al., 2015; Kalmijn & Van Tubergen, 2010; Lichter et al., 2007).

The analytical sample, which includes of 44,530 female and 41,654 male newlyweds who transitioned into their first marriage within 12 months of the survey date, is restricted to US marriages involving the four largest ethno-racial groups, defined on a mutually exclusive basis as White, Black, Hispanic, and Asian. We exclude observations with missing data on covariates of interest. Our focus on first marriages acknowledges prior work showing that sorting preferences differ between first- and re-marriages (Fu, 2010). Focusing on *newlyweds* permits us (1) to reduce period heterogeneity in the acceptability of intermarriage; (2) to assess marriage market conditions *prior to* first marriage; and (3) to minimize biases that result from differences in marital dissolution rates between interracial and same race unions.

Measures

Intermarriage is a dichotomous variable distinguishing marriages involving spouses from distinct racial and ethnic groups from endogamous marriages involving co-ethnic spouses.

Defining a marriage market is challenging because (1) the probability of selecting a partner outside local marriage markets is non-zero; (2) not all single men and women in a geographic area are searching for a marital partner; and (3) the size of marriage market varies across individuals (Kalmijn, 1998; Harris & Ono, 2005). Like prior studies, we define marriage markets as Metropolitan Statistical Areas (MSA) for urban populations and consistent Public Use Microdata Areas (CONSPUMA) for rural areas (Harris & Ono, 2005; Lewis & Oppenheimer, 2000). CONSPUMA definitions remain consistent across the 2005-2011 American Community Surveys, but MSA definitions change annually. Thus, we match the MSA variable to each CONSPUMA in 2005 and then assign these MSA codes to subsequent years using the CONSPUMA identifiers. This approach yields 669 unique marriage markets: 192 in urban areas and 477 in rural areas.

The six measures used to characterize marriage markets are defined below and summarized in the Appendix Table. Several measures have been used in prior work describing how marriage market conditions influence family formation behavior (e.g., Kalmijn & Van Tubergen, 2010; Lichter et al., 2007; Raley, 1996).

1. *Relative group size* is the percentage of co-ethnics in the i^{th} marriage market.
2. *Co-ethnic educational similarity* is the percent of single co-ethnics of the opposite sex in the i^{th} marriage market with the same level of education (less than high school, high school graduate, some college, and college graduate or above) as the index spouse.
3. *Co-ethnic foreign-born share* is the percentage of single co-ethnic immigrants of the opposite sex residing in the i^{th} marriage market.
4. *Ethnic diversity* is measured using the Herfindahl index, which is equal to 1 minus the sum of squares of the relative size of the pan-ethnic groups in the i^{th} marriage market. Formally, the Herfindahl index is: $H_i = 1 - \sum_k p_k^2$ where p_k is the share of individuals who belong to k^{th} pan-ethnic group living in the i^{th} marriage market. For this measure we assume five mutually exclusive pan-ethnic groups: (1) Whites, (2) Blacks, (3) Hispanics, (4) Asians, and (5) a residual designated “others”.
5. *Sex ratio* is derived by dividing the number of single co-ethnics of the opposite sex by the number of single co-ethnics of the same gender living in the i^{th} marriage market.
6. *Marriageable index* is derived by dividing the number of single, employed co-ethnics of the opposite sex by the number of single co-ethnics of the same sex in the i^{th} marriage market.

Four decisions informing our choice of marriage market measures warrant explanation. First, in the multivariate analyses, all market characteristics are standardized so that the coefficients represent the impact of one standard deviation change of marriage market conditions on coupling behavior. Second, all measures capturing availability of co-ethnic partners are gender-specific and restricted to singles. Third, guided by prior work showing differences in marriage behavior across regions and rural/urban areas (Kalmijn & Van

Tubergen, 2010), multivariate models include indicators designating respondents' residence in the Northeast, Midwest, South, or Pacific regions and an indicator for metropolitan residence. Finally, the analyses do not include a measure of residential segregation because statistical tests revealed high levels of collinearity with the ethnic diversity index. Supplementary analyses substituting the segregation measure for the diversity index yielded largely similar results, except that residential segregation is negatively associated with intermarriage for all groups. This sensitivity test indicates that residential segregation is highly correlated with ethno-racial diversity and that residential segregation reduces opportunities for interactions among members of distinct groups.

Individual correlates of partner choice—The empirical analyses also model several respondent attributes associated with mate choice: *ethno-race* (White, Black, Hispanic, and Asians); *age* (<25, 25-29, 30-34, 35+), *educational attainment* (less than high school, high school graduate, some college, college graduate), and *nativity status* (US-born, foreign-born).

Table 1 summarizes individual correlates of intermarriage for the analytic samples. Asian newlyweds were the most educationally advantaged and Hispanic newlyweds were the most educationally disadvantaged (Telles & Ortiz, 2008). Nearly two-thirds of Asian men attained college degrees, as compared with 13 percent of Hispanic men. Relative to Whites and Blacks, higher shares of Asian and Hispanic newlyweds were foreign-born. Minority newlyweds were older, on average, than their White peers. Compared with Whites, minority groups, but especially Asians, were more concentrated in urban areas.

Analysis plan

The analysis consists of three parts. We begin with a descriptive analysis to illustrate how marriage market conditions faced by White, Black, Hispanic, and Asian men and women differ. Second, we estimate multilevel logistic regression models to assess how individual characteristics and marriage market conditions are associated with the intermarriage proclivities of male and female newlyweds from distinct racial and ethnic backgrounds. Because norms governing mate selection, acceptance of out-group members as intimate partners, and marriage market conditions differ across pan-ethnic groups and gender groups (Bany, Robnett, & Feliciano, 2014; Qian & Lichter, 2007), we estimated eight separate models: for White, Black, Hispanic and Asian male and female newlyweds. All standard errors are adjusted to account for clustering of respondents within marriage markets.

Third, to assess the relative importance of individual characteristics and marriage market for explaining racial and ethnic differences in intermarriage propensities, we conduct a decomposition analysis using Fairlie's non-linear method for binary outcome differentials. The decomposition estimates obtained from this method depend on mean differences in the distribution of covariates between two groups as well as our choice of regression coefficients associated with each covariate for a group (Fairlie & Robb, 2007; Jann, 2006). Therefore, for each binary comparison, we use the coefficients of the group deemed more socially desirable based on attitudinal and behavioral studies (Bany, Robnett, & Feliciano, 2014; Wang, 2012). Coefficients for Whites are chosen for any comparison involving Whites;

those for Hispanics are used for comparisons between Hispanics and other minorities; and those for Asians for the Asian-Black comparison. The decomposition analysis addresses the *relative* importance of individual characteristics and marriage market conditions in generating all pairwise differences in intermarriage rates under the scenario that the less desirable group was influenced by individual characteristics and marriage markets in a manner analogous to that of the more desirable group.

Several aspects of the decomposition analysis warrant mention. First, although the social desirability of Asians and Blacks differ for men and women, we used the coefficients associated with Asian men in our Asian-Black comparisons to ensure comparability of results by gender. Second, decomposition estimates obtained from this procedure also depend on the matching of members of two groups. We assessed the robustness of the empirical results by randomly drawing the subsample of members of the larger demographic group in pairwise comparisons and conducting 150 replications. Third, results about the relative importance of specific covariates differs by the sequence in which covariates are added; thus, we also randomized the order in which the covariates were added in the decomposition analysis (Jann, 2006).

Results

Intermarriage rates by race/ethnicity and gender

Figure 1, which present intermarriage rates for female and male newlyweds, showed that intermarriage rates were lowest among White women and highest to Asian women. A quarter of Hispanic female newlyweds and one-third of Asian female newlyweds out-married, as compared with 8 and 9 percent of Whites. White-Black differences in women's intermarriage rates were not statistically significant. Men's intermarriage rates were similar to those of their female counterparts, with three noteworthy gender asymmetries. As with their female counterparts, White men intermarried at lower rates than minority men. Among minority men, the propensity to out-marry varied around a narrow range, from 18 (Asian) to 23 (Hispanic) percent. This reflects large gender asymmetries in Asian and Black intermarriage rates. Asian men were half as likely as Asian women to intermarry; however, Black men were twice as likely as Black women to do so. These estimates are comparable to past findings (Wang, 2012).

Marriage market conditions

Table 2, which display the unstandardized means and standard deviations of covariates representing marriage market conditions, illustrated place-linked variations in intermarriage patterns among Black, White, Hispanic and Asian female and male newlyweds. Reflecting long-standing residential segregation patterns (Fong & Shibuya, 2005; Logan, Alba, and Stults, 2003), Black newlyweds resided in marriage markets where co-ethnic mates were plentiful. To illustrate, Black female newlyweds lived in locales where 25 percent of their neighbors are Black, yet they comprised only 9 percent of the female newlywed sample. By comparison, White newlyweds faced more balanced marriage markets insofar as their average population share in the market was quite similar to their average group size. White female newlyweds lived in locales where 75 percent of their neighbors were White and they

comprised 68 percent of the white newlywed sample. Hispanics and Asians fell between the Black and White extremes on this marriage market metric (Fong & Shibuya, 2005; Logan, Alba, & Stults, 2003).

Asian and Hispanic newlyweds resided in communities with high shares of foreign-born co-ethnics, a reflection of their dominance among contemporary immigrants and preference for residence in places with immigrant legacies (Tienda & Fuentes, 2014; Fong & Shibuya, 2005). Asian newlyweds, for example, resided in communities where 65 percent of their co-ethnics are foreign-born, compared with only 4 percent of White newlyweds. The ethnic diversity index, which was approximately 0.50 points for nonwhite female newlyweds versus 0.35 points for their White peers, reaffirmed the higher tendency of minorities to reside in ethnically diverse communities (Fong & Shibuya, 2005). In the next section, we use multilevel logistic regression models to examine how these marriage market conditions are associated with mate selection.

Multilevel analysis

Table 3 presents the results from our multilevel logistic regression models predicting the odds of intermarriage for female and male newlyweds in each pan-ethnic group. In the interest of parsimony, we provide a detailed account of women's mate selection behavior and highlight how men's intermarriage behavior differs from that of women. Panel A in Table 3, which describe the mate selection behavior of women, showed that educationally disadvantaged Whites intermarried at higher rates than their peers with higher levels of education. The odds that female White high school graduates intermarry were double the corresponding odds for White college graduates. By contrast, educationally advantaged minorities were more likely to intermarry than their educationally disadvantaged peers (Gullickson, 2006). For example, the odds of intermarriage for female Black high school graduates were half the corresponding odds for Black college graduates. Educational variations in women's propensity to intermarry lends support to the status exchange theory, which claims that educationally advantaged minorities marry educationally disadvantaged Whites to facilitate their integration to the mainstream (Choi et al., 2012; Rosenfeld, 2005).

Intermarriage was also more common among US-born Hispanics and Asians than among their foreign-born counterparts (Qian & Lichter, 2007). The odds of intermarriage for female Hispanic immigrants were, for example, 0.3 times the corresponding odds of their US-born peers. This pattern is consistent with claims that relative to their foreign-born peers, native-born minorities are more culturally similar to other US natives due to their socialization in the United States (Qian & Lichter, 2007).

Relative group size was a dominant market influence on intermarriage odds for all pan-ethnic groups. Consistent with the premises of *structural theory*, intermarriage was less common among women who reside in marriage markets where the supply of co-ethnics was abundant compared with their peers living in markets where potential co-ethnic mates were scarce (Blau, 1984; Kalmijn & Van Tubergen, 2010). Third party control is likely stronger in these locales (Kalmijn, 1998). A standard deviation increase in the market share of co-ethnics lowered the odds of intermarriage by approximately 40 percent for Whites and Blacks and about 60 percent for Hispanics and Asians.

Residence in an ethnically diverse marriage market dampened the odds of intermarriage for Hispanic and Asian (but not White and Black) women. A standard deviation increase in the diversity index was associated with 16 percent and 25 percent lower odds of intermarriage, respectively, for Hispanic and Asian women. However, the association between ethnic diversity and intermarriage was statistically trivial for White and Black women. These patterns align with the “exceptions” clause of *contact theory*, which posits that residential diversity will deter intermarriage in settings characterized by vigorous competition for spatially distributed resources and reify racial and ethnic boundaries (Pettigrew & Tropp, 2006; Tolsma, Lubbers, and Conenders, 2008). For Hispanics and Asians, the proliferation of ethnic enclaves in multi-ethnic settings may also dampen intermarriage by heightening exposure to co-ethnic potential spouses and increasing their susceptibility to third party influences that reinforce endogamy (Kalmijn, 1998).

Compared with their racial peers residing in other regions of the United States, non-Hispanic women living in the West were more likely to cross ethno-racial boundaries in mate choice. The odds of intermarriage were 49 percent higher for Asians living in the West relative to their counterparts residing in the Northeast, partly reflecting the lower levels of racial and ethnic residential segregation in the Northeast (Logan, Alba, and Stults, 2003). The legacy of Jim Crow Laws, which encourage racial segregation in the South (Kalmijn, 1998), was evident in the lower intermarriage rates of southern Black women compared with their peers living in other regions. For example, the odds of intermarriage were 38 percent lower for Black women residing in the South compared with their racial peers living in the Northeast.

Partly owing to greater opportunities to interact with members of other racial groups, the odds of intermarriage were 47 higher among female White newlyweds who reside in metropolitan areas compared with their nonmetropolitan peers. Contrary to Whites, metropolitan residence was associated with 51 percent lower odds of intermarriage for Asian female newlyweds. This finding partly reflects greater opportunities for Asians to sort along ethnic lines in metropolitan areas which can be the loci of Asian ethnic enclaves (Fong & Shibuya, 2005).

Variation in the share of foreign-born co-ethnics had no unique impact on women's odds of intermarriage independent of other marriage market conditions that constrain mate selection behavior. Although this would appear to challenge claims that immigration dampens intermarriage by replenishing the ethnic stock, supplementary analyses revealed (1) that higher shares of women living in places with large shares of foreign-born co-ethnics were themselves immigrants and (2) that communities with high shares of foreign-born co-ethnics were typically located in multi-ethnic metropolitan areas (Fong & Shibuya, 2005). Thus, net of individual birthplace and other market characteristics that influence spousal choices, variations in the nativity composition of co-ethnics yielded no additional insight about how market constraints shape women's mate selection.

A comparison of the results in Panels B and A in Table 3 revealed modest gender differences in the patterns of association among individual traits, market conditions, and intermarriage rates. In the main, gender differences manifested themselves in the size and statistical significance of coefficients. For example, a standard deviation increase in the market share

of co-ethnics, respectively, reduced the odds of intermarriage by 47 and 72 percent, respectively, for Black men and women. Educational differences in intermarriage odds were also less salient for men than for women. For example, the odds of intermarriage were 15 percent higher for White men with high school diplomas relative to their college-educated peers, but for high school-educated White women intermarriage odds were double those of college graduates.

Group differences in intermarriage rates: Decomposition

Table 4 reports the results of decomposition analyses that assess the extent to which individual attributes and marriage market condition explain group differences in intermarriage rates. Among female newlyweds, the largest observed intermarriage rate gaps corresponded to unions between Asians and Whites (26 percentage points) and Asians and Blacks (25 percentage points); the smallest gap obtained for White-Black marriages (1 percentage point).

A comparison of the adjusted intermarriage rate gap, which assume that members of distinct groups have similar individual traits and face similar marriage market conditions, revealed that both individual attributes and marriage market conditions typically contributed to group differences in intermarriage rates, but marriage market conditions accounted for the lion's share of the observed gaps. For example, once adjusted for individual traits and marriage market conditions, Asian intermarriage rates were 6 percentage points higher than White intermarriage rates, as compared with 26 percentage points in the absence of controls. All of this explanatory power came from marriage markets. Detailed decomposition results (unreported here) also revealed that relative group size is the most salient explanatory factor: it explained about half of the White-Asian differences in intermarriage rates:

$$\left(\frac{26 - 6}{26} * \frac{2}{3} \approx 0.5 \right).$$

The intermarriage gap between Blacks and other minorities defied this generalization in two ways. First, individual traits and marriage market conditions collectively masked the intermarriage gap between Blacks and other minorities. For example, after adjusting for differences in marriage market conditions and individual traits, Asian intermarriage rates were 35 percentage points higher than Black intermarriage rates, as compared with 25 points in the absence of controls. Second, individual traits had a larger impact on Black-Asian and Black-Hispanic differences in intermarriage rates relative to marriage market conditions. Once adjusted by individual traits and market conditions, Hispanic intermarriage rates were 32 percentage points higher than Black intermarriage rates, compared with 14 points in the absence of controls. Although both individual traits and market conditions masked the Black-Hispanic gap in intermarriage rates, the masking effects of the former were three times those of market conditions—73 versus 27 percent. The implication is that Black-Hispanic differences in intermarriage would be considerably higher except for three group differences: (1) higher shares of Hispanic relative to Black immigrants; (2) educational disadvantages of Hispanics relative to Blacks; and (3) larger supply of co-ethnic partners compared with Blacks. Likewise, Black-Asian differences in intermarriage would be larger if it weren't for the higher share of Asians relative to Black immigrants. The masking effect

of individual traits (i.e., higher shares of Asian immigrants) *overshadowed* the explanatory power of marriage markets (i.e., limited supply of co-ethnic partners foments Asian intermarriage).

The results for men (presented in Panel B) mirrored closely those for women, with two noteworthy exceptions. First, racial and ethnic gaps in intermarriage rates were typically smaller for men than for women. This was particularly so for marriages between two minority partners. Second, compared with women, marriage market conditions accounted for a larger share of the White-minority gap in intermarriage rates for men. In fact, the adjusted estimates revealed that minority men intermarried at lower rates than White men who faced similar marriage market conditions. This finding is consistent with prior findings showing that the shortage of marriageable partners alters commitments to marriage, albeit differentially by gender such that men are more likely and women less likely to wed in markets with limited supply of potential partners (Guttentag and Secord, 1983). It appears that when men encounter unfavorable marriage markets, they are either more willing or more successful than women in broadening their pool of potential partners to include members of other groups.

Discussion

The intermarriage literature has generated many novel insights about the individual correlates of mate selection behavior, but leaves the influence of local marriage market conditions on mate selection behavior largely unexamined. Our study of how marriage markets differentially constrain partner selection considers all pairings between men and women who belong to the four major US pan-ethnic groups. Using recent data that contain identifiers for consistent geographic units across successive years and also distinguish between newlyweds and more established couples, we assess how marriage market conditions are associated with partner selection behavior of newlyweds. These analyses yield several noteworthy findings.

On balance, marriage market conditions account for larger shares of racial and ethnic differences in mate selection behavior than do the individual attributes considered here. Relative group size exerts a particularly strong influence on the intermarriage propensities for men and women of all pan-ethnic groups. Single men and women have higher odds of crossing pan-ethnic boundaries in marriage markets with small shares of co-ethnics relative to their statistical counterparts who reside in places where co-ethnics are plentiful. Furthermore, ethnic diversity dampens intermarriage prospects for minority men and women. Collectively, these findings support the claims of *structural theory*, which predicts that scarcity of own-group potential spouses foments exogamy via expansion of mating pools beyond pan-ethnic boundaries (Blau, 1984) and the exceptions clause of *contact theory*, which posits that ethnic diversity will reduce interracial comingling in locales characterized by vigorous competition for spatially distributed resources and reify racial and ethnic boundaries (Pettigrew & Tropp, 2006; Tolsma, 2008).

Contrary to the general pattern, individual traits exert greater influence on the intermarriage gap between Blacks and other minorities than do marriage market conditions. This finding is

likely attributable to the legacy of anti-miscegenation laws, which has rendered Blacks especially women relatively unattractive out-group partners (Bany, Robnett, & Feliciano, 2014; Wang, 2012). Even when faced with unfavorable marriage market conditions, single men and women are less likely to expand their pool of potential spouses to include Blacks. Instead, single men and women who possess certain individual traits are more likely to form intermarriages involving Black partners. Immigrants with limited exposure to US anti-miscegenation laws intermarry at higher rates than do the US-born. The socioeconomically advantaged are more likely than their disadvantaged peers to intermarry either because socioeconomic mobility increase opportunities to interact with members of other groups, including Blacks (Kalmijn 1998), or because socioeconomically advantaged Blacks exchange their achieved status to integrate into the mainstream society (Davis, 1941; Kalmijn, 1993; Rosenfeld, 2005).

Our results also reveal that the influence of marriage markets on mate selection behavior is more salient for men than for women. In fact, the intermarriage rates among minority men would be lower than the corresponding rates among their White peers, if men in the various groups face similar marriage market conditions. Single men are more willing and better able than their female counterparts to expand their marital search beyond the co-ethnic market when faced with a limited supply of co-ethnic partners.

Notwithstanding several novel insights, our study has some limitations. First, like prior research, we use SMSAs in urban areas and PUMAs in rural areas to approximate marriage markets (Kalmijn, 1998; Harris & Ono, 2006). Although we acknowledge the possibility that individuals may conduct their marital search from a distance and that not all single individuals are in the marriage market, data limitations preclude more rigorous analyses beyond the robustness tests referenced in the Appendix. By failing to exclude single residents in local marriage markets who are not conducting a marital search or whose marriage market extends beyond the indicators measured for SMSAs and PUMAs, our results may understate the influence on marriage market conditions on intermarriage behavior.

Second, it is possible that individuals predisposed to intermarry may select into communities with favorable intermarriage prospects. With ACS data, it is not possible to fully assess the role of selection. Consistency checks that involved excluding newlyweds who migrated in recent years revealed no substantive changes in empirical results. Nonetheless, inability to account for selection may overstate the influence of marriage markets.

Third, although this study is about the impact of marriage market conditions on intermarriage behavior, limited availability of co-ethnic partners may also result in non-marriage. Stated differently, by failing to exclude individuals in local marriage markets who will forego marriage altogether rather than intermarry when faced with a constrained market, our results may understate the influence of market conditions on marital exogamy.

Fourth, data limitations preclude further consideration of the cultural determinants of intermarriage, including differences in acceptance of intermarriages or the strength of third party control over brides and grooms. We infer partner preference and third party control by

examining racial and ethnic variations in intermarriage behavior. A qualitative study examining why single men and women chose their partners is needed to verify whether and for which group third party influences shape marriage behavior.

Fifth, following the convention in the intermarriage literature, we treat Hispanics as members of a separate ethno-racial category, but acknowledge that Hispanics can be of any race and that Hispanicity is a more permeable boundary than racial boundaries (Qian and Cobas 2007). Sample sizes preclude further disaggregation of Hispanics, however. By using a pan-ethnic definition, our results may overstate endogamy rates while understating intermarriage rates, but it is unclear how the use of pan-ethnics instead of co-nationals will affect our understanding of the influence of marriage market conditions on mate selection.

Finally, our use of multilevel logistic regression models to examine how marriage market conditions influence intermarriage patterns confers advantages and disadvantages. Our statistical method reveals how *specific* marriage market conditions influence mate selection, but this comes at the cost of omitted variable bias, namely inability to fully control for group size differentials. Consequently our findings are partly affected by variations in population size, which is not a problem for conventional log-linear methods. In equal measure, it is possible that marriage market conditions interact with individual correlates of intermarriage other than group membership. Log-linear methods, which are based on contingency tables and generate interaction terms for all modeled covariates, can take into account how multiple conditions interact to influence partner selection in a way that multilevel regression analysis cannot.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1. Intermarriage rates by Race/Ethnicity and Gender

Sources: 2005, 2008-2011 American Community Surveys (ACS)

Notes: All analyses are weighted. For female newlyweds, White-Black differences in intermarriage rates are not statistically significant. For male newlyweds, differences in intermarriage rates between all minority men are not statistically significant.

Table 1

Sample Characteristics

	Female newlyweds				Male newlyweds			
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
	31,642	3,321	6,481	3,086	29,643	3,317	6,344	2,350
Group sample shares	68%	9%	16%	7%	67%	10%	17%	6%
Education (%)								
Less than high school	4	6	23	5	4	8	27	4
High school graduate	24	32	36	14	32	41	39	16
Some college	28	35	24	17	26	31	21	17
BA or more	44	27	17	65	38	20	13	64
Total	100	100	100	100	100	100	100	100
Age (%)								
<25	35	20	38	18	25	16	26	8
25-29	38	29	28	41	38	28	32	36
30-34	16	21	16	23	21	23	21	33
35+	12	30	17	18	17	33	21	23
Total	100	100	100	100	100	100	100	100
Nativity (%)								
% Foreign-born	5	15	50	78	5	16	55	74
Region (%)								
Northeast	18	15	11	20	18	15	12	21
Midwest	27	16	10	13	27	16	10	14
South	34	62	38	23	33	60	37	22
West	21	7	41	44	22	9	41	44
Total	100	100	100	100	100	100	100	100
Urban (%)								
Urban	74	87	90	95	77	89	91	98

Sources: 2005, 2008-2011 American Community Survey (ACS)

Notes: Percentages are weighted. Numbers are unweighted.

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Table 2
Means and Standard Deviations of Marriage Market Characteristics of Newlyweds by Race/Ethnicity and Gender

	White			Black			Hispanic			Asian		
	Mean	S.D.		Mean	S.D.		Mean	S.D.		Mean	S.D.	
A. Female newlyweds												
Relative group size	0.75	0.18		0.25	0.17		0.30	0.22		0.12	0.13	
Educational similarities	0.30	0.15		0.28	0.19		0.30	0.18		0.37	0.22	
Sex ratio	1.27	0.19		0.90	1.40		1.52	1.04		1.41	0.87	
Share of foreign-born	0.04	0.05		0.09	0.12		0.53	0.20		0.65	0.18	
Marriageable index	0.91	0.15		0.50	0.21		1.14	0.72		0.88	0.65	
Diversity index	0.35	0.18		0.49	0.13		0.50	0.15		0.50	0.16	
Simpson	-0.69	0.31		-0.90	0.22		-0.93	0.25		-0.96	0.26	
N	31,642			3,321			6,481			3,086		
Sample shares %	68%			9%			16%			7%		
B. Male												
Relative group size	0.74	0.19		0.24	0.17		0.30	0.22		0.13	0.13	
Educational similarities	0.33	0.13		0.31	0.16		0.31	0.16		0.38	0.20	
Sex ratio	0.81	0.11		1.27	0.43		0.76	0.50		0.86	0.45	
Share of foreign-born	0.04	0.04		0.08	0.11		0.45	0.19		0.65	0.17	
Marriageable index	0.57	0.11		0.79	0.35		0.46	0.34		0.53	0.28	
Diversity index	0.36	0.18		0.48	0.14		0.50	0.15		0.52	0.15	
Simpson	-0.70	0.30		-0.89	0.23		-0.93	0.25		-0.97	0.25	
N	29,643			3,317			6,344			2,350		
Sample shares %	67%			10%			17%			6%		

Sources: 2005, 2008- 2011 American Community Surveys

Notes: Percentages and standard deviations are weighted; counts are not weighted.

Table 3
Multilevel Logistic Regression Models Predicting Odds of Intermarriage among Female and Male Newlyweds

	Panel A. Female newlyweds				Panel B. Male newlyweds			
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
	e ^β	e ^β	e ^β	e ^β	e ^β	e ^β	e ^β	e ^β
Education (BA or more)								
Less than high school	2.48 ***	0.43 *	0.10 ***	0.44 *	0.76	0.57 *	0.14 ***	0.06 *
High school graduate	2.05 ***	0.50 *	0.35 ***	1.16	1.15 *	0.94	0.30 ***	1.01
Some college	1.59 ***	0.75	0.68 ***	1.36 *	1.05	0.99	0.59 ***	1.26
Age (<25)								
25-29	1.16 *	0.90	1.29 *	1.30 +	0.90	1.08	1.24 +	0.59 +
30-34	1.45 ***	0.82	1.50 **	1.98 ***	1.19 +	0.81	1.15	0.96
35+	0.98	0.58 *	1.55 **	2.99 ***	1.34 **	0.60 **	1.15	0.89
Nativity (US-born)								
Foreign-born	0.95	1.14	0.30	0.45 ***	0.93	0.81	0.29 ***	0.21 ***
Marriage market condition								
Relative group size	0.58 ***	0.53 **	0.38 **	0.36 ***	0.58 ***	0.28 ***	0.35 ***	0.31 ***
Educational similarity	0.93 *	1.01	1.03	0.97	0.96	0.95	1.06	0.90
Sex ratio	0.84	0.99	1.03	0.99	0.90	0.95	1.04	0.99
Share of foreign-born	1.19	0.97	0.95	0.92	1.35 *	1.16	1.04	0.87
Marriageable pool	1.26 +	1.20	0.96	1.02	1.22 +	1.06	0.94	1.04
Diversity	1.11	0.92	0.84 **	0.75 ***	1.10	0.79 *	0.80 ***	0.78 *
Region (NE)								
Midwest	1.00	0.68	1.11	0.90	0.81 +	0.87	1.17	1.16
South	1.04	0.62 *	1.09	1.25	1.06	0.84	0.88	1.03
West	1.45 ***	1.77 *	1.14	1.49 **	1.91 ***	2.07 **	1.15	1.15
Urban (Rural)								
Urban	1.47 ***	0.86	1.22	0.49 **	1.48 ***	1.11	0.90	1.01
Intercept	0.05 ***	0.13 ***	0.27 ***	0.22 ***	0.06 ***	0.07 ***	0.40 ***	0.16 *

Sources: 2005, 2008-2011 American Community Surveys (ACS)

Notes: Analyses are weighted and account for clustering within marriage markets.

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Table 4
Decomposition of Racial and Ethnic Differences in Intermarriage Rates

	Intermarriage rate differentials between			
	Whites and Hispanics	Whites and Asians	Whites and Blacks	Hispanics and Blacks
Female newlyweds				
A. Intermarriage rates				
(1) Higher intermarriage rate	23 (H)	34 (A)	9 (B)	23 (H)
(2) Lower intermarriage rate	8 (W)	8 (W)	8 (W)	9 (B)
(3) Observed gap in intermarriage rates: (2) -(1)	15	26	1	14
(4) Adjusted gap in intermarriage rates: (2*)-(1*)	-6	6	-9	32
B. Percent of the gap in observed and adjusted intermarriage rates due to				
Individual characteristics	13	-5	12	73
Marriage market conditions	87	105	88	27
Total	100	100	100	100
Male newlyweds				
A. Intermarriage rates				
(1) Higher intermarriage rate	23 (H)	18 (A)	22 (B)	23 (H)
(2) Lower intermarriage rate	8 (W)	8 (W)	8 (W)	22 (B)
(3) Observed gap in intermarriage rates: (2) -(1)	15	10	14	1
(4) Adjusted gap in intermarriage rates: (2*)-(1*)	-3	-21	3	14
B. Percent of the gap in observed and adjusted intermarriage rates due to				
Individual characteristics	-4	-1	6	87
Marriage market conditions	104	101	94	13
Total	100	100	100	100
Decomposition based on coefficients for:				
	Whites		Hispanics	Asians
	100	100	100	100

Sources: 2005, 2008-2011 American Community Surveys (ACS)

Notes: Results obtained using Fairlie's non-linear decomposition for binary outcomes with 150 replications. Sequence of covariates is randomized.

W denotes "Whites"; B denotes "Blacks"; H denotes "Hispanic"; and A denotes "Asian".

Adjusted intermarriage rate: Intermarriage rates assuming groups have similar individual traits and face similar marriage market conditions.

Adjusted gap: Adjusted intermarriage rate (group with higher observed rate) - Adjusted intermarriage rate (group with lower observed rate).

Positive adjusted gap: adjusted rate of group with higher observed rate > adjusted rate of group with lower observed rate.

Negative adjusted gap: adjusted rate of group with higher observed rate < adjusted rate of group with lower observed rate.

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