IMMIGRANT RESIDENTIAL SEGREGATION IN U.S. METROPOLITAN AREAS, 1990–2000*

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This paper examines the extent of spatial assimilation among immigrants of different racial and ethnic origins. We use restricted data from the 1990 and 2000 censuses to calculate the levels of dissimilarity by race and Hispanic origin, nativity, and year of entry, and then run multivariate models to examine these relationships. The findings provide broad support for spatial assimilation theory. Foreign-born Hispanics, Asians, and blacks are more segregated from native-born non-Hispanic whites than are the U.S.-born of these groups. The patterns for Hispanics and Asians can be explained by the average characteristics of the foreign-born that are generally associated with higher levels of segregation, such as lower levels of income, English language ability, and homeownership. We also find that immigrants who have been in the United States for longer periods are generally less segregated than new arrivals, and once again, much of this difference can be attributed to the characteristics of immigrants. However, patterns also vary across groups. Levels of segregation are much higher for black immigrants than for Asian, Hispanic, and white immigrants. In addition, because black immigrants are, on average, of higher socioeconomic status than native-born blacks, such characteristics do not help explain their very high levels of segregation.

Immigration has dramatically altered the racial and ethnic composition of the United States. Between 1980 and 2000, the minority population grew by 88%, much of it fueled by immigration from Latin America and Asia (Hobbs and Stoops 2002). The immigration of blacks from Africa and the Caribbean has also increased significantly in recent years. As of 2000, nearly 2.4 million black immigrants lived in U.S. metropolitan areas, 42% of which entered in the last decade (U.S. Census Bureau 2000). This rapid increase in the minority and immigrant populations in the United States has substantially transformed the metropolitan landscape. Some areas that previously had little diversity now have large and growing immigrant populations (Frey 2003; Singer 2004).

Many studies have shown that Hispanic-white and Asian-white segregation is lower than black-white segregation. However, black segregation from whites has declined over the past few decades, while Hispanic and Asian segregation has changed little or even increased (Iceland, Weinberg, and Steinmetz 2002; Lewis Mumford Center 2001). Relatively little is known about the role that immigration may have played in these broader trends, the levels of residential segregation of immigrants themselves, and the extent to which the acculturation process and socioeconomic characteristics of immigrants shape these patterns. Moreover, because of data constraints, comparatively little is known about whether the effect of immigrant characteristics varies by race and ethnicity. This study seeks to shed light on precisely these issues.

Our research is guided by the following specific questions: (1) Are foreign-born Hispanics, Asians, and blacks more segregated from non-Hispanic whites than are the native-born of those respective groups? (2) Are immigrants who have been in the United States longer less segregated from non-Hispanic whites than are recent arrivals? (3) Are residential patterns in large part explained by the characteristics of immigrants, such as

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socioeconomic status and other acculturation indicators? If the analyses yield affirmative answers to all of these questions, then the notion that immigrants are spatially assimilating receives strong empirical support. If we find affirmative answers for some immigrant groups but not for others, then the "segmented assimilation" perspective may provide a better framework for understanding immigrant patterns of incorporation. Finally, if there is little relation between segregation and group characteristics among any racial or ethnic group, then the ethnic disadvantage (or "place stratification") approach receives the strongest empirical validation.

To investigate these issues, we use restricted data from the 1990 and 2000 censuses. We calculate levels of dissimilarity by race and Hispanic origin, nativity, and year of entry, and then run multivariate models to examine these relationships.

CONCEPTUAL FRAMEWORK: IMMIGRANT INCORPORATION AND RESIDENTIAL SEGREGATION

Three common theoretical perspectives used to explain immigrant incorporation are assimilation, ethnic disadvantage, and segmented assimilation (Bean and Stevens 2003). Below, we discuss how these models have been applied to understanding the residential patterns of immigrants.

Assimilation refers to the general convergence of social, economic, and cultural patterns among distinct groups (Alba and Nee 2003). According to the spatial assimilation model, which is invoked to explain residential arrangements in particular, differences in acculturation and socioeconomic status across racial and ethnic groups help shape patterns of segregation (Massey 1985). The model posits that new immigrants often first settle in fairly homogeneous ethnic enclaves within a given metropolitan area. This may be due to migrants' feeling more comfortable with (and welcomed by) fellow coethnics and to the inability of many immigrants to afford living in the same neighborhoods as the dominant majority group, which in the United States is the native-born non-Hispanic white population (Charles 2001).

As immigrants make gains in socioeconomic status, such as through increases in income and English language ability and knowledge of local areas, they translate these gains into improvement in their spatial location. These spatial improvements are thought to typically involve moves to neighborhoods with more native-born non-Hispanic whites (Massey 1985). In essence, residential mobility follows from the acculturation and social mobility of individuals. This results in the dispersion of immigrant and minority-group members and desegregation over time (Alba and Nee 2003; Massey and Denton 1988b).

In contrast to assimilation theory, the *ethnic disadvantage model* (often termed "place stratification" in the residential segregation literature) holds that increasing knowledge of the language of the new country and familiarity with its culture and customs often do not lead to increasing assimilation. Lingering prejudice and discrimination by the dominant group (non-Hispanic whites in the U.S. context) hamper the assimilation process (Charles 2003). The effects of structural barriers are thought to be greatest for blacks in the United States because blacks have historically been perceived in the most unfavorable terms (Bobo and Zubrinsky 1996; Farley et al. 1994).

Discriminatory practices in the housing market against African Americans in particular, as well as Hispanics and Asians, have been widely documented (Turner and Ross 2003; Turner et al. 2002). Over the years, discriminatory practices have included real estate agents steering racial groups to certain neighborhoods, unequal access to mortgage credit, exclusionary zoning (in which groups are restricted to particular neighborhoods), and neighbors' hostility (Goering and Wienk 1996; Meyer 2000; Yinger 1995). Research has indicated a decline in discrimination in the housing market in recent years, perhaps due to changing attitudes in society, the rising economic status of minority customers, and the continuing effect of the Fair Housing Act and its enforcement on the real estate industry

(Ross and Turner 2005). Overall, it is reasonable to believe that discrimination plays a role in shaping the residential patterns of nonwhite immigrants.

A third common theory of immigrant incorporation is *segmented assimilation.* This perspective focuses on divergent patterns of incorporation among contemporary immigrants (Portes and Zhou 1993; Zhou 1999). Individual- and structural-level factors affect the incorporation process, and there is an important interaction between the two levels. Individual-level factors include education, career aspiration, English language ability, place of birth, age at the time of arrival, and length of residence in the United States. Structural factors include racial status, family socioeconomic background, and place of residence. Class, for example, is an important determinant of opportunities, and the skin color of the majority of new immigrants sets them apart from European Americans (Zhou 1999). The host society offers uneven possibilities to different immigrant groups, and segmented assimilation theory posits that recent immigrants are being absorbed by different segments of American society, ranging from affluent middle-class suburbs to impoverished inner-city ghettos, and that "becoming American" may not always be an advantage for the immigrants themselves or for their children. Thus, according to the segmented assimilation model, we should expect to see considerable differences in residential patterns for various immigrant groups, with some groups experiencing no decline in their residential segregation from non-Hispanic whites over time.

EMPIRICAL FINDINGS OF PAST RESEARCH AND CONTRIBUTIONS OF THE CURRENT STUDY

Studies have generally provided some support for the spatial assimilation model. Members of ancestry groups that have been in the United States longer are less segregated than groups with more recent histories in the United States (Jones 2003; White and Glick 1999). Segregation is also lower for the native-born of ethnic groups than for the foreign-born, and studies have generally found that members of an ethnic group who have a high socioeconomic status (SES) are less segregated from whites than are low-SES members, though the pattern is weaker for African Americans (Clark 2007; Iceland, Sharpe, and Steinmetz 2005; Iceland and Wilkes 2006; St. John and Clymer 2000).

In a pair of studies that focused on the spatial assimilation of Latinos and Latino immigrants, South, Crowder, and Chavez (2005a, 2005b) likewise found support for the spatial assimilation model. Their results showed that higher-SES Hispanics and those with greater English language proficiency were also more likely to move into neighborhoods with more non-Hispanic whites than were low-SES Hispanics with less English proficiency. In contrast, using 1990 data on two metropolitan areas (Miami and New York), Freeman (2002) found that foreign-born blacks who immigrated in the 1980s had about the same level of segregation as immigrants who arrived in the 1960s and earlier in one metropolitan area, and only slightly lower segregation in the other, providing little support for the spatial assimilation model. Along these lines, Denton and Massey (1989) and Crowder (1999) also concluded that race plays the most important role in explaining residential patterns of black immigrants from the Caribbean.

Overall, the literature provides fragmentary evidence that spatial assimilation has predictive power in explaining residential patterns of immigrants. The wide range of experiences for a variety of groups, however, suggests that segmented assimilation may best explain levels and trends in segregation, with racial and ethnic stratification continuing to play prominent roles for blacks in particular.

The present study builds on the existing literature in two ways. First, we directly compare the segregation patterns of immigrants of different racial and ethnic groups, using data from the two most recent censuses. Previous studies have tended to either compare broader racial and ethnic groups and not immigrants in particular (e.g., Iceland et al. 2002; Massey and Denton 1989) or focus on the experiences of particular immigrant

groups (e.g., Freeman 2002; South et al. 2005b). No previous study has calculated residential segregation indexes for all race groups by nativity and year of entry. These comparisons will allow us to carefully evaluate the spatial assimilation model by contrasting the experiences of different immigrant groups using data on all metropolitan areas in the United States.

Second, our use of restricted census files permits a more precise view of the assimilation process than most previous studies. In particular, we use internal census data to calculate detailed characteristics for each subgroup of interest (e.g., average income of recent black immigrants). This information allows us to estimate multivariate models that tease out the association between residential patterns and nativity, length of time in the United States, and group socioeconomic characteristics.

DATA AND METHODS

The data for this analysis were drawn from internal 1990 and 2000 long-form census files. While residential segregation can occur at any geographic level, we chose to focus on metropolitan areas as reasonable approximations of housing markets. We present estimates for all metropolitan areas (MAs), which consist of metropolitan statistical areas (MSAs), primary metropolitan statistical areas (PMSAs), and for New England states, New England county metropolitan areas (NECMAs). To ensure comparability, when presenting comparable data for 1990 and 2000, we use the 2000 boundaries of county-based metropolitan areas as defined by the Office of Management and Budget (OMB) on June 30, 1999. Using this definition, there are 318 MAs in the United States. However, our analyses include only metropolitan areas where there are 1,000 or more members of a particular minority group because segregation indexes for metropolitan areas with small minority populations are less reliable than those with larger ones.[1]

To examine the distribution of different groups across neighborhoods within metropolitan areas, we use census tracts. Census tracts typically have between 2,500 and 8,000 individuals, are defined with local input, are intended to represent neighborhoods, and typically do not change much from census to census except to subdivide. In addition, census tracts are by far the most used unit in research on residential segregation (e.g., Logan, Stults, and Farley 2004; Massey and Denton 1993).[2] Thus, the data include information on population counts for all racial groups and for Hispanics by census tract in all metropolitan areas, as well as counts of these groups by nativity and, among the foreign-born, year of entry. We exclude counts of individuals in institutional group quarters (such as prisons).

The 1990 census collected information on four race groups: white; black; American Indian, Eskimo, or Aleut; and Asian or Pacific Islander. There was an additional question on whether an individual was of Hispanic origin. In the 1990s, after much research and public comment, the OMB revised the racial classification for the 2000 census to include five categories—white; black or African American; American Indian or Alaska Native; Asian; and Native Hawaiian or other Pacific Islander, as well as the additional Hispanic-origin question—and allowed individuals to report more than one race. Census 2000 figures indicate that 6.8 million, or 2.4% of the population, reported more than one race (Jones and

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1. Random factors and geocoding errors are more likely to play a large role in determining the settlement pattern of group members when fewer members are present, causing these indexes to contain greater volatility (Iceland et al. 2002; Massey and Denton 1988a). The 1,000 group population cutoff, while inevitably somewhat arbitrary, was also chosen by some other studies (e.g., Frey and Myers 2002; Glaeser and Vigdor 2001). The number of MAs used in the analyses are indicated in Table 1.

2. Choosing a smaller unit of analysis increases segregation scores because smaller units tend to be more homogenous (Iceland and Steinmetz 2003). Census tract and block-group-based scores, however, are extremely highly correlated (0.99), so it is unlikely that using an alternative unit would affect conclusions about the relationships studied here.

Smith 2001). This study focuses on the residential patterns of black, Hispanic, and Asian and Pacific Islander immigrants, as well as non-Hispanic white immigrants in some analyses (non-Hispanic whites are included in the analyses that focus on the foreign-born only because U.S.-born non-Hispanic whites are the reference group in our segregation calculations). For 2000, minority groups in this analysis include those who identified themselves as being a member of that minority group either alone or in combination with another race. Non-Hispanic whites consist of those who marked only white and who indicated that they were not Hispanic. The reference group in the segregation calculations is U.S.-born non-Hispanic whites.[3]

This analysis uses the index of dissimilarity to measure residential patterns. This is the most common index in the segregation literature. The dissimilarity index is a metropolitan-level summary measure that describes how evenly people of different groups are distributed across neighborhoods within a metropolitan area. It ranges from 0 (complete integration) to 1 (complete segregation) and specifies the percentage of a group's population that would have to change residence for each neighborhood to have the same percentage of that group as the metropolitan area overall. For example, if a metropolitan area is 20% black and 80% white, then black-white dissimilarity will be 0 if every single neighborhood in the metropolitan area is 20% black and 80% white. Dissimilarity is formally computed as

$$D = .5 \times \sum_{i=1}^{n} |x_i/X - y_i/Y|,$$

where n is the number of tracts in a metropolitan area, x_i is the population size of the minority group of interest in tract i, X is the population of the minority group in the metropolitan area as a whole, y_i is the population of the reference group (native-born non-Hispanic whites in this analysis) in tract i, and Y is the population of the reference group in the metropolitan area as a whole.

We also conducted the analyses with the isolation index (the second most commonly used segregation index), though due to the length of the current study we limit our discussion to dissimilarity. The conclusions do not change much when using the isolation index.[4]

We calculate metropolitan-level dissimilarity indexes in which native-born non-Hispanic whites are the reference group (1) by race and Hispanic origin and nativity and (2) among the foreign-born by race and Hispanic origin and year of entry. The cutoffs used for length of time in the United States are 10 years or less, 11 to 20 years, 21 to 30 years,

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3. Our more inclusive racial definitions mean that the minority group definitions are not mutually exclusive. Some of those who are black may also, for example, be Asian. Other work has shown that adopting a race definition in which a person is considered in a group if he or she chooses only that particular group has little effect on African American segregation calculations and a modest effect on Asian segregation calculations (Iceland et al. 2002: Appendix A). The similarity of scores across group definitions results, in large part, from the fact that the proportion of people who marked two or more race groups in the 2000 census was small (2.4%). Hispanic indexes are not affected by this specific issue since Hispanic origin is asked in a separate question. Methodologically, the most important issue is to ensure that the two groups used in any given index calculation are mutually exclusive, which is indeed the case in this analysis.

4. As with the dissimilarity index, results with the isolation index show that segregation from native-born non-Hispanic whites is higher among foreign-born Hispanics, Asians, and blacks than the native-born of those respective groups. One significant difference in the results when using dissimilarity versus isolation is that group characteristics, such as group size, play a larger role in explaining patterns of isolation of the foreign-born, as might be expected. The isolation index is sensitive to the relative size of the group in question, while the dissimilarity index, as a measure of evenness, is not. In addition, homeownership tends to be associated with higher levels of isolation among Hispanic and black immigrants, though this relationship is statistically insignificant when using dissimilarity. Results from both indexes provide general (though not unequivocal) support for the spatial assimilation model. Results with the isolation index are available upon request.

and 31 years or more.[5] Using 10-year categories permits us to see how segregation patterns for approximate cohorts in 1990 changed by 2000.

The descriptive tables with segregation scores will be followed by a multivariate analysis. The analysis is designed to answer the following question posed in the Introduction: to what extent are patterns of segregation explained by the characteristics of immigrants, such as socioeconomic status and other acculturation indicators? We further examine whether the effect of these factors varies by racial and ethnic group.

We estimate the following model:

$$Y_{ji} = B_0 + B_1\mathbf{X}_{ji} + B_2\mathbf{Z}_j + e_{ji}. \tag{1}$$

where Y_{ji} is the dissimilarity score for metropolitan area j and group of interest i for each metropolitan area where at least 1,000 group i members are present, $\mathbf{X}_{ji}$ is a vector of group i characteristics in metropolitan area j, and $\mathbf{Z}_j$ is a vector of metropolitan characteristics for metropolitan area j. The unit of analysis is the metropolitan area, though models include multiple observations per metropolitan area that contain information on the different nativity or year-of-entry groups, depending on the model. As before, the reference group for all the segregation calculations (Y_{ji}) is native-born non-Hispanic whites. We run separate models for blacks, Hispanics, and Asians.

This approach essentially follows Massey and Denton's (1989) strategy of pooling group metropolitan dissimilarity scores together and including dummy variables for each group comparison. For example, when we examine Hispanic patterns of segregation by nativity, each metropolitan area contributes up to two observations: one indicates the dissimilarity index for U.S.-born Hispanics, and the other the dissimilarity index for foreign-born Hispanics.[6] A dummy variable for nativity will indicate whether dissimilarity scores are higher for the foreign-born or U.S.-born.

In a second group of models, we examine year-of-entry groups among foreign-born blacks, Hispanics, Asians, and whites. Again, models are stratified by race and ethnicity. Four year-of-entry categories are used, mirroring the descriptive table: 1–10 years ago, 11–20 years ago, 21–30 years ago, and 31+ years ago. Thus, in these regressions, there are up to four observations per metropolitan area. Because the same metropolitan areas are included several times in all of the models, we produce corrected standard errors by using generalized linear regression models that account for the correlated error structure among the independent variables.

The $\mathbf{X}$-vector variables in the regression models represent group i characteristics in metropolitan area j. They include group size, English language proficiency (percentage who speak English very well or well), median income, and housing tenure (percentage owning homes).[7] These models are not strictly causal: segregation can affect groups' levels of both socioeconomic attainment and English language proficiency. Rather, our goal is to examine the relationship between segregation and these group characteristics,

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5. Different year-of-entry categories were tested using the 2000 census data to see whether patterns are sensitive to their specification. General patterns did not differ much, except that segregation for recent arrivals was highest when this category was defined more narrowly; in particular, segregation was higher for "recent" immigrants defined as arriving between 1995 and 2000 than for "recent" immigrants, defined as those arriving from 1990 to 2000.

6. In the multivariate models for Hispanics in Table 2, for example, there are 524 observations. This number consists of 290 metropolitan areas with at least 1,000 native-born Hispanics and another 234 with 1,000 or more foreign-born Hispanics. Results do not differ if a constant set of metropolitan areas (where both groups are present in sufficient numbers) are analyzed.

7. We also ran models with occupation, citizenship, and education variables, but these were highly correlated with income, English language proficiency, and housing tenure. Our findings on the general effects of acculturation and socioeconomic status variables do not differ much when using alternative model specifications.

and how these characteristics might help explain the broader association between nativity and segregation.

Z is a vector of metropolitan area characteristics that have been shown to be associated with segregation (Frey and Farley 1996; Logan et al. 2004; Wilkes and Iceland 2004). This includes metropolitan area size, percentage of the population that is minority, percentage of the civilian labor force in manufacturing and government, percentage of the labor force in the military, percentage of the population over 65 years old, proportion of the population 18 or older that is enrolled in school, percentage of housing units built in the last 10 years, percentage of the metropolitan area population in the suburbs, and region.

All of the regression models are unweighted. Our models do, however, include controls for both the size of the group in question (an X_{ji} variable) and the log of the total metropolitan population size (a Z_i variable). Detailed characteristics of the sample by race/ethnicity and nativity are available upon request. We present findings of the relationship between these variables and dissimilarity in 2000. We also ran other models in which the dependent variable represents changes in segregation for group of interest i and metropolitan area j between 1990 and 2000, but do not present these results because they show patterns similar to the cross-sectional models. These results are available upon request as well.

RESULTS

Table 1 shows average levels of metropolitan residential segregation (i.e., the dissimilarity index) of the foreign-born from native-born non-Hispanic whites by race/ethnicity, year-of-entry cohort among the foreign-born, and census year. The segregation estimates are weighted by the population size of the group in question. This gives relatively little weight to metropolitan areas with small foreign-born populations. The table includes metropolitan areas that contained at least 1,000 members of the group in question for all of the year-of-entry intervals in both the 1990 and 2000 censuses. This method allows measurement of the patterns of change for a fixed set of metropolitan areas.[8]

Between 1990 and 2000, the overall dissimilarity index of the foreign-born rose modestly from 0.411 to 0.443 (this difference is statistically significant, as are all changes described below), suggesting increasing segregation of the foreign-born from native-born non-Hispanic whites. However, two other patterns emerge from the first set of rows in the table on all foreign-born people: (1) more-recent arrivals have higher levels of segregation than those who immigrated much earlier in both the 1990 and 2000 census data, and (2) segregation for approximate year-of-entry cohorts also declined modestly from 1990 to 2000, except for pre-1970 arrivals.

Thus, according to 2000 census figures, the dissimilarity score for the foreign-born who arrived between 1990 and 2000 was 0.517, though it was only 0.313 for immigrants who arrived before 1970. Also, the dissimilarity score for those who arrived in the United States between 1980 and 1989 was 0.493 in 2000, down from 0.514 in 1990, indicating declining segregation for a particular cohort over time. The one exception is for those immigrants who arrived before 1970, for which the change in the dissimilarity score was not statistically significant. The cross-sectional data from 1990 and 2000 do not follow true cohorts, only approximate ones. That is, some of the immigrants who were counted in 1990 were no longer in the United States in 2000 (via emigration or death).[9] In both census years, there may of course be some misreporting about timing of immigration.

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8. Results are quite similar whether we include a fixed set of metropolitan areas that meet the population threshold in every year-of-entry category (as shown in the table) or we include all metropolitan areas that meet the population threshold in a given category.

9. Those who were counted in 2000 but arrived in the 1980s were also not counted in 1990 if, for example, they lived in a nonmetropolitan area in 1990 but moved to a metropolitan area sometime in the 1990s.

Table 1. **Dissimilarity From Native-Born Non-Hispanic Whites by Race, Hispanic Origin, Nativity, and Year of Entry: 1990 and 2000**

	Number of Metropolitan Areas	1990	2000
All Foreign-born People	187	0.411	0.443
All foreign-born people 1990–2000	187	—	0.517
All foreign-born people 1980–1989	187	0.514	0.493
All foreign-born people 1970–1979	187	0.462	0.443
All foreign-born people < 1970	187	0.302	0.313
All Hispanics	170	0.514	0.522
Native-born Hispanics	170	0.480	0.481
Foreign-born Hispanics	170	0.598	0.599
All foreign-born Hispanics	84	0.600	0.602
Foreign-born Hispanics 1990–2000	84	—	0.651
Foreign-born Hispanics 1980–1989	84	0.650	0.623
Foreign-born Hispanics 1970–1979	84	0.628	0.600
Foreign-born Hispanics < 1970	84	0.530	0.514
All Asians and Pacific Islanders	157	0.434	0.434
Native-born Asians and Pacific Islanders	157	0.402	0.394
Foreign-born Asians and Pacific Islanders	157	0.475	0.477
All foreign-born Asians and Pacific Islanders	63	0.475	0.482
Foreign-born Asians and Pacific Islanders 1990–2000	63	—	0.545
Foreign-born Asians and Pacific Islanders 1980–1989	63	0.534	0.520
Foreign-born Asians and Pacific Islanders 1970–1979	63	0.484	0.475
Foreign-born Asians and Pacific Islanders < 1970	63	0.498	0.507
All Blacks	84	0.713	0.674
Native-born blacks	84	0.716	0.675
Foreign-born blacks	84	0.747	0.712
All foreign-born blacks	24	0.754	0.727
Foreign-born blacks 1990–2000	24	—	0.751
Foreign-born blacks 1980–1989	24	0.775	0.751
Foreign-born blacks 1970–1979	24	0.778	0.754
Foreign-born blacks < 1970	24	0.784	0.772
Foreign-born non-Hispanic whites	91	0.271	0.305
Foreign-born non-Hispanic whites 1990–2000	91	—	0.470
Foreign-born non-Hispanic whites 1980–1989	91	0.451	0.420
Foreign-born non-Hispanic whites 1970–1979	91	0.408	0.403
Foreign-born non-Hispanic whites < 1970	91	0.247	0.270

Source: 1990 and 2000 census data.

Notes: Includes metropolitan areas with at least 1,000 members of the group in question in 1990 and 2000. Means are weighted by the size of the group. Higher values indicate more segregation.

Among Hispanics and Asians as a whole, we see a pattern of little change in dissimilarity from 1990 to 2000. However, we also see that among all racial/ethnic groups, the foreign-born are more segregated from U.S.-born non-Hispanic whites than are the U.S.-born of these groups. This finding is consistent with the predictions of spatial assimilation theory. Mirroring findings for the foreign-born as a whole, recent Hispanic and Asian immigrants tend to have higher levels of segregation from U.S.-born non-Hispanic whites than do Hispanics and Asians who have been in the United States longer according to both 1990 and 2000 census data. Segregation declined for most approximate cohorts of Hispanics in the 10 years between the 1990 and 2000 censuses, though changes for Asians are not statistically significant. Hispanic segregation from native-born non-Hispanic whites is generally higher than Asian segregation.

The pattern for foreign-born blacks differs in some important respects from that of Hispanics and Asians. The segregation of all blacks, U.S.-born blacks, and foreign-born blacks from U.S.-born non-Hispanic whites generally declined between the 1990 and 2000 censuses, in contrast to the trend for Hispanics and Asians, for which declines were not the norm. However, when we look at data from either census, more recent arrivals do *not* have higher dissimilarity scores than earlier arrivals. In addition, the small declines in dissimilarity for approximate cohorts from 1990 to 2000 are not statistically significant.

The pattern for foreign-born non-Hispanic whites is actually quite similar to patterns for Hispanic and Asian immigrants, though the overall level of segregation for this group (from native-born non-Hispanic whites) is appreciably lower. More-recent non-Hispanic white immigrants have higher levels of segregation than those who have been in the United States longer. We also see declines in segregation for recent cohorts, though little change for those who came between 1970 and 1979 and actually increases among those arriving before 1970.[10]

The descriptive results above provide some support for the spatial assimilation perspective, though a few patterns are equivocal and there is some variation across racial and ethnic groups. We now run a series of regressions to more clearly test the relationship between segregation and race/ethnicity, nativity, and year of entry.

Multivariate Results

Table 2 shows multivariate results indicating the factors associated with the levels of segregation of Hispanics, Asians, and blacks from U.S.-born non-Hispanic whites in 2000. Model 1 for Hispanics shows that, consistent with the spatial assimilation model, foreign-born Hispanics are on average more segregated (0.148 points) from U.S.-born non-Hispanic whites than are native-born Hispanics. In Model 2, the effect of nativity becomes statistically insignificant. Further analyses (not shown) indicate that the characteristics of the foreign-born in particular explain their higher levels of segregation, rather than characteristics of the metropolitan areas in which they reside. Also consistent with spatial assimilation, we find that greater English fluency among Hispanics is associated with lower Hispanic-white segregation. Metropolitan areas with large populations, with a greater percentage minority, and in the Northeast and Midwest have higher levels of Hispanic-white segregation. Those with more-recent home construction have lower levels of segregation.[11]

Results from Model 1 in Table 2 for Asians indicate that, again consistent with spatial assimilation, foreign-born Asians are more segregated from U.S.-born non-Hispanic whites than are U.S.-born Asians. The coefficient for the foreign-born among Asians

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10. That segregation increased between 1990 and 2000 for those who entered the United States before 1970 could reflect a compositional change in that group: in 1990, a higher proportion of those immigrants came from the pre-1920 immigration boom, whereas by 2000, a number of those immigrants had died, and the population therefore consisted more of immigrants who arrived in later years.

11. The differences between models discussed here and those below are all statistically significant according to likelihood ratio chi-square tests.

Table 2.   **Generalized Linear Regressions Indicating the Association Between Group and Metropolitan Characteristics With Levels of Dissimilarity of Hispanics, Asians, and Blacks From Native-Born Non-Hispanic Whites, 2000**

Variable	Hispanic		Asian		Black	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept	0.378**	0.528**	0.388**	0.569**	0.526**	0.263*
Nativity						
Native-born (omitted)						
Foreign-born	0.148**	−0.021	0.043**	0.017	0.120**	0.083**
Other Group-Specific Characteristics						
Group size (10,000s)		0.000		0.001**		0.001**
% speaking English very well/ well		−0.436**		−0.216**		−0.222*
Median household income (1,000s)		−0.002**		−0.001*		−0.005**
% owning a home		−0.055		−0.154**		0.053
Metropolitan Area Characteristics						
Log of total population		0.031**		0.007		0.047**
% minority		0.093*		0.045		0.065
% in manufacturing		0.114		0.174*		0.094
% in government		−0.122		0.033		0.017
% in military		−0.075		−0.367*		−0.529**
% over 65 years old		0.015		−0.146		−0.171
% of population enrolled in college		−0.174		−0.198*		−0.470**
% of housing units built in last 10 years		−0.296**		−0.186**		−0.364**
% of population in suburbs		−0.041		0.059**		0.092**
Region						
West (omitted)						
Northeast		0.099**		0.054**		0.077**
Midwest		0.043**		0.070**		0.107**
South		0.016		0.060**		0.048**
N	524	524	469	469	428	428
−Log-Likelihood	447.934	663.691	555.415	691.410	301.567	515.924

Note: The table includes metropolitan areas with at least 1,000 members of the group in question. See the text for details.

*$p < .05$; **$p < .01$

(0.043) is smaller than the corresponding one for Hispanics (0.148). As with Hispanics, the foreign-born dummy variable becomes statistically insignificant in Model 2 (again due to group characteristics rather than to metropolitan characteristics). Greater English fluency, homeownership levels, and income among Asians are associated with lower levels of Asian-white segregation. The effect of income is weaker and less robust than the other indicators. The group size variable is positively associated with segregation. Metropolitan

areas in the Northeast, Midwest, and South all have higher Asian-white segregation than those in the West. Metropolitan areas with newer home construction have lower levels of segregation, though those with relatively large suburban populations have higher Asian-white segregation.

Results in Model 1 of Table 2 for blacks indicate that foreign-born blacks are also more segregated from U.S.-born non-Hispanic whites than are U.S.-born blacks. However, unlike in Model 2 for Hispanics and Asians, group and metropolitan characteristics do not explain the Model 1 relationship. This is in part due to the fact that black immigrants tend to be of higher average socioeconomic status than native-born blacks. Model 2 shows that higher median income is associated with lower levels of black-white segregation. Group size is positively associated with segregation. That the nativity coefficient remains significant in Model 2 signifies that unidentified characteristics play a role in the particularly high levels of segregation between foreign-born blacks and U.S.-born non-Hispanic whites.

Overall, the results in Table 2 provide support for the spatial assimilation model: the foreign-born are more segregated from non-Hispanic whites than are the U.S.-born, and group characteristics are associated with segregation in expected ways. While these relationships apply to blacks as well, the overall high levels of black-white segregation indicate greater overall spatial polarization between these groups than among Hispanics and whites and Asians and whites.

Table 3 shows results for the foreign-born by year of entry. The reference group for these segregation indexes is the same as before: U.S.-born non-Hispanic whites. The Model 1 association between year-of-entry and segregation for foreign-born Hispanics and whites are quite similar—the more time in the United States, the lower the segregation from U.S.-born non-Hispanic whites. When controls are added (Model 2), the associations all become statistically insignificant, except among foreign-born whites who immigrated 31 or more years ago, who show particularly low levels of segregation from U.S.-born non-Hispanic whites. More than immigrants of other racial and ethnic groups, this group of foreign-born whites likely contains many people who immigrated quite a few decades ago.[12]

Further analyses not shown indicate that the year-of-entry coefficients become insignificant in Model 2 for Hispanic and white immigrants mainly because longer-term residents have characteristics associated with lower levels of segregation (e.g., higher English language fluency or higher incomes). The large differences in segregation by year-of-entry among white immigrants, and the strong association between group characteristics and segregation, suggests that the spatial assimilation model is particularly good at explaining the residential segregation patterns of foreign-born whites.

Among Asians, the coefficients for those who immigrated 11–20 years ago and 21–30 year ago are quite similar to those found in the Hispanic and white models. However, the 31+ coefficient is statistically insignificant. Moreover, in the full model, this group actually displays higher levels of segregation than do recent arrivals (the coefficients for the other year-of-entry groups become statistically insignificant). This indicates that levels of segregation would be even higher among these long-term immigrants if they did not have characteristics associated with lower levels of segregation (e.g., higher levels of English language ability and homeownership), for reasons we cannot identify.

Among blacks, only those who arrived 11–20 years ago have lower levels of segregation than the most recent arrivals, and this relationship becomes statistically insignificant in the full model. Higher incomes are associated with lower levels of segregation. For blacks, the very small difference in patterns of segregation by year-of-entry in Model 1 is not consistent with the spatial assimilation perspective, though the negative association between segregation and income is.

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12. The differences between models discussed here and those that follow are all statistically significant according to likelihood ratio chi-square tests.

Table 3. Generalized Linear Regressions Indicating the Association Between Group and Metropolitan Characteristics With Levels of Dissimilarity of the Foreign-Born, by Race and Ethnicity, From Native-Born Non-Hispanic Whites, 2000

Variable	Hispanic		Asian		Black		White	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Intercept	0.604**	0.315**	0.528**	0.503**	0.744**	0.476*	0.460**	0.411**
Year of Entry to the United States								
1–10 years ago (omitted)								
11–20 years ago	–0.024**	0.006	–0.031**	0.017	–0.031**	0.008	–0.029**	0.024
21–30 years ago	–0.036**	0.011	–0.044**	0.031	–0.024	0.030	–0.036**	0.026
31+ years ago	–0.097**	–0.040	0.013	0.105**	–0.003	0.052	–0.176**	–0.112**
Other Group-Specific Characteristics								
Group size (10,000s)		–0.001		0.000		–0.001		–0.007*
% speaking English very well/well		–0.164*		–0.150*		–0.105		–0.204**
Median household income (1,000s)		–0.001		0.000		–0.002*		–0.001*
% owning a home		–0.013		–0.116*		–0.054		–0.100
Metropolitan Area Characteristics								
Log of total population		0.041**		0.015*		0.043**		0.027**
% minority		–0.085		–0.042		–0.100		–0.076*
% in manufacturing		0.036		0.148		0.365*		0.304**
% in government		0.233		–0.033		0.785*		0.331*
% in military		–0.581		–0.345		–1.495**		–0.413*
% over 65 years old		–0.085		–0.002		–0.234		–0.533**
% of population enrolled in college		–0.290		–0.161		–1.468**		–0.395**
% of housing units built in last 10 years		–0.336**		–0.170**		–0.235		–0.011
% of population in suburbs		–0.084**		–0.002		–0.031		–0.040
Region								
West (omitted)								
Northeast		0.052**		0.041**		–0.023		0.020
Midwest		0.086**		0.078**		0.020		0.078**
South		0.005		0.064**		–0.053**		0.062**
N	559	559	535	535	208	208	569	569
–Log Likelihood	507.789	678.238	616.042	734.762	236.835	309.989	630.518	776.689

Notes: The table includes metropolitan areas with at least 1,000 members of the group in question. See the text for details.

*$p < .05$; **$p < .01$

CONCLUSION

The goal of this study was to examine whether spatial assimilation theory provides a good framework for understanding immigrant residential segregation patterns. We used restricted-use data from the 1990 and 2000 decennial censuses to calculate dissimilarity indexes for Hispanic, Asian, black, and white immigrants in all U.S. metropolitan areas, using native-born non-Hispanic whites as the reference group. We then conducted multivariate analyses to determine the extent to which differences in residential segregation can be explained by average immigrant group characteristics—such as socioeconomic status and English language ability—and metropolitan characteristics. Our findings provide broad support for spatial assimilation theory.

In support of spatial assimilation, we find that the foreign-born Hispanics, Asians, and blacks are more segregated from U.S.-born non-Hispanic whites than are the U.S.-born of those groups. In addition, many of the patterns can be explained by the average characteristics of the foreign-born that are generally associated with higher levels of segregation, such as lower levels of income and less English language fluency. We also find that immigrants who have been in the United States for longer periods are generally less segregated than new arrivals, and once again, much of this difference can be attributed to the characteristics of these immigrants.

Patterns, however, vary across groups. Levels of segregation from non-Hispanic whites are much higher for black immigrants than for Asian and Hispanic immigrants. In addition, because black immigrants are, on average, of higher socioeconomic status than U.S.-born blacks, such characteristics do little to explain their very high levels of segregation. We also find that non-Hispanic white immigrants are moderately less segregated than Asian and Hispanic immigrants. Moreover, the strong association between white immigrant characteristics and segregation in the expected direction suggests that the spatial assimilation model is particularly good at explaining the residential segregation patterns of foreign-born whites. Thus, these results suggest that the extent and pace of spatial assimilation among immigrants is affected by their race and ethnicity. In absolute terms, levels of segregation from U.S.-born non-Hispanic whites are high for black immigrants, moderate for Hispanic and Asian immigrants, and low to moderate for white immigrants.

It could thus be argued that, overall, very high levels of segregation among black immigrants in particular provide support for the segmented assimilation perspective. Clearly, black immigrants live in very different neighborhoods than non-Hispanic whites, regardless of their characteristics. However, the fact that we see some differences among blacks by nativity, albeit quite small, and some effect of socioeconomic characteristics, mainly income, suggests that support for segmented assimilation (as opposed to spatial assimilation) is not unequivocal.

When we examined change between 1990 and 2000, results were often consistent with the spatial assimilation model. While the foreign-born as a whole became more segregated between 1990 and 2000, it was mainly because more-recent arrivals in a given census year had higher levels of segregation than those who immigrated earlier. When we looked at change for approximate cohorts of immigrants, we found that many (though not all) experienced small declines in dissimilarity, particularly among Hispanic and non-Hispanic white immigrants. This suggests that the main reason for the overall increase in segregation for the foreign-born between the censuses was due to a compositional shift: many of the foreign-born are recent arrivals.

The implication of these analyses' support for the spatial assimilation model is that immigrant families will tend to live in more integrated environments the longer they remain in the United States—often as they become more acculturated and gain in socioeconomic status. This is consistent with the view that residential racial/ethnic polarization is not increasing and is perhaps even likely to decline in the future. For example, just as white

ethnic groups at one time occupied very different residential niches and thought of themselves as being very different groups, over time, many of these differences diminished and residential ethnic enclaves weakened (Waters 1990).

Two sets of findings provide reason to be cautious about drawing this conclusion too firmly. First, despite some declines in black segregation in the 1990s, blacks and black immigrants continue to be considerably more segregated from whites than are other groups. Black-white racial polarization and the continued—albeit declining—discrimination against blacks in the housing market still likely play important roles in shaping residential patterns (Ross and Turner 2005). Whether the long-run trend of moderate declines in black segregation continues and eventually translates into less polarization and greater integration for black immigrants as well will be an important issue to track in the coming years.

Second, that group characteristics often help explain relatively high levels of segregation among some groups—and Hispanic immigrants in particular—also has important implications. While it suggests that spatial assimilation processes are at work that could reduce segregation over the longer run, continued high levels of Hispanic immigration, largely consisting of people with low socioeconomic status—precisely the characteristics associated with high levels of dissimilarity—suggests that we should in fact witness increasing levels of segregation for Hispanics in the short- (and medium-) run. Over time, we may see declines in Hispanic segregation because second- and third-generation Hispanics tend to experience upward mobility (Bean and Stevens 2003).

Finally, although the purpose of this analysis was to shed light on general national patterns, some questions remain unanswered. For one, it would be useful to look at patterns of specific groups in more detail, as there is much intragroup variation in both the historical context of immigration and the characteristics of the immigrants themselves. Another avenue for future research would be to comparatively examine settlement patterns in a just few metropolitan areas; such an analysis would amplify some of the broad findings here. Coordinated case studies focusing on where different immigrants settle and how settlement changes over time and across cohorts would provide greater detail about the spatial assimilation process—or perhaps the lack thereof—among and across groups.

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