Immigrant Incorporation in American Cities:
The Case of German and Irish Intermarriage in 1880

John R. Logan
Brown University

Hyoung-jin Shin
Brown University

Please note:

This paper is the first draft based on recently completed models. It is intended to identify the questions that can be asked, describe the data set on which we rely, and show the direction of the preliminary findings.

We expect that considerable progress will be made by the time of the PAA meeting to offer a more complete review of the literature, to evaluate the findings, and to develop a clearer point of view about what contribution this research can make.

Suggestions are especially welcome.

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Intermarriage reflects group boundaries because it affects the links between the social networks of the groups that each partner belongs to. Marriage choice has often been used as an indicator of social relations among different ethnic groups in the United States (Kamijn, 1998). This study approaches intermarriage in the context of the late 19th century, at the height of the great wave of German and Irish immigration that was already in high gear in mid-century.

In order to better understand the family pattern and the ethnic group relations of the old immigrant groups, our study investigates the intermarriage patterns of the German and the Irish in 1880. Since ethnic group relations can be understood as the product of socio-historical process by which social boundaries are constantly evolving and shifting through a dialectic process between structure and agency (Omi and Winant, 1994), each new wave of immigration could rearrange and reshape intergroup relations. Germans and Irish were the two largest immigrant groups at this time and represented different segments of immigration. The Irish were among of the first European settlers in America. Irish immigration during the 19th century can be largely divided by before and after the Great Famine. During the 1840s, the Great Famine in Ireland killed over a million people and caused the big wave of Irish immigrants in the U.S. By the middle of the 19th century, nearly a million Irish had arrived in the country. The flood of impoverished and unskilled Irish immigrants gradually produced anti-Irish sentiment. While the occupational and residential profiles of Irish immigrants during the pre-famine era were generally modest but not deprived, the majority of the "famine immigrants" worked at undesirable occupations and lived in crowded housing units. Irish men worked as mainly unskilled laborers at factories, harbors, and construction sites whereas many Irish women found

work as domestic servants. Irish immigrants constituted the first highly visible urban poor minority group in the country and they were soon stereotyped as a poor and uncivilized population (Bider and Reimers, 1995).

Next to the Irish, the German were the second largest immigrant group at that time. In contrast to the Irish, the public image of the German was dominated by affluent farmers or skilled artisans who were largely settled in American rural areas (Wepman, 2002). Their assimilation story was often described in terms of adapting instrumentally to the mainstream economy while standing culturally apart from Anglos. Yet the German were more concentrated in American urban areas during the 19th century than most of the other immigrant groups, except for the Irish and the British. Second, a significant portion of German immigrants was unskilled laborers despite the public image of more selective immigration (Kamphoefner, 1996). Indeed, the German were very diverse in their religion and politics as well as socioeconomic standings. Further complicating the picture was an ethnically dissimilar segment of German Jews within the group (Kamphoefner, 1996; Wepman, 2002).

In the U.S., research on intermarriage has mainly been motivated by the question of whether and when immigrants and their descendants would integrate with one another and with the "native" population at the primary level (Gordon, 1964). At the current time rates of intermarriage are interpreted as indicators of the successful assimilation of white ethnic groups who immigrated in the 19th century (Alba and Nee 2003). This study takes us back to an earlier time when assimilation was not taken for granted. We presume that endogamy was considerably more prevalent among the Germans and Irish in 1880 than it is today, and we present some tabulations that support this expectation. In 1880 in fact it was relatively rare for German or Irish to marry into the other group or to marry native whites in the third and later generations.

Hence studying intermarriage at this time provides a chance to assess the characteristics of group boundaries at that early time. Which of the determinants of marriage choice that we take for granted among new immigrant groups today were powerful then?

This study considers gender, national origin, and generation in the U.S. as important individual factors. In addition, we will examine how the socioeconomic status of individuals affects intermarriage (Kalmijn, 1993; Qian, 1997). More important, we move beyond the individual-level model by including contextual variables such as the size and composition of groups in the cities where they lived. The attempt to place contextual variables in the discussion of intermarriage is not new (Blau et al., 1982; Hwang et al., 1997). Evidently the relative size of groups makes a difference in the likelihood that they will intermarry. We add another factor that affects the marriage market, the sex ratio of group members in the city. We also take into account the relative occupational standing of Germans or Irish vis a vis native whites, the predominance of first or second-generation group members in the city, and measures of residential and industrial segregation between groups. Previous studies have paid relatively less attention to city-level effects on immigrant groups' marriage choices.

DATA AND MEASUREMENTS

Our study utilizes the newly available national full-count data of the 1880 U.S. Census transcribed by the Church of Latter Day Saints and prepared for public use by the Minnesota Population Center. Two advantages of using the full-count Census data are its large size allowing the study of minority groups in smaller cities and the ability to aggregate microdata without constraints to create group-specific contextual measures in geographic areas of any size.

We examine the intermarriage patterns of the German and the Irish in 66 cities that had population over 25,000 in 1880.

The 100 percent sample for the 1880 Census of Population contains approximately 50 million records. It includes information about several key population characteristics such as race, gender, age, marital status, occupation, and state or country of birth of the person. In addition to these individual variables, various household characteristics are also available or can be computed.

After the grouping of race/ethnic groups, the household serial number and the subfamily number in the census data enable us to identify intermarried couples when we match the householder and the householder's spouse within each household. However, including only householders and their spouses in the sample significantly underestimates the total married couples because more than 10 percent of the married couples in our sample constitute subfamilies in a household. In order to solve this problem, we utilize a variable provided by IPUMS which links probable spouses in a household. After this procedure, our sample size increased from 1,245,880 to 1,325,267 couples.

Like previous researchers, we rely on the person's and parents' race and place of birth to create categories of race and ethnicity. We utilize four categories: "Native-white"; "Irish"; "German"; and "All others". "Native-whites" are racially white, born in the United States, and whose parents are also native born white. For the foreign born, their country of birth determines their ethnicity. For those were born in the United States but at least one parent was born abroad, the persons' ethnicity is primarily determined by their mother's country of birth. If only the father was foreign-born (or if the mother was foreign-born but her birthplace was not reported), the father's country of birth will be applied. The race/ethnic groups other than the Irish and the

German are categorized as a single residual group of "All others" because they are not of main interest in this study.

Dependent variable

We estimate four multinomial logistic regression equations for men and women of the Irish and the German separately predicting the odds of the three types of intermarriage relative to Irish and German ethnic endogamy. For example, the multinomial logistic regression model for Irish men estimates the log-odds of their marrying to 1) "Native-white"; 2) German; and 3) "All other" women referencing the log-odds of marrying Irish women. Our group and gender specific multinomial logistic models enable us to examine not only group disparity but also gender difference in the chances of intermarriage controlling for the individual and contextual factors. Because the effects of the predictors are separately measured by the three different types of intermarriage, the coefficient estimates can be understood as log-odds of a specific category against the baseline category of the predictors for the likelihood of a specific type of intermarriage.

Nativity

Studies of intermarriage in the field of sociological research can be traced back to as early as the 1920s when Draschler (1921) analyzed marriage licenses in New York City between 1908 and 1912. Draschler found that intermarriage increased significantly between the first and the second generation of immigrants. He credited the large increase in the proportion of intermarriage in the second generation to the "forces" tending to undermine immigrants' community life. McCaa (1993), using census data from the 1900 and 1910 public use samples for New York City, validates the higher intermarriage by the second generation. The dramatic increase of intermarriage in the second generation is confirmed in a statistically more

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sophisticated study. Using a national sample drawn from the 1910 census, Pagnini and Morgan (1990) observed that the propensity for endogamy was greatest for the new immigrants, but this trend declined gradually with the newer generations. Strong generational endogamy was also observed: If intermarried, immigrants inclined to marry other immigrants whereas persons of the second generation were more likely to marry individuals in the second generation of other ethnic groups.

As discussed above, one of the consistent empirical findings from empirical studies of intermarriage is the generational difference in outmarriage rates within an immigrant group. The propensity for exogamy is expected to be greater for the newer generations than the immigrant generation. Since assimilation often stems from the unintended consequences of everyday life in the host society as an intergenerational process, sociologists generally assume that the social circles of the foreign born and native born are likely to be very different. Thus, our study measures nativity as a crucial predictor of intermarriage.

Nativity of the Irish and the Germans is measured by generation. Those in the first-generation are those who were born in Ireland and Germany. Those in the second-generation were born in the United States, but at least one parent was born in Ireland or Germany. If the birthplaces of the parents were different, the person will be classified according to the mother's country of birth.

As contextual variables, we compute the share of Irish and the share of Germans who are first-generation immigrants.

Socioeconomic status

Since marriage is an indicator that an individual considers his/her partner socially equal within the complex system of status hierarchies, social scientists have consistently found high

degree of status homogamy across diverse societies in different times (Burgess and Wallin, 1943; Ramsoy, 1966; Rockwell, 1976). However, most of status homogamy studies have limited accounts for intermarriages since they are basically restricted to ethic endogamy. Recently, more studies have addressed the question of how spousal differences or similarities in socioeconomic status correlate to the patterns of interracial or interethnic marriage (Kalmijn, 1993; Qian, 1997; Fu 2002). This question is closely related with status exchange theory where intermarriage is seen as an exchange of an individual socioeconomic prestige for a higher race/ethnic status.

One of the classical notions of exchange theory on intermarriage was stated by Robert Merton (1941). He argued that the most common type of interracial marriages is a white women marrying up in terms of socioeconomic status to a black men, in which the racial status of the white wife is exchanged for the socioeconomic prestige of the black husband. Although traditional exchange theory mainly focused on the racial dichotomy of black and white, two key propositions of this perspective are applicable for our study: First, there is the system of ethnic stratification in societies which reflects group status, not that of individuals. Second, the higher degree of "status exchange" pattern in the marriage of a man and a woman from different ethnic groups can be equated with more social distance between the two groups within the system of ethnic stratification.

The 1880 census did not gather information on income or education, the most conventional indicators of socioeconomic standing. Thus, we measure people's socioeconomic status using the Duncan's SEI measure provided by IPUMS. This measure is developed by Duncan based on the average education and earnings of persons in each occupation as measured in 1950. An important question is whether the relative standing of occupations is stable over time. Sobek (1996) has studied this question directly, comparing the average income of men in

each of 140 occupations in 1890 to the income of men in those occupations in 1950. The

correlation between the two is .93, showing that the SEI is valid and reliable enough to be used

in the study.

In addition to the individual-level SEI, we measure the mean SEI of the group in each

city separately in order to examine how the socioeconomic status of the group as a whole affects

the intermarriage of its group members net of their individual occupational standing.

Relative group size

Blau (1977) formulated a macrosociological theory of social structure, which contributed

studies of intermarriage significantly in many ways. One of the structural conditions emphasized

in Blau's theory is that of the relative size of groups in any social association. Basically he

proposed that the comparative size of groups is related to the extent and the rate of intergroup

relations. The discrepancy in intergroup relations is an inverse function of differences in the

group size since the probability to interact with their own group is proportionally higher for the

members of a larger group than the members of smaller groups. In order to test how this

argument is manifested by the intermarriage pattern of the Irish and the German, we measured

the proportions of the Irish and the German within a city as predictors of intermarriage. We also

measure the group-specific proportion of immigrants and the proportion of "Native-white" as

control variables.

Sex ratios

Demographers have emphasized the importance of sex ratio for the marital behaviors of

individuals in assessing the availability of their potential mates within a marriage market. The

imbalance in sex ratios of a specific characteristic has been thought to be partially responsible for

differences in marriage patterns among various groups. While the quantity of potential mates

simply means the available supply of eligible marital partners, the distribution of those available

partners with given "desirable" characteristics can be referred as the quality of available partners.

In either case, the measure of available partners is gauged by a "sex ratio" or a numerical

imbalance of men and women in a specific characteristic (Lewis and Oppenheimer, 2000).

An implicit hypothesis regarding intermarriages from this perspective is that the shortage

of eligible mates in a specific characteristic would lead men or women of a certain group defined

by the specific parameter to marry outside of their usual marriage pools (South, 1991). For

example, if the relative ratio of women to men for a certain ethnic group is considerably higher

than that for other groups, women in the group could have the relatively smaller pool of

acceptable mates than their counter parts in other ethnic groups. These structural constraints

may lead those women with the shortage of coethnic men to exogamy. Our study measures the

group-specific sex ratios within each city in order to operationalize the availability of potential

inmarriage partners within a marriage market. The ratios of Irish and German women to men are

measured for the population 18 years and older.

Residential Segregation

One of the most distinguished features of immigrant population is its high degree of

geographical concentration in the initial stage of settlement, and gradual dispersion in the later

stage of incorporation. The residential mobility pattern of immigrants has been extensively

studied in the tradition of the Chicago School of Sociology, and "spatial assimilation" model was

formulated from this tradition (Park and Burgess, 1921; Lieberson, 1962; Massy, 1985).

According to spatial assimilation model, immigrant group members disperse from ethnically

distinct neighborhood as they gain better socioeconomic standings and are more culturally

assimilated. Although spatial and marital assimilation can be understood as different outcomes

of structural assimilation that are closely related to one another, their relationship has not been vigorously examined in sociological literature.

The relationship between spatial and marital assimilation has been more closely examined by geographers. Peach (1980) measured the correlation coefficients between residential segregation and intermarriage using the marriage certificate record in New Haven, Connecticut. After the odd-ratio of observed to expected frequencies for intermarriage is measured from the cross-classified table for the ethnicity of the husband and the wife, the segregation indices for all pairs of ethnic groups is measured using the same cross-classification. From these two results, he measured the correlation coefficients in an identical cell and found that intermarriage rates are inversely correlated to residential segregation trends.

A more recent paper (Ellis et al, 2006) investigates the effects of intermarriage on the couple's residential outcome using the U.S. Census 2000. Using the categorical dependent variable of the likelihood of intermarried couples' living in an ethnically segregated vs. integrated neighborhood based on "locational quotients", the results show that intermarried couples are less likely to live in ethnic neighborhoods.

We measure the dissimilarity index of residential segregation for each pair of "native-white/German", "native-white/Irish", and "German/Irish" aggregated from the enumeration districts in each city. Then, we examine the causal relationship between intermarriage and spatial assimilation where the city level dissimilarity indices are interpreted as contextual factors on individual marital outcomes.

Occupational Segregation

Many studies found that immigrant and minority groups tend to concentrated in specific economic sectors. The disproportionate representation of ethnic groups in specific industries and

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occupations has an implication of social relations among different groups because the more an ethnic group is segregated in particular economic sectors, the less the group members have a chance to interact with other ethnic group members in labor markets.

We include occupational segregation index in the statistical models to examine this hypothesis. The measure of labor market segregation in this paper draws heavily upon an industry-based approach established by Logan et al. (1994). First, we recoded the original industry categories of the 1880 U.S. Census into 66 categories based on two-digit codes of the 1950 industrial classification system. As next step, we calculated the three dissimilarity index of occupational segregation from the native-white to the German, from the native-white to the Irish, and from the German to the Irish in each of the cities. Although our measure is based on industries, we will call it "occupational" segregation index because the industry categorization in our data was recoded from a person's occupational responses in the original census format by Minnesota Population Center.

Other individual and group characteristics

Since different waves of immigrants might experience different mode of acceptance, it is important to control for the old and new stocks of immigrants. The 1880 U.S. Census does not provide information on years of immigration. Thus we measure age as a proxy of old and new waves of immigrants. We also include five dummy variables for U.S. regions (New England, Mid-Atlantic, Mid-West, South and West) to consider unmeasured regional differences that may affect the intermarriage of the Irish and the German.

EMPIRICAL FINDINGS

The analyses begin with a marriage contingency table showing marriage patterns for the four ethnic groups ("Native-white"; "Irish"; "German"; and "All others"). Table1 provides the group and gender specific endogamy percentages in the 66 selected cities. When the frequencies in each main diagonal cells are divided by the cell frequencies in column (and row) margins, the percentage of wives (and husbands) in each group who intermarried can be calculated. For example, 21.0 percent of Irish women intermarried whereas 16.2 percent of Irish men married exogamously. Likewise, the percentage of intermarried German women is 13.8 percent whereas that for their male counterparts is 17.3 percent. A unique pattern of Irish-German intermarriage where German husband and Irish wife is more common than vice versa (10,803 vs. 4,427) is observed, but the associations between rows and columns are not directly comparable from the contingency table. This pattern will be examined in the statistical models in which the marginal distributions are properly controlled.

Table 1 about here

Table 2 summarizes the trend of ethnic endogamy for Irish, Germans and native whites observed in various empirical studies over a period of a century that utilized national samples. Since endogamy is inversely related to intermarriage, which has a profound implication for the process of group assimilation, lower endogamy rates can be interpreted as reduced ethnic distinctiveness or blurred group boundaries. Although it is difficult to directly compare the results from various studies because each study used different data and methods, it is quite evident that the offspring of European immigrants went through a slow but steady process of assimilation in which their rigid social boundaries are gradually blurred and their ethnic distinctiveness is slowly diminished. As shown, intermarriage rates among white ethnic groups

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have increased dramatically. This trend is interpreted as an erosion of ethnic boundaries due to the cultural and social assimilation among white ethnic groups (Alba and Golden, 1986).

Table 2 about here

Our goal here is to examine the sources of variation in marriage choice in the pre-assimilation period. Table 3 presents the average individual characteristics in 1880 of persons over18 years old by ethnic groups. In most states, 18 has long been a marriageable age without approval of a court or parental consent. Consequently, the characteristics in Table 2 describe potential "marriage pools" that are larger than our sample of married couples. As shown in the table, German and Irish were not that much different in terms of the mean age and foreign-born proportions, but their mean SEI and sex ratios are quite dissimilar. As expected, the German are significantly higher in their SEI than the Irish. It is also notable that the Irish include more women than men, but the Germans include more men than women. While the German are almost exclusively found in the regions of Mid-Atlantic and Mid-West, the Irish are significantly represented in New England cities as well as Mid-Atlantic and Mid-Western cities.

Table 3 about here

The correlation matrix of city characteristics is presented in Table 4. One interesting observation is that the relationship between "%German" and "%German-born" is negative (although it is not significant) whereas "%Irish" and "%Irish-born" are highly correlated to each other (meaning that where a larger share of the population is Irish, the Irish are more likely to be first-generation). Moreover, "%German-born" has a significant and positive correlation with "%Irish" and "%Irish-born". This result implies that the first-generation Germans are concentrated in cities where Irish and especially first-generation Irish are also heavily represented.

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The dissimilarity index of the native white to the Irish (nDi) is highly correlated to both "%Irish" and "%Irish-born", and the values of two correlation coefficients are quite similar. Meanwhile the dissimilarity index of the native white to the German (nDg) is not related to "%German" but significantly correlated to "%German-born" only. This finding also suggests that the first-generation and the second-generation Germans probably have different patterns of geographic concentrations.

Another observation is a negative correlation between ethnic population and the group's SEI: Both Irish and German proportions are negatively correlated to their average socioeconomic standings. Members of both groups tend to have higher SEI when they live in cities with fewer coethnics.

The relationships between residential and occupational segregation index are also notable. The residential dissimilarity index of the native white to the Irish (nDi) and that of the native white to the German (nDg) are moderately correlated to the corresponding occupational dissimilarity index of the native white to the Irish (IDI_ni) and the native white to the German (IDI_ng). However, the correlation between the residential and occupational segregation index of the Irish to the German ("iDg" and "IDI_ig") is not statistically significant. The relationship between German SEI and the occupational segregation from the Irish to the German (IDI_ig) provides a clue. In theory, SEI of the group is negatively associated with segregation because a higher SES is often linked to an assimilation trend. However, the positive correlation between German SEI and the occupational segregation from the Irish to the German (IDI_ig) implies that this assumption does not hold for the relationship between two minority groups.

Table 4 about here

The multivariate analysis is conducted through multinomial logistic regression. An alternative approach would be log-linear models, which are especially suited to correcting for differences in the marginal frequency distributions. We make those corrections by controlling directly for city differences in relative group size and sex ratio. The multinomial logit coefficients facilitate drawing conclusions about the strength of effects and the predicted changes in proportions of endogamous and exogamous marriages attributable to each predictor at the individual and contextual level.

Results for Irish husbands and wives are presented in Table 5. The coefficients for the individual-level factors indicate that younger and the second-generation are more likely to intermarry than their older and foreign-born counterparts. Also, Irish men with a relatively higher SEI are more likely to intermarry than those who have a lower SEI. The SEI coefficient estimated from Irish women is their husband's socioeconomic status because the majority of married women in the 19th century were housewives who are categorized as non-occupational categories. The positive coefficient for this factor can be interpreted that socioeconomic standings of intermarried Irish women were relatively higher than those who married to their coethnics.

There are several possible third variables that could influence the nativity effect on intermarriage. If SEI affects diffrentlyely for the intermarriage of the first-generation and the second-generation, an interaction between nativity and SEI would be statistically significant. Other candidate for such an interaction is age because the effect of age on intermarriage can be different by nativity. We test these two interactions in our multinomial logistic regression models. As shown in Table 5, the interactions between nativity and SEI are all negative and statistically significant. Since nativity is a dummy variable, this result can be interpreted that a

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positive and statically significant SEI effect on intermarriage is reduced for the second-generation Irish. Similarly, the statistically significant and positive interactions between nativity and age indicate that a negative age effect on the intermarriage is smaller for the second-generation Irish than the foreign-born Irish.

The regional dummies indicate that Irish men and women are least likely to marry native-whites or Germans in New England. In a detailed tabulation of contextual factors by different regions (the results are available upon request) the Irish in New England were more segregated and less affluent than those who lived in other regions. The coefficients for contextual factors explain the effect of the regional difference on Irish intermarriage.   The residential and occupational segregation indices from the Irish to the native-white (and the German) suggest that intermarriage between the two groups are less likely if the Irish are socially and economically more segregated from the native-white (and the German). The coefficients of the Irish mean SEI indicate that the higher socioeconomic status of the group in the city positively affects the Irish intermarriage with the native white but not other types of intermarriages.

The relative group size has a statitistically significant effect on the outcome variable with the expected direction: the large proportion of the native white (and the German) in the city has a positive effect on the Irish intermarriage with the native whites (and the German). Meanwhile all three types of intermarriage are less likely in the city where the proportion of the Irish is relatively higher. Imbalanced sex ratio of the Irish (more Irish women than men) consistently increases the propensities of all three types of intermarriage for Irish women but the effect is not consistent for the intermarriage of Irish men.

Table 5 about here

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The multinomial logistic regression results for German husbands and wives are presented in Table 6. The effects of contextual variables in the German models are generally consistent with those from the Irish models: The more segregated the German are from other groups (both occupationally and residentially) the less they tend to intermarry. Also, the city-level increase in the proportion of the German is negatively related to their intermarriage whereas the rise of the native white (and the Irish) proportion in the city increases the propensity of German-native white (and German-Irish) intermarriage.

The German coefficients of individual–level factors are somewhat different from the corresponding Irish coefficients. Most notably, the SEI coefficients for German-Irish intermarriage are negative in both models for German men and women. For German men, the statistically significant and negative SEI effect on the propensity of their marrying Irish women is intensified if they are second-generation than first-generation because the interaction effect between nativity and SEI on German-Irish intermarriage is also negative. This result suggests that German men with a relatively lower SEI are more likely to marry Irish women compared to those with a higher SEI, and this tendency is stronger for the second-generation than the foreign-born German men.

Table 6 about here

Another unusual finding observed only from German men's coefficients is that the nativity effect on their intermarriage with the native-white is negative, which implies that second-generation German men are less likely to marry native-white women than the first-generation do. In order to confirm this unusual finding, we calculated the changes in the predicted probability of intermarriage from the first to the second-generation. We fixed the values of all the independent variables except for "nativity" and "region" at their sample means.

After the region is also fixed to "Mid-Atlantic", which is the most populous region, we calculated two regression equations from the log-odd coefficients, with and without the dummy of nativity, and transformed the results into the predicted probability (more detailed tables dealing with these procedures are available upon request).

The predicted probability of marrying the native-white from the first to the second-generation is increased by 88.7, 115.9, and 61.4 percent for Irish women, Irish men, and German women respectively while the corresponding probability for German men is decreased by 6.4 percent (the results are available upon request). Meanwhile, the probability of German men's marrying Irish women is increased by 42.7 percent from the first to the second-generation.

SUMMARY AND CONCLUSION

At the end of the 19th century, there were strong social boundaries between Germans, Irish and native whites in the major cities of the United States. There were correspondingly high endogamy and relatively small intermarriages that crossed these ethnic lines. Levels of endogamy actually approached those found today between non-Hispanic whites and most new immigrant groups with different racial and ethnic backgrounds.

We find that there are strong effects of personal characteristics that are thought of as indicating a propensity to assimilation: being younger, in the second generation, and having higher occupational standing. There is also evidence of an ethnic hierarchy, since Irish men with higher occupational standing were more likely to marry German women, but German men with high standing were less likely to marry Irish women.

Because the 1880 data set is particularly suited to measuring contextual effects, the more innovative results refer to city-level variables. Effects of group size are in the expected

direction: larger groups are more endogamous, and group members are more likely to marry members of another group if that group is larger in the city where they live. The sex ratio also defines the ethnic marriage market, but only for women. Where Irish women greatly outnumber Irish men, they are more likely to marry members of other groups. The same can be said of German women. In these conditions, inexplicably, Irish men are more likely to marry German women, and German men are more likely to marry Irish women.

We also find that other city-level indicators of the strength of group boundaries are associated with levels of intermarriage. The effect of residential segregation is direct and strong: Irish men and women are less likely to marry native whites in cities where Irish-native white residential segregation is higher, and less likely to marry Germans in cities where Irish-German segregation is higher. The same findings hold for German men and women.

Similarly, it is generally found that occupational segregation reduces intermarriage. However the estimated coefficients are not significant for German men marrying Irish women, or for German women marrying native white men.

We cannot be sure what social processes underpin these effects of segregation. One interpretation is that where members of two groups are less likely to meet one another in their neighborhoods or even to have job networks that connect them, they are naturally less likely to marry. In short, these findings suggest the extent to which there are multiple social worlds in the same city, defined by ethnicity. Another interpretation is that segregation and intermarriage are indicators of the same latent variable of the strength of group boundaries, which imposes itself through unmeasured mechanisms. We tend toward the former view, that housing and labor markets are the primary mechanisms through which ethnic boundaries are established and reinforced, and that they are then reproduced across generations in family relationships. It is

interesting that in 1880 the effects of separated housing and jobs were about equal. At the

current time, when there appears to be much greater integration of workplaces than of

neighborhoods, it would be useful to ask which has the greater weight.

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TABLES

Table 1. Endogamy and intermarriage by gender and race/ethnic groups in 66 selected cities

men \ women	Native white	Irish	German	All others	Total
Native white	286,549 (79.0%\ 75.8%)	22,757 (6.3%\ 7.4%)	12,216 (3.4%\ 3.7%)	41,163 (11.4%\ 13.3%)	362,685 (27.4%)
Irish	19,205 (6.7%\ 5.1%)	243,633 (84.8%\ 79.0%)	4,427 (1.5%\ 1.4%)	19,962 (7.0%\ 6.4%)	287,227 (21.7%)
German	20,218 (5.9%\ 5.4%)	10,803 (3.2%\ 3.5%)	286,492 (83.7%\ 87.2%)	24,599 (7.2%\ 7.9%)	342,112 (25.8%)
All others	52,213 (15.7%\ 13.8%)	31,335 (9.4%\ 10.2%)	25,505 (7.7%\ 7.8%)	224,190 (67.3%\ 72.3%)	333,243 (25.2%)
Total	378,185 (28.5%)	308,528 (23.3%)	328,640 (24.8%)	309,914 (23.4%)	1,325,267 (100.0%)

Table 2. Trend of white ethnic endogamy

Authors	Data Sources	Key variables of ethnicity	Sample size	%Endogamy for Native-white (women/men)	%Endogamy for German (women/men)	%Endogamy for Irish (women/men)
Our study	Census 1880, 100%	Birthplace of the person and the parents	National, 1,325,267 couples in 66 cities of population over 25,000	76/79 Nw^1=378,185 Nm^2=362,685	87/84 Nw=328,640 Nm=342,112	79/85 Nw=308,528 Nm=287,227
Pagnini & Morgan (1990)	Census 1910, PUS	Birthplace of the person and the parents	National, 91,971 persons of age 15 and older who married in the U.S.	89/91 Nw=40,242 Nm=37,898	64/49 Nw=1,380 Nm=2,867	61/63 Nw=1,173 Nm= 999
Sassler (2005)	Census 1910, IPUMS	Birthplace of the person and the parents	National, 27,817 women & 23,157 men of age 15-40, currently married, and spouses are present	84/86 Nw=21,141 Nm=17,368	56/49 Nw=2,782 Nm=2,316	49/53 Nw=1,391 Nm= 926
Kalmijn (1993)	Census 1960, PUS	Birthplace of the person and the parents	National, 355,448 couples	91/89 Nw=290,123 Nm=284,455	NA	21/22 Nw=4,487 Nm=4,210
Alba & Golden (1986)	1979 CPS	First and/or second ancestry of the person	National, 27,597 couples who were born in the U.S.	NA	35/29 Nw = NA Nm = NA	24/25 Nw = NA Nm = NA

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[1] Sample size of wives
[2] Sample size of husbands

Table 3. Average individual characteristics by race/ethnic groups (persons of 18 years and older)

	Native white (N=1,386,616)	Irish (N=1,237,522)	German (N=1,091,805)	All others (N=1,218,580)
Age	37.4	36.4	36.6	37.2
SEI	19.9	13.4	16.3	15.6
Women	0.520	0.550	0.484	0.488
Foreign-born	0.000	0.652	0.671	0.664
New England	0.203	0.190	0.020	0.130
Mid Atlantic	0.408	0.518	0.442	0.338
Mid West	0.226	0.194	0.421	0.296
South	0.138	0.061	0.092	0.181
West	0.025	0.037	0.024	0.056

Table 4. Correlations among city-level predictors of intermarriage

	%Native white	%Irish	%German	%Irish-born	%German-born	Irish SEI	German SEI	nDi	nDg	iDg	IDI_ni	IDI_ng
%Native white	-											
%Irish	-0.228	-										
%German	-0.550**	-0.314*	-									
%Irish-born	-0.112	0.668**	-0.390**	-								
%German-born	-0.282*	0.500**	-0.123	0.684**	-							
Irish SEI	-0.189	-0.591**	0.286*	-0.657**	-0.447**	-						
German SEI	-0.019	0.017	-0.406**	0.263*	-0.045	0.233	-					
nDi	-0.196	0.526**	-0.177	0.593**	0.483**	-0.465**	0.038	-				
nDg	-0.405**	0.286*	0.222	0.095	0.286*	-0.099	-0.368**	0.375**	-			
iDg	-0.249*	0.143	0.217	0.021	0.135	0.013	-0.308*	0.349**	0.759**	-		
IDI_ni	0.051	0.430**	-0.350**	0.596**	0.420**	-0.607**	0.164	0.414**	0.167	0.060	-	
IDI_ng	-0.201	0.318**	-0.168	0.423**	0.433**	-0.277*	0.061	0.249*	0.499**	0.323**	0.463**	-
IDI_ig	0.328**	0.124	-0.357**	0.264*	-0.131	-0.292*	0.436**	0.064	-0.194	-0.193	0.451**	0.152

Variable descriptions:

% native white = native whites as a share of total population
% Irish = Irish first and second generation as a share of total population
% German = German first and second generation as a share of total population
% Irish-born = Persons born in Ireland as a share of total Irish
% German-born = Persons born in Germany as a share of total Germans

nDi = Residential segregation of native whites from Irish
nDg = Residential segregation of native whites from Germans
IDI_ni = Occupational segregation by industry of native whites from Irish
IDI_ng = Occupational segregation by industry of native whites from Germans
IDI_ig = Occupational segregation by industry of Germans from Irish

Table 5. Log-odds coefficients for Irish husbands and wives in intermarriage (compared to being married to an Irish spouse)

	Irish husband (N=287,227)			Irish wife (N=308,528)		
	Native wife	German wife	All other wife	Native husband	German husband	All other husband
Intercept	-2.214**	0.683	3.937**	-2.068**	-1.862**	2.459**
Native born	0.618**	1.112**	0.195**	0.508**	0.852**	0.197**
Age	-0.009**	-0.047**	-0.014**	-0.029**	-0.034**	-0.021**
SEI	0.027**	0.018**	0.015**	0.021**	0.013**	0.015**
Nat*age	0.049**	0.030**	0.033**	0.041**	0.010**	0.029**
Nat*SEI	-0.013**	-0.014**	-0.009**	-0.010**	-0.010**	-0.011**
MidAtlantic	0.826**	1.169**	-0.181**	0.376**	0.521**	-0.148**
MidWest	0.718**	0.867**	-0.338**	0.357**	0.272**	-0.328**
South	0.797**	1.049**	-1.285**	0.436**	0.490**	-0.921**
West	0.213	0.989**	-0.630**	0.824**	1.025**	0.043
NewEngland	.	.	.	.	.	.
pct_native white	2.059**	-0.619*	-4.688**	2.214**	0.051	-3.936**
pct_German	-0.224	1.875**	-4.056**	0.096	2.381**	-3.108**
pct_Irish	-3.097**	-4.713**	-5.898**	-1.836**	-2.121**	-5.082**
pct_Irish 1st	0.359	-1.664**	-1.951**	-0.908**	-1.595**	-1.822**
Irish _sex ratio	-0.151	0.748**	0.119	0.549**	1.000**	0.952**
Irish SEI	0.005	-0.040*	-0.059**	0.017*	0.013	-0.028**
Dni	-2.095**	0.110	-0.485**	-0.905**	0.571**	0.136
Dig	-0.001	-1.615**	0.628**	-0.571**	-1.891**	-0.228
idi_ni	-2.476**	-5.737**	-1.942**	-1.210**	-1.041**	-1.718**
idi_ig	-1.259**	-2.836**	0.315	-0.895**	-1.722**	0.100

*p<=. 05; **p<=. 01

Table 6. Log-odds coefficients for German husbands and wives in intermarriage (compared to being married to a German spouse)

	German husband (N=342,112)			German wife (N=328,640)		
	Native wife	Irish wife	All other wife	Native husband	Irish husband	All other husband
Intercept	1.007**	-0.668	5.279**	-1.454**	2.019**	2.797**
Native born	-0.384**	0.134	-0.368**	0.104	0.323*	-0.008
Age	-0.030**	-0.026**	-0.013**	-0.056**	-0.050**	-0.028**
SEI	0.012**	-0.006**	0.007**	0.008**	-0.001	0.006**
Nat*age	0.071**	0.047**	0.045**	0.062**	0.048**	0.027**
Nat*SEI	-0.006**	-0.002	-0.005**	-0.006**	-0.003**	-0.005**
MidAtlantic	0.138**	-0.541**	-0.751**	0.192**	0.107	-0.350**
MidWest	0.139*	-0.722**	-1.105**	0.186*	-0.193	-0.601**
South	0.131	-0.908**	-1.881**	0.196*	-0.073	-1.191**
West	-0.066	-0.112	-0.888**	0.551**	0.278	-0.218**
NewEngland	.	.	.	.	.	.
pct_native white	2.178**	-1.831**	-5.216**	2.361**	-2.059**	-4.787**
pct_Irish	-0.044	1.261**	-5.152**	0.059	0.374	-3.994**
pct_German	-2.500**	-4.217**	-4.697**	-3.144**	-3.869**	-4.764**
pct_German 1st	-2.206**	-1.265**	-2.717**	-1.554**	-3.637**	-2.477**
German_sex ratio	-0.893**	0.813**	-0.953**	0.849**	0.523	0.806**
German SEI	0.003	0.036**	-0.017**	-0.003	-0.004	-0.005
Dng	-1.193**	-0.800**	-0.115	-1.508**	0.078	-0.219
Dig	-0.130	-1.044**	-0.535**	0.369*	-1.243	-0.395*
idi_ng	-1.323**	1.247*	0.951**	-1.006	-1.466*	0.704
idi_ig	-0.247	-0.414	0.513	0.771	-2.429**	1.323**

*p<=. 05; **p<=. 01