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## Boundary crossing in first marriage and remarriage

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### Abstract

Owing to secular increases in divorce rates, remarriage has become a prevalent feature of American family life; yet, research about mate selection behavior in higher order marriages remains limited. Using log-linear methods to recent data from the 2008–2014 American Community Survey, we compare racial and ethnic sorting behavior in first and subsequent marriages. The two most frequently crossed boundaries – those involving White-Asian and White-Hispanic couples – are more permeable in remarriages than in first marriages. Boundaries that are crossed with less frequency – those between minority groups and the White-Black boundary—are less permeable in remarriages than in first marriages. Collectively, these findings suggest that racial and ethnic sorting processes in remarriage may reify existing social distances between pan-ethnic groups. Racial and ethnic variations in how the relative permeability of boundary changes between first and higher-order marriages underscore the importance of considering a broad array of interracial pairings when assessing the ways in which changes in family structure and marital sorting behavior promote integration.

### 1. Introduction

Interracial marriage rates are often used as a barometer of social distance because intimate unions are presumed to involve equal status partnerships that are devoid of prejudice and discrimination (Kalmijn, 1998; Qian and Lichter, 2007; Rodriguez-Garcia, 2015; Schwartz, 2013; Waters and Gerstein Pineau, 2015). In the United States, the share of new marriages involving spouses from distinct ethno-racial groups doubled between 1980 and 2010, rising from 7 percent to 15 percent (Wang et al, 2012). Some marriage researchers claim that this trend signals weakened ethno-racial barriers to social interaction and intimacy (Lee and Bean, 2010; Qian and Lichter, 2007). Citing evidence that interracial unions dissolve at higher rates than endogamous marriages, others argue that inferences about lower prejudice and social distance are premature (Kreider, 2000; Lichter et al., 2007; Zhang and Van Hook, 2009). Although social barriers to interracial marriages may have weakened over time, higher dissolution rates of these unions indicate that interracial couples still face formidable challenges (Bratter and King, 2008; Zhang and Van Hook, 2009).

The higher frailty of exogamous unions and the dramatic rise in divorce and remarriage rates over the past half century are well-documented (Kennedy and Ruggles, 2014; Livingston,

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2014; Wang et al., 2012; Zhang and Van Hook, 2009), but there is limited research comparing racial and ethnic sorting behavior in first and subsequent marriages. The few studies on this topic indicate that exogamy rates have been traditionally higher in remarriages than in first marriages (Aguirre et al., 1995; Fu, 2010; Murguía, 1982; Tucker and Mitchell-Kernan, 1990); but there is recent evidence that these differences may have narrowed over time (Fu, 2010). Whether or not the convergence in intermarriage rates between first and higher order marriages continued after the 1990s is highly uncertain because after 1995 large surveys (e.g., decennial census) suitable for analyzing sorting behavior ceased collecting information about marriage timing and order.

Two offsetting trends yield competing predictions about differences in exogamy levels in first and subsequent marriages since 1995. On the one hand, the dramatic rise in remarriage over the past two decades may have blurred differences in sorting behavior between first and higher order unions both by reducing variation in candidates eligible for first and subsequent marriages and by diluting the salience of normative differences governing mate selection in first and higher order unions (Aguirre et al., 1995; Cherlin, 1978, 2004; Sweeney, 2010). On the other hand, high immigration rates from Latin America and Asia may have increased differences in exogamy levels between first and subsequent marriages by replenishing the pool of co-ethnic partners and thus fomenting opportunities for endogamous pairings (Qian and Lichter, 2011a; Lichter et al., 2007). Because the pressure to form same race marriages is greater for first marriages than it is for remarriages (Dean and Gurak, 1978; Fu, 2010), the retreat from intermarriages may have been greater in first marriages than in remarriages.

Using annual micro-data files from the 2008–2014 American Community Surveys (ACS), which record both the year of last marriage and number of times married, we examine differences in the permeability of specific ethno-racial boundaries between first- and higher order marriages. Moreover, unlike prior research that examines intermarriage patterns for the stock of all marriages or focuses on intermarriages involving a White spouse (Aguirre et al., 1995; Fu, 2010; Harris and Ono, 2005; Jacobs and Furstenberg, 1986), we consider new marriages across a broad array of racial and ethnic lines, including those only involving minorities. Given prior research showing educational and nativity variations in coupling behavior (Qian and Lichter, 2007), our empirical analysis of differences in intermarriage between first and higher order marriages also considers whether and how much wife's education and nativity status influences the permeability of specific ethno-racial boundaries as well as differences in the permeability of these boundaries in first and subsequent marriages.

Our research contributes to the intermarriage literature in two important ways. First, a study of sorting behavior in first and higher order marriages across a broad array of racial and ethnic lines provides a clear picture of social distance across racial and ethnic groups. Considering broad array of interracial pairings, including those only involving minorities, is important as the United States becomes more diverse along ethnic and racial lines (Frey, 2015) and intermarriages involving only minorities are increasing in number<sup>1</sup> (Wang et al., 2012). Second, by questioning whether and how the social norms governing partner

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<sup>1</sup>In 2010, 30 percent of all intermarriages involved only minority partners (Wang et al., 2012).

selection in first marriages carry over to remarriages, our empirical analyses also address whether the changing institution of marriage – rising divorce and remarriage rates-blurs or reifies racial and ethnic boundaries in coupling behavior.

Throughout, we use the term *intermarriage* and *exogamy* to refer to marriages involving spouses from distinct pan-ethnic groups; *same race marriages* and *endogamy* to refer to marriages involving spouses from the same pan-ethnic group. The ACS samples do not permit further disaggregation by national origins.

## 2. Background

### 2.1. Determinants of mate choice

Intermarriage patterns emerge from the interplay of several social forces: (1) personal traits that render partners more or less appealing; (2) social desirability of pan-ethnic groups; (3) third party influences over spousal choice; and (4) availability of potential partners in local marriage markets (Kalmijn, 1998; Lichter et al., 2007; Schwartz, 2013).

In the main, two sets of circumstances govern the desirability of potential spouses: these include resources that prospective partners can bring to unions and social norms about their group's desirability as partners (Becker, 1981; Kalmijn, 1998). Prospective spouses typically prefer partners with similar values, class background, and cultural preferences that facilitate interpersonal relations and smooth integration with partners' relatives (Kalmijn, 1998; Schwartz, 2013). Preferences for spouses with similar cultural backgrounds are conducive to partnering behavior within one's own national-origin and pan-ethnic groups (Kalmijn, 1998; Rosenfeld, 2001; Qian and Lichter, 2007; Schwartz, 2013). Prior research invokes socioeconomic assimilation and acculturation to US norms to explain higher intermarriage rates among the US-born relative to their foreign-born counterparts (Qian and Lichter, 2007).

That singles strive to optimize their economic wellbeing by choosing mates who can bring ample economic resources and social status to the union not only increases competition for well-heeled mates, but also generates socioeconomic homogamy in partnering behavior (Becker, 1981; Kalmijn, 1998; Mare, 1991; Schwartz, 2013). Intermarriage is sometimes the byproduct of the socioeconomic sorting process when high-status mates cross ethnic and racial boundaries to maintain class homogamy, or when high status minorities "exchange" their high socioeconomic status to integrate into the mainstream society by marrying a White spouse (Alba and Nee, 2003; Blackwell and Lichter, 2000; Choi et al., 2012; Fu, 2001; Kalmijn, 1993; Qian and Lichter, 2007). Furthermore, among immigrants and members of racial and ethnic minority groups, educational and economic mobility broadens opportunities for interaction with members of other groups and foments intermarriage (Gullickson, 2006; Qian and Lichter, 2007).

The attractiveness of potential mates also depends on the relative desirability of their racial and ethnic group as outpartners. Notwithstanding secular improvements in attitudes toward interracial couples, there remains considerable resistance to mixed-race unions, with the strongest opposition toward those involving Black partners and least resistance toward those

involving White partners (Bany et al., 2014; Johnson et al., 1997; Wang et al., 2012). A recent report by the Pew Research Center, for example, reports that two-thirds of US adults said that they would be “okay” if their family members dated a Black person; however, 81 and 74 percent of US adults, respectively, said that they would be if their family members dated a White and Hispanic person (Wang et al., 2012). Substantiating this preferential hierarchy is behavioral research showing that the odds of exogamy are highest among Whites, followed in order by Hispanics, Asians, and Blacks (Blackwell and Lichter, 2000). Further supporting these claims are studies showing that minorities disposed to intermarry display a strong preference for White spouses and distaste for mates from other minority groups (Harris and Ono, 2005; Lee, 2015; Lee and Boyd, 2008).

Third party influences also shape partner desirability. Normative preferences for endogamy emerge partly because parents, extended families, or community leaders encourage endogamy as a way to main intragroup cohesion (Kalmijn, 1998). Parents and extended family members, for example, will encourage endogamy by sending their children to places where they can meet co-ethnic partners, advocating for co-ethnic candidates, and threatening to withdraw social support if adult children intermarry (Kalmijn, 1998; Schwartz, 2013). State policies and social norms also can influence partner desirability. That is, resistance to dating or marrying Black partners may be the legacy of anti-miscegenation laws criminalizing interracial sexual relations, dating, and marrying, especially those involving Blacks (Bany et al., 2014; Kalmijn, 1998). Hispanics may display less resistance towards intermarriages than non-Hispanics because racial boundaries are less sharply defined in Latin American countries compared with the United States and because Hispanics can be of any race/ethnicity and racial boundaries prove to be more rigid than ethnic boundaries (Telles and Sue, 2009; Tienda and Mitchell, 2006).

Notwithstanding the strength of social norms favoring endogamy, partner preferences are subject to availability of co-ethnic mates that fit the desirability profiles of prospective spouses. In locales with limited supplies of co-ethnic partners, single men and women with endogamous partner preferences may be compelled to expand their pool of potential mates beyond their own ethno-racial group (Kalmijn and Van Tubergen, 2010; Schwartz, 2013). There is some evidence that normative preferences for endogamy are often relaxed in places where co-ethnic partners are scarce because exogamy is more prevalent in locales with low shares of co-ethnics (Blau and Schwartz, 1984; Kalmijn and Van Tubergen, 2010). Research showing that large-scale immigration from Latin America resulted in the “retreat from intermarriage” among second generation Hispanics during the 1990’s lends support to claims about how a rise in the supply of marriage eligible co-ethnics diminish the likelihood of intermarrying (Lichter et al., 2007; Tienda and Fuentes, 2014). Accordingly, we expect that the odds of crossing racial and ethnic lines in marriages will be higher among men and women experiencing a shortage of co-ethnic potential partners in local marriage markets than among their peers with ample supply.

## **2.2. Intermarriage patterns: first marriages versus remarriages**

Most intermarriage studies focus on the stock of marriage, which combine first and subsequent marriages. An implicit assumption is that the propensity to traverse racial and

ethnic boundaries in marriage is uniform for first and subsequent marriages. However, a handful of studies examining differences in assortative mating patterns in first and higher order marriages provide four general reasons for why exogamy differs between first and higher order unions (Dean and Gurak, 1978; Fu, 2010; Jacobs and Furstenberg, 1986). These include (1) knowledge about spousal compatibility acquired from first marriage; (2) dilution of third party influence; (3) suboptimal marriage market conditions; and (4) nonrandom selection into divorce and remarriage.<sup>2</sup>

The first reason acknowledges that first marriages may serve as a training ground in which spouses *learn* about prerequisites to compatibility needed to sustain satisfying, stable marriages (Dean and Gurak, 1978). Previously married individuals may revise their mate criteria when they remarry and only consider potential mates with whom they have a greater chance to be compatible, but how ethnicity figures in the amended criteria is not clear. On the one hand, interracial unions are typically more contentious than same race unions because cultural differences result in lower levels of spousal consensus and less support from extended kin and friends (Kalmijn, 1998; Schwartz, 2013; Zhang and Van Hook, 2009). It is, therefore, possible that remarriage candidates that were previously in interracial unions may avoid crossing ethno-racial boundaries in remarriage, thereby fortifying pan-ethnic boundaries in higher order marriages. On the other hand, Hispanic and Asian women who exit endogamous unions governed by patriarchal norms may exhibit higher proclivities to cross ethno-racial boundaries in remarriage in order to secure more egalitarian spousal arrangements (Aguirre et al., 1995).

The latter response presumes weakened third-party influence over marriage partners. In fact, some studies claim that preferences for in-group spouses may be weaker among the previously married than never married partners because they are less susceptible to third party control, especially the influence of parents (Aguirre et al., 1995; Dean and Gurak, 1978; Fu, 2010). That remarriage candidates are older, on average, than their never married ethno-racial counterparts also increases the likelihood of physical and emotional distancing from third-party preferences favoring endogamous unions (Dean and Gurak, 1978; Fu, 2010). Experiences acquired after first marriage that broaden the educational, occupational, and social horizons of remarriage candidates may also expand social networks to include potential spouses from out groups (Dean and Gurak, 1978; Fu, 2010). Presumably, broadened exposure to out-group members implies that exogamy levels will be higher in remarriages than in first unions.

A third reason why exogamy may differ between first and higher order marriages concerns the relative supply of potential mates in local marriage markets. Other things equal, the previously married have access to fewer potential partners than their never married counterparts both because divorce is stigmatized within some groups (Fu, 2010) and because children from prior unions can reduce their attractiveness as potential mates (Goldscheider and Sassler, 2006; Sweeney, 2010). Suboptimal marriage market conditions, such as

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<sup>2</sup>Selection into the remarriage eligible pool may occur following divorce or widowhood. Using data from the 2006–2010 National Survey of Family Growth, we found that close to 95 percent of remarried women did so after divorce. Given the extremely low percentage of remarried women who were previously widowed, we follow established conventions in assuming that a predominant majority of women who remarry are divorcees. The concluding section further addresses this point.

residence in locales with low shares of co-ethnics, may further compel men and women to expand their partner search beyond their own group in remarriage.

Nonrandom selection is a fourth reason why intermarriage rates may differ between first and higher order marriages. Some scholars argue that those who adhere to non-traditional values about family life are both more divorce- and intermarriage-prone relative to those who adhere to traditional norms governing family life (Bratter and King, 2001; Zhang and Van Hook, 2009). The implication is that the pool of men and women eligible for remarriage are more intermarriage-prone than the pool of men and women eligible for first marriage. Nonetheless, given the considerable pan-ethnic variation in first divorce and remarriage rates, we also expect pan-ethnic differences in whether and by how much exogamy rates vary by marital order. For example, low divorce rates among Asian women likely restrict the pool of Asian women eligible for remarriage to a subgroup who adheres to non-traditional values and exhibit greater propensity to intermarry (Gibbs and Payne, 2011). In stark contrast, exceptionally low marriage rates among Black women likely restrict the pool of Black women eligible for remarriage to a subgroup that subscribes to traditional family values, including attitudes favoring marriage and especially endogamy (Cruz, 2012; McNamee and Raley, 2011). Thus, we expect Asian intermarriages to be higher in remarriages than in first marriages, but the opposite to be true for Black intermarriage rates.

We compare the permeability of specific pan-ethnic boundaries (i.e., White-Black, White-Asian; White-Hispanic, Black-Hispanic, Black-Asian, and Hispanic-Asian) in first and higher order marriages because adherence to norms favoring endogamy, group desirability, marriage market conditions, and selectivity into remarriages differ across pan-ethnic groups. Our approach differs from most prior research that either examines overall intermarriage rates or focuses on intermarriages involving Whites, often for a specific geographic area. We briefly summarize these studies below.

### 2.3. Empirical studies

Only handful of studies document whether and how racial and ethnic sorting behavior differs between first and subsequent marriages (Aguirre et al., 1995; Fu, 2010; Murguía, 1982; Tucker and Mitchell-Kernan, 1990). Using marriage records from four Southwestern counties, Murguía (1982) finds that intermarriage rates are higher in remarriages compared with first unions among Spanish surnamed women. Tucker and Mitchell-Kernan (1990) obtain similar results for Black men and women living in Los Angeles, as do Aguirre et al. (1995) for Asians nationally. A recent study claims that differences in White-Black intermarriage rates by marital order has diminished between 1968 and 1995 (Fu, 2010: Table 1). Whether or not this pattern of convergence has persistence beyond the mid-1990s could not be empirically verified until recently owing to unavailability of suitable data.<sup>3</sup>

That the existing literature on exogamy in remarriage focuses on specific pairings and/or particular marriage markets limits comparative generalizations, particularly as the number of multi-ethnic marriage markets has increased (Fong and Shibuya, 2005). The demographic and geographic diversification of the U.S. population, combined with the steady increase in

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<sup>3</sup>ACS resumed asking number of times married in 2008.

remarriages and intermarriages since 1990 warrant a reexamination of exogamy patterns by marriage experience (Frey, 2015; Livingston, 2014; Wang et al., 2012). Accordingly, our study compares the permeability of specific boundaries in first and higher order marriages. In so doing, we broaden the comparative scope of marital sorting by considering all boundaries involving the four major pan-ethnic groups in a single analysis. Furthermore, unlike past studies that usually analyze mate selection behavior using the *stock of marriages*, we focus on *new marriages* (i.e., marriages formed within the 12 months preceding the interview date) in order to assess differences in mate selection behavior between first and remarriages formed after 1995—when marriage experience data was dropped from census surveys.

### 3. Data and methods

#### 3.1. Data

The empirical analyses use the 2008–2014 American Community Surveys (ACS), which is cross-sectional data that replaced the US Census “long form.” The ACS includes information about respondent’s socio-demographic characteristics, year of last/current marriage, number of times married, relationships of household members, and migration experiences. Pooling annual micro-data from the 2008–2014 ACS yields a national sample with a sufficient number of new intermarriages to permit disaggregation of newlywed couples according to husband and wife’s pan-ethnic membership, marital order (i.e., first versus subsequent marriages), education levels, and nativity status.

The ACS data are especially well suited to study intermarriage behavior for several reasons. First, the availability of a spousal locator permits accurate identification of co-resident spouses, which we can then use to ascertain the husband and wife’s joint racial and ethnic profiles. Second, the ACS asks respondents whether they were married within the 12 months preceding the interview date as well as the number of times respondents married, which permits distinctions between new and older marriages as well as first from subsequent marriages. Finally, the ACS asks foreign-born respondent’s year of arrival to the United States, which, when combined with year of marriage, permits identification of marriages formed in the United States.

#### 3.2. Sample

Our analytical sample consists of first and subsequent marriages formed in the 12 months preceding the interview date. Limiting our sample to *new marriages* imparts two advantages over the modal approach in the intermarriage literature<sup>4</sup>: first, it reduces period heterogeneity in the acceptability of intermarriage; and second, it minimizes biases resulting from differences in dissolution rates between endogamous and exogamous unions. We further limit our sample to new marriages involving White, Black, Hispanic, and Asian spouses. We exclude both Native Americans because all are US-born and also Non-Hispanic “Others” because it is impossible to ascertain whether these unions are exogamous or endogamous. Second, our sample is restricted to couples that wed in the United States to

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<sup>4</sup>Due to data limitations, prior work on intermarriage tries to approximate new marriages by restricting their sample to young couples.

ensure that the observed mate selection behavior reflects social distances and market constraints in US marriage pools. Third, because the legal marriage age in most states is 18, we limit the sample to couples ages 18 and over. Finally, we exclude couples with missing data on covariates of interest. These restrictions yield an analytical sample of 116,106 new marriages, of which 79,033 are first marriages and 37,073 are remarriages.

Table 1 shows the distribution of education and nativity status for women in the four pan-ethnic groups according to their marriage experience. Consistent with general population characteristics, Asians are the most educationally advantaged and Hispanics are the most educational disadvantaged (Sakamoto et al., 2009; Telles and Ortiz, 2008). Relative to Whites and Blacks, higher shares of Asian and Hispanic women are foreign-born (Frey, 2015). Descriptive tabulations show that non-Hispanic women in remarriages have lower levels of education than their co-ethnic counterparts in first marriages. For example, 66 percent of Asians in first marriages are college graduates, as compared with 44 percent of their counterparts in remarriages. Finally, the first marriage sample includes higher shares of US-born Asian women compared within the remarriage sample: 20 versus 12 percent. Presumably, the educational advantages of Asian American women reduce their relative risk for union dissolution compared with their immigrant counterparts (Jalovaara, 2002; Raley and Bumpass, 2003). For other groups, the nativity composition of first and higher order marriages is similar.

### 3.3. Variables

The log-linear methods used to examine the permeability of pan-ethnic boundaries in first and higher order marriages consider five correlates of intermarriage: (1) Wife's pan-ethnicity; (2) Husbands pan-ethnicity; (3) Wife's remarriage status; (4) Wife's education; and (5) Wife's nativity status.<sup>5</sup> Using self-reported racial and ethnic identifiers, we classify spouses into four, mutually exclusive pan-ethnic categories, namely White, Black, Hispanic, and Asian. *Wife's remarriage status* is a binary indicator that distinguishes between first and subsequent unions. *Wife's education* is a categorical variable that sorts wives into four groups based on completed years of schooling: less than high school, high school graduate, some college, and college graduates. Finally, *wife's nativity status* distinguishes the US-born from the foreign-born.

### 3.4. Analytical plan

The analysis consists of two parts. We describe the distribution of husband's pan-ethnicity for White, Black, Hispanic, and Asian women in first and higher order marriages. Subsequently, we construct a 256-cell contingency table by cross-classifying wife's pan-ethnicity by husband's pan-ethnicity, remarriage status, wife's education, and wife's nativity status ( $4 \times 4 \times 2 \times 4 \times 2$ ). Using the contingency table, we estimate log-linear models that describe how the relative permeability of pan-ethnic boundaries differs according to wife's remarriage status, education levels, and nativity status.

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<sup>5</sup>Sample size constraints preclude an examination of variations in intermarriage behavior according to wife and husband's joint socio-demographic characteristics, therefore, the log-linear models examining differences in crossing behavior by wife's socio-demographic characteristics.



Our analyses employ log-linear models, which are considered the gold-standard approach in intermarriage research, to portray differences in sorting behavior in first and subsequent marriages (e.g., Fu, 2001; Gullickson, 2006; Mare, 1991; Qian and Lichter, 2011b; Rosenfeld, 2001). Log-linear models present intermarriage propensities while controlling for differences in marginal distributions of spousal characteristics, which are partly generated by marriage market constraints (Harris and Ono, 2005; Mare, 1991; Schwartz and Mare, 2005). This is important to prevent an underestimation of intermarriage propensities for large groups and overestimation of intermarriage propensities for small groups (Choi and Mare, 2012; Qian and Lichter, 2007).

Specifically, we estimate crossings models because they generate straightforward summary measures of the association between husband and wife's pan-ethnic membership (Choi and Mare, 2012; Schwartz and Mare, 2005; Mare, 1991). Specifically, each crossing parameter measures the relative difficulty of traversing a specific pan-ethnic boundary in marriage without regard to the gender of the spouse belonging to the same group (e.g., White-Hispanic or White-Asian couples). In the baseline model, the association between wife and husband's pan-ethnicity does not vary by remarriage status, education, and nativity status. Subsequent models allow for variations in the association between husband and wife's pan-ethnicity by remarriage status, education, and nativity status. Formally, the baseline model is:

$$\log \left( \frac{n_{hwner}}{t_{hwner}} \right) = \lambda_h^H + \lambda_w^W + \lambda_n^N + \lambda_e^E + \lambda_r^R + \lambda_{hw}^{HW} + \lambda_{hn}^{HN} + \lambda_{he}^{HE} + \lambda_{hr}^{HR} + \lambda_{wn}^{WN} + \lambda_{we}^{WE} + \lambda_{wr}^{WR} + \lambda_{ne}^{NE} + \lambda_{nr}^{NR} + \lambda_{er}^{ER} + \lambda_{hne}^{HNE} + \lambda_{her}^{HER} \\ + \lambda_{hnr}^{HNR} + \lambda_{wne}^{WNE} + \lambda_{wnr}^{WNR} + \lambda_{wer}^{WER} + \lambda_{ner}^{NER} + \lambda_{hner}^{HNER} + \lambda_{wner}^{WNER},$$

where  $W$  is wife's pan-ethnicity ( $w = 1, 2, 3, 4$ );  $H$  is husband's pan-ethnicity ( $h = 1, 2, 3, 4$ );  $R$  is remarriage status ( $r = 1, 2$ );  $E$  is education level ( $e = 1, 2, 3, 4$ ); and  $N$  is nativity status ( $n = 1, 2$ ). The outcome  $n_{hwner}$  is the expected number of marriages between wives in pan-ethnic category  $w$  and husbands in pan-ethnic category  $h$  with education  $e$ , nativity status  $n$ , and remarriage status  $r$ . To ensure that the estimates of marital sorting can be generalized to the US population, each model incorporates person weights using offset  $t_{hwner}$  which is equal to the inverse of the total weighted frequency of the cell divided by the unweighted cell count (Schwartz and Mare, 2005).

Formally, the crossings model is:

$$\log (n_{hwner}/t_{hwner}) = \text{Baseline model} + \gamma_{hwn}^{HWN} \left( +\gamma_{hwe}^{HWE} / \gamma_{hwr}^{HWR} \right)$$

where,  $\gamma_{hwe}^{HWE}$ .

The parameter  $\gamma_{qe}$  reveals estimated differences in the difficulty of crossing pan-ethnic boundary  $q$  for spouses with education  $e$ ;  $\gamma_{hwr}^{HWR} / \gamma_{hwn}^{HWN}$  is defined analogously for remarriage status  $r$ ; and nativity status  $n$ . Crossing parameters correspond to the log odds of traversing specific pan-ethnic boundaries, produced by White-Black, White-Hispanic, White-Asian, Black-Hispanic, Black-Asian, and Hispanic-Asian marriages.

## 4. Results

### 4.1. Descriptive results: mate selection behavior by Wife's socio-demographic characteristics

Table 2 presents the distribution of husband's pan-ethnicity for White, Black, Hispanic and Asian wives in first- and remarriages. Consistent with recent estimates by Wang et al. (2012), we find that intermarriage rates are highest among Asians, followed in order by Hispanics, Blacks, and Whites. For example, in first marriage, 32 percent of Asian women are married to a non-Asian spouse, as compared with 23 percent of Hispanics and less than 10 percent of Whites and Blacks.

Tabular results also reveal that for Hispanic and Asian women, intermarriage rates are higher in remarriages than in first marriages. One-third of Asian women wed non-Asian men in their first marriage, but over half did so in remarriage. A similar pattern of higher exogamy in remarriage obtains for Hispanics except that the rates are lower— 23 and 33 percent, respectively, for first and higher order marriages. The opposite pattern—that is, higher exogamy in first compared with remarriage—obtains for Whites and Blacks, but these differences are statistically trivial. Eight percent of White women cross ethno-racial boundaries in first marriage, as compared with 6 percent of White women who remarry. For Blacks, in first and higher order marriages the comparable exogamy rates are 9 and 8 percent.

These aggregate patterns reflect differences in the number of never and previously married men and women in each pan-ethnic group as well as group differences in divorce and remarriage behaviors giving rise to differential selectivity regimes into and out of remarriage. To describe variations in the odds of crossing *specific* pan-ethnic boundaries by respondent's remarriage status, education, and nativity status, net of group size differences we estimate log-linear models. The estimated crossing parameters capture variations in intermarriage patterns that reflect group differences in disposition to intermarry net of variation in group size that delimit opportunities for cross-group interaction.

### 4.2. Fit statistics for log-linear models

Table 3 presents the fit statistics for several log-linear model specifications, including both log-likelihood ratios and Bayesian information criterion (BIC) statistics for model fit. Given the large sample size, we rely on BIC statistics to select the best-fitting model, with more negative BIC statistics indicating a better fitting model (Raftery, 1995).<sup>6</sup> The baseline model (Model 1) assumes that the odds of crossing pan-ethnic boundaries do not vary according to wife's remarriage status, education, and nativity status. The negative BIC statistic indicates that the baseline model fits the data better than the saturated model and the crossing parameters provides a better summary of the odds of crossing specific boundaries better than the contingency tables. The fit of subsequent models reveals whether considering wife's remarriage status, nativity status and educational attainment improves our ability to understand intermarriage patterns.

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<sup>6</sup>Reported log-likelihood ratios yield the same conclusions as those based on the BIC statistics.

Models 2 to 4 add two-way interaction terms between the crossings parameter (X) and wife's socio-demographic characteristics, namely remarriage status (R), education (E), and nativity status (N). Although all two-way interactions improve model fit relative to the baseline model, the interaction between the crossings parameter and education (XE) yields the largest improvement and the interaction between the crossing parameter and remarriage status (XR) yields the smallest improvement in model fit. That XE yields the greatest improvement in model fit highlights the salience of education as a criterion for mate selection.

Models 5 to 8 add distinct combinations of two-way interaction terms between the crossings parameter (X) and the other covariates. These models all fit the data better than those including single two-way interaction terms. Model 8, which includes all three two-way interaction terms (i.e., XE, XN, XR), provides the optimal data fit. Substantively, this result indicates that remarriage status, education, and nativity status each independently contributes to the mate selection behavior.

Models 9 to 15 add distinct combinations of three-way interaction terms representing the joint association of crossing a pan-ethnic boundary (X) with pairs of intermarriage correlates: remarriage  $\times$  nativity (XRN); education  $\times$  nativity (XEN); and education  $\times$  remarriage (XER) to Model 8. The inclusion of three way interactions yields consistently inferior model fit. Substantively, the model fitting exercise indicates that remarriage status, education, and nativity status are important correlates of women's mate selection behavior, but they do not *interact* with each other to shape intermarriage patterns.

#### 4.3. Results from log-linear models: odds of crossing racial and ethnic boundaries

Using parameter estimates from the best-fitting, log-linear models (Model 8), Panel A in Table 4 presents the odds of crossing specific pan-ethnic boundaries according to remarriage status, education, and nativity status for newlyweds. Three findings are particularly noteworthy. First, boundaries involving Whites are more permeable than those between two minorities. Among US-born high school dropouts, for example, the odds of crossing the White-Hispanic boundary in first marriage are approximately 5 times the odds of crossing the Black-Hispanic boundary [ $0.087/0.016 \approx 5$ ]. This result reaffirms past claims that Whites are perceived as the most desirable out-group partners (Bany et al., 2014; Johnson et al., 1997).

Second, boundaries involving Hispanics are more permeable than those involving other minorities. For instance, among US-born college graduates, the odds of crossing the White-Hispanic boundary in first marriage are approximately six times the odds of crossing the White-Black boundary [ $0.197/0.038 \approx 6$ ]. The high permeability of boundaries involving Hispanics partly reflects the interstitial character of Hispanicity, officially designated an "ethnicity" that can be of any race, in the US racial hierarchy (Tienda and Mitchell, 2006). It is also conceivable that Hispanics' higher exogamy levels reflect the less sharply defined racial boundaries in Latin American countries compared with the United States (Telles and Sue, 2009).

Third, in line with claims that socioeconomic and cultural assimilation often precede intermarriage (Gordon, 1964; Gullickson, 2006; Qian and Lichter, 2007), better-educated women are more likely than their educationally disadvantaged counterparts to cross racial and ethnic boundaries in marriage, as are US-born compared with immigrant women. To illustrate, among US-born women, the odds of crossing the White-Hispanic boundary are 2.3 times higher for college graduates compared with high school dropouts. Moreover, among high school graduates, the odds of crossing the White-Hispanic boundary are 1.4 times higher among the US-born than among the foreign-born counterparts. Interestingly, White-Black couples are an exceptional case in that, unlike other groups, the permeability of the White-Black boundary does not differ systematically according to wife's education or that the White-Black boundary is *less* permeable among US-born relative to immigrant women.

Panel B presents the percentage differences in the odds of crossing a specific boundary in first and subsequent marriages. Results from log-linear models reveal that relatively permeable boundaries in first marriage (i.e., the two most commonly crossed boundaries in first marriage) *soften* further in remarriages. Specifically, the odds of crossing the White-Hispanic and White-Asian boundaries are, respectively, 16 and 3 percent higher in remarriages than in first marriages. The high permeability of White-Asian and White-Hispanic boundaries suggests that fewer barriers to social interaction exist among these groups. It is conceivable that White-Hispanic and White-Asian marriages likely become even more common in remarriage when third party controls weaken following the dissolution of a first union and previously married individuals face experience limited availability of co-ethnic potential partners (Kalmijn, 1998; Schwartz, 2013).

Our results also reveal that relatively rigid boundaries in first marriage, namely those involving two minority spouses or a Black and White spouse, are further *reified* in remarriage. For example, the odds of crossing the Hispanic-Asian and the Black-Hispanic boundaries are 12 and 7 percent *lower* in remarriages compared with first marriages. Lower intermarriages involving two non-White spouses suggest that formidable barriers to social interaction exist among racial minority groups, which in turn foments cultural dissimilarities among their members. Other scholarship claims that cultural dissimilarities between spouses increase marital conflict and instability by reducing the basis for spousal consensus and mutual understanding between spouses (Hohmann-Marriott and Amato, 2008; Kalmijn, 1998; Schwartz, 2013; Zhang and Van Hook, 2009). Presumably, couples that exit minority-only interracial marriages avoid similar unions in remarriage, preferring instead to form remarry endogamously, to wed a White partner the next time around, or forego marriage entirely.

Similar to boundaries between minority groups but contrary to other boundaries involving a White spouse, the White-Black boundary is more rigid in remarriages compared with first marriages. Specifically, the odds of crossing this boundary are 8 percent lower in higher order than in first marriages. This pattern likely reflects the legacy of anti-miscegenation laws a legacy manifested in hostility from strangers, discrimination from coworkers and neighbors, and opposition from kin and family (Bany et al., 2014; Bratter and Eschbach, 2006; Kalmijn, 1998; Lee, 2015). It is conceivable that the stress from these interactions

have adverse effects on spousal relationship quality, resulting in higher dissolution rates. Partners from failed White-Black marriages also likely avoid similar unions in remarriage.

#### 4.4. Robustness checks

To test the robustness of the findings, we conducted several consistency checks. These results are available upon request. First, we conducted parallel analyses describing variations in odds of crossing specific racial and ethnic boundaries by husband's remarriage status, education, and nativity status. These analyses yield the same general conclusions about the permeability of specific racial and ethnic boundaries between first and subsequent unions.

Second, we replicated the analyses using the stock of all marriages rather than restricting the sample to new marriages. That results obtained using all versus new marriages yield different results offers an important cautionary note for future analysts in light of the association between divorce rates and marital duration. Analyses based on the stock of all marriages reveal that boundaries involving minority spouses are *more* permeable in remarriage compared with first marriages, which contrasts with our results based on recent marriages. We suspect that the opposite results reflect the unusually high dissolution rates of exogamous marriages involving only minorities. Although a large body of intermarriage research is based on the stock of all marriages, the robustness checks underscore the importance of focusing on new marriages, which are less subject to biases from differential dissolution rates, in order to appreciate how cross-group partnering behavior differs in first and higher order unions.

Third, we considered whether the marital experience of spouses influenced the odds of crossing an ethno-racial boundary in union formation. Descriptive tabulations show that one-in-three women who remarried wed never-married husbands, but only one-in-ten first time brides wed previously married men. Because intermarriages are more common among spouses with mixed marital experiences (i.e., unions between a first and previously married partner), we ran robustness checks using a sample of couples with the same marital experiences (i.e., first marriages for both spouses and remarriages for both spouses). These analyses, which indicate whether in couples' mixed marital experiences biased the estimates of boundary crossing in first and subsequent marriages, reaffirm the reported results.

Fourth, in order to secure a large enough sample of new marriages for log-linear analyses, we pooled 7 years of ACS data: 2008–2014. It is conceivable that the pattern of variation in interracial patterns by marital order may have changed over the 7-year observation period. Descriptive tabulations show that, even as the overall rates rose slightly, intermarriage *patterns* have remained relatively stable.

Finally, we assessed whether differences in the permeability of ethno-racial boundaries in first and subsequent marriages reflect variation in the ages at which couples entering first and higher order unions marry. Although sample sizes precluded direct consideration of age in the log-linear analyses, we evaluated whether the estimates hold when the sample is restricted to women between the ages of 18 and 44, which is a convention followed by most studies of intermarriage, particularly those based on stock measures. That the reported

results remain largely unchanged when the age restriction is imposed further bolsters our decision to base the analyses on recent unions rather than the stock of all marriages.

## 5. Conclusions

How intermarriage patterns differ between first and remarriages has received scant attention in recent years despite the dramatic rise in remarriage rates, greater acceptability of intermarriages, and rapid population diversification. Partly this resulted because many large government surveys, such as the decennial census, stopped collecting information about marital order. Using recent data from the American Community Survey that distinguishes between first and higher order unions, we compare the relative permeability of racial and ethnic boundaries in first and higher order marriages. In the context of rising intermarriage and remarriage rates, our study underscores the importance of disaggregating marriage order to clarify whether, in what ways, and for which groups changes in coupling behavior promote integration. Collecting data that permits these distinctions is necessary to avoid conflating potentially divergent intermarriage trends in first and higher order unions, some of which are driven by racial and ethnic differences in divorce rates.

Our results also reveal that marital dissolution and racial and ethnic sorting processes in remarriage reify existing social distances across groups. Specifically, boundaries that are relatively permeable in first marriages further *soften* between first and subsequent marriages. This pattern, which is consistent with past findings, suggests that low barriers to social interaction across racial and ethnic groups when coupled with suboptimal marriage market conditions and weakened third party control can facilitate interracial remarriages for these groups (Aguirre et al., 1995; Fu, 2010; Kalmijn, 1998; Schwartz, 2013). By contrast, boundaries that are relatively rigid in first marriage – in particular those involving only minority spouses or White-Black couples – further *solidifies* between first and subsequent marriages. Prior studies suggest that cultural dissimilarities between partners diminish grounds for spousal consensus, leading to conflictive, unstable marriages at high risk of dissolution (Hohmann-Marriott and Amato, 2008). In remarriage, previously married men and women from mixed-race unions may revise their mate criteria to avoid similar forms of partner incompatibility (Dean and Gurak, 1978).

Our results reveal a strong barrier to marriage between Blacks and non-Blacks. This barrier manifests itself in two ways: (1) interracial first marriages involving a Black partner occur less frequently than those involving non-Black partners; and (2) Black intermarriages are even less common in higher order relative to first marriages. These findings underscore the importance of broadening the comparative scope to consider combinations of interracial couples comprised only of minority spouses (e.g., Black-Hispanic; Black-Asian) when drawing inferences about racial and ethnic integration trends.

Finally, our analyses show that White-Black unions are an exceptional case. In contrast to other interracial marriages involving a White partner (i.e., White-Hispanic and White-Asian unions), the White-Black boundary is more rigid in remarriages than in first marriages. Moreover, contrary to other forms of boundary crossing, the odds of crossing the White-Black boundary are lower among the US-born than among the foreign-born women, and do

not differ systematically according to women's levels of education. Consistent evidence that White-Black couples are an exceptional group whose mate selection behavior defies general patterns of marital sorting underscores the importance of adopting a broader comparative perspective to understand intermarriage trends in the United States. Stated differently, intermarriage studies restricted to White-Black couples render an incomplete portrayal of mate selection behavior in the context of an ever more diverse society.

Like all empirical studies, ours has its limitations. First, despite well-established gender asymmetries in intermarriage patterns (Wang et al., 2012), even pooling 7 years of ACS data does not yield sufficiently large numbers of new marriages to consider pan-ethnic boundaries that jointly represent wife and husband's pan-ethnic membership. That is, as is typical in the intermarriage literature, the reported analyses distinguish White-Black from White-Asian boundaries, but cannot differentiate between the odds of crossing boundaries involving White husbands and Black wives and the corresponding odds involving White wives and Black husbands. In similar fashion, although prior work shows that characteristics of spouses *interact* in shaping mate selection behavior (Fu, 2010), our data do not permit consideration of the joint distribution of spouses' characteristics. We report analyses based on intermarriage patterns pegged to wives' characteristics; however, auxiliary analyses based on husbands' attributes yielded similar conclusions. Sample sizes permitting, future studies will add value by adopting a two-sex perspective in order to empirically evaluate how husband and wife's characteristics *interact* to jointly shape the permeability of pan-ethnic boundaries.

Second, in the absence of marital histories and longitudinal data with sufficiently large samples to examine specific pan-ethnic boundaries, our analyses are perforce restricted to cross-sectional comparisons between first and higher-order marriages. A stricter assessment of how the relative permeability of pan-ethnic boundaries *changes* between first and higher order marriages requires retrospective histories or prospective data on union formation, panel data can further reveal whether, how, and why previously married men and women amend their partner choices in remarriages. Available retrospective and prospective data with long marital histories, such as the National Survey of Family Growth or the Panel Study of Income Dynamics, lack sufficiently large samples of interracial marriages.

Third, although we expect that the process of mate selection differs between widowed and divorced women, the ACS data do permit distinguishing between these pathways into remarriage pools. Auxiliary calculations from the National Survey of Family Growth reveal that about five percent of remarriages follow widowhood, which suggest that our findings predominantly portray the mate selection behavior of divorcées. How the mate selection behavior of widowed and divorced individuals is largely uncharted and certainly warrants investigation.

Fourth, following conventions in the intermarriage literature, our study excludes cohabitation (see Kalmijn, 1998; Schwartz, 2013; Rodriguez-Garcia, 2015; Waters and Gerstein Pineau, 2015 for reviews). Both because of greater permanence and legal ties, intermarriage is a stronger barometer of racial and ethnic social distances compared with interracial cohabitation (Lichter et al., 2015; Waters and Gerstein Pineau, 2015). In addition

to evidence that, unlike the Nordic countries, in the United States the social significance of marriage differs from that of cohabitation (Heuveline and Timberlake, 2004). U.S. marriages differ from cohabitation in three important ways: (1) a formal entry and dissolution process is in place for marriage but not non-marital cohabitation; (2) marriage confers legal rights and obligations, many of which are not extended to cohabiting couples (child support is a notable exception); and (3) even though nearly half of marriages eventually dissolve, US couples enter marriages with the expectation that the union will be *everlasting* when they view cohabitation as a short-term arrangement that serves as a potential pathway to formal marriage (Heuveline and Timberlake, 2004; Seltzer, 2000; Smock, 2000). The absence of suitable data also prevents us from considering cohabitation. Specifically, racial and ethnic profile of former cohabiting partners are seldom recorded in US data suitable for analyzing inter-racial coupling behavior (e.g., ACS, Census, NSFG). The exclusion of interracial cohabitation will understate the extent to which couples cross ethnic and racial boundaries in forming co-residential interracial unions given that interracial unions are more likely than same-race unions to start and remain as a cohabitation (Kreider, 2000; Rodriguez-Garcia, 2015). It is unclear what the exclusion of cohabitation implies for inferences about differences in odds of crossing racial and ethnic boundaries in first and subsequent co-residential unions. That subject warrants a separate investigation.

Finally, following the convention in the intermarriage literature, we consider Hispanics as members of a mutually exclusive pan-ethnic group. Not surprisingly, Hispanicity is more permeable than Asian or Black boundaries; yet, because Hispanics can be of any race, it is unclear whether racial variations are more salient than nativity differentials in shaping coupling behavior in first versus remarriages (Qian and Cobas, 2004). Sample sizes of the ACS preclude further disaggregation of Hispanics by their race and national origin. Parallel arguments can be made for our subsamples of Asians, which include men and women from distinct national origins and whose adherence to norms favoring endogamy differ. Nevertheless, prior research claims that the prevalence of intermarriage among Hispanic and Asian subgroups is sufficiently high to render pan-ethnic groups meaningful units for studying intermarriage behavior in the United States (Rosenfeld, 2001).

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**Table 1**  
 Distribution of wife's education levels and nativity status by wife's pan-ethnicity and remarriage status.

Wife's characteristics	First marriage			Remarriage				
	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
<b>Education (Col %)</b>								
Less than high school	4 <sup>a</sup>	6	22 <sup>a</sup>	4 <sup>a</sup>	5 <sup>a</sup>	7	20 <sup>a</sup>	7 <sup>a</sup>
High school	23	32	36	14	37	35	35	27
Some college	28	34	24	16	32	35	27	23
BA or more	45	28	18	66	26	23	19	44
Total	100	100	100	100	100	100	100	100
<b>Nativity status</b>								
% foreign-born	5	15	49	79 <sup>b</sup>	5	15	53	89 <sup>b</sup>
<i>N</i>	55,910	5781	11,799	5543	29,428	2664	3785	1196

Sample: Marriages formed within 12 months of survey date.

Notes.

Percentages are weighted. Counts are not.

<sup>a</sup>Differences in educational distribution by marital order are statistically significant at the 5 percent level.

<sup>b</sup>Differences in the distribution of nativity status by marital order are statistically significant at the 5 percent level.

Sources: 2008–2014 American Community Surveys.

**Table 2**

Boundary crossing in first marriage and remarriage by wife's pan-ethnicity.

	Husband's pan-ethnicity (Col %)		Wife's pan-ethnicity							
			First marriage			Remarriages				
	White	Black	White	Black	Hispanic	Asian	White	Black	Hispanic	Asian
White	92.0	6.1	19.2	26.7	93.7	5.9	27.9	45.8		
Black	2.0	90.5	3.2	2.3	1.9	91.8	4.2	3.5		
Hispanic <sup>a</sup>	4.9	3.0	76.8	4.3	3.8	2.2	67.1	4.5		
Asian <sup>a</sup>	1.1	0.4	0.9	66.7	0.6	0.0	0.8	46.3		
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>N</i>	55,910	5781	11,799	5543	29,428	2664	3785	1196		

Sources: 2008–2014 American Community Surveys.

Sample: Marriages formed within 12 months of survey date.

Notes: Percentages are weighted. Counts are not.

<sup>a</sup>Differences in the distribution of husband's pan-ethnicity by marital order are statistically significant at the 5 percent level.

**Table 3**

Fit statistics for boundary crossing models.

Model	Specification	d.f.	Log-likelihood	BIC
1	Baseline + X	135	-1390	-139
2	Model 1+XE	117	-1051	-607
3	Model 1+XR	129	-1330	-190
4	Model 1+XN	129	-1255	-339
5	Model 1 + XE+ XR	111	-991	-658
6	Model 1+XE+XN	111	-968	-703
7	Model 1+XR+XN	123	-1210	-360
8	Model 1+XE+XR+XN	<b>105</b>	<b>-912</b>	<b>-745</b>
9	Model 8 + XER	87	-877	-606
10	Model 8 + XEN	87	-845	-669
11	Model 8 + XRN	99	-881	-737
12	Model 8 + XER + XEN	69	-826	-499
13	Model 8 + XER + XRN	81	-856	-578
14	Model 8 + XEN + XRN	81	-837	-615
15	Model 8 + XER + XEN + XRN	63	-816	-448

Sources: 2008–2014 American Community Surveys.

Sample: Marriages formed within 12 months of survey date.

Notes.

1. Percentages are weighted. Counts are not.
2. Abbreviations key:  
X: Crossing parameters; R: Remarriage Status; N: Nativity status; and E: Education.
3. Best fitting model is in shaded box.

**Table 4**

Odds of crossing a boundary in first marriage and remarriage by wife's education and nativity status.

	<u>White-Hispanic</u>		<u>White-Asian</u>		<u>White-Black</u>		<u>Black-Hispanic</u>		<u>Black-Asian</u>		<u>Hispanic-Asian</u>	
	First	Re	First	Re	First	Re	First	Re	First	Re	First	Re
<b>Panel A. Odds of crossing</b>												
US-born												
Less than HS	0.087	0.102	0.019	0.020	0.035	0.032	0.016	0.015	0.000	0.000	0.004	0.003
HS graduate	0.128	0.149	0.078	0.080	0.039	0.035	0.040	0.037	0.012	0.002	0.048	0.043
Some college	0.164	0.191	0.083	0.085	0.038	0.034	0.061	0.057	0.014	0.002	0.066	0.058
BA or more	0.197	0.230	0.106	0.109	0.038	0.034	0.062	0.058	0.007	0.001	0.078	0.068
Foreign-born												
Less than HS	0.064	0.075	0.018	0.018	0.042	0.039	0.009	0.009	0.000	0.000	0.002	0.001
HS graduate	0.095	0.110	0.072	0.075	0.047	0.043	0.023	0.021	0.017	0.002	0.019	0.017
Some college	0.121	0.141	0.077	0.079	0.046	0.042	0.036	0.033	0.020	0.003	0.026	0.023
BA or more	0.146	0.169	0.098	0.101	0.046	0.042	0.036	0.034	0.009	0.001	0.031	0.027
<b>Panel B. Differences in odds of crossing by marital order</b>												
% difference	16		3		-8		-7		-87		-12	

Sources: 2008–2014 American Community Surveys.

Sample: Marriages formed within 12 months of survey date.

Notes.

1. Analyses are weighted.
2. Odds of crossing the specific racial and ethnic boundaries are computed using the best fitting model (Model 8), as are differences in odds of crossing the specific racial and ethnic boundaries by marital order.
3. Re stands for remarriages.