Demography (2012) 49:651–675
DOI 10.1007/s13524-012-0090-3

Crossing Boundaries: Nativity, Ethnicity, and Mate Selection

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Published online: 14 February 2012
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Abstract The influx of immigrants has increased diversity among ethnic minorities and indicates that they may take multiple integration paths in American society. Previous research on ethnic integration has often focused on panethnic differences, and few have explored ethnic diversity within a racial or panethnic context. Using 2000 U.S. census data for Puerto Rican–, Mexican-, Chinese-, and Filipino-origin individuals, we examine differences in marriage and cohabitation with whites, with other minorities, within a panethnic group, and within an ethnic group by nativity status. Ethnic endogamy is strong and, to a lesser extent, so is panethnic endogamy. Yet, marital or cohabiting unions with whites remain an important path of integration but differ significantly by ethnicity, nativity, age at arrival, and educational attainment. Meanwhile, ethnic differences in marriage and cohabitation with other racial or ethnic minorities are strong. Our analysis supports that unions with whites remain a major path of integration, but other paths of integration also become viable options for all ethnic groups.

Keywords Endogamy · Ethnicity · Immigration · Mate selection · Racial boundaries

Introduction

Social scientists use intermarriage patterns as a key indicator of the social distance among groups. The extent to which immigrant and ethnic minorities marry members

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of the dominant racial/ethnic group of the receiving society reflects the degree to which the new arrivals or their children have assimilated (e.g., Gordon 1964). This framework is best viewed as an "ideal type" because it overlooks variation in the pace of intermarriage across groups and that the very boundaries around groups shift over time (Alba and Nee 2003). Immigrants today originate from diverse countries of origin, languages, religions, and cultures. They are entering a society that may define them as members of racial minorities or as members of unfamiliar panethnic groups (Okamoto 2007). Continued migration from Asia and Latin America refills marriage markets in a way that could not continue under more restrictive legislative environments in the mid-twentieth century. Thus, more recent revisions to the assimilation theory acknowledge other potential paths to incorporation in a multiethnic and multiracial society (Alba and Nee 2003; Portes and Zhou 1993; Rosenfeld 2002).

Intermarriage by European immigrants in the early twentieth century was viewed as a marker of their greater integration but also as an indication of their movement into the "white" racial category (Lee and Bean 2010). As those of Irish, Italian, and other European ancestries married beyond their individual ethnic groups, their ethnic identities became increasingly differentiated along the white-black divide rather than by national origin (Alba and Nee 2003; Perez and Hirschman 2009). Today, the boundaries between European ethnic groups have blurred so that they are no longer as salient in the marriage market as they once were. This is not to say that such intermarriages occurred at a similar rate across all of these groups; rather, it points to one potential long-term outcome.

Perhaps because they have used the example from past waves of immigration, studies of immigrant intermarriage are often focused on the prevalence of unions with whites versus unions within national-origin groups. But there are other pathways to intermarriage. Here, we focus on three potential paths for union formation among immigrants: (1) intergenerational marriage within the same racial/ethnic group as new immigrants refill the intragroup marriage market for second- or subsequent-generation individuals; (2) panethnic marriage as a potential alternative to marriage within the same ethnic group while still retaining social distance from other parts of the racial/ethnic system; and (3) marriage with other minorities. The first option would suggest that little boundary shifting is occurring as later-generation group members seek partners within the same national-origin group (Massey 1995). The second option speaks to shifts in boundaries, perhaps reflecting a growing salience of panethnic groups for both natives and immigrants (Okamoto 2007). The third option notes the potential for immigrant groups to move to one side or the other of the black-white divide in American society (Perez and Hirschman 2009).

In this article, we use 2000 U.S. census data to examine mate selection patterns among Mexicans, Puerto Ricans, Filipinos, and Chinese, the four largest ethnic groups in the United States originating from Asia and Latin America. Through comparisons of marriage and cohabitation patterns with coethnics of the same or different nativity, other ethnic groups within Asian or Hispanic panethnicity, non-Hispanic whites, and other minorities, we seek to understand multiple paths of integration and assimilation for today's ethnic minorities. Most research on intermarriage is based on panethnic definitions, thus ignoring potential ethnic differences (Qian 1997; Qian and Lichter 2007). Some have compared intermarriage across Hispanic and Asian ethnic groups (Rosenfeld 2001), while others have

explored intergenerational and interracial marriage specifically within a given panethnic group (Okamoto 2007). Here, we address nativity, age at arrival, and ethnic differences from the point of view of four specific ethnic groups. These groups represent diverse phenotypic, religious, and linguistic origins. Thus, our analyses examine the extent to which these groups are associated with union formation with non-Hispanic whites, with members of the same panethnic group, or with other U.S. minorities as various versions of assimilation theory may predict. We take particular note of the importance of education and age at arrival in the United States as important factors that could influence these patterns.

Theory and Background

The Salience of Assimilation

Gordon's (1964) classic assimilation theory sought to explain the integration process of European immigrants into American society at the turn of the twentieth century. This process involves several stages of assimilation. One of them is structural assimilation. A case in point is a minority group's participation in the education system and improvement in educational attainment. Marital assimilation would then follow structural assimilation. This theory appears to explain well the experiences of the twentieth century European immigrants. Over time, "ethnic entropy" has occurred such that blacks and whites today tend to adopt a generalized American identity without acknowledging a specific national origin (Perez and Hirschman 2009).

For immigrants today, the racial/ethnic landscape of the receiving context differs from the past. The continuous influx of immigrants from non-European origins has changed America's racial/ethnic makeup and fueled debate over the applicability of Gordon's model to contemporary minorities. Portes and Zhou (1993) argued that immigrant and ethnic minorities are unlikely to follow one single path of assimilation, in part because they are at risk of having different structural assimilation outcomes. Alba and Nee (2003) noted the greater likelihood of intermarriage with whites for Asian immigrants and their offspring than for Latino or Afro-Caribbean immigrants. Thus, the extent to which a single model of assimilation can be extended to racial minorities today is unclear (Omi and Winant 1994).

Although a segmented model of assimilation asserts the need to look beyond a single path for today's immigrants, it is unclear what alternative paths are most likely. Perhaps the most obvious choice would be intergenerational unions—unions between immigrants and immigrant offspring from the same national origins (Min and Kim 2009). As immigration flows from the same countries continue over time, marriage markets may consist of those of varying generations. Immigrants may seek marriages with natives, in part because they would become eligible for naturalization more quickly and have greater access to social networks and resources in the United States (Bean and Stevens 2003). Their native-born counterparts may be attracted to such marriages as well because racial boundaries remain rigid in marriage markets and the pool of native-born marriageable partners of the same ethnicity is limited. Immigrants living in neighborhoods where their coethnics reside are likely to attract their native-born coethnics as marriageable partners (Massey 1995). Residential proximity, along with

cultural, linguistic, and physical similarities, increases contact opportunities and makes it highly likely that immigrants marry their native-born counterparts (Okamoto 2007). The potential partners living in ethnic neighborhoods tend to have less education compared with their coethnic counterparts living elsewhere. In this case, ethnic identities are reinforced across generations.

A second possible route to union formation for immigrants may reflect the growing importance of panethnic groups in the United States. While an increasing number of immigrants could encourage ethnic endogamy, it may also fuel the marriage market across ethnic groups but within broader groupings. If immigrants choose other Hispanic or Asian partners, for example, it may suggest that these identities have increased social salience, and the racial/ethnic hierarchy goes beyond a simple black-white dichotomy (Lee and Bean 2010). Recent studies have shown a growing awareness of panethnic identities in recent decades and presented another path of assimilation involving amalgamation into pan–Asian American or pan-Hispanic communities (Perez and Hirschman 2009; Qian et al. 2001; Rodriguez 2000). Interethnic marriage among Asian and Hispanic ethnic groups has become relatively common (Espiritu 1992; Rosenfeld 2001). Compared with their foreign-born counterparts, U.S.-born Hispanics and Asians are more likely to identify themselves with these panethnic labels rather than as Mexican or Chinese (Espiritu 1992; Padilla 1985). The growing panethnic identity is facilitated by the common experience of prejudice and discrimination and being identified in the same panethnic group (Espiritu 1992).

But there may be differences in the likelihood that groups adapt by marrying in a panethnic group. Min and Kim (2009) suggested little evidence of a pan-Asian identity because Asians of all ethnic origins are more likely to marry whites than Asians outside their own ethnic group. Okamoto (2007) noted that interethnic marriage among Asian groups is facilitated by residential proximity and educational or income equality and that groups are not equally likely to marry outside the ethnic group. U.S.-born Asians may have a sense of the larger ethnic context, but foreign-born Asians are less likely to do so because they do not share languages, religions, and cultures with other "Asians." Histories of conflict across some Asian countries further highlight the differences among Asian national origins. Hispanics are likely to have opposite patterns (Gilbertson et al. 1996). The salience of race in American society encourages U.S.-born Hispanics to become more race conscious than panethnicity conscious. Nearly half of Hispanics failed to identify with a single race when faced with the census question in 2000 (Perez and Hirschman 2009). Those who identify as white tend to have non-Hispanic white spouses. Foreign-born Hispanics, on the other hand, are more likely than native-born Hispanics to marry other Hispanics within the panethnic group (Qian and Cobas 2004).

A third alternative among immigrants may be marriage with other racial minorities (other than those of the same panethnic group). Growing up in America, later-generation minorities are more exposed to mainstream cultures and become integrated into the social and cultural patterns of their peers. Improvement in socioeconomic status, a measure of structural assimilation, weakens racial/ethnic attachments and increases contact across racial/ethnic boundaries. Highly educated minorities are more likely than their less-educated counterparts to marry across racial/ethnic groups (Fu 2001; Stevens and Schoen 1988). Some ethnic groups, especially those with less education and/or

darker skin tone, may partner with racial minorities, possibly because they share city neighborhoods with other racial minorities. This partnering may reflect the salience of the black-white divide. For example, Puerto Rican nonwhites may follow the color line and marry African Americans more often than Puerto Rican whites.

Clearly, we need to be cognizant of the individual background traits that may also alter assimilation patterns. First, not all immigrants arrive in the United States as adults. For those arriving as children, union formation patterns may be most similar to their U.S.-born peers. Children who arrive during early childhood before formal schooling begins (often termed the "1.5 generation") face similar socialization experiences as the U.S.-born (Oropesa and Landale 2009). For them, the racial/panethnic hierarchy of the United States may be evident from early childhood as they navigate segregated social institutions or environments. Those who arrive as teenagers, on the other hand, not only have less experience in the United States, but also have had more exposure to the family formation norms of the origin country. For them, endogamy with coethnic immigrants is expected to be stronger. In addition, we consider the role of educational background. Men and women, especially those with college education, are increasingly likely to marry a partner with the same level of educational attainment (Schwartz and Mare 2005). We expect that immigrants with higher levels of education will differ from their less-educated counterparts just as such differences are observed within the U.S. native population.

The Salience of Changing Union-Formation Patterns

Most studies of interracial relationships, particularly in the case of immigrants, have focused on marriage. But cohabitation has become a common living arrangement, which can no longer be ignored in studies of union formation. Although often a short-lived living arrangement, cohabitation has contributed to the decline of marriage (Bumpass et al. 1991). Compared with marriage, it involves different motivations, commitment, and interaction styles among partners and family members (Bumpass and Lu 2000; Clarkberg et al. 1995; Smock 2000). Couples in interracial or interethnic relationships may prefer cohabitation in order to avoid potential family complications associated with formalizing such a relationship. Indeed, recent studies have suggested that interracial relationships are more pronounced among cohabiting than married couples (Blackwell and Lichter 2000; Lichter and Qian 2004). Immigrant groups vary significantly in cohabitation prevalence (Brown et al. 2008). However, few such studies have incorporated ethnic groups and nativity. In order to understand the extent to which immigrants and their native coethnic counterparts form unions within or across ethnic, panethnic, or racial lines, it is important to examine both cohabiting and marital unions. Because of shared traditional and cultural backgrounds, immigrants in coethnic relationships may be less likely to cohabit than those in relationships with whites or with non-coethnic partners.

Four Ethnic Groups

We have discussed several paths of integration and assimilation. Clearly, it is too general to discuss these paths by focusing on all immigrants or on Asians and Hispanics at the panethnic level. For our analyses, we choose four ethnic groups

with diverse experiences in the United States. Each group represents different modes of entry, histories of contact with Americans of various racial groups, and geographic clustering in the United States. Here, we briefly review the migration histories and marriage patterns in the United States of Puerto Ricans, Mexicans, Chinese, and Filipinos.

Puerto Ricans

The Puerto Rican case is an interesting contribution to the literature on immigrant adaptation in the United States. Because they are not foreign citizens, Puerto Ricans face fewer barriers to entrance to and departure from the mainland and should have greater access to the marriage market in both the sending and receiving communities than other immigrant groups.[1] Consensual unions are fairly common and accepted in Puerto Rico, and cohabitation levels are relatively high among Puerto Ricans on the mainland as well (Landale and Fennelly 1992).

Qian and Cobas (2004) compared the intermarriage patterns of Hispanic groups and concluded that the racial barrier is quite strong, such that marriage beyond the ethnic group follows racial lines. Because many Puerto Ricans are black or mulatto, we expect the mate selection patterns among Puerto Ricans to be similar to African Americans and levels of cohabitation to be higher than other Hispanic groups. Likewise, marriage and cohabitation with African Americans should be the highest among the groups we compare here. Generational differences could persist, however. Racial/ethnic identification varies by location: women in Puerto Rico are more likely to identify according to racial labels (i.e., white or black), while those on the U.S. mainland tend to self-classify as Hispanic (Landale and Oropesa 2002). Thus, mainland-born Puerto Ricans may be more likely to form interethnic unions with other Hispanics than island-born Puerto Ricans (Gilbertson et al. 1996).

Mexicans

The Mexican-origin population in the United States has a long history of replenished migration, and Mexico has been the largest source of migrants to the United States in the post-1965 period (Glick and Van Hook 1998). This large flow provides a filling of the pool of eligible partners. Because of this continuous flow, Mexicans in the United States have greater opportunity to marry coethnics than those of other immigrant groups.

Mexicans face some ambiguity regarding their racial/ethnic position in the United States (Gutierrez 1995). Some may consider their ethnicity as their sole identity, while others identify themselves as white, Native American, or some combination thereof. The segmented assimilation theory has been most often applied to the Mexican case on the assumption that this group is particularly likely to assimilate into a minority position. However, intermarried Mexicans tend to marry whites (Qian and Cobas 2004; Rosenfeld 2002). This somewhat challenges the expectations of segmented assimilation for this group (Rosenfeld 2002). Cohabitation among those of

[1] Puerto Ricans, nonetheless, face similar conditions confronting immigrants. For example, Puerto Ricans speak Spanish in Puerto Rico and typically remain a distinct group on the mainland.

Mexican origin remains low when compared with other ethnic groups (Brown et al. 2008). It seems likely that among immigrants, cohabitation will remain low, with intraethnic unions prevalent. However, if the expectations of the segmented assimilation perspective hold, we may observe greater levels of cohabiting and marital unions that cross racial/ethnic lines among U.S.-born than among foreign-born Mexicans.

Chinese

The Chinese-origin population also has a long history of migration to the United States, but China did not become a major source of migration until 1965. Chinese migration is diverse, drawing both professionals and low-skilled workers. As migration has increased, so too has the geographic dispersion of the Chinese-origin population. Although "Chinatowns" still serve as a landing point for many, considerable suburbanization has occurred, drawing many first- and second-generation Chinese beyond these traditional ethnic niches (Alba et al. 1999). Chinese are not as likely to marry whites as are Filipinos, but they have relatively high rates of interethnic marriage when compared with other Asian groups (Qian et al. 2001). There is less intergenerational marriage among Chinese immigrants than other national origin groups (Bean and Stevens 2003). This may be due, in part, to immigrants' considerable size, greater residential segregation, and a greater share with lower levels of educational attainment compared with their U.S.-born counterparts (Farley 1996; Liang and Ito 1999).

Filipinos

In the post-1965 era, the Philippines has been a significant source of migration to the United States. The Philippines is a Catholic country with its history as a Spanish colony and then an American colony. Many Filipinos came to the United States as a result of the Americanization of Filipino culture through U.S. colonization (Espiritu 1996). Filipinos tend to adapt relatively easily to mainstream society, and a sizable component of this migrant pool is educated professionals often recruited for their contribution to health-related fields in the United States (Espiritu 1996). Family reunification policy has also increased the size of the Filipino population in the United States since 1965 (Agbayani-Siewert and Bevilla 1995). But other routes of entry are directly tied to marriage: some Filipinos immigrated as wives of U.S. military servicemen stationed in the Philippines, while others came as "mail-order brides" to escape poverty (Agbayani-Siewert and Bevilla 1995). Thus, they have higher intermarriage rates than other Asian ethnic groups (Qian et al. 2001).

Hypotheses: Three Potential Paths

We expect that marriage among immigrants of the same ethnicity will be most common (Rosenfeld 2001). However, although assimilation via intermarriage with whites remains a strong and compelling model, especially for the college educated, alternative paths of union formation could emerge if the color line in the United States is blurred or the social salience of panethnic groups increases. We suggest several

alternative paths for new arrivals but expect that these paths could vary across ethnic and educational groups.

First, we expect that immigrants are most likely to form marital unions with their coethnic native-born counterparts because the social distance between them is smaller than with other groups. Such intergenerational unions may not be even across groups: the social distance of immigrants with their native-born peers may be smallest and the likelihood of unions between them may be greatest among Puerto Ricans because of their citizen status.

Second, we expect variation in the extent to which groups are on the second alternative path of integration: union formation with those of other ethnic groups within the same panethnic groups (Hispanic or Asian, for example). Interethnic marriage within each panethnic group has been greater for the U.S.-born than for the foreign-born (Qian et al. 2001; Qian and Cobas 2004; Rosenfeld 2001). Immigrants may follow suit, but we expect this to be most likely among those arriving in the United States at young ages and those who attended U.S. colleges and universities, where they had the greatest exposure to panethnic identities. Further, Hispanic immigrants may be more likely to form panethnic unions when compared with Asian immigrants because Hispanics (Puerto Ricans and Mexicans) are likely to share the same language and religious backgrounds, while Asians (Chinese and Filipinos) most often do not.

Finally, we expect ethnic differences in union formation with other racial minorities. For Filipinos, shared Spanish influences and Catholic religion with other racial minorities (e.g., Mexicans) increase the likelihood of intermarriage with other minorities (Leonard 1993). Puerto Ricans, with a significant share of the nonwhite population, are more likely to marry blacks than are other minority groups (Qian and Cobas 2004). Our predictions for marriage outside the panethnic group are divided along racial lines. We expect a greater likelihood of partnering with other minorities for Puerto Ricans and Filipinos than for Mexicans and Chinese.

Immigrants' age at arrival is expected to play an important role. In our view, age at arrival is more salient for understanding intermarriage patterns than sheer number of years in the United States (as is commonly used for studies of assimilation). We distinguish between those immigrants who arrived at young ages and likely received all their formal schooling and socialization in the United States (0–5); those who arrived in middle childhood (6–13); and those who arrived as adolescents (14–19) and are, therefore, at greater risk of never "dropping in" to U.S. schools (Oropesa and Landale 2009). We expect considerable variation with age at arrival such that intermarriage with whites or panethnic partners will be most likely among the U.S.-born and those arriving as children and least likely among those arriving in the United States as adolescents (Min and Kim 2009).

Data and Methods

Few data sets in the United States allow for analyses of diverse groups of immigrants. Employing data from the Integrated Public Use Microdata (IPUMS) 5% samples of the 2000 U.S. census, we identify Chinese and Filipinos based on the race question and Mexicans and Puerto Ricans based on the Spanish-origin question. In the 2000

census, Americans were able to mark one or more racial categories. An overwhelming majority of the individuals who marked two or more racial groups reported white race and a minority race rather than two or more minority races (Tafoya et al. 2004). To examine how biracial individuals influence intermarriage, we first include Chinese-white or Filipino-white as either Chinese or Filipino, and later in the analysis classify them as white. Similarly, we include a variable to indicate whether Mexicans and Puerto Ricans are white or nonwhite. Multiracial individuals are more likely to marry whites than single-race minority individuals (Qian and Lichter 2007). The growth of multiracial individuals from intermarriages has further blurred racial boundaries and created an environment conducive to boundary-crossing intermarriages.

The census does not ask questions about the timing or order of the current marriage. Our sample therefore contains currently married couples of varying marriage durations and orders. This may introduce bias in our analysis because marital disruption differs by marriage duration and order (Jacobs and Furstenberg 1986). To reduce potential bias, we include only married couples aged 20–34 at the time of the census. These couples are most likely to have formed unions recently and are less likely to have experienced disruptions compared with older couples (Qian and Lichter 2007). Meanwhile, the censuses do not allow us to distinguish marriages contracted within the United States from those contracted overseas. In order to examine how U.S. marriage market dynamics influence immigrants' mate selection patterns, we seek to reduce the number of marriages contracted overseas by including only immigrants who entered the United States prior to age 20. We compare assortative mating patterns between marital and cohabiting unions. The census includes information on unmarried partners in cohabiting relationships. We include cohabiting couples aged 20–34 by linking the householder with his/her partner of the opposite sex.

Our objective is to examine partnering patterns with whites, nonwhites, panethnic peers, and coethnics of the same or different nativity for each of the four ethnic groups. We employ log-linear models to predict marriage or cohabitation counts by race/ethnicity/age at arrival for men and women. Log-linear models have been used widely in assortative mating to estimate the association between men's and women's characteristics while controlling for marginal differences in such characteristics between men and women (Gullickson 2006; Qian and Lichter 2007; Rosenfeld 2008; Schwartz and Mare 2005). We combine race, ethnicity, and age at arrival into one variable so that immigrants' diverse paths of intermarriage patterns can be compared. For example, when examining intermarriage patterns for Chinese, we classify men's and women's race/ethnicity/age at arrival, respectively, as (1) Chinese arriving in the United States at ages 14–19, (2) Chinese arriving at ages 6–13, (3) Chinese arriving at ages 0–5, (4) U.S.-born Chinese, (5) other non-Chinese Asian Americans, (6) whites, and (7) other non-Asian racial/ethnic minorities. We apply the same strategy for Filipinos, Mexicans, and Puerto Ricans. The basic log-linear model takes the following form:

$$\log F_{ijmn} = \beta_0 + \beta_i^{HR} + \beta_j^{WR} + \beta_m^{HE} + \beta_n^{WE} + \beta_{im}^{HRE} + \beta_{jn}^{WRE}, \quad (1)$$

where F_{ijmn} is the predicted number of marriages between husbands in race/ethnicity/age at arrival i and education m, and wives in race/ethnicity/age at arrival j and

education n. Education is classified into two categories: (1) high school or less and (2) at least some college education. In addition to controlling for the marginal distributions, we account for two-way interactions between race/ethnicity/age at arrival and education for husbands and wives $\left(\beta_{im}^{HRE}, \beta_{jn}^{WRE}\right)$, respectively. We will extend the baseline model in the Results section.

Results

We first present descriptive statistics for married and cohabiting men and women aged 20 to 34 in 2000. Table 1 shows strong ethnic differences in relationship type. Proportionately, Puerto Ricans are most likely to be cohabitating. More than 70% of Puerto Ricans were born on the mainland, while the share U.S.-born is low for Chinese, Filipinos, and Mexicans. More Filipino immigrants (about 16%) arrived before age 5, but more Mexican immigrants arrived at ages 14–19 (32.8% and 26%, respectively, for men and women). Educational attainment differs by ethnicity. Although a majority of Chinese and Filipinos are immigrants, about three quarters or more have at least some college. In comparison, only 27.7% of Mexican men and 34% of Mexican women are college educated.

The progeny of intermarriage from the past is a barometer of interrelationships. Nationally, about 2.4% of the population classify themselves in two or more racial groups (Jones and Symens Smith 2001). In our sample, 7.4% and 6.9% of Chinese

Table 1 Percentage of relationship type, education, age at arrival, and racial classification by gender and ethnicity, ages 20–34, 2000 PUMS

	Men				Women			
	Chinese	Filipino	Mexican	Puerto Rican	Chinese	Filipino	Mexican	Puerto Rican
Relationship Type								
Married	82.4	78.7	83.8	71.7	79.8	79.4	84.2	71.5
Cohabiting	17.6	21.3	16.2	28.3	20.2	20.6	15.8	28.5
Educational Attainment								
High school or less	17.4	26.2	72.3	59.1	13.0	22.0	66.0	50.2
Some college or more	82.9	73.8	27.7	40.9	87.0	78.0	34.0	49.8
Age at Arrival in United States								
U.S.-born	41.4	48.5	50.1	73.0	42.1	44.6	56.5	73.3
0–5 years old	10.8	16.2	5.8	8.1	12.0	16.2	6.7	8.5
6–13 years old	24.9	18.5	11.3	8.2	22.6	18.8	10.8	8.5
14–19 years old	22.9	16.7	32.8	10.6	23.3	20.4	26.0	9.8
Mixed-Race Asian-White Individuals or Hispanic Whites								
Yes	7.4	15.1	43.8	47.2	6.9	15.9	50.4	48.8
No	92.6	84.9	56.2	52.8	93.1	84.1	49.6	51.2
Total	1,231	1,651	38,257	5,051	1,497	2,261	37,635	5,115

men and women, respectively, also mark white as their racial group. Filipinos have a much higher percentage (about 15%), due in part to a significant share of mixed-race descendants born to couples of Filipino women and U.S. military servicemen stationed in the Philippines (Espiritu 2003). Hispanics include people of all races. In 2000, close to one-half of Mexicans and Puerto Ricans classified themselves as white.

Men and women can form unions with a partner who is coethnic (Chinese, Filipino, Mexican, or Puerto Rican), interethnic (other Asian or Hispanic), white, or a member of other racial minority groups. As shown in Table 2, ethnicity/age at arrival reveals important ethnic differences in intergroup relationships. Among those arriving in the United States at ages 14–19, the percentage of ethnic endogamy is

Table 2 Spousal or partner racial/ethnic composition by gender, ethnicity/age at arrival, racial classification, relationship type, and education, ages 20–34, 2000 PUMS

	% Males Married or Cohabiting With:					% Females Married or Cohabiting With:				
	Coethnic	Interethnic	White	Other	Total	Coethnic	Interethnic	White	Other	Total
Ethnicity/Age at Arrival										
Chinese arriving at ages 14–19	86.2	8.2	3.6	2.1	282	76.2	7.2	13.5	3.2	349
Chinese arriving at ages 6–13	68.4	15.0	14.0	2.6	307	59.2	15.1	20.4	5.3	338
Chinese arriving at ages 0–5	48.9	9.0	33.1	9.0	133	46.1	8.9	39.4	5.6	180
U.S.-born Chinese	41.5	16.9	34.8	6.9	509	28.6	11.8	51.4	8.3	630
Filipino arriving at ages 14–19	75.7	3.3	14.5	6.5	276	51.7	4.8	30.5	13.0	462
Filipino arriving at ages 6–13	57.2	5.9	26.1	10.8	306	42.7	7.1	33.0	17.2	424
Filipino arriving at ages 0–5	37.0	6.3	42.2	14.6	268	23.2	4.1	56.4	16.4	367
U.S.-born Filipino	29.0	8.7	48.7	13.6	801	20.8	8.0	53.6	17.6	1,008
Mexican arriving at ages 14–19	90.2	4.2	5.0	0.6	12,535	94.5	3.3	1.8	0.4	9,780
Mexican arriving at ages 6–13	88.2	4.6	6.1	1.1	4,312	90.1	4.2	4.5	1.3	4,067
Mexican arriving at ages 0–5	81.1	5.4	12.0	1.5	2,232	82.4	5.2	10.0	2.4	2,519
U.S.-born Mexican	64.4	3.6	29.2	2.8	19,178	67.1	3.6	25.4	3.9	21,269
Puerto Rican arriving at ages 14–19	62.7	17.2	17.9	2.2	536	64.5	17.8	13.8	4.0	501
Puerto Rican arriving at ages 6–13	61.4	15.2	21.3	2.2	414	56.0	22.7	16.2	5.1	432
Puerto Rican arriving at ages 0–5	58.8	14.2	23.4	3.7	410	54.7	15.7	22.2	7.4	433
U.S.-born Puerto Rican	46.0	14.2	33.2	6.6	3,689	46.1	14.4	26.5	13.1	3,749
Mixed-Race Asian-White Individuals or Hispanic Whites										
Yes	65.5	4.3	28.8	1.3	19,471	60.7	3.9	32.3	3.2	22,050
No	76.6	6.4	13.3	3.6	26,717	79.3	6.6	6.8	7.3	24,577
Relationship Type										
Married	74.2	5.2	18.3	2.4	37,985	73.5	5.0	18.1	3.5	38,346
Cohabiting	61.8	7.1	27.1	4.1	8,203	62.1	7.2	22.7	8.1	8,162
Educational Attainment										
High school or less	79.6	4.8	13.8	1.8	31,272	82.5	4.5	9.9	3.0	28,068
Some college or more	55.9	7.0	32.5	4.5	14,916	54.7	6.6	32.6	6.2	18,440

highest for Mexican men and women (90.2% and 94.5%, respectively), followed by their Chinese counterparts (86.2% and 76.2%, respectively). Younger age at arrival is associated with lower levels of ethnic endogamy for all four ethnic groups, but age-at-arrival differences are far greater for Chinese and Filipinos than for the two Hispanic groups. For example, the percentage of ethnic endogamy is 75.7% for Filipino men arriving at ages 14 to 19 but only 37% for those arriving at ages 0–5. The corresponding figures for Mexican men are 90.2% and 81.1%, respectively. Unsurprisingly, the U.S.-born have the lowest ethnic endogamy: 20.8% for Filipino women, 28.6% for Chinese women, 46.1% for Puerto Rican women, and 67.1% for Mexican women. Gender differences in endogamy are strong among Chinese and Filipinos, but are nonexistent among Mexicans and Puerto Ricans. Clearly, U.S.-born Chinese and Filipino women are more likely than their male counterparts to be in interracial relationships with whites (51.4% versus 34.8% for Chinese women and men, respectively; and 53.6% versus 48.7% for Filipino women and men, respectively).

Notably, regardless of age at arrival, Filipinos have a much greater percentage of unions with other racial minorities (i.e., non-Hispanic blacks, American Indians, or Hispanics) than do the other ethnic groups. In contrast, Puerto Ricans have the highest percentage of unions with other Hispanics: 14.2%–17.2% for men and 14.4%–22.7% for women. Puerto Ricans, many being mulatto, also have a greater share of unions with other racial minorities (mostly blacks) than do Mexicans.

Consistent with prior research (Blackwell and Lichter 2000), cohabitation is more common than marriage among intergroup relationships. About three-quarters of marriages, but only a little more than three-fifths of cohabitations, are ethnically endogamous. Also consistent with prior research, endogamy is stronger among those with less education. More than three-tenths of men and women with at least some college have white spouses/partners, much higher than those with high school education or less. Chinese, Filipinos, Mexicans, and Puerto Ricans who also classify white have a much greater percentage of unions with whites and a lower percentage of unions with other racial minorities compared with their single-race Chinese and Filipinos or nonwhite Mexicans and Puerto Ricans.

The descriptive results demonstrate strong ethnic differences in intergroup relationships. We now turn to log-linear models to identify assortative mating patterns by men's and women's race/ethnicity/age at arrival and educational attainment. Table 3 presents the likelihood-ratio chi-square statistics of the select models for each ethnic group. The model series are based on marriage counts cross-classified by husbands' and wives' race/ethnicity/age at arrival and educational attainment. Models A1, B1, C1, and D1 are described in Eq. (1) and assume that assortative mating between husbands and wives is completely random with respect to race/ethnicity/age at arrival and educational attainment. Large log-likelihood ratio and Bayesian information criterion (BIC) statistics indicate that the predicted counts based on these models do not match well the observed counts.[2] We then evaluate the associations of such characteristics between men and women net of the marginal distributions of these characteristics for

[2] The smaller the L^2 and BIC, the better the model fit. The BIC statistic adjusts the L^2 for sample size. $BIC = L^2 - (df) \log(N)$.

Table 3 Likelihood-ratio chi-square statistics for selected models of assortative mating, 2000 PUMS

Models	L^2 (1)	*df* (2)	BIC (3)
Modeling Marriages by Race/Ethnicity/Age at Arrival, Chinese			
A1. Men's race/ethnicity/age at arrival + women's race/ethnicity/age at arrival	322,126	169	319,955
A2. A1 + quasi-independence parameters + education pairing	5,520	161	3,451
A3. A1 + quasi-symmetry parameters + education pairing	2,607	147	718
A4. A1 + quasi-symmetry parameters × education pairing	1,313	126	–306
Modeling Marriages by Race/Ethnicity/Age at Arrival, Filipinos			
B1. Men's race/ethnicity/age at arrival + women's race/ethnicity/age at arrival	322,667	169	320,496
B2. B1 + quasi-independence parameters + education pairing	4,343	161	2,275
B3. B1 + quasi-symmetry parameters + education pairing	2,543	147	654
B4. B1 + quasi-symmetry parameters × education pairing	1,315	126	–304
Modeling Marriages by Race/Ethnicity/Age at Arrival, Mexicans			
C1. Men's race/ethnicity/age at arrival + women's race/ethnicity/age at arrival	399,200	169	397,028
C2. C1 + quasi-independence parameters + education pairing	24,111	161	22,043
C3. C1 + quasi-symmetry parameters + education pairing	2,607	147	718
C4. C1 + quasi-symmetry parameters × education pairing	1,422	126	–197
Modeling Marriages by Race/Ethnicity/Age at Arrival, Puerto Ricans			
D1. Men's race/ethnicity/age at arrival + women's race/ethnicity/age at arrival	374,053	169	371,882
D2. D1 + quasi-independence parameters + education pairing	7,805	161	5,736
D3. D1 + quasi-symmetry parameters + education pairing	4,183	147	2,294
D4. D1 + quasi-symmetry parameters × education pairing	1,821	126	203

men and women. We include quasi-independence models to take into account strong endogamy by race/ethnicity/age at arrival.

$$\log F_{ijmn} = \beta_0 + \beta_i^{HR} + \beta_j^{WR} + \beta_m^{HE} + \beta_n^{WE} + \beta_{im}^{HRE} + \beta_{jn}^{WRE} + p\delta_{ij}^{D} + r\gamma_{mn}^{E}, \qquad (2)$$

where δ_{ij}^{D} is a set of variable diagonal parameters, $p = 1$ if $i = j$ ($p = 0$ otherwise). δ_{ij}^{D} includes a set of endogamy parameters for race/ethnicity/age at arrival. γ_{mn}^{E} is a dummy variable for education pairing ($r = 1$ if both the husband and the wife has at least some college, $r = 0$ otherwise). As shown in Models A2, B2, C2, and D2, the likelihood ratio (L^2) and BIC statistics have improved significantly. For example, L^2 declines from 322,126 in Model A1 to 5,520 in Model A2. The declines suggest that the endogamy parameters explain a large portion of the data variation and, indeed, demonstrate very strong endogamy by race/ethnicity/age at arrival. Yet, the quasi-independence model assumption that the association off the main diagonals—that is, all types of intermarriages—is completely random does not resonate well with our hypotheses. Given that quasi-independence is a special case of quasi-symmetry (Agresti 2002), we present a more generalized model—quasi-symmetry models—which allows for intermarriage patterns (off-diagonals) to vary.

$$\log F_{ijmn} = \beta_0 + \beta_i^{HR} + \beta_j^{WR} + \beta_m^{HE} + \beta_n^{WE} + \beta_{im}^{HRE} + \beta_{jn}^{WRE} + q\lambda_{ij}^{S} + r\gamma_{mn}^{E}, \qquad (3)$$

where λ_{ij}^{S} is a set of quasi-symmetry parameters by race/ethnicity/age at arrival for all cells off the diagonal, and $q = 1$ if $\lambda_{ij}^{S} = \lambda_{ji}^{S}$ for all $i > j$ ($q = 0$ otherwise). Table 4 illustrates Model 3, including the parameters for quasi-symmetry effects on racial/ethnic/age at arrival assortative mating. This model assumes that the estimated number of marriages between any two racial/ethnic/age-at-arrival categories does not differ by gender.[3] The model fit as shown in Models A3, B3, C3, and D3 has improved significantly compared with the previous models, supporting our hypotheses that intermarriage patterns are not random and vary by race/ethnicity/age at arrival and education. Models A4, B4, C4, and D4 further include the interactions between quasi-symmetry parameters and educational pairings. The BIC statistic declines to –306 in Model A4, –304 in Model B4, –197 in Model C4, and 203 in Model D4. The declines indicate that Models A4, B4, and C4 have a better fit compared with the saturated model in which BIC is 0. Much of the associations in the cross-classified table can be explained by race/ethnicity/age-at-arrival quasi-symmetry parameters and education-pairing parameters.

We use the parameter estimates of Models 3s and 4s to describe intermarriage patterns. Quasi-symmetry parameter estimates can be transformed to endogamy odds ratios. As in Table 4, the odds of Chinese men arriving at ages 14–19 marrying Chinese women arriving at ages 14–19 relative to marrying Chinese women arriving at ages 6–13 are A/B; the odds of Chinese men arriving at ages 6–13 marrying Chinese women arriving at ages 14–19 relative to marrying Chinese women arriving at ages at 6–13 are C/D. The odds ratio of marriages among Chinese arriving at ages 14–19 and among Chinese arriving at ages 6–13 versus marriages between Chinese arriving at ages 14–19 and 6–13 is then equal to

$$\text{Odds Ratio} = \frac{A/B}{C/D} = \frac{AD}{BC} = \frac{\exp(0)}{\exp(\lambda 21)} = \frac{1}{\exp(\lambda 21)}. \tag{4}$$

Thus, estimated endogamy odds ratios are the inverse of the corresponding exponentiated quasi-symmetry parameter estimates.[4] Clearly, endogamy odds ratios and intermarriage between two groups are inversely related. A lower endogamy odds ratio indicates a greater likelihood of intermarriage between i and j.

Table 5 presents the estimated endogamy odds ratios based on Models A3, B3, C3, and D3. The odds ratio of endogamous marriages among Chinese arriving at ages 14–19 and among white versus marriages between the two groups is 287.3, the highest among all the four ethnic groups. The odds ratio among Puerto Ricans arriving at ages 14–19 and whites is the lowest (83.9). Endogamy odds ratios decline significantly with younger age at arrival. The endogamy ratio among Filipinos arriving at ages 0–5 and whites (20.5) is about one-half of those between whites and each of the three ethnic counterparts. Overall, the U.S.-born and whites have the lowest endogamy ratio for all four ethnic groups. Age-at-arrival differences in endogamy among Puerto Ricans and whites are the smallest. This is not a surprise because Puerto Ricans' citizen status does

[3] As shown in Table 2, gender differences are evident for Chinese and Filipinos but are beyond the scope of this article.

[4] BC in the denominator of Eq. (4) is constrained to be $exp(\lambda 21)$ in quasi-symmetry models.

Table 4 Parameters for quasi-symmetry effects on assortative mating by race/ethnicity/age at arrival for modeling marriages involving Chinese[a]

	Women's Race/Ethnicity/Age at Arrival						
Men's Race/ Ethnicity/Age at Arrival	Chinese Arriving at Ages 14–19	Chinese Arriving at Ages 6–13	Chinese Arriving at Ages 0–5	U.S.-Born Chinese	Non-Chinese Asians	Whites	Non-Asian Racial/Ethnic Minorities
Chinese Arriving at Ages 14–19	0 (A)	λ21(*ji*) (B)	λ31(*ji*)	λ41(*ji*)	λ51(*ji*)	λ61(*ji*)	λ71(*ji*)
Chinese Arriving at Ages 6–13	λ21(*ij*) (C)	0 (D)	λ32(*ji*)	λ42(*ji*)	λ52(*ji*)	λ62(*ji*)	λ72(*ji*)
Chinese Arriving at Ages 0–5	λ31(*ij*)	λ32(*ij*)	0	λ43(*ji*)	λ53(*ji*)	λ63(*ji*)	λ73(*ji*)
U.S.-Born Chinese	λ41(*ij*)	λ42(*ij*)	λ43(*ij*)	0	λ54(*ji*)	λ64(*ji*)	λ74(*ji*)
Non-Chinese Asians	λ51(*ij*)	λ52(*ij*)	λ53(*ij*)	λ54(*ij*)	0	λ65(*ji*)	λ75(*ji*)
Whites	λ61(*ij*)	λ62(*ij*)	λ63(*ij*)	λ64(*ij*)	λ65(*ij*)	0	λ76(*ji*)
Non-Asian Racial/ Ethnic Minorities	λ71(*ij*)	λ72(*ij*)	λ73(*ij*)	λ74(*ij*)	λ75(*ij*)	λ76(*ij*)	0

[a]We apply the same strategy to model quasi-symmetry parameters for marriages or cohabitations involving Filipinos, Mexicans, and Puerto Ricans.

not make the mainland- and island-born distinctions as meaningful as nativity boundary distinctions observed for the other three ethnic groups.

Endogamy odds ratios for interethnic marriage (with other ethnics of the panethnic group) are lower than those for intermarriage with whites. The findings differ from the descriptive results shown in Table 2 because group sizes (marginal distributions of men and women) are taken into account in log-linear models. This means that interethnic marriage occurs at a higher rate than what is indicated by contact opportunities given their smaller group sizes. As expected, for all the ethnic groups, interethnic marriage is most likely among the U.S.-born. In contrast, the endogamy odds ratios within the panethnic group are the highest for Chinese and Filipinos arriving at ages 14–19, suggesting lack of contact opportunities to interact with other Asians among those arriving as adolescents. In addition, Filipinos and Puerto Ricans exhibit a much lower likelihood of endogamy with other racial minorities than do Chinese and Mexicans. Among Filipino immigrants arriving at ages 14–19 and 6–13, endogamy ratios with other racial minorities are particularly high, close to those with whites. A relatively high percentage of mixed-race individuals, history of Spanish colonization, and strong Catholicism among Filipinos may have contributed to more marriages with blacks and Hispanics (Espiritu 1996). Puerto Ricans also have relatively low endogamy ratios with other racial minorities—a finding that we will return to in a later analysis. Finally, immigrants tend to marry among themselves regardless of age at arrival, but age at arrival is strongly associated with marriage with their U.S.-born coethnics: the younger the age at arrival, the lower endogamy ratios (i.e., the more likely they are to have U.S.-born spouses). Notably, endogamy ratios are particularly low between island- and mainland-born Puerto Ricans—a pattern again reflective of their citizen status, suggesting closer social distance between birthplaces compared with the other three ethnic groups.

Table 5 Odds ratios of endogamous versus exogamous marriages for married couples, one of whom is Chinese, Filipino, Mexican, or Puerto Rican, 2000 PUMS

Race/Ethnicity/Age-at-Arrival Pairing	Chinese (1)	Filipino (2)	Mexican (3)	Puerto Rican (4)
Immigrants arriving at ages 14–19/Whites	287.3	92.1	113.0	83.9
Immigrants arriving at ages 6–13/Whites	121.6	59.3	82.7	63.7
Immigrants arriving at ages 0–5/Whites	44.4	20.5	40.1	40.8
U.S.-born/Whites	27.8	15.6	11.2	20.1
Immigrants arriving at ages 14–19/Other panethnics	30.7	50.2	17.7	23.6
Immigrants arriving at ages 6–13/Other panethnics	13.2	26.4	15.9	18.9
Immigrants arriving at ages 0–5/Other panethnics	20.1	19.9	12.8	19.6
U.S.-born/Panethnics	9.3	10.9	13.2	13.6
Immigrants arriving at ages 14–19/Other racial minorities	440.6	101.1	272.0	151.6
Immigrants arriving at ages 6–13/Other racial minorities	286.9	50.9	117.4	92.6
Immigrants arriving at ages 0–5/Other racial minorities	83.2	28.1	80.2	55.9
U.S.-born/Other racial minorities	68.3	23.2	33.0	21.4
Immigrants arriving at ages 14–19/U.S.-born	9.3	6.9	5.3	2.9
Immigrants arriving at ages 6–13/U.S.-born	3.0	4.0	3.6	2.8
Immigrants arriving at ages 0–5/U.S.-born	1.5	2.0	2.0	1.7
Immigrants arriving at ages 6–13/Immigrants arriving at ages 0–5	2.6	2.2	1.7	1.6
Immigrants arriving at ages 14–19/Immigrants arriving at ages 6–13	1.9	1.9	1.7	1.7
Immigrants arriving at ages 14–19/Immigrants arriving at ages 0–5	3.0	5.3	2.7	2.0

Notes: All odds ratios are significantly different from 1 at $p < .01$; the exceptions are those that are underlined, which significantly differ from 1 at $p < .05$.

Table 6 presents differences in endogamy odds ratio by educational pairing. Overall, couples in which both partners have at least some college have lower endogamy ratios than those in which at least one partner has no college education. Clearly, college education weakens racial/ethnic attachment and increases contact opportunities with non-Hispanic whites. Educational variations in endogamy are strong among whites and Chinese, regardless of Chinese nativity and age at arrival. For interethnic marriage, educational differences in endogamy among Chinese and non-Chinese Asians are the strongest, which may be largely due to high levels of endogamy among less-educated Chinese because they are far more likely to live in segregated neighborhoods and work in segregated jobs than are their highly educated counterparts (Zhou 2009). In contrast, endogamy ratios among Mexicans and non-Mexican Hispanics and between Puerto Ricans and non-Puerto Rican Hispanics do not differ strongly by educational pairing. In this case, endogamy ratios with other Hispanics for less-educated Mexicans and Puerto Ricans are far lower than those with other Asians for less-educated Chinese and Filipinos. As we expected, shared language and religion among Hispanics may facilitate marriages with other Hispanics regardless of education. Overall, highly educated U.S.-born individuals are

Table 6 Odds ratios of endogamous versus exogamous marriages by educational combination for married couples, one of whom is Chinese, Filipino, Mexican, or Puerto Rican, 2000 PUMS

Race/Ethnicity/Age-at-Arrival Pairing	Chinese			Filipino			Mexican			Puerto Rican		
	Both HS or Less or HS or Less/At Least Some College	Both at Least Some College		Both HS or Less or HS or Less/At Least Some College	Both at Least Some College		Both HS or Less or HS or Less/At Least Some College	Both at Least Some College		Both HS or Less or HS or Less/At Least Some College	Both at Least Some College	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Immigrants arriving at ages 14–19/Whites	3,247.6	160.6	**	104.9	84.2		119.3	92.5	*	121.2	57.0	**
Immigrants arriving at ages 6–13/Whites	426.1	81.1	**	85.9	47.3	**	105.2	47.2	**	86.7	44.1	**
Immigrants arriving at ages 0–5/Whites	129.1	31.3	**	28.2	18.3	**	48.9	30.2	**	54.1	30.0	**
U.S.-born/Whites	75.9	21.5	**	21.5	13.3	**	13.2	9.1	**	21.0	19.0	†
Immigrants arriving at ages 14–19/Other panethnics	55.8	23.2	*	84.6	39.5		17.4	30.5	**	25.7	18.1	†
Immigrants arriving at ages 6–13/Other panethnics	32.0	9.7	**	31.8	23.5		16.5	13.7		20.9	13.8	†
Immigrants arriving at ages 0–5/Other panethnics	146.0	13.4	*	81.7	15.2	*	12.9	12.9		22.1	14.1	†
U.S.-born/Panethnics	16.7	7.9	**	10.0	11.6		14.8	10.5	**	16.5	8.9	**
Immigrants arriving at ages 14–19/Other racial minorities	760.0	277.0	†	107.4	95.6		293.8	194.9		149.1	157.1	
Immigrants arriving at ages 6–13/Other racial minorities	2,475.6	140.2	**	65.4	39.6	*	201.1	45.4	**	131.7	59.6	†
Immigrants arriving at ages 0–5/Other racial minorities	140.7	62.2		38.2	23.4	*	102.9	55.4	**	62.2	48.1	

Table 6 (continued)

Race/Ethnicity/Age-at-Arrival Pairing	Chinese			Filipino			Mexican			Puerto Rican		
	Both HS or Less or HS or Less/At Least Some College	Both at Least Some College		Both HS or Less or HS or Less/At Least Some College	Both at Least Some College		Both HS or Less or HS or Less/At Least Some College	Both at Least Some College		Both HS or Less or HS or Less/At Least Some College	Both at Least Some College	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
U.S.-born/Other racial minorities	104.8	55.5	†	29.0	19.5	**	36.4	28.3	**	23.2	19.2	*
Immigrants arriving at ages 14–19/U.S.-born	38.3	6.9	*	14.9	5.3	*	5.3	7.1	**	2.6	3.9	*
Immigrants arriving at ages 6–13/U.S.-born	5.7	2.5	*	5.5	3.4		3.7	3.1	*	2.4	4.3	**
Immigrants arriving at ages 0–5/U.S.-born	—	0.9		2.8	0.6		2.1	0.5		1.5	0.4	*
Immigrants arriving at ages 14–19/ Immigrants arriving at ages 6–13	1.9	1.8		1.9	1.9		1.7	2.5	**	1.5	2.2	
Immigrants arriving at ages 14–19/ Immigrants arriving at ages 0–5	4.1	2.6		4.9	5.6		2.6	5.2	**	1.6	5.0	**
Immigrants arriving at ages 6–13/ Immigrants arriving at ages 0–5	3.8	2.2		2.0	2.2		1.7	1.9		*1.3*	4.1	*

Notes: Odds ratios for columns 1, 4, 7, and 10 are significantly different from 1 at $p < .01$. The exceptions are the one that is underlined, which is significantly different from 1 at $p < .05$; and the italicized one, which is statistically insignificant at $p < .10$. Columns 3, 6, 9, and 12 present test results between the two education categories, with significance levels indicated as follows:

†$p < .10$; *$p < .05$; **$p < .01$

most likely to form interethnic marriage, building panethnic consciousness in college and having opportunities for interethnic contact on campuses (Espiritu 1992).

Endogamy ratios with other racial minorities are lower for college-educated U.S.-born Filipinos and mainland-born Puerto Ricans (19.5 and 19.2, respectively) than for their Chinese and Mexican counterparts (55.5 and 28.3, respectively). For U.S.-born Filipinos and mainland-born Puerto Ricans, the endogamy ratios with other racial minorities (19.5 and 19.2, respectively) are similar to those with whites (13.3 and 19.0, respectively). Clearly, they have exhibited alternative paths of marital assimilation when compared with Chinese and Mexicans.

Endogamy ratios among Chinese and Filipino immigrants arriving at ages 14–19 and their U.S.-born coethnics are much greater for the less-educated than for the highly educated. It appears that nativity boundaries among Chinese and Filipinos are strong, but college education breaks down these boundaries. In contrast, less-educated Puerto Ricans and Mexicans exhibit lower or similar endogamy ratios among coethnic marriages of different nativity and age-at-arrival categories compared with their highly educated counterparts. Overall, nativity or age-at-arrival boundaries for Mexicans and Puerto Ricans are more porous than for Chinese and Filipinos, but highly educated island-born Puerto Ricans and immigrant Mexicans are less likely than their less-educated counterparts to marry coethnics because college education promotes opportunities for other forms of intermarriage.

We then replicate the analyses for cohabiting couples to compare intergroup relationships between married and cohabiting couples. Table 7 presents results based on Models A3, B3, C3, and D3, and shows estimated endogamy ratios among cohabiting couples. Compared with endogamy ratios among married couples in Table 5, two findings emerge. First, cohabitation endogamy ratios with whites, other panethnics, and other racial minorities are generally lower than their corresponding marriage endogamy ratios, supporting the argument that cohabitors are more likely to form such unions than are married couples. For example, the cohabitation endogamy ratio among Filipinos arriving at ages 6–13 and whites is 20.6, while the corresponding marriage endogamy ratio is 59. Indeed, many minority-white couples cohabit rather than marry to minimize potential complications of involving two sets of families, relatives, and social networks (Kalmijn 1998). Cohabitation is less stable than marriage, so these relationships tend to be short-lived, and only few are likely to be transitioned to marital unions.

Second, cohabitation endogamy ratios among each ethnic group of different nativity and age-at-arrival categories are higher than their corresponding marriage endogamy ratios. Along with the previous finding, the results demonstrate that Chinese, Filipinos, and Mexicans are more likely to form cohabiting rather than marital unions in interethnic or interracial relationships, but are less likely in coethnic relationships. Indeed, shared traditional and cultural backgrounds and family support make marriage among coethnics more likely. This pattern is not true for Puerto Ricans, which supports our hypothesis that Puerto Ricans are most likely to form cohabiting unions irrespective of relationship type.

Finally, we examine how mixed-race individuals influence intermarriage patterns. In Table 5, we classify mixed-race Chinese-white or Filipino-white individuals as Chinese or Filipinos, respectively; and white Mexicans or white Puerto Ricans as Mexican or Puerto Rican, respectively. In Table 8, we classify them as white. If the

Table 7 Odds ratios of endogamous versus exogamous cohabitations for cohabiting couples, one of whom is Chinese, Filipino, Mexican, or Puerto Rican, 2000 PUMS

Race/Ethnicity/Age-at-Arrival Pairing	Chinese (1)	Filipino (2)	Mexican (3)	Puerto Rican (4)
Immigrants arriving at ages 14–19/Whites	238.4	69.5	90.3	51.7
Immigrants arriving at ages 6–13/Whites	45.5	20.6	57.3	40.3
Immigrants arriving at ages 0–5/Whites	28.8	18.5	26.0	29.9
U.S.-born/Whites	15.4	12.5	8.4	15.4
Immigrants arriving at ages 14–19/Other panethnics	49.3	42.4	15.2	18.9
Immigrants arriving at ages 6–13/Other panethnics	6.8	9.7	12.5	17.3
Immigrants arriving at ages 0–5/Other panethnics	9.7	27.3	9.9	17.0
U.S.-born/Other panethnics	4.6	6.1	10.7	10.4
Immigrants arriving at ages 14–19/Other racial minorities	438.6	85.4	186.2	93.5
Immigrants arriving at ages 6–13/Other racial minorities	68.3	31.1	94.4	119.6
Immigrants arriving at ages 0–5/Other racial minorities	168.7	34.1	39.4	46.3
U.S-born/Other racial minorities	45.9	18.9	20.2	15.6
Immigrants arriving at ages 14–19/U.S.-born	10.0	10.3	8.2	3.2
Immigrants arriving at ages 6–13/U.S.-born	3.4	2.3	5.0	2.3
Immigrants arriving at ages 0–5/U.S.-born	*2.1*	4.5	2.4	1.8
Immigrants arriving at ages 14–19/Immigrants arriving at ages 6–13	2.4	2.1	1.6	3.2
Immigrants arriving at ages 14–19/Immigrants arriving at ages 0–5	*2.4*	22.7	2.9	2.1
Immigrants arriving at ages 6–13/Immigrants arriving at ages 0–5	3.2	4.3	1.5	2.0

Notes: All odds ratios are significantly different from 1 at $p < .01$; the exceptions are those that are underlined, which are significant at $p < .05$, and those that are underlined and italicized, which are significant at $p < .10$.

share of mixed-race individuals is significant and most of them marry whites, endogamy ratios with whites should be greater in Table 8 than in Table 5. Indeed, higher endogamy ratios shown in Table 8 than in Table 5 indicate that mixed-race individuals, especially the U.S.-born and those arriving at ages 0–5, tend to have white spouses. The differences between the two tables are remarkable for Chinese and Filipinos because only about 7% of Chinese and 15% of Filipinos are mixed-race individuals (see Table 1). Clearly, mixed-race Chinese-white and Filipino-white individuals overwhelmingly marry whites. The difference in endogamy ratio with non-Hispanic whites between Tables 5 and 8 is stronger for Puerto Ricans ((49.8 – 20.1) × 100/20.1 = 148%) than for Mexicans ((21.9 – 11.2) × 100/11.2 = 96%). The different composition of their nonwhite populations may be the explanation. Mexican nonwhites are Amerindian or mestizo—that is, mixed white and Amerindian ancestry. Puerto Rican nonwhites are mostly black or mulatto—that is, mixed white and black heritage. Including Puerto Rican whites in the white category sharply reduces the level of marriages between Puerto Ricans and whites (higher endogamy ratios) and greatly increases the prevalence of marriages

Table 8 Odds ratios of endogamous versus exogamous marriages for married couples, one of whom is Chinese, Filipino, Mexican, or Puerto Rican (mixed-race Asian-white individuals and Hispanic whites are classified as white), 2000 PUMS

Race/Ethnicity/Age-at-Arrival Pairing	Chinese (1)	Filipino (2)	Mexican (3)	Puerto Rican (4)
Immigrants arriving at ages 14–19/Whites	289.2	95.6	169.8	145.3
Immigrants arriving at ages 6–13/Whites	121.7	63.9	149.2	135.1
Immigrants arriving at ages 0–5/Whites	48.0	24.3	85.1	98.6
U.S.-born/Whites	39.1	22.3	21.9	49.8
Immigrants arriving at ages 14–19/Other panethnics	30.7	50.2	21.2	31.3
Immigrants arriving at ages 6–13/Other panethnics	13.2	29.5	17.6	21.3
Immigrants arriving at ages 0–5/Other panethnics	20.4	21.0	14.6	25.9
U.S.-born/Other panethnics	11.4	13.8	14.7	17.6
Immigrants arriving at ages 14–19/Other racial minorities	478.8	112.5	248.0	132.3
Immigrants arriving at ages 6–13/Other racial minorities	364.4	61.0	105.1	67.0
Immigrants arriving at ages 0–5/Other racial minorities	110.8	35.4	69.9	46.4
U.S.-born/Other racial minorities	118.6	33.3	29.5	19.2
Immigrants arriving at ages 14–19/U.S.-born	8.6	6.3	5.0	2.9
Immigrants arriving at ages 6–13/U.S.-born	3.1	3.8	3.4	2.4
Immigrants arriving at ages 0–5/U.S.-born	*1.5*	2.2	1.9	1.5
Immigrants arriving at ages 14–19/Immigrants arriving at ages 6–13	1.9	2.0	1.6	1.7
Immigrants arriving at ages 14–19/Immigrants arriving at ages 0–5	2.8	5.2	2.5	1.9
Immigrants arriving at ages 6–13/Immigrants arriving at ages 0–5	2.5	2.3	1.6	<u>1.7</u>

Notes: All odds ratios are significantly different from 1 at $p < .01$. The exceptions are the one that is underlined, which is significantly different from 1 at $p < .05$; and the one that is italicized, which is statistically insignificant from 1 at $p < .10$.

between Puerto Ricans and other racial minorities (lower endogamy ratios). This suggests that most Puerto Ricans do not cross the racial line when they marry non–Puerto Ricans.

Discussion and Conclusion

The increase in the foreign-born population in recent decades has generated considerable public discourse about the cultural and economic incorporation of recent immigrants and their children into American society (Smith and Edmonston 1997). The classical assimilation perspective, useful in accounting for integration patterns among European immigrants at the turn of the twentieth century, may not explain the experiences of today's immigrants given ethnic diversity, skin tone, and socioeconomic status. This classic model predicts increased intermarriage of minority groups with the majority group, over time and across generations. Adaptations to this model, a "segmented"

pattern of assimilation, suggest that we may observe intermarriage not only with majority whites but also with other racial/ethnic groups. Previous studies have not paid much attention to these alternative paths, and few have explored ethnic diversity within a panethnic context. This leads to questions about the relevance of these panethnic categories for immigrants and about whether relying on these categories neglects meaningful ethnic diversity within them.

We move beyond the analyses of intermarriage patterns at the panethnic level by exploring variation in partnering among married and cohabiting Chinese, Filipino, Mexican, and Puerto Rican Americans. Our results have demonstrated similarities and differences in integration patterns among these ethnic groups. First, we find support for our expectation that immigrants are most likely to form marital and cohabiting unions with their native-born counterparts (intergenerational) than outside the group. Indeed, immigration provides more marriageable partners, especially those arriving at younger ages, for their U.S.-born coethnics. Of course, immigrants' educational attainment matters. Intergenerational marriage among Chinese and Filipinos is least likely among those with high school education or less. Immigrants may have strong incentives to marry natives as a route to faster naturalization, for example, but they—especially the less-educated arriving at older ages—are unlikely to do so. Here, nativity status emerges as another dimension of social stratification. Yet, Puerto Ricans are different because of citizen status: less-educated Puerto Ricans are more likely to form mainland- or island-born unions than are their college-educated counterparts.

Second, interethnic unions are not as frequent as other types of unions, but when group size is taken into account, such unions are much more likely than expected by chance. If we consider intermarriage as an indicator of social distance, it is important to highlight the salience of categories such as "Asian" or "Hispanic" in individuals' daily lives. Evidence is particularly strong for the U.S.-born college-educated. Indeed, common experiences of being identified as the same and panethnic consciousness developed on college campuses, along with similar experiences of discrimination and prejudice, help create a sense of panethnic identity and facilitate interethnic unions (Espiritu 1992; Qian et al. 2001; Rodriguez 2000; Rosenfeld 2001).

Third, consistent with prior research and our expectations, interracial marriage with other racial minorities is rare for Chinese and Mexicans. Filipino- and Puerto Rican–origin individuals are most likely to be in these unions reflecting a historical pattern of union formation in the point of origin as well as the U.S. mainland. Western colonization, Catholicism, and U.S. military presence in the Philippines may have contributed to their diverse patterns of union formation (Espiritu 2003; Leonard 1993). A significant share of the black and mulatto populations among Puerto Ricans may have led to a relatively high rate of unions with African Americans (Landale and Fennelly 1992; Landale and Oropesa 2002).

Finally, despite ethnic variations, our results clearly show that marriage rates with whites remain strong. The mixed-race population among Asian Americans and Hispanics has made an important contribution (Labov and Jacobs 1998). The classic assimilation model continues to receive support when we examine differences in marriage with whites by nativity status and age at arrival. The U.S.-born and immigrants who arrived at young ages have higher levels of intermarriage with

whites than immigrants arriving during school ages or later. For the latter group, shorter length of stay in the United States and potential language difficulties may lead to different friendship networks and reduce the likelihood of marriage with whites. Educational attainment also is a strong predictor but does not influence intermarriage patterns in a similar fashion among the four ethnic groups. Because of citizen status, educational attainment for Puerto Ricans plays a weak role. In contrast, the education effect is very strong for Chinese and Mexicans. Less-educated Chinese and Mexican Americans tend to be segregated residentially, while their highly educated counterparts may have more opportunities to form unions with whites (Alba and Nee 2003; Qian and Cobas 2004).

In summary, patterns of interracial and interethnic unions support many of our initial expectations. As expected, unions with whites remain a major path of integration for all ethnic groups, more so among those who have college education or were born in the United States. The effects of nativity status, age at arrival, and educational attainment on unions with whites are particularly strong for Chinese and Mexicans. However, we contend that the classic assimilation framework does need to be amended to account for other integration dynamics for racial and ethnic minorities. Not only are nativity status and age at arrival strongly associated with intermarriage with whites but they also predict interethnic marriages for all four ethnic groups. The alternative paths of integration suggest that the path put forward by the classic assimilation model is not the only path at work for these ethnic groups. Although small ethnic group sizes may limit opportunities for contact among Hispanics or Asians of different ethnic groups, the relatively strong likelihood of interethnic marriage indicates the salience of panethnic solidarity and identity. This is especially true for college-educated Asian Americans who have heightened opportunities to meet other Asians on college campuses, as well as for Hispanics in general, for whom common language and religion have narrowed social distance across Hispanic ethnic groups (Rosenfeld 2001). All in all, for the four ethnic groups, the paths of integration have indeed become more "segmented."

In addition, the likelihood of marriage with other racial minorities is relatively high for Filipinos and Puerto Ricans. Indeed, Filipinos are more "segmented" and take multiple routes of integration; not only are they likely to marry whites and other Asians but they also have the greatest probability of marrying other racial minorities. Puerto Ricans, mostly nonwhites, are shown to have a significant probability of union formation with African Americans. The alternative paths of integration for Filipinos and Puerto Ricans again support the arguments put forward by the segmented model of assimilation. Nevertheless, our evidence shows that classical and segmented models of assimilation complement rather than compete with one another. Notably, the alternative paths, such as unions with other Hispanics for Puerto Ricans or unions with other racial minorities for Filipinos and Puerto Ricans, often fall along racial lines. Thus, any evidence of a "segmented" pattern of marital assimilation is in the reification of the "color line."

Acknowledgments This research was supported by a grant (1 R01 HD43035-01) from the National Institute of Child Health and Human Development. We thank Dan Lichter, Grace Kao, and several anonymous reviewers for helpful comments.

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