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Author(s): Reynolds Farley and Alma F. Taeuber

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# Racial Segregation in the Public Schools<sup>1</sup>

Reynolds Farley  
*University of Michigan*

Alma F. Taeuber  
*University of Wisconsin*

This paper presents data on racial segregation in public elementary schools in 60 cities for the 1967–68 school year. Wide variation was found among school districts in the fundamental demographic constraints confronting school systems seeking to desegregate. The percentage Negro among students varied from less than 5 to more than 90. Among instructional staffs the percentage Negro ranges from a low of 2 to a high of 84. Levels of racial segregation were typically high. The index ranged from a low of 39 in Sacramento to a high of 97 in Tulsa and Oklahoma City. The average level of school segregation among the 60 cities was 79. The task of desegregation for each city was estimated using an index that reflects both the degree of segregation and the racial composition of students. Cities in the South would have to permit an average of 32% of their students to shift schools compared with 26% in the North. Finally, the segregation of students of one race from teachers of another was determined. Teachers of one race are typically assigned to students of that race.

The Supreme Court, in *Brown v. Board of Education* (1954), ruled that racially segregated schools were “inherently unequal” and ordered desegregation “with all deliberate speed.” The segregation of schoolchildren, it argued, “affects their hearts and minds in ways unlikely ever to be undone.” Indisputably, racial segregation in the nation’s schools persists 20 years later. The question of what to do about this continues to be one of the nation’s most urgent and divisive domestic problems. The 1964 Civil Rights Act, authorizing cutoff of federal funds to school districts not in conformity with desegregation guidelines, placed a new administrative remedy in the hands of the Department of Health, Education, and Welfare. With this tool, desegregation plans were formulated and implemented in many small and some large school districts in the last years of the Johnson administration and the first years of the Nixon administration. Simultaneously, the cumula-

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tive process of case-by-case trial of many school desegregation suits led to a series of Supreme Court decisions affirming the original decision, striking down integration plans that did not effect desegregation, and gradually extending the scope of the decision.

Case studies have provided excellent information about school segregation in several cities (Crain 1968; Edwards and Wirt 1967; Stinchcombe, McDill, and Walker 1968; Rubin 1972; U.S. Commission on Civil Rights 1972; Moore 1973). The U.S. Commission on Civil Rights (1967, vol. 1, chap. 2) and the Southern Education Reporting Service (U.S. Bureau of the Census 1972, tables 180 and 181) have from time to time compiled data on larger numbers of school systems. Yet a paucity of data and a weakness of methodology have made it impossible to compare school segregation systematically in all cities. Shortage of information on a problem of such importance has fostered a variety of conflicting assertions and speculations. The year 1972 produced a veritable torrent of claims and counterclaims as candidates for national, state, and local office spoke out on school segregation and the associated emotion-laden topic of "busing." Better information could hardly have stemmed this flood of rhetoric, but some arguments were couched in terms that permit factual investigation. A syndicated newspaper column provides an example particularly relevant to our study: "There is no longer any objective difference between the school segregation in the North and South . . . the schools in the Northern cities, Boston, for example, are today as segregated as their Southern counterparts, Birmingham perhaps, and for the same reason" (Madison *Capital Times* 1971). Data appropriate for testing such assertions have recently become available as one result of the civil rights legislation of the mid-1960s.

Under Title VI of the 1964 Civil Rights Act, the Office for Civil Rights (Health, Education, and Welfare) was authorized to conduct periodic racial-ethnic surveys of public elementary and secondary schools. Results of the first such survey were published by the Office of Education, National Center for Educational Statistics (1969). The survey collected data on the racial composition of the students and staff of individual schools in all school districts with 3,000 or more pupils, in addition to selected smaller districts in some southern states. Similar data have subsequently been published for the 1968-69 and 1970-71 school years (U.S. Office for Civil Rights 1970, 1972).

We analyzed data for fall 1967 with the following aims: first, to describe the racial composition of the students and staff members in major school systems throughout the country; second, to measure the extent of racial segregation in the schools by applying techniques that have proven successful in the study of residential segregation; third, to assess the demographic magnitude of the task of effecting complete desegregation in a school district; and fourth, to determine the segregation of students of one race from

teachers of the other. As of fall 1967 few large school systems had been compelled by specific court order or federal administrative sanction to desegregate. These data, then, represent the best available baseline prior to the major desegregation efforts and controversies of recent years.

#### THE DATA

We consider 64 of the nation's largest cities, those with a population of 200,000 or more in 1970. Four cities—Albuquerque, Dallas, Honolulu, and Phoenix—are omitted because they did not submit data suitable for analysis. Of the 60 cities, 37 are in the North and 23 are in the South.

The data refer to public school districts rather than "cities." School district boundaries are not always coterminous with city boundaries. In some cases, the school district covers an entire county rather than conforming to municipal boundaries. This is true of all Florida districts; these and other county districts are noted in our tables.

Our analysis was conducted separately for elementary and secondary schools, but in this paper we emphasize findings concerning elementary schools. Any school in which the grade span exclusively or chiefly included grades 1–6 was considered an elementary school, while all other schools were classed as secondary. No attempt was made to separate junior from senior high schools or to isolate those schools which offered preschool classes. While the most common pattern of grade spans is K–6 in the elementary span, 7–9 in junior high, and 10–12 in senior high, many school systems have unique or varying patterns of grade spans. However, we believe this is not a significant factor in the present analysis.

For each public school in every school district, the survey tabulated the numbers of whites, Negroes, and others among students and instructional staff. The questionnaire stated that the "other" group "should include any racial or national-origin group for which separate schools have been maintained in the past, and any racial or national-origin groups which are recognized as a significant 'minority-group' in the community (such as Indian-American, Oriental, Eskimo, Mexican-American, Puerto Rican, Latin, Cuban, etc.)" (U.S. National Center for Educational Statistics 1969, p. 839). Responses were somewhat unpredictable: certain cities, such as Newark, reported large numbers of "others," while some cities, such as Baltimore and Houston, reported no "others." As a result, the data on "other" groups are of limited value, and the analysis is restricted to a comparison between Negroes and non-Negroes.

The instructional staff includes, in addition to classroom teachers and principals, supervisors of instruction, librarians, psychologists, and guidance personnel. It does not include noninstructional personnel such as nurses and food service, transportation, and custodial workers. In most

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cases, the data refer to full-time staff members plus the full-time equivalent of part-time staff members.

Certain listed schools were eliminated from the analysis: (1) schools with fewer than 100 students (they tend to be specialized schools); (2) schools for the mentally or physically handicapped; (3) schools for adults, such as night high school (but trade and technical high schools were retained in the analysis); and (4) schools for which the data were incomplete owing either to misreporting or typographical errors (mainly a problem in Houston and New York City). The survey omitted parochial and other private schools, although they enroll a large number of pupils in several cities.

The National Center for Educational Statistics acknowledged difficulties in collecting and processing the data. These data should be interpreted with some caution for they were published without extensive checks to eliminate inconsistencies or omissions. It is not certain that all schools were listed for each school district; nor that consistent procedures were used for determining the racial background of students and staff.

### CHARACTERISTICS OF PUBLIC ELEMENTARY SCHOOL SYSTEMS

There is a considerable diversity in the size and racial composition of the 60 elementary school districts (table 1). Districts range from fewer than

**TABLE 1**  
CHARACTERISTICS OF ELEMENTARY PUBLIC SCHOOL SYSTEMS IN SELECTED CITIES:  
FALL 1967

SCHOOL DISTRICT	NUMBER OF					% NEGRO			AVERAGE SIZE OF SCHOOL (9)
	Students*			Staff*		City Pop.†	Stu- dents	Staff	
	Schools (1)	Total (2)	Negro (3)	Total (4)	Negro (5)				
<b>South:</b>									
Atlanta .....	123	75.0	44.8	3.1	1.8	51	60	56	610
Austin .....	48	27.3	4.6	1.3	0.2	12	17	18	570
Baltimore .....	149	123.6	80.0	4.5	2.6	46	65	58	830
Birmingham .....	85	48.8	25.3	1.6	0.8	42	52	50	570
Charlotte‡ .....	77	43.9	13.0	1.9	0.5	24	30	28	570
Corpus Christi ....	41	24.3	1.4	1.0	<0.1	5	6	4	590
El Paso .....	50	41.2	1.3	1.9	0.1	3	3	3	820
Fort Worth .....	88	47.5	12.6	1.9	0.4	20	27	23	540
Houston .....	159	144.2	48.2	5.3	1.8	26	33	33	910
Jacksonville‡ .....	99	68.0	19.1	2.7	0.8	22	28	29	690
Louisville .....	48	33.9	15.9	1.3	0.5	24	47	35	710
Memphis .....	91	72.9	37.0	2.8	1.2	39	51	43	800
Miami‡ .....	155	118.8	32.8	5.1	1.2	15	28	23	770
Nashville‡ .....	101	54.3	14.3	2.2	0.5	20	26	23	540
New Orleans .....	93	67.7	47.3	2.6	1.4	45	70	55	730
Norfolk .....	53	31.6	12.2	1.3	0.5	28	39	37	600
Oklahoma City ...	88	43.4	10.1	1.6	0.3	14	23	19	490
Richmond .....	39	29.3	20.2	1.3	0.8	42	69	63	750

TABLE 1 (Continued)

SCHOOL DISTRICT	NUMBER OF					% NEGRO			AVERAGE SIZE OF SCHOOL
	Schools (1) *	Students*		Staff*		City Pop. † (6)	Stu- dents (7)	Staff (8)	
		Total (2)	Negro (3)	Total (4)	Negro (5)				
Saint Petersburg‡ . .	73	39.4	6.6	1.6	0.2	8	17	14	540
San Antonio . . . . .	75	43.1	6.7	1.7	0.2	8	16	14	580
Tampa . . . . .	85	51.9	11.6	2.0	0.3	14	22	16	610
Tulsa . . . . .	74	45.1	5.8	1.7	0.2	11	13	12	610
Washington, D.C. . .	139	95.0	88.3	3.7	3.1	71	93	84	680
North:									
Akron . . . . .	51	35.7	9.6	1.4	0.1	18	27	10	700
Boston . . . . .	157	57.9	18.0	2.7	0.2	16	31	7	370
Buffalo . . . . .	73	45.8	16.8	2.3	0.2	20	37	11	630
Chicago . . . . .	416	407.1	214.5	14.7	5.0	33	53	34	980
Cincinnati . . . . .	76	55.1	23.2	2.0	0.5	28	42	27	730
Cleveland . . . . .	138	90.1	51.6	3.4	1.6	38	57	46	650
Columbus . . . . .	121	67.4	17.9	2.5	0.4	19	27	15	560
Dayton . . . . .	53	40.6	15.4	1.8	0.5	31	38	31	770
Denver . . . . .	89	54.1	8.3	2.3	0.2	9	15	9	610
Des Moines . . . . .	59	26.9	2.2	1.0	<0.1	6	8	3	460
Detroit . . . . .	212	185.6	107.5	6.8	2.5	44	58	37	880
Indianapolis . . . . .	105	78.8	25.6	2.7	0.7	18	33	27	750
Jersey City . . . . .	31	27.9	12.7	1.1	0.2	21	46	16	900
Kansas City . . . . .	80	46.7	21.8	1.8	0.6	22	47	32	580
Long Beach . . . . .	55	39.6	3.6	1.5	0.1	5	9	4	720
Los Angeles . . . . .	434	372.4	89.6	13.5	2.3	18	24	17	860
Milwaukee . . . . .	123	78.5	21.8	2.4	0.4	15	28	16	640
Minneapolis . . . . .	73	42.1	3.2	1.7	0.1	4	8	4	580
Newark . . . . .	51	55.4	40.3	2.5	0.8	54	73	31	1,090
New York City . . .	595	584.4	187.5	29.7	2.7	21	32	9	980
Oakland . . . . .	64	37.8	20.7	1.6	0.3	35	55	20	590
Omaha . . . . .	67	34.2	6.9	1.1	0.1	10	20	9	510
Philadelphia . . . . .	209	173.3	102.9	7.3	2.5	34	59	35	830
Pittsburgh . . . . .	87	48.7	19.6	1.9	0.2	20	40	12	560
Portland, Ore. . . . .	93	53.7	4.8	2.2	0.1	6	9	3	580
Rochester . . . . .	42	28.0	8.6	1.4	0.1	17	31	9	670
Sacramento . . . . .	56	29.5	4.2	1.1	0.1	11	14	6	530
Saint Louis . . . . .	150	91.2	59.7	3.2	1.9	41	66	59	610
Saint Paul . . . . .	60	26.4	1.6	1.0	<0.1	4	6	2	440
San Diego . . . . .	116	74.6	9.5	2.8	0.1	8	13	4	640
San Francisco . . . .	93	51.7	15.1	2.0	0.2	13	29	8	560
San Jose . . . . .	34	20.3	0.3	0.7	<0.1	3	2	2	600
Seattle . . . . .	86	51.3	6.0	2.1	0.1	7	12	5	600
Toledo . . . . .	56	40.1	10.7	1.5	0.3	14	27	20	720
Tucson . . . . .	53	27.5	1.7	1.2	<0.1	4	6	2	520
Wichita . . . . .	91	40.1	5.6	1.9	0.1	10	14	8	440
Yonkers . . . . .	29	18.0	2.3	0.7	<0.1	6	13	6	620
Regional averages:									
South . . . . .	88	59.6	24.3	2.4	0.8	26	36	32	660
North . . . . .	118	87.5	31.7	3.6	0.7	18	30	16	660

Source.—U.S. National Center for Educational Statistics 1969; U.S. Bureau of the Census, *Census of Population: 1970*, PC(1)-B, table 24.

\* In thousands.

† Figures for the city population refer to 1970.

‡ Data for these places refer to the county rather than the central city.

40 schools in Yonkers, Jersey City, San Jose, and Richmond, Virginia, to over 400 schools in New York, Chicago, and Los Angeles. The percentage black among students varies from less than 5 in El Paso and San Jose to more than 90 in Washington, D.C. Among teachers, the percentage black ranges from a low of 2 in Saint Paul, San Jose, and Tucson, to a high of 84 in Washington. Districts range from only a few hundred to over 100,000 Negro students and from fewer than 100 Negro staff members to several thousand.

The percentage Negro among public elementary school students substantially exceeds the percentage Negro in the total city population (cols. 6 and 7, table 1). This well-known phenomenon may be caused by higher Negro fertility and migration resulting in a younger age distribution among Negroes, as well as by greater white utilization of private and suburban schools.

Elementary schools are smallest in Boston, with fewer than 400 students each, and are largest in Newark, Chicago, and New York, with an average of about 1,000 students per school (col. 9, table 1). There is relatively little variation in the ratio of students to staff; the ratio is about 25 to 1 in most districts (data not shown).

Are there "regional" differences in these demographic characteristics of school systems, or are school systems throughout the country pretty much the same? Regional averages (unweighted) for the various characteristics are given at the bottom of table 1. Although regional differences in percentage Negro were formerly very great, by 1967 there was a surprisingly small difference between North and South. The average percentage Negro among public elementary school students was 30 and 36, respectively. If "the maximum problems of integration occur when the races are in the ratio of around 50:50" (Stinchcombe et al. 1968, p. 228), then a sizable number of school districts in each region face the school desegregation issue in its more unmanageable demographic dimensions.

The data on Negro staff reveal remnants of the major historical differences between the North and South. In the southern cities, the percentage black among instructional staffs is similar to the percentage black among students, 32 and 36, both exceeding the average 26% of population Negro. In the North the percentage black among staffs (16) is much lower than among students (30) and is also lower than the population percentage Negro (18). A later section will assess the implications of this difference for student-staff racial similarity.

### SEGREGATION IN PUBLIC ELEMENTARY SCHOOLS

A number of techniques can be used to assess the extent of school segregation in the 60 cities. The U.S. Commission of Civil Rights in its landmark

1965 study, *Racial Isolation in the Public Schools* (1967, vol. 1), and in its more recent press releases dealing with changes in levels of school segregation, has relied almost exclusively on the "percentage of Negroes attending schools over 50 percent Negro" (or, occasionally, "over 90 percent Negro"). A serious shortcoming of this measure is that it is not independent of the citywide percentage Negro, so that a heavily Negro school system will, other things being equal, appear to be more segregated than a school system with relatively few Negroes. For example, a city with a small Negro population could place its Negro students as minorities in a few racially mixed schools and place most white students in all-white schools. Such a school system would appear to be unsegregated by such a measure. Yet if Washington, D.C., with a student population that was 93% Negro (1967), attained perfect racial balance in its schools, it would be completely segregated by this measure.

For this reason, we have chosen a measure, the index of dissimilarity, which takes as its standard of comparison the citywide student percentage Negro and proceeds to measure the extent to which the schools in a district deviate from this percentage.

In each school district we assembled the following matrix:

$$\begin{bmatrix} t_i & w_i & n_i \\ \dots & \dots & \dots \\ \dots & \dots & \dots \\ T & W & N \end{bmatrix},$$

where  $t_i$ ,  $w_i$ , and  $n_i$  represent, respectively, the number of total, non-Negro, and Negro students in the  $i$ th school. By definition  $t_i = w_i + n_i$ . The entire school district contains  $T$  total students,  $W$  non-Negro students, and  $N$  Negro students. For the school district, the index of dissimilarity is computed

$$1/2 \sum_i |w_i/W - n_i/N|.$$

The value of this index indicates the minimum proportion of Negroes (or non-Negroes) who would have to change their schools in order to obtain equal proportions of Negroes and non-Negroes in each school. Complete integration prevails (0 on this index) if every school in the district has the same racial composition as the entire district. Complete segregation (100 on the index) occurs when each school is exclusively Negro or non-Negro (Taeuber and Taeuber 1965, appendix A; Duncan and Duncan 1955).

School segregation indexes for elementary students are presented in column 2 of table 2. Levels of racial segregation among elementary school students were universally high in large U.S. cities in fall 1967. The range is from a low of 39 in Sacramento to a high of 97 in Tulsa and Oklahoma

TABLE 2

SEGREGATION INDEXES AND REPLACEMENT INDEXES FOR ELEMENTARY  
PUBLIC SCHOOL SYSTEMS IN SELECTED CITIES: FALL 1967

SCHOOL DISTRICT	SEGREGATION INDEXES			REPLACEMENT INDEXES		NUMBER OF STUDENTS TO BE SHIFTED*	
	Residential†	Students	Staff	Students	Staff	Both Races‡	Minority Race§
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
South:							
Atlanta .....	94	95	94	46	46	34.3	28.7
Austin .....	93	86	71	24	21	6.6	4.0
Baltimore .....	90	87	70	40	34	49.1	37.9
Birmingham .....	93	94	99	47	49	23.0	22.2
Charlotte# .....	94	77	79	32	32	14.0	10.0
Corpus Christi ....	89	77	66	8	4	2.0	1.1
El Paso .....	81	51	68	3	4	1.3	0.7
Fort Worth .....	94	93	92	36	33	17.2	11.7
Houston .....	94	92	88	41	39	59.3	44.5
Jacksonville# .....	97	92	96	37	39	25.3	17.6
Louisville .....	89	76	69	38	32	12.8	12.1
Memphis .....	92	95	92	48	45	34.7	34.2
Miami# .....	98	92	75	37	27	43.7	30.2
Nashville# .....	92	85	84	33	29	17.9	12.1
New Orleans .....	86	87	97	36	48	24.6	17.6
Norfolk .....	95	90	77	43	36	13.6	11.0
Oklahoma City ....	87	97	86	35	26	15.1	9.8
Richmond .....	95	95	89	41	41	12.0	8.7
Saint Petersburg# ..	97	91	92	25	23	10.0	6.0
San Antonio .....	90	88	77	23	18	10.0	5.9
Tampa# .....	95	88	91	31	25	15.9	10.2
Tulsa .....	86	97	83	22	17	9.8	5.6
Washington, D.C. . .	80	77	55	10	15	9.6	5.2
North:							
Akron .....	88	70	40	28	7	9.9	6.8
Boston .....	84	74	57	32	7	18.2	13.2
Buffalo .....	87	80	42	37	8	17.1	13.5
Chicago .....	93	92	72	46	32	187.3	177.6
Cincinnati .....	89	77	51	38	20	20.7	17.9
Cleveland .....	91	90	64	44	32	39.6	34.6
Columbus .....	85	81	58	32	15	21.4	14.6
Dayton .....	91	90	78	42	34	17.2	13.8
Denver .....	86	82	52	21	9	11.5	6.8
Des Moines .....	88	76	63	11	3	3.1	1.7
Detroit .....	85	79	43	39	20	71.6	61.9
Indianapolis .....	92	85	82	37	32	29.4	21.8
Jersey City .....	78	57	37	28	10	7.9	7.2
Kansas City .....	91	79	68	39	29	18.4	17.2
Long Beach .....	84	78	54	13	4	5.1	2.8
Los Angeles .....	82	89	66	33	19	121.8	80.1
Milwaukee .....	88	88	68	35	18	27.6	19.1
Minneapolis .....	79	74	53	10	4	4.4	2.4
Newark .....	72	68	32	27	14	15.0	10.3
New York City ...	79	52	48	23	8	133.2	98.1
Oakland .....	73	64	39	32	13	12.0	10.9
Omaha .....	92	88	79	28	13	9.6	6.0
Philadelphia .....	87	76	42	37	19	63.8	53.6
Pittsburgh .....	85	72	55	35	12	16.8	14.1
Portland, Ore. ....	77	74	68	12	4	6.4	3.5

TABLE 2 (Continued)

SCHOOL DISTRICT	SEGREGATION INDEXES			REPLACEMENT INDEXES		NUMBER OF STUDENTS TO BE SHIFTED*	
	Residential†	Students	Staff	Students	Staff	Both Races‡	Minority Races§
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Rochester .....	82	61	44	26	7	7.2	5.2
Sacramento .....	64	39	41	10	4	2.8	1.6
Saint Louis .....	91	91	83	41	40	37.5	28.7
Saint Paul .....	87	62	68	7	3	1.9	1.0
San Diego .....	81	78	58	17	5	12.9	7.4
San Francisco .....	69	67	40	28	6	14.4	10.2
San Jose .....	60	49	75	1	2	0.3	0.1
Seattle .....	80	65	52	13	5	6.9	3.9
Toledo .....	92	80	71	31	22	12.6	8.6
Tucson .....	81	68	77	8	3	2.2	1.2
Wichita .....	92	86	70	21	10	8.3	4.8
Yonkers .....	78	60	38	13	4	2.4	1.4
Regional averages:							
South .....	91	87	82	32	30	20.1	15.1
North .....	83	74	58	26	13	27.0	21.2

SOURCES.—Taeuber and Taeuber 1965, table 1; U.S. National Center for Educational Statistics 1969.

\* In thousands.

† Residential segregation indexes refer to 1960.

‡ Obtained by multiplying replacement index (col. 4) by total number of students (col. 2 of table 1).

§ Obtained by multiplying student segregation index (col. 2) by number of Negro students (col. 3 of table 1). In cities with a minority of white students, the number of white students was used (see ||).

|| In these cities Negroes are the majority group in elementary schools. The figures indicate the minimum number of white students who would have to be shifted.

# School data for these places refer to entire county. Residential segregation indexes, in all cases, refer to central cities.

City. Two of the 60 cities have scores below 50; 42 have scores of 75 or above. The average level of school segregation among these 60 cities was 79. A simple interpretation of a score of 79 is that 79% of the Negro students would have to be moved to other schools to achieve complete integration.

School segregation in fall 1967 was greater in southern than in northern cities (87 vs. 74). Only four of 37 northern cities had indexes of 90 or above, while this was true of 12 of 23 southern cities. There is no justification for the assertion that school segregation in the North was as extensive as that in the South in 1967-68, although there may have been some changes since.

Levels of school segregation are quite similar in magnitude to levels of residential segregation. One recent study presented residential segregation indexes, utilizing census tracts, for 13 cities which took special censuses in the mid-1960s<sup>2</sup> (Farley and Taeuber 1968, p. 953). Census tracts, like

<sup>2</sup> Generally, the smaller the size of the areal unit used in computing the index of dissimilarity, the greater the value of the index. Thus, indexes computed using city block

elementary school attendance districts, typically contain several thousand total population. Residential segregation scores for these cities averaged 75, while school segregation scores averaged 74.

Another study provides residential segregation indexes for all 60 cities analyzed in this paper, utilizing city block data for 1960 (col. 1 of table 2). The school indexes average somewhat lower than the 1960 residential segregation indexes (79 vs. 86), a difference which might well be due to the smaller unit of analysis (city blocks) used for the residential indexes. To what extent do school segregation patterns in these cities reflect residential segregation patterns? We can provide an answer only by overlooking the considerable slippage between the two sets of data—the possible lack of correspondence in school system and city boundaries, the different dates of the data, the reliance on blocks rather than school areas, etc.

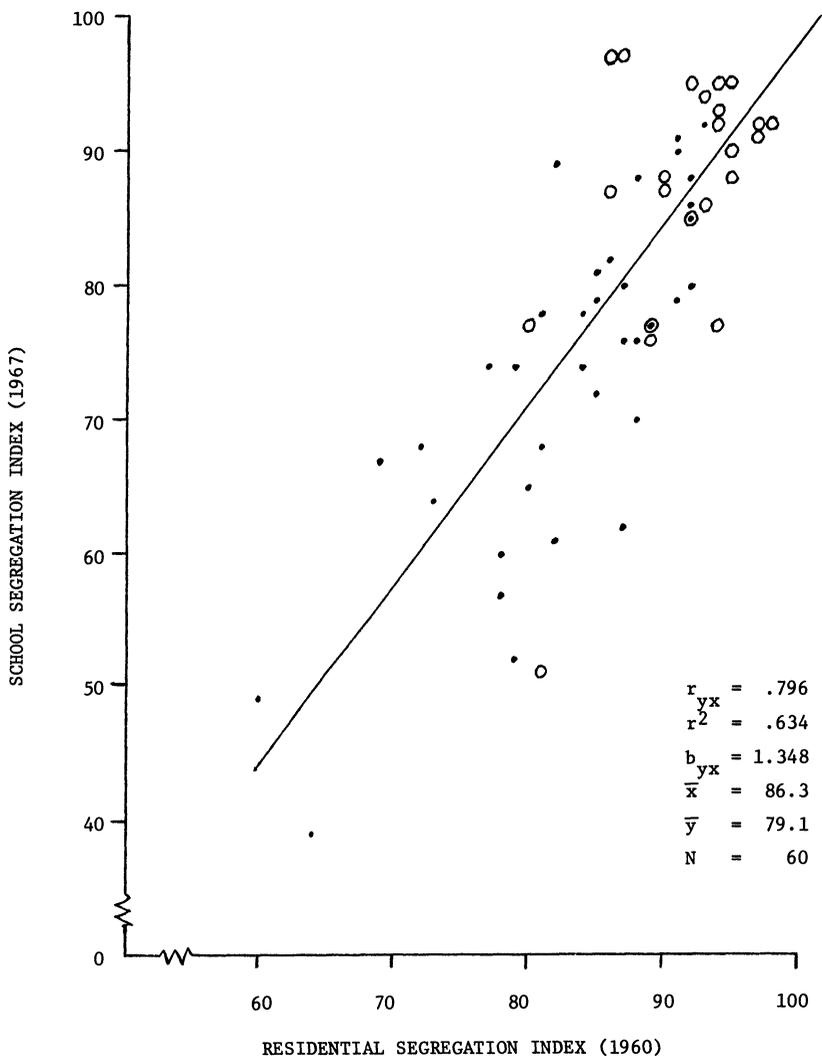
The relationship between 1960 residential segregation scores and 1967 school segregation scores is portrayed in figure 1. The correlation is .80 for the 60 cities.

This relationship deserves attention in future work in this area. If school desegregation proceeds apart from any changes in residential patterns, as the law would seem to require, then we might anticipate a sharp weakening of this correlation.

Although residential patterns affect the racial composition of students who attend a school, this is not so likely to be the case with teachers. Any segregation of staff members is caused largely by a school district's teacher assignment policy. Are Negro teachers segregated from non-Negro teachers, or do they tend to be distributed randomly among schools? Teacher segregation scores are presented in column 3 of table 2. Segregation of Negro from non-Negro staff members is, on the average, less pronounced than segregation of Negro students from non-Negro students in these 60 school systems (67 vs. 79). A strong regional difference is apparent. Within the South, racial segregation indexes for staff members are nearly as large as those for students (82 vs. 87). Outside the South, school instructional staffs are more integrated than students (58 vs. 74). This still means that in most northern cities well over one-half the Negro (or white) staff members would have to change their teaching assignments to achieve complete staff integration, as compared with more than three-fourths in the South. The higher levels of teacher segregation observed in the South undoubtedly reflect the persistence of patterns established under the "dual" school system. Governmental and judicial desegregation efforts since 1967 may well have led to reductions in teacher segregation scores in many of these cities.

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data exceed those computed using census tract figures. In the present case, census tracts seem to be the preferred unit, since elementary school enrollment areas and census tracts appear to encompass roughly equal-sized areas in many cities.



- - Southern cities
- - Northern cities

FIG. 1.—School and residential segregation indexes for 60 cities

### THE TASK OF SCHOOL DESEGREGATION

Recent federal court decisions have required many school districts to adopt desegregation plans which call for the shifting of students from one school to another. The index of dissimilarity offers one measure of the task which a school system faces if it is to become racially integrated—it indicates the percentage of Negro or white students who would have to be shifted to

bring about integration. While moving students of any one race (usually Negroes) may seem inefficient and discriminatory, it appears that desegregation in some areas has been approached in this way—closing Negro schools, moving Negro students to previously white schools (but not vice versa), and releasing Negro teachers (*New York Times*, March 18, 1971, p. 1; April 3, 1971, p. 34).

A more efficient model for pupil desegregation is an exchange of Negro and non-Negro students while maintaining the number and size of existing schools. To measure the task confronting a school system embarking upon desegregation in this way, we use the replacement index. This index specifies the minimum percentage of the total student population that has to be shifted to achieve integration, while preserving each existing school at its current pupil size.

To derive the simple formula for the replacement index, consider a slightly different way of looking at the data presented above in the basic matrix of pupils by race by school. The  $t_i$  column represents the actual distribution of pupils among schools, ignoring race. In a desegregated situation, both  $w_i$  and  $n_i$  would have the same distribution among schools as  $t_i$ . An index of dissimilarity can be calculated to show the discrepancy between the distributions of  $w_i$  and  $t_i$ ; identify this index as  $D_{wt}$ . The formula is exactly analogous to that presented above for the index of dissimilarity; that original index can be specified as  $D_{wn}$ :

$$D_{wt} = \frac{1}{2} \sum |w_i/W - t_i/T|.$$

This measure tells us the minimum percentage of non-Negro pupils that must be redistributed in order to have non-Negro pupils distributed among schools in the same manner as all pupils. Substitution of  $n_i + w_i/N + W$  for  $t_i/T$  in the above formula shows, after a few algebraic steps, that  $D_{wt} = (N/T) D_{wn}$ . To ascertain what proportion of all pupils is involved in this redistribution of non-Negro pupils, multiply by the proportion that white pupils constitute of the total. Hence redistribution of  $(W/T) (N/T) D_{wn}$  of the school system's pupils is necessary to attain a proper proportional distribution of white pupils among schools.

A similar algebraic argument shows that  $D_{nt} = (W/T) D_{wn}$  gives the proportion of Negro pupils that must be redistributed in order to have Negro pupils distributed among schools in the same manner as all pupils. To ascertain what proportion of all pupils are involved in this redistribution of Negro pupils, multiply by  $N/T$ . Again we get  $(W/T) (N/T) D_{wn}$ . The number of Negro pupils to be moved from schools in which Negro pupils are overrepresented is the same as the number of white pupils to be moved from schools in which white pupils are overrepresented. This exchange of white and Negro pupils accomplishes desegregation in the most efficient manner while still preserving the pupil size of each school. The proportion

of the system's pupils that are minimally involved in such a transfer shall be designated the replacement index,  $R: R = 2 (W/T) (N/T) D$ . The range of  $R$ , expressed as a percentage of all pupils, is 0–50. The value of the index is a function both of the degree of segregation in a school system and its racial composition. The index attains its maximum value, 50, in a school district which is 50% Negro and completely segregated ( $D = 100$ ). In such a school district, 50% of all students would have to be exchanged among schools to achieve complete integration.

Replacement indexes for students in the 60 school systems in fall 1967 are presented in column 4 of table 2. The magnitude of the desegregation task approaches its maximum in southern cities such as Atlanta, Birmingham, and Memphis, and in northern cities such as Chicago and Cleveland. These cities combine high levels of school segregation with a student body nearly 50% Negro. At the other extreme are cities that combine a lower level of segregation with a small percentage of Negro students. To desegregate elementary schools in El Paso, Corpus Christi, San Jose, Tucson, Sacramento, and Saint Paul, fewer than 10% of their total students would have to be shifted among schools. On the average, the 23 southern cities face a more difficult situation in desegregating their schools than do the 37 northern cities—the average replacement index is 32 for the South compared with 26 for the North. The South has both higher average levels of segregation and a racial composition slightly less favorable from the viewpoint of integrating schools (i.e., closer to 50:50).

Highly segregated school systems can be integrated with relatively little shifting of pupils if the system has a favorable racial composition, that is, a predominantly Negro system (Washington, D.C.) or a predominantly non-Negro system (Des Moines and Saint Paul). Under complete integration, of course, the schools in Des Moines and Saint Paul would have overwhelmingly white student enrollments, while those in Washington would be predominantly Negro.

Under a policy of exchanging Negro and white students, the minimum number of students who would have to be shifted to achieve integration is obtained by multiplying the replacement index by the total number of students. Likewise, if we multiply the index of dissimilarity by the number of Negro students in a district, we obtain the number of Negro students who would have to be shifted to achieve the same goal if all white students remain in their current schools (cols. 6 and 7 of table 2). These numbers could serve for roughly estimating numbers of buses, costs of integration, and the like. In terms of numbers of pupils to be shifted it would be more "efficient" for school systems to achieve integration by moving students of only one race—the minority race whether Negro or white—rather than to exchange Negroes and whites among schools. Exchanging Negro and white students involves shifting more students than does moving only minority

## Racial Segregation in Public Schools

students, although the latter could not be done without closing some schools and enlarging others.

School systems have been under pressure to integrate their staffs as well as their students. Column 5 of table 2 presents replacement indexes for the instructional staffs of the 60 school systems. The task of integrating teachers is somewhat easier than that of integrating students—the replacement index averages 20 for teachers as compared with 29 for students in these 60 cities. Because of the substantial regional differences in teacher segregation and teacher racial composition, the magnitude of the teacher desegregation task is much greater in the South than in the North. The average replacement index for teachers in southern cities is 30 compared with an average of 13 among northern cities. In Atlanta, Birmingham, Memphis, and New Orleans in 1967, nearly 50% of all teachers would have had to be reassigned to integrate the instructional staffs. In these cities, teachers were highly segregated and their racial composition was approximately 50% Negro. In several northern cities, on the other hand, it would be necessary to move only a small fraction of the teachers to produce integration. In these systems, Negroes comprise a very small percentage of the teaching staffs.

### SEGREGATION BETWEEN STUDENTS AND TEACHERS

The analysis to this point has demonstrated a high level of segregation between Negro and white students, and a moderately high level of segregation between Negro and white teachers. Additional measures are needed to assess the degree to which Negro teachers are teaching Negro students and white teachers are teaching white students.

Student-teacher segregation indexes are presented in table 3 for the four

TABLE 3  
SEGREGATION INDEXES BETWEEN STUDENTS AND TEACHERS FOR ELEMENTARY  
PUBLIC SCHOOL SYSTEMS IN SELECTED CITIES: FALL 1967

SCHOOL DISTRICT	SEGREGATION INDEXES			
	White Students vs. White Teachers	Negro Students vs. Negro Teachers	Negro Students vs. White Teachers	White Students vs. Negro Teachers
	(1)	(2)	(3)	(4)
<b>South:</b>				
Atlanta .....	11	8	91	96
Austin .....	8	14	82	74
Baltimore .....	22	15	69	84
Birmingham .....	4	6	94	99
Charlotte .....	8	17	74	81
Corpus Christi .....	5	27	75	68
El Paso .....	5	68	51	67
Fort Worth .....	8	10	89	94
Houston .....	10	16	87	89
Jacksonville .....	6	12	92	96
Louisville .....	16	16	63	79

TABLE 3 (Continued)

SCHOOL DISTRICT	SEGREGATION INDEXES			
	White Students vs. White Teachers	Negro Students vs. Negro Teachers	Negro Students vs. White Teachers	White Students vs. Negro Teachers
	(1)	(2)	(3)	(4)
Memphis .....	13	11	85	97
Miami .....	12	17	81	84
Nashville .....	8	19	78	88
New Orleans .....	19	17	83	99
Norfolk .....	11	13	80	85
Oklahoma City .....	10	20	89	93
Richmond .....	17	5	87	96
Saint Petersburg .....	7	21	86	93
San Antonio .....	7	28	84	78
Tampa .....	9	31	80	95
Tulsa .....	9	19	92	87
Washington, D.C. ....	42	7	51	78
North:				
Akron .....	19	27	53	56
Boston .....	28	35	47	78
Buffalo .....	29	23	54	68
Chicago .....	29	20	67	92
Cincinnati .....	25	20	55	70
Cleveland .....	25	12	68	85
Columbus .....	18	27	65	74
Dayton .....	13	15	78	87
Denver .....	15	37	70	62
Des Moines .....	12	66	67	62
Detroit .....	32	17	48	71
Indianapolis .....	10	19	78	86
Jersey City .....	24	27	35	50
Kansas City .....	18	21	64	81
Long Beach .....	10	33	71	60
Los Angeles .....	14	25	76	77
Milwaukee .....	17	16	72	84
Minneapolis .....	9	44	67	59
Newark .....	45	21	26	65
New York City .....	20	31	36	61
Oakland .....	32	20	33	67
Omaha .....	18	30	71	93
Philadelphia .....	38	18	42	73
Pittsburgh .....	27	28	46	75
Portland, Ore. ....	10	39	65	75
Rochester .....	22	25	41	62
Sacramento .....	9	33	32	45
Saint Louis .....	17	9	80	94
Saint Paul .....	8	73	59	69
San Diego .....	16	40	68	65
San Francisco .....	20	28	48	56
San Jose .....	4	67	47	73
Seattle .....	10	39	56	58
Toledo .....	11	18	71	78
Tucson .....	8	54	62	81
Wichita .....	10	29	78	78
Yonkers .....	10	50	54	40
Regional averages:				
South .....	12	18	80	87
North .....	18	31	58	71

SOURCE.—U.S. National Center for Educational Statistics 1969.

combinations: white students versus white teachers, Negro students versus Negro teachers, Negro students versus white teachers, and white students versus Negro teachers. Each index is a measure of the dissimilarity in the distribution of two groups among schools. Our expectation is that segregation between Negro students and Negro teachers and between white students and white teachers will be relatively low, while the remaining two indexes will be relatively high. The results (table 3) confirm that teachers are concentrated in schools with students of their own race. Especially in the South, Negro children in 1967 were in schools with Negro teachers and white pupils were in schools with white teachers. In northern cities there were proportionally fewer Negro staff members, and many Negro students attended schools with white teachers. In both the North and South the largest student-teacher segregation scores were for white students versus black teachers. In general and for both regions, segregation indexes increase from one column to the next in table 3.

### SEGREGATION IN PUBLIC SECONDARY SCHOOLS

We carried out a parallel analysis with data for secondary schools (including junior high schools) in these 60 cities. The degree of segregation was usually somewhat less in secondary schools than in elementary schools in the same city. Of course, secondary school attendance districts cover larger areas, and larger areas are more likely to include residents of both races. Because of the lower segregation, the task of integrating secondary schools would require proportionally less shifting of pupils or teachers. Still, the same patterns of segregation appear, and in most of these large cities many thousands of secondary students would have to be transferred to achieve integration.

### SUMMARY AND IMPLICATIONS

Racial segregation of pupils and teachers was prevalent in public schools of the nation's large cities in fall 1967. In both the South and North, schools had not been desegregated "with all deliberate speed." Thirteen years after the Brown decision all the nation's large cities operated racially segregated school systems. While these general conclusions are already widely accepted, this is the first time it has been possible to provide systematic documentation with national data and an acceptable statistic for comparing cities.

We presented estimates for each city of the task of desegregation, utilizing an index that reflects both the degree of segregation and the racial composition of students. These replacement indexes and the associated estimates of the number of students to be shifted provide rough numerical guides to the size of the task of abolishing racial segregation in each city's

schools. In view of the complexity of instituting this type of social change, these measures cannot be taken as perfect guides to the desegregation programs of specific cities. Most desegregation plans seek to reduce variance among schools in racial composition, not to eliminate such variance. Actual desegregation plans must confront problems of practical utilization of school buildings, of reasonable transportation methods and times, of simultaneous educational innovations (middle schools, educational parks, etc.), and of other activities designed to secure public acceptance.

The standard against which we measured the degree of segregation is that students and staff in each school should have the racial composition that prevails in the city's public school system. This standard is the most obvious one and the one that is most often used. Yet, it is not the only appropriate one. Consider the indexes of staff segregation for northern cities. The average percentage Negro among teaching staff in these cities is 16. To obtain a zero segregation score the average northern city in 1967 needed only 16% Negro staff in each school. Yet 30% of the students in these schools were Negro. Some desegregation suits seek to equalize the percentage Negro among staff and students, for example, at 30% each. Other advocates of school desegregation seek to retain Negro teachers for as many Negro students as possible. Appropriate measures are easy to calculate once a standard is specified.

The list of other factors that might be taken into account in measuring school segregation or designing desegregation programs is endless. We call attention to a few that are particularly relevant from a demographic and policy perspective.

The nonpublic schools in most cities enroll sizable numbers of white pupils but few Negroes. An analysis embracing the total school system, public and private, would be preferred for certain purposes, but the survey does not currently include nonpublic schools. Another expansion of the system of reference would be to treat each metropolitan area as a single educational universe. From the perspectives of human ecology and urban sociology, the metropolis is functionally more relevant than the central city. Treating the metropolis as a set of disparate school systems yields a peculiar pattern of desegregation efforts. Desegregation of schools in a large city without considering the suburbs may accelerate white movement to school districts where the percentage Negro is extremely low. Both municipal boundaries and school system boundaries are subject to state regulation, and numerous metropolitan school segregation cases in both North and South are being decided by the Supreme Court.

The correlation we found between residential segregation and school segregation is not subject to a simple causal interpretation. Residential decisions are affected by the character of nearby schools, and the formulation of school attendance rules is an administrative process that is carried

out with knowledge of residential patterns. This reciprocal process is reinforced by a variety of related decisions on zoning, code enforcement, annexation, school busing, and other local services. Any attempt to desegregate schools must take account of continuing pervasive residential segregation. Simple redrawing of attendance districts (within the structure of a walk-to-school system) is an annual occurrence in most cities to accommodate demographic shifts. The utility of redrawing boundaries to effect desegregation is diminished by the ease with which subsequent and predictable residential changes obliterate desegregation efforts.

The Office of Education followed up the 1967 survey of racial composition of schools with similar surveys, in the fall of 1968 and 1970 (U.S. Office of Civil Rights 1970, 1972). These later data will document substantial changes in school segregation in many cities and little change in others. In the face of such rapid change it is important that similar surveys be undertaken annually and released promptly. To do so would be to capture a rare opportunity to monitor and analyze a major social change as it occurs.

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