Concept name	Concept definition (measure)	Source
Metropolitan area economy		
Metropolitan area mean income	Average household income	(Jargowsky, 1997)
Metropolitan area income inequality	Coefficient of variation of the household distribution of income, i.e. standard deviation of household income divided by mean household income	(Jargowsky, 1997)
Geographic concentration of poverty		
MA poverty rate	% of total number of MA persons that is poor (below federal poverty line)	(Massey and Denton, 1993)
High poverty neighborhood	Neighborhood where poverty rate ≥ 40%	(Jargowsky, 1997)
Neighborhood poverty rate (NPR)	% of MA total population that resides in high-poverty neighborhoods	(Jargowsky, 1997)
Concentration of poverty (affluence)	% of MA poor (affluent) population that resides in high poverty (affluence) neighborhoods	(Jargowsky, 1997, Waitzman and Smith, 1998)
Poverty concentration	Exposure to poverty across neighborhoods (based on isolation index) For a given MA (j) and a racial/ethnic group (m)' the index of exposure to poverty (EP_{jm})' is given by $$EP^{jm} = \sum_{i=1}^{N} \frac{x_i^{jm}}{X^{jm}} \frac{e_i^{j}}{t_i^{j}}$$ where x_i^{jm}, t_i^{j} and X^{jm} are the number of members of the group m in census tract i, the total population of census tract i, and the number of members of the minority group m for the entire MA j; e_{ji} is the number of persons living in poverty; N is the total number of census tracts in MA j. For example, $EP^{jm} = 0.15$ indicates that in MA j, the typical member of group m lives in a census tract where 15% of the population lives in poverty.	(Massey and Denton, 1993)
Residential segregation by race/ethnicity		

Dissimilarity	The dissimilarity index (D), which may be interpreted as the proportion of the minority racial/ethnic group of interest (m) that would need to move across sub-units in order to achieve an even distribution, is given by $$D^{jm} = \sum_{i-1}^{N} \frac{t_i \mid x_i - X \mid}{2TX(1-X)}$$ where t_i and x_i are the total population and minority proportion of areal sub-unit (i.e. census tract) i, and T and X are the population size and minority proportion of the whole geographic area, i.e. MA (j), which is subdivided into N areal sub-units. Ranges from 0, no residential segregation, to 1, complete residential segregation.	(Massey and Denton, 1988)
Isolation	The isolation index (P), which measures the extent to which a member of a racial/ethnic group (m) is likely to be in contact with members of this same group (as opposed to members of other groups), is given by $$P^{jm} = \sum_{i=1}^{N} \frac{x_i^{jm}}{X^{jm}} \frac{x_i^{jm}}{t_j^i}$$ where x, X and t are defined as above; e.g. $P^{jm}=0.6$ indicates that in MA j, the average member of group m lives in a census tract where the probability that (s)he will have contact with another member of group m is 0.6. Ranges from the overall proportion minority in the entire MA, no residential segregation, to 1, complete residential segregation.	(Massey and Denton, 1988)

Concentration	Concentration refers to the relative space occupied by a minority group in a geographic area. If a group occupies a small share of the total area, it is said to be residentially concentrated. A simple concentration index (C) can be derived from an application of the dissimilarity index defined above	(Massey and Denton, 1988)

$$C^{jm} = \frac{1}{2} \sum_{i=1}^{N} \left| \frac{x_i}{X} - \frac{a_i}{A} \right|$$

where x_i and X_i are defined as before; and a_i equals the land area of sub-unit i and A is the total land area of the geographic area (i.e. MA) j. This index may be interpreted as the share of minority members that would have to move across sub-units in order to achieve a uniform density of minority members over all units. Ranges from 0, no residential segregation, to 1, complete residential segregation.

Massey and Denton (Massey and Denton, 1988) have proposed two more complex indices of concentration (the absolute concentration index, ACO, and the relative concentration index, RCO).

| Centralization | Centralization refers to nearness to the center of the urban area, which in the largest and oldest US MAs is often characterized by dilapidated housing and socioeconomic deprivation. The absolute centralization index is given by | (Massey and Denton, 1988) |

$$ACE = \sum_{i-1}^{N} C_{i-1} A_i \sum_{i-1}^{N} C_i A_{i-1}$$

where the N areal sub-units are ordered by increasing distance from the central business district, C is the cumulative proportion of X in sub-unit i, and A is the cumulative proportion of land area through sub-unit i. Ranges from 1 to -1. Positive values in indicate tendency of group X to live close to the center of the MA; negative values indicate tendency to live in the outlying areas; 0 denotes a uniform distribution throughout the MA.

Clustering	Clustering is the extent to which areal sub-units inhabited by minority members adjoin one another, or cluster, in space. The preferred measure of this dimension is the index of spatial proximity (SP) given by the average of intergroup proximities (P_{xx}, P_{yy}) $$SP = \frac{XP_{xx} + YP_{yy}}{TP_{tt}}$$ where T, X and Y are the population size, minority proportion, and majority proportion of the whole geographic area. To illustrate, the measure of spatial proximity for group X, i.e. the average proximity between members of group X, is given by $$P_{xx} = \sum_{i=1}^{N} \sum_{j=1}^{N} \frac{x_i x_j c_{ij}}{X^2}$$ where c_{ij} represents a distance function between areas i and j; and x and X are defined as before. SP equals 1, when there is no differential clustering between X and Y, and is greater than 1 when members of each group live closer to one another than to each other.	(Massey and Denton, 1988)

Residential segregation by class

Neighborhood sorting index (NSI) and Neighborhood distribution of income	$$NSI = \frac{s_N}{s_H}$$ where $ó_N$ is the standard deviation of the neighborhood income distribution and $ó_H$ is the standard deviation of the household income distribution. The neighborhood distribution of income is the distribution of households by the mean household income of the neighborhood in which they live--each neighborhood is weighted by the number of household it contains. The household distribution of income is the distribution of households by their own income. If there was no income segregation, all neighborhoods would have the same mean income and $ó_N$ and thus NSI, would be zero. At the other extreme, if there was perfect income segregation, all households would live in neighborhoods where the mean income approximates their own. In this case, $ó_N$ would approach $ó_H$, and thus NSI would approach 1. $$NSI^2 = \frac{s_N^2}{s_H^2}$$ NSI^2 is the proportion of the total variance in household income among rather than within neighborhoods	(Jargowsky, 1997)
Dissimilarity of the poor (affluent)[1]	Proportion of poor (affluent) families that would have to move in order to achieve an even socioeconomic distribution throughout the metropolitan area. See dissimilarity index above Thresholds: Poor: below federal poverty line Affluent: $75,000 (top 12% of the 1989 family income distribution)	(Waitzman and Smith, 1998)

| Isolation of the poor (affluent)[1] | Exposure to poverty (affluence) across neighborhoods (defined by Massey and Denton (Massey and Denton, 1993) as poverty concentration). See isolation index above Thresholds: Poor: below federal poverty line Affluent: $75,000 (top 12% of the 1989 family income distribution) | (Waitzman and Smith, 1998) |

[1] The dissimilarity and the isolation index are not independent of the mean and variance of the income distribution. For this reason, Jargowsky has proposed the use of *NSI* and *NSI^2* (Jargowsky, 1997).

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