White Ethnic Residential Segregation in Historical Perspective: U.S. Cities in 1880

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ABSTRACT

Investigating immigrant residential patterns in 1880 offers a baseline for understanding subsequent assimilation trajectories. This study uses complete information from the 1880 Census to tabulate the neighborhood characteristics of 66 cities for Irish and German residents. The analysis measures segregation across groups in each city and estimates the effects of individual and city-level variables on the exposure of ethnic group members to the native white population. Neighborhoods are defined in two ways: by enumeration districts and by the specific local street segment the person lives on. Results are better defined at a finer geographic scale. We find support for some assimilation hypotheses about who lived in more mixed neighborhoods. We also find substantial effects of contextual factors including regional location, city population size, the relative size of the immigrant groups, and group-specific characteristics in each city such as their mean occupational standing and occupational segregation from native whites.

Extended abstract and tables

1880 is an important time point for research on immigration from Europe and migration from the American South. Cities like Chicago were in their infancy in 1880. Older cities like New York were still receiving their first waves of German and Irish immigrants. The nation was on the verge of the next great wave of population movements – blacks from South to North, immigrants from Southern and Eastern Europe, and Chinese and other groups from East Asia. The successes and failures of cities in integrating newcomers into community and economic life in this era set the stage for basic processes of assimilation and segregation that have been more widely studied in the 20th Century. Investigating immigrant residential patterns in 1880 will not only reveal geographic settlement patterns of different groups across the nation, but also provide the theoretical and empirical basis for understanding assimilation trajectories of immigrant groups at early times. The findings can also be used to compare with the contemporary immigrant groups in terms of the formation of social distance and group boundaries.

Previous historical studies of racial/ethnic residential segregation were based on samples that had to be drawn painstakingly from census manuscripts (for Boston: Thernstrom 1973; for New York: Kessner 1977 and Model 1985; for Detroit: Zunz 1982; for Philadelphia: Hershberg 1981; and for Providence: Perlmann 1988). As a result, sample sizes tended to be small and possibly biased – particularly in cases where people were traced over time through city directories. Lieberson (1963) conducted a pioneering comparative study of ethnic segregation for a larger number of cities in the early 20th study, relying on published data for city wards. Most studies of this type have relied on

aggregate measures of segregation at the city level. Some studies attempted to trace individual residential mobility over time, but without the possibility of analyzing systematically what personal characteristics were associated with residential assimilation.

Our view, following the approach of contemporary locational attainment studies by Alba and Logan (1992), is that more direct tests of the theory of spatial assimilation require studies at the individual level. Core questions are whether members of new immigrant groups are able to become more residentially integrated with the native white population in the second generation or as they gain greater parity in class standing. In addition, city-level effects such as those studied by Lieberson – the impact of the size of the group, for example, or the overall class standing of group members relative to native whites – are best evaluated after controlling for individual-level effects. This is the type of analysis that we aim to achieve in this study of cities in 1880.

Another direction of our research is to begin to assess more carefully the geographic level of ethnic clustering. Prior studies have had to use data aggregated according to administrative boundaries, whether enumeration district, ward, or tract. This study begins to exploit a new data set in which locations of individual households are geocoded, and the analyst has maximum flexibility in establishing neighborhood definitions.

RESEARCH DESIGN

Our study utilizes the newly available national full-count data of the 1880 U.S. Census prepared by Minnesota Population Center. The 100% sample for the 1880 Census of Population covers the entire U.S. population and contains approximately 50

million records. Key population characteristics, such as family size and composition, race, gender, age, marital status, occupation, disability, and state or country of birth of the person and the person's mother and father, are included. In addition to these individual variables, household characteristics will be constructed. IPUMS uses complex computing formulae to determine relationships among household members, and codes occupation and industry into categories that are comparable to those used in the mid-20th Century, including occupational SEI scores. We restrict our sample to the population aged 18 and above. Children will not be included here, because for the most part their location is determined by parents' characteristics. In addition to age restriction, we also apply city population as the sample selection criterion. Cities of a population of 25,000 and more are included because we want to have enough individual cases even after the study groups are broken down by many sub-categories or cross tabulations.

One advantage of the 1880 dataset is that it makes possible research on a wide array of cities, allowing causal models to incorporate other characteristics of cities or neighborhoods (such as their occupational structure and the size of the immigrant group) as predictors of group member's residential pattern or success in the labor market. Some questions simply concern the generalizability of results that are well established for a particular city or region. Of special interest are the comparisons between mostly coastal cities whose histories extend well back into the colonial era, in both the North and the South, with the "frontier" cities of the Midwest and West whose growth was stimulated by the establishment of new transportation facilities such as the Erie Canal, the steamboat, and the railroads. Much research on the contemporary period finds that ethnic and racial stratification is deeper and more resistant to change in older cities. Will we find the same

tendency in the late 19th Century? Were some of today's "older industrial" cities of the Midwest more accommodating to the mobility of new groups when these same cities were younger?

Our study compares groups across 66 cities in 1880. The dependent variable and the independent variables at the individual level are constructed using the original microdata. The individual data are then aggregated to the level of group and city for the creation of the contextual variables. For individual characteristics, we consider age, gender, nativity, socioeconomic status, and marital status. We then move beyond the individual-level model by including contextual variables such as regions, group size, and sex ratio to examine how the contextual factors net of the individual predictors influence the residential choice of the individual. Among the contextual variables, we measure the dissimilarity index of occupational segregations between the immigrant group and the native white. We hypothesize that in 1880, immigrants' residential pattern was heavily affected by where they worked.

Finally, in the case of Newark, NJ, we exploit geocoded data on people's locations within the city. Newark is the first of approximately 40 cities for which GIS maps are being developed, and we present it here as a template for how analyses of such data can proceed.

Measurement Issues

Individual-level and contextual, i.e., group- and city-level, predictors for residential segregation are included in this study. For individual factors, in addition to the basic demographic characteristics like age, gender, and marital status, we construct

measures for ancestry and generation, individual socioeconomic standing, intermarriage, and servant status at that time, based on the available information from the dataset.

Ancestry and Generation. Like previous researchers, we will rely on the person's and parents' race and place of birth to create categories of race and ethnicity. Among whites we will create categories based on country of birth or parents' country of birth: 1st or 2nd generation members of a particular ethnicity or as 3+ generation whites. Those in the 1st generation were born abroad, and their country of birth determines their ethnicity. Those in the 2nd generation were born in the United States, but at least one parent was born abroad. If the mother was foreign-born, the person will be classified according to her country of birth. If only the father was foreign-born (or if the mother was foreign-born but her birthplace was not reported, as is true in some cases in 1970), the father's country of birth will be applied. We expect to find stronger residential segregation among first-generation immigrants relative to other groups given all else equal.

SES. The 1880 census did not gather information on income or education, the most conventional indicators of socioeconomic standing. But it provides detailed information on occupations. The SEI is based on the notion that the perceived status of an occupation depends largely on the average income and educational levels of people in that occupation. The SEI values developed by Duncan are based on the average education and earnings of persons in each occupation as measured in 1950 (and validated by a 1947 survey of the "general standing" of a sample of occupations). We expect that individuals with higher socioeconomic status are less likely to live in neighborhoods with high concentrations of native whites controlling for other factors.

Inter-Racial Marriage. An important correlate of ethnic behaviors is a central family behavior: intermarriage, which will be treated as a predictor in this study. Intermarriage has been operationalized in many different ways, depending on how group boundaries are defined (Alba and Golden 1986; McCaa 1993). The only ethnicity indicator available in 1880 is country of birth. This indicator will be combined with the variable of marital status to create the following categories of interracial marriage status: unmarried, married to 3rd generation white, married to co-ethnic, married to people of other ethnic groups, divorced/widowed, and the residual category. With inter-racial marriage with native whites being a further step of assimilation, we expect that individuals married native whites would be more likely to move and stay in white neighborhoods compared to their counterparts. On the other hand, marrying co-ethnic may strengthen ethnic segregation.

Domestic Servant. Finally, we use the information on occupation and household relations to define a variable that is expected to capture the relationship between being a domestic servant and the reported residence. If an individual was taking a servant job and thus lived in the employer's house at the time when the census was conducted, then the reported residence was "caused" differently and would have different meaning than the same residence of another individual who was not a domestic servant. By constructing the variable, we want to capture this group of population and separate their employment-based residences from the rest. We expect to find that individuals who are identified as domestic servants have a much higher likelihood of living in white neighborhoods; while controlling for this factor, potential confounding results of first-generation immigrants should be removed.

Contextual Predictors. By groups and cities, we construct contextual predictors by aggregating the individual data to the group or city-level. Predictors measured for cities include: city population, percent foreign-born and racial/ethnic composition, mean occupational SEI, and geographic region will be included as control variables.

Several indicators are also calculated that are specific to Irish and Germans in each city. These include group size and percent of the total population, percent foreign-born, the group's mean occupational SEI, the group's occupational segregation from the 3rd generation whites, and the group's gender ratio.

The construction of the group's occupational segregation index draws heavily upon an industry-based approach established by Logan et al. (1994). First, we recode 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 the next step, we calculate the dissimilarity indices of occupational segregation for all three groups, separately. They are indices of industrial segregation between the native-white and the Irish and Germans in each city. Although our measure is based on industries, we will call it "occupational" segregation index because the industry categorization in our data is recoded from a person's occupational responses in the original census format by Minnesota Population Center.

It is expected that larger groups, those with lower occupational standing and those with a higher percentage of foreign-born members will have more distinctive residential and labor market positions. Groups with a bias toward males and young adults are more likely to fit the model of immigrant sojourner, temporary residents who would tend to be highly segregated both residentially and occupationally. The addition of group-level

industrial segregation indices speaks directly to the findings of precious studies. The effect of this predictor is more complex and not certain compared to other contextual factors. If Irish or Germans are more likely to be employed in the same occupation taken by their co-ethnics other than native whites, we would expect to see that individuals of higher group-level industrial segregation experience more residential segregation from native whites, i.e., less likely to live in whiter neighborhoods. On the other hand, however, if minorities are concentrated in occupations in the same way as native whites do, we would expect that a higher level occupation segregation of the minority group should contribute to a less degree of residential segregation of that group from native whites. In general, we doubt that minorities would have the similar occupation concentration as native whites do. Thus, the first scenario is more likely to be present in our data.

Finally, in the case of Newark, NJ, the analysis deals with two very different geographic units. One is the enumeration district, which is the basis for analysis of the full 66 city data set. The other is the street segment, the face block on which a person lived, extending between its intersection with other streets at both ends of the block. If the enumeration district may be too large an area to capture micro-level patterns of segregation, the street segment approaches the smallest area that one might consider to represent a social neighborhood.

Analytical Procedures

Analyses of contemporary variation in residential segregation of blacks, Hispanics, and Asians across cities and metropolitan regions provide a basis for hypotheses about residential patterns a hundred years earlier (these are elaborated, for example, in Farley

and Frey 1994; Logan, Stults and Farley 2004). The theoretical basis for most of these studies is the model of spatial assimilation (Massey 1985). According to this model, individual immigrants will be able to move into whiter neighborhoods after they obtain socioeconomic gains. In the process of spatial assimilation, immigrants achieve social assimilation into the mainstream society as well.

More recently the model of "ethnic community" (Logan, Alba, and Zhang 2002) has been added, opening the possibility that for some groups a segregated living arrangement (and in a parallel way, a segregated labor market, as in Portes' enclave economy model) may be viewed by group members as advantageous. A series of community characteristics influence the life chances and quality of life of residents. Such view gains credibility from the research by Logan and Schneider (1984) that demonstrates that suburban communities with high percentages of black residents generally have a high population density, are proximate to the central city, have a weak property tax base and limited services, and experience residential instability and further growth in the minority population.

Along the logic, we construct the OLS models with the dependent variable as a measure of racial/ethnic composition of the individuals. To be more specific, percentage of the 3rd generation whites in the enumeration district where an individual lives is treated as a proxy for how much degree of residential segregation of individual Irish or German from native whites. In this way, we can also examine the spatial assimilation model by incorporating individual characteristics into the model and investigate how these factors change an individual's probability of entering a whiter neighborhood. We then include the contextual predictors into the individual models and test whether and how much the

group-specific features and the city-level environment may change the effects of the set of predictors of the individual level.

EMPIRICAL RESULTS

This paper is still in progress. Attached below are the key tables. Note that we have decided to expand the analysis to study the third largest immigrant group in 1880, the British. British 1st and 2nd generation residents were considerably less segregated from native whites than were Irish or Germans. Hence they offer a contrast to the cases of Irish and Germans.

- **Table 1** reports summary statistics of residential segregation of native whites vs. Irish, native whites vs. Germans, and Irish vs. Germans across the 66 cities. The degree of segregation is measured by the dissimilarity index, with a range from 0 to 1 and higher values indicating more segregation. The differences between the minimum and the maximum dissimilarity values are about .5 for the segregation of three group comparisons. The differences between the 10th percentile and the 90th percentile, however, are much reduced. These summary statistics show a medium degree of the variation in the dissimilarity values across all cities. The lower part of Table 1 reports the dissimilarity values for six cities that have the population over 300,000. For example, it shows that segregation levels in Chicago were relatively high and Baltimore relatively low. The variation among cities offers a justification for further analysis including city-level characteristics.
- **Tables 2a and 2b** present estimates of effects of the individual and group characteristics and city-level contextual factors on neighborhood outcomes: the percent native white and the percent coethnic in the enumeration district.

- **Table 3** presents more detailed results on aggregate segregation measures for Newark, a city for which we have geocoded individual data. Aggregating data from the individual level, we calculated the dissimilarity value at the street segment level as well as the enumeration district. There is an appreciably greater degree of segregation at the finer geographic scale.
- **Tables 4a and 4b** present the effects of individual predictors at the two geographic levels in 1880 Newark. These include models for the percentage of native whites in the neighborhood and for the percentage of same-group members. For the Irish, the effects of most individual factors are stronger at the street segment level. For Germans the differences between the two are smaller.

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Table 1. Summary Statistics of Residential Segregation (Dissimilarity Index) between Native Whites, Irish, and Germans in 1880. Distribution for all cities and for Selected Individual Cities with Population Over 300,000

City	Native White vs. Irish	Native White vs. German	Irish vs. German
Minimum	0.153	0.153	0.150
10^{th} percentile	0.236	0.249	0.244
Mean	0.344	0.384	0.396
90^{th} percentile	0.461	0.537	0.574
Maximum	0.553	0.656	0.681
New York	0.395	0.480	0.420
Philadelphia	0.362	0.379	0.459
Chicago	0.532	0.603	0.424
Boston	0.476	0.503	0.430
St. Louis	0.371	0.458	0.464
Baltimore	0.325	0.342	0.402

Table 2a. Predicting Ethnic Composition of Irish Residents' Neighborhoods: Individual Characteristics and City-Level Predictors (66 Cities in 1880)

	% Native White in the Enumeration District		% Irish in the Enumeration District	
Intercept	0.13734		0.13754	
Age	0.00009		-0.00010	
Female (ref=male)	0.01280		-0.01351	
Nativity (ref=both parents Irish)				
1st Generation	0.00142		0.00090	b
2nd Generation, one parent being Native White	0.04290		-0.05120	
2nd Generation, one parent not being Irish or Native White	0.01629		-0.04347	
Occupational SEI	0.00049		-0.00058	
Domestic servant	0.14710		-0.12845	
Marital Status (ref=single)				
Native White spouse	0.05372		-0.06864	
Irish spouse	-0.02019		0.01937	
"Other group" spouse	0.00232		-0.04145	
Divorced or widowed	-0.01656		0.01071	
Not reported	-0.00517		-0.00263	
City population (logged)	-0.00613		0.01289	
Percent Native White	0.71113		-0.05335	
Percent foreign-born Irish	-0.15154		0.33900	
Irish sex ratio	-0.00006	a	-0.00204	a
Irish SEI as a proportion of the mean SEI of Native White	0.11832		-0.30672	
Irish industrial segregation from Native White	-0.07701		0.02136	
Regional Controls (West as the reference group)				
Northeast	-0.00167		0.14792	
Midwest	0.00948		-0.00802	
South	0.02716		0.02589	
Model R-squared	0.333		0.235	

a: not significant; b: significant at .05 level

Table 2b. Predicting Ethnic Composition of German Residents' Neighborhoods: Individual Characteristics and City-Level Predictors (66 Cities in 1880)

	% Native White in the Enumeration District	% German in the Enumeration District
Intercept	0.0712	0.8395
Age	0.0001	-0.0001
Female (ref=male)	0.0128	-0.0104
Nativity (ref=both parents Irish)		
1st Generation	-0.0057	-0.0005 [a]
2nd Generation, one parent being Native White	0.0401	-0.0526
2nd Generation, one parent not being German or Native White	0.0124	-0.0575
Occupational SEI	0.0006	-0.0007
Domestic servant	0.0930	-0.1139
Marital Status (ref=single)		
Native White spouse	0.0514	-0.0575
German spouse	-0.0157	0.0353
"Other group" spouse	0.0022	-0.0483
Divorced or widowed	-0.0098	0.0187
Not reported	0.0062	-0.0227
City population (logged)	0.0010	-0.0107
Percent Native White	1.3761	-1.2258
Percent foreign-born German	0.0754	-1.0176
German sex ratio	0.0096	0.0596
German SEI as a proportion of the mean SEI of Native White	-0.0379	0.1633
German industrial segregation from Native White	-0.2729	0.6398
Regional Controls (West as the reference group)		
Northeast	-0.0011 [b]	0.0523
Midwest	-0.0049	0.1500
South	-0.0114	0.0384
Model R-squared	0.451	0.275

a: not significant; b: significant at .05 level

Table 3. Differences in the Dissimilarity Values Measured at the Enumeration District Level and the Street Segment Level in Newark, 1880

	Native White vs. Irish	Native White vs. German	Irish vs. German
By Enumeration District	0.410	0.537	0.529
By Street Segment	0.572	0.666	0.650
% Increase in D values	39.5	24.0	22.9

Table 4a. Predicting Irish Residents' Neighborhood Characteristics, at the Enumeration District and Street Segment Levels in Newark, 1880

	% Native White		% Irish	
	Enumeration District	**Street Segment**	**Enumeration District**	**Street Segment**
Intercept	0.2248	0.1844	0.3776	0.4745
Age	0.0003	0.0002	-0.0002	-0.0001 [a]
Female (ref=male)	0.0184	0.0319	-0.0151	-0.0283
Nativity (ref=2nd generation, both parents Irish-born)				
1st Generation	-0.0026 [a]	-0.0028 [a]	0.0063 [b]	0.0071 [a]
2nd Generation, one parent Native White	0.0546	0.0952	-0.0518	-0.0935
2nd Generation, one parent "other"	0.0380	0.0576	-0.0596	-0.0899
Occupational SEI	0.0005	0.0010	-0.0005	-0.0010
Domestic servant	0.1844	0.2959	-0.1659	-0.2548
Marital Status ref= single)				
Native White spouse	0.0583	0.1124	-0.0645	-0.1371
Irish spouse	-0.0314	-0.0271	0.0204	0.0249
"Other group" spouse	-0.0069 [a]	0.0038 [a]	-0.0322	-0.0788
Divorced or widowed	-0.0130	-0.0251	0.0004 [a]	0.0121 [a]
Not reported	-0.0178	-0.0085 [a]	-0.0222	-0.0748
Model R-squared	0.116	0.176	0.076	0.107

a: not significant; b: significant at .05 level

Table 4b. Predicting German Residents' Neighborhood Characteristics, at the Enumeration District and Street Segment Levels in Newark, 1880

	% Native White		% German	
	Enumeration District	**Street Segment**	**Enumeration District**	**Street Segment**
Intercept	0.1414	0.1636	0.4956	0.5670
Age	0.0001 [b]	0.0002	-0.0004	-0.0002
Female (ref=male)	0.0185	0.0181	-0.0202	-0.0162
Nativity (ref=2nd generation, both parents German-born)				
1st Generation	-0.0187	-0.0065 [b]	0.0019 [a]	0.0149
2nd Generation, one parent Native White	0.0926	0.0659	-0.1095	-0.1553
2nd Generation, one parent "other"	0.0180 [a]	0.0211 [b]	-0.0350 [b]	-0.0358 [b]
Occupational SEI	0.0008	0.0008	-0.0010	-0.0009
Domestic servant	0.2121	0.1442	-0.1934	-0.2372
Marital Status ref= single)				
Native White spouse	0.1776	0.1054	-0.1645	-0.2220
German spouse	-0.0179	-0.0314	0.0576	0.0441
"Other group" spouse	0.0183	0.0054 [a]	-0.0356	-0.0843
Divorced or widowed	-0.0102 [b]	-0.0185	0.0318	0.0126 [a]
Not reported	-0.0018	-0.0109 [a]	0.0006 [a]	-0.0135 [a]
Model R-squared	0.0501	0.0767	0.0453	0.062

a: not significant; b: significant at .05 level