

Executive Summary

Differences in residential housing pattern index scores for 2000 were very small or nonexistent when calculated for metropolitan areas defined in 2003 and for those calculated using 1999 definitions. Index scores were considerably lower in the newly defined micropolitan areas than for all metropolitan areas. These patterns generally held when observing housing pattern scores for different racial and ethnic groups and when examining the largest metropolitan and micropolitan areas. In short, the effects of using the new metropolitan area definitions on indexes of residential housing patterns are rather minimal for metropolitan areas. However, caution is warranted when comparing housing pattern indexes for metropolitan areas defined in 1999 to micropolitan areas defined in 2003.

The Effects of Using Newly-Defined Metropolitan Area Boundaries When Examining Residential Housing Patterns

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Residential housing patterns (often referred to as “residential segregation” in the technical literature) usually describe the distribution of different groups across units within a larger area, such as a housing market. As in previous work,¹ this study uses metropolitan areas as reasonable approximations of housing markets and uses census tracts as the unit of analysis. This analysis focuses on the effect of the most recent change in metropolitan area definitions on residential housing patterns.

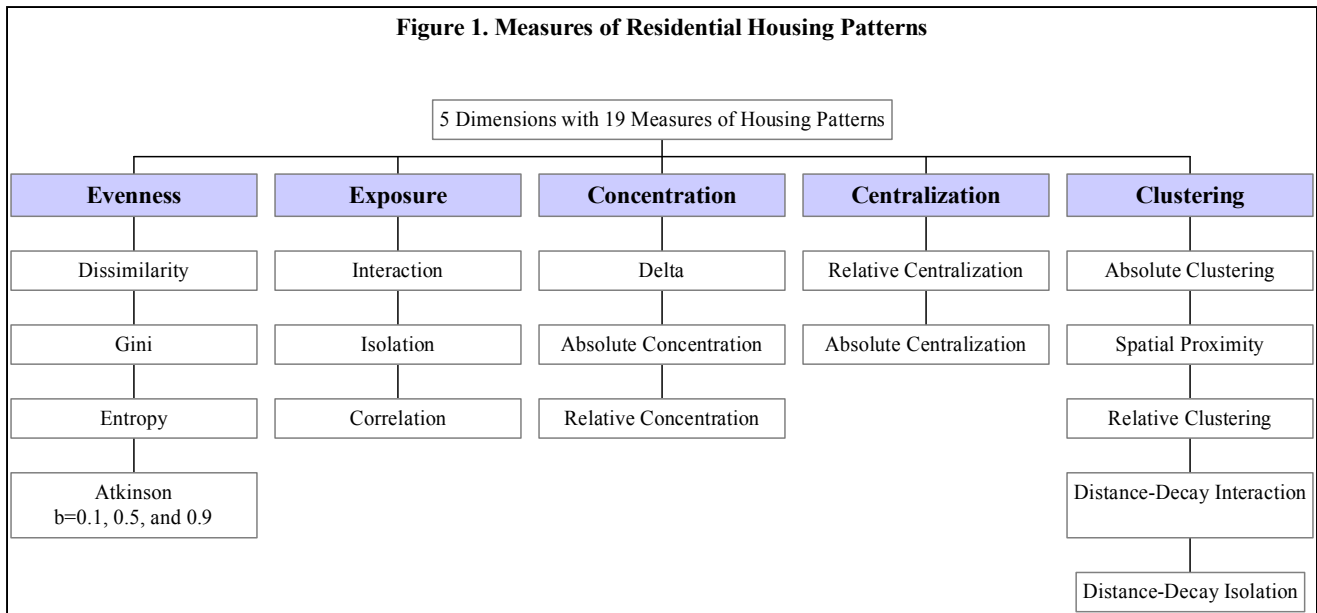
Measuring Residential Housing Patterns

Residential housing patterns have been the subject of considerable research for many years. Massey and Denton identified 20 indexes of residential housing patterns (19 of which we discuss) and used cluster analysis to distinguish among five key dimensions: evenness, exposure, concentration, centralization, and clustering (See Figure 1).² The dissimilarity, Gini, entropy, and Atkinson indexes are a part of the evenness dimension, which involves the differential distribution of the subject population. The interaction, isolation, and correlation indexes are listed under the exposure dimension, which measures potential contact between groups. The delta, absolute concentration, and relative concentration indexes are classified under the

¹ See Iceland, John, Daniel H. Weinberg, and Erika Steinmetz. 2002. *Racial and Ethnic Residential Segregation in the United States: 1980-2000*. U.S. Census Bureau, Census Special Report, CENSR-3, Washington, DC: U.S. Government Printing Office.

² Massey, Douglas S. and Nancy A. Denton. 1988. "The Dimensions of Residential Segregation." *Social Forces* 67: 281-315.

centralization dimension, which indicates the degree to which a group is located near the center of an urban area. Absolute clustering, spatial proximity, relative clustering, distance-decay interaction, and distance-decay isolation indexes belong to the clustering dimension, which measures the degree to which members of a group live disproportionately in contiguous areas.³



Areas and Units of Analysis

Previous work using Census 2000 data has used metropolitan area (MA) boundaries defined by the Office of Management and Budget (OMB) as of June 30, 1999 and based on 1990 standards.⁴ Under the 1990 standards, each metropolitan area consisted of a city with at least 50,000 in total population or a Census Bureau-defined urbanized area of at least 50,000. MAs

³ For more information on the indexes of residential housing patterns, refer to: Iceland, Weinberg, and Steinmetz, (2002), Appendix B (http://www.census.gov/hhes/www/housing/resseg/app_b.html), or Massey and Denton (1988).

⁴ See, for example, Iceland, Weinberg, and Steinmetz (2002); Iceland, John, Cicely Sharpe, and Erika Steinmetz. 2003. "Class Differences in African American Residential Patterns in U.S. Metropolitan Areas: 1990-2000." Paper presented at the annual meetings of the Population Association of America, Minneapolis, Minnesota, May 1-3, 2003 (http://www.census.gov/hhes/www/housing/resseg/pdf/paa_econseg.pdf); Glaeser, Edward L. and Jacob Vigdor. 2001. "Racial Segregation in the 2000 Census: Promising News." Center on Urban and Metropolitan Policy, The Brookings Institution. <http://www.brook.edu/es/urban/census/glaeser.pdf>. Lewis Mumford Center. 2001. "Ethnic Diversity Grows, Neighborhood Integration Lags Behind." Report by the Lewis Mumford Center, April 3, 2001 (Revised December 18, 2001): <http://mumford1.dyndns.org/cen2000/WholePop/WPreport/MumfordReport.pdf>.

consisted of one or more counties, except in the New England states, where the components were cities and towns. MAs can be classified as either a metropolitan statistical area (MSA) or a consolidated metropolitan statistical area (CMSA). CMSAs were composed of primary metropolitan statistical areas (PMSAs). An MA with 1 million people or more can have two or more primary metropolitan statistical areas (PMSAs) defined within it. Each PMSA consists of a large urbanized county or cluster of counties (cities and towns in New England) with strong economic and social ties. When PMSAs are established, the larger MA consisting of these PMSAs is designated a consolidated metropolitan statistical area (CMSA). There were 258 MSAs, 18 CMSAs, and 73 PMSAs under the 1990 standards.⁵

This analysis compares housing patterns for MSAs and PMSAs as defined on June 30, 1999 with the new metropolitan and micropolitan area boundaries introduced by OMB on June 6, 2003, based on the application of the 2000 standards with Census 2000 data. The new OMB guidelines for metropolitan and micropolitan statistical areas were first outlined in 2000 and precise boundaries became effective June 6, 2003.⁶ Metropolitan and micropolitan areas are collectively referred to as core-based statistical areas (CBSAs). Like the previous MA definition, CBSAs are defined as having a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with the core as measured by commuting ties. The new metropolitan areas must have at least one urbanized area with a minimum population of 50,000.

Micropolitan areas are a new set of statistical areas, which must have at least one urban cluster with a minimum population of 10,000, but less than 50,000. New England city and town

⁵ For more information on metropolitan areas as defined on June 30, 1999, see <http://www.census.gov/geo/www/tiger/glossry2.pdf>

⁶ Refer to *Federal Register* Vol. 65, No. 249, December 27, 2000 for a more complete discussion of the new metropolitan concepts.

areas (NECTAs) are defined using the same criteria as metropolitan and micropolitan areas.

Metropolitan and micropolitan statistical areas are defined in terms of whole counties or county equivalents, including the six New England states.

Whereas primary metropolitan statistical areas (PMSAs) were subdivisions of the largest MAs (CMSAs) using the 1990 standards, they are now referred to as metropolitan divisions under the current definitions. Metropolitan divisions are defined within metropolitan areas that have urbanized areas of 2.5 million people or more. As of June 6, 2003, there are 362 metropolitan statistical areas (with 11 metropolitan statistical areas having 29 metropolitan divisions) and 560 micropolitan statistical areas in the United States.⁷ However, for metropolitan statistical areas that contain metropolitan divisions, in this analysis we examine only the metropolitan divisions and not the larger metropolitan statistical areas themselves. This more closely replicates previous analyses using 1990 metropolitan area standards that calculated housing pattern indexes for PMSAs and not for CMSAs. In total, we therefore compute indexes for 380 metropolitan areas and metropolitan divisions.

Metropolitan areas defined under the 2000 standards with Census 2000 data may not be directly comparable to MSAs, CMSAs, and PMSAs defined as of 1999. In addition to the designation of new micropolitan statistical areas, the following kinds of changes may affect the definition of individual metropolitan areas in existence in 1999 and redefined based on Census 2000 data and the 2000 standards: one or more counties were added or deleted, two or more areas merged to form a single metropolitan statistical area, a metropolitan area split to form multiple metropolitan and micropolitan statistical areas, and some metropolitan areas were reclassified as micropolitan statistical areas.

⁷ For more information on metropolitan and micropolitan areas as defined on June 6, 2003, refer to: <http://www.census.gov/population/www/estimates/metroarea.html>

The calculations of the indexes discussed here continue to use census tracts as the component units within CBSAs. Census tract definitions were unaffected by the new standards described above. Census tracts, which typically have between 1,500 and 8,000 people and average about 4,000 people, are defined with local input and are intended to represent neighborhoods. They typically do not change much from census to census, except to subdivide due to population growth or to combine as a result of substantial population decline. Census 2000 was the first decennial census in which the entire United States was covered by census tracts. Census tracts are often chosen by other researchers in their analysis of residential housing patterns.⁸

Defining Race and Hispanic Origin Groups

Measuring residential housing patterns often requires choosing a reference group against which the housing patterns of other groups can be compared. We have chosen non-Hispanic Whites as the reference group—a common selection.⁹ For 2000 data, when individuals could report more than one race, we have chosen individuals who designated a single race of White as their racial classification, and did not choose Hispanic as their ethnicity. For each of the analyses of racial groups, we have calculated the indexes using individuals who designated a particular race regardless of whether they also indicated any other races. We calculated indexes for African

⁸ See Iceland, Weinberg, and Steinmetz (2002), Massey and Denton (1988), Glaeser and Vigdor (2001), Lewis Mumford Center (2001).

⁹ See Iceland, Weinberg, and Steinmetz (2002), and Massey and Denton (1988).

Americans, Asians, Native Hawaiians and Other Pacific Islanders, American Indians and Alaska Natives as well as Hispanics (who may be of any race).¹⁰

Data

The data for this analysis were drawn from the Census 2000 Summary File 1 data giving population counts for all racial groups and for Hispanics by census tract for all CBSAs. Housing pattern indexes are calculated for all metropolitan areas or divisions, but only 324 of the 560 micropolitan areas met our minimum analysis criterion of having 10 or more census tracts. Index calculations for smaller areas with few tracts may be less reliable than those for larger areas. There is no sampling error and conventional tests of significance do not apply in this analysis because the base data are from the decennial census short form sent to all households.

Results

The housing pattern index scores produced in [Table 1](#) represent an average of index scores computed separately for American Indians and Alaska Natives, Asians, Native Hawaiians and Other Pacific Islanders, Blacks, as well as Hispanics for the areas described. The scores are weighted by the group population; non-Hispanic Whites are the reference group. The first set of scores is for the 331 metropolitan areas as defined on June 30, 1999. The next three sets use the new CBSA definitions. First, we show scores for the metropolitan areas as defined on June 6, 2003 that were in existence under the old definition (those metropolitan areas defined on June 30, 1999); this yields 335 metropolitan areas rather than 331 under the 1999 definition. The net

¹⁰Calculating indexes for groups consisting of individuals who designated a particular race regardless of whether they also indicated other races does not imply that it is the preferred method of presenting or analyzing data. The Census Bureau uses a variety of approaches. See Grieco, Elizabeth M. and Rachel C. Cassidy (2001). "Overview of Race and Hispanic Origin" <http://www.census.gov/prod/2001pubs/c2kbr01-1.pdf> for more information on group definitions and population patterns.

increase results from a combination of changes, which include some metropolitan areas being split into multiple areas, combined, became micropolitan areas or metropolitan divisions when the new guidelines were issued.¹¹ Next, we show scores averaged over all of the 380 metropolitan statistical areas and metropolitan divisions in 2003.¹² Third, we show scores for the 324 micropolitan areas that had at least 10 census tracts.

Means and medians remained virtually the same but were slightly smaller for many indexes when using the new metropolitan statistical area definitions than for the 331 metropolitan areas defined June 30, 1999, indicating more integration. The relative clustering index, with no theoretical maximum or minimum and a large standard deviation, had the largest absolute difference between metropolitan areas defined in 1999 and those defined in 2003, indicating that racial and ethnic group members displayed greater clustering than non-Hispanic Whites; however, this difference was rather modest. The magnitude of the difference between old and new definitions is much the same whether one compares the old definitions and the 335 metropolitan statistical areas that remained the same or to all 380 of the 2003 metropolitan statistical areas.

The 324 micropolitan areas defined in 2003 had scores that were considerably lower than metropolitan areas under either the old or new definitions. This finding is consistent with previous research indicating that “places” (cities and towns)—which are usually smaller than metropolitan areas—typically had lower housing pattern scores than metropolitan areas.¹³ The largest difference in index scores once again occurred with the relative clustering index.

¹¹ Of the 362 metropolitan statistical areas in the U.S. defined on June 6, 2003, the 335 metropolitan statistical areas include 29 metropolitan divisions and exclude the 45 new metropolitan statistical areas and the 11 metropolitan statistical areas which are subdivided into metropolitan divisions.

¹² Metropolitan statistical areas which were subdivided into metropolitan divisions were omitted in our calculations.

¹³ See Steinmetz, Erika, and John Iceland. 2003. Racial and Ethnic Residential Housing Patterns in Places: 2000.” Paper presented at the annual meetings of the Population Association of America, Minneapolis, Minnesota, May 1-3, 2003 (http://www.census.gov/hhes/www/housing/resseg/pdf/paa_places.pdf)

When indexes for each racial/ethnic group were examined separately, we tended to see similar patterns across groups in terms of the differences between metropolitan areas defined in 1999 and in 2003 and micropolitan areas (see [Table 2](#)). Of the racial and ethnic groups, Blacks or African Americans tended to have index scores with higher differences from metropolitan areas defined in 1999 to those defined in 2003, though the differences still tended to be small. Many of the evenness and exposure measures had little to no change in housing pattern scores when comparing metropolitan areas defined in 1999 to those defined in 2003, with some variation across groups.

The weighted mean index scores for African Americans, Asians, Native Hawaiians and Other Pacific Islanders, American Indians and Alaska Natives, as well as Hispanics for the 58 largest metropolitan and micropolitan areas showed similar patterns, with scores for the metropolitan areas defined in 1999 and 2003 exhibiting little to no difference (see [Table 3](#)).¹⁴ The difference in index scores between metropolitan areas defined in 1999 and in 2003 ranged from 0.000 to 0.010, with the exception of the relative clustering index, with a difference in scores of 0.044. Scores for micropolitan areas defined in 2003 were, as above, significantly lower than in metropolitan areas.

¹⁴ Housing pattern scores are averaged for the 58 largest MSAs as an update to Massey and Denton's (1988) study. Our sample differs from theirs in 4 respects. Massey and Denton computed housing pattern scores for Hispanics, Blacks, and Asians using 1980 Census data for the 50 largest areas plus 10 others with large numbers of Hispanics and based their analysis on 1980 census geography. In contrast, we looked at 58 of the largest MSAs because two metropolitan areas in 1980 were not treated as independent in 1990 or 2000: Norfolk, Virginia, and Paterson, New Jersey. Indexes were computed for 5 racial/ethnic groups: Blacks or African Americans, American Indians and Alaska Natives, Asians, Native Hawaiians and Other Pacific Islanders, and Hispanics or Latinos. MSAs defined on June 30, 1999 used 1990 census geography and metropolitan and micropolitan areas defined on June 6, 2003 used Census 2000 geography. The data used in this analysis were drawn from Census 2000 SF1.

Table 1. Medians and Weighted Means for Housing Pattern Indexes for Metropolitan and Micropolitan Areas: 2000

	331 Metropolitan Areas (1999) ¹					335 Metropolitan Areas (2003) ²				
	Median	Weighted Mean	Weighted Standard Deviation	Minimum	Maximum	Median	Weighted Mean	Weighted Standard Deviation	Minimum	Maximum
Evenness Measures										
Dissimilarity (D)	0.536	0.541	0.143	0.105	0.846	0.534	0.541	0.143	0.105	0.857
Gini (G)	0.692	0.684	0.148	0.148	0.944	0.682	0.683	0.148	0.151	0.947
Entropy (H)	0.293	0.314	0.162	0.006	0.698	0.290	0.314	0.162	0.008	0.710
Atkinson with b=.1 (A1)	0.091	0.105	0.057	0.004	0.564	0.087	0.105	0.058	0.004	0.564
Atkinson with b=.5 (A5)	0.406	0.429	0.186	0.018	0.834	0.394	0.428	0.186	0.018	0.841
Atkinson with b=.9 (A9)	0.636	0.630	0.213	0.031	0.968	0.634	0.629	0.212	0.033	0.969
Exposure Measures										
Interaction (Pxy)	0.454	0.488	0.231	0.048	0.999	0.452	0.488	0.231	0.048	0.999
Isolation (Pxx)	0.546	0.512	0.231	0.001	0.952	0.548	0.512	0.231	0.001	0.952
Correlation ratio (V)	0.324	0.339	0.190	0.000	0.750	0.324	0.338	0.190	0.000	0.774
Concentration Measures										
Delta (DEL)	0.779	0.769	0.084	0.345	0.969	0.780	0.773	0.086	0.345	0.969
Absolute concentration (ACO)	0.895	0.835	0.163	0.143	1.756	0.890	0.831	0.165	0.143	1.756
Relative concentration (RCO)	0.647	0.548	0.442	-13.102	0.944	0.637	0.536	0.439	-13.102	0.952
Centralization Measures										
Absolute centralization (ACE)	0.724	0.699	0.162	-0.476	0.962	0.729	0.699	0.169	-0.476	0.969
Relative centralization (RCE)	0.234	0.232	0.187	-0.475	0.698	0.242	0.231	0.177	-0.361	0.686
Clustering Measures										
Absolute clustering (ACL)	0.286	0.295	0.201	-0.668	0.895	0.280	0.291	0.200	-0.668	0.897
Spatial Proximity (SP)	1.225	1.262	0.190	1.000	2.497	1.225	1.257	0.182	1.000	2.497
Relative clustering (RCL)	0.426	0.829	1.258	-0.733	26.229	0.438	0.791	1.181	-0.733	26.229
Distance decay interaction (Dpxy)	0.525	0.551	0.222	0.048	0.999	0.521	0.552	0.223	0.048	1.000
Distance decay isolation (DPxx)	0.475	0.449	0.222	0.001	0.952	0.479	0.448	0.223	0.000	0.952
	380 Metropolitan Areas (2003) ³					324 Micropolitan Areas (2003) ⁴				
	Median	Weighted Mean	Weighted Standard Deviation	Minimum	Maximum	Median	Weighted Mean	Weighted Standard Deviation	Minimum	Maximum
Evenness Measures										
Dissimilarity (D)	0.534	0.539	0.143	0.072	0.857	0.331	0.343	0.132	0.008	0.841
Gini (G)	0.682	0.681	0.149	0.103	0.947	0.436	0.442	0.155	0.009	0.889
Entropy (H)	0.283	0.312	0.162	0.004	0.710	0.104	0.125	0.094	0.000	0.715
Atkinson with b=.1 (A1)	0.087	0.104	0.058	0.002	0.615	0.036	0.045	0.035	0.000	0.838
Atkinson with b=.5 (A5)	0.389	0.426	0.186	0.009	0.841	0.171	0.195	0.129	0.000	0.845
Atkinson with b=.9 (A9)	0.631	0.626	0.214	0.016	0.969	0.283	0.312	0.186	0.000	0.986
Exposure Measures										
Interaction (Pxy)	0.453	0.490	0.232	0.048	0.999	0.638	0.627	0.262	0.020	1.000
Isolation (Pxx)	0.547	0.510	0.232	0.001	0.952	0.362	0.373	0.262	0.000	0.980
Correlation ratio (V)	0.322	0.335	0.191	0.000	0.774	0.098	0.124	0.111	0.000	0.795
Concentration Measures										
Delta (DEL)	0.780	0.771	0.087	0.297	0.969	0.582	0.590	0.159	0.087	0.999
Absolute concentration (ACO)	0.888	0.830	0.166	0.143	1.756	0.654	0.648	0.187	0.035	1.117
Relative concentration (RCO)	0.635	0.530	0.457	-13.102	0.952	0.284	0.195	0.515	-3.468	0.998
Centralization Measures										
Absolute centralization (ACE)	0.729	0.698	0.170	-0.476	0.969	0.414	0.405	0.227	-0.622	0.986
Relative centralization (RCE)	0.242	0.229	0.179	-0.555	0.686	0.083	0.079	0.176	-0.733	0.723
Clustering Measures										
Absolute clustering (ACL)	0.269	0.262	0.802	-21.352	0.897	0.042	0.163	0.915	-10.763	16.255
Spatial Proximity (SP)	1.225	1.256	0.182	1.000	2.497	1.068	1.100	0.133	1.000	3.084
Relative clustering (RCL)	0.425	0.790	1.201	-0.733	26.229	-0.088	0.149	1.190	-0.884	16.976
Distance decay interaction (Dpxy)	0.522	0.553	0.223	0.048	1.000	0.662	0.641	0.260	0.020	1.000
Distance decay isolation (DPxx)	0.478	0.447	0.223	0.000	0.952	0.338	0.359	0.260	0.000	0.980

¹ Includes metropolitan statistical areas (MSAs) and primary metropolitan statistical areas (PMSAs) as defined by the Office of Management and Budget (OMB) as of June 30, 1999 and based on 1990 standards.

² Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. Of the 362 metropolitan areas in the U.S., the 335 metropolitan areas include the 29 metropolitan divisions, but exclude the 45 new metropolitan areas (in the U.S.) and 11 metropolitan areas which are subdivided into metropolitan divisions. They are the same as the 331 MSAs defined in 1999. See text for more details.

³ Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. The 380 metropolitan areas include the 351 metropolitan areas and 29 metropolitan divisions, excluding the 11 metropolitan areas which are subdivided into metropolitan divisions.

⁴ Includes micropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. There are 560 micropolitan areas, but only 324 micropolitan areas which have at least 10 census tracts.

Note: All calculations use Census 2000 data. All areas must include 10 or more tracts. All racial and ethnic groups in all areas are included and are weighted by the minority group population.

Source: U.S. Census Bureau, Census 2000 Summary File 1.

Table 2. Weighted Means for Housing Pattern Indexes for Metropolitan Areas, by Race and Unit of Analysis: 2000

	Indexes for Blacks				Indexes for American Indians and Alaska Natives			
	331 Metropolitan Areas (1999) ¹	335 Metropolitan Areas (2003) ²	380 Metropolitan Areas (2003) ³	324 Micropolitan Areas (2003) ⁴	331 Metropolitan Areas (1999) ¹	335 Metropolitan Areas (2003) ²	380 Metropolitan Areas (2003) ³	324 Micropolitan Areas (2003) ⁴
Evenness Measures								
Dissimilarity (D)	0.640	0.637	0.635	0.388	0.333	0.332	0.334	0.311
Gini (G)	0.787	0.784	0.782	0.502	0.450	0.448	0.450	0.389
Entropy (H)	0.434	0.430	0.427	0.157	0.111	0.110	0.114	0.136
Atkinson with b=.1 (A1)	0.148	0.147	0.146	0.055	0.041	0.041	0.042	0.043
Atkinson with b=.5 (A5)	0.570	0.565	0.563	0.240	0.198	0.197	0.201	0.194
Atkinson with b=.9 (A9)	0.789	0.782	0.779	0.382	0.346	0.343	0.348	0.298
Exposure Measures								
Interaction (Pxy)	0.409	0.411	0.413	0.590	0.897	0.897	0.888	0.705
Isolation (Pxx)	0.591	0.589	0.587	0.410	0.103	0.103	0.112	0.295
Correlation ratio (V)	0.468	0.463	0.460	0.162	0.071	0.070	0.076	0.139
Concentration Measures								
Delta (DEL)	0.793	0.790	0.789	0.561	0.676	0.680	0.674	0.512
Absolute concentration (ACO)	0.881	0.871	0.870	0.649	0.882	0.882	0.869	0.573
Relative concentration (RCO)	0.658	0.633	0.630	0.251	-0.261	-0.241	-0.291	-0.403
Centralization Measures								
Absolute centralization (ACE)	0.722	0.713	0.712	0.400	0.611	0.620	0.610	0.313
Relative centralization (RCE)	0.290	0.278	0.277	0.111	0.067	0.062	0.051	-0.090
Clustering Measures								
Absolute clustering (ACL)	0.360	0.353	0.351	0.072	0.061	0.060	0.072	0.240
Spatial Proximity (SP)	1.374	1.360	1.358	1.119	1.077	1.074	1.084	1.151
Relative clustering (RCL)	1.192	1.092	1.084	0.077	1.206	1.168	1.225	1.014
Distance decay interaction (Dpxy)	0.499	0.499	0.501	0.612	0.923	0.923	0.913	0.708
Distance decay isolation (DPxx)	0.501	0.501	0.499	0.388	0.077	0.077	0.087	0.292

¹ Includes metropolitan statistical areas (MSAs) and primary metropolitan statistical areas (PMSAs) as defined by the Office of Management and Budget (OMB) as of June 30, 1999 and based on 1990 standards.

² Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. Of the 362 metropolitan areas in the U.S., the 335 metropolitan areas include the 29 metropolitan divisions, but exclude the 45 new metropolitan areas (in the U.S.) and 11 metropolitan areas which are subdivided into metropolitan divisions. They are the same as the 331 MSAs defined in 1999. See text for more details.

³ Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. The 380 metropolitan areas include the 351 metropolitan areas and 29 metropolitan divisions, excluding the 11 metropolitan areas which are subdivided into metropolitan divisions.

⁴ Includes micropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. There are 560 micropolitan areas, but only 324 micropolitan areas which have at least 10 census tracts.

Note: All calculations use Census 2000 data. All areas must include 10 or more tracts. All racial and ethnic groups in all areas are included and are weighted by the minority group population.

Source: U.S. Census Bureau, Census 2000 Summary File 1.

Table 2. Weighted Means for Housing Pattern Indexes for Metropolitan Areas, by Race and Unit of Analysis: 2000 (continued)

	Indexes for Asians				Indexes for Native Hawaiians and Other Pacific Islanders			
	331 Metropolitan Areas (1999) ¹	335 Metropolitan Areas (2003) ²	380 Metropolitan Areas (2003) ³	324 Micropolitan Areas (2003) ⁴	331 Metropolitan Areas (1999) ¹	335 Metropolitan Areas (2003) ²	380 Metropolitan Areas (2003) ³	324 Micropolitan Areas (2003) ⁴
Evenness Measures								
Dissimilarity (D)	0.416	0.417	0.416	0.318	0.427	0.425	0.424	0.296
Gini (G)	0.555	0.557	0.556	0.417	0.576	0.574	0.573	0.399
Entropy (H)	0.168	0.169	0.168	0.086	0.151	0.151	0.150	0.089
Atkinson with b=.1 (A1)	0.059	0.059	0.059	0.037	0.099	0.099	0.099	0.057
Atkinson with b=.5 (A5)	0.264	0.265	0.265	0.160	0.303	0.303	0.302	0.159
Atkinson with b=.9 (A9)	0.426	0.429	0.428	0.256	0.463	0.462	0.460	0.247
Exposure Measures								
Interaction (Pxy)	0.700	0.700	0.702	0.712	0.796	0.796	0.798	0.579
Isolation (Pxx)	0.300	0.300	0.298	0.288	0.204	0.204	0.202	0.421
Correlation ratio (V)	0.160	0.160	0.160	0.072	0.100	0.100	0.099	0.098
Concentration Measures								
Delta (DEL)	0.747	0.754	0.754	0.640	0.712	0.721	0.721	0.552
Absolute concentration (ACO)	0.885	0.890	0.890	0.697	0.835	0.835	0.836	0.591
Relative concentration (RCO)	0.599	0.608	0.608	0.358	0.329	0.333	0.332	0.129
Centralization Measures								
Absolute centralization (ACE)	0.687	0.685	0.685	0.462	0.582	0.593	0.594	0.337
Relative centralization (RCE)	0.206	0.202	0.203	0.178	-0.084	0.089	0.090	0.095
Clustering Measures								
Absolute clustering (ACL)	0.119	0.119	0.118	-0.029	0.059	0.059	0.059	0.148
Spatial Proximity (SP)	1.098	1.099	1.099	1.069	1.050	1.050	1.049	1.087
Relative clustering (RCL)	0.486	0.498	0.495	-0.137	0.372	0.358	0.356	-0.102
Distance decay interaction (Dpxy)	0.743	0.744	0.745	0.714	0.827	0.828	0.829	0.581
Distance decay isolation (DPxx)	0.257	0.256	0.255	0.286	0.173	0.172	0.171	0.419

¹ Includes metropolitan statistical areas (MSAs) and primary metropolitan statistical areas (PMSAs) as defined by the Office of Management and Budget (OMB) as of June 30, 1999 and based on 1990 standards.

² Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. The 335 metropolitan areas include the 351 metropolitan areas and 29 metropolitan divisions, excluding the 45 new metropolitan areas (in the U.S.) and 11 metropolitan areas which are subdivided into metropolitan divisions. They are the same as the 331 MSAs defined in 1999. See text for more details.

³ Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. The 380 metropolitan areas include the 351 metropolitan areas and 29 metropolitan divisions, excluding the 11 metropolitan areas which are subdivided into metropolitan divisions.

⁴ Includes micropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. There are 560 micropolitan areas, but only 324 micropolitan areas which have at least 10 census tracts.

Note: All calculations use Census 2000 data. All areas must include 10 or more tracts. All racial and ethnic groups in all areas are included and are weighted by the minority group population.

Source: U.S. Census Bureau, Census 2000 Summary File 1.

Table 2. Weighted Means for Housing Pattern Indexes for Metropolitan Areas, by Race and Unit of Analysis: 2000 (continued)

	Indexes for Hispanics (of any race)			
	331 Metropolitan Areas (1999) ¹	335 Metropolitan Areas (2003) ²	380 Metropolitan Areas (2003) ³	324 Micropolitan Areas (2003) ⁴
Evenness Measures				
Dissimilarity (D)	0.509	0.509	0.508	0.298
Gini (G)	0.650	0.651	0.649	0.382
Entropy (H)	0.270	0.271	0.269	0.087
Atkinson with b=.1 (A1)	0.084	0.084	0.084	0.031
Atkinson with b=.5 (A5)	0.372	0.372	0.370	0.142
Atkinson with b=.9 (A9)	0.575	0.576	0.574	0.235
Exposure Measures				
Interaction (Pxy)	0.448	0.448	0.450	0.636
Isolation (Pxx)	0.552	0.552	0.550	0.364
Correlation ratio (V)	0.303	0.304	0.302	0.079
Concentration Measures				
Delta (DEL)	0.764	0.770	0.769	0.649
Absolute concentration (ACO)	0.768	0.767	0.766	0.666
Relative concentration (RCO)	0.494	0.485	0.479	0.286
Centralization Measures				
Absolute centralization (ACE)	0.689	0.700	0.698	0.436
Relative centralization (RCE)	0.204	0.212	0.210	0.068
Clustering Measures				
Absolute clustering (ACL)	0.318	0.316	0.245	0.313
Spatial Proximity (SP)	1.232	1.231	1.230	1.063
Relative clustering (RCL)	0.573	0.574	0.574	0.040
Distance decay interaction (Dpxy)	0.498	0.499	0.500	0.646
Distance decay isolation (DPxx)	0.502	0.501	0.500	0.354

¹ Includes metropolitan statistical areas (MSAs) and primary metropolitan statistical areas (PMSAs) as defined by the Office of Management and Budget (OMB) as of June 30, 1999 and based on 1990 standards.

² Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. Of the 362 metropolitan areas in the U.S., the 335 metropolitan areas include the 29 metropolitan divisions, but exclude the 45 new metropolitan areas (in the U.S.) and 11 metropolitan areas which are subdivided into metropolitan divisions. They are the same as the 331 MSAs defined in 1999. See text for more details.

³ Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. The 380 metropolitan areas include the 351 metropolitan areas and 29 metropolitan divisions, excluding the 11 metropolitan areas which are subdivided into metropolitan divisions.

⁴ Includes micropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. There are 560 micropolitan areas, but only 324 micropolitan areas which have at least 10 census tracts.

Note: All calculations use Census 2000 data. All areas must include 10 or more tracts. All racial and ethnic groups in all areas are included and are weighted by the minority group population.

Source: U.S. Census Bureau, Census 2000 Summary File 1.

Table 3. Weighted Means for Housing Pattern Indexes for the 58 Largest Metropolitan and Micropolitan Areas: 2000

	Metropolitan Areas (1999) ¹	Metropolitan Areas (2003) ²	Micropolitan Areas (2003) ³
Evenness Measures			
Dissimilarity (D)	0.571	0.572	0.353
Gini (G)	0.716	0.717	0.466
Entropy (H)	0.348	0.348	0.129
Atkinson with b=.1 (A1)	0.115	0.116	0.046
Atkinson with b=.5 (A5)	0.467	0.467	0.204
Atkinson with b=.9 (A9)	0.676	0.676	0.332
Exposure Measures			
Interaction (Pxy)	0.460	0.457	0.655
Isolation (Pxx)	0.540	0.543	0.345
Correlation ratio (V)	0.379	0.380	0.128
Concentration Measures			
Delta (DEL)	0.781	0.785	0.550
Absolute concentration (ACO)	0.860	0.856	0.656
Relative concentration (RCO)	0.624	0.613	0.172
Centralization Measures			
Absolute centralization (ACE)	0.728	0.724	0.329
Relative centralization (RCE)	0.258	0.256	0.088
Clustering Measures			
Absolute clustering (ACL)	0.331	0.330	0.107
Spatial Proximity (SP)	1.301	1.296	1.098
Relative clustering (RCL)	1.008	0.964	0.182
Distance decay interaction (Dpxy)	0.531	0.527	0.665
Distance decay isolation (DPxx)	0.469	0.473	0.335

¹ Includes metropolitan statistical areas (MSAs) and primary metropolitan statistical areas (PMSAs) as defined by the Office of Management and Budget (OMB) as of June 30, 1999 and based on 1990 standards.

² Includes metropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. The 380 metropolitan areas include the 351 metropolitan areas and 29 metropolitan divisions, excluding the 11 metropolitan areas which are subdivided into metropolitan divisions.

³ Includes micropolitan areas as defined by OMB on June 6, 2003 and based on application of the 2000 standards with Census 2000 data. There are 560 micropolitan areas, but only 324 micropolitan areas which have at least 10 census tracts.

Note: All calculations use Census 2000 data. All areas must include 10 or more tracts. All racial and ethnic groups in all areas are included and are weighted by the minority group population. The 58 largest MSAs (1999) have total populations of 1,098,201 or more. The 58 largest metropolitan areas (2003) have total populations of 1,095,421 or more. The 58 largest micropolitan areas (2003) have total populations of 89,605 or more.

Source: U.S. Census Bureau, Census 2000 Summary File 1.