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The Retrospective Construction of Metropolitan Areas for Longitudinal Analysis: An Application to Racial Occupational Inequality

JEFFREY A. BURR

State University of New York at Buffalo

OMER R. GALLE

The University of Texas at Austin

AND

MARK A. FOSSETT

Texas A&M University

We analyze a theoretical model of racial occupational inequality using alternative boundary definitions for southern metropolitan areas. These include both "fixed" and "decade-specific" metropolitan boundary definitions. The findings show remarkable consistency among the statistical results across the two types of definitions. Our analysis suggests that defining Standard Metropolitan Statistical Areas according to a specified time point and moving back in time can yield important benefits to the researcher, including larger sample sizes with increased statistical power. Implications for future research are discussed.

Researchers who use the metropolitan area as the unit of analysis in longitudinal studies must confront the issue of shifting areal boundaries from one census point to the next. Specifically, the county makeup of a Standard Metropolitan Statistical Area (hereafter, SMSA) is subject to change from decade to decade, according to the U.S. Census Bureau's latest definitional criteria. In addition, the effect of changing population

Direct correspondence to Jeffrey A. Burr, 430 Park Hall, Department of Sociology, SUNY-Buffalo, Amherst, NY 14260. This research was supported in part by NICHD Grant Nos. P30 HD06160 and HD16837. We thank Jan E. Mutchler and two anonymous reviewers for helpful suggestions on earlier versions of this paper. We also acknowledge the research assistance of Scott Keir, Eulena Clearwater, and William Kelly.

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distribution results in new areas being constantly added to the system of SMSAs. The change in the definition of the area over time *may* be problematic for some forms of research in terms of estimated statistical parameters and, possibly substantive interpretations. In fact, since the inception of the SMSA as a conceptual unit for data aggregation in 1950, researchers have been concerned about this issue (e.g., Brown, 1979; Fuguitt, Heaton, and Lichter, 1988; Hawley, Duncan, and Goldberg, 1964; Simmons and Bourne, 1978). The purpose of this paper is to evaluate whether two alternative methods of defining SMSAs have important impacts on the analysis of a model of racial occupational inequality, especially with regard to the consistency of estimated statistical parameters.

Simmons and Bourne (1978:31) note that the concept of the SMSA has weathered many changes since it was first conceived, due in large part to advances in the techniques of urban analysis. However, they point out that the major criteria for defining metropolitan areas have changed little over the years. The basic requirements for SMSA status are a large urban population core (usually a central city with a population of 50,000 or more) along with measures of spatial integration among component counties based on patterns of social and economic interchange. These authors conclude that both the advantages and disadvantages of Census Bureau definitions of SMSAs emanate from the same source: the use of the county as the "spatial building block" of SMSAs. According to Simmons and Bourne, the advantage of using counties as "building blocks" for SMSAs is that ". . . boundaries of small metropolitan areas, consisting of two or three entire counties, are unlikely to shift with each census and are thus readily adjustable for time series analysis." Implied here is the idea that it may be necessary (and indeed useful) to "adjust" SMSA boundary definitions for longitudinal analysis.

Although the SMSA has been an important concept for compiling and analyzing social, economic, and demographic data, its value has come under scrutiny many times in the past. Rosenwaike (1970) posits that either "overbounding" or "underbounding" may result from political contingencies. Brown (1979) examines the effect of new counties coming into the SMSA system during the 1960s and generally finds that the influence of these counties on summary statistics is small. This has important implications for the current study because it suggests that "new" counties added to an SMSA's definition may not adversely affect aggregate analyses in any substantial way.

A study by Fuguitt *et al.* (1988) represents one of the most recent attempts in the literature to examine the issue of changing SMSA boundary definitions. One of their primary concerns is to shed light on the effect of shifting boundaries on the metropolitanization process (i.e., population redistribution) in the United States between 1950 and 1980.

They find that regardless of whether they use a "fixed" definition or a "floating constant" definition, inferences about metropolitan growth are similar for the 1950–1980 time frame. None of these studies attempts to examine the effect of SMSA boundary changes or increases in the size of the system on specific theoretical models.

The present study seeks to address two questions. First, is it possible to use a "fixed" definition of SMSAs across time to increase both sample size and statistical power without violating the underlying notion of what an SMSA is meant to represent? Second, is it possible to define SMSAs prior to the 1950 time point in order to extend historical analyses of fundamental theoretical questions? Below we describe a community-based model of racial occupational inequality which we use to evaluate these concerns.

A COMMUNITY-BASED MODEL FOR THE LONGITUDINAL ANALYSIS OF RACIAL OCCUPATIONAL INEQUALITY

Students of racial inequality in the United States have been interested in intercity variation in racial differentials in occupational attainment and economic status since the early work of Turner (1951) and Blalock (1956). One urban characteristic that has received considerable emphasis is the *relative size of the minority population* (cf. Allport, 1954; Williams, 1947). The motivation of the majority group to discriminate against the minority is believed to be a function of the threat (either political or economic) that the minority group poses to the position of the majority population. The perception of threats to the majority's position is in turn related to the relative size of the minority population. Turner (1951), Brown and Fuguitt (1972), Frisbie and Niedert (1977), and Wilcox and Roof (1978) all find some support for the hypothesis of a positive relationship between minority size and racial inequality.

Other city characteristics are also important to this body of research. *City size* has been linked in numerous studies to various indices of racial inequality and is believed to be negatively related to racial inequality (e.g., Blalock, 1956; Glenn, 1964). The *industrial composition* of local labor markets is also viewed as a factor affecting city differences in racial inequality (e.g., Glenn, 1964; Hill, 1974; Martin and Poston, 1976). For example, cities with relatively high concentrations of manufacturing employment are expected to exhibit lower levels of inequality. Others have suggested that both relatively high *population growth* and *employment rates* characterize an expanding economy and that racial inequality tends to be less when these characteristics are evident (Becker, 1971; Glenn, 1969; Thurow, 1969). It is important to point out here that *we are not concerned in this paper with the substantive interpretations of the results of the analysis of this specific theoretical model*, but rather with how two alternative definitions of SMSAs might influence future analyses in

this substantive area (see Burr, Galle, and Fossett, 1990 for a complete analysis and discussion of the substantive issues).

ALTERNATIVE METROPOLITAN BOUNDARY DEFINITIONS

"Fixed" SMSA definitions. Several empirical means are available for dealing with boundary changes in SMSA county composition. One method is to use SMSAs with fixed or constant areal definitions across all time points so that the researcher compares the same number of SMSAs over time with each SMSA having the same county makeup. As a result, counties that are part of the local economy of an SMSA in 1970 are assumed to be part of the local economy at earlier points in time. An important feature of this strategy is that it allows for a larger sample of SMSAs for statistical analysis, and thus statistical power may be increased over alternative definition strategies.

This method of constructing SMSAs longitudinally has been employed for a variety of empirical studies in the social sciences (cf. Borchert, 1978; Greenwood, 1981; Jones and Rosenfeld, 1989). One of the benefits of this "fixed" definitional scheme rarely mentioned in the extant research literature is that it is possible to "back-define" metropolitan areas to create a longer series for historical analyses (however, see Hawley *et al.* 1964). Because SMSAs are not defined by the Census Bureau before 1950, and data are not reported for these areas before this time point, researchers who wish to examine metropolitan areas prior to 1950 must aggregate county-level data to approximate the concept of a metropolitan area. This means that the analysis of metropolitan areas may be applied to 1940, 1930, or even earlier, depending on the availability of county-level data.

There are potential drawbacks associated with employing a fixed SMSA definition. First, the critical issues of social and economic integration may be influenced by the inclusion of counties with weak links to the central city. This can happen through the inclusion of counties which are not integrated at earlier time points, although they are part of the metropolitan area at later time points. One result may be that statistical relationships among variables are biased because the researcher is comparing metropolitan areas partially composed of counties that are not socially or economically integrated with the central city. For instance, population size may be inflated because of the inclusion of marginally integrated counties. Second, for the researcher interested in the study of major urban areas in the United States over time, county-level data are more costly to obtain than SMSA-level data. Researchers who use the fixed definition approach are often concerned with these issues.

"Decade-specific" SMSA definitions. An alternative strategy for handling shifting boundaries is to employ decade-specific definitions. Using this method, the researcher relies on the area's county composition at

each specific time point. For example, the analysis would employ 1960 data utilizing 1960 county definitions of SMSAs, 1950 data utilizing 1950 county definitions of SMSAs, and so on. One benefit of this strategy is that counties that are part of the SMSA definition at each time point are socially and economically integrated with the central city, according to Census Bureau criteria. A second positive feature of this strategy concerns the cost and ease of data collection. The Census Bureau and other agencies have consistently produced data for these units for several decades, resulting in the conservation of scarce research resources.

One potential drawback with decade-specific definitions is that comparisons across decades result in analyses of SMSAs with unequal numbers of counties in them and cross-sections containing different sample sizes. This happens because some areas which are specified as SMSAs by the Census Bureau in 1970 may not have been defined as SMSAs in 1960 or 1950. Although both definition types have positive and negative features, little empirical research has been accomplished which compares the utility of each.[1]

Again, the research objective here is to determine if fixed and decade-specific metropolitan boundary definitions yield consistent statistical parameters. We also want to see if fixed boundary definitions allow the researcher to extend historical analyses prior to the origination of the SMSA concept while at the same time yielding larger sample sizes for analyses.

DATA AND METHODS

The data for this analysis are taken from published volumes of the decennial U.S. Censuses of Population, 1940 to 1970. We use 1970 as the baseline for constructing SMSAs back to 1940 for the fixed boundary definitions. A number of alternative census years could have been chosen as reference points for the fixed boundary definition, and we decided on the 1970 time point. The 1940 to 1970 time frame provides a sufficient range of time from which to address the research questions posed here. We are restricted to the examination of SMSAs in the South because black occupational data by county are not available for the non-South in the early decades.[2]

[1] Some researchers have used other strategies for examining SMSAs over time, such as using only the largest areas or using only SMSAs whose boundaries do not change from one decade to the next. These restrictive definitions exclude areas that have theoretically interesting characteristics surrounding population growth dynamics, thus sacrificing important social, demographic, and economic information concerning the national system of metropolitan areas.

[2] Shifting metropolitan boundary analyses are accomplished for *southern* metropolitan areas only. The most crucial reason is that detailed occupational data for blacks (nonwhites) are not available at the county level prior to 1970 outside of the South. Thus, we are

The variables are coded at the county level and then aggregated according to the two alternative SMSA boundary definitions discussed above. Because SMSAs were not defined by the Census Bureau in 1940, we use the 1950 definition for our decade-specific definitions. We include in our sample only those areas with less than 50% Hispanic population. This helps eliminate the confounding effects of comparing areas with a heavy concentration of Hispanics as these areas have drastically different labor market characteristics due to the fluidity of Mexican immigrant labor (coincidently, these areas also have extremely small black populations).[3]

Previous research on structural inequality has relied on a number of measures: the most commonly used being the index of dissimilarity (e.g., Abramson and Sigelman, 1987; Johnson and Sell, 1976). However, we use the index of net difference (ND; see Lieberson, 1975) which has become a widely accepted, rigorous measure of inequality (e.g., Fossett, Galle, and Kelly, 1986; Villemez and Wiswell, 1978).[4] The index of net difference is a better indicator of occupational inequality because it captures the direction of occupational differentiation and the ordinal quality of occupational groupings. ND is defined as the difference between two opposing probabilities of group advantage: the probability that a randomly chosen white will be of higher occupational status than a randomly chosen black, minus the probability that a randomly chosen black will be of higher occupational status than a randomly chosen white. The computational formula we employ for calculating ND is given below:

$$ND = 100 * (\text{SUM } W_i\, CB_i - \text{SUM } B_i\, CW_i) \qquad (1)$$

where W_i is the proportion of white males in occupation i; B_i is the proportion of black males in occupation i; CW_i is the cumulative proportion of white males in occupations ranked below occupation i; and CB_i is the cumulative proportion of black males in occupations ranked below occupation i.

We compute ND for white and black *males* using nine broad Census occupation categories, ranging from professional, technical, and kindred occupations to farm laborers and foreman. As constructed here, the measure ranges from +100 (which implies a total white advantage) to

limited to southern SMSAs. Because we are focusing on the South, we are unable to address the issues relating to the use of SMSAs in New England which are defined by the Census Bureau either by minor civil divisions and townships or by county aggregates (NECMA). Such analyses are beyond the scope of the present paper but worthy of future analyses.

[3] The areas that have more than 50% Hispanic populations are El Paso, TX, Laredo, TX, and McAllen-Pharr-Edinburg, TX.

[4] See Fossett and South (1983) for a comparison of the various measures of inequality frequently used in intergroup research.

– 100 (which implies a total black advantage). When ND is zero, neither group has any advantage, or perfect equality between the races has been attained in the SMSAs' occupational structure.

We use total population size as our measure of SMSA size. This variable is logged to account for the skewed nature of population size distribution across areas. The relative size of the black population is measured as the percentage of the total population that is black in the area (nonwhite in 1940, 1950 and 1960).[5] The percentage of the labor force employed in manufacturing is used as a measure of industrial composition. For a short-term measure of local economic health, we use the percentage of the white male labor force that is unemployed. For a measure of long term economic growth, we use the percentage of change in population over the prior decade. We measure population growth based on constant metropolitan boundaries from one decade to the next for the decade-specific definition.

Analytical approach. Our analysis will be composed of three stages. First, we compare each variable across the decade-specific and fixed metropolitan boundary definitions employing Pearson correlation coefficients. For example, we estimate the correlation of ND from the decade-specific metropolitan definition *with* ND from the fixed metropolitan definition. Next, we compare bivariate correlations between the index of net difference and each of the predictor variables to determine if the dependent-independent variable relationships are consistent when compared across metropolitan area definition types at each time point. Finally, we compare cross-sectional OLS regression equations by SMSA definition within each decade to determine if statistical parameters generated from the models are affected by the choice of definitional scheme. The regression formula employed to examine racial occupational inequality by metropolitan boundary definition is presented below:

$$Y_{ij} = a + bX_{ij} + e_{ij} \tag{2}$$

where Y_{ij} represents the estimate of ND for a given SMSA (i) at a given time point (j); a represents the intercept term; b represents the estimated regression coefficients; X_{ij} represents a matrix of independent variables as defined earlier; and e_{ij} represents the error term. Preliminary analyses including examination of residuals indicate that nonlinearity and statistical independence in the error structure (heteroskedasticity) are not

[5] Unfortunately, data by occupation for SMSAs are not available at all time points for the black population. Hence, we are limited to the nonwhite population at the earlier time points. However, prior to 1970, the black population comprised over 90% of the nonwhite population and thus, as do other researchers, we assume that the nonwhite/white comparisons are generally reflective of the black/white comparisons.

serious problems with these data. Therefore, the results of analyses employing generalized least squares (GLS) models are not reported.

In order to evaluate if there is consistency in the statistical results we obtain for our metropolitan boundary comparisons over time, the following criteria are established. Should variables reveal a sign reversal while maintaining statistical significance, this would be a substantial change in the pattern of estimates and we classify these results as *inconsistent*. We remind the reader, however, that differences in statistical significance across the alternative definitions do not necessarily warrant a determination of inconsistency if the different definitional types being compared have substantially different sample sizes. The difference in sample size may account for a given relationship failing to reach statistical significance due to differences in the size of the standard errors for the coefficients. On the other hand, if there are no differences in the direction of the coefficients among definitional types or if differences may be attributed to the effect of sample size, we view this as *relative consistency*.

RESULTS

Table 1 presents the means and standard deviations for each variable by metropolitan definition type and time point. The results show that the index of net difference is remarkably stable across definitions at each time point. The largest difference is found in 1940 where ND as estimated for the fixed metropolitan definition is 7% less than that of ND as measured for the decade-specific definition (54.7 and 58.4, respectively). Differences between SMSA boundary definitions for the measure of average size of the black population are minimal and are largest in 1940. In fact, comparisons of means and standard deviations for the other variables based on these two definitions are very similar. One notable exception occurs for the measures of population change. For the 1950 and 1960 time points, the percentage of change in population size is much greater for the decade-specific definition areas than for the fixed definition areas. These differences may be attributable to the fact that areas defined by 1970 boundaries at earlier time points in this series contained counties with relatively small populations which were growing at a much slower rate than were officially defined decade-specific areas that had "true" SMSA county boundaries.

We examine the within-variable, cross-definition correlations for the various indicators in Table 2. That is, we compare each variable (e.g., population size) across the two SMSA definition types. The results of this part of our analysis are notable for the strong correlations found across the variables. In nearly every case the zero-order correlation coefficient is .9 or better. The one exception is noted in 1960 where the correlation between population growth defined by decade-specific bound-

TABLE 1

Means and Standard Deviations (in parentheses) for Measures of Racial Occupational Inequality (ND) and Selected Variables by Decade-Specific (DS) and Fixed Definitions of Southern Metropolitan Areas, 1940–1970[a]

	1940		1950		1960		1970[b]
Variables[c]	DS (1)	Fixed (2)	DS (3)	Fixed (4)	DS (5)	Fixed (6)	DS/Fixed (7)
Racial inequality (ND)	58.4 (10.5)	54.7 (11.7)	59.5 (8.5)	57.1 (9.7)	58.6 (8.0)	57.8 (8.1)	57.8 (6.6)
Black population size (%)	24.9 (13.5)	25.9 (14.3)	22.0 (11.4)	22.3 (11.8)	20.2 (10.0)	20.6 (10.3)	19.2 (9.4)
Population size (*ln*)	12.1 (.7)	11.7 (.9)	12.4 (.7)	12.0 (.9)	12.4 (.8)	12.3 (.9)	12.6 (.9)
Growth of population (%)	16.0 (9.5)	16.1 (12.1)	38.3 (19.0)	25.7 (12.5)[d]	40.1 (39.6)	25.1 (14.6)	14.2 (10.4)
Manufacturing employment (%)	16.3 (8.6)	14.5 (8.6)	18.2 (8.6)	16.6 (8.7)	18.6 (8.1)	18.3 (8.2)	18.6 (7.9)
White male unemployment rate (%)	10.9 (2.8)	11.2 (3.9)	3.8 (1.3)	3.8 (1.4)	4.0 (1.5)	3.9 (1.4)	2.7 (.9)
N	50	78	50	78	67	78	78

[a] See text for variable and area definitions.

[b] Because we use 1970 as the baseline for our fixed definitions, the decade-specific and fixed definition measures are the same at this time point.

[c] *Source*. U.S. Bureau of the Census, 1940; 1950; 1960; 1970.

[d] Underlined pairs show cross-definition comparisons of interest.

TABLE 2
Within-Variable, Cross-Definition Correlations for Selected Variables, 1940–1960

Variable	1940	1950	1960
Index of net difference	.938	.958	.964
Black population size (%)	.993	.991	.998
Population size (*ln*)	.983	.986	.992
Growth of population (%)	.982	.946	.823
Manufacturing employment (%)	.993	.994	.996
White male unemployment (%)	.983	.980	.998
N	50	50	67

Source. U.S. Bureau of the Census, 1940; 1950; 1960.

aries and fixed boundaries is lower than the other estimates (.823). However, upon further examination of the data we discovered that one SMSA in 1960 had phenomenal population growth over the previous decade. This metropolitan area (Fort Lauderdale, FL) increased its population by almost 300% (297.6) using the decade-specific definition. When we exclude this area from the analysis, the new correlation is more in line with the other estimates (.921). By dropping this area from the analysis, we are able to achieve a statistical relationship more consistent with the others in this table. These high correlations across definitions for each variable suggest to us that there is substantial stability across these particular measures. Next, we examine the relationship between the predictor variables and the index of net difference by metropolitan area definitions at each census point.

Table 3 provides bivariate correlation estimates between ND and the individual predictor variables by definition type. For the central theoretical variable, relative size of the black population, the estimates are very consistent in size, direction, and significance of the coefficients. This is important information for researchers who seek to address the substantive relationship of black population size and racial inequality for metropolitan areas, using either of the two boundary definitions employed here. A comparison of the bivariate correlations for population size is also consistent across the time points by definition type.

Four comparisons for the remaining three variables show some incongruency. In 1940 and 1950, the decade-specific measures of population growth fail to reach significance although the direction of the relationships are the same as for the fixed definitions. In 1950, the bivariate correlation between manufacturing employment and ND for the decade-specific mea-

TABLE 3

Pearson Correlations (r) for ND with Selected Predictor Variables for Decade-Specific (DS) and Fixed Definitions of Southern SMSAs, 1940–1970

	1940		1950		1960		1970
Variables	DS (1)	Fixed (2)	DS (3)	Fixed (4)	DS (5)	Fixed (6)	DS/Fixed (7)
Black population size (%)	.655*	.666*	.632*	.562*	.497*	.511*	.564*
Population size (*ln*)	.170	.092	.139	.075	.126	.118	.020
Growth in population (%)	.116	.287*	.143	.362*	.308*	.399*	.317*
Manufacturing employment (%)	−.122	−.067	−.160	−.189*	−.067	−.158	−.054
White male unemployment (%)	−.468*	−.537*	−.144	−.150	−.124	−.227*	−.242*
N	50	78	50	78	67	78	78

Source. U.S. Bureau of the Census, 1940; 1950; 1960; 1970. Underlined comparisons indicate differences in results based on the two metropolitan definitions.

* $p \leq .05$.

sures does not reach significance and the same is true for the measures of white male unemployment in 1960. Again, the direction of the relationships remains the same. To summarize, 11 of the 15 comparisons are consistent in both direction and statistical significance while the remaining four comparisons are consistent in direction but fail to reach the specified significance level. The next step in the analysis is to determine if these cross-definition consistencies are maintained at each time point after controlling other variables in a multivariate framework.

Table 4 provides unstandardized coefficients and standard errors for multiple regressions performed using each SMSA definition. Overall, the estimated relationships show a high degree of agreement when compared across metropolitan area definition types. The coefficients for the effect of the percentage that is black on the level of occupational inequality are highly consistent in direction and strength of relationship. In addition, there are no substantial differences when comparing the estimates based on the two definitions for the direction of the relationship of racial occupational inequality and manufacturing employment or white male unemployment. Such consistency lends increased confidence in the empirical estimates of research that employs either of the two boundary definitions investigated here.

However, in 1940 the coefficient for population growth does not reach significance for the decade-specific definition while statistical significance is reached for the fixed definition. Also, in 1950, there is dissimilarity in the level of significance reached for the relationship between population size and ND where the decade-specific measure fails to reach significance. We suggested earlier that this may be due to the substantial difference in sample sizes across the definition types. We have accomplished a pooled, cross-sectional analysis combining the 1940 and 1950 decade-specific definition data which effectively increases the sample size to 100 areas. This analysis reveals that both population size and population growth reach statistical significance and are related to ND in the same manner as the fixed definition measures (this analysis is not shown here but is available from the authors upon request). Finally, note that the explained variance (R^2) is higher for the fixed definition models. This is due to the increased sample size which also is exhibited in our pooled analyses.

CONCLUSIONS

We have attempted to demonstrate how shifting boundary definitions of southern SMSAs affect the interpretation of results from a racial occupational inequality model. We employ two definitions of metropolitan areas, using decade-specific and fixed county boundaries. First, we find in the within-variable, cross-definition analysis that each comparison results in a correlation coefficient at .9 or above. This provides limited

TABLE 4
OLS Regressions of Racial Occupational Inequality on Selected SMSA Characteristics by Decade-Specific (DS) and Fixed Boundary Definitions, 1940–1970

	1940		1950		1960		1970
Variables	DS (1)	Fixed (2)	DS (3)	Fixed (4)	DS (5)	Fixed (6)	DS/Fixed (7)
Black population size	.434 ***	.492 ***	.518 ***	.490 ***	.443 ***	.436 ***	.394 ***
	(.081)	(.066)	(.078)	(.067)	(.088)	(.075)	(.065)
Population size	2.058*	2.962 **	1.406	1.996 **	.381	.334	−1.293 *
	(1.412)	(.963)	(.932)	(.932)	(1.002)	(.853)	(.709)
Growth of population	−.070	.263 **	.132 **	.313 ***	.070 **	.228 ***	.210 ***
	(.122)	(.078)	(.055)	(.068)	(.022)	(.056)	(.064)
Manufacturing employment	−.418 **	−.195 *	−.138	−.160	−.039	−.053	−.051
	(.137)	(.109)	(.115)	(.101)	(.110)	(.098)	(.077)
White male unemployment	−1.320 **	−.707 **	−1.089	−.948	.231	.098	−.339
	(.441)	(.250)	(.707)	(.578)	(.593)	(.530)	(.712)
Constant	39.626	7.256	32.293	20.342	41.925	39.553	65.289
Adj. R^2	.545	.614	.493	.512	.334	.417	.392
N	50	78	50	78	67	78	78

Source. U.S. Bureau of the Census, 1940; 1950; 1960; 1970. Underlined comparisons indicate differences in results based on the two metropolitan definitions; standard errors are in parentheses.

* $p \leq .10$.
** $p \leq .05$.
*** $p \leq .001$.

evidence that the measures given here are generally capturing the same concept at each point in time despite differences in the number of counties used to define an SMSA. Second, in analyzing the bivariate relationships between each of the predictors and ND for the two boundary definitions, we find that 11 instances out of the 15 comparisons show agreement in direction of effect and statistical significance.

Finally, we provide a series of multivariate regression models for each of the definitions and note even greater consistency in the parameters regarding direction of effect and levels of significance. Only two of these 15 comparisons are dissimilar. Thus, our findings support the work of Fuguitt *et al.* (1988) and Brown (1979) who note that the change in Census Bureau SMSA definitions does not have critical effects on substantive analyses. While future researchers who venture into this substantive area should be cautious when using either approach, overall these results suggest that an extended time series of metropolitan area cross-sections like the one examined herein can yield sound results.

One of our primary aims in this study was to determine if any "violence" to statistical relationships would be incurred for a model of racial inequality if we "back-defined" SMSAs from an arbitrary reference period (in this case, using 1970). Our results generally indicate that not only is this feasible, but statistical power is gained with this approach as the size of the sample can be increased using a fixed definition over a decade-specific approach. Hence, defining areas by either decade-specific or fixed boundaries yields relatively consistent estimates in the context provided here. Future exploration of this issue may want to use either more recent time referents or earlier historical periods. For instance, it would be informative to know if back-defining areas to 1930 or 1920 yields a similar level of consistency. Also, future research may want to employ 1980 and 1990 (when available) time referents as "fixed" definitions to determine if consistency is maintained. Of course, a variety of theoretical models should also be tested to see if different measures behave well in a statistical sense.

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