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Homogamy and Intermarriage of Japanese and Japanese Americans With Whites Surrounding World War II

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Abstract

Although some sociologists have suggested that Japanese Americans quickly assimilated into mainstream America, scholars of Japanese America have highlighted the heightened exclusion that the group experienced. This study tracked historical shifts in the exclusion level of Japanese and Japanese Americans in the United States surrounding World War II with homogamy and intermarriage with Whites for the prewar (1930–1940) and resettlement (1946–1966) marriage cohorts. The authors applied log-linear models to census microsamples ($N = 1,590,416$) to estimate the odds ratios of homogamy versus intermarriage. The unadjusted odds ratios of Japanese Americans declined between cohorts and appeared to be consistent with the assimilation hypothesis. Once compositional influences and educational pairing patterns were adjusted, however, the odds ratios increased and supported the heightened exclusion hypothesis.

Keywords

Asian/Pacific Islander families; family diversity; interracial marriage; log-linear analysis; mate selection

Over the past few decades, some sociologists have argued that the significance of race declined for Blacks and other racial or ethnic minority groups (e.g., Sakamoto, Wu, & Tzeng, 2000; Wilson, 1978). Chinese and Japanese Americans were frequently noted as the racial groups that achieved the highest levels of economic assimilation and for whom race and ethnicity mattered the least (Chin, 2005; Nee & Sanders, 1985; Sakamoto et al., 2000).

As Payne (1989) noted, however, even when structural assimilation, including economic and educational incorporation, takes place, social exclusion in intimate relationships could persist (Tinker, 1982). Marriage markets contain valuable information on the social exclusionary barriers that encourage in-group marriage, perpetuate monoethnic identity (Rosenfeld, 2008), and suppress the well-being of individuals by restricting their access to distinct resources available to each racial and ethnic group (Binning, Unzueta, Huo, & Molina, 2009). Examining racial and ethnic barriers is essential to understanding U.S. marriage markets; even in the recent years, they have been reported as more rigid than religious and educational barriers (Rosenfeld, 2008). Rosenfeld (2008) suggested that, in the mid-1990s, researchers' persistent reliance on an assimilationist framework (e.g., Gordon, 1964) slowed the understanding of how racial barriers could persist or strengthen in the U.S. marriage market.

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Social barriers in the U.S. marriage market were commonly captured by the minority group's level of in-group versus out-group marriage with the majority group, net of the influence of structural characteristics such as spouses' educational status (e.g., Batson, Qian, & Lichter, 2006; Kalmijn, 1998; Qian & Lichter, 2007). Pairing patterns of Japanese Americans with Whites immediately after World War II, in particular, provides a useful opportunity to understand how racial and ethnic barriers may strengthen in marriage markets for the group even when assimilation is expected. Japanese Americans' assimilation has been assumed, without strong empirical evidence, because of the model minority stereotype (Sue & Kitano, 1973). Yet Japanese Americans experienced a clear-cut, legitimized, and complete exclusion in the mid-20th century, namely World War II internment. The direct exclusion of Japanese Americans was concentrated and recent in time, which also enabled empirical assessment with relative ease compared to the extended and diffuse exclusion of Black Americans (Howard-Hassmann, 2004).

We developed and tested an assimilation hypothesis and a heightened exclusion hypothesis with the U.S. marriage market. The assimilation hypothesis suggests a gradual historical decline in the level of in-group marriage (i.e., homogamy) and an increase in the level of intermarriage of Japanese Americans with Whites. Alternatively, the postwar marital pairing patterns of Japanese Americans with Whites may primarily reflect the severe exclusion that heightened in and persisted into the post-World War II period, thus altering any expectation of gradual assimilation (e.g., Austin, 2007; Kashima, 1980; see also the section Heightened Exclusion Hypothesis herein). Although cross-sectional studies of Japanese American-White pairing patterns exist (Fu, 2001; Hwang, Saenz, & Aguirre, 1994), none has examined the historical shifts in the patterns immediately before and after World War II by removing compositional influences with log-linear models.

Consistent with previous studies of recent intermarriages, log-linear models are applied to census data to obtain the odds ratios, namely the likelihood of in-group marriage divided by the likelihood of intermarriage (e.g., Qian, 1997). In empirical assessments, especially given the model-minority stereotype, attention must be paid to potential sources that could lead researchers to miss evidence of heightened exclusion. These sources could include (a) the well-documented salience of sociodemographic compositions that capture relative group sizes (e.g., Blau, Blum, & Schwartz, 1982) and the confounding of spousal educational pairing patterns (e.g., Fu, 2001; Harris & Ono, 2005; Qian, 1997), as well as (b) the influx of post-World War II intermarriages of White veterans (whose marriages were formed outside of the United States, where White women were not in the choice set) and Japanese war brides. We calculated odds ratios in the prewar cohort (1930-1940) and the postwar resettlement cohort (1946-1966), both unadjusted and adjusted for these sources of bias. We did not focus on first-generation Japanese to test the hypotheses; at least some were paired outside of the U.S. marriage market. We present their odds ratios, as well as the odds ratios of other non-Whites with Whites, as references. If the odds ratios were to decline between the two cohorts, then the results would provide powerful evidence in support of the assimilation hypothesis. If they were to increase between the cohorts, then they would indicate the strengthening of racial and ethnic barriers and the need to modify the assimilation framework by incorporating the presence of processes that reverse assimilation, at the minimum, for a few decades following legitimized exclusion.

Assimilation Hypothesis

Assimilation is a process of incorporation that ends in shared experiences with and shared culture of the dominant group. With more time, immigrants increasingly become incorporated into the host country through intermarriage (Sassler, 2005). Gordon (1964) theorized that the middle to final stage of the assimilation process is marital assimilation, in

which members of a minority group marry members of the dominant group. The marital assimilation stage follows structural assimilation, in which the race or ethnic group achieves similarity in access to socioeconomic resources such as jobs and education (Hirschman & Wong, 1981). The assimilation framework implies that, holding constant spouses' statuses, there should be a gradual decline in the tendency toward in-group marriage as opposed to intermarriage between Japanese Americans and Whites for the resettlement cohort than the prewar cohort.

Japanese Americans were reported as the exemplary case of a structurally assimilated group (Barringer, Takeuchi, & Xenos, 1990; Fujita & O'Brien, 1985). Fu (2001) stated that, for Japanese Americans, "racial boundaries do not matter in marriages with Whites" (p. 157). He implied that Japanese Americans were maritally assimilated in 1990, even though his results from the 1990 Census Public Use Microdata Samples (PUMS) and log-linear models indicated that Japanese Americans' homogamous tendencies were stronger than those of Mexican Americans. He also found a pattern of significant educational disadvantage among the Japanese American wives compared to their White husbands, results that also were interpreted as evidence of the absence of racial boundaries between the groups.

Heightened Exclusion Hypothesis

In contrast to the assimilation framework, the heightened exclusion hypothesis, derived from a group threat theory (see Quillian, 1995), emphasizes processes that maintain the existing racial order between the majority and minority groups. It posits that the majority group's preference for excluding the minority group builds when its privilege is threatened. The level of exclusion can then become heightened, possibly legitimized, even if it had declined in previous decades, as assimilation theory would suggest (e.g., Omi & Winant, 1994). During those periods, the current level of social exclusion can exceed the level in prior periods and persist for a while. Japanese and Japanese Americans in the United States may have experienced heightened exclusion during and soon after the internment. We describe below the contexts of exclusion prior to, during, and immediately after World War II.

Prewar cohort

Several laws were established prior to World War II that prevented persons of Asian descent, including the Japanese, from accessing resources. For example, enacted as early as 1913, alien land laws prevented foreign-born Asians from owning U.S. land in 12 states (Sohoni, 2007); those laws were still in effect in the 2000s in some states (Chin, 2008). Until the mid-20th century, the 1924 Asian Exclusion Act barred all Asians from gaining citizenship (U.S. Department of State, 2009). Although second-generation children were citizens and could own land, they were prohibited from marrying Whites (Sohoni, 2007).

Despite laws that restricted resource access of Asian immigrants and their children, Japanese immigrants were economically successful in farming, and in turn, White farmers who competed economically with the immigrants and felt threatened by them resented them (Modell, 1977). The Japanese success was primarily the product of the Japanese government's careful selection of immigrant laborers (Azuma, 2005). Their economic success made them viable marriage partners for some Whites. Although legal restrictions prevented intermarriage, those who were determined to intermarry found ways, such as marrying in the state of Washington (Spickard, 1988), where minority groups had successfully repealed the antiscegenation laws (Johnson, 2009).

War and internment

The threat and resentment that built up during the prewar period was legitimized and ended in nearly complete social exclusion of Japanese and Japanese Americans in internment

camps during World War II. Soon after the attack on Pearl Harbor, President Franklin D. Roosevelt issued Executive Order No. 9066. The primary parties lobbying for the internment of the Japanese were White farmers on the West Coast (Densho: Japanese American Legacy Project [hereafter Densho], 2009), indicating that exclusionary efforts accumulated in prior decades contributed to internment. The order gave the army authority to intern nearly 120,000, or 97%, of the persons of Japanese descent on the West Coast in concentration camps inland of the coastal area (Chin, 2005; Kitano, 1981). Many scholars regard the issuance of the order as the “date of infamy” with respect to the Constitution (e.g., Weglyn, 1976). Although this period was one of unquestionable exclusion for Japanese and Japanese Americans, it was not a historical period in which couples were likely to intermarry because of the near-complete physical separation.

Resettlement

Starting in 1944, small numbers of internees were released from camps, but because of fear, it took a while for many internees to actually leave the camps (Kashima, 1980). On leaving the internment camps, Japanese and Japanese Americans once again came into contact with Whites and became more likely to intermarry. If social exclusion legitimized during World War II internment had strengthened racial and ethnic barriers into the postwar era, then it would most likely be observed among those forming marriages during the postwar resettlement period.

Academic attention has focused on the internment of Japanese and Japanese Americans during World War II. Much less is known about the postwar resettlement of Japanese and Japanese Americans, in part because, until recently, Japanese Americans did not widely discuss their postwar experiences (Austin, 2007; Sue & Kitano, 1973). In recent years, reports of lingering hostility have been recorded, primarily through oral histories (e.g., Densho, 2009). Scholars of the resettlement period (e.g., Matsumoto, 1984) have found that the period posed a different set of challenges for Japanese and Japanese Americans in the United States than did internment. Many internees experienced severe postinternment mental distress. In contrast to the prewar experience of Japanese America, characterized by some level of economic success, extreme poverty, from the loss of practically all assets during internment, characterized postinternment Japanese America. Few evacuees received any compensation for their economic losses incurred by exclusion.

Heightened hostility against individuals of Japanese origin also characterized the postwar resettlement period (e.g., Simpson, 1998). Kashima (1980) quoted a Japanese American veteran: “When I came back from the service in 1945, people would spit at me and push me off the road” (p. 114). Similar accounts have been reported elsewhere (e.g., Densho, 2009; Matsumoto, 1984). Many Japanese Americans found that their former homes were sold or rented to war workers who had moved to the West Coast (Smith, 1949), that their homes and farms had been vandalized, or that their belongings had been stolen (Densho, 2009).

From the historically documented severe exclusionary experiences of Japanese and Japanese Americans, a heightened exclusion hypothesis, which posits that exclusion heightened during World War II strengthened the marriage market barrier in the resettlement period, is derived. The hypothesis predicts that, in the resettlement cohort, the tendency toward in-group marriage of Japanese Americans (and Japanese immigrants), as opposed to intermarriage with Whites, is greater than the comparable tendency in the prewar cohort.

Sources of Bias

Compositional variations and educational pairing

Previous studies have established the biases in the estimates of the level of social exclusion when not removing variations in sociodemographic compositions (e.g., Blau et al., 1982; Sassler, 2005) and educational pairing (e.g., Kalmijn, 1998; Qian, 1997). Specifically, even without any underlying changes in individuals' mate preference, more similar group sizes of the minority and majority racial groups alone increased intermarriage counts. In addition, not accounting for group sizes in geographic locations, a dimension omitted in previous studies examining the recent intermarriages of Japanese Americans with Whites (e.g., Fu, 2001), biased estimates (Harris & Ono, 2005). Prior to the war, the Japanese and Japanese American population concentrated on the West Coast and later migrated off of the West Coast in a government-sponsored resettlement effort (Austin, 2007; Densho, 2009; Kashima, 1980). Because the group size of Japanese Americans was very small relative to that of Whites (in each region), racial and regional compositions should explain much of the homogamous tendency of the Japanese American–White pairings. Also, compositional changes in race or region, such as the larger relative group size of Japanese Americans, could explain the between-cohort decline in the observed tendency toward homogamy. Veteran status, though typically not taken into account in studies of intermarriage, is useful to control here. Veterans' combat and overseas experiences during World War II were noted to make them less stable (Pavalko & Elder, 1990), but possibly more open, mates after the war, which most likely altered their pairing patterns. As noted earlier, educational composition, which varies by race, and educational homogamy, have been shown to explain some of the tendency toward racial homogamy of recent decades (e.g., Qian, 1997; Qian & Lichter, 2007). Therefore, in both cohorts, the influences of regional, racial, veteran status, and educational compositions, as well as spousal educational matching, were removed to obtain the adjusted estimates of the tendencies toward homogamy as opposed to intermarriage of Japanese Americans and Japanese with Whites.

Intermarriage of Japanese war brides and White servicemen

The estimated tendency toward homogamy here is intended to reflect exclusion that takes place in the U.S. marriage markets. The war-bride intermarriages, however, were formed in Japan (Nakano, 1986), and hence do not reflect the social exclusion that Japanese or Japanese Americans experienced in the U.S. market. The War Brides Act of 1945 admitted Japanese wives of U.S. servicemen on a nonquota but temporary basis until the McCarran-Walter Act in 1952 (Simpson, 1998). Depending on whether and when the Japanese wives became naturalized, the war-bride intermarriages could enter the category of Japanese–White intermarriage or Japanese American–White intermarriage. Prior to 1965 (i.e., the year strict quotas on naturalization were removed), Japanese war-bride intermarriages in the resettlement cohort should suppress the tendency toward homogamy as opposed to intermarriage of Japanese immigrants with Whites; once naturalization became common, they should suppress the tendency toward homogamy of Japanese Americans with Whites.

Method

Given the rarity of the event, a large sample is needed to capture intermarriages of Japanese and Japanese Americans with Whites, especially those formed during the antisegregation era. To obtain this size, we combined the 1950, 1960, and 1980 U.S. Census PUMS from the IPUMS project. A census collects information on the U.S. national population every 10 years, with no longitudinal information. The 3 years of the national representative samples from the census used here, fortunately, contained retrospective marriage-timing questions (e.g., age at marriage, duration of marriage), thus allowing us to construct the marriage

cohorts, prewar (married between 1930 and 1940) and resettlement (married between 1946 and 1966). The data sets also contain information on race, ethnicity, place of birth, region of residence, education, and veteran status. The 1950 and 1960 census made available a 1% PUMS but not a 5% sample, and the 1980 census made available both 1% and 5% samples, both of which were used to increase the sample size. In the 1950 census, most questions were asked only to a “sample line” person, or the representative respondent from each household (for sample design, see Ruggles et al., 2009).

Total N in the two cohorts is 1,590,416 couples. The n of Japanese Americans is 751 for the prewar cohort and 3,112 for the resettlement cohort. The cohorts are substantially larger than those in previously published studies (e.g., Fu, 2001). The sample in each marriage cohort is as large as the samples of Black ethnic subgroups recently analyzed in studies of intermarriages with Whites (e.g., Batson et al., 2006). Additional descriptive statistics is available from the authors on request. As a note, including census year as a control in the analysis, which removes the influence of sample size differences by census year, did not alter the conclusions.

We did not use the 1940 census, in part because it contained data only for the prewar cohort but also because of concerns that data quality on race, ethnicity, and nativity might have been compromised. World War II was already in significant development in 1940 (Angrist & Krueger, 1994), which made self-identification of ethnicity for Japanese and Japanese Americans extremely costly. In fact, the 1940 census was used to identify Japanese and Japanese American internees (Seltzer & Anderson, 2007). We could not use the 1970 census for the analysis because the veteran status (State Form 2) was not available in the same data set that contains the information on marriage timing (State Form 1). Beyond the 1980 census, questions related to marriage timing were no longer asked, and hence we could not use those data.

We included pairing patterns of couples married between 1930 and 1940 and between 1946 and 1966 who are identified as non-Hispanic White Americans, Black Americans, Latino Americans, Japanese Americans, Japanese, and “other” Asian Americans in the statistical analyses. We included all race and ethnic groups in the analyses to avoid the assumption that social relations between Japanese and Japanese Americans and Whites were independent of their social relations with the other American racial and ethnic groups.

Our use of log-linear models reflects the fact that they are commonly treated as the gold standard of methods in analyzing racial and ethnic homogamy and intermarriage (see Qian & Lichter, 2007). These models are particularly useful in removing sociodemographic and geographic compositional influences. We analyzed two frequency tables, one for the prewar marriage cohort (1930–1940) and one for the resettlement cohort (1946–1966), the latter of which covers the years up to the civil rights era when antisegregation laws were deemed unconstitutional. The cohorts were substantively defined, though we conducted additional analyses by separating the resettlement cohort into two 10-year cohorts. We did not compare the odds ratios prior to 1967 and those after 1967 because the end of antisegregation laws fundamentally changed the rules by which marriages were formed. We note the results for the civil rights cohort, however, in the Discussion section. Each frequency table contains 4,608 cells—a multiplication of six categories each for husband’s and wife’s race, four categories each for husbands’ and wives education, two categories of husbands’ veteran status, and four regions.

Even though the combined PUMS used here is quite large, there are empty cells in our frequency tables. Empty cells in contingency tables of racial and ethnic pairings are common, even in those from recent years. Intermarriages of most racial minorities with

Whites remain rare in the United States (e.g., Fu, 2001; Rosenfeld, 2008). Applying the approach used in previous studies (e.g., Harris & Ono, 2005), we replaced all zeros in the original table with a delta of .5 to make estimation possible, and we tested the sensitivity of the results. Results indicated that conclusions remained the same across a range of delta values between 0 and 1.

Variables

The dependent variable of the log-linear model is the log of the cell frequencies in the contingency table. We used coefficient estimates to calculate the odds of in-group marriage divided by the odds of intermarriage. Because couples tend to marry within their race rather than outside of their race, the odds ratios are typically greater than 1. Larger odds ratios indicate a stronger tendency toward in-group marriage over intermarriage.

We included six dummy-coded covariates in our log-linear models: husbands' race or ethnicity (*r*), wives' race or ethnicity (*R*), husbands' education (*e*), wives' education (*E*), husbands' veteran status (*v*), and region of residence (*G*). Husbands' and wives' race, ethnicity, and nativity consist of six categories each (i.e., non-Hispanic White Americans, Black Americans, Latino Americans, Japanese Americans, Japanese, and other Asian Americans), with Black Americans as the omitted category. We maintained the major racial categories to effectively remove racial compositional effects and for some consistency with previous studies of contemporary interracial marriage (e.g., Harris & Ono, 2005). Because citizenship status was not available in the 1960 census, we used place of birth and race or ethnicity to define Japanese Americans. Prior to 1965, naturalization of Asian immigrants was extremely rare (Immigration Policy Center, 2004). Thus, citizenship was essentially synonymous to the nativity of Japanese and Japanese Americans for members of these cohorts. The definition of Japanese Americans using place of birth rather than citizenship at the time of the census implies that, in this study, all intermarriages of war brides and White veterans belong to the Japanese–White intermarriage category rather than the Japanese American–White intermarriage category. As a result, in this study, they would bias the estimated tendency toward homogamy of Japanese and Whites, but not that of the Japanese Americans and Whites. Husbands' and wives' education consists of four categories: some high school (fewer than 12 years of education, omitted), high school (12 years of education), some college (13–15 years of education), and college graduate (16 or more years of education). These were the minimal groupings needed to effectively remove the influence of educational pairing patterns (e.g., Mare, 1991). We coded veteran status as 1 if the husband was a veteran and 0 otherwise. Veterans are those who served in one of the branches of the military (army, navy, air force, marine corps, or coast guard) during times of war or peace prior to the census year and are no longer serving. Although one could be a veteran of any military activity, White veterans who married Japanese wives prior to 1967 are most likely to be veterans of World War II. Region is the current region of residence, with four categories: Northeast (omitted), Midwest, South, and West (for the list of states, see U.S. Department of Commerce, 2009).

Analytical strategy

We applied the same log-linear models to each cohort separately. We used coefficient estimates from the models to estimate the adjusted odds of in-group marriage divided by the odds of intermarriage (i.e., odds ratios).

To assess the odds of homogamy relative to the odds of intermarriage between Japanese or Japanese Americans and Whites when adjusting for compositional influences and educational pairing patterns, and for overcounted war-bride intermarriages for the Japanese–White pairings, we conducted the analysis in three steps. First, we estimated the unadjusted

odds ratios of homogamy relative to intermarriage for the two cohorts. The odds ratios showed the patterns in the observed tendency toward in-group marriage when no adjustments are made.

Second, we selected a model on the basis of lowest negative Bayesian information criterion (BIC) values from which the adjusted odds ratios would be calculated. When sample sizes are very large, BIC values are useful statistical criteria because they adjust for sample size (for the formula, see Powers & Xie, 2000, p. 106). We estimated two models, one that assumes that the likelihood of intermarriage is the same whether the husband or the wife is White (Model 1) and one that assumes that the likelihood of intermarriage is greater when the husband is White than when the wife is White (Model 2). Both models control for the compositional influences of dimensions related to husbands' and wives' race and ethnicity (β^r and β^R), husbands' and wives' education (β^e and β^E), veteran husbands (β^v), and region (β^G). We included all two-way interaction effects, which differentiate each compositional influence by another dimension, except for one, namely regional differences in veteran (β^{vG}) composition, on the basis of preliminary analysis indicating nonsignificance. Specifically, the two-way interaction effects included were husbands' and wives' race (β^{rR}), husbands' and wives' racial compositional differences by region (β^{rG} and β^{RG}), husbands' racial compositional difference by veteran status (β^{rv}), husbands' and wives' educational compositional differences by race (β^{re} and β^{RE}) and by region (β^{eG} and β^{EG}), husbands' educational differences by veteran status (β^{ev}), and educational pairing of the spouses (β^{eE}). No equality constraints are imposed on a variable's categories with the exception of the husbands' race X wives' race interaction (β^{rR} , see Appendix A).

The term of interest is β^{rR} , from which the odds ratios were calculated. The constraints used in the two models for this effect are described below as design matrices. In the matrix, intermarriages between non-White groups were constrained to be equal (λ_{10}). Models 1 and 2 differ by the specification of the interaction of husbands' and wives' race but include the same dimensions selected on the basis of findings in preliminary analyses. The simplified version of the structure of the models (Equation 1), with N_{rReEvG} as the cell frequency, β_o as the intercept, and abbreviated indices and summation signs for categories in each dimension, is as follows:

$$\text{Log}(N_{rReEvG}) = \beta_o + \beta^r + \beta^R + \beta^e + \beta^E + \beta^v + \beta^G + \beta^{rR} + \beta^{rG} + \beta^{RG} + \beta^{rv} + \beta^{re} + \beta^{RE} + \beta^{ev} + \beta^{eG} + \beta^{EG} + \beta^{eE} \quad (1)$$

Model 1 tests the significance of the influences of composition and educational pairing. A BIC value of less than 0 in Model 1 would indicate that the influences are statistically significant. This is because preliminary analyses showed that a simple model that includes only husbands' race (β^r) and wives' race (β^R) and their interaction term (β^{rR}), which excludes other measures from the model, yielded BIC values much greater than zero, which indicate a fit worse than the saturated model (with all multiway interaction effects). Model 2 tests the presence of gender asymmetry in the racial pairing patterns of the resettlement cohort. Intermarriages of Japanese or Japanese American wives and White husbands might have become more common than intermarriages of Japanese/Japanese American husbands and White wives after WWII. The War Bride Act could have legitimized the former type of intermarriage, and, in addition, had brought in intermarriages of Japanese war-brides and White veteran husbands from overseas. The β^{rR} terms of the two models, constrained differently with a design matrix to test for evidence of gender asymmetry, are presented in Appendix A (see *Journal of Marriage and Family* online source). Each term in the cell represents a dummy variable. The cells with zeros are the omitted categories in the main effects of husbands' and wives' race. The off-diagonal cells of β^{rR} for non-White and non-White pairings are constrained to be equal to capture the effects of these rare intermarriages

that are not the focus here. In the design matrix of Model 1, the dummy variable entries are symmetric around the diagonal cells of the table, which indicates gender symmetry. Model 2 includes two additional terms, namely λ_{11} for Japanese American wives and White husbands, and λ_{12} for Japanese wives and White husbands, to account for gender asymmetry in the odds of intermarriage.

In the third and final step, we used the better-fit model to estimate the adjusted odds ratios. If Model 2 had a BIC value lower than that of Model 1 for one of the two cohorts, Model 2 was used to estimate both cohorts' adjusted odds ratios for comparability across cohorts. From the coefficients, we calculated odds ratios by taking the exponent of the coefficients of interest in the design matrix—in the case of Model 2, those terms are λ_1 , λ_3 , λ_4 , λ_7 , λ_8 , λ_{11} , and λ_{12} (see Harris & Ono, 2005). For Japanese and Whites, for example, the odds ratios of homogamy versus intermarriage calculated from Model 2 are as follows: $[exp(\lambda_1)exp(\lambda_4)]/[exp(\lambda_8 + \lambda_{12})exp(\lambda_8)]$.

For Japanese–White pairing patterns, we then reestimated the coefficients and odds ratios with the sample excluding war-bride intermarriages. War-bride intermarriages are intermarriages by White veteran husbands and Japanese wives in the resettlement cohort ($n = 1,268$, or 84% of the White husband and Japanese wife couples in that cohort). This exclusion should substantially raise the odds ratio for the resettlement cohort of the Japanese's pairing patterns with Whites.

Results

Unadjusted Odds Ratios of Homogamy Versus Intermarriage

Appendix B (see *Journal of Marriage and Family* online source) contains the frequency tables, from which we calculated the unadjusted odds ratios of homogamy versus intermarriage for couples consisting of Japanese or Japanese Americans and Whites in the two marriage cohorts. Figures 1A and 1B show the unadjusted odds ratios for Whites and Japanese Americans and Whites and Japanese, respectively, for the two cohorts. Whether the pairing was Japanese Americans with Whites or Japanese with Whites, when unadjusted, the tendency toward homogamy declined dramatically for the resettlement cohort compared to that of the prewar cohort. Specifically, for pairings of Japanese Americans with Whites in the postwar resettlement cohort, the odds ratios declined to less than 20% of the prewar level. Homogamy was 410,000 times more likely than the likelihood of intermarriage before the war and 67,000 times more likely after it. For pairings of Japanese with Whites, the postwar ratio declined to 2% of the prewar level. Homogamy was 170,000 times more likely than intermarriage before the war and 2,900 times more likely after it.

Model Fit

Table 1 contains the BIC and G^2 values, and the main coefficients of interest, namely those estimates from Models 1 and 2 involving Whites, Japanese, or Japanese Americans only. All BIC values were much less than 0, which indicated that both models fit better than the saturated model and the basic model with β^r , β^R , and β^{rR} . The improvement in fit highlights the substantial role that compositional and educational pairing patterns play in explaining the racial and ethnic pairing patterns. For the prewar cohort, Model 1 fit better than Model 2, but for the resettlement cohort, as expected, Model 2 fit better than Model 1. This result suggests that a major gender asymmetry entered the racial pairing patterns of the Japanese or Japanese Americans and Whites after World War II. As a note, after removing the gender asymmetry term for Japanese Americans and Whites (λ_{11}) from the design matrix of Model 2, the BIC value increased (not shown). This result indicates that veteran-husband and

Japanese-war-bride intermarriages were only partly responsible for the emergence of the gender asymmetry in the level of intermarriage after World War II.

Because Model 2 fit better than Model 1 for the resettlement cohort, we used Model 2 to calculate all adjusted odds ratios for comparability across cohorts. Table 1 also includes the coefficients of Model 2 obtained from the sample eliminating White veteran-husband and Japanese-wife intermarriages for the resettlement cohort. Additional tests (not shown but available on request) indicated statistically significant between-cohort changes in the patterns of spousal pairing on race or ethnicity involving Japanese or Japanese Americans and Whites (λ_1 , λ_3 , λ_4 , λ_7 , λ_8 , λ_{11} , and λ_{12}) in each regional subsample.

Adjusted Odds Ratios

Figures 2A (Japanese Americans) and 2B (Japanese) present the adjusted odds ratios for the two cohorts. The ratios are estimated by removing the influences of sociodemographic composition and educational pairing. For Japanese pairings with Whites in the resettlement cohort, the reestimated odds ratios from the sample excluding the intermarriages of White veteran husbands and Japanese wives are also presented (Figure 2.B).

Japanese Americans and Whites—The adjusted odds ratios (Figure 2A) were more consistent with the heightened exclusion hypothesis than with the assimilation hypothesis. They showed that, rather than a decline in the tendency toward homogamy, there was an increase in the tendency toward homogamy between the prewar cohort and the postwar resettlement cohort. Additional analyses, which separated the resettlement cohort into two subcohorts, indicated that the adjusted odds ratios for both the early (1946–1955) and the late (1956–1966) resettlement cohorts (21,658 and 15,434, respectively) were greater than the odds ratio of the prewar cohort (10,509). Thus, although the largest increase in the odds ratio was observed in the earlier half of the resettlement cohort, evidence of heightened exclusion persisted into the latter part of that cohort. Because the conclusion did not change, we present here the results from the collapsed resettlement cohort sample to benefit from larger sample size.

Additional analyses also indicated that the odds ratios declined and changed in historical patterns, primarily with the removal of racial compositional influences (β^r and β^R). The group sizes of Japanese Americans relative to Whites in fraction (calculated from Table 1) doubled for women (0.15% prewar and 0.33% resettlement) and tripled for men (0.11% prewar and 0.34% resettlement) between the cohorts. This growth resulted in more intermarriages. But underlying this racial compositional change, the tendency toward homogamy actually increased. The prewar cohort's odds ratio for the Japanese American–White pairings became approximately 10,000 with adjustments for racial composition and remained at that level whether including or excluding the dimensions of region, education, or veteran status. In the resettlement cohort, racial composition accounted for approximately half the homogamous tendency. Region, rather than education and veteran status, accounted for much of the remaining half. When removing (the dimension of) region from Model 2, the odds ratio (35,810) substantially increased. When removing education instead, the odds ratio (15,413) declined slightly. Thus, even if education were not controlled, the conclusion would have remained unchanged. When removing veteran status from Model 2, the odds ratio (17,781) also changed very little.

Japanese and Whites—For the Japanese–White pairings, even after the adjustments, the results were still consistent with the assimilation hypothesis, though the decline in the odds ratios was attenuated. In the odds ratios adjusting for the influences of composition and educational pairing patterns only (Figure 2B, dark bar), there was a decline to 20% of the

prewar odds ratio in the resettlement cohort. This decline was much lesser in magnitude than the decline to 2% of the prewar odds ratio, observed in Figure 1. When using a sample excluding war-bride intermarriages, we observed a further attenuation in the percentage of decline to approximately 50% of the prewar level (Figure 2B, light bar). The exclusion of war brides nearly tripled the odds ratio of the Japanese's pairing patterns with Whites.

Other groups' pairing with Whites—For all other non-White racial groups' pairings with Whites, the adjusted odds ratios (estimated with the full sample and Model 2, the same model as that in Table 1) declined between the two cohorts. For Black–White pairings, the odds ratios declined from the prewar level of 170,419 to the postwar level of 154,760, and for the Latino–White pairings, they declined from 5,217 to 638. For other Asian–White pairings, they declined from 18,875 to 6,725. For additional reference, we reestimated a new Model 2 with race variables that separated out Chinese Americans from other Asians. The odds ratios for Chinese Americans in their pairing with Whites declined, from 11,644 to 9,196. These results suggest that the increase in the odds ratio was specific to the Japanese American–White pairings.

Discussion

We tested the assimilation hypothesis and the heightened exclusion hypothesis with the pairing patterns of persons of Japanese descent (primarily Japanese Americans) and Whites in the U.S. marriage market. When not removing the influences of sociodemographic compositions, the results appear consistent with the assimilation hypothesis (e.g., Lee & Yamanaka, 1990; Sakamoto et al., 2000). When removing the influences, however, the results support the heightened exclusion hypothesis; the tendency toward homogamy as opposed to intermarriage is substantially greater in the postwar resettlement cohort than the tendency in the prewar cohort. The results suggest that, immediately following legitimized exclusion, evidence of heightened exclusion could be unobservable when not accounting for (racial) compositional influences.

These results are consistent with reports of heightened exclusion of Japanese Americans in the United States during the resettlement period (e.g., Austin, 2007). They reiterate the necessity to remove compositional influences when estimating the tendency toward in-group marriage as opposed to intermarriage between racial and ethnic groups (e.g., Blau et al., 1982; Sassler, 2005). They also suggest that the legitimized exclusion of a racial or ethnic group strengthens the most rigid barriers in American marriage markets, racial and ethnic barriers (Rosenfeld, 2008). Evidence of heightened exclusion specific to Japanese Americans surrounding World War II that persisted over decades, as indicated by the increased odds ratios present throughout the resettlement cohort and not found in other minority groups, suggests the link between political legitimization and race and ethnic barriers in the marriage market. Legitimized exclusion may establish a set of exclusionary norms in the marriage market that last over decades. The small sample size of racial and ethnic intermarriages is an inevitable challenge in intermarriage research. The Japanese American sample used here, however, is larger than those of previous studies (e.g., Fu, 2001) and provided stable estimates.

Heightened exclusion of the type presented here may be part of the mechanisms that maintain the institutionalized racial hierarchy in the United States (e.g., Collins, 2007). When the dominant group is threatened with the loss of its (economic) privileges, an exclusionary mechanism may operate through prejudice (Quillian, 1995), thus affecting marital pairing patterns. The mechanism could resurface over the course of history and slow the marital assimilation process of a minority group. Even for Japanese Americans, who were often assumed to be assimilated (e.g., Sue & Kitano, 1973), the assimilation

framework would need modifications by incorporating this offsetting mechanism before it proves useful in explaining historical changes in marriage market barriers. We focused on the legitimized exclusion of Japanese Americans around World War II. It is most likely, however, that all minority groups experienced heightened exclusion at some point in their histories, which makes the mechanism salient to all groups, at the minimum, at those points in history. Even in the past two decades, assimilation may have been met with this mechanism; a pattern of increased social exclusion of Asian and Latin Americans was reported between 1990 and 2000 (e.g., Qian & Lichter, 2007) just after a decline was noted between 1980 and 1990 (e.g., Qian, 1997). The extent to which assimilation and heightened exclusion apply in offsetting ways may vary across countries. The mechanism that strengthens racial barriers may be particularly more likely to operate in the United States, where some institutions originated around the ideology of racial purity (Fredrickson, 2005), than in other countries such as Brazil (Costa Ribeiro & do Valle Silva, 2009). Such cross-national differences, as well as explanatory alternatives to heightened exclusion, should be investigated in the future.

The contrasting results between Japanese and Japanese Americans could suggest that first-generation Japanese persons' experiences in the United States are distinct from the experiences of Japanese American persons around World War II. For the Japanese and White pairings, the results did not rule out support for the assimilation hypothesis. They show that the Japanese's adjusted odds ratios declined at a much slower rate than the unadjusted rates would suggest, even more so when excluding the war-bride and White-veteran intermarriages. Before the conclusion of assimilation of the first-generation Japanese immigrants is reached, however, the location of pairing of first-generation Japanese would also need to be investigated.

This study has focused on assessing between-cohort historical shifts in the tendency toward homogamy among first-generation Japanese immigrants and their second- and higher-generation offspring (i.e., Japanese Americans). Intergenerational patterns in a marriage cohort, however, can yield some insights. In both cohorts, Japanese Americans have substantially larger tendencies toward homogamy than do first-generation Japanese. Again, these patterns do not support the assimilation hypothesis. The results may partly reflect the relative ease of forming interracial marriages outside of the United States than in the United States while the antimiscegenation laws were in effect (Karthikeyan & Chin, 2002; Spickard, 1988).

We should note that, not surprisingly, in the post-civil rights cohort (1967–1980), during which the effects of antimiscegenation laws weakened, the adjusted tendency toward homogamy between Japanese Americans and Whites declined substantially. Marriages were being formed under an entirely different set of rules once the antimiscegenation laws were no longer in effect, thus making the tendency toward homogamy incomparable before and after the legal change. The finding that, in the pre-civil rights era, removing the influence of education does not alter the conclusion may reflect the rigid racial segregation that existed in the educational system. A characteristic of postsegregation education, such as encouraging openness, may have been weak before desegregation became the norm.

This study is the first empirical study of intermarriage patterns during the antimiscegenation and pre-civil rights era to use log-linear models, which makes direct comparisons with previous studies challenging. The findings nevertheless have implications for recent racial and ethnic pairing patterns in the United States. For example, legitimization of veteran-husband and war-bride intermarriages may have resulted in the narrow acceptance of intermarriages that perpetuate the preexisting racial order: those with built-in status and power disadvantages of the Japanese American wives. Fu's (2001) interpretation of these

intermarriages as evidence of assimilation may be tested against the view that they reflect institutionalized barriers preventing intermarriages of equals. One example may be to test whether intermarriage of unequals is found in other White husband–Asian American wife groups with a history of war-bride incorporation, such as Vietnamese Americans.

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Appendix A

Design Matrices Used to Estimate Race and Ethnic Matching Patterns (β^R) in Models 1 and 2 to Calculate the Relative Odds of Homogamy Versus Intermarriage in the Two Cohorts

Model 1. β^R specified with gender symmetry.						
Wives' Race or Ethnicity	Husbands' Race or Ethnicity					
	White	Black	Latino	JA	J	OAA
White	λ_1	0	λ_6	λ_7	λ_8	λ_9
Black	0	0	0	0	0	0
Latino	λ_6	0	λ_2	λ_{10}	λ_{10}	λ_{10}
JA	λ_7	0	λ_{10}	λ_3	λ_{10}	λ_{10}
J	λ_8	0	λ_{10}	λ_{10}	λ_4	λ_{10}
OAA	λ_9	0	λ_{10}	λ_{10}	λ_{10}	λ_5

Model 2. β^R specified with gender asymmetry for intermarriages of Japanese and Japanese Americans with Whites.						
Wives' Race or Ethnicity	Husbands' Race or Ethnicity					
	White	Black	Latino	JA	J	OAA
White	λ_1	0	λ_6	λ_7	λ_8	λ_9
Black	0	0	0	0	0	0
Latino	λ_6	0	λ_2	λ_{10}	λ_{10}	λ_{10}
JA	$\lambda_7 + \lambda_{11}$	0	λ_{10}	λ_3	λ_{10}	λ_{10}
J	$\lambda_8 + \lambda_{12}$	0	λ_{10}	λ_{10}	λ_4	λ_{10}
OAA	λ_9	0	λ_{10}	λ_{10}	λ_{10}	λ_5

Note: JA = Japanese American, J = Japanese, and OAA = other Asian American.

Appendix B

Frequency Tables Used to Estimate the Unadjusted Odds Ratios Presented in Figure 1, Prewar (n = 527,442) and Resettlement Cohorts (n = 1,062,974)

Prewar Cohort							
Husbands' Race or Ethnicity	Wives' Race or Ethnicity						Total
	W	B	L	JA	J	OAA	
W	480,702	214	465	31	59	66	481,537
B	247	37,499	23	4	4	6	37,783
L	490	23	4,536	3	0	1	5,053
JA	19	3	1	502	29	5	559
J	13	0	0	196	277	1	487
OAA	133	6	17	15	4	1,848	2,023
Total	481,604	37,745	5,042	751	373	1,927	527,442

Resettlement Cohort							
Husbands' Race or Ethnicity	Wives' Race or Ethnicity						Total
	W	B	L	JA	J	OAA	
W	943,738	348	4,380	273	1,507	1,143	951,389
B	1,017	76,628	163	7	102	101	78,018
L	4,102	103	18,981	11	52	61	23,310
JA	135	12	14	2,630	372	71	3,234
J	41	0	2	82	190	3	318
OAA	449	17	88	109	47	5,995	6,705
Total	949,482	77,108	23,628	3,112	2,270	7,374	1,062,974

Note: W = Non-Hispanic White Americans, B = Black Americans, L = Latino Americans, JA = Japanese Americans, J = Japanese, and OAA = Other Asian Americans.

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Figure 1.

A. Japanese Americans' and whites' likelihoods of in-group marriage rather than intermarriage (unadjusted odds ratios) by marriage cohort

B. Japanese and whites' likelihoods of in-group marriage rather than intermarriage (unadjusted odds ratios) by marriage cohort

Figure 2.

A. Adjusted odds ratios, Japanese Americans and whites, by marriage cohort

B. Adjusted odds ratios, Japanese and whites, by marriage cohort

Table 1
Coefficients, Standard Errors, G^2 , and BIC for Models 1 and 2, the Prewar (n = 527,442)
and Resettlement (n = 1,062,974) Cohorts

	Model 1		Model 2	
	Coeff.	SE	Coeff.	SE
Prewar Cohort				
White husbands & White wives (λ_1)	12.04	.08	12.05	.08
J-American husbands & J-American wives (λ_3)	6.30	.10	6.30	.10
Japanese husbands & Japanese wives (λ_4)	5.79	.10	5.80	.10
J-American & White (λ_7)	4.54	.09	4.54	.11
Japanese & White (λ_8)	4.54	.09	4.33	.11
Asymmetry effect, J-American wife & White husband pairs (λ_{11})	—	—	.01	.15
Asymmetry effect, J-American husband & White wife pairs (λ_{12})	—	—	.42	.15
G^2	25400.94		25395.06	
BIC	−33,627.19		−33,609.49	
Degrees of freedom	4,482		4,480	
Resettlement cohort, All				
White husbands & White wives (λ_1)	11.90	.05	11.95	.06
J-American husbands & J-American wives (λ_3)	8.19	.09	8.17	.09
Japanese husbands & Japanese wives (λ_4)	6.70	.10	6.37	.10
J-American & White (λ_7)	5.16	.07	4.89	.09
Japanese & White (λ_8)	6.18	.05	4.46	.10
Additional effect for J-American wife & White husband pairs (λ_{11})	—	—	0.55	.11
Additional effect for J-American husband & White wife pairs (λ_{12})	—	—	2.27	.11
G^2	40,194.52		40,175.02	
BIC	−20,921.41		−21,412.74	
Degrees of freedom	4,482		4,480	
Resettlement Cohort, White Veteran Intermarriages Excluded				
White husbands & White wives (λ_1)	—	—	11.94	.06
J-American husbands & J-American wives (λ_3)	—	—	8.17	.08
Japanese husbands & Japanese wives (λ_4)	—	—	6.28	.10
J-American & White (λ_7)	—	—	4.89	.09
Japanese & White (λ_8)	—	—	4.49	.11
Additional effect for J-American wife & White husband pairs (λ_{11})	—	—	0.56	.11
Additional effect for J-American husband & White wife pairs (λ_{12})	—	—	0.52	.12
G^2	—	—	40,149.42	

	Model 1		Model 2	
	Coeff.	SE	Coeff.	SE
<i>BIC</i>	—	—	−22,017.67	
Degrees of freedom	—	—	4,480	

Note: SE = standard error. Coefficient estimates for pairings involving other minority racial groups (Blacks, Latinos, and other Asians) and other estimates are available from the authors on request. For covariates not included in Table 1, see Equation 1.