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Patterns of Uneven Concentration in Koreans' Residential Settlement in the United States

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[Abstract]

This paper analyzes an aspect of Korean ethnic geography within the United States that has hitherto been explored only quite thinly. It calculates and interprets an aspect of Korean residential concentration in both historical and geographical registers: the aspect of geographical evenness/unevenness. It does so by applying the Dissimilarity Index to U.S. Census data. The index measures ethnic distributional unevenness in the relationship between two geographic scales (in this study, counties and census tracts). While identifying the index's interpretive limitations, the article assesses four hypotheses relating to both temporal trends and geographical patterns in U.S. Koreans' distributional unevenness. In the process it identifies trends previously not understood or even addressed in detail by the demographic literature. It find that since 1970 Koreans have had moderate-to-low levels of unevenness, with a spike in 1980, corresponding to a large surge in Korean migration, and then an even greater fall by 1990. Among other key findings are that large counties generally have higher unevenness levels than small counties, and that Koreans in the American West distribute themselves more evenly than in other regions, particularly the Northeast

and Midwest. The paper also identifies typical and non-typical counties based on this measure of unevenness.

Key Words: Korean Americans, segregation, dissimilarity index, American ethnic geography, residential concentration

1. Introduction

In 1965 the United States passed the Immigration and Nationality Act. The law fundamentally changed the USA's system of immigration, in place since the 1920s, which had limited immigration based on proportion of national origins already in the country. Subsequent migration increases came especially strongly from Latin America and Asia. Korean proportions in the United States grew rapidly, even compared to other eastern Asian groups. The number of people claiming to be of the Chinese "race" rose 702 percent between 1970 and 2010, Filipinos increased 687 percent, while Japanese and Koreans were the opposing extremes.[1] Japanese numbers rose only 36 percent during those 40 years, but Koreans increased by 2,154 percent (see Figure 1).[2] That latter figure resulted partly from the relative paucity of U.S. Koreans in 1970; rapid percentage growth is easier from a small base, after all. Koreans' highest growth rates came unsurprisingly between 1970 and 1990 (cf., Reimer 233-50). But the absolute increase (roughly 340,000 per decade) proceeded at a strong and relatively steady rate. Korea now constitutes an important, if still proportionately modest, source of U.S. ethnic ancestry. Nearly 1.5 million people living in the United States now consider themselves "racially" Korean.[3]

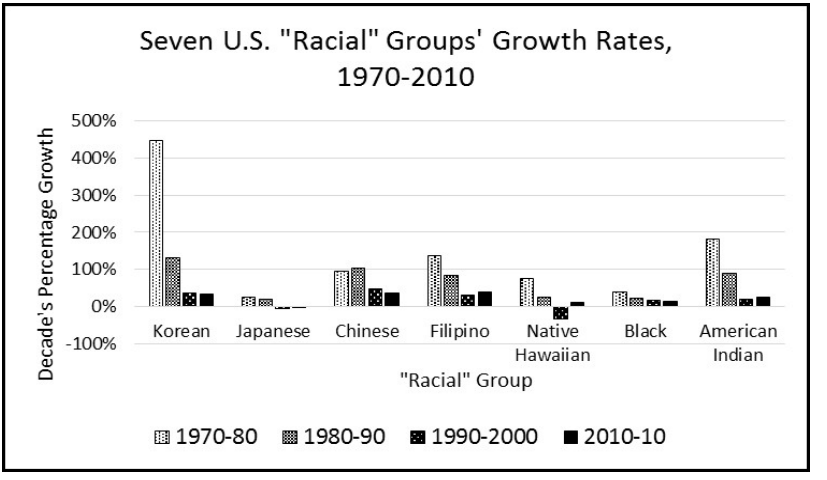

Figure 1. Decade growth rates of seven U.S. "racial" groups, 1970-2010. Source: U.S. Census data available through the IPUMS National Historical Geographic Information System (Manson).

U.S. Koreans' general demographic trends have recently begun to be identified (for example, Yu & Choe 3-20). Yet several aspects remain dimly understood. This paper quantitatively calculates and interprets one of these aspects: geographic unevenness in Koreans' residential settlement. Much academic work on aspects of ethnic concentration focuses primarily on large categories: in the USA, White, Black, Hispanic, and (somewhat recently) Asian. Only in the past few years have researchers have started to concern themselves with differences between Asian groups (for example, Logan & Zhang 2; cf., in Britain, Munoz 86-90). Thus, Koreans have mostly been ignored in discussions of national residential concentration; or, at best, researchers briefly point to them as one of many Asian groups. This paper most fundamentally attempts to expand understanding of U.S. Koreans' residential distribution by analyzing and interpreting such distribution for the first time with detailed historical and geographical specificity. Only by understanding the patterns of

Korean residential distribution can we begin to ask appropriate questions about what this distribution might mean. I thus envision this paper as a platform upon which future and more detailed analyses of Korean residential distribution patterns might be built.

Normatively, this paper takes a different approach from most studies of ethnic residential concentration, which are typically framed through the concept of "segregation." Researchers have developed various methods to analyze and quantify especially (though not exclusively) the segregation of Blacks from Whites within U.S. metropolitan areas. Scholars typically regard such segregation as both a reflection and a cause of discrimination toward and disadvantage among African Americans (Johnston, "The Comparative" 550-52). The term "segregation" implies a refusal by dominant groups (in the United States, primarily Whites) to live in close proximity to minority groups. Many researchers have highlighted persistent residential and other types of segregation of Blacks from Whites in U.S. metropolitan areas and also their more recent reduction. Similar questions about residential concentration have also been posed toward Hispanic and Asian ancestries (Denton & Massey 798-814; Semyonov 180-85; Johnston, "The Ethnic" 111-12; Allen 102-07; Frey & Myers 6-8; Johnston, "The Comparative" 553-67; Iceland 39-46; Intrator 45-59). With the implication that segregation is based in racist attitudes, the broad normative assumption is that lower levels of uneven concentration are better for both U.S. society generally and minority groups. Lower levels imply that minority and majority groups are more geographically integrated, likely accompanied by greater social assimilation. But while drawing on the segregation literature, the present paper prefers the more ideologically neutral "concentration" or "evenness"/"unevenness" to narrate the history of U.S. Koreans.[4] It does so because Korean immigration to the United States is primarily a recent development. Though increasing, Koreans in the

USA still number less than one in 200 people. In such a situation, and with a majority still in the first or second generation, the normative baggage carried by the "segregation" label may not appropriately characterize Korean residential concentration. Residential concentration may result from some level of unwillingness of other Americans to fully welcome and assimilate Korean immigrants, of course. It may represent a lack of full economic and social mobility. But residential concentration of Korean migrants may also have benefits, such as native language use, economic networks, social opportunities, preservation of culture, etc. (Carreon & Baumeister 1455-56). Hence "segregation" may not best describe Korean residential concentration.

Scholars use a variety of measures to calculate residential concentration. By far the most common is the Dissimilarity Index. As explained below, this index both is relatively easily calculated and seems to offer a straightforward interpretation for use in public policy. Nevertheless, the index's apparent simplicity masks some problems in its use. Conventionally notated as "D," the index has been rightly questioned as a comparative tool. Most studies do not use D comparatively across several decades, for example, partly because of data issues and partly because of D's well-understood shortcomings (Johnston, "The Geography" 718; Horn 61-62). This paper, however, is one of a relatively small number that uses D comparatively. The paper therefore provides methodological and interpretative clarification regarding the dissimilarity index as a comparative tool. It does not solve D's problems, but rather attempts to model how, while taking account of critiques, D illuminates patterns of Korean U.S. residential concentration that are not currently understood (cf., Simpson 408-15; Catney, "Exploring" 1695-1705).

The paper proceeds as follows. The next section explores fundamental elements of (especially the historical geography of) Korean demography within the United States.

The subsequent section conceptually addresses the dissimilarity index's uses and problems. The main analytical section then uses dissimilarity indices calculated from U.S. Census data to analyze Korean U.S. residential evenness since 1970 and to assess four key hypotheses. It focuses first roughly on history, then geography.

2. Koreans in the United States

Few Koreans migrated to the United States before the 1965 Immigration and Nationality Act. Perhaps the most significant group came to Hawaii in the first decade of the twentieth century. Sugar planters there sought contract laborers of multiple nationalities as part of their labor-control strategy. Increasing Japanese power over Korea at first facilitated and then shut down this small Korean migratory stream. Its main flow lasted from 1903 to 1907 and carried about 7,000 Koreans to Hawaii (Patterson 47-182). More than 1,000 "picture brides" followed over the next two decades. Many of these migrants remained in the USA; some stayed in Hawaii, while others moved to the U.S. mainland, particularly California. Thereafter, only a few specialized and limited paths remained open to Koreans. Students and political exiles formed the main migratory groups before Korea's liberation, while war brides, orphans, and students were key classifications between 1945 and 1965. Significant numbers of students-turned-professionals were allowed to remain in the United States only after 1965. Such Koreans, along with war brides, could only then also petition for the migration of close family members. Until 1970 never more than 70,000 people of Korean ancestry lived in the United States. Nearly 50 percent of that total came in the prior five years (Yu & Choe 3-5; Reimer 233-50; Yoon 414-15, 424-27; Min & Kim 35-56). The 20-fold increase in Korean population during the next

generation and a half came primarily from immigration. Thus, 76.6 percent of U.S. Koreans in 2010 had not been born in the United States (Logan & Zhang 5).

The earliest Korean migrants moved primarily to the Western USA, with Hawaii and California holding particular concentrations. However, the characteristics of many mid-twentieth-century immigrants—war brides and adopted orphans—enabled a much more spread-out geographic distribution. Individual members of both groups joined American families wherever the latter happened to live. Despite this early period of individual Koreans joining American families, however, "racial intermixing," has not been particularly notable among Korean Americans. Among 15 Asian ancestries identified by the 2000 U.S. Census, Koreans claimed dual-Asian ancestry at the lowest rate (less than two percent), and only a low-to-moderate number claimed dual-"race" heritage with a non-Asian ethnicity (10.5%). Reflecting the pre-1965 history, Koreans mixed with other Asians live disproportionately in Hawaii, while states with low Korean percentages tend to have higher proportions mixed with non-Asians (Yu & Choe 6-10; Min & Kim 35-56; cf., Allen 107-08).

Comparison of the post-1965 Korean experience in the USA with other Asian groups is instructive. Much like other Asians, post-1965 Korean U.S. settlement focuses regionally on Western and Northeastern sections of the country and is overwhelmingly urban. Nevertheless, by the twenty-first century, Koreans were slightly more likely than people from other Asian groups to reside in one of the other two regions (South and Midwest). Koreans are born outside the United States in somewhat greater proportions (Yu & Choe 10-14; Reimer 233-50; Yoon 426; Logan & Zhang 5; Min & Kim 35-56). In 2010, U.S. Koreans had a somewhat lower annual household income compared to other Asians. Yet the neighborhoods they lived in had slightly higher-than-average household income and education levels. Koreans are also slightly more suburban than the average Asian (Reimer 233-50;

Logan & Zhang 13). In addition, they have more readily migrated within the United States, both within states and to other states (Kritz & Nogle 513-14). These patterns —relatively high foreign born and low incomes on the one hand, along with slightly more geographically widespread and suburbanized distributions as well as residence in wealthier neighborhoods on the other hand—provide evidence of mixed integration into mainstream American society.

Korean migration relates strongly to employment opportunities. Employment patterns give additional evidence of mixed assimilation (Ellis 627-29). Though well educated, Koreans have been weakly represented as managers and professionals, likely in part due to language obstacles. The strong cohort of Korean nurses hired in the early years after 1965 because of U.S. employment shortages is an important exception. But overall, Koreans disproportionately work in small-scale entrepreneurial activities. Those involved are often educationally "overqualified" (Reimer 233-50; Yoon 426-27). Scholars generally narrate Korean migration as responses to opportunities believed to exist in the United States. Prior to 1990 that primarily meant opportunities for the workers themselves. Ownership of small shops in the United States was often seen to offer greater rewards than professional life in Korea. But as this equation changed with rapid Korean economic development, immigration in the 2000s increasingly relates to educational opportunity for the decision-making migrants' children (Song 23-28; Kim 146-50).

With these broad patterns as backdrop, this paper explores patterns of U.S. Koreans' residential concentration, namely the aspect of unevenness. It argues that Korean residential concentration is generally a bit lower than levels of most other "racial" minorities within the United States. But more importantly, it analyzes rising and falling dissimilarity index scores between 1970 and 2010. It then identifies how these patterns are distributed based on geographical region, county size, and speed of

Korean growth. The first conclusion (about average level of unevenness within the United States) differs somewhat from that of Logan and Zhang (8-11; cf., Ellis 627-29; "Diversity within Diversity") who use dissimilarity and exposure indices to claim Koreans' segregation from Whites generally falls in the mid-range of Asian groups. These somewhat differing conclusions stem from somewhat different applications of the dissimilarity index (with the present focus on national and county scales instead of the metropolitan-area scale they used). But this paper also goes far beyond Logan and Zhang's analysis by going back historically to 1970 (instead of their 1990) and in showing that higher dissimilarity index values are associated with larger places, in analyzing the especially high levels of unevenness in the Northeast and Midwest, and in identifying specific U.S. counties that are particularly typical and non-typical in patterns of Korean unevenness. In other words, it provides a much deeper and more thorough evaluation of Korean unevenness patterns than is available anywhere else.

3. Dissimilarity Index

Like many measures of segregation, D compares patterns observed at two nesting geographical scales. For Logan and Zhang those were metropolitan-statistical-area and census-tract levels. D is a semi-geographical measure of evenness of distribution, sensitive to regional categorization but not to spatial distance or contiguity (on D's aspatiality, see for example Harris, "Measuring Segregation" 476-79).[5] Essentially, D sums over every smaller scale unit the differences between two proportions: persons of one ethnic group residing in the smaller scale unit (x_i) compared to its total population at the larger scale (X), and persons of another ethnic group (or total non-x

population) at the small scale (y_i) compared to its total larger-scale population (Y).

$$D = 50 * \sum_{i=1}^{n} \left| (x_i / X) - (y_i / Y) \right|$$

Mathematically, when summing absolute values of differences between the two proportions and multiplied by 50, results vary between 0 and 100 and should be regarded as percentages. The larger the value, the greater the unevenness between groups within the larger geographical scale, based on units of the smaller scale. A large value means that the differences in proportions between the groups at smaller geographical scales vary substantially from the difference in proportion at the larger scale. A large D value indicates more pockets of concentration on the scale of the smaller geographical unit in relation to proportions averaged at the larger scale. A value closer to zero means the proportion of the two groups in the smaller units is more often similar to the larger area's proportion. Scholars typically interpret D as the percentage of people from one or the other group that would have to move from one smaller-scale unit to another in order to achieve evenly proportioned distributions between the two scales (for consideration of what such movement might mean in practice, cf., O'Connell 285-87).

Logan and Zhang employ a common strategy in the United States context for the dissimilarity index's geographical units (8-11). They use census tracts as the smaller scale (average of approximately 4,000 persons, though size variation is substantial) and metropolitan statistical areas for the larger (typically between a few hundred to a few thousand census tracts). Since most studies of segregation regard it as primarily an urban issue, using metropolitan areas as the larger units makes good sense. While census tracts are likewise common for the smaller scale, scholars also

employ other scales. Census blocks groups, for example, are smaller than tracts. Researchers often prefer that scale both when data are available, and when studying relatively large minority groups. Smaller scales produce less loss of information due to averaging (Lloyd 1188-91). With smaller minority groups analyzed at smaller scales, however, the expected value of any particular x_i may not differ greatly from zero. Thus, relatively small absolute concentrations of the group can have inordinately large mathematical impacts on D values (on problems with use of small-scale units, see also Harris, "Measuring the Scales" 434-36).[6]

In any case, dissimilarity indices can be calculated between any two geographical scales, provided those scales relate hierarchically. The scale decision should reflect the individual study's theoretical and practical focus (Voas & Williamson 473-78; Ellis 626; Winkler & Klass 375; Lloyd, 1188-91). This means that providing a universal interpretation of D is impossible, however. D values can differ substantially over the same population, depending on the scales used. A D value that seems to indicate relatively high or low levels of evenness at a particular set of scales, may not mean the same thing for different scales. In general terms (though exceptions exist), the smaller the small scale, the larger D is likely to be. And the larger the large scale, the larger D also is. In addition, very small minority group proportions measured over relatively few small regions, as well as very low D values themselves, are more prone to the variance associated with randomness. With these provisos, a very general rule of thumb for the scales this paper uses is that $D < 40$ indicates quite even distribution, D values between 40 and 60 are moderate; and $D > 60$ implies strong unevenness (Denton & Massey 804; Kestenbaum 276-78; Voas & Williamson 466-48; Wong 188-91; Simpson 406; Napierala & Denton 300-01).

This paper uses census tracts as the smaller geographical scale. Two factors led to this choice. First, my focus is not segregation per se. Little evidence exists that U.S.

Koreans overwhelmingly reside and stay in small, disadvantaged pockets of cities, surrounded mainly by Koreans, isolated from larger American society and lacking mobility. Thus, analysis at the scale of a few thousand total residents (census tracts) seems as useful as analysis at the scale of a few hundred (census blocks). Second, though having grown rapidly, the Korean proportion of the U.S. population remains relatively small (about 0.5% in 2010). Analysis at the scale of census tracts makes more sense mathematically in order to minimize small-expected-population problems. Therefore, the census-tract scale both minimizes mathematical issues relating to small populations compared to the census block scale and offers little loss of information in relation to that scale.

For the larger scale, this paper breaks from convention somewhat by using counties (although see also Winkler & Johnson 1028-33). While metropolitan areas make sense when conceiving of segregation as an urban problem, my concern is not only more with unevenness itself than unevenness as an indicator of segregation, but also is not restricted to urban spaces. In the United States counties are (with a few exceptions) political-administrative subunits within the town/city-county-state-nation hierarchy. Counties compare somewhat to metropolitan areas in that they reach several million people at the top of their population range. In some individual cases, their spatial definitions may nearly equate with metropolitan areas. Nevertheless, counties' population range is wider that of metropolitan areas, dipping into the tens of thousands rather than the hundreds of thousands at the low end. Thus, mean and median county populations are somewhat lower. Counties vary more in composition than metropolitan areas, sometimes encompassing urban spaces, sometimes suburban spaces, sometimes rural spaces, and often combinations. Nevertheless, for reasons that become clearer below, many counties analyzed here have largely urban-suburban dominated populations.

Two other data-category choices deserve attention. First, I use single-"race"-classified data. The decision relates largely to data availability. Respondents could identify with more than a single "race" starting only with the 2000 census. As this analysis uses the five decennial censuses between 1970 and 2010, only single-"race" classified data are available in 1970, 1980, and 1990. Since 2000 and 2010 censuses record population based on those who claim a single-"race" identity as well those who claim a multiple-"race" identity, some people who recorded a single-"race" identity (such as Korean) until 1990 may have chosen a multiple-"race" identity in 2000 or 2010. In other words, the categories used after 1990 are not precisely compatible with those used until 1990. Some inaccuracies in comparing Korean counts in the latter two census to those before are inevitable. If my main focus was the total number of Koreans, it might make sense to estimate how many people from 2000 claiming to be part-Korean would have claimed to be Korean in 1990 (when respondents could only claim one "race"). But since the key issue here is unevenness, those estimates are somewhat less important. Therefore, I simply used the population identifying as single "race" from those two more recent censuses. This likely produces only modest problems of census-to-census comparability, as mixed-marriage rates are low among Koreans (problems are most severe for Hawaii, with its long history of "racial mixing").[7] Second, I use the non-Korean population for my Y values. This relates, once again, to prioritizing evenness/unevenness over segregation. Scholars often conceive of segregation as a White-versus-other-"race" issue (for example, Denton & Massey 802; Frey & Myers 8-9; Logan & Zhang 9); thus, many segregation studies use Whites as the Y population. Resultant values show unevenness in relation to the White population. But my concern here is less Koreans' distribution in relation to Whites than in relation to all other Americans. Using non-Koreans for Y values provides better understanding of the evenness/

unevenness of Korean distribution in relation to all Americans.

The change from allowing only single-"race" to multiple-"race" identity is not the only challenging issue for comparing D values across censuses. Geographical re-definition of units between censuses also creates the "modifiable areal unit problem" (for more detail, see especially Wong 180-81; Simpson 415-19). Patterns revealed at one set of unit definitions may appear quite different with differently defined units. Changes in units' geographical configuration potentially impact D values, even if emphasizing averages rather than any single value and keeping the same general unit population size (both of which I do) moderate that impact. For the present analysis the problem is primarily census tracts. Census county definitions can and do change (especially affecting a few Alaskan counties in this study). But for the most part they remain fairly stable. However, the total number of census tracts more than doubled between 1970 and 2010 (from 34,647 to 74,002). The census-to-census tract increase was largely proportional with the USA's overall population rise, thus keeping average tract size similar. But the process required changes in tracts' spatial boundaries. Thus, we should not over-interpret small D changes in D from census to census.

In this study, data sampling creates probably the key challenge for cross-census comparison. I used census data collected by the IPUMS National Historical Geographic Information System (Manson). These are perhaps the best easily available counts of population by "race" at the census-tract level over the 1970-2010 five-census period. In four of the censuses, complete counts are given. However, the 1980 census derives from what amounts to a 17% sample. Demography scholars suggest that D values based on sampling, especially with relatively small minority groups, will often be biased upward (Ransom 460-66; Napierala & Denton 291-92, 302; Mazza & Punzo 81-104; for other sampling problems associated with D, see

Mulekar 2103-09). As detailed below, this seems to be the case for 1980's D values. Nevertheless, the sampling issues may not fully account for that year's increase, and I offer additional possible explanations. In sum, while the challenges of interpreting D values across time are real, I provide guidance along the way toward appropriate interpretation of the uncertainty.

4. Analysis

4.1 Korean Unevenness over Time

Two fundamental questions drive this study. The first is whether U.S. Koreans are becoming more or less evenly distributed at the county scale. As an initial broad hypothesis, one might expect a more evenly distributed Korean population over time, as the overall number of Koreans grows, as Koreans become more comfortable in American life, and as Americans become more accustomed to Koreans. Logan and Zhang (9), who use metropolitan areas rather than counties, whites rather than the total non-Korean population for Y values, as well as other different methodological choices from those employed here, report that Korean D values held fairly steady but overall exhibited a very small decrease between 1990 and 2010 (1990: 46.6, 2000: 46.8, 2010: 45.8). My results differ a bit for the 1990-2010 period, with very slightly increasing D values over those years, but show important large shifts from 1970-1990 that they cannot access, with their analysis beginning in 1990.

My analysis proceeded in several steps. First, because the Korean percentage of the total population was relatively low between 1970 and 2010, I identified counties with what I call "significant" Korean presences to represent general trends. This step

aimed to at least partly ameliorate the small-expected-value problem while also being attentive to non-metropolitan Korean concentrations. Rather than focus solely on counties with the largest total Korean populations, I utilized 3 tests to define significant Korean presence. First was the absolute size of the Korean population. For each of the five censuses, I identified the 30 counties (approximately 1 percent of all U.S. counties) with the largest absolute Korean populations. With substantial overlap from census to census among these 150 county names, 52 separate counties qualified. Second, I identified the 30 counties from each census with the largest Korean proportion of the county's population (minimum Korean population: 50). This test yielded 73 separate counties. Third, for each of the five censuses I identified counties containing at least one census tract with at least 20 times the average proportion of Koreans for that census (minimum Korean population: 10). Seventy-two separate counties qualified. With overlap among the three tests, and after eliminating a few counties for data availability problems, 107 separate counties remained.[8] I labeled the Korean presence in these counties "significant" and used them for the analysis below. They represent between 73 and 74 percent of the total Korean U.S. population in each census except 1980, where they represent 71.4 percent.

Next, I sorted these counties into nine categories. The dissimilarity index's theoretical literature suggests that larger populations at the larger geographic scale generally have higher D values (Frey & Myers 10-13; Johnston 724-25). The literature also suggests that rapid growth in the minority group's population may lead at least initially to rising D values (Frey & Myers 13, 15; Simpson 419-20). In order to assess these hypotheses and more easily compare similar counties, I created a 3 x 3 matrix. It uses three size categories, based on 2010 population. "Large" counties (29 total) have more than 1,000,000 people. "Medium" counties (38) are between 350,000 and 1,000,000, while "small" (40) means 50,000-350,000. The matrix

likewise has three growth categories. Since many counties "began" in 1970 with very small Korean populations, easily skewing growth rates, I combined three measures of growth. First is total magnitude of change between 1970 and 2010 based on percentage of the total population that was Korean (for example, increase in a county's percentage Korean population from 0.9% to 1.8% was 0.9%.) Second is 1980-2010 relative Korean growth rate change (increase in total population Korean from 0.9% to 1.8% was 200% here). I used 1980 as the start, given that 1970 populations were often so small. Third, I computed each county's 1980-2010 change in ranking among the 107 counties in percentage Korean. For each of these three criteria, the 107 counties were then ranked. Averaged ranking of these three criteria created categories of "fast" (30 counties) "moderate" (51), and "slow" (26) growth. I blended evenness of category size with natural breaks in creating these growth categories. Nine somewhat unevenly sized categories then resulted from combining size and growth criteria (Table 1).

Large, Fast-growth		**Large, Moderate-growth**		**Large, Slow-growth**	
State	County	State	County	State	County
Cal.	Orange (13)	Ariz.	Maricopa (2)	Mich.	Wayne (2)
	Santa Clara (10)	Cal.	Alameda (11)	NY	Bronx (6)
NY	Nassau (6)		Contra Costa (2)		
	New York (9)		Los Angeles (14)		
	+Queens (14)		Riverside (2)		
Virg.	-Fairfax (12)		Sacramento (1)		
Wash.	King (12)		San Bernard. (3)		
			San Diego (6)		
		Illinois	+Cook (10)		
		Mass.	Middlesex (5)		
		Mich.	Oakland (1)		
		Minn.	-Hennepin (4)		
		Nevada	-Clark (2)		
		NY	+Kings (7)		
		Ohio	Cuyahoga (1)		

	Franklin (2)	
Penn.	Philadelphia (6)	
Texas	+Dallas (7)	
	Harris (4)	
	Travis (2)	
Medium, Fast-growth	**Medium, Moderate-growth**	**Medium, Slow-growth**
State County	State County	State Count
Col. Arapahoe (1)	Cal. Fresno (1)	Cal. Monterey (7)
Georg. +Fulton (2)	San Francisco (14)	Solano (1)
Gwinnett (5)	San Mateo (1)	Illinois -DuPage (1)
NJ Bergen (10)	Santa Barbara (1)	Mary. Prnce George's (4)
Middlesex (3)	Conn. Hartford (1)	Minn. Ramsey (2)
Penn. Montgomery (11)	DC +Dist. of Col. (1)	NJ Burlington (1)
Wash. Snohomish (6)	Hawaii -Honolulu (15)	Ohio +Hamilton (1)
	Mary. Baltimore (4)	Oregon Multnomah (1)
	-Montgomery (13)	SC Richland (1)
	Mass. Worcester (1)	Texas +El Paso (1)
	NJ +Camden (1)	
	Hudson (4)	
	NY Onondaga (1)	
	Richmond (1)	
	Westchester (2)	
	Oregon -Washington (3)	
	Penn. Delaware (3)	
	Tenn. +Shelby (2)	
	Virg, -Prince Wm (1)	
	Wash. Pierce (12)	
	Wisc. +Dane (5)	
Small, Fast-growth	**Small, Medium-growth**	**Small, Slow-growth**
State County	State County	State County
Ala. +Montgomery (1)	Iowa Story (2)	Alaska Anchorage Mu (9)
Cal. Yolo (1)	Kansas -Riley (2)	Fairbanks NS (3)
Georgia Forsyth (2)	Louis. -Vernon Parish (2)	Kenai-Cook In (1)
Illinois Champaign (5)	NY Jefferson (1)	Matanuska-Sus (1)
Indiana Monroe (1)	NC Brunswick (1)	Ariz. +Yuma (1)
Tippecanoe (3)	Oregon Benton (1)	Georgia -Liberty (2)
Iowa Johnson (1)	Tenn. Montgomery (3)	Hawaii Hawaii (3)
Mary. -Howard (9)	Texas Bell (4)	-Kauai (1)
Mich. Ingham (3)	Virg. Alexandria city (2)	Maui (2)

	Washtenaw (7)	Arlington (5)	Kent.	Hardin (1)
Missou,	-Pulaski (4)		Louis.	+St. Charles P (1)
NY	Tompkins (3)		NC	Cumberland (1)
Texas	Brazos (2)		Okla.	Comanche (2)
Virg.	-Loudoun (1)		Texas	Coryell (2)
	Montgomery (1)			
	-York (1)			

Table 1. Counties with significant Korean presence, categorized by 2010 size and speed of 1970/80-2010 Korean growth. Counties with average D values more than 10 points from category averages are denoted with a "+" (higher than average) and "-" (lower than average) (compare to Figure 5 below). Also noted in parentheses is number of times each county met a significant-presence threshold. With five censuses and three significance criteria, the maximum possible value is 15. Source: Author's calculations based on data in Manson.

The states with the most significant Korean presence based on times meeting the significance criteria are California (88), New York (50), Maryland and Washington (30), Virginia (23), Texas (22), Hawaii (21), Pennsylvania (20), and New Jersey (19). These are primarily Pacific and mid-Atlantic seaboard (Virginia to New York) states. Perhaps the most surprising presences come from Alaska (14–surprising due to its very small population) and Georgia (11–located deep in the American South). Alaska is an example of early significance in this 40-year study period, while Georgia's significance registers mostly late.[9)]

Next, I calculated dissimilarity-index values for each of these 107 significant counties over the five censuses. (Table 1 identifies counties with the strongest deviations from their category's average.) The aim was to understand how patterns of Korean distribution changed between 1970 and 2010. Tables 2 and 3 and Figures 2 and 3 summarize results, categorized by county size and growth patterns.

County size	1970	1980	1990	2000	2010
Large (n=29)	54.9	64.5	44.5	46.9	48.4
Medium (38)	54.3	61.6	42.3	43.1	43.5
Small (40)	44.8	52.8	38.6	38.3	39.2
Total (107)	52.9	59.3	41.5	42.3	43.2

Table 2. Average D scores, by total county population, 1970-2010. Source: Author's calculations based on data in Manson.

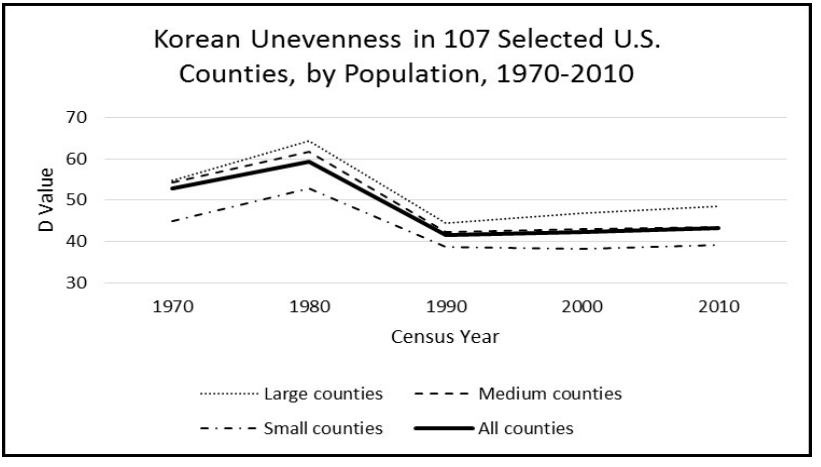

Figure 2. Average D scores, by total county population, 1970-2010. Source: Author's calculations based on data in Manson.

County growth	1970	1980	1990	2000	2010
Fast (30)	54.5	59.7	44.0	44.7	47.3
Moderate (51)	53.4	62.5	42.4	43.0	43.0
Slow (26)	46.8	57.0	37.0	38.2	38.8
Total (107)	52.9	59.3	41.5	42.3	43.2

Table 3. Average D scores, by Korean population growth pattern, 1970-2010. Source: Author's calculations based on data in Manson.

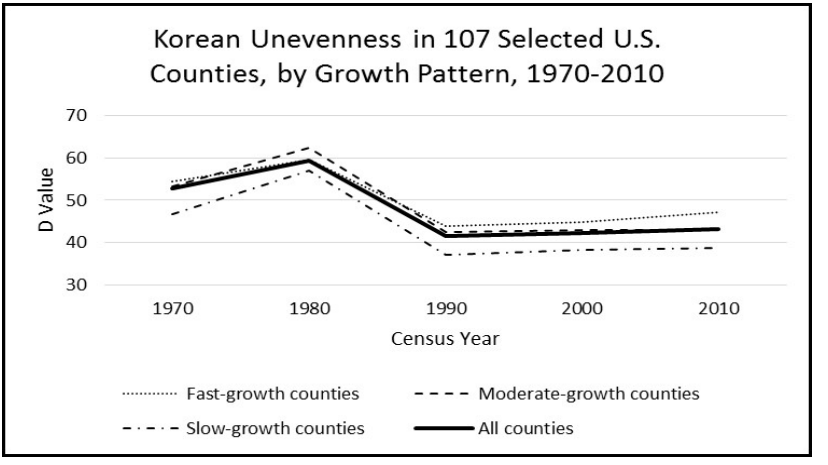

Figure 3. Average D scores, by Korean population growth pattern, 1970-2010. Source: Author's calculations based on data in Manson.

A clear temporal pattern is visible. D values jump moderately between 1970 and 1980. They then drop dramatically by 1990, after which they stabilize, with a slight average increase until 2010. With small variations, each category follows this pattern. It goes partially against against my first, broad hypothesis. What should we make of it? To what extent might it result from data issues? Or does it reflect real change in the evenness of distribution of Koreans within U.S. counties? We cannot answer with complete precision or certainty, but there are educated guesses to make. 1980 values are clearly the outliers. Recall that the 1980 data differ from the other years in deriving from a 17-percent sample rather than a full count. Is the nearly 18-point gap between 1980 and 1990 due largely to the sample? Recall from the discussion in section 3 that sampling can produce upward bias in D values, especially for relatively small ethnic groups. Upon consideration of the possibilities, I suspect the 1980 sample produces perhaps half, but not all of the D-value jump and then fall. My reasoning follows over the next several paragraphs. I first look at the possibility that

the rise represents real processes before exploring evidence that the sample contributed to the increase.

In 1970 the Korean proportion of total U.S. population was very low—0.04 percent. More than a third of U.S. counties (1,161 of 3,140) had no Korean residents. Nearly 80 percent (2,500) had fewer than ten, with the beginning of rapid Korean immigration barely underway. In such a situation, it makes sense to suppose that Korean residential unevenness (at county/census tract levels, even in significant counties) would increase (cf., Catney, "Exploring" 1700). After all, much of the 1970s migration involved family members of the earliest migrants. Such family-based chain migration lends itself to newcomers residing close to earlier migrants. The likelihood of the newer migrants living in the same census tract as their family members is much higher than in migration situations where chain migration is not as dominant. Even those migrating without earlier family members would likely have sought residence near other Koreans since the American experience was relatively novel and unknown to Koreans generally. In cases where total numbers of Koreans were very small, chain migration would thus incline Korean settlement to concentrate in a relatively few census tracts within county areas. Thus, by definition, D values would rise. I suspect this dominance of chain migration processes accounts for much of the sharp increase in D values between 1970 and 1980.

After 1980, however, the situation likely changed. Korean immigration remained strong in absolute numbers. But as new professional and entrepreneurial opportunities emerged the earliest cohort of migrants may now have felt more comfortable spreading out away from established Korean concentrations. More Koreans likely knew or knew of others who had migrated to the United States. Thus, newly arriving migrants may have had stronger prior information about American life. They may not have felt as strong a need to cluster so closely to other Koreans. The likelihood that

Korean populations spread to more census tracts within counties thus increased. In addition, since the size of the U.S. Korean population had grown several times over, it was now easier to find at least a few Koreans in more locations. In other words, while chain migration may still have affected the overall pattern of Korean migration, it likely weakened significantly as a spatially concentrating factor on the census-tract scale by 1990. Thus, it makes good processual sense to suppose that D's 1970-1980 rise and then its fall by 1990 reflects real change in U.S. Koreans' residential unevenness.

Quantitative evidence also hints that D's 1970-1990 rise and fall may relate to the strong migration increase after 1965. First, consider various "racial" groups' D-score patterns (Figure 4).[10] (Unlike the other D scores in this paper, I calculated Figure 4's D values between scales of census tracts and the whole country. As expected with a larger large scale, D values are substantially higher than those at the county level. However, the general temporal pattern produced for Koreans seems almost identical, giving evidence that the 40-year trajectory from Figure 2 is not simply a result of data collection and scale choices.) Figure 4 shows that with one exception (Blacks), 1980 D values rose for each "racial" group. Additionally, only Blacks and American Indians lack an inflection of the slope in 1990. This inflection indicates a slowdown for five of the seven groups in the residential-evening processes affecting all seven of the groups during the 1980s. Something clearly was different about 1980. The rise in D values for each of the four Asian groups supports the hypothesis that the 1965 change in U.S. immigration law led to more concentrated settlement among each Asian nationality during the 1970s. The Korean pattern looks similar to Chinese, Japanese, and Filipino patterns, for example, though notably at slightly lower unevenness levels. The category abbreviated as "Native Hawaiian" in Figures 1 and 4 also includes other Polynesians. The 1970s saw significant Polynesian

migration, apparently also leading to more uneven national-scale residence patterns in 1980. (As an aside, I suspect Koreans' unique slight rise in D between 1990 and 2010 relates to the continuing relatively high percentage of university-related people among the Korean cohort, to increasing post-2000 emphasis on movement for children's education, and to increasing investment by Korean companies in United States production facilities [with significant accompanying movement of Korean managers and workers]. Each trend is consistent with increasing concentration in certain census tracts—near large universities, well-known schools, and industrial facilities—and thus with relatively stable or slightly rising D values.)

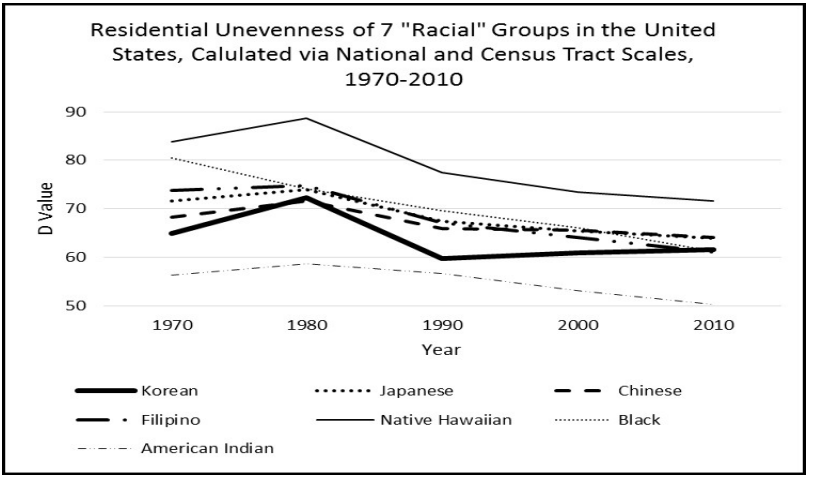

Figure 4. Average D scores for seven "racial" groups, 1970-2010. Unlike other D scores calculated in this paper (which use counties), these values come from using the whole country as the larger scale. Census tracts remain the smaller scale. Source: Author's calculations based on data in Manson.

However the data also suggest that the sample may affect the magnitude of 1980's D-value rise. Recall that Japanese growth in the USA is the exception to general

Asian American growth trends, with a quite modest population increase during the 1970s (Figure 1).[11] Increased (especially chain-) migration was much less of a factor in Japanese American demography. Yet Japanese D scores rose in 1980, just as with the other Asian groups, Native Hawaiians/other Pacific Islanders, and even American Indians. Thus, a rapid rise in immigration may not be the only reason for 1980's D-value rises.

Elements within the data for Koreans specifically also support this point. Though most U.S. counties had a very small Korean presence in 1970, a few held relatively stronger concentrations (largely due to historical uniqueness). Utilizing both absolute and proportional measures, I identified nine counties with the strongest 1970 Korean population (Alaska's Anchorage; Hawaii's four counties; Virginia's Arlington; and California's Monterey, San Francisco, and Los Angeles). The flood of new Korean immigration in relation to the established Korean population would not have been as overwhelming in these counties as in most U.S. counties during the 1970s. The chain-migration effects discussed above would thus likely not have been as strong. These counties may even have been expected to more closely resemble the national trends in Korean unevenness after 1980 or 1990, with falling or nearly steady D values. Yet these nine counties exhibit the same general 1970-1990 trajectory as the larger group of 107. 1980 was still the high point for D values, though the magnitude of their increase was about half the larger set's average (this latter distinction is consistent with the chain-migration explanation). Thus, there seems to be something beyond the rapid increase in migration causing 1980s increase. I suspect 1980's 17-percent sample also contributed. (D's steady decline for Blacks after 1970 despite 1980's sample likely stems from rapid eradication of laws and erosion of cultural habits that had previously sustained black segregation combined with the sample effect being much lower than the much higher population of Blacks.

12)) Thus, these comparative "race" data support the idea that for U.S. Koreans, the 1980 sample data and real processes both partially produced that year's high D values. In sum, we might plausibly (and roughly) attribute about half of the rapid rise and fall relating to 1980 D values to that census' sample and about half to a real spike in U.S. Koreans' uneven residential distribution.

Returning to Tables 2 and 3 and Figures 2 and 3, a second notable issue is different unevenness levels in different county types despite generally parallel trajectories. Consistent with the hypothesis based on the theoretical literature, large counties on average show greater unevenness than small counties, about a 10-point D difference. U.S. Koreans apparently congregate more closely within larger population counties than they do in smaller counties. Perhaps this is due to the newest migrants —those likely to need stronger cultural support—migrating to large rather than small places. Koreans in the United States longer, on the other hand, may feel more comfortable spreading out in a variety of counties. But while this size distinction in D seems reliable across the five censuses, the effect of county growth patterns (Korean population growth's relative speed) is a bit harder to interpret. Some distinction between fast and slow growing counties' D values seems to exist, but is neither as strong nor as temporally reliable. Nevertheless, though not as solid as the size association, these data can at least be interpreted as consistent with the hypothesis that more recent migration correlates with greater residential unevenness.

Figure 5 graphically evaluates the nine categories produced by combining size and Korean-growth-pattern categories (Table 1). The picture presented here is even more complex. The highest D values, by far, are found in large counties with relatively slow Korean growth. Those scores come from just two counties, however; skepticism about whether the scores derive from county characteristics or randomness is warranted (though the magnitude of the anomaly, the fact that those two counties

have the two highest of all 107 counties' average D values, and conformance with average scores' general trajectory work against a randomness interpretation). Only small, moderate-growth and small, slow-growth counties have D scores reliably below average. The gap between those two low-D categories and the single high-D category is large, typically around 30 points, hinting at real differences between these types of counties. Further research on whether this difference holds for other ethnic groups and on possible causes is warranted. The contribution of small vs large counties to this gap makes sense given what is generally known about residential unevenness. But the confinement of this gap mostly to slow-growth counties is harder to decipher. Most of the other categories hover near the 107-county average, however, suggesting the 3 x 3 classifications add little reliably generalizable insight.

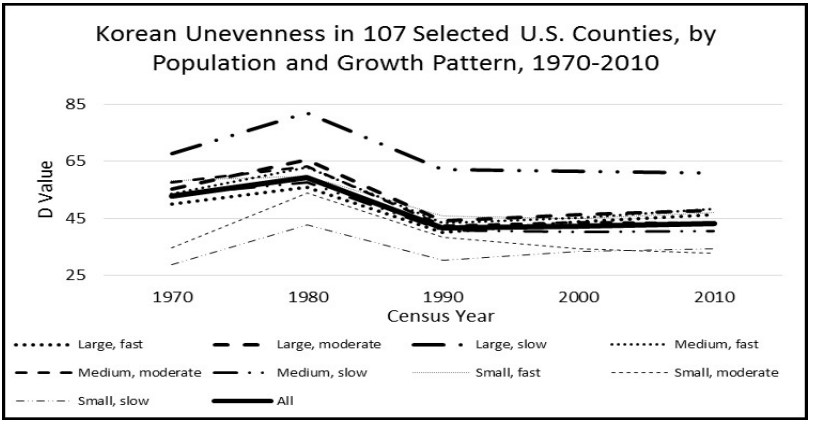

Figure 5. Average D scores of significant counties, categorized by combining size with Korean population growth pattern, 1970-2010. Source: Author's calculations based on data in Manson.

4.2 The geography of U.S. Korean residential evenness/unevenness

The second major question for this research is how unevenness in Korean residential settlement varies geographically. The U.S. Census Bureau divides the United States into four major regions: West, South, Midwest, and Northeast (Figure 6). Previous analysis of ethnic segregation (most often among Blacks and Hispanics, almost always at the metropolitan scale) suggest that the Northeast and Midwest typically exhibit higher segregation, while the West usually has the lowest (Frey & Myers 10-12).

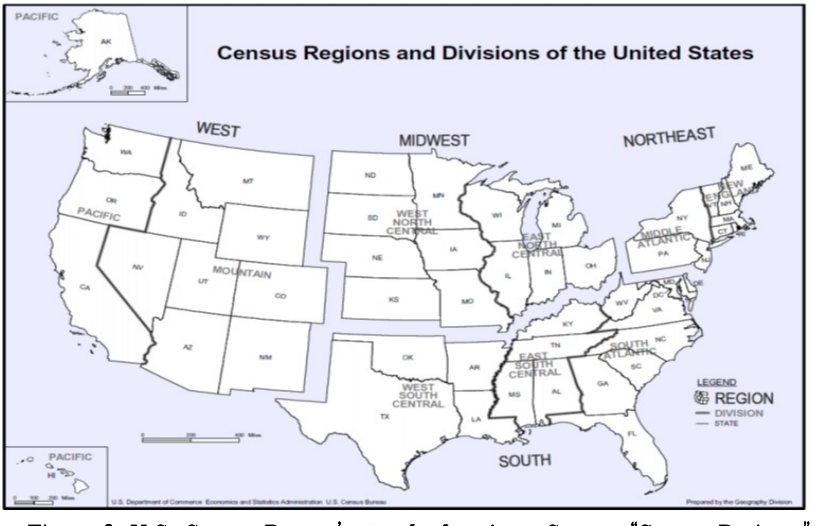

Figure 6. U.S. Census Bureau's standard regions. Source: "Census Regions."

In relation to African Americans, at least three (sometimes overlapping) explanations for regionally different unevenness are possible (cf., Johnston, "The Ethnic" 112). First, social and cultural features of Northeast and Midwestern cities may simply lead

to greater levels of unevenness, while the West, by contrast, offers a more open, welcoming culture. Employment opportunities in certain economic sectors (especially industry and service) drove black migration to Northeastern and Midwestern cities during a key 1910-1950 period. Prejudice and racism led to expectations that Blacks would geographically confine themselves to certain (usually inner-city) areas based on those sectors. Laws and real-estate practices fostered direct racial discrimination in housing markets. Additionally, the "white flight" phenomenon that left inner cities primarily populated by black (and sometimes other, typically poor, minority) residents, was strongest in the Northeast and Midwest. A second explanation emphasizes regionally distinctive physical forms of metropolitan areas. Cities in the Northeast and Midwest typically comprise older housing stocks. Having developed higher population concentrations and densities earlier, they have less new housing development. As people tend not to move without strong push or pull factors, established ethnic-racial concentrations may not easily change in areas whose physical form only slowly changes (Myers 15-26). Third, and related, the Northeast and Midwest may be less "footloose" than the West and South. The latter encompass "Sunbelt" destination areas rather than source areas within the past few decades' patterns of U.S. regional migration. Sunbelt residential patterns therefore change more rapidly, driven by more new housing developments. Taken together, these three explanations suggest that once ethnic-racial "tones" of neighborhoods are established (which for Northeast and Midwest urban areas happened in earlier and arguably more racist periods), patterns of unevenness and other forms of segregation have a difficult-to-dislodge inertia (for a non-quantitative, longer historical example of urban inertia, cf., Campanella, 704-15; for somewhat of a dissent, cf., Winkler & Johnson 1041-43).

However, unlike the case for Blacks, Korean U.S. settlement proceeded in a more

west-to-east direction. It also essentially began after 1965. The inertia associated with earlier African American residence in areas with slowly changing physical forms does not apply. One might hypothesize that the opposite geographic direction and later period of key migration produced different patterns of regional D values for Koreans. Specifically, one might expect similar or even higher values in the West compared to the Midwest and Northeast.

Thirty-four of the 107 significant counties are located in the Census's West, 33 in the South, 21 in the Northeast, and 19 in the Midwest. Many of the South's counties are close to Washington D.C., while many Northeast counties cluster not too far away around Philadelphia and New York City. Figure 7 shows average regional D values. Three patterns are apparent. First, results conform to expectations from the segregation literature. Korean population in the Northeast is distributed most unevenly, followed by the Midwest. The West is lowest, while the South is close to the 107-county average. Thus, the different history of Korean U.S. migration compared to some other minority groups did not produce different regional unevenness. My hypothesis should be rejected. Instead, results support the idea that characteristics of the Northeast and Midwest themselves led to greater "racial" residential unevenness. Second, the gap between regions narrows slowly, but consistently (from about 17 to 7 points between the Northeast and West) over the study period. Regional differences in unevenness seem to be diminishing. Third, each region's temporal trajectory closely parallels the average U.S. pattern. The orderliness represented by the second and third points hints that these temporal and geographic patterns are likely robust.

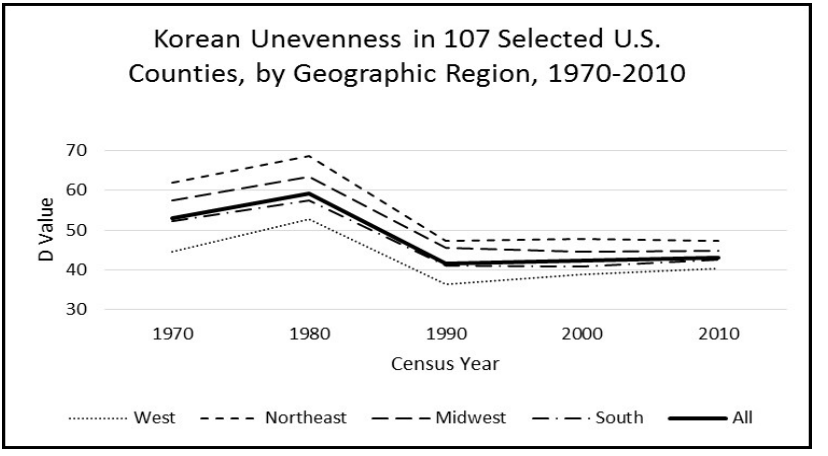

Figure 7. Average D scores, by U.S. region, 1970-2010. Source: Author's calculations based on data in Manson.

Geographical patterns can also be evaluated through states. Many states are not represented among the 107 counties, and some that are contain just one or two counties. In order to nonetheless partially evaluate at the state level, Figure 8 shows averaged significant-county D values for the 15 states with three or more significant counties. A small-observation-size warning is especially relevant to interpretations here. Figure 8 presents data as a cumulative bar graph rather than line graph. Results generally support Figure 7's conclusions, especially that Western counties tend toward low D values, while Northeastern and Midwestern have the highest. Hawaii and Alaska—two of the states with strongest established Korean settlement in 1970, and likely the two least urban states when county averages are used to establish state averages—show the lowest levels of unevenness. California, a western state with pockets of early Korean settlement but also more high-population counties, comes in closer to average. The Northeast's and Midwest's (generally large, urban) counties in Ohio, Michigan, New York, Pennsylvania, and New Jersey, show high D values.

Surprisingly, perhaps, Texas, a Southern state close to the West has high values, while Southern states close to the Northeast (Virginia and Maryland) record much lower scores.

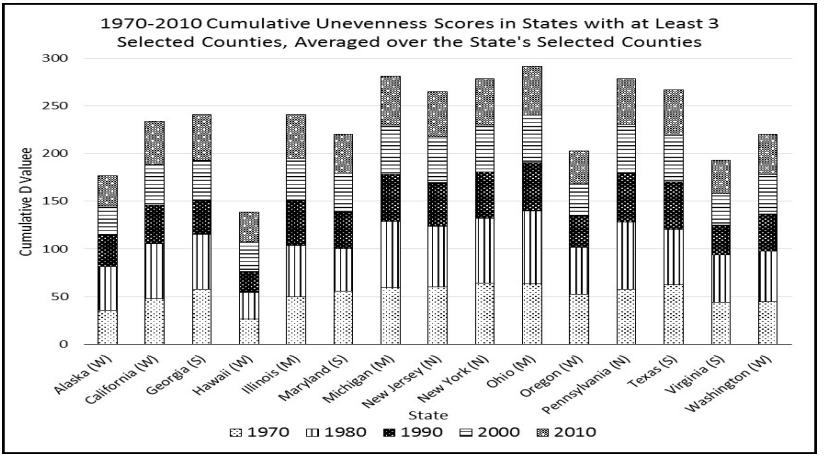

Figure 8. Average D scores, by U.S. state, 1970-2010. Values were computed for each state by averaging the state's significant counties' D scores. Regional location, identified as (W)est, (S)outh, (N)ortheast, and (M)idwest, is given after the state name. Source: Author's calculations based on data in Manson.

Finally, typical and atypical counties relating to Korean residential distribution can be identified among the 107 counties. I do this in two ways. First, “typical” counties may be regarded as those with the least difference from the overall average, with differences computed at each census and then summed. “Atypical” counties show high difference. Table 4 identifies the most typical and atypical counties by this definition. A few points deserve attention. First, spatial proximity does not necessarily imply similar distributional patterns. New York’s New York County and New Jersey’s Middlesex County ranked as highly typical, but the nearby Bronx,

Kings and Queens counties were quite atypical. Second, reinforcing Figure 8, Hawaii is notable for its rather even distribution of Koreans, being atypical in its low D values. Third, California has many typical counties by this definition, though the Los Angeles County, with the nation's largest Korean county-wide population, is not one of them. Finally, small, fast-(Korean) growth counties seem to be over-represented in the list of most atypical counties, while medium, fast-growth and large, moderate-growth counties are over-represented among the typical.

Most Typical Counties			**Least Typical Counties**		
State	County	Metropolitan Area	State	County	Metro Area
Massachusetts	Middlesex	Boston	Hawaii	Kauai (L)	Kapaa
New York	New York	New York	New York	Bronx (H)	New York
Michigan	Oakland	Detroit	Hawaii	Maui (L)	Kahului
New Jersey	Middlesex	New York	Hawaii	Hawaii (L)	Hilo
Pennsylvania	Montgomery	Philadelphia	Oklahoma	Comanche (L)	Lawton
Washington	Snohomish	Seattle	North Carolina	Brunswick (M)	Myrtle Beach
Arizona	Maricopa	Phoenix	Maryland	Howard (M)	Baltimore
California	Riverside	Riverside	Alabama	Montgomery (M)	Montgomery
California	San Diego	San Diego	Michigan	Wayne (H)	Detroit
South Carolina	Richland	Columbia	New York	Queens (H)	New York
Iowa	Story	Ames	New York	Kings (H)	New York
Colorado	Arapaho	Denver	Georgia	Fulton (H)	Atlanta
California	Alameda	San Francisco	Tennessee	Shelby (H)	Memphis
California	Sacramento	Sacramento	Illinois	DuPage (L)	Chicago
Maryland	Baltimore	Baltimore	Virginia	Prince Wm (L)	Washington DC

(Based on variation from the 107-county average of D values)

Table 4. The most typical and atypical counties of Korean residential distribution among the 107 significant counties, based on variation from average D values. Letters after county names denote that a county was atypical through (L)ow, (H)igh, or (M)ixed D values. Source: Author's calculations based on data in Manson.

A second way to imagine typicality is through deviations from average rises and falls in unevenness from census to census—in other words deviations from D's average *trajectory*. This measure uses individual-county average D values over the five censuses as a baseline for each county. It then compares the amount of deviation at each census from this baseline to the 107-county average's similar census-by-census deviation from its own overall average D value. Counties whose deviations track closest to the 107-county average's deviations are most "typical," while those that follow least closely are "atypical." Table 5 exhibits results. Counties qualifying as typical by both definitions of typicality include California's Alameda (centered on Oakland), Pennsylvania's Montgomery, New York's New York (Manhattan), and Massachusetts's Middlesex (famous for Harvard University and the Massachusetts Institute of Technology). Several counties also appear on both atypical lists: North Carolina's Brunswick, Alabama's Montgomery, Maryland's Howard, Hawaii's Hawaii, and Virginia's Prince William. Given Table 5's variety, it seems unlikely that size or geographic region have reliably strong correlations with this type of typicality. Nevertheless, as a rough conclusion, similar to Table 4, large, moderate-growth counties are somewhat over-represented as typical, while small, fast-growing counties are more often atypical. D's tendency toward greater variability with small numbers may contribute to the latter.

Most Typical Counties			Least Typical Counties		
State	County	Metropolitan Area	State	County	Metro. Area
Washington	King	Seattle	NorthCarolina	Brunswick	Myrtle Beach
California	Alameda	San Francisco	Alabama	Montgomery	Montgomery
Pennsylvania	Montgomery	Philadelphia	Connecticut	Hartford	Hartford
Texas	Dallas	Dallas	Hawaii	Honolulu	Honolulu
Indiana	Tippecanoe	Layfette	Maryland	Howard	Baltimore
New Jersey	Camden	Philadelphia	Massachusetts	Worcester	Worcester
Texas	Harris	Houston	Texas	Brazos	Bryan
Ohio	Cuyahoga	Cleveland	California	Yolo	Sacramento
Michigan	Washtenaw	Ann Arbor	Minnesota	Hennepin	Minneapolis
New York	New York	New York	Hawaii	Hawaii	Hilo
Georgia	Fulton	Atlanta	California	Orange	Los Angeles
Maryland	Montgomery	Baltimore/Washington DC	New Jersey	Bergen	New York
Colorado	Arapahoe	Denver	California	Los Angeles	Los Angeles
New York	Onondaga	Syracuse	Illinois	Champaign	Champaign
Massachusetts	Middlesex	Boston	Virginia	Prince William	Washington DC

(Based on variation from the 107-county average trajectory of D values)

Table 5. The most typical and atypical counties of Korean residential distribution among the 107 significant counties, based on variation from average D trajectories. Source: Author's calculations based on data in Manson.

Each typical and non-typical county merits further attention than I can give here. Let me nevertheless highlight a few atypical counties from Table 5. North Carolina's Brunswick County's unusual trajectory relates in part to a relatively strong Korean presence in 1970 followed by an almost complete absence by 1980. Outmigration contributed to a huge increase in D during the decade, as all six Koreans in the county in 1980 resided in a single census tract. The absolute Korean population of the county had still by 2010 not recovered to its 1970 level. Alabama's Montgomery County's atypical trajectory stems especially from a very large increase in 2010's D value. That likely relates to the post-2000 investment and location of Korean

companies' branch plants and offices in Alabama and their sponsoring of Korean workers (Kim 139-40). Montgomery County's Korean population rose more than seven times between 2000 and 2010; the Korean population of three 2010 census tracts were each higher than the county's total 2000 Korean population. Hawaii's Honolulu and Hawaii Counties exhibited no extreme rise nor drop in D values, perhaps partly because Koreans had already established themselves there before 1970. A significant reason for atypicality seems to be the change allowing for more than single-"race" classification in 2000 and 2010 censuses. With likely more geographically intermixed multiple-"race" Koreans no longer identifying as solely Korean, D values rose unusually during those two most recent censuses. California's neighboring Los Angeles and Orange Counties show similar D-value trends to Hawaii's counties, but the reasons likely differ somewhat from both Hawaii and each other. Orange County's patterns may relate to a faster-than-normal rise in Korean population between 1990 and 2010; Los Angeles did not experience such a rapid increase (see also Min & Kim 35-56).

5. Conclusion

This paper historically and geographically portrays unevenness in U.S. Koreans' residential distribution since 1970. I proposed four hypotheses: 1) decreasing unevenness between 1970 and 2010; 2) greater unevenness in large counties than in small counties; 3) greater unevenness in fast-growing counties compared to slower-growing counties; and 4) a different regional pattern of unevenness compared to Blacks. The data strongly confirmed the second hypothesis, confirmed the first and third broadly but with important provisos, and rejected the final hypothesis. But as

very little has been known about patterns of Korean unevenness in the United States, the aim of the paper is more than simply hypothesis testing. Key findings include: 1) Unevenness rose between 1970 and 1980 (accompanying a huge proportional increase in the USA's Korean population), fell by a greater level by 1990, and has been largely stable since; 2) calculated D values sharply rose in 1980 and then fell in 1990, but part of that movement is likely due to data issues rather than real change in unevenness; 3) Korean unevenness has been moderate to low in comparison to other U.S. minority groups, though Koreans seem not to have shared the others' slight post-1990 decline; 4) as expected theoretically, large-population counties generally have higher unevenness than small counties; 5) hints of a similar divide exist between faster and slower-Korean growth counties, but that relationship appears weaker; 6) patterns produced from combining size and growth categories are even more uncertain; 7) like other U.S. minority groups, Korean unevenness is highest in the Northeast and Midwest, especially compared to the West, though differences are decreasing; 8) Alaska's and Hawaii's counties have particularly low unevenness, while Ohio's, Michigan's, and Pennsylvania's are notably high; and 9) typically or untypically uneven counties may be only weakly patterned regionally or by size, but their individual stories are instructive for understanding the Korean U.S. experience.

The paper also attempts a modest methodological contribution through illustrating appropriate use of the dissimilarity index comparatively over time and across ethnicities. Hence the method's limitations should be kept in mind. Though seeming to offer precision, D values are best interpreted somewhat loosely. Small differences between values should not be overinterpreted. Uncontextualized D values are not inherently interpretable. Values obtained strongly depend on scales used. Issues of data gathering and definitions as well as those of changing geographical units pose challenges to interpretation. Comparison between different groups or over time should

point more to broad trends and patterns than individual values. Despite 1.5 million Koreans in the United States, small values still limit the certainty of some conclusions. Thus, the results given here are more descriptive and suggestive than explanatory and authoritative. They hopefully sketch outlines of a road map to more explanatory explorations of U.S. Korean residential unevenness.

Much progress may thus come through more sophisticated quantitative methodologies that more carefully address specific findings in this paper. Yet I hope the paper's use of the dissimilarity index and its breadth provide an invitation for further engagement with Korean residential unevenness through more qualitative approaches as well. As an easily interpretable measure, I believe D's results point to further questions regarding Korean U.S. unevenness. For example, what factors led particular counties to different unevenness patterns/levels, even when sharing similar formal characteristics? Why does unevenness vary regionally so similarly for Koreans and other American ethnic groups with very different migration contexts (such as Blacks)? Why are these regional differences declining? Does relatively rapid or slow Korean growth truly affect unevenness, and if so, through what mechanisms? And maybe most importantly, what implications do higher or lower levels of residential unevenness bring for Korean Americans? Analysis of each of these questions can benefit from qualitative methodologies. As one example working in some of these directions, Yoo explores the role of chain migration and other network resources on Korean entrepreneurship patterns in Atlanta (347-61). Through the historical and geographical patterns as well as typical and non-typical counties identified, I hope this study provides guidance on where and how to proceed with additional research.

Notes

1) Despite cogent argument from social scientists that "race" is not a coherent category, the U.S. Census refers to Asian nationalities and some other ethnic groups as "races." I follow that convention in this paper, though marking my disagreement with it through the use of quotation marks. Unless otherwise noted, all data used in this paper comes from the United States Censuses, compiled and made digitally available through the IPUMS National Historical Geographic Information System (Manson).

2) Two points on this graph deserve mention. High American Indian growth during the 1970s (and 1980s to a lesser extent) is clearly not attributable to immigration, nor is natural growth a reasonable explanation. Instead, the cause is most likely political-cultural, reflecting increasing numbers willing to identify as Native Americans. Second, the 2000 fall in "Native Hawaiians" (the name is abbreviated here; the category also includes other Polynesians) stems from Hawaii's extremely high "racial intermarriage" rates. When the census allowed for multiple "race" identification for the first time in 2000, the number identifying as single-"race" Native Hawaiians/Polynesians dropped substantially.

3) Arguably, the number is higher than 1.5 million, since the figure includes only single-(Korean) "race" identity claims. Extrapolating to include multiple-"race" Korean identities, Logan and Zhang (4) report 1.7 million U.S. Koreans in 2010.

4) Here I use the broad, common-sense meaning of concentration, rather than its more specialized sense as one of segregation's aspects (see note 5).

5) The dissimilarity index does not, in fact, require geographically categorized data, though researchers almost always use such data within residential research. A rich literature exists regarding appropriate ways to measure segregation. Scholars have identified various aspects of segregation, including evenness, concentration, exposure, contiguity, and clustering, and developed several indices to measure or represent each (Winship 717-19; Johnston, "Sydney" 149-50; Johnston, "The Ethnic" 111-27; Johnston, "The Geography" 717-22; Simpson 407-10; Gorard 643-49; Horn 60-63; Harris, "Measuring Changing" 2246-51; Harris, "Measuring Segregation" 479-83; Catney, "Towards" 72-74; Harris, "Measuring the Scales" 443-42). Though beyond the scope of this article, since "segregation" is not its focus, my reading of the debates is that segregation is best understood through a variety of measures.

6) The small numbers of U.S. Koreans residing at relatively small geographical scales is also the reason the current study presents largely descriptive data rather than employing "explanatory" tests to tease out various factors' relative impact on D values. Regression models would likely not be very valid. One immediate problem is the small expected

number of Koreans in any given county (my chosen larger scale). Even by 2010 the median Korean population among all American counties was nine persons (for census tracts, four). I limit the number of counties analyzed for that reason (see below). But this solution does not entirely solve the small-sample size issue; it also creates a second problem: small numbers of counties in possible-explanatory-variable categories.

7) Because Hawaii has so many "mixed"-identity residents, the state's Korean D values rose substantially in 2000 and 2010. These people were likely more evenly spread geographically than those identifying with a single "race," but at that point were no longer included in the calculations. In a unpublished study using a slightly different set of data, I found that Hawaii's 2010 Korean D scores incorporating both single-and multiple-"race" Koreans were substantially lower.

8) I first eliminated counties with fewer than 50,000 people by 2010 as too small to provide reliable D values using the census-tract level. I also eliminated counties with definitional continuity problems. These steps eliminated especially a few small Alaskan counties that had qualified as significant primarily through either the total population or percentage Korean population criteria in 1970 and/or 1980. Although I eliminated some Alaskan counties from analysis here, the Alaskan presence should not be overlooked. (I have not seen any other study of U.S. Korean population that acknowledges this early Alaskan concentration).

9) Several of the significant counties notably house large, major universities. The pattern is especially apparent among medium and small counties. Thus higher education likely remains an important part of the U.S. Korean story.

10) From this point, I report numerical results primarily through graphs alone rather than also tables. This is partly to save space, partly because graphs more quickly convey key patterns, and partly to remind that small differences in D values should not be given too much prominence. Readers may contact the author for precise values.

11) Migration of Filipinos—considered U.S. nationals until 1946 because of the colonial U.S.-Philippines relationship—was more readily permitted than from other Asian countries after 1920. It is the other major exception to general "Asian" patterns. Nevertheless renewed migration from the Philippines was permitted starting in 1965. The 1970s saw significant growth in the U.S. Filipino population (Figure 1).

12) Whether Black unevenness in 2010 is lower than that of Asians (as seemingly indicated in Figure 4) depends partly on choices of scale (i.e., the country as a whole versus metropolitan areas, for example) and partly on category definitions. D values for Asians as a whole, for example, are typically lower than those of individual Asian nationalities (Logan & Zhang 9).

Works Cited

Allen, James P. "Ethnic Geography Dynamics: Clues from Los Angeles." *Association of Pacific Coast Geographers Yearbook* 67 (2005): 97-116. Print.

Campanella, Richard. "An Ethnic Geography of New Orleans." *The Journal of American History* 94 (2007): 704-15. Print.

Carreon, Daisy C., and Sebastian E. Baumeister. "Health Care Access among Asian American Subgroups: The Role of Residential Segregation." *Journal of Immigrant Minority Health* 17 (2015): 1451-47. Print.

Catney, Gemma. "Exploring a Decade of Small Area Ethnic De-segregation in England and Wales." *Urban Studies* 53 (2016): 1691-709. Print.

_____. "Towards an Enhanced Understanding of Ethnic Group Geographies using Measures of Clustering and Unevenness." *The Geographical Journal* 183 (2017): 71-83. Print.

"Census Regions and Divisions of the United States." *U.S. Census Bureau*. U.S. Department of Commerce, 17 April 2013. Web. 14 June 2018.

Denton, Nancy A., and Douglas S. Massey. "Residential Segregation of Blacks, Hispanics, and Asians by Socioeconomic Status and Generation." *Social Science Quarterly* 69 (1988): 797-817. Print.

"Diversity within Diversity." Diversity and Disparities, US2010 Project, Spatial Structures in the Social Sciences. Brown University, n.d. Web. 1 Jan. 2018.

Ellis, Mark, et al. "Work Together, Live Apart? Geographies of Racial and Ethnic Segregation at Home and at Work." *Annals of the Association of American Geographers* 93 (2004): 620-37. Print.

Frey, William H., and Dowell Myers. "Racial Segregation in U.S. Metropolitan Areas and Cities, 1990-2000: Patterns, Trends and Explanations." Population

Studies Center Institute for Social Research. Report 05-573. U of Michigan, April 2005. Web. 1 Jan. 2018.

Gorard, Stephen. "Does the Index of Segregation Matter? The Composition of Secondary Schools in England since 1996." *British Educational Research Journal* 35 (2009): 639-52. Print.

Harris, Richard. "Measuring Changing Ethnic Separations in England: A Spatial Discontinuity Approach." *Environment and Planning A* 46 (2014): 2243-61. Print.

_____. "Measuring Segregation as a Spatial Optimisation Problem, Revisited: A Case Study of London, 1991-2001." *International Journal of Geographical Information Science* 30 (2016): 474-93. Print.

_____. "Measuring the Scales of Segregation: Looking at the Residential Separation of White British and Other Schoolchildren in England using a Multilevel Index of Dissimilarity." *Transactions of the Institute of British Geographers* 42 (2017): 432-44. Print.

Horn, A. "Measuring Multi-Ethnic Spatial Segregation in South African Cities." *South African Geographical Journal* 87 (2005): 58-72. Print.

Iceland, John, et al. "Racial and Ethnic Residential Segregation and Household Structure: A Research Note." *Social Science Research* 39 (2010) 39-47. Print.

Intrator, Jake, et al. "Segregation by Race and Income in the United States 1970-2010." *Social Science Research* 60 (2016): 45-60. Print.

Johnston, Ron, et al. "Sydney's Ethnic Geography: New Approaches to Analysing Patterns of Residential Concentration." *Australian Geographer* 32 (2001): 149-62. Print.

_____. "The Ethnic Geography of New Zealand: A Decade of Growth and

Change, 1991-2001." *Asia Pacific Viewpoint* 44 (2003): 109-30. Print.

_____. "The Comparative Study of Ethnic Residential Segregation in the USA, 1980-2000." *Tijdschrift voor Economische en Sociale Geografie* 95 (2004): 550-69. Print.

_____. "The Geography of Ethnic Residential Segregation: A Comparative Study of Five Countries." *Annals of the Association of American Geographers* 97 (2007): 713-38. Print.

Kestenbaum, Bert. "Notes on the Index of Dissimilarity: A Research Note." *Social Forces* 59 (1980): 275-80. Print.

Kim, Eunbi. "The Impact of Corporations on the Settlement of Migrant Workers: Koreans in Alabama, USA." *Journal of Ethnic and Migration Studies* 41 (2015): 138-57. Print.

Kritz, Mary M., and June Marie Nogle. "Nativity Concentration and Internal Migration among the Foreign-Born." *Demography* 31 (1994): 509-24. Print.

Lloyd, Christopher D. "Spatial Scale and Small Area Population Statistics for England and Wales." *International Journal of Geographical Information Science* 30 (2016): 1187-206. Print.

Logan, John R., and Weiwei Zhang. "Separate But Equal: Asian Nationalities in the U.S." US2010: Discover America in a New Century. Russell Sage Foundation American Communities Project of Brown University, June 2013. Web. 1 Jan. 2018.

Manson, Steven, et al. IPUMS National Historical Geographic Information System: Version 12.0 [Database]. Minneapolis: U of Minnesota. 2017. Web. 12 November. 2017.

Mazza, Angelo, and Antonia Punzo. "On the Upward Bias of the Dissimilarity Index and its Corrections. *Sociological Methods & Research* 44 (2015): 80-107.

Print.

Min, Pyong Gap, and Kim Chigon. “Growth and Settlement Patterns of Korean Americans.” *Koreans in North America: Their Twenty-First Century Experiences*. Ed. Pyong Gap Min. Lanham: Lexington Books, 2013. 35-56. Print.

Mulekar, Madhuri S., et al. “How Useful Are Approximations to Mean and Variance of the Index of Dissimilarity?” *Computational Statistics & Data Analysis* 52 (2008): 2098-109. Print.

Munoz, Sarah-Anne. “Divided by Faith—The Impact of Religious Affiliation on Ethnic Segregation.” *Scottish Geographical Journal* 122 (2006): 85-99. Print.

Myers, Dowell, et al. “Constraints of Housing Age and Migration on Residential Mobility.” *Professional Geographer* 49 (1997): 14-28. Print.

Napierala, Jeffrey, and Nancy Denton. “Measuring Residential Segregation with the ACS: How the Margin of Error Affects the Dissimilarity Index.” *Demography* 54 (2017): 285-309. Print.

O’Connell, George E. “Zelder’s Critique of the Index of Dissimilarity: A Misunderstanding of a Basic Assumption.” *Journal of Regional Science* 17 (1977): 285-89. Print.

Patterson, Wayne. *The Korean Frontier in America: Immigration to Hawaii, 1896-1910*. Honolulu: U of Hawaii P, 1988. Print.

Ransom, Michael R. “Sampling Distributions of Segregation Indices.” *Sociological Methods & Research* 28 (2000): 454-75. Print.

Reimer, Dana G. “Korean Culture and Entrepreneurship.” *Contemporary Ethnic Geographies in America*. Ed. Ines M. Miyares and Christopher A. Airriess. Lanham: Rowman & Littlefield, 2007, 233-50. Print.

Semyonov, Moshe, et al. “Racial Composition and Occupational Segregation and

Inequality across American Cities." *Social Science Research* 29 (2000): 175-87. Print.

Simpson, Ludi. "Ghettos of the Mind: The Empirical Behavior of Indices of Segregation and Diversity." *Journal of the Royal Statistical Society. Series A (Statistics in Society)* 170 (2007): 405-24. Print.

Song, Juyoung. "Language Ideology and Identity in Transnational Space: Globalization, Migration, and Bilingualism among Korean Families in the USA." *International Journal of Bilingual Education and Bilingualism* 13 (2010): 23-42. Print.

Voas, David, and Paul Williamson. "The Scale of Dissimilarity: Concepts, Measurement and an Application to the Socio-Economic Variation across England and Wales." *Transactions of the Institute of British Geographers* 25 (2000): 465-81. Print.

Winkler, Richelle, and Rozalynn Klass. "Residential Segregation by Age in the United States." *Journal of Maps* 8 (2012): 374-78. Print.

Winkler, Richelle L., and Kenneth M. Johnson. "Moving Toward Integration? Effects of Migration on Ethnoracial Segregation Across the Rural-Urban Continuum." *Demography* 53 (2016): 1027-49. Print.

Winship, Christopher. "The Desirability of Using the Index of Dissimilarity or Any Adjustment of It for Measuring Segregation: Reply to Falk, Cortese, and Cohen." *Social Forces* 57 (1978): 717-20. Print.

Wong, David W. S. "Spatial Decomposition of Segregation Indices: A Framework toward Measuring Segregation at Multiple Levels." *Geographical Analysis* 35 (2003): 179-94. Print.

Yoo, Jin-Kyung. "Utlilization of Social Networks for Immigrant Entrepreneurship: A Case Study of Korean Immigrants in the Atlanta Area." *International Review*

of Sociology 10 (2000): 347-63. Print.

Yoon, In-Jin. "Migration and the Korean Diaspora: A Comparative Description of Five Cases." *Journal of Ethnic and Migration Studies* 38 (2012): 413-35. Print.

Yu, Eui-Young, and Peter Choe. "Korean Population in the United States as Reflected in the Year 2000 U.S. Census." *Amerasia Journal* 29.3 (2003-2004): 2-21. Print.

국문초록

미국의 한국인 주거 집중의 불균등 패턴

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본 연구는 미국에 거주하는 한국인의 인구통계에 대해 분석하였다. 특히, 한국인 거주 집중의 양상을 역사적 및 지리적으로 고찰하였다. 분석에는 미국 센서스 자료를 활용하였고 상이지수가 적용되었다. 이 지수는 두 개의 지리적 스케일인 카운티와 인구조사지역 간 관계성에 있어서 민족 분포의 불균등성을 측정할 수 있다. 본 연구는 상이지수의 해석상 한계점을 논의하는 동시에 미국에 거주하는 한국인의 분포상 불균등성에 대한 시계열적 변화와 지리적 패턴을 모두 제시하였다. 한국인의 분포상 불균등성은 1970년 이후 현재까지 평균적으로 중하위의 수준을 유지하였다. 하지만 1980년에는 한국인 이주의 급등으로 인해 불균등성의 수준이 가장 높았고, 1990년에는 그 수준이 가장 낮게 나타났다. 뿐만 아니라 대규모의 카운티는 일반적으로 소규모의 카운티보다 불균등 수준이 높고, 미국 서부에 거주하는 한국인들이 다른 지역, 특히 북동부 및 중서부 지역보다 더 균등하게 분포하고 있는 것으로 나타났다. 이러한 결과를 토대로 본 연구에서는 평균 수준의 불균등성을 보이는 카운티와 그 수준에서 벗어난 카운티의 두 집단으로 구분하였다.

주제어: 한국계 미국인, 분리, 상이지수, 미국 소수 민족 지리, 주거 집중

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