

Panethnicity, Ethnic Diversity and Residential Segregation

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Research reported here was supported by the National Science Foundation grant, "Advancing Segregation Measurement" SES9975126.

Word count: 9,298

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Abstract

The panethnic categories of Asian, black, Latino, Native American and white, tend to impose homogeneity within these broad groupings. Such a broad classification belies the diversity of experiences of component national origin and ancestry groups. Yet, the shifting and layering of ethnic identities in the United States suggest that the panethnic boundary is now firmly embedded in the repertoire of social identities, especially in regards to residential segregation. In the present study, we test the panethnic hypothesis, that ethnic groups should be less segregated within panethnic boundaries than across them. We do observe a panethnic effect; greater proximity in residence is evident within panethnic boundaries than between, net of other traits predicting residential segregation. Nevertheless, there remains a considerable level of segregation between members of panethnic subgroups, arguing for caution in the presumption of panethnic uniformity in residential and other social outcomes.

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Introduction

Increasing ethnic and racial diversity brings about the opportunity for the remaking of ethnic boundaries and for new ethnic categorizations through the dynamic interplay of ethnic integration and host society reception. As the ethnic and generational mix of a society shifts or expands, so too might the position of boundaries that define larger ethnic clusters. In the United States, panethnicity as a concept has only fairly recently become established in the sociological literature. The attraction of the notion of panethnicity lies in the recognition of ethnic and cultural diversity within its boundaries. For the panethnic group, boundaries expand beyond national origins to encompass a range of groups perceived to share some structural or cultural traits.

Numerous scholars have strived to clarify the concepts of ethnicity, race and panethnicity (Lopez and Espiritu 1990; Omi and Winant 1986; Yinger 1994). The challenge in defining and applying these concepts has often resulted in their interchangeable use. Our objective in this paper is to uncover the extent to which the aggregation of ethnic groups can explain residential patterns of subgroups. We differentiate between labels, using “ethnic” to denote particular ancestry groups, which are often based on countries of origin. We take the term “panethnic,” to refer to a wider collective of ethnic and racialized groups that are commonly associated by phenotype or race, language or world region.

The formation of group boundaries and ethnic labeling has substantial implications for the measurement and analysis of residential segregation. When European groups comprised the majority of international migration flows into the US, much segregation work focused on residential segregation patterns of white ethnic groups and blacks (Duncan and Duncan 1955; Guest and Weed 1976; Kantrowitz 1973; Lieberman 1963; Lieberman 1980; Taeuber and Taeuber 1964). However, with the growth of ethnic and racial origins that followed the post-1965 shifts in migration flows and the perception of European assimilation across the generations, researchers tended to turn to panethnic or racial comparisons to ease interpretation and analysis (Alba and Logan 1993; Crowder 1999; Fischer 2003; Fong 1994; Frey and Farley 1996; Iceland, Weinberg and Steinmetz 2002; Logan, Stults and Farley 2004; Massey and Denton 1987; St. John and Clymer 2000; Wilkes and Iceland 2004), although there are exceptions (Crowder 1999; White, Biddlecom and Guo 1993; White, Fong and Cai 2003; White and Glick 1999; White and Omer 1997; Zhou and Logan 1991). The use of broader categories white, black, Latino, Asian and Native American, was further facilitated by the way data were collected and disseminated, most ostensibly in categories employed in the US decennial census. The practice of using this classification system continues, justified by reference to US racial and ethnic history, and by the argument that these categories provide the most information about inequality and social distance among groups.

While some empirical studies implicitly abide by this rationale, some scholars recognize at the same time that there is a substantial problem with this approach, which stems from the nature of social groupings. The very use of the broad categories of Asian, black, Latino, Native American and white, tends to reinforce a notion of homogeneity within these groups. Perhaps more important, use of these categories leaves little room for distinction within categories as

subgroups are not differentiated. These labels, it is argued, misrepresent subgroups and the diversity of experiences (Chan and Hune 1995; Kibria 1998; Yanow 2003). Furthermore, these populations are affected by internal conflict and fractures based on national origins (Itzigsohn 2004; Lieberman and Waters 1990). Within national origin groups themselves, there are even further cleavages based on ethnic or regional ties (Light, Sabagh and Bozorgmehr 1997).

In this paper, we examine the consequences of these trends and forces for ethnic residential patterns. In doing so, we evaluate the role of panethnic groupings within the urban context in determining ethnic residential outcomes. Much of the current literature on racial and ethnic residential patterns in the US applies either a broad panethnic approach and excludes a more refined ethnic definition or examines the location of a selected number of ethnic groups to the exclusion of panethnic categories. We add to this body of literature a systematic analysis of the *interrelatedness* between the broader concept of panethnicity and a more narrow delineation of ethnicity, that of ancestral origins, with respect to residential patterns. We ask, are ethnic groups less residentially segregated within panethnic boundaries than across them? That is, how segregated are national groups that share a panethnic label compared with those that belong to other panethnic groupings? When we use panethnic categories in studies of residential segregation, we assume that groups within these categories are residentially integrated. But to what extent can we make this “panethnic assumption”? Is there evidence of “panethnicity” in residential patterns? That is, can we talk about Asian segregation, black segregation, Latino segregation and white segregation without acknowledging the distinctive experience of subgroups? Our empirical analysis is designed to shed light on some of the theoretical issues related to the construction of ethnic group boundaries in the context of increasing ethnic diversity and experiences.

Using census data, we assess the degree of segregation within panethnic categories and compare across groups. Our investigation entails several steps. We first estimate levels of pairwise residential segregation using the entropy index for 57 racial and ancestry groups in the 20 largest metropolitan/consolidated metropolitan statistical areas in the US. We then apply multidimensional scaling (MDS) techniques to visually depict pairwise segregation patterns within and across broader groups for each metropolis. Third, we assess statistically panethnic clustering by classifying pairs of ethnic groups into one of five panethnic categories: Asian pairs, black pairs, Latino pairs, white pairs and cross-group pairs. Then we pool across all 20 metropolitan areas and statistically test the degree to which these aggregations into panethnic categories matter for residential segregation. Our results contribute to the debate on the use of broader classification schemes in the study of residential patterns in a society that receives groups from increasingly diverse origins. How the layering of ethnic boundaries plays out in structural conditions is not yet fully understood. The extent to which panethnicity helps to explain US urban residential patterns will reveal the significance of the multiple levels of group identities. We should also gain further insight into the adaptation process of immigrant groups and the future of racial and ethnic relations in the United States.

Segregation within the panethnic boundary: A literature review

Ethnic categories are continuously produced and reproduced through social interaction and institutional practices. The evolution of the US census with respect to questions on race and ethnic origin is one prominent illustration of this process, with each census revealing a snapshot of prevailing boundaries. Racial distinctions in the US census have endured since its inception over 200 years ago – direct questions on race began in 1820 – yet we continue to observe

decennial changes in its measurement (Snipp 2003). Hispanic identity and ethnic ancestry are recent census items appearing in the latter half of the 20th century and they also undergo constant fine-tuning. Thus, ethnic and racial classification schemes are determined by a socially and politically constructed process that is continually evolving over time and place. At any given time, research based on these classification schemes shapes our understanding of race and ethnic relations. In studies of racial residential segregation, the broader categories of Asian, black, Latino and white structure our perceptions of meaningful group distinctions. Yet, the layering of ethnic identities suggests that national origins remain as a salient group boundary (Duany 2003; Jones-Correa and Leal 1996; Itzigsohn and Dore-Cabral 2000; Kibria 2002; Okamoto 2003).

A number of empirical studies demonstrate ethnic diversity in residential patterns. In examining white ethnic group segregation, Kantrowitz (1973) argued against the prediction that immigrant segregation would be replaced by racial segregation. He asserted that racial segregation was an extension of ethnic segregation, and implied that it could mask ethnic segregation when voluntary separation at this more narrowly defined ethnic level was still possible, even into the second generation. Using 1960 census data on birthplace and parentage (national origin), he found moderate levels of ethnic group segregation and inferred little change over the previous decade in European intragroup segregation in the New York metropolis by comparing it to other US metropolitan areas. This, he argued, indicated that European ethnic groups maintained a degree of separateness that would contribute to high levels of racial segregation. Lieberman (1980) also underscored the importance of disaggregating white ethnic groups in studies of intergroup relations. He examined regional settlement patterns of large European and non-European ethnic groups and found that European groups varied tremendously in their degree of regional concentration.

A more recent study estimated the dissimilarity index for 39 ethnic groups and found evidence supporting Lieberman's and Kantrowitz's contention that European-origin groups are not equivalently intermingled with the rest of society (White and Glick 1999). However, the authors were interested in the effect of immigration on black-white segregation and therefore, did not investigate variation within and between panethnic groups.

In another study on the New York metropolis, Zhou and Logan (1991) investigated the residential patterns of the Chinese. They questioned the applicability of previous studies using aggregated Asian data to the Chinese experience, leading them to examine pairwise segregation between Chinese and other Asian ethnic groups, blacks, Latinos and whites. They found virtually equivalent levels of segregation between Chinese and other Asian subgroups and the rest of the population. Hence, they concluded, "...that measures for Asians notably understate the residential separation of these subgroups" (Zhou and Logan 1991: 404). White and colleagues have also revealed variation among Asian-origin groups in levels of segregation. These differences have been attributed to the historical, cultural and structural conditions of the various Asian ethnic communities (White, Biddlecom and Guo 1993; White, Fong, and Cai, 2003).

With respect to blacks, Crowder (1999) found that West Indians were confined to areas of large black concentrations suggesting convergence according to racial attributes. However, he also found that they attempted to maintain a distinct West Indian identity and carved out separate residential enclaves in black areas. Other studies on black immigrants, though not on their residential patterns, have also demonstrated variation from native-born blacks and across national groups (Farley and Allen 1987; Model 1991; Waters 1999). Waters (1999) found West Indian immigrants and black-Americans to assert distinctive identities and to maintain social boundaries while sharing the same employer. Similarly Model (1991) found that national origin

variation was appreciable in the socioeconomic outcomes of West Indian origin individuals, when compared to other black Americans. These studies suggest that caution must be taken when drawing conclusions about panethnic or racial groups as there may be firmly delineated boundaries between subgroups.

Scholars are well aware of the heterogeneity that characterizes Latinos according to racial, cultural, historical and structural features. Here the literature is arguably most developed (Bean and Tienda 1987; Duany 2003; Freeman 1999; Itzigsohn 2004; Montalvo and Codina 2001; Portes and Rumbaut 1996; Waters and Eschbach 1995). For some groups, this heterogeneity translates into residential separation. First, there have been high levels of regional concentration, with Mexicans in the South and West, Puerto Ricans in the Northeast and Cubans in the South (Bean and Tienda 1987). And within several urbanized areas, Mexicans, Cubans and Puerto Ricans have been found to have high levels of residential segregation from one another (Massey 1981). Segregation within the Spanish Origin population may be further exacerbated by black-white segregation and differential housing options (Massey and Denton 1987; Rosenbaum 1996; White 1987). Differences in other characteristics such as English-language proficiency, education, labor force participation, fertility and mortality have also been found across Latino groups (Bean and Tienda 1987; Hummer, Rogers, Amir, Forbes and Frisbie 2000; Jasinski 2000; Jensen 2001; Portes and Rumbaut 1996).

Existing studies offer one step toward understanding diversity within panethnicity but they tend to present a limited window on residential patterns, with a focus on the subgroups of a particular panethnic group rather than on several panethnic groupings at once. In addition, geographic representation is often limited to a handful of metropolitan areas. Massey and Denton (1987) offer one of the few studies that attempt to account for diversity within racial or panethnic

groups in residential trends. Their study found that for Hispanic segregation, the higher percentage of black Hispanics in an SMSA contributed to lower probabilities of contact with Anglos (Massey and Denton 1987). For Asians, a higher proportion of Chinese also reduced the likelihood of Asian contact with Anglos. This suggests that the degree of Asian and Latino segregation within a given urban area is, to some extent, affected by their racial or national origin composition. However, we still do not have a firm understanding of the degree to which panethnicity can account for ethnic residential segregation across an extensive number of groups. Our analysis begins to fill this gap.

The layering of social identities: Panethnic considerations

This section considers the factors that may lead to panethnic convergence in ethnic segregation patterns. Ethnic neighborhoods are often associated with one distinct group. “Little Italy” and “Chinatown” are familiar designations, and these have appeared in classical treatments of urban ecology. Yet, evidence points to increasing panethnic trends; Chinatowns have opened to other immigrants from Asia (Skeldon 1995), and multiple Latin American groups are found in mixed Latino neighborhoods (Pessar 1995; Ricourt and Danta 2003). This shift lends support to the practice of using the standard five broad racial and panethnic categories for the analysis of segregation. However, there are variations by metropolitan area suggesting that urban residential patterns are the result of the confluence of multiple factors such as the metropolitan context, the degree of identity with an ancestral group and conditions that foster panethnic identities.

Overlapping cultures, a shared structural position and institutional practices all contribute to establishing panethnic boundaries. Cultural dimensions include a shared linguistic heritage, religion or the construction of unifying symbols of a common identity (Lopez and Espiritu 1990;

Trottier 1981). With or without cultural overlap, ethnic group members may find themselves situated in a similar position as members of other ethnic groups in racial status, social class, occupations, geography and generation. This occurs through the process of racialization, which describes the attribution of racial meaning to social groups and stems from the inability of outsiders to identify group members (Omi and Winant 1986). For many then, an identity is imposed and does not reflect the intensity of affiliation with it (Kibria 1998). These structural factors also bear upon the formation of widening ethnic boundaries.

The incipience of the label Hispanic to refer to Latin American groups has been credited to the US government and the media (Calderon 1992). The panethnic identity emerged afterwards, out of the politics of ethnic and racial classification by the state through practices such as the census (Itzigsohn 2004). Contemporary scholars now point to notions of “Hispanicity” (Bean and Tienda 1987) or “Latinismo,” suggesting that there is some degree of panethnic consciousness, which is reinforced by community leaders (Padilla 1984) and facilitated by a common language and religion.

It is generally understood that the Asian-American identity emerged within the political context of the civil rights movement of the 1960s and 1970s and from the experience of discrimination and outright exclusion within a racialized society (Espiritu 1992). Although the pan-Asian grouping is characterized by a high degree of cultural variation among subgroups, their shared experience of racial lumping in the host society provides the nexus for solidarity (Lopez and Espiritu 1990). The ethnogenesis of the racialized Asian-American is attributed to the reaction of Asians to the perception and treatment by non-Asians, and not out of common cultural affinities (Espiritu 1992; Kibria 1998, 2002; Trottier 1981).

While Latino subgroups appear to have more cultural commonalities and Asian subgroups share more structural characteristics, both elements can be found in Native Americans. According to Nagel (1995), three factors lead to the resurgence of a Native American ethnic identity - federal policies of relocation, which brought Native Indians into geographic proximity in urban areas; ethnic politics, which created an environment of ethnic pride and entitlement; and political activism, which fostered Native American pride - despite the linguistic, cultural and religious differences among subgroups as well as differences in organizational structures. A constructed Pan-Indian cultural symbol that is tied to an oppressed status also serves to expand the Native identification beyond the tribal boundary. Trottier (1981) highlights the kinship metaphor of a link to the land, of “mother earth,” used by Native American activists to bring about unity and a Pan-Indian consciousness. This is framed in terms of state oppression and white domination.

The term panethnicity appears to be more prominent in the literature on Asian-Americans, Native Americans and Latinos and less so on blacks and whites. But there is reason to believe that analytically, panethnicity may be applied to these groups as well, especially in light of past and present migration flows from the vast regions of Europe, Africa and the Caribbean. Non-Hispanic black would be the relevant panethnic category, as it is a broader ethnic boundary that includes multiple ancestry groups. Subgroups share some structural characteristics, most notably a racial marker, although the forces promoting panethnicity are weakened by cultural variation. A movement to mobilize along panethnic lines also exists. The Pan-African movement has a long history, linked to W.E.B. Du Bois in the US in the early 1900's, and it exists to unite the experiences of the African diaspora (Marable 1998; Nantambu 1998). Differing from the more US-based panethnic movements characterizing Asians and Latinos, Pan-Africanism is an

international movement and extends beyond non-Hispanic blacks in the US to include blacks with Latin American ancestries. Yet, akin to the other panethnic movements, it appeals to shared historical ties and common interests (Adeleke 1998; Hamilton 1974).

For the white identity, the boundaries have shifted becoming more inclusive of European immigrant groups over time (Ignatiev 1995; Waters 1990), yet there is a clear boundary for exclusion. We also observe ethnic diversity for whites, although prior to the 1980 census, the national origins of those beyond the second generation were unidentifiable, being “administratively assimilated” through the census (White and Sassler 1995). As a panethnic group, the category of white incorporates the largest array of national and ancestry groups and is likely to be characterized by the most diversity in language heritage and religion, and in occupational and geographic concentration, migration history, and social and economic position. Yet, the use of this category implies some degree of homogeneity.

The cultural and structural conditions that provide the impetus for ethnic boundary change are further buttressed by formal institutions. Panethnic identities have been institutionalized in US society, by the state and in political and civic organizations, through policies and administrative practices (Yanow 2003). The collection of racial and panethnic information elevates these groupings into public consciousness that is reinforced by differential access to programs and services. The census also instills into the population a particular “cosmology” of racial and panethnic identities (Snipp 2003). While institutional practices may have been developed to reflect the way people see themselves, categorizing people also contributes to essentializing groups (Yanow 2003) and to promoting the perception of natural demarcations, which then become legitimized within institutions and individuals. The

solidification of these external and internal boundaries manifest in social outcomes such as residential patterns.

Residential differentiation along racial and ethnic lines is a key feature of the contemporary urban landscape in the United States (White 1987). The sorting of racial and ethnic groups across neighborhoods is one dimension of intergroup contact and it provides insight into the degree of acceptance and tolerance between group members. In other words, residential segregation reflects and perpetuates social segregation. To some extent, panethnic segregation trends may be indicative of the extent to which these broader based markers are internalized by group members and, in turn, are a result of voluntary integration within the panethnic group. A shared structural position or cultural overlap would suggest that social distance among panethnic subgroups should be less than with non-group members.

Boundaries are also related to perceptions by non-members. In this case, panethnic residential segregation can result from the steering of individuals and families by real estate agents, mortgage lenders and landlords based on what they believe to be a homeseeker's race or ethnic affiliation (Yinger 1995). That is, persons external to the panethnic group also have an interest in preserving spatial distance with those they perceive to be a part of a different group.

Another layer of the social identity and one that also bears upon residential patterns is a more narrowly defined ethnic identity, often based on a national or ancestral origin. Members of an ethnic group so defined may prefer to live with members of their own community due to shared symbols and understanding through language, religion and history which link individuals to a common culture. Migration networks serve to reinforce clustered residential patterns, as successive newcomers settle near co-nationals. These migration streams are most often nation-specific, as immigrants are perceived to be emigrants from a particular country and are

associated with others from the same national origin despite regional differences in the origin; the experience of Italians (Luconi 2001) and Poles (Lopata 1964) in the US provide such examples. The existence of formal institutions and strong ethnic networks based on national origins also contribute to this type of separation. Finally, a history of cross-national conflict between the country of origin and others further support nationalist orientations (Itzigsohn 2004). In essence, the differential integration experiences of ancestry groups based on their settlement histories and reception by host societies suggest that this layer retains its importance for residential processes, especially for recent immigrants.

Given both subjective affiliations and objective boundary maintenance, we expect that in the racialized US context, panethnicity should account for residential patterns among relevant ethnic groups. Consequently we test key hypotheses about the manifestation of panethnicity in the US residential environment.

First, the panethnic hypothesis would state that groups sharing a panethnic marker should be less segregated from one another than with those that do not share the marker. We expect to find evidence of panethnicity. We also investigate the degree of panethnic residential commonality. A strong panethnic residential “effect” would argue that the broad grouping would be valid for a variety of outcomes; whereas a limited panethnic effect would call for caution in the use of such overarching classifications.

Second, the extent of variation in national origin identity and similarity will produce associated variation in the degree of segregation between panethnic subgroups. It is not always clear, a priori, however, how relatively strong various panethnic groupings might be. One line of argument is that Latino groups should reside closer to one another because of the high degree of linguistic commonality and shared religious beliefs and culture (Duany 2003; Rosenfeld 2001).

A similar expectation can be advanced for black subgroups although for different reasons, including the commonality of historical ties and interests (Adeleke 1998), as well as the racial distance guarded by the dominant group of whites. The diversity of language, religion, culture and history of regional conflict among Asians and among whites suggest that they would be less likely to share residential spaces within their groupings than Latinos and blacks.

On the other hand, Lopez and Espiritu (1990) argue that a shared structural position is more conducive to a stronger panethnic affiliation than culture and they envisage Asian Americans to be a more cohesive group than Latinos. In a study of mate selection, Rosenfeld (2001) found native-born Japanese to be more likely than similar Mexicans to marry within their panethnic grouping suggesting a stronger affiliation among Asians. However, residential patterns are influenced by additional factors beyond the degree of panethnic attachment, and are determined, to a large extent, by the perceptions and behavior of outsiders. To be sure, each panethnic grouping is likely to be more integrated within its boundaries than with those external to the group but we should also expect the degree of panethnic integration to vary by grouping.

A final theoretical consideration in residential segregation is offered by the ecological model, which highlights how key factors such as population size, housing construction and migration flows influence residential patterns within metropolitan areas (Farley and Frey 1994; Logan, Stults and Farley 2004; White, Fong and Cai 2003). Group relations do not form in isolation from the urban structure and environment but are shaped through the opportunities and constraints that have shaped the city over time. The degree of panethnic segregation then, is likely to vary by metropolitan area and these factors must be accounted for in explaining group interactions.

Segregation by a collectivity of ethnic groups may serve to bolster broader based identities and mobilize panethnic claims. Collective action based on such newly formed boundaries are structured by opportunities for interaction and perceptions of shared experience or position. In the US, the intensity of panethnic affiliation is also related to the external environment and discrimination, and government policies favoring panethnic identities (Okamoto 2003). The relative importance of residential patterns according to national origins and panethnicity offers further insight into the future of racial and ethnic relations in the United States.

Data and methods

The 2000 US census files SF1 and SF3 provide data for the analysis. We examine pairwise segregation among 57 groups, 56 distinct ethnic origin groups and a residual category. We limit the analysis to the twenty largest US metropolitan areas (CMSA/MSA). The largest ethnic groups were selected based on total size in all metropolitan areas combined. (Native American subgroups were omitted due to their small numbers). The census offers a representative dataset identifying numerous ethnic groups that can be reclassified into panethnic categories. Since our objective is not to ascertain the degree to which these identities are internalized but the external manifestation of them in residential patterns, the census offers the most comprehensive data for this investigation. Census data are also preferred for understanding residential patterns, since these data are based on sufficient numbers to generate ethnic composition tabulations for census tracts, the standard geography unit used to approximate neighborhoods, widely employed in segregation studies. The disadvantage of using census categories is the reification of panethnic

and ethnic identities. The malleability of racial and ethnic boundaries evident in the ever-changing census classifications is a reminder of the social construction of race and ethnicity.

An additional challenge in measuring racial and ethnic groups in censuses and other surveys arises from the overlapping and subjective nature of these concepts (Farley 1991; Hirschman, Alba and Farley 2000; Lieberson and Waters 1993). Racial and ethnic identities are not mutually exclusive but are layered (Itzigsohn and Dore-Cabral 2000; Okamoto 2003) and ethnic categories can comprise a set of situational identity choices for society and individuals to invoke and discard as circumstances and preferences dictate. For example, an American-born child of Mexican immigrants may consider herself/himself white, American, Mexican and Latino and has the ability to choose among these identities in various situations including on the census form. The census attempts to capture this layering of identities as well as multiple identities as demonstrated in the 2000 long form questionnaire, where respondents were asked three separate questions related to race and ethnicity: Hispanic or non-Hispanic, race, and ancestry.

To the degree that there are high levels of segregation among panethnic subgroups, this suggests that residential patterns are not easily subject to broader classifications that assume homogeneity. The point here is that the degree of aggregation – both in terms of personal identity and “official” statistics – is very much an area of contention. Moreover, it is something on which we build, given constraints in the data to which we have access.

Our initial step entailed the determination of the size of each of the 57 groups for each metropolitan area, which required two sets of calculations. In the first stage, we constructed mutually exclusive categories of ethnic groups and assigned individuals to one group using racial, Spanish origin and first ancestry tables from both SF1 and SF3. For Asian and Latino subgroups, population counts were obtained directly from SF1 tables. For American Indians, Pacific

Islanders and white and black subgroups, we used SF3 tables. An indirect estimation procedure for American blacks involved subtracting ancestral Sub-Saharan Africans and West Indians from the total number of non-Hispanic blacks counted in the “race” question. We also included a residual category for other groups with the total metropolitan area population and indirect methods. Among others not captured in the ethnic categories, the “all others” group also included respondents with multiple races. For a minority of tracts in each metropolitan area, we obtained a negative estimate which was then re-distributed proportionally among tracts with persons.

This approach resulted in an estimate of 56 ethnic groups which accounted for first ancestries and single race persons. Although we assumed a single ethnicity for American blacks, Asian, Latino, American Indian and Pacific Islander groups, we incorporated multiple ancestries where possible in the second stage. The allocation procedure weighted the number of responses for 38 ancestry groups in each census tract (Table PCT18 in SF3) by the ratio of total persons to total multiple responses for that tract. For white ancestry groups and Sub-Saharan Africans and West Indians then, we use a count of proportional allocated persons which sums to the original metropolitan population.

There are obvious limitations to this approach which are affected by the degree of correspondence between census summary files and our allocation procedure. Furthermore, while we recognize the overlapping of ethnic identities, mutually exclusive categories were required for the analysis. In essence, these limitations contribute to errors in the estimations of ethnic group populations but our counts should be an adequate reflection of the relative size of ethnic groups and their panethnic membership. A tabulation of all ancestries in detail, including those for Asian and Latino groups, would provide an improved measure of ethnic group membership but census tables assume ancestry to be relevant only for whites and blacks. Note also that while

the allocation of fractional persons may seem a bit awkward at first, results are equivalent to multiplying all units by a value to achieve a whole number.

Once we approximated population counts of ethnic groups, we employed the entropy index to derive pairwise ethnic residential segregation resulting in 1,596 segregation statistics for each metropolitan area. The entropy index, introduced by Theil and Finizza (1971), is an adjusted measure of the more general entropy or information index (H) and provides an indication of the deviation in diversity of the average tract from the diversity of the city (for a more technical discussion on the properties of the index, see James and Taeuber (1985), Reardon and Firebaugh (2002), and White (1986)). The entropy index is bounded from 0 to 1, where 0 indicates no segregation between two ethnic groups and 1 suggests complete segregation. In the *pairwise* entropy index, we have a measure of the deviation of the average tract diversity of each *pair* of ethnic groups from their citywide diversity. The pairwise entropy index follows the expression:

$$H = (H^* - \bar{H}) / H^*$$

$$\bar{H} = (-1) \sum_{i=1}^I [(n_{1i} + n_{2i}) / (N_1 + N_2)] [(p_i * \ln(p_i)) + ((1 - p_i) * \ln(1 - p_i))]$$

$$p_i = n_{1i} / (n_{1i} + n_{2i})$$

$$H^* = (-1) [(P * \ln(P)) + ((1 - P) * \ln(1 - P))]$$

$$P = N_1 / (N_1 + N_2)$$

where \bar{H} is the average census tract pairwise entropy measure

H^* is the citywide pairwise entropy measure

n_1 is the population of ethnic group 1 in census tract i

n_2 is the population of ethnic group 2 in census tract i

N_1 is the citywide population of ethnic group 1

N_2 is the citywide population of ethnic group 2

The entropy index is also able to handle multiple groups and we estimated a multigroup entropy index for each metropolitan area using the following expression:

$$H_m = (H_m^* - \bar{H}_m) / H_m^*$$

$$\bar{H}_m = \sum_{i=1}^I \sum_{g=1}^{57} (n_i / N) [p_{gi} * \ln(1 / p_{gi})]$$

$$H_m^* = \sum_{g=1}^{57} [P_g * \ln(1 / P_g)]$$

where H_m is the multigroup entropy index for the city
 \bar{H}_m is the average census tract entropy measure
 H_m^* is the citywide entropy measure
 n_i is the population of census tract i
 N is the city population
 p_{gi} is the proportion of ethnic group g in census tract i
 P_g is the proportion of the ethnic group g in the city

To facilitate interpretation and analysis of these segregation values, we generated metro-specific configurations of ethnic residential segregation using a multidimensional scaling (MDS) technique in Stata 8.0. Multidimensional scaling is a data reduction technique that is utilized to reveal the latent data structure among a number of objects in low dimensional space. Unlike factor analysis and cluster analysis, MDS generates a geometric representation of a set of proximity or distances among objects. This technique is advantageous due to this ability to illustrate simultaneously patterns of geometric distance. One key advantage of MDS is that it is not limited to geographic distances but can be applied using any data matrix that reflects the degree of similarity or dissimilarity among variables or observations. And as in factor analysis,

interpretation of the dimensions lies with the analyst. In our case, we apply this technique to our collection of pairwise “social” distances.

Given our 57 by 57 data matrix of ethnic groups and 1,596 pairwise segregation values for 20 metropolitan areas, MDS offers us a way of reducing this vast array of data into a more manageable analysis without excluding any of the groups. We use MDS to generate a set of Euclidean coordinates in low dimensional space to summarize the information in the original matrix (for additional information on MDS, please refer to McFarland and Brown (1973), Kruskal and Wish (1978), Mardia, Kent and Bibby (1979) and more recently Cox and Cox (1994) and Timm (2002)). Essentially, each group was assigned coordinates on a two-dimensional configuration in relation to the magnitude of values between it and each of the 56 other groups. The procedure seeks the best approximation of the original matrix.

In the final stages of setting up our data, we classified ethnic pairs into one of 5 panethnic groups: black, white, Latino, Asian and cross-group (Table 1), following census classifications in published SF1 and SF3 documentation. Pacific Islanders, American Indians and others were omitted due to small numbers. Ethnic groupings (and thus panethnic categories) do not map perfectly onto racial categories, and this has implications for processes of residential segregation. For example, among Latinos, racial characteristics have been found to be associated with different residential outcomes (Massey and Denton 1987; Rosenbaum 1996; White 1987). To the degree that race crosscuts panethnic boundaries, most especially for Latinos and possibly to a lesser extent for the others, our results would be biased toward increased segregation within panethnicity. We bear this in mind in the interpretation of our results.

[insert Table 1]

All pairwise entropy indices were then pooled across the 20 metropolitan areas giving us 28,620 unique pairs. Finally, we employed bivariate and multivariate methods to identify the effect of panethnicity and urban social structure on pairwise ethnic segregation patterns. In the multiple regression analysis our model is specified by:

$$\hat{H} = \alpha + \beta_1 \ln(X_1) + \beta_2 X_2 + \beta_3 \ln(X_3) + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$$

where \hat{H} is the predicted value of pairwise entropy
 X_1 includes metropolitan area characteristics
 X_2 is the region of the country (a set of dummy variables)
 X_3 indicates the population size of the ethnic pair
 X_4 is =1 if at least one of the ethnic pair is Black
 X_5 is =1 if at least one of the ethnic pair is Latino
 X_6 is =1 if at least one of the ethnic pair is Asian
 X_7 is the panethnic grouping (a set of dummy variables)

Ethnic residential segregation, 57 groups

Table 2 presents a summary of segregation of the 57 ethnic groups for each metropolitan area. The multigroup entropy index in the second column of values suggest that the most segregated major cities in our sample (using these 57 groups) are Chicago and New York. Seattle and Minneapolis-St.Paul appeared to be the least segregated.ⁱ We can see that most of the mean values of the pairwise statistic for the 20 major cities are in the vicinity of 0.35 to 0.45, pointing to a skew generated by higher values of less populous groups. The highest average level of pairwise segregation is found in the most populous metropolis, New York, and the lowest average level is found not in the smallest of the top 20 but in Seattle, which falls near the middle of the list. The standard deviation of entropy values do not differ appreciably across metropolitan

areas. In general, lower levels of segregation are found (detail not shown) to be between pairs of larger European origin groups such as Irish, German and English. The highest levels of segregation are between the smallest groups such as Israelis, Pacific Islanders and Cambodians.

[insert Table 2]

Ethnic residential patterns can be observed in all 20 MDS configurations, one for each metropolitan area. We show 4 selected MDS configurations (in the interest of space), which represent segregation among 57 groups for New York, Los Angeles, Chicago and Seattle. While each MDS configuration is an imperfect visualization of pairwise segregation as suggested by the values of stress or goodness-of-fit, we observe each city's unique patterns.ⁱⁱ Yet, we also find pairwise segregation to be highly correlated among all 20 metropolitan areas. Specifically, if the Greeks and the English are highly segregated in one city, there are likely to be highly segregated in the others. Correlation coefficients range from .66 between Miami and Minneapolis-St. Paul and .97 between Houston and Dallas.

The two-dimensional representations of ethnic residential segregation reveal some degree of clustering according to panethnicity in the four urban areas presented. For blacks, obvious clusters emerge in New York and Chicago, and clusters of white groups are notable in each configuration. For Asians and Latinos, there is some degree of overlap across panethnic boundaries. Furthermore, in most places, a white-non-white dimension is readily observable. The magnitude of the circles in each graph, used to symbolize ethnic group sizes, provides further evidence that segregation is not an artifact of group size. Blacks and Mexicans in a number of

metropolitan areas, Cubans in Miami, and the pictures of segregation in New York and San Francisco suggest other processes are operating.

[insert Figure 1]

We recognize that the disaggregation of blacks into three subgroups, i.e. black-American, West Indian and Subsaharan African, may subject our analysis to the same critique we offered of others. To evaluate this possibility, we re-analyzed the data for an expanded set of black subgroups using their total population numbers in metropolitan areas: Jamaican, Haitian, Trinidadian and Tobagonian, Nigerian, Ethiopian, other West Indians, other Subsaharan Africans. This increased the number of ethnic groups to 62. This further disaggregation of black groups resulted in higher levels of metropolitan segregation overall, in large part due to small group populations in many areas. There was also a greater level of segregation among black subgroups without controls but the final multivariate model was consistent with the results we present here although the effect for blacks weakened slightly. Results from this analysis are not shown but are available upon request. We opted to present the results from the 57-group analysis due to the very small group sizes in the expanded set. In the next two sections, we conduct a more systematic analysis of panethnic boundaries in ethnic segregation using the reduced set.

The diversity within

The oneway ANOVA test reveals that the average level of residential segregation among pairs of Latino subgroups (.21) is the lowest suggesting that Cubans are more likely to share neighborhoods with other Latinos than Subsaharan Africans with other blacks or the Irish with

other whites. On average, Asian subgroups are the most segregated from one another (.32) than all other within-panethnic pairs. They also reveal high variation as shown in the boxplot (Figure 2, sample sizes are provided in Table 3). Among black subgroups, we find a mean segregation of .25. A higher level of within panethnic segregation is found for white subgroups (.29). Not surprisingly, those pairs of ancestry groups that do not share a panethnic identifier are the most segregated from one another (.41). Overall, these initial unweighted results demonstrate the relevance of panethnicity on ethnic residential outcomes, most especially for blacks and Latinos. Broader categorizations do not appear to be as meaningful for Asian or white ethnic groups.ⁱⁱⁱ

The dispersion of within-panethnic groups also tells a remarkable story. Black groups' pairwise segregation across all metropolitan areas falls in the range of .10 to .52. Latino pairs are a little more dispersed, ranging from .02 to .64. Among Latino groups, Dominicans and South Americans in Detroit are the most segregated with one another and Mexicans and "other" Latinos in Houston are the least segregated. White ethnic groups have the greatest range in segregation levels (.009-.92) followed by Asian subgroups (.09-.85). The least segregated white pair is found in Tampa (Irish and Germans) and the most segregated in Cleveland (Israeli and Portuguese). Indians and "other" Asians in Houston are the least segregated pair while Cambodians and Japanese are most separated. Some of the high values can be attributed to small population sizes but in general, we find that groups sharing a panethnic marker may have high levels of segregation.

The eta-squared (η^2) statistic suggests that panethnicity can explain approximately 12 percent of the variation in ethnic residential segregation [$F(4, 28615)=973.5; p<.0001$]. Obviously, there are other factors involved in explaining the different levels of segregation among ethnic groups, but even this modest level of variance explained is noteworthy given the

variation in mapping groups onto census geography, socioeconomic heterogeneity within groups and the like. We now turn to evaluating the effect of panethnicity controlling for the urban context and group size.

[insert Figure 2]

[insert Table 3]

Pairwise ethnic segregation and the urban context

Table 3 displays the descriptive statistics of those variables included in the multivariate analysis. Our panethnic groups remain the same as for the bivariate test in the last section. Most ethnic pairs are inter-panethnic, i.e. crossed panethnic boundaries, and white pairs comprise the largest within-panethnic portion. We control for ethnic group sizes by summing the population of ethnic pairs (using the allocated values) and taking its natural log. As observed in the MDS configurations, group size may play some role in pairwise ethnic segregation – where smaller groups tend to be situated in the periphery (but there are many exceptions) – thus emphasizing the importance of controlling for group size.

To better assess the direct influence of shared panethnicity, we also control for urban context, as structural conditions can either facilitate or impede the residential mobility of a city's residents (Farley and Frey 1994; Frey and Farley 1996; Massey and Denton 1987; White and Glick 1999). The literature highlights both historical factors and recent developments as significant influences on segregation patterns. In our analysis, we control for the following metropolitan area characteristics: population size, the number of foreign born residents, construction of new homes in the last decade and region of the country. Consistent with past

studies on racial segregation, larger metropolitan areas are expected to be more segregated and the construction of new housing to be negatively associated with segregation (Farley and Frey 1994; White and Glick 1999). Region also matters in such studies; we expect higher levels of pairwise ethnic segregation in the Northeast and Midwest and lower levels in the West as compared with metropolitan areas in the South. A greater fraction of immigrants in the MSA may also influence segregation. One would generally expect this to work in the direction of greater segregation, as immigrants themselves may cluster, yet the effect of this control in the presence of such an extensive set of pairwise segregation values (heretofore not analyzed in regression studies) is less clear. All metropolitan level variables are logged with the exception of region due to skewed distributions and in order to examine the effect of their proportional changes on ethnic pairwise segregation.

Table 4 shows the results of four nested models using OLS regression analysis. In Model I, we regress the measure of ethnic segregation (pairwise entropy for 54 groups) on the metropolitan context and region only. All variables are statistically significant ($p < .05$) suggesting that metropolitan structure and regional location can explain part of the overall variation in segregation patterns. We do indeed find a strong effect that larger metropolitan areas are more segregated. This is consistent with many previous empirical findings; theoretically, it is consistent with a pattern of greater ecological differentiation of cities with overall size. For the metropolitan areas we studied, Model I indicates that a greater foreign born population appears to be negatively associated with segregation among ethnic pairs. This model explains 5 percent of the variation in pairwise segregation patterns.

[insert Table 4]

Model II adds pair group size to the equation and as expected, this improves the fit appreciably, to 31 percent. We find larger pairs to be associated with lower pairwise segregation levels. This is also consistent with an ecological explanation. For the most part, the effects of the metropolitan context and region observed in Model I remain, with the exception of the foreign born effect. Here we notice a slightly positive effect of the size of the foreign born which is statistically significant at the $p < .10$ level only. This suggests that the effect of the foreign born in Model I is associated with group size. In other words, the effect of the foreign born weighed in favor of larger ethnic pairs which exerted a downward pressure on segregation. Net of pair size and other metropolitan area characteristics, immigration appears to have only a modest effect on segregation levels conforming to previous research (Frey and Farley 1996; White and Glick 1999).

In Model III, we include dummy variables for any black, any Latino and any Asian ethnic group within the pair. (In other words, we assign the value 1 to a dummy variable for each of four panethnic categories when at least one member of the pair is from the corresponding group.) Adding these covariates increases the R^2 to 50 percent and reveals the higher levels of segregation especially for those pairs containing a black subgroup and to a lesser extent for Asians and Latinos, although they are positive and significant. In Model III, the effects of our metropolitan context, region and pair size remain as in Model II, with the foreign born effect now becoming positive and significant at the $p = .05$ level.

Model IV includes the series of panethnic group indicators and provides a test of the aggregate classification. This full model improves on the third model, significantly increasing the explained variance to 54 percent. (Here both members of the pairing must be from the same

panethnic classification for the dummy variables to be coded 1. Cross-group pairing forms the reference category.) In the fourth column of values, we observe within panethnic pairs as contrasted with inter-panethnic pairs. The results demonstrate definitively that panethnic pairs are significantly less segregated than cross-group pairs but that the levels of pairwise segregation within panethnic groups vary by group, after controlling for the metropolitan structure, region, pair size, and panethnic segregation. Negative values here indicate less within group segregation, compared to the reference category of cross-group segregation. The statistically significant increase in R^2 from the previous model indicates that these pairings are consequential. We note that black subgroups are the least segregated from one another, compared to all other within-panethnic pairs, being, on average, .22 points less segregated than across-group pairs, net of covariates. Asians, on the other hand, are approximately .09 points less segregated than cross-group pairs, with controls. Latino pairs and white pairs are similarly less segregated from cross-group pairs, falling .16 points lower than the average segregation of mixed-panethnic pairs.

When we control for shared panethnicity, we detect changes in the direction of Latino and Asian segregation. Between group segregation for these two groups becomes negative suggesting lower levels of segregation with other panethnic subgroups. Black segregation decreases slightly but remains positive. All other covariates attain statistical significance in this final model.

[insert Figure 3]

Applying a slight variant of Model IV, which replaces the any race dummy variables and the cross-group reference into 6 dummy variables, Figure 3 depicts predicted values for within

and across panethnic groupings. (We present 16 predicted values, 10 of which are unique, with the 6 duplicates, e.g. white-Asian = Asian white, added for ease of interpretation.) Our results predict that average sized black groups living in a typical metropolitan area in the South face a mean level of pairwise segregation of .34. As illustrated in Figure 3b, Black-Black segregation is at least .15 points less than the segregation between blacks and other groups. For white and Latino subgroups in similar metropolitan areas (Figure 3a and 3d, respectively), the minimum point difference in segregation for crossing panethnic boundaries is an increase of .09. Asian segregation with other Asian groups appeared to be only slightly less than Asian-Latino segregation (Figure 3c). Therefore, panethnic boundaries account for patterns of ethnic segregation but there appears to be variation across the groups in terms of their degree of within-panethnic integration relative to their degree of across-panethnic segregation.

Discussion and Conclusions

Social space and physical space are mutually reflective in the contemporary American urban mosaic. How one draws the boundaries between ethnic groups in those spaces is as difficult as it is consequential. It is common in much social science analysis to use broad ethnic groupings. The relevance of panethnicity arises partly from theoretical concern and partly from more mundane data limitations. Yet, rarely have the impact of panethnicity and the layering of ethnic identities been examined comprehensively in residential settings. At the same time, residential patterns are clear manifestations of intergroup relations. Our efforts in this paper are guided by previous discussions in the literature regarding the issue of ethnic boundaries and the potential classification of groups based on national origin and language, and they are limited by the nature of census classifications. We recognize also that ethnic groupings result both from self-

identification and from a dynamic process of interaction between group members and the balance of society, both other ethnic groups and institutional structures.

Our analysis allowed us to test for any effect of panethnicity. Its manifestation would be seen in a low level of segregation within panethnic groupings, e.g. Mexican-Cuban among Latinos and Greek-Italian among whites, compared to the level of segregation that obtained across groups, e.g. Greek-Cuban or Jamaican-Chinese. We find support for our first, overarching, hypothesis. Ethnic groups that share a panethnic classification do exhibit greater residential proximity than those that do not share a panethnic identity.^{iv} Higher levels of overall segregation characterize black subgroups as compared with Latinos, whites and Asians; however, there is appreciable variation within these groups as well, holding constant those factors influencing residential outcomes in metropolitan areas. We must note that none of the panethnic groups are fully integrated among all pairs of ethnic groups belonging to it.

Our analysis also allowed us to test a secondary hypothesis that the degree of panethnic clustering varies by grouping. Lopez and Espiritu (1990) reasoned that the degree to which the panethnic construct is relevant for ethnic groups can vary according to the degree of shared cultural and structural factors. Based on our results that showed higher levels of segregation within the black panethnic classification than within white, Asian or Latino groupings, we might conclude that members of black subgroups are the least likely to identify with the panethnic construct as compared with the other three groupings and Latinos, the most. A combination of a higher degree of linguistic similarity for Latinos than for other panethnic groups and racial steering into Latino neighborhoods may explain this pattern.

For black subgroups, one might assume the race relations of the color line and manifest discrimination might direct all persons of African heritage to similar residential locations,

however, we are also aware of the efforts of more recent immigrant groups to distinguish themselves from native black-Americans (Crowder 1999; Waters 1999) as well as the historical and cultural differences among groups (Adeleke 1998). The residential situation for this grouping, as revealed in this study, is consequently more complicated. We find consistent with the dominance of the color line in American life, that all black groups are highly segregated from all other non-black groups. Once this context of much higher overall segregation for blacks is accounted for, segregation of within-black groups is much less. Thus there is some evidence for black panethnic residential patterns as well. The very distinctive history of individuals of African origin – from the large fraction who trace their history to the antebellum enslavement to the much smaller fraction of persons who are recent immigrants from the Caribbean and the African continent itself – points to the challenges, both conceptual and empirical, for identifying group boundaries. Our work has demonstrated the significant residential separation of all groups of African descent even as it shows the appreciable clustering of the several subgroups (see Figure 1).

The results also indicate that the assimilation of white ethnic groups is far from complete. Despite arguments that white ethnic groups have, for the most part, lost their distinctiveness and maintain links to their ethnic ancestries in only symbolic ways (see Alba 1985, Gans 1979 and Waters 1990), we find that the structural basis of ethnicity still remains; white ethnic groups are still quite distinguishable from one another in their residential patterns. We observe a similar level of segregation among Asian subgroups that question the applicability, and perhaps viability, of a cohesive Asian panethnic identity.

Proximity in residence for Latinos, Asians, blacks and whites suggest a strengthening of identities based on panethnic classifications is an increasingly probable outcome. This is

especially so for Latinos. The fact that groups sharing a panethnic boundary live closer to one another points to the potential for subjective ethnic identities to shift to this higher-order level through increasing contact, interaction and observation. Moreover, the shift reinforces any trend toward political and civic claims to be based on panethnic identifiers. The circular process leads panethnic neighborhoods and organizations to further validate other people's perceptions that panethnic groupings are homogeneous and that subgroups may in fact be similar to one another. This could have consequences for group treatment and behavior such as political mobilization and steering in the housing market.

The inclusion of panethnicity only partially accounted for variation in pairwise ethnic segregation patterns. This suggests that there are other forces operating on this residential outcome. Segmented assimilation theory argues there are multiple adaptation strategies that result in the absorption of immigrants into a social order stratified by race *and class*; these are characterized as an assimilated middle class, an "ethnic" middle class and an underclass (Portes and Rumbaut 2001; Zhou 1997). This perspective leaves room for the possibility that some immigrant groups will not integrate within a broader panethnic group but will situate themselves according to class and ethnic interests as determined by their context of reception and family backgrounds. Insofar as immigrant groups classified under the same panethnic group differ in these ways, there will be greater variation among ethnic groups. Future research will need to more adroitly account for social class differences within and across ethnic groups, especially in light of the socioeconomic diversity within panethnic groups (Waters and Eschbach 1995). Moreover, the recency of arrival is another theoretically salient factor as panethnicity may be a second or higher order generation phenomenon, as evidenced by the emergence of the Asian construct (Espiritu 1992).

Thinking of the integration process in terms of a duality of assimilation versus ethnic retention may be misdirected, as evidenced by our analysis. A middle ground, as proposed by panethnic theorists and segmented assimilationists, is a third likely outcome. With increasing exposure to the US, and the consequent social processes of ethnic competition, accommodation and racialization, as well as host-country identity formation, newcomers arriving with national identities and cultural attachments may develop racial or panethnic awareness well before the second generation. Nevertheless, the importance of panethnic characteristics can neither be assumed nor overlooked as demonstrated by the interplay of ethnicity and panethnicity.

Notes

ⁱ The ranking of cities is broadly consistent with that indicated by the mean pairwise segregation. The correlation between the multigroup entropy index and the mean pairwise entropy index is 0.71.

ⁱⁱ Stress statistics for New York, Los Angeles, Chicago and Seattle are .28, .26, .28, .27, respectively. Scree plots using the stress values revealed that for most metropolitan areas, greater than two dimensions did not provide a significant improvement of fit.

ⁱⁱⁱ These results are from the unweighted ANOVA test. Using the population size of ethnic pairs as weights, Asians remain the most segregated within-panethnic group and continue to show high variation. Panethnicity among Whites appears to become more important with lesser average segregation among White pairs in the weighted test.

^{iv} The data did not permit analysis of Native Americans but the contemporary resurgence of the Native American identity suggests a similar pattern should surface (Nagel 1995).

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Tables and Figures

Table 1. Classification of ethnic groups by panethnicity

Panethnic Groups	Ethnic Groups		
Black	Blacks	Subsaharan African	West Indian
White	American Arab Armenian Austrian British Canadian Czech Czechoslovakian Danish Dutch English European	Finnish French French Canadian German Greek Hungarian Iranian Irish Israeli Italian Lithuanian Norwegian	Polish Portuguese Romanian Russian Scandinavian Scotch-Irish Scottish Slovak Swedish Swiss Ukrainian Welsh
Latino	Central American Cuban Dominican Republic	Mexican Puerto Rican	South American Latino other
Asian	Cambodian Chinese Filipino	Indian Japanese Korean	Vietnamese Asian other

Table 2. Summary statistics of metropolitan areas (N=1,596 per MSA/CMSA)

Metropolitan Area	Population Size (thousands)	Multigroup Entropy Index	Mean Pairwise Entropy Index (std. dev.)	Pairwise Entropy Index Range (min.-max.)
New York, CMSA	21,200	.204	.451 (.18)	.028 - .951
Los Angeles, CMSA	16,374	.170	.371 (.17)	.015 - .922
Chicago, CMSA	9,158	.208	.399 (.18)	.026 - .945
Washington DC-Baltimore CMSA	7,608	.152	.324 (.15)	.018 - .854
San Francisco, CMSA	7,039	.128	.311 (.16)	.014 - .856
Philadelphia, CMSA	6,189	.159	.417 (.19)	.028 - .924
Boston, CMSA	5,819	.116	.397 (.18)	.023 - .900
Detroit, CMSA	5,456	.184	.411 (.20)	.018 - .956
Dallas, CMSA	5,222	.137	.364 (.17)	.014 - .896
Houston, CMSA	4,670	.155	.363 (.17)	.016 - .935
Atlanta, MSA	4,112	.152	.329 (.16)	.014 - .899
Miami, CMSA	3,876	.187	.348 (.16)	.018 - .933
Seattle, CMSA	3,555	.059	.286 (.16)	.010 - .863
Phoenix, MSA	3,252	.097	.308 (.17)	.010 - .902
Minneapolis-St.Paul, MSA	2,969	.070	.335 (.19)	.014 - .943
Cleveland, CMSA	2,946	.149	.413 (.21)	.015 - .991
San Diego, MSA	2,814	.112	.307 (.16)	.011 - .858
St. Louis, MSA	2,604	.142	.370 (.19)	.017 - .951
Denver, CMSA	2,582	.086	.315 (.18)	.011 - .917
Tampa, MSA	2,396	.098	.332 (.18)	.009 - .939

Table 3. Descriptive Statistics, 54 ethnic groups

<i>Independent Variables</i>		<i>Means/Percentages</i>
Metro Characteristics, 2000 (log)	Population	15.4
	Foreign-born population	13.3
	Number of new homes built	12.6
Region	South	35.0
	Northeast	15.0
	Midwest	25.0
	West	25.0
Pairwise group size (log)	Sum of allocated ethnic pairs	11.1
Any Black	Black ethnic group within pair	10.9
Any Latino	Latino ethnic group within pair	24.5
Any Asian	Asian ethnic group within pair	27.7
Panethnic Groups	Cross-group	52.3
	Black	.2
	White	44.0
	Latino	1.5
	Asian	2.0

N=28,620

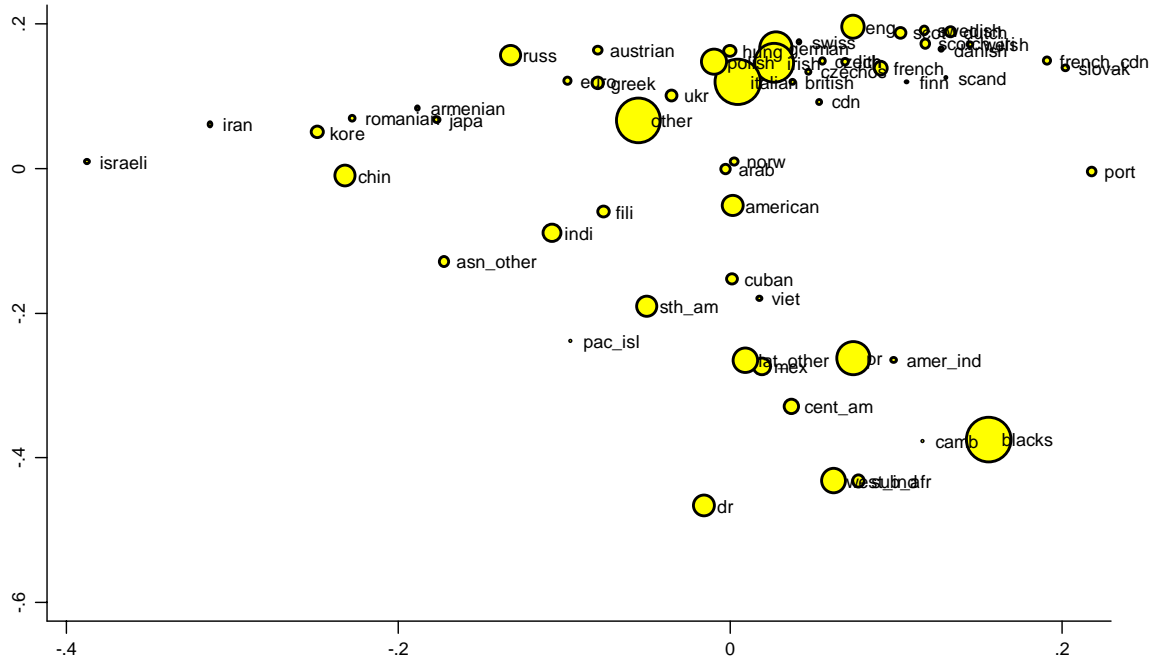
Table 4. Multivariate OLS regression results on pairwise entropy

Variables	Model I	Model II	Model III	Model IV
<i>Metropolitan context (log)</i>				
Population size	.074 (.007)	.136 (.006)	.142 (.005)	.142 (.005)
Foreign born	-.009 (.003)	[.004 (.002)*]	.005 (.002)	.005 (.002)
New housing	-.044 (.005)	-.047 (.005)	-.048 (.004)	-.048 (.004)
<i>Region</i>				
South	---	---	---	---
Northeast	.024 (.006)	.038 (.005)	.039 (.004)	.039 (.004)
Midwest	.019 (.005)	.023 (.004)	.023 (.004)	.023 (.003)
West	-.037 (.003)	-.027 (.003)	-.026 (.002)	-.026 (.002)
Pair Size (log)		-.072 (.001)	-.079 (.001)	-.079 (.001)
Any Black			.226 (.002)	.115 (.003)
Any Latino			.052 (.002)	-.061 (.003)
Any Asian			.047 (.002)	-.072 (.003)
<i>Panethnicity</i>				
Cross-group				---
Black				-.216 (.015)
White				-.161 (.003)
Latino				-.162 (.006)
Asian				-.094 (.005)
Intercept	-.118 (.042)	-.397 (.036)	-.477 (.031)	-.329 (.029)
Adjusted R ²	.05	.33	.50	.54
N	28,620	28,620	28,620	28,620

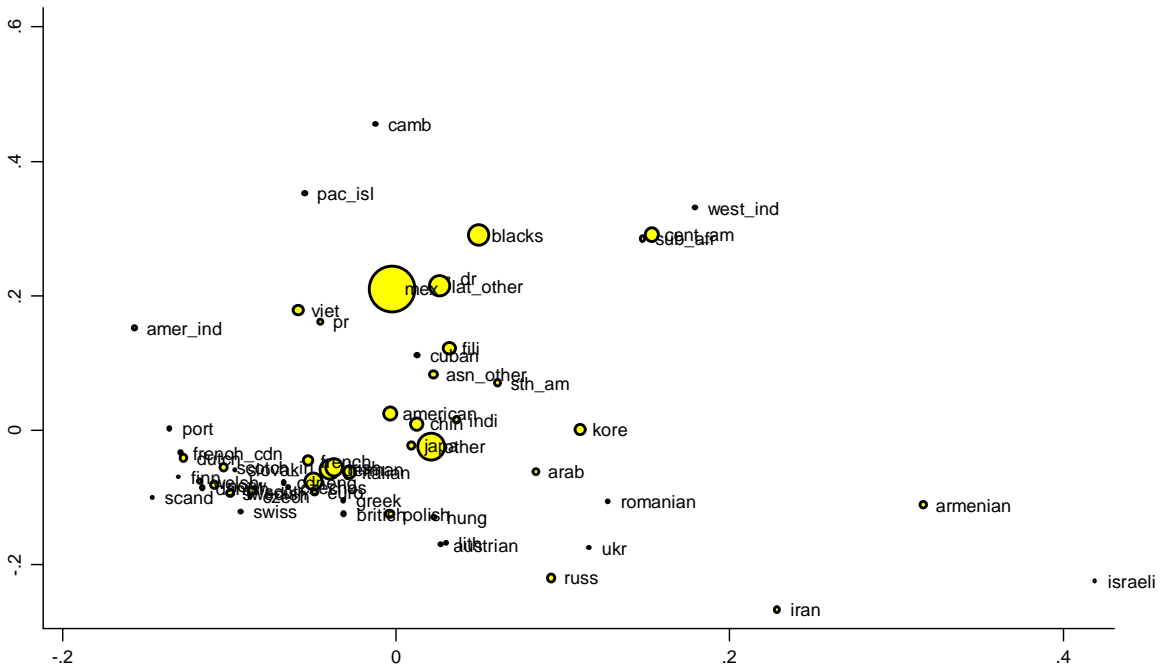
[*] not significant at $p < .05$. Standard errors in parenthesis.

Figure 1. MDS configurations for four selected metropolitan areas

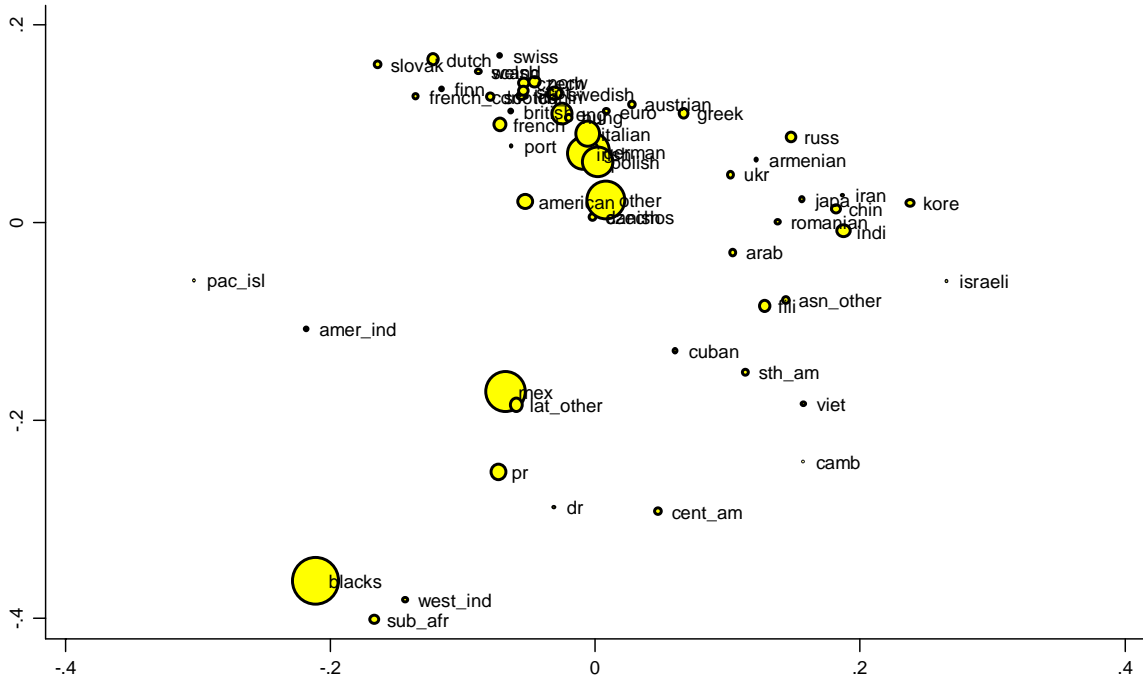
Entropy for 57 ethnic groups in New York, 2000



Entropy for 57 ethnic groups in Los Angeles, 2000



Entropy for 57 ethnic groups in Chicago, 2000



Entropy for 57 ethnic groups in Seattle, 2000

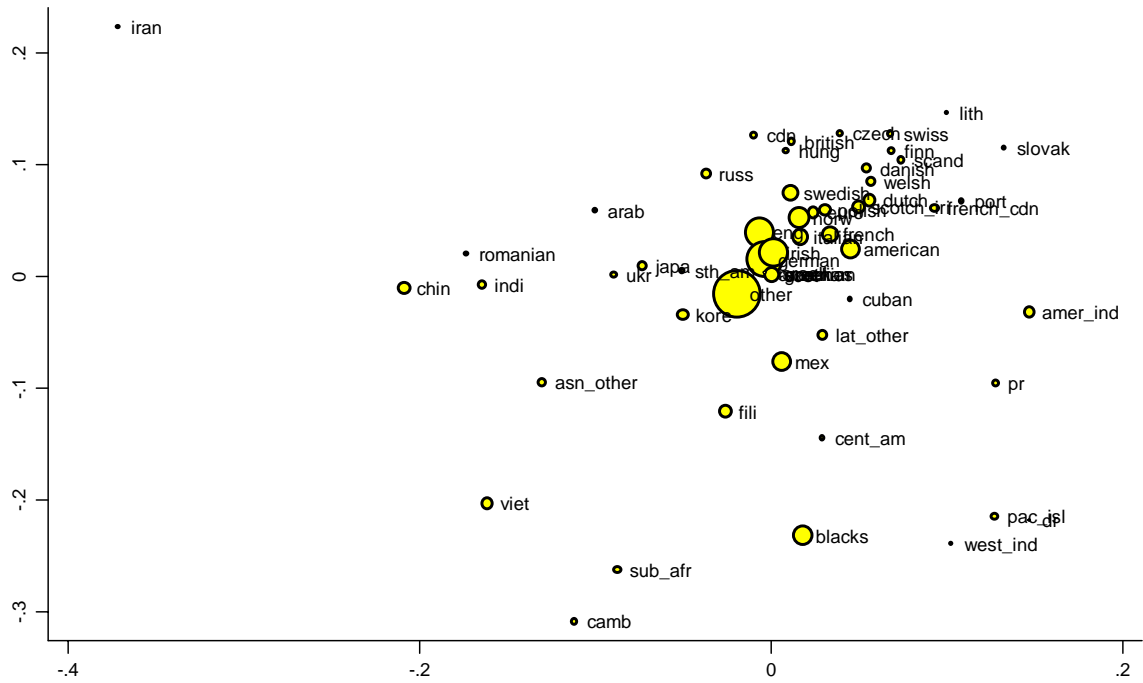
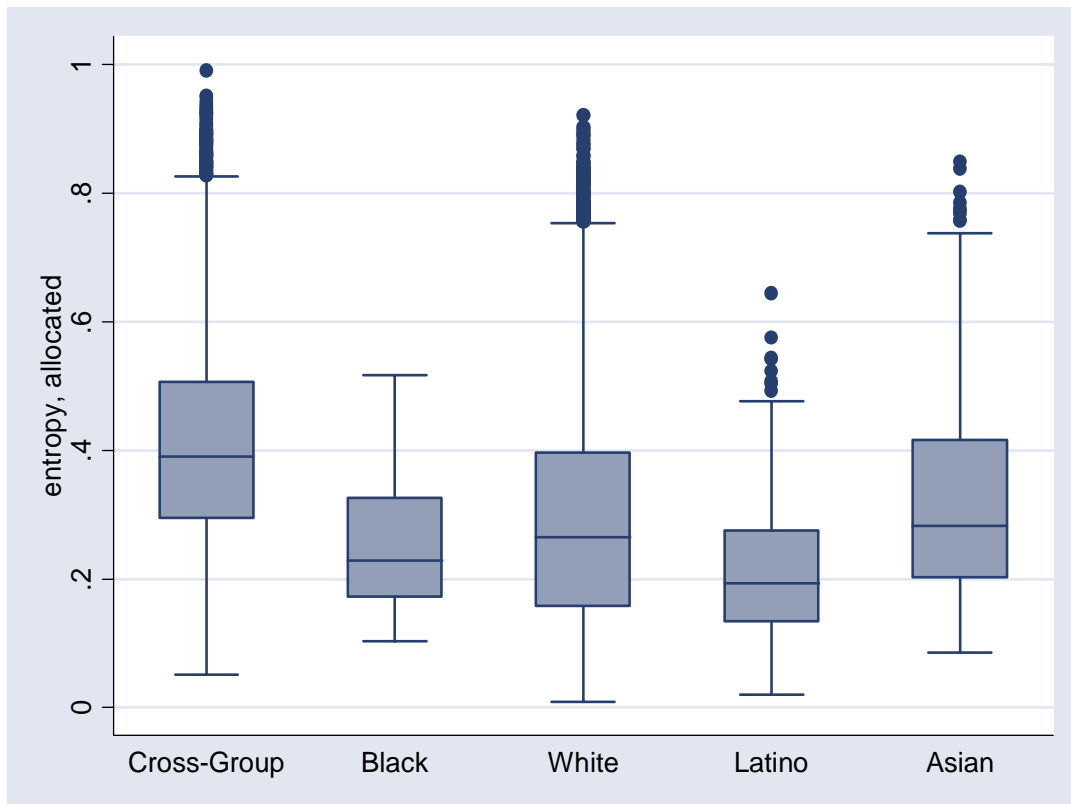


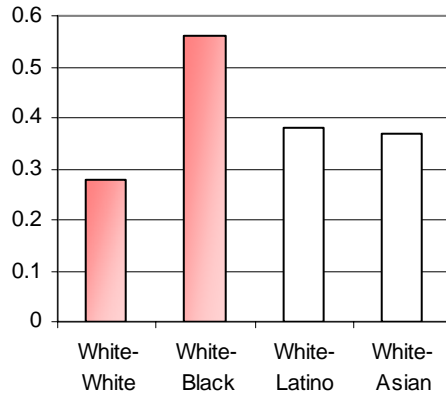
Figure 2. Boxplots of ethnic pairwise segregation, grouped by panethnicity



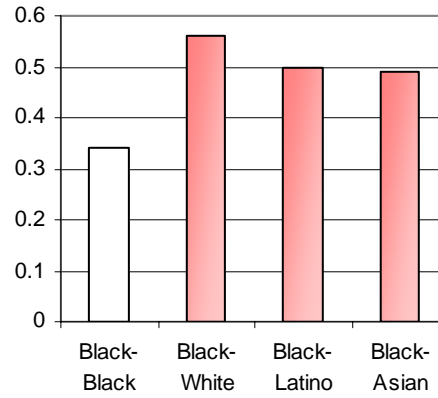
Note: Statistically significant differences across groups, $p < 0.001$. Unweighted.

Figure 3. Predicted pairwise segregation, within and between panethnic boundaries

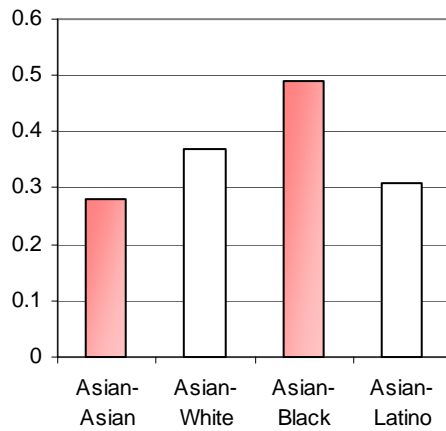
a. White segregation



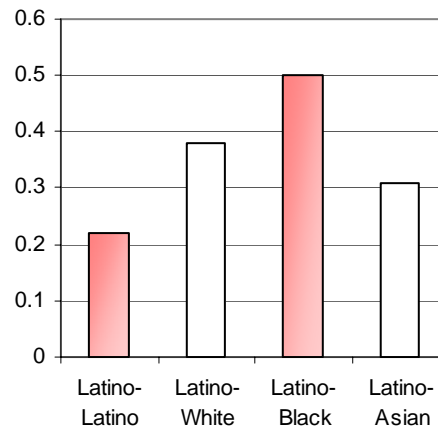
b. Black segregation



c. Asian segregation



d. Latino segregation



These values were estimated using a slightly different specification of the model. Dummy variables for each type of pair replaced the panethnic variables and the any black, any Latino and any Asian dichotomous variables.