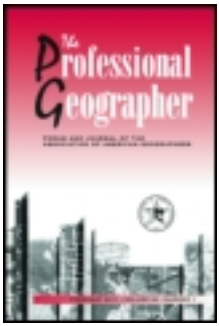

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Spatial Patterns of Immigrant Assimilation

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Spatial Patterns of Immigrant Assimilation*

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This research compares the contemporary areal patterning of cultural and economic assimilation with patterns expected from a model of urban spatial assimilation described by Massey and modified by us. Using 1990 census data (PUMS) for 12 immigrant groups in the greater Los Angeles area, we locate the ethnic concentrations of each group and identify two additional zones based on distance from the concentration. The zones represent varying degrees of spatial assimilation. This method allows us to compare the distribution of immigrant cohorts over time and the degree of cultural and economic assimilation of residents of the different zones. Our findings confirm most geographical aspects of the modified model. Zonal differentiation occurs in the expected direction and is statistically significant although not strong for most groups. More recently arrived immigrant groups and those with higher incomes tend to show greater differences in assimilation between zones. **Key Words: immigrant, assimilation, ethnic concentration, Los Angeles.**

The changing pattern of immigrant distribution in American cities, especially in relation to cultural and economic assimilation, has been the subject of much research. Most studies examining these matters have focused on the experiences of European immigrants and their children. For many years the theoretical basis for the connections between the various processes and patterns was not formally developed, but this has been elaborated by Douglas Massey (1985) into what is now usually called the model of spatial assimilation or the model of residential segregation. The central observation of the model is the direct connection between cultural, economic, and spatial assimilation. Immigrants who share a culture initially settle together for mutual support, but they and their children leave that concentration and find homes among English-speaking U.S. residents as they become more familiar with the country's culture, find better jobs, and earn more money.

The spatial pattern of immigrant assimilation is of current interest because of the large number of recent immigrants to metropolitan areas and the radical changes experienced by cities and suburbs during the last 40 years. Compared with the earlier European immigrants, many post-1965 immigrants arrive with much higher levels of education and professional attainment, and many also bring much wealth with them. It seems plausible that such immigrants may form ethnic concentrations in different types of places, settle less frequently in ethnic concentrations, or show weaker connections between spatial assimilation and cultural and economic assimilation. Furthermore, metropolitan areas themselves have deconcentrated and expanded many times over, and transportation developments have increased accessibility across metropolitan areas and loosened constraints that formerly made ethnic concentrations small in areal extent, often on the scale of neighborhoods.

During the last decade there have been several studies that have assessed areal differences in assimilation among recent immigrants (Alba and Logan 1991, 1993; Logan and Alba 1993; White et al. 1993). Such studies, using individual-level data in the 1980 Public Use Microdata Sample (PUMS) file, have tested the influence of certain variables representing cultural and economic assimilation on immigrant residence in areas representing spatial assimilation. However, in these studies areas of spatial assimilation have been defined without any spatial relationship to areas of concentration. Moreover, overly broad identification of areas of ethnic concentration enabled the researchers to uncover only a portion of the potential areal differences in assimilation. Part of the reason for less attention to these geo-

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graphical parameters was the limited areal units available for the 1980 PUMS data.

Our goal is to add to the understanding of the geography of contemporary immigrant assimilation in three ways. First, as in other recent studies we measure the assimilation of individuals by means of the most recent PUMS data, but the greater number of areal units for which 1990 data are available compared with 1980 enables us to define more tightly and appropriately the areas of ethnic concentration for different specific immigrant groups. Second, this research adds the concept of accessibility or distance to an ethnic concentration to the model as described by Massey, and it redefines spatial assimilation as reduced accessibility to that concentration. Third, our findings rest on an unusually broad, large, and current base. We analyze 12 groups of immigrants in the five-county Los Angeles Consolidated Metropolitan Statistical Area (CMSA), a region that contains a fifth of all foreign-born people in the United States and more foreign-born than any other metropolitan area.

Our identification of specific zones of ethnic concentration and others of lesser accessibility to those concentrations makes possible a more geographical test of spatial variations in assimilation. For each zone and immigrant group we calculate the percentage or median value of selected assimilation variables, thus permitting comparison of characteristics in the different zones. In addition, we statistically test for observed differences among zones and measure the association between selected characteristics of the groups and the extent of their zonal differentiation.

In the next section we explain how our research design extends previous findings. Concepts of assimilation and the model described by Massey are then briefly summarized and the results of other studies of spatial assimilation are reviewed. Next we discuss the geographical parameters of our design, including the rationale for inclusion of accessibility and our definitions of three zones of varying spatial assimilation. The immigrant groups are then introduced and the choice of assimilation variables is explained. Results reveal the relative assimilation of individuals in the three zones of varying ethnic concentration/dispersal. Comparative distributions of ethnic groups and cohorts across the three zones are followed by zonal comparisons of cultural and economic assimilation of immigrants and, for some variables, the U.S.-born members of groups. Finally, we show how specific groups differ in their zonal differentiation and provide a more detailed look at three immigrant groups (Japanese, Armenians, and Mexicans) that were somewhat exceptional.

The Theoretical Basis for Spatial Patterns of Assimilation

Cultural assimilation, or acculturation, is usually the first and the easiest in the series of stages of assimilation by which immigrants become theoretically integrated into U.S. society (Gordon 1964). Later stages in assimilation, such as social and marital, are dependent on prior cultural assimilation. Both English language skills and formal education represent important aspects of cultural assimilation. At the same time, the learning of English and other cultural skills on the part of immigrants and their progeny leads to better jobs, resulting in higher incomes. Because U.S.-born whites generally earn higher incomes than immigrants and nonwhites, rising income indicates economic assimilation.

The residential location of immigrants reflects their level of cultural and economic assimilation (Massey 1985). Prior to cultural and economic assimilation, immigrants live in residential concentrations of their own group for mutual support. Being poor and unfamiliar with this country, they choose low-cost housing in the older central areas of cities, often located near centers of employment. With growth, the area of concentration becomes sizable enough to support a range of institutions that ease the adjustment of newcomers. There has been no consensus as to the conditions that maximize the viability of ethnic groups in a metropolitan area, but theoretically they involve both population size and geographical concentration rather than proportion in the total population. An ethnic group's absolute size within a city is probably of greatest importance in establishing and maintaining group culture, social networks, and institutions (Fischer 1984), but geographical concentration in certain neighborhoods may be especially important for groups that are smaller in size (Darroch and Marston 1984).

Cultural and economic assimilation makes possible residential dispersal out of the ethnic concentration into less central areas of newer, better housing where the dominant population is U.S.-born white Americans. This represents spatial assimilation. In such places interactions with American neighbors and more assimilated immigrant families reinforce cultural assimilation and may increase economic assimilation. Spatial assimilation, or at least residence outside the ethnic concentration, is probably a necessary prerequisite for social assimilation, which occurs when there are frequent, close friendships with Americans outside the ethnic group. Thus, residential dispersal outside the ethnic concentration is an important geographic manifestation of cultural and economic assimilation and may also be required for substantial social integration in the larger American society.

Adding to Massey's model of spatial assimilation, we argue that access to an ethnic concentration remains important for most immigrants and sometimes even for U.S.-born members of ethnic groups. Because distance from frequently needed service facilities and other central places is an important factor in residential location decisions (Knox 1982), immigrant and ethnic populations also consider this factor, but for them the frequently needed services and institutions are often located in areas of ethnic concentration. Residential dispersal out of an ethnic neighborhood does not eliminate the need for visiting, shopping for special ethnic goods, and otherwise participating in the life of institutions located in the concentration. However, individuals who are more assimilated culturally should need to visit that area less often. Thus, assimilation can be expected to show a distance gradient from the concentration: as distance from the concentration increases, the relative assimilation of individuals should also increase.

A second addition to Massey's model involves our expectation that many newly arriving immigrants will not settle within ethnic concentrations. Migration chains direct new immigrants to the locations of friends and relatives (Choldin 1973; Massey 1986), but because these chains operate over years rather than just months, many earlier immigrants have already dispersed out of ethnic concentrations. The likelihood of some initial settlement dispersal was confirmed directly from a survey of 185 Korean immigrants in Los Angeles who were asked the reason for selecting the location of their first residence: 64% said to be "close to relatives or friends," while only 17% said "live in Korean-concentrated area" (Kim 1986).

Previous Research on Spatial Assimilation

Until the 1980s, most research on spatial patterns of assimilation has measured them in terms of ethnic residential segregation at the tract level. A group's level of segregation from whites is indicated by an index of dissimilarity so that groups can be compared and the association between the index and various measures of cultural and economic assimilation for the group can be measured. Research results have generally supported expectations regarding spatial assimilation for both European immigrant groups in the past (Lieberson 1963; Massey 1985) and more recent immigrant groups (Langberg and Farley 1988). Lower segregation has been associated with greater cultural and economic assimilation; foreign-born members of ethnic groups are more segregated from whites than are their U.S.-born counterparts; and members of those groups with higher levels of education and income are less segregated than their compatriots of lower status. Over time the socioeconomic status of immigrants increases (Neidert and Farley 1985). Among nonimmigrant ethnic groups, blacks have been the major exception to these associations (Massey and Denton 1993).

Such segregation measures, however, produce only a single measure of spatial assimilation for a group over an entire city or metropolitan area and do not permit a direct assessment of the cultural and economic assimilation in specific areas. More recently, spatial assimilation has been measured in larger areal units like municipalities and suburbs as compared to central cities. In these cases, the ethnic group's spatial assimilation is indicated by the proportion of its population that lives in certain types of areas. This has usually been defined as residence outside a central city, in a high-income suburb, or in an area containing a high percentage of whites. The larger areal units make possible the use of data on individuals available

in the PUMS data file, permitting more penetrating analyses of cultural and economic characteristics of residents in specific areas relevant to spatial assimilation.

Major findings for newer immigrants consistent with the model of spatial assimilation are that Asian and Hispanic residents of higher income suburbs have higher levels of education and income, and Asians with higher levels of education and income tend to live closer to whites (Alba and Logan 1991, 1993; Logan and Alba 1993; White et al. 1993). Among Hispanics in greater New York City, English language ability is clearly associated with residential proximity to whites (Alba and Logan 1993). Also, expected associations between cultural assimilation variables and spatial assimilation are stronger in regions of the United States where ethnic group proportions are higher (Alba and Logan 1991).

On the other hand, some findings have been inconsistent for new immigrants with respect to expectations regarding spatial assimilation. An immigrant's length of residence in the United States has a surprisingly weak influence on residential assimilation (White 1988; Alba and Logan 1991), as does U.S. citizenship for the foreign-born (White 1988; White et al. 1993). Among Asians, English language skills and birth in the United States have little or no effect on residential proximity to whites, which depends more on economic characteristics (Alba and Logan 1993; Logan and Alba 1993).

There are also important differences among ethnic groups in the expected association between cultural and spatial assimilation, and specific ethnic identity was found to be a more important factor in residential assimilation than was birth in the United States (White et al. 1993). For example, Japanese, Vietnamese, and foreign-born Filipinos show little variation in English language skills between central city and suburb (Alba and Logan 1991). Also, Japanese immigrants are less segregated than U.S.-born Japanese, while Japanese immigrants are less segregated than earlier arrivals (White et al. 1993).

Thus, previous research has confirmed a general association between spatial assimilation and other types of assimilation, but it has raised questions about the variables and groups that do not fit the expected patterns. We believe that a more careful measurement of the geography connected with assimilation can lead to a clarification of these matters.

Measuring Geographic Parameters

In previous studies, the area that defines spatial assimilation has typically been composed of many separate subareas that have no necessary spatial connection. These widely located subareas also share no common spatial relationship with ethnic concentrations. For this reason, such areal definitions can give no indication of the broad pattern of changes in cultural and economic assimilation across a metropolitan area. Also, recent research has not identified distinctive areas of ethnic concentration, which are the expected centers of new immigrant settlement; and only one recent study acknowledged the role of accessibility to ethnic concentrations as a factor in the locational decisions of households (Massey and Mullan 1984). In contrast, our research gives special attention to defining the relevant spatial parameters that presumably affect cultural and economic assimilation.

Because theory has focused on ethnic concentrations as settings favorable to the maintenance of ethnic life, our primary goal is to compare the characteristics of people living within ethnic concentrations with those of people living outside such places. However, the vast areal extent of Southern California and its large immigrant populations made it possible for us to differentiate three theoretically relevant zones. The first is the ethnic concentration itself and the other two differ in accessibility or distance to the concentration. The three zones are labeled as (1) concentrated, (2) dispersed, and (3) highly dispersed. Our expectations are that less-assimilated individuals tend to reside in the concentrated zone, whereas more-assimilated individuals are found most frequently in the highly dispersed zone.

Zones were constructed from PUMAs (Public Use Microdata Areas) because the PUMA is the smallest areal unit for which individual-level census data can be obtained. The 92 PUMAs of the five-county Los Angeles Consolidated Metropolitan Statistical Area (CMSA) divide the area fairly evenly in population and in sufficient detail for our purposes: 85% of the PUMAs contained between 100,000 and 200,000 residents, and the City of

Los Angeles was itself divided into 21 PUMAs, resulting in an effective set of areal units.

Concentrated zones are distinctive for each group and, consistent with theory, are defined in terms of absolute numbers in the group rather than proportion in the total population. Since research has not identified any population threshold above which ethnic concentrations are viable, we attempted to include in our concentrated zones those specific areas locally recognized as important ethnic centers while excluding areas not so acknowledged. Familiarity with the area and its ethnic communities, as well as previous mapping of ethnic populations in terms of census tracts, helped us to determine a criterion for ethnic concentration that could be applied systematically to the groups. In this way we decided empirically that the concentrated zone for each group should be defined as those PUMAs that contained 3.7% or more of the total five-county Southern California population of that group.[1] Groups differed in the number and location of PUMAs in which they were concentrated (Fig. 1), but even the smallest groups were sufficiently large to support a range of ethnic institutions in their PUMAs of concentration.

The *highly dispersed zone* is the same for all groups and is composed of those PUMAs that are farthest from the major ethnic concentrations. This zone includes all of Ventura, San Bernardino, and Riverside counties, as well as northern Los Angeles County (small towns and two cities in the Mojave Desert north of the San Gabriel Mountain barrier) and the inhabited portion of southern Orange County (Fig. 1).[2]

In between the highly dispersed and concentrated zones are *dispersed zones*, which are composed of the PUMAs not already classified as concentrated or highly dispersed. The large PUMA in eastern Orange County, extending from the far north to the south, is correctly included as dispersed because nearly all its residents live in the northern end; the middle and southern portions are sparsely populated rugged land in a national forest.

Population and Assimilation Variables

We rely on data for adults as reported in the 5% PUMS of the 1990 U.S. census. Because we wished to select those who were most likely to have completed their education and who were influential in making locational decisions, our study includes only adults from age 25 through age 64. The major focus is on immigrants (the foreign-born), but we also include U.S.-born members of the groups for appropriate variables—English language skills, educational attainment, and income.

Because the 1990 census contains no data on the birthplace of the parents of reported individuals, we cannot differentiate the second generation (children) of immigrants from earlier immigrant generations. Japanese, Chinese, Armenians, and Mexicans had established communities here prior to the 1930s so that the U.S.-born in these groups include many third- and fourth-generation Americans. However, for other groups, more recent immigration means that U.S.-born adults are almost all in the second immigrant generation (Table 1).

Immigrant Populations

Our analysis is based on the largest immigrant groups in Southern California except for Asian Indians and Puerto Ricans, who were excluded because they were not sufficiently concentrated anywhere. By far the largest immigrant group and the one with the longest history in this area are people of Mexican origin. During this century they have provided most of the workers for many construction, manufacturing, and low-level service jobs; the number of immigrants who arrived during the 1980s was particularly large. Beginning in the late 1970s, this labor force was supplemented by refugees from Central America and Indochina. At the other extreme in income are Japanese, including foreign-born managers on temporary assignment in Southern California as well as the highly educated U.S.-born.

In general, group differences in median income (Table 1) reflect variations in English language skills and occupational specialties. For example, Filipino immigrants are typically fluent in English and are often professionally trained, which frequently leads to high salaries. Korean immigrants are also well educated but their income level is not as high, perhaps because of the difficulties that beset the small businesses they have so frequently opened. Nearly all Iranians arrived here in the very late 1970s or 1980s, but their median income also

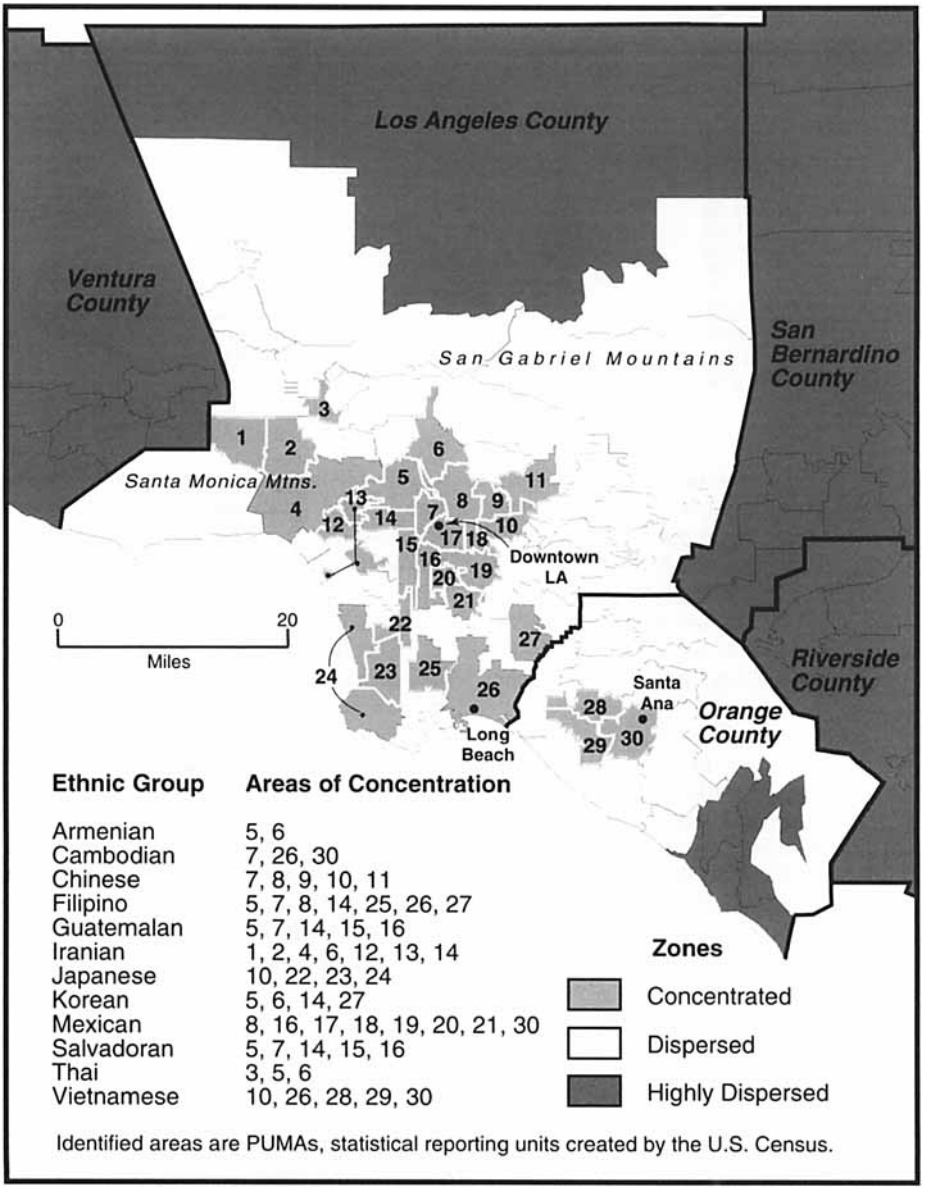

Figure 1: *Zones of concentrated and dispersed settlement for selected ethnic populations in the Los Angeles CMSA, 1990.*

reflects high levels of education as well as prior affluence in Iran. Averages for the Chinese and Armenians hide the great range within those groups, which include very poor and unassimilated immigrants as well as wealthy newcomers from Taiwan and third-generation Armenian professionals and businessmen.

The numbers of foreign-born from each group in each of the three zones are sufficiently large to ensure statistical reliability

Table 1 *Summary Statistics for Ethnic Populations, Ages 25–64, Los Angeles CMSA, 1990*

Group	Population Total	Percent Foreign-born (Immigrants)	Percent Foreign-born Arrived 1989–1990	Median Household Income (U.S.- and Foreign-born)
Mexican	1,607,081	63.7	37.3	$29,160
Chinese	171,922	90.0	55.2	$39,602
Filipino	158,859	92.1	50.3	$48,000
Salvadoran	142,250	98.1	64.8	$22,200
Korean	107,717	98.2	56.3	$32,000
Japanese	106,546	39.6	41.8	$46,000
Guatemalan	74,778	98.1	64.3	$22,650
Vietnamese	71,083	99.2	57.6	$34,696
Armenian	61,558	80.8	55.2	$30,300
Iranian	42,344	98.0	48.4	$45,000
Thai	14,449	99.3	43.5	$40,000
Cambodian	14,142	99.5	77.9	$20,160

Source: 1990 U.S. Census, 5% PUMS. Household income is the total income of individuals aged 16 and older in a household. Because the 25–64 age restriction was not applied to household income calculations, medians are based on all households in which the householder reported the listed ethnic identity.

(Table 1). For the U.S.-born, however, Cambodians and Thais were too few to be included. People of Mexican origin represent 58% of all immigrants and 84% of the U.S.-born from all 12 ethnic groups. So that analyses are not unduly dominated by the size of this group, our results are presented in ways that differentiate Mexicans from the aggregation of the other groups.

The distribution of immigrant arrival cohorts by zone is a good indicator of the pattern of initial immigrant settlement and later dispersal. We define four cohorts in terms of their year of initial arrival in the United States: 1987–1990, 1980–1986, 1970–1979, and before 1970. Our expectations are that the most recent immigrants will be represented in highest proportions in the zone of concentration because the model predicts initial settlement in ethnic concentrations. Assimilation over time has presumably resulted in the movement of earlier immigrants out of those concentrations and into still more outlying areas such that their proportion would be greatest in the highly dispersed zone.

Indicators of Assimilation

Three measures of acculturation or cultural assimilation are used: English language ability, educational attainment, and U.S. citizenship. We measure variations in self-assessed English language ability by calculating the percentage of individuals who reported either that they spoke only English at home or that they used another language but did speak English very well. To measure educational attainment we calculate the percentage of adults who were high school graduates and the percentage who had earned at least a bachelor's degree. Although many immigrants never choose to become citizens and citizenship is not necessary in order to achieve assimilation, a decision to naturalize reflects a commitment to the United States that usually expresses some degree of familiarity and comfort with life here. For this reason our third indicator of acculturation is the percentage of those born in another country who became citizens by naturalization.

Economic assimilation is indicated by individual median income. Even though residential location decisions are typically made by households, our focus on the characteristics of individuals favors individual incomes as the better indicator of economic assimilation. In addition, this eliminates any problem connected with ethnically mixed marriages or households composed of both U.S.- and foreign-born adults.

Although we do include indicators of assimilation for U.S.-born adults in two tables (English language ability and educational attainment), our statistical analyses and presentation of characteristics of specific groups (Fig. 2) are based only on immigrants themselves because they outnumber the U.S.-born in most groups and exhibit a greater zonal differentiation in characteristics.

For each of the three zones we calculate the percentage or median value of selected assimilation variables for each of 12 ethnic groups. We also measure the association between se-

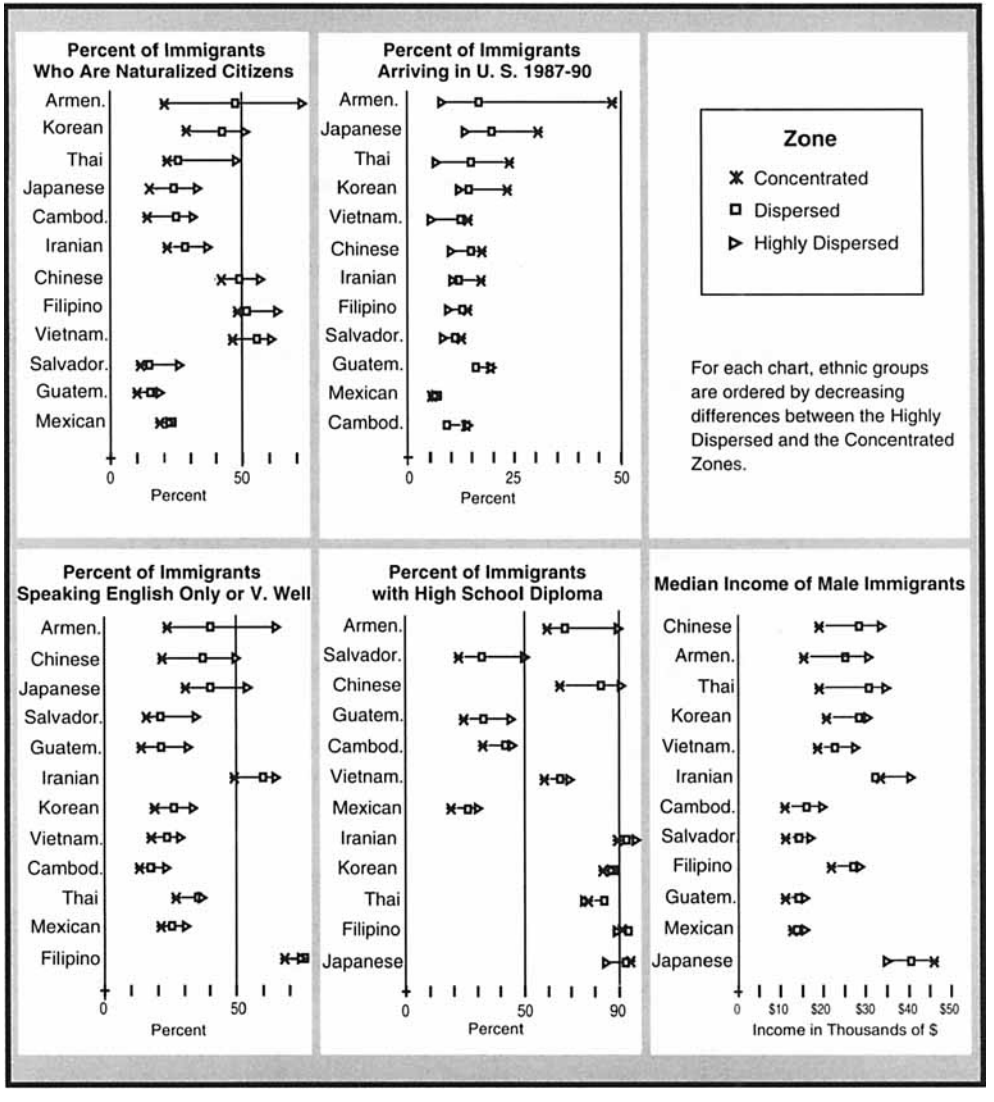

Figure 2: *Assimilation of immigrants by zone of concentration/dispersal, Los Angeles CMSA, 1990.*

lected characteristics of ethnic groups and the extent of their zonal differentiation by means of Spearman rank-correlation and test for statistical differences of the observed zonal differentiation.

Distribution of Ethnic Populations

Many ethnic concentrations are still located centrally, close to downtowns in the old central cities of Los Angeles, Long Beach, and Santa Ana (Fig. 1). These remain areas of relatively low-cost housing, particularly for immigrants unable to afford to live in newer, more attractive areas. The large Salvadoran and Guatemalan settlement (7, 14–16), focused on Westlake, just west and southwest of L.A.'s downtown, and the Cambodian center in the older part of Long Beach (26) represent such concentrations. So do Koreatown (14), the Filipino settlement in the Temple/Alvarado area (7), and the Armenian settlement in Hollywood (5).

Nearly all the largest Mexican concentrations are on the east side of L.A.'s downtown, including Lincoln Heights and Highland Park (8), Boyle Heights (17) East Los Angeles (18), Huntington Park (20), and the east side of South Central Los Angeles (16).

Many other concentrations, however, are located in older suburban areas: Armenians and Koreans in Glendale (6), Thais in the eastern San Fernando Valley (3), Japanese in Gardena (22), Filipinos in Carson (25), Chinese, Vietnamese, and Japanese in the Monterey Park area (10), and Vietnamese in northern Orange County (28 and 29). Such locations demonstrate that ethnic concentrations are no longer found only in the oldest, poorest, and most central parts of cities, as was once the case. All of the above suburbs have higher income levels than the more centrally located ethnic concentrations, and many Chinese take pride in identifying Monterey Park as the first suburban Chinatown in the United States.

There are also ethnic concentrations in areas of more expensive housing: Filipinos and Koreans in the newer suburb of Cerritos (27); Chinese in San Gabriel, Arcadia, and prestigious San Marino (11); Japanese on the Palos Verdes Peninsula and in the Manhattan and Redondo Beach areas (24); and Iranians in Westwood (12), Beverly Hills (13), the nearby Santa Monica Mountains (4), and the southwestern San Fernando Valley (1 and 2). Such locations reflect the greater affluence of some of the newer immigrant groups (Table 1) and indicate that many upper-income immigrants wish to live in ethnic concentrations despite having the income or wealth to live almost anywhere in Southern California.

In nearly all ethnic groups the U.S.-born adults are much more spatially dispersed than the foreign-born adults (Table 2A). Except for the Japanese, the concentrated zones contain higher percentages of immigrants than of U.S.-born, and the highly dispersed zones have higher percentages of U.S.-born. For several groups the concentrated zone is more than twice as important as a residential area for the foreign-born as it is for the U.S.-born.

Considering only immigrants from countries other than Mexico, the distribution of arrival cohorts shows a pattern of concentrated zones containing higher proportions of recent arrivals (Table 2B). Highly dispersed zones have higher proportions of earlier arrivals. The percentage of recent immigrants (those arriving in the United States during 1987–1990)

Table 2 *Distribution in Two Zones of Relative Concentration/Dispersal, Los Angeles CMSA, 1990*

A. Immigrants and U.S.-born in Ethnic Groups

Group	Percent in Concentrated Zone		Percent in Highly Dispersed Zone	
	Foreign-born	U.S.-born	Foreign-born	U.S.-born
Mexican	29.2	12.1	16.1	30.7
Chinese	37.7	19.4	6.9	10.9
Filipino	32.8	21.4	16.4	20.1
Salvadoran	43.5	20.9	4.0	9.8
Korean	30.0	11.6	8.0	8.5
Japanese	21.4	22.0	11.5	9.5
Guatemalan	41.8	13.3	6.3	7.3
Vietnamese	38.7	*	11.2	*
Armenian	52.6	5.0	2.3	20.3
Iranian	45.3	*	11.0	*
Thai	19.5	*	14.0	*
Cambodian	44.2	*	9.4	*

B. Immigrant Cohorts

Arrival Cohort	Percent in Concentrated Zone		Percent in Highly Dispersed Zone	
	Mexicans	Other Groups	Mexicans	Other Groups
1987–1990	26.2	46.8	15.7	5.7
1980–1986	29.1	41.2	15.5	7.0
1970–1979	31.4	33.0	14.7	10.3
before 1970	26.5	23.9	19.9	15.6

Note: Distributions are percent of five-county populations residing in zones (Fig. 1). Percentages in the dispersed zone are not shown because they can be calculated readily from this table as the sum of concentrated and highly dispersed zone percentages subtracted from 100.

**indicates <1,000 persons.*

residing in zones of ethnic concentration is nearly twice that of pre-1970 immigrants, while the percentage of recent immigrants in the highly dispersed zone is only one-third the percentage of pre-1970 immigrants in that zone. These findings strongly confirm expectations of initial settlement in concentrations and later dispersal. (The much smaller and inconsistent zonal differentiation of Mexican immigrant cohorts is discussed later.)

The pattern of initial settlement in an ethnic concentration and later dispersal is particularly associated with more recently arrived and higher-income groups. This is demonstrated by the results of correlation analysis among all 12 groups (Table 3). The fact that recent immigrant groups tend to be more zonally differentiated by arrival cohort suggests that dispersal from such concentrations and residential mixing of cohorts may proceed quite rapidly among immigrants. The association between higher male incomes and greater zonal differentiation of arrival cohorts implies that after an initial few years of settlement in ethnic concentrations those groups with greater economic resources find it easier to move out of ethnic concentrations.

Although we have demonstrated the higher proportions of recent immigrants in ethnic concentrations that are expected from the model of spatial assimilation, the fact remains that a majority of recent immigrants do not live within concentrated zones. This contradicts the assumption of the Massey model that new arrivals settle in ethnic concentrations, and it supports our modifications of that model. Some new arrivals live sufficiently close to ethnic concentrations so that trips can be easily made in automobiles, but the dispersed location of many recently arrived immigrants certainly means that residence in an ethnic concentration is no longer necessary. A location near friends and relatives is probably more important, and it is likely that telephones and television now eliminate many of the trips to ethnic concentrations that had been necessary in former times. Altogether, the tendency for new immigrants to locate in ethnic concentrations and disperse from these over time is still evident, but this pattern has been substantially blurred by the widespread settlement of new immigrants outside such concentrations.

Cultural Assimilation

Although this study focuses on zonal differentiation of characteristics, observed interrelations between variables characterizing entire immigrant groups are evident and expected, based on previous research (e.g., Chiswick 1978; Poston 1994) and human capital theory (Becker 1975). Groups with higher levels of education and better language skills tend to have higher incomes. Such interrelationships among important assimilation variables are also demonstrated here for immigrants by statistically significant ($p < .01$) Spearman rank-correlations between the median personal income of men and both the percentage of high school graduates (.748) and the percentage of people who speak English only or very well (.762).

Differences between zones in cultural assimilation are in the expected direction and are often substantial. Among immigrants other than Mexican (Table 4), the percentages of

Table 3 *Correlation between Selected Group Characteristics and Zonal Differentiation of Immigrants from 12 Ethnic Groups*

	Median Male Income	Percent Recent Immigrant	Percent High School Graduates	Percent Skilled English
Zonal differentiation of male median income	.27	.26	.16	.09
Zonal differentiation of percent arriving 1987–1990	.67*	.72*	.49	.47
Zonal differentiation of percent high school graduates	−.32	−.09	−.78*	.56*
Zonal differentiation of percent skilled in English	.25	.61*	−.32	−.08
Zonal differentiation of percent citizens	.62*	.53*	.40	.34

Notes: Figures are Spearman rank-correlation coefficients; N = 12 groups. Zonal differentiation is the difference in variable value between the concentrated zone and the highly dispersed zone. Percent skilled in English indicates percent of adults speaking English only or very well.

**p < .05.*

citizenship and English language skill are only about half as high in the zones of concentration as they are in the highly dispersed zone, and rates of high school and college graduation in the zones of concentration are less than 75% of the rates in the highly dispersed zone. These findings, and particularly those concerning English skills, demonstrate very clearly that spatial patterns of cultural assimilation are consistent with those of earlier European immigrants from which Massey's model of spatial assimilation was derived. The often substantial differences in cultural assimilation between the intermediate (dispersed) zone and the two extreme zones (concentrated and highly dispersed) support the notion of a gradient of increasing assimilation extending outward from zones of concentration.

Zonal differentiation of English language ability and educational attainment is much greater among first-generation immigrants than among the U.S.-born because of the consistently higher level of education and English fluency among the U.S.-born. The fact that a much weaker effect of zonation was found among the U.S.-born for all three variables is not surprising because cultural assimilation appears to occur most rapidly during the lives of immigrants rather than those of their children. This is consistent with the expected rapidity of cultural assimilation compared with other types of assimilation (Gordon 1964).

Among people of Mexican origin, the differences in assimilation between the concentrated and dispersed zones are consistent with the model (Table 5), but the size of differences between zones is less than for the aggregation of other groups. As was expected, the presence of long-established Mexican centers, originating as farm labor communities, in Ventura, Riverside, and San Bernardino counties explains the fact that assimilation is not consistently greatest in the highly dispersed zone (Note 2).

Correlation analysis shows that groups with higher proportions of more recent (1987–1990) immigrants tend to be more zonally differentiated with respect to English language skill and citizenship rate (Table 3). It is not clear whether this results from a geographical sorting of newly arrived immigrants in terms of their already acquired language skill or from the more rapid acquisition of English among those people living outside zones of concentration. Nevertheless, these results imply that the expected spatial patterning of cultural assimilation diminishes or blurs over time.

Also, groups with very high levels of education and English language ability tend to be less differentiated by zone with respect to education. Very few of these immigrants are without high school diplomas. For example, Filipinos have such high levels of English language ability and educational attainment that it is almost impossible for sizable zonal differences in those characteristics to exist.

Zonal differences in cultural assimilation are statistically significant ($p < .01$) for all groups. However, values for Cramer's V are low (generally ranging from .05 to .15), indicating that

Table 4 *Assimilation in Three Zones of Relative Concentration/Dispersal: Adults in Ethnic Groups (other than Mexican) in Los Angeles CMSA, 1990*

	Concentrated	Dispersed	Highly Dispersed
Percent speaking English only or very well			
Immigrants	29.3	38.4	52.1
U.S.-born	90.4	94.0	94.5
Percent high school graduates			
Immigrants	59.0	71.6	80.2
U.S.-born	93.7	94.4	95.3
Percent 4-year college graduates			
Immigrants	23.9	33.1	34.6
U.S.-born	42.7	46.8	42.2
Percent citizens of immigrants	28.4	37.5	51.2
Median income for immigrant men	$14,500	$16,239	$24,000
Median income for immigrant women	$10,000	$11,000	$15,000
Median income for U.S.-born men	$21,021	$28,599	$35,000
Median income for U.S.-born women	$15,000	$18,000	$21,840

Note: Percentages are based on an aggregation of adults in the 11 groups. Incomes are medians of employed persons aged 25-64 in the 11 groups. Only persons who reported a positive income for 1989 are included.

Table 5 *Assimilation in Three Zones of Relative Concentration/Dispersal: Mexican-Origin Adults in Los Angeles CMSA, 1990*

	Concentrated	Dispersed	Highly Dispersed
Percent speaking English only or very well			
Immigrants	19.9	24.7	29.5
U.S.-born	81.2	89.0	87.9
Percent high school graduates			
Immigrants	19.2	26.9	27.7
U.S.-born	54.7	70.7	68.5
Percent 4-year college graduates			
Immigrants	1.8	3.5	3.1
U.S.-born	6.1	10.2	7.3
Percent citizens of immigrants	18.4	20.9	20.5
Median income for immigrant men	$13,500	$14,040	$15,000
Median income for immigrant women	$9,000	$9,600	$9,000
Median income for U.S.-born men	$18,500	$26,444	$26,527
Median income for U.S.-born women	$12,814	$16,748	$14,000

See Table 4 notes for details.

zonal differentiation for most groups is not strong, as is illustrated in Figure 2.

Thus, the spatial pattern of cultural assimilation of immigrant groups in Los Angeles is consistent with the pattern described by Massey (1985). However, findings for Mexican immigrants with respect to cohort distributions and cultural assimilation suggest an elaboration of the model. Recent Mexican immigrants are no more likely to be living in the concentrated zone than are earlier immigrants, but there is less cultural assimilation in the concentrated zone as expected. This indicates that zonal differences are not primarily a function of assimilation processes acting equally in all areas over time. Rather, such zonal differences in cultural assimilation must occur either because local residential mobility patterns are selective with respect to assimilation preferences or because people respond culturally to differences in the cultural environments of the concentrated and dispersed zones.

Economic Assimilation

Differences among zones in men's median income are in the expected direction for the aggregation of 11 immigrant groups (Table 4). To test the significance of zonal differences in income we compare lognormal income distributions for each group in each of the three zones using ANOVA for a random effects model and measure significance by the Scheffé procedure. Differences in income among all three zones are statistically significant ($p < .01$) for Cambodians, Chinese, Guatemalans, Koreans, Mexicans, Salvadorans, Thais, and Vietnamese. The incomes of Filipinos, Armenians, and Japanese are significantly different ($p < .01$) between only two of the zones, and for Iranians no zonal differentiation is statistically significant at that level. The expected zonal differentiation of income occurs despite the location of ethnic concentrations for Chinese, Filipinos, Koreans, Thais, and Armenians in middle- and higher-income areas. Thus, such zonal differences do not require that the ethnic concentration be located in a low-income area, as was the case for European immigrants.

In contrast to the substantial and generally consistent zonal differentiation found for men's incomes, the pattern for women's incomes is weaker and inconsistent (Table 4). This finding suggests that women's income is less important than men's as a factor in household residential decisions, not surprising considering the lower income of women.

Income levels in metropolitan areas tend to increase with distance from the older central parts of cities (Bogue and Hartmann 1987). Because zones of ethnic concentration are generally located toward the center of the five-county area, median income could be expected to increase with distance from concentrated zones simply as a result of this general urban pattern. Support for the notion that spatial patterns of income are primarily a function of prior metropolitan areal differentiation is found in the fact that the correlation analysis identified no group characteristic that was significantly associated with zonal differentiation of income (Table 3). The lack of statistically

significant correlation between zonal differences of income and both percentage high school graduates and English skill appears consistent with other research results reporting that Asians who live close to whites in suburbs often do not have the expected English language skills (Alba and Logan 1993; Logan and Alba 1993).

It seems likely that the small zonal differences found for groups with unusually low incomes occur because these groups do not have the diversity of incomes that would make greater income zonation possible (Fig. 2). This limitation presumably applies most to Salvadorans, Guatemalans, and Mexicans, for whom frequency distributions of income categories show the smallest standard deviation.

Special Cases: Japanese, Armenians, and Mexicans

The zonal differentiation among Japanese immigrants with respect to educational attainment and median income is the reverse of the expected direction. This pattern may well occur because of two special circumstances: (1) the presence in the highly dispersed zone of long-established Japanese families with origins in farming, and (2) Japanese corporate managers living temporarily in a PUMA of especially high income within the concentrated zone (24 on Fig. 1). In that PUMA, many of the foreign-born are Japanese nationals who manage the Southern California operations of Japanese corporations and have frequently chosen homes on the Palos Verdes Peninsula and in nearby Torrance (Moffat 1994). There, they form a mostly self-contained community of transplanted sojourners, most of whom have little intention of remaining in the United States. This is reflected in their relatively recent arrival and their low rate of naturalization. The special circumstances of these Japanese may also explain findings from previous studies that are inconsistent with the model of spatial assimilation: high rates of suburbanization without English proficiency (Alba and Logan 1991) and lower levels of Japanese-white segregation for more recent immigrants than for earlier immigrants and lower levels for immigrants in general than for U.S.-born (White et al. 1993).

The large zonal differences in Armenian cohort settlement and assimilation dramatize the areal differentiation expected from the model. The Armenian concentrated zone contains only two PUMAs: the eastern part of Hollywood and Glendale. The fact that 77% of all Armenian immigrants arriving since 1986 live in just these two areas is the result of chain migration and the highly focused operations of churches, refugee relief agencies, and a supportive ethnic community (Arax and Schrader 1988; Shay 1992). In Hollywood, where most poor Soviet Armenians settled, half of all Armenian immigrants arrived during the 1987–1990 period, when the Soviet Union permitted many to emigrate. Fifty-eight percent of Armenian immigrants in this area speak English poorly or not at all. Glendale's better housing and neighborhoods attracted many business and professional families, especially those from Iran, and cultural assimilation is greater: only 42% of immigrants speak English poorly or not at all. This much large zonal differentiation among Armenians can conceivably be related to the pointed focus of settlement and the intensity of recent immigration—temporary phenomena that happened to be caught by the 1990 census.

Among people of Mexican origin, there are much larger zonal differences between the distributions of U.S.-born and immigrants than between immigrant cohorts (Table 2A, B). This is consistent with the greater economic assimilation of the U.S.-born, who have a median income that is 66% higher than that of immigrants (Table 5). This clearly makes more and better residential areas available to them. Another factor in the differing distributions of the U.S.-born and immigrants may be a weakening of the networks of chain migration. Just as identification with the problems of Mexican immigrants is much weaker among those who have departed from the traditional ethnic concentration (Navarro and Acuña 1990), many Mexican-origin families whose roots here were established long ago but who are now living in dispersed and highly dispersed zones may have found that former ties of family and friendship to Mexican villages have eroded over time. This slow weakening of geographical linkages has been observed for other immigrant groups (Walker and Hannan 1989). Why do recent Mexican immigrants

have no greater tendency to settle in ethnic concentrations than did earlier immigrants? The net flow of immigrants during the last decade was so large that many newcomers could not find sufficient housing in Mexican areas. They spilled over into adjacent low-cost housing areas, including many that had been predominantly black, where Mexican families frequently shared homes (Turner and Allen 1991; Tobar 1992).

Conclusion

This research assesses the extent to which older generalizations about the spatial patterns of immigrant settlement and assimilation remain valid in the face of important changes in the characteristics of both immigrants and metropolitan areas. By carefully defining three zones of relative ethnic concentration and measuring assimilation by means of individual-level data for PUMAs rather than summary data for smaller area units, we demonstrate the continued presence of the spatial pattern of immigrant assimilation that could be expected from the model of spatial assimilation and the two additions to it that we proposed. Our identification of this pattern in terms of the large areal units of PUMAs raises the possibility that further areal differences in assimilation might have been uncovered if it had been possible to use a smaller areal unit so as to focus more precisely on ethnic neighborhoods within concentrated zones.

Our finding of a definite spatial pattern associated with relative immigrant assimilation can be summarized as follows. U.S.-born members of ethnic groups are more residentially dispersed than are immigrants, and recent immigrants are more likely to live in ethnic concentrations than are those who arrived earlier. Immigrants residing in ethnic concentrations show less English language ability, a lower educational attainment, a lower rate of naturalization, and a lower income level than do those living outside such concentrations. These results are generally consistent with the results of earlier studies in which immigrant cultural and economic assimilation was associated with spatial assimilation but spatial assimilation was measured by low segregation from whites or residence in mostly white or high-income suburbs rather than accessibility to ethnic concentration.

Two findings directly support our modification of Massey's model of spatial assimilation. Recently arrived immigrants frequently settle outside ethnic concentrations because chain migration leads many toward partially assimilated friends and relatives who are living outside those concentrations. Also, cultural and economic assimilation increases with distance from ethnic concentrations, suggesting an assimilation gradient across metropolitan areas.

Despite these generalizations based on an aggregation of immigrants from many countries, ethnic groups do differ a great deal, and those differences affect their assimilation and its spatial patterns. Differences among ethnic groups are typically greater than zonal differences within groups (Fig. 2), just as ethnic identity is a more significant predictor of assimilation than is birth in the United States as opposed to another country (Alba and Logan 1993; White et al. 1993). Exceptional patterns for some groups may be better understood if those groups' special circumstances are known, as we demonstrate for Japanese, Armenians, and people of Mexican origin.

Results of our research suggest three extensions of the general understanding of the spatial patterns associated with the modified model of spatial assimilation. These involve the location and economic status of ethnic concentrations, the typical absence of strong zonal differentiation, and the association of zonal differentiation with certain characteristics of the ethnic group.

First, the higher educational and income levels of many modern immigrants mean that many immigrants are not forced by their poverty to settle in areas of low-cost housing. For this reason ethnic concentrations are no longer restricted to the highly centralized older parts of cities but may include newer suburban and even wealthy areas. The fact that immigrant groups having higher incomes still form ethnic concentrations suggests the continued cultural and social importance of such concentrations as a focus for institutions and the less culturally assimilated members of the group.

Second, although the differentiation of characteristics by zone is consistent and statistically significant for most groups, differences in immigrant characteristics among zones are often

not large. This echoes Alba and Logan's findings for Chinese, Filipinos, and Vietnamese (1991). The fact that newly arrived and unassimilated immigrants frequently choose residential locations near friends and relatives who are living outside ethnic concentrations tends to weaken and blur the expected zonal differentiation, and the various factors determining the assimilation of individuals are so intricate in detail that only a small portion of them can be reflected in the broad and simple zonal patterns we have defined.

Third, ethnic group characteristics affect the size of zonal differences in assimilation. More recently arrived immigrant groups and those with higher incomes tend to show larger differences between zones. The special circumstances of Armenians and Mexicans suggest that recent and intense immigration into a highly focused settlement may increase the zonal differentiation of assimilation for a few years but that this differentiation may become weaker over time, even in the face of very large numbers of new arrivals. Also, to some extent such zonal differentiation is a function of the diversity within a population. Immigrant groups averaging extremely high or low on some measure of assimilation will have relatively few people who vary enough from the average to produce much in the way of zonal differentiation regardless of their residential location.

Thus, ethnic concentrations are no longer exclusively located in older centralized areas, and the areal differentiation of relative assimilation is often weaker than that implied by the model of spatial assimilation. Nevertheless, changes in the characteristics of immigrants and a radically expanded metropolitan geography over the last half century have not invalidated the general spatial pattern of relative assimilation that once characterized European immigrants and their children. ■

Notes

[1]Two well-known tourist and ethnic shopping centers (Little Tokyo and Chinatown) are relatively unimportant in numbers of residents. Their PUMA does not come close to qualifying for the concentrated zone for either Japanese or Chinese. Also, the Mexican-origin population is so widely distributed that only one PUMA contains as much as 3.7% of that group's total. Thus, we lowered the Mexican threshold to 2.5%; by so doing we identified eight contiguous PUMAs that collectively represent the best-known ethnic concentration.

[2]Because the highly dispersed zone includes some long-established Mexican-origin concentrations historically associated with farmwork, this ethnic group is unlikely to show the expected high level of assimilation in this zone. To determine if a different definition of highly dispersed zone for this group would show the greater assimilation that is expected, we redefined the three zones in terms of the percentage ethnic in the PUMAs rather than in metropolitan-wide spatial terms as shown in Figure 1. This alternative definition of spatial assimilation was much like that used by sociologists Alba, Logan, and White. The method produced only minor changes in the concentrated zone, but the highly dispersed zone with its very low percentage of people of Mexican origin now comprised nine high-income and predominantly white PUMAs. The analyses for people of Mexican origin were then repeated. When all three zones were redefined in terms of percentage Mexican in the total PUMA populations, both immigrants and the U.S.-born showed greater zonal differentiation with respect to English language skills, educational attainment, and rates of citizenship. The validity of the expected pattern of spatial assimilation is thus confirmed for Mexican immigrants when the areal definitions are changed.

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