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Mart -
you see - they still remember you
Joel

Commission

De-Commission De Commission

Independence is as independence does,
and this place is a place that was.

The Penny is still shining the administration boot,
willing to distort the law to make the right law suit.

The Vice Chair spouts his diatribes in logic incomplete
in hot pursuit of Ronnie's new right high court seat.

The rest of Reagan's Commission junta mumbles on intact,
its silly policy stumbles unphased by researched facts.

And then there is the new staff, a truly wondrous sight. . .
Neo, pseudo, movement folks. Young, sifted and white.

How Linda got her White House slot is really not a mystery.
She led the charge with honeyed tongue, ignorant of history.

Mad Max walked in Linda's shoes with polemic lack of charm . . .
sexist, racist, insensitive. A true White House right arm.

While Jungle Joel took his own administration trip,
Baby Jim moved right in as the new right legal twit.

There are others who have done their best with Reaganizing tricks,
like Morris, Maltz and Disler, and Wade and Swartz and Hicks.

They took the lead of Linda to put belief before fact
with false colorblindness to discolor every act.

From their deceits watch them scurry as they try to leave no trace.
From their past they'll have to hurry to duck egg upon their face.

The GAO will surely find there is egg to go around.
Let the record show they used their time to drag this rights place down.

NEW EVIDENCE ON SCHOOL DESEGREGATION

Finis Welch and Audrey Light

With the Assistance of

Frederick Dong and J. Michael Ross

Unicon Research Corporation
10801 National Boulevard
Third Floor
Los Angeles, California 90064

December 18, 1986

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PREFACE

The objective of this study was to compile data for all schools in a broadly based sample of 125 public school districts, showing enrollment by race between 1967 and 1985. A large part of the data was collected earlier and has been used in several studies relating enrollment trends to desegregation programs. This project augmented the existing data by filling in additional years and adding information on desegregation programs. The data are intended to support analyses of relationships between desegregation techniques, levels of integration, and enrollment trends. Although a detailed analysis is beyond the scope of the current study, some of the relationships are described in broad terms. In addition, this report provides details about the data and summarizes nationwide patterns in enrollment, integration levels, and desegregation efforts.

The research was funded by the U.S. Commission on Civil Rights (Contract Number CR30050745). Systems Development Corporation (SDC) was the original contractor; the contract was novated to Unicon Research Corporation on July 1, 1985. Finis Welch, Audrey Light and Frederick Dong are members of Unicon's research staff. J. Michael Ross served as a consultant for the collection of desegregation plan data. Numerous other members of Unicon's staff contributed to the study. In particular, Eanswythe Grabowski supervised the data processing and Melanie Sterling supervised the collection, coding, entering and cleaning of data.

We are indebted to everyone who assisted in this project. School district representatives provided us with enrollment data. David Armor and David Morgan provided documents describing desegregation plans for some of the districts. Christine Rossell reviewed the desegregation plan data. The project's Advisory Committee--Eric Hanushek (chairman), Tom Cook, Christopher Jencks, and Christine Rossell--reviewed an earlier draft and provided helpful comments. David Armor and June O'Neill also provided useful comments. We would also like to thank Eric Hanushek and Peter Mieszkowski for an earlier review that helped sustain the project.

We are responsible for any errors. Opinions are our own and do not reflect opinions or policies of the U.S. Commission on Civil Rights.

CONTENTS

Section 1

INTRODUCTION AND SUMMARY

In Brown v. Board of Education (1954), the Supreme Court ruled that racially segregated schools are inherently unequal and practices fostering them are, therefore, unconstitutional. The decision launched the modern civil rights movement and school desegregation became one of the leading issues of the 1960s and 1970s. Disagreement over what constitutes an illegal segregative practice and what remedies to use polarized communities and challenged the legal system.

Although the battles have subsided, school desegregation remains a vital issue. By pausing to examine the record, we have the opportunity to enhance future policy and resolve questions about the past. Was desegregation the best tool for redressing educational inequality? Once dual school systems were eliminated, could the additional resources employed by desegregation programs have been put to better use--and would they have, if desegregation had not been undertaken? What is the impact of desegregation on educational achievement? What portion of the improved career outcomes of minorities can be attributed to integrated education? These are important questions that deserve to be examined, although the answers will undoubtedly remain elusive.

This study addresses a more modest set of questions. To what extent has desegregation been accomplished? How many students actually attend integrated schools? How has this number changed over time? What desegregation tech-

niques have the greatest impact on the level of integration? What techniques are associated with the greatest changes in white enrollment? Some of the issues have been explored previously, but research has been constrained by the lack of comprehensive data.

A number of previous studies examined large samples of school districts, but they concentrated on one issue: Does desegregation reduce white enrollment? The Coleman study[1] was the first, and it found white flight that is most pronounced in large central city districts. Coleman's result proved to be controversial and was initially disputed,[2] but a second wave of studies (Farley and Wurdock; Rossell; Armor; Farley, Richards and Wurdock; Wilson)[3] confirmed the qualitative finding. Although most studies of desegregation programs agree that they are generally accompanied by reduced white enrollment, there is no agreement about the extent or the duration of enrollment losses.[4]

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[1] James S. Coleman, Sara D. Kelly and John A. Moore, "Trends in School Segregation, 1968-73," The Urban Institute, 1975.

[2] The first wave of responses to the Coleman study include Reynolds Farley, "School Integration and White Flight," Population Studies Center, University of Michigan, 1975; and Christine H. Rossell, "School Desegregation and White Flight," Political Science Quarterly 90 (1975-76).

[3] Reynolds Farley and Clarence Wurdock, "Can Governmental Policies Integrate Public Schools?" Population Studies Center, The University of Michigan, 1977; Christine H. Rossell, "The Unintended Impacts of Public Policy: School Desegregation and Resegregation," Institute of Policy Sciences, Duke University, 1978; David J. Armor, "White Flight, Demographic Transition, and the Future of School Desegregation," Paper presented at the American Sociological Association meetings, 1978; Reynolds Farley, Toni Richards and Clarence Wurdock, "School Desegregation and White Flight: An Investigation of Competing Models and Their Discrepant Findings," Sociology of Education 53 (July, 1980); Franklin D. Wilson, "The Impact of School Desegregation Programs on White Public-School Enrollment, 1968-1976," Sociology of Education 58 (July, 1985).

[4] Farley, Richards and Wurdock demonstrate that estimates are sensitive to model specification. Armor describes conceptual errors in the earlier stud-

These studies represent the most rigorous analyses of white flight, but they also illustrate deficiencies in the empirical literature. First, they are dated. The Coleman study used Office of Civil Rights surveys for 1968 through 1973. Subsequent studies used either the same data set or an updated version, but the most recent (Armor) extends only through 1977. Second, long-term trends in white enrollment have been largely ignored. Only Rossell (1977), Armor (for a sample of 22 districts), Farley, Richards and Wurdock, and Wilson examined enrollment changes in the post-implementation period. Third, it has not been possible to distinguish between specific desegregation techniques such as rezoning, pairing and clustering, and magnets. Rossell and Wilson used broader measures of plan type such as the extent of student reassignment and whether plans were initiated by the school board or the court.

This project enhances the school desegregation literature by providing updated data. Enrollment data now extend from either 1967 or 1968 through 1984 or 1985 for almost all of the 125 school districts in the sample. Not only does the number of enrollment observations per school more than double, but later desegregation plans--which are more likely to occur in the North and to include magnet programs--can now be analyzed. In addition to providing enrollment data, the data base identifies the dates and nature of most desegregation plans implemented between 1968 and 1984.

This report also provides preliminary analysis of two issues. One concerns the resegregative response to desegregation programs--that is, the movement of students to another district or to private schools. Interdistrict movement may reflect longterm demographic trends, or it may reflect "white flight". By

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ies by Farley and Rossell that cause their results to be at odds with subsequent research.

looking at a district's enrollment by race over time, we can project what it might have been in the absence of a desegregation plan. If the actual enrollment differs from the projected enrollment, the magnitude of the deviation can be related to the type of desegregation plan employed.

The second issue concerns the effectiveness of various techniques in achieving desegregation. We track the integration level for a sample of 125 public school districts and measure changes before and after the implementation of desegregation plans. Average changes in integration levels are reported for specific types of programs and evaluated alongside coincident changes in white enrollment.

Before examining the districts in our sample, in Section 2 we look at nationwide trends in public school enrollment and the racial composition of urban and suburban areas.[5] Without relating trends to desegregation efforts, we ask whether three groups--blacks, Hispanics, and whites--are gaining exposure to one another. The first part of this section emphasizes the racial mix of students within districts, rather than enrollment patterns between schools. This perspective enables us to determine whether major areas of the country are so racially isolated that the issue of integration is moot. The second part of Section 2 describes, on a nationwide level, the distribution of black, Hispanic, and white students among schools.

- Our examination of 45 large metropolitan areas shows that, between 1968 and 1980, there was a decline in the proportion of students who are white[6] in central cities as well as in their suburbs. In both

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[5] In this section, suburbs are defined as all school districts (treated as a unit) in a metropolitan area, excluding the central city district.

[6] Throughout this report--unless noted otherwise--"white" excludes Hispanics and "minority" refers to all nonwhites. When not referring to data, "white"

types of areas, the proportion of students who are black rose, as did the proportion that is Hispanic.

- Demographic trends account for much of this change. Falling birth rates reduced the number of white students by 21.5 percent between 1968 and 1980. At the same time, the white population shifted from central cities to suburbs and nonmetropolitan areas. The black population decreased slightly, while shifting away from central cities and nonmetropolitan areas and toward suburbs. The Hispanic population underwent less of a redistribution, but grew by more than 50 percent.

- An examination of trends in private and parochial school enrollment reveals that the percentage of white students attending private schools decreased during the 1960s and the 1970s. This pattern did not hold in the South, where more white students attended private schools in 1980 than in 1970. We do not have data with which to compare private and public school enrollment in individual districts, so we cannot identify cases where desegregation efforts were accompanied by white flight into private schools. If white flight into private schools is a problem, however, it appears to be an isolated one. On a national level, whites are increasingly likely to attend public schools.

- In turning to school-level data, we find that the proportion of black students attending virtually all-minority schools fell from 62 to 30 percent between 1968 and 1980. At the same time, the proportion attending schools that are 26 to 75 percent white (integrated schools) rose from 17 to 44 percent. In short, black students were much more likely to attend school with whites in 1980 than they were in 1968.

- The pattern for Hispanics is quite different. Between 1968 and 1980, the proportion of Hispanics attending virtually all-minority schools increased slightly, from 18 to 21 percent. The proportion attending schools that are more than 75 percent white fell from 24 to 13 percent. It appears that Hispanic students had less exposure to white classmates in 1980 than they did in 1968.

In Section 3, we describe six major techniques used to desegregate schools: freedom of choice, magnets, voluntary transfers, neighborhood attendance zones, rezoning, and pairing and clustering. Each technique is defined, and specific examples are given. We also outline landmark court decisions to il-

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is implicitly regarded as the numerical majority.

lustrate the impact of the courts on the type of desegregation plans used.

- Desegregation plans seen in the last 25 years are as diverse as the districts implementing them. Because districts vary in their geographic scope, metropolitan status, number of students, and racial composition, the feasibility of any given desegregation technique depends on where it is to be used.

- Community resistance may affect the nature of a desegregation plan. There is evidence that magnet programs and exemptions from reassignment (particularly for lower elementary school students) have been added to plans to appease residents. In addition, resistance has led to phasing and delays in implementation.

- Changing legal precedent has had an unmistakeable impact on the choice of desegregation techniques. Between the mid 1960s and the mid 1980s, desegregation efforts swept from the de jure segregated southern districts to the de facto segregated nonsouthern districts. In the late 1960s, voluntary measures (namely, freedom of choice) were replaced by pairing and clustering and rezoning. After the Swann decision was handed down in 1971, these mandatory plans increased in scope. Toward the late 1970s, voluntary plans returned, and we see many districts complement or replace their rezoning and pairing and clustering schemes with magnet programs.

Section 4 describes the criteria used to select our sample of 125 school districts. Because the sample includes most of the nation's largest school districts, it accounts for 20 percent of national public school enrollment in 1968. The 125 districts are located in all regions of the country, and encompass cities of various sizes as well as suburban and rural areas.

Section 4 also describes the sources and features of the data used for analysis. The data base contains two components: enrollment data and plan descriptions. The enrollment data report public school enrollment by ethnicity in every school in every district in the sample, for the period 1967 to 1985. Data are missing for some years, but in total we have over 200,000 observations and more than 2,000 district-year cells. The plan descriptions

list the techniques and implementation years for almost 300 plans implemented by 109 districts.

Section 5 begins with a discussion of integration measure, and then examines the data for trends in integration and enrollments. A number of patterns are revealed:

- In general, total enrollment declined and minority representation increased during the period under study. The most dramatic losses of students occurred in northern cities. Most districts that experienced enrollment growth are located in the Sunbelt.

- Only ten districts gained white students during the period under study. The largest districts show the greatest losses of white students: of the nine districts with at least 100,000 white students in the first observed year, all but one lost over half of their whites by the last observed year.

- In examining integration levels, we find that districts that were initially highly segregated show the greatest improvements over time. Districts showing the largest reductions in segregation levels tend to be located in the South.

Section 6 combines both components of the data base to summarize relationships between plan design and changes in enrollment and integration levels. We identify each district's major plan and classify it according to the techniques used, the time of implementation (before or after the landmark Swann decision) and the scope (full or partial). Districts are classified by metropolitan character (small, medium and large urban, suburban, rural, or countywide), and region (South or nonsouth).

- The implementation of desegregation plans is usually associated with sharp reductions in segregation indices and white enrollment. The most pronounced changes occurred during the year of implementation, but there is evidence of a continuing effect in enrollment losses.

- The finding that white enrollment losses increased in the years surrounding implementation is not peculiar to the most stringent mandatory programs. In every stratification, there is evidence that desegregation coincided with reduced white enrollment. We find the largest losses among programs using pairing and clustering and the smallest losses among voluntary programs. Rezoning is intermediate, but responses are closer to voluntary programs than to pairing and clustering. We also find that the mixed plans that combined pairing and clustering with other techniques--either rezoning or magnets--are similar to those using pairing and clustering alone.

- Plans that used pairing and clustering--particularly in combination with rezoning--had larger desegregative effects than other plan types. Southern districts experienced greater reductions in segregation levels than did nonsouthern districts.

- Countywide districts experienced much less enrollment loss than did other types of districts, presumably because they are concentrated in the Sunbelt and because they encompass cities and suburbs alike. Desegregation plans implemented in countywide districts led to dramatic reductions in segregation levels. Not surprisingly, large urban districts are at the other extreme, with large losses in white enrollment and relatively small improvements in segregation levels.

- When we isolate plans that are of full scope--meaning they have the greatest effect on segregation levels--we do not find greater losses in white enrollment than are found for the sample as a whole. Among full plans, there is a dramatic distinction between those implemented before the Swann decision and those implemented after: holding plan type constant, post-Swann plans show much larger losses in white enrollment.

Section 2

ARE SCHOOLS DESEGREGATING?

Many factors determine whether white and minority students attend school together. An important factor is the racial composition of the school district, which depends on the way populations are distributed across regions of the country and within metropolitan areas. Another factor is the number of students within a particular area attending public schools. The availability of private schools varies, and the propensity to attend private schools varies across races. Given the total enrollment of a public school district, remaining factors include residential patterns and desegregation programs which determine the mix of students within schools and within classrooms.

The effect of specific types of desegregation programs on interracial contact within districts is discussed in a later section. In this section, we consider integration at the national level. By examining trends in residential location and public school enrollment, we can assess how the potential for interracial contact has changed within three types of geographic regions: central cities, suburbs, and rural areas.

Attempts to desegregate the nation's schools came at a time when large cities were becoming increasing racially isolated. Between 1968 and 1980, school districts in the central cities of major metropolitan areas became overwhelmingly nonwhite, while suburban areas remained predominantly white (despite

gaining minority students).[7] Whites accounted for 73.3 percent of all public elementary and secondary school students in 1980. In a sample of 45 large, urban school districts,[8] however, only one (Portland, Oregon) has a proportion of whites as large as for the nation as a whole. Whites are in the minority in 28 of the 45 districts; in eight districts, fewer than one student in five is white. By combining all noncentral districts within each urban area into a single pseudo-district, we find that at least 80 percent of all students are white in 28 of the 45 suburban composites. All 45 suburbs have a larger fraction of whites than the corresponding central city district.

Table 1 provides regional summaries of the phenomenon just described, and Table A1 (see Appendix A) lists the individual metropolitan areas. The enrollment data used in these tabulations identify students as black, Hispanic, white, Asian, or Native American, so Asians and Native American students constitute the groups omitted in Table 1.[9]

Table 1 reveals that the urban/suburban racial dichotomy applies to every region. In 1980, whites account for roughly two-thirds of public school enrollment in the South and West and about 80 percent in the remainder of the country. Yet whites represent less than 40 percent of the central cities' enrollment in every region. In the suburban pseudo-districts, every region ex-

[7] As noted in the Introduction, Hispanics are counted as minorities rather than as whites.

[8] See the note following Table 1 for an explanation of this sample. The years 1968 and 1980 are compared because 1968 is the earliest year for which OCR data are available in machine readable form. Data are available for 1982, but they refer to a smaller, and possibly less representative, sample than do the 1980 data.

[9] They account for 0.8 percent of national enrollment in 1968 and for 1.6 percent in 1980. In the western states, they represent 2.9 percent of enrollment in 1968 and 7.8 percent in 1980.

TABLE 1

Racial Composition of Public Elementary and Secondary Schools
by Central City and Suburban Status, 1968 and 1980

(45 Large, Urban School Districts)

	Central City Districts		Suburban Districts	
	1968	1980	1968	1980
Percentage of Students Who Are White				
Northeast	44.0	28.1	92.5	86.5
North Central	51.1	31.8	95.5	90.9
Southern	49.1	30.4	85.0	77.4
Western	62.9	38.0	85.2	71.1
Percentage of Students Who Are Black				
Northeast	38.6	44.8	6.5	9.5
North Central	45.4	58.5	3.6	6.2
Southern	44.7	57.0	10.8	14.2
Western	17.9	20.7	3.4	6.0
Percentage of Students Who Are Hispanic				
Northeast	16.2	23.9	0.8	2.4
North Central	3.2	7.9	0.6	1.3
Southern	5.8	11.0	3.7	5.9
Western	15.1	31.4	9.7	16.8

Note: The data for the individual metropolitan areas are listed in Appendix Table A1, which also shows the areas comprising each region. Enrollment data are from surveys conducted by the Office of Civil Rights (OCR). The surveys report enrollments (by individual schools) for a large sample of districts, and distinguish five racial groups (white, black, Hispanic, Asian, and Native American). The OCR surveys have been used for every large-scale quantitative study of school integration. The regional and national totals are taken from the intersection of merged 1968 and 1980 OCR files using 1980 sampling weights. The urban/suburban/nonmetropolitan divisions are more complex. The 1980 U.S. Census School District File (STF 3F) was used to identify the metropolitan status of school districts in SMSAs. This resulted in the exclusion of New England districts because they do not carry MSA flags. All nonmetropolitan districts in a region were retained as a group. Most metropolitan districts in the largest MSAs were retained. Exceptions include Rochester, New York because the merged OCR files do not have the central city school district. Long Island, New York was excluded because we could not identify a central city (other than New York, which appears in a separate SMSA). We also excluded all SMSAs whose central city district is a county unit (e.g., the Florida districts).

cept the West (where 71 percent of the students are white) has a white majority of at least three in every four students.

Table 1 also highlights the change in racial composition between 1968 and 1980. In every region, the proportion of white students has declined in central city and suburban districts.[10] During the same period, the proportions of black and Hispanic students increased in every type of district. The most dramatic increases have been among Hispanic students. In several types of districts--northeastern suburbs, North Central central cities and suburbs, and western central cities--the fraction of students who are Hispanic increased two- to three-fold.

To fully understand changes in urban/suburban racial composition, we must examine changes in the underlying population distributions. Total enrollment by race for the sample of 45 large, urban districts is shown in the last row of Table 2. The number of white students fell 21.5 percent between 1968 and 1980, while the number of blacks decreased 4.0 percent and the number of Hispanics increased 50.4 percent.[11]

Table 2 shows shifts in the distribution of each racial group. At the same time that white enrollment declined from 21.9 to 17.2 million, the white population was shifting. A larger proportion of whites lived in the South in 1980 than in 1968 and, in every region, a smaller proportion lived in central cit-

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[10] The proportion of white students has also declined in nonmetropolitan areas in every region except the South, where it has remained roughly constant.

[11] Nationwide, the number of white students fell 18 percent and the number of minority students increased by 19 percent (the number of blacks increased very slightly, so this reflects growth in the Hispanic population). By focusing on large urban areas, therefore, the decrease in white students and the growth among Hispanics is overstated relative to the national trend.

TABLE 2

Distribution of Public Elementary and Secondary Students by Race and Metropolitan Status, 1968 and 1980

(45 Large, Urban School Districts)

	WHITE		BLACK		HISPANIC	
	1968	1980	1968	1980	1968	1980
FRACTION LIVING IN						
Northeast						
Central City	3.2	2.2	13.2	13.2	19.3	15.6
Suburb	7.6	7.5	2.5	3.2	1.1	1.8
Nonmetropolitan	11.0	11.4	2.4	2.8	1.9	3.3
Subtotal	21.8	21.1	18.1	19.2	22.3	20.7
North Central						
Central City	5.3	2.6	21.9	18.2	5.4	5.5
Suburb	15.9	16.1	2.8	4.2	1.7	2.0
Nonmetropolitan	13.5	14.3	2.0	1.9	1.6	1.5
Subtotal	34.7	33.0	26.7	24.3	8.7	9.0
South						
Central City	3.9	2.3	16.5	16.4	7.4	7.0
Suburb	7.6	10.2	4.5	7.1	5.4	6.6
Nonmetropolitan	13.7	16.6	26.0	23.7	8.1	8.1
Subtotal	25.2	29.1	47.0	47.2	20.9	21.7
West						
Central City	4.5	2.7	6.0	5.6	17.7	18.8
Suburb	10.7	10.4	2.0	3.4	19.6	20.8
Nonmetropolitan	3.1	3.7	0.3	0.3	10.8	9.1
Subtotal	18.3	16.8	8.3	9.3	48.1	48.7
Nationwide						
Central City	16.9	9.7	57.5	53.4	49.8	46.9
Suburb	41.8	44.2	11.8	17.9	27.8	31.1
Nonmetropolitan	41.3	46.1	30.7	28.7	22.4	22.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
TOTAL STUDENTS (in millions)	21.9	17.2	4.70	4.51	1.35	2.03

Source: 1968 and 1980 OCR Surveys.

ies and a larger proportion lived in nonmetropolitan areas. The fraction of whites residing in suburbs increased nationally despite decreasing in the Northeast and West. Because the figures shown for 1980 represent fractions of a much smaller total, however, there were fewer whites living in suburbs, central cities, and nonmetropolitan areas. The only area where the number of whites increased is the southern suburbs, where there were 5.3 percent more whites in 1980 than in 1968.

Larger fractions of the black population resided in the Northeast, the South and, especially, the West in 1980 than in 1968. The fraction residing in central cities decreased (or stayed the same) and the fraction residing in suburbs increased for all regions; in the suburbs, the number of black students increased as well. The fraction of blacks living in nonmetropolitan areas decreased nationally, although the decline is specific to the North Central and Southern regions. In the other two regions, the number of blacks actually increased.

Among Hispanics, there was less of a redistribution across regions of the country than for the other groups. Because the number of Hispanics grew so dramatically between 1968 and 1980, every type of district in every region gained Hispanic students. Larger fractions of the Hispanic population resided in suburbs in 1980 than in 1968, while smaller fractions resided in nonmetropolitan areas in every region except the Northeast. Nationally, a smaller fraction of Hispanics lived in central cities, but the decreases were confined to the North Central and Southern regions.

The numbers in Table 2 explain what is behind the patterns revealed by Table 1. The central cities witnessed a 55 percent fall in the number of white

students alongside an 11 percent decrease in blacks and a 42 percent increase in Hispanics. These numbers add to a decrease in the total number of central city students and a decrease in the fraction that is white. In the suburban districts, the number of white students fell by 17 percent, while the number of blacks rose by 45 percent and the number of Hispanics rose by almost 69 percent. This led to a slight decrease in the number of suburban students and a decrease in the fraction that is white.

We have described regional enrollment patterns that affect potential contact between white, Hispanic, and black students. Before examining integration levels, we look at another important factor: enrollment in private schools.

TABLE 3

Percentage of U.S. Students Enrolled in Private and Parochial Schools by Race, 1960, 1970 and 1980

Student Group	1960	1970	1980
Whites	16.2	13.1	11.4
Blacks	3.1	3.5	5.4
Hispanics	9.9	9.3	9.5
All	14.3	11.5	10.3

Source: Public use files, 1960, 1970, and 1980 U.S. Censuses.

Tables 3 and 4 summarize private school enrollment data from the 1960, 1970, and 1980 U.S. Censuses. The trend may be surprising. The percentage of white students enrolled in private and parochial schools fell between 1960 and 1970 and fell again between 1970 and 1980. Table 4 distinguishes between central cities, suburban areas and nonmetropolitan areas. Private school enroll-

TABLE 4

Percentage of White Students Enrolled in Private and Parochial Schools by Region and Metropolitan Status, 1960, 1970, and 1980

Region	Percent Not in Public Schools 1960	1970	1980
Northeast	23.1	19.6	15.4
North Central	20.1	15.0	12.1
South	7.0	6.6	9.8
West	9.7	8.1	8.2
Central Cities			
Northeast	35.7	37.7	26.7
North Central	30.8	25.9	18.8
South	14.1	10.9	14.1
West	15.2	12.6	11.1
Metro Ring			
Northeast	20.0	16.5	14.2
North Central	20.0	14.7	12.8
South	9.9	8.5	10.4
West	9.3	7.5	8.5
Nonmetropolitan			
Northeast	12.5	8.7	6.5
North Central	11.8	8.2	6.3
South	2.7	3.4	5.9
West	5.1	4.5	3.2

Source: Public use files, 1960, 1970, and 1980 U.S. Censuses.

ment is more common in urban areas than in suburbs and is the least prevalent in nonmetropolitan areas. There is also interregional variation: whites living in the Northeast are the most likely to attend private schools and those living in the West are the least likely to do so. While the data reveal interregional differences, they fail to reveal an intertemporal pattern that is consistent with Table 1.

There is no evidence of growth in private and parochial school enrollment either nationally or regionally, except for in the South between 1970 and 1980. We have not examined individual districts, although data are available for 1970 and 1980. Thus, we cannot determine whether movement to private schools has played a major role in specific school districts.

The success of desegregation efforts depends in part on the availability of a multiracial population. The preceding discussion has revealed that school districts located in major metropolitan areas are likely to have extreme racial compositions. As minority students moved into the suburbs during the 1970s, however, the opportunity for interracial contact increased. We also find that, nationally, white students are increasingly likely to attend public schools. The nationwide decrease in the fraction of public school students who are white reflects declining birthrates.

TABLE 5

Public School Enrollment by Proportion of Classmates Who Are White: U.S. Total, 1968 and 1980

Schools	Distribution of Enrollment (Percentage)					
Percent of Classmates Who Are White	Blacks		Hispanics		Whites	
	1968	1980	1968	1980	1968	1980
0-5	61.6	29.5	17.7	20.9	0.0	0.1
6-25	7.8	13.8	18.5	24.1	0.4	1.1
26-75	16.7	43.8	39.9	41.8	7.5	19.3
76-95	12.0	11.7	19.8	11.4	28.3	35.5
96-100	1.9	1.2	4.1	1.8	63.8	44.0
All Schools	100.0	100.0	100.0	100.0	100.0	100.0

Source: 1968 and 1980 OCR Surveys.

To this point, we have concentrated on residential enrollment patterns that affect the potential for school desegregation. We now ask the question, "Are schools desegregating?" Table 5 summarizes national integration levels in 1968 and 1980. To construct the table, schools were categorized by the fraction of students who are white. The table reports the proportion of students in each racial group--black, Hispanic, and white--who attended a school in each category. For example, the number in the upper left corner of Table 5 shows that, in 1968, 61.6 percent of black students (nationwide) were enrolled in schools where at most five percent of their classmates were white. These were essentially fully segregated schools. The next number shows that the fraction of black students attending such schools fell to 29.5 percent by 1980. The middle row refers to schools where between one-fourth and three-fourths of the students are white. Between 1968 and 1980, the fraction of black students enrolled in such schools increased from 16.7 to 43.8 percent.

It is clear from Table 5 that black/white interracial contact increased sharply between 1968 and 1980. What little change Hispanic students saw was toward less exposure to white classmates. The proportion of Hispanic students in schools where six to 25 percent of the students are white grew from 18.5 to 24.1 percent between 1968 and 1980. The fraction of Hispanic students in schools where 76 to 95 percent of all students are white fell from 19.8 to 11.4 percent during the same period.[12]

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[12] We have not examined causes for the growing isolation of Hispanic students. Immigration into areas of Hispanic concentration has undoubtedly played a role.

TABLE 6

Public School Enrollment by Proportion of Classmates Who Are Black: U.S. Total, 1968 and 1980

Schools	Distribution of Enrollment (Percentage)					
Percent of Classmates Who Are Black	Blacks		Hispanics		Whites	
	1968	1980	1968	1980	1968	1980
0-5	3.6	3.9	64.5	59.1	79.8	68.7
6-25	13.8	17.4	19.8	25.9	16.6	20.5
26-75	17.6	44.0	14.1	13.6	3.4	10.4
76-95	9.3	14.2	1.3	1.3	0.2	0.4
96-100	55.7	20.5	0.3	0.1	0.0	0.0
All Schools	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 7

Public School Enrollment by Proportion of Classmates Who Are Hispanic: U.S. Total, 1968 and 1980

Schools	Distribution of Enrollment (Percentage)					
Percent of Classmates Who Are Hispanic	Blacks		Hispanics		Whites	
	1968	1980	1968	1980	1968	1980
0-5	88.1	78.3	10.5	7.9	89.0	84.4
6-25	7.7	14.3	26.0	20.6	8.7	11.5
26-75	4.0	7.0	43.3	45.2	2.2	3.9
76-95	0.2	0.4	13.8	18.8	0.1	0.2
96-100	0.0	0.0	6.4	7.5	0.0	0.0
All Schools	100.0	100.0	100.0	100.0	100.0	100.0

Tables 6 and 7 are similar to Table 5. In Table 6, schools are categorized

by the fraction of students who are black and in Table 7 the categories refer to the fraction of Hispanics. Table 6 underscores the point made by Table 5. In 1968, 55.7 percent of black students attended schools where more than 95 percent of their classmates were black. This number dropped to 20.5 percent by 1980.

Table 7 shows that blacks were more likely to attend schools with higher proportions of Hispanics in 1980 than in 1968. This is partly due to the fact that, nationwide, the proportion of public school students reported as Hispanic almost doubled during that period.

Tables 8, 9, 10 and 11 report integration patterns by region. In all of these tables, schools are categorized by the fraction of students who are white. In the Northeast, blacks' exposure to whites changed very little and, in fact, the proportion attending segregated schools increased. The other regions--particularly the South--show pronounced changes. We can rank the regions by the fraction attending schools that are zero to five percent white (a measure of how segregated the school is) and by the fraction attending schools that are 26 to 75 percent white (a measure of integration). For black students, this yields a unique regional ranking in each year. In 1968, the Northeast region is the least segregated (for blacks and whites), followed by the West, the North Central region and the South. In 1980, the ranking changes: the Northeast becomes the most segregated region and the South becomes the least segregated.

There are no unique regional rankings for Hispanics. The Northeast region ranks as the least integrated in both years, and the South is less integrated than the West in both years. The North Central region has a smaller fraction

of Hispanics in segregated schools, but also has a smaller fraction in the intermediate (26-75 percent white) category than either the South or the West.

TABLE 8

Public School Enrollment by Proportion of Classmates Who Are White: Northeast Region, 1968 and 1980

Schools	Distribution of Enrollment (Percentage)					
Percent of Classmates Who Are White	Blacks		Hispanics		Whites	
	1968	1980	1968	1980	1968	1980
0-5	35.9	45.3	32.7	37.7	0.1	0.1
6-25	16.8	13.3	24.9	23.9	0.5	0.8
26-75	28.6	29.5	28.7	27.8	6.5	9.4
76-95	15.3	9.3	9.9	7.9	19.7	25.2
96-100	3.4	2.6	3.8	2.7	73.2	64.5
All Schools	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 9

Public School Enrollment by Proportion of Classmates Who Are White: North Central Region, 1968 and 1980

Schools	Distribution of Enrollment (Percentage)					
Percent of Classmates Who Are White	Blacks		Hispanics		Whites	
	1968	1980	1968	1980	1968	1980
0-5	56.0	40.0	3.1	11.6	0.1	0.1
6-25	11.4	14.0	13.2	20.4	0.3	0.5
26-75	19.6	32.6	30.5	32.2	3.5	7.9
76-95	10.7	11.4	32.7	24.7	15.2	25.7
96-100	2.3	2.0	20.5	11.1	80.9	65.8
All Schools	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 10

Public School Enrollment by Proportion of Classmates Who Are White: South Region, 1968 and 1980

Schools	Distribution of Enrollment (Percentage)					
Percent of Classmates Who Are White	Blacks		Hispanics		Whites	
	1968	1980	1968	1980	1968	1980
0-5	73.6	20.9	26.5	25.2	0.1	0.2
6-25	2.7	13.7	22.4	26.1	0.4	1.5
26-75	10.7	52.2	36.0	40.3	8.7	32.7
76-95	11.7	12.6	12.8	7.8	39.9	41.7
96-100	1.3	0.6	2.3	0.6	50.9	23.9
All Schools	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 11

Public School Enrollment by Proportion of Classmates Who Are White: West Region, 1968 and 1980

Schools	Distribution of Enrollment (Percentage)					
Percent of Classmates Who Are White	Blacks		Hispanics		Whites	
	1968	1980	1968	1980	1968	1980
0-5	44.8	29.7	8.8	13.2	0.1	0.2
6-25	16.2	14.8	14.4	23.2	0.7	2.0
26-75	27.3	43.5	48.4	49.6	15.0	26.2
76-95	10.6	11.5	25.9	13.2	47.1	53.1
96-100	1.1	0.5	2.5	0.8	37.1	18.5
All Schools	100.0	100.0	100.0	100.0	100.0	100.0

Section 3

TECHNIQUES USED FOR SCHOOL DESEGREGATION

Desegregation plans implemented during the last 25 years have employed techniques ranging from voluntary transfer programs to mandatory reassignment. The design of a plan is dictated by both the law and the specific needs of the district. One district-specific factor to consider in planning a desegregation strategy is the extent of segregation. Coping with isolated pockets of segregation is rarely a trivial task, but the plan is less likely to require multiple techniques than one directed at a dual (or otherwise highly segregated) school system. Techniques used for systemwide desegregation are equally appropriate for a plan that is smaller in scope, but the converse is not necessarily true.

Districts vary not only in the magnitude of the problem, but also in the cost of the solution. The racial composition of a district and the degree of residential segregation are important measures of the costs of desegregation. Clearly, it is easier to desegregate schools in racially mixed neighborhoods than schools that are isolated from students of a given race. The racial mix of students is important because it determines the magnitude and direction of the reassignment burden. For example, a fully segregated district with equal numbers of white and black students can be fully integrated only if half of the black students are reassigned to previously white schools while half of the white students are reassigned to previously black schools. On the other hand, a fully segregated district where three of every four students are black

can be fully integrated by reassigning one-fourth of the black students and three-fourths of the white students. If the district consists of three whites for each black, then integration requires that three-fourths of the blacks and one-fourth of the whites be reassigned. In these last two examples, three-eighths of all students are reassigned, but the impact is greatest on the group with the smallest number of students. In the first example of racial balance, the reassignment burden is shared equally but the fraction of all students who are reassigned is greater. The general rule is that greater (districtwide) racial imbalance leads to smaller aggregate reassignments, but a proportionately larger number of the least populous group must be reassigned.

Additional constraints on a district's ability to desegregate might be imposed by its geographic scope and its metropolitan character. Whether a district is in a major urban center, a small city, a suburb, or a rural area implies much about its racial composition and degree of racial isolation. These environments also differ in their racial stability; as Section 2 shows, the demographic trends in central cities are distinct from those in suburban areas. In addition to the impact of long term trends, the racial composition and geographic area can change with consolidation or annexation. These events occur infrequently, however.[13]

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[13] Since consolidation and annexation are sometimes ordered by the courts, they could be viewed as desegregation techniques rather than as factors affecting the character of the district. The latter characterization is chosen because they are rarely used and cannot achieve desegregation in the absence of other techniques.

Unlike many rural and small town school systems, districts located in major urban areas are rarely the sole provider of public education to the community. This fact may influence the design of a desegregation plan. While districts that span an entire county are not "competing" with other school districts, they may cover a larger geographic area and face higher transportation costs when reassigning students. Other characteristics of the district affecting its ability to reassign students include the presence of natural barriers and the location and capacity of schools. The last factor is particularly relevant because school openings and closings frequently accompany the implementation of desegregation plans.

Another factor contributing to both the timing and nature of desegregation plans is the amount of community resistance. Court records contain many examples of prolonged litigation caused by school board and community opposition. This may delay the implementation of an entire plan, or it may simply postpone specific components of a plan. Even if the community is largely supportive of desegregation efforts, isolated groups may become disgruntled, particularly if they bear a disproportionate burden. Examples exist where resistance tempered the nature of the plan: magnets have been developed as alternatives for students who have been reassigned, decisions to close schools or alter attendance zones have been rescinded, and mandatory reassignment plans have granted exemptions to lower elementary school students (typically, grades K-2) and graduating high school seniors.[14]

[14] See Gordon Foster, "Desegregating Urban Schools: A Review of Techniques," Harvard Educational Review, Vol. 43, February 1973, for a view of magnet schools as "escape routes". A report by the Lansing School District, Report of the Citizens' Advisory Committee on Educational Opportunity, 1972, contains evidence that K-2 exemptions arose from a widespread desire to maintain neighborhood schools. The (unsuccessful) efforts of a group of parents to prevent their children from being reassigned are described in

Legal precedent also influences the nature of desegregation plans. The goals of desegregation efforts have changed over the years as one landmark decision after another has been handed down by the courts. A plan sanctioned by the court may later be deemed unacceptable, leading to the implementation of a new plan. There are many examples of districts implementing multiple plans and using different techniques each time.

The Unicon/SDC sample of 125 districts documents almost 300 desegregation plans that were implemented between 1961 and 1985. The degree of heterogeneity within these districts is immediately apparent. They are located in every region of the country and range in size from Las Cruces, New Mexico, with barely over 15,000 students attending 23 schools in 1968, to New York City, with more than one million students in 853 schools. The sample includes districts in urban areas of all sizes, suburbs (e.g., Arlington County, Virginia) and rural areas (e.g., Jefferson Parish, Louisiana, and Raleigh County, West Virginia). It contains 34 countywide districts with central cities (the 11 Florida districts fit this description, plus Clark County, Nevada and others) and a small number of consolidated districts (New Castle County, Delaware and Jefferson County, Kentucky).

The districts also vary in their racial compositions and levels of segregation. Initial plans were implemented in Mobile, Alabama and Mecklenburg County, North Carolina, and in a number of other southern districts in the face of total racial segregation. At the other extreme, Santa Clara, California had a

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the unreported opinion Stout v. Jefferson County Board of Education (Alabama), 1971. In Nashville (see Kelley v. Metropolitan County Board of Education of Nashville and Davidson County, 511 F.Supp. 1363 (1981)), a court-ordered busing plan was modified to exclude lower grades.

relatively even racial distribution prior to its 1979 desegregation plan.[15] When the 1965 plan was designed for Harford County, Maryland, the district was 92 percent white. Compton, California, on the other hand, became over 99 percent black in the 1980s, while Buffalo, New York had a virtual 50-50 split between white and minority students prior to its 1977 plan.

It is not surprising to find a large number of different desegregation strategies in a sample with this much variation. Despite the diversity, the techniques almost always fit into one of six categories. The rest of this section describes the standard techniques and provides examples. The evolution of court-sanctioned techniques is then outlined to clarify the relationship between plan design and legal precedent.

3.1 SIX STANDARD TECHNIQUES: DEFINITIONS AND EXAMPLES

The components of a desegregation plan can be classified as voluntary or involuntary. This distinction refers to whether students are permitted to choose the school they will attend; it is unrelated to the issue of whether the plan itself was court-ordered or voluntarily entered into by the school district. We identify three voluntary desegregation techniques: freedom of choice, magnet programs, and transfer programs. Involuntary techniques include neighborhood attendance zones, rezoning, and pairing and clustering. Definitions and examples of each of these techniques follow.

- Freedom of choice (also called open enrollment) allows students to transfer to the school of their choice. Students cannot be denied their choice unless the school's capacity has been exceeded; proximity to the

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[15] The dissimilarity index measured 0.20 in 1978. See Section 5 for an explanation of this index.

school is the standard criterion used to assign students in such cases.[16] It is not necessary, however, that the transfer improve the level of integration. While transfers are typically available to every student, exceptions exist. In Houston's 1967 plan, for example, transfers were restricted to students in grades 9 through 12.[17] Freedom of choice plans may also be mandatory--that is, students are required to select a school. The 1967 plans in Polk County, Florida and in Orange County, Florida had this feature.[18]

- Magnets include a broad array of educational programs that are either the focus of an entire school (dedicated magnets) or offered as part of a standard curriculum (mini-magnets or part-schools). At the elementary level, magnets typically offer a special learning environment, such as "open education", accelerated learning, or an emphasis on fundamental skills. Secondary school magnets may offer a particular curriculum, such as vocational skills, math and science, languages, or performing arts.

Closely related to magnets are part-time magnets, where students participate in programs for part of the day, and special programs that are not associated with a particular school. In San Diego, for example, fifth grade students participate in a week of cultural activities at a city park and sixth grade students have the opportunity to spend a week

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[16] The mechanics of freedom of choice plans are described in the corrected decree, Davis v. East Baton Rouge School Board (Louisiana), 1967.

[17] See "Chronology of Events Relating to Civil Action 10444," p. 2, released by the Houston Independent School District.

[18] This is documented in Cynthia McGrath, "Race and Education in Orange County, Florida: The Process of Desegregation," Florida Technological University (unpublished), and United States v. Board of Public Instruction of Polk County, Florida, 395 F.2d 66 (5th Cir. 1968).

at camp.[19]

A magnet is called "citywide" if enrollment is offered to every eligible student in the district (on a space available basis and, typically, with racial guidelines). "Neighborhood preference" magnets give enrollment priority to a particular racial group. When an existing school is converted to a dedicated magnet, its former students may be given enrollment priority (Pittsburgh's 1980 plan included this provision). In Rapides Parish, Louisiana, students attending a particular high school were required to remain in attendance even after its conversion to a magnet; voluntary assignment was then phased in during the three years required for the last of these students to graduate.[20] In Milwaukee and Seattle, schools were grouped into "zones" or "leagues"; priority for attending magnet schools was given to students within the school's zone.[21]

- Other voluntary transfers include the commonly used majority-to-minority (m-to-m) transfers. These programs permit any student to transfer from a school where he or she is in the majority to a school where he or she is in the minority. Some m-to-m plans permit the student to transfer to a school where he or she is less in the majority, as long as the transfer improves the level of integration in the district. In a district that is 80 percent white, for example, a white student may be permitted to trans-

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[19] The district's extensive magnet program is described in reports prepared by the Board of Education, San Diego Unified School District; e.g., "San Diego Plan for Racial Integration, 1979-1982 (Revised)."

[20] This is described in the unreported consent order, Valley v. Rapides Parish School Board (Louisiana), 1975.

[21] See "Comprehensive Plan for Increasing Educational Opportunities and Improving Racial Balance in the Milwaukee Public Schools," prepared by the Office of Superintendent of Schools, Milwaukee Public Schools, 1976.

fer from a school that is 90 percent white to one that is 70 percent white. A variation of this technique involves specifying the schools to which students may transfer. In Richmond, California, clusters were formed (ranging in size from 4 to 13 schools) and students were granted m-to-m transfers within their clusters;[22] a similar strategy was used in Buffalo.

A closely related desegregation technique is one-way transfers. These programs permit minority students attending predominantly minority schools to transfer to designated receiver schools. The one-way transfers may take place within the district (e.g., in Richmond and Buffalo), or students may attend schools in a suburban district; Rochester, Hartford, and St. Louis all had such plans.[23] Houston implemented an interdistrict transfer program between its schools and a number of suburban districts. Not only was the program two-way, but it granted transfers to students of all races.[24]

- Neighborhood attendance zones is a mandatory technique that assigns students to schools in their neighborhoods. This strategy was primarily used to end the dual system practice of sending students to distant

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[22] See "The Richmond Integration Plan," a report prepared by the Richmond Unified School District.

[23] These plans are described in "Urban-Suburban Transfer Program, Final Evaluation Report 1972-73" by the City School District of Rochester, New York, Carolyn Ralston and Ann Lewis, "Special Field Reports on School Desegregation Projects: Hartford, Forrest City, Bernalillo, Dade County," The National Center for Research and Information on Equal Educational Opportunity, Teachers College, Columbia University, May, 1971, and in Liddell v. Board of Education of the City of St. Louis, 508 F.Supp. 101 (E.D. Miss. 1980).

[24] See "Voluntary Interdistrict Education Plan," prepared by the Houston Independent School District, 1980.

schools because closer schools were not designated for their race. Whether this technique improves the level of integration depends, of course, on the racial composition of the neighborhood. Some districts--Little Rock, Denver, and Norfolk, Virginia, for example-- reverted to neighborhood attendance zones (for those schools in racially balanced areas) after having used other mandatory techniques.[25]

- Rezoning refers to any change in attendance zones except when pairing and clustering are involved. It may be necessitated by the closing of a school or by the formation of a magnet since, in both situations, the school's former students must be assigned elsewhere. Similarly, the opening of a school requires that portions of other schools' attendance zones be shifted to the new school. In the absence of these events or in conjunction with them, a district may simply reassign students to improve integration. Rezoning plans vary tremendously in their scope: they may affect as few as two schools, or they may alter the attendance zone of every school in the district.

Rezoning can be done in a variety of ways. Contiguous rezoning alters the attendance boundaries between adjacent schools. Noncontiguous rezoning reassigns students to a school that does not share a boundary with their current school. Schools with an inadequate racial balance are often designated as "satellite receivers" and are assigned students from other parts of the district. Noncontiguous rezoning entails greater transportation costs than does contiguous zoning, and invariably involves

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[25] See Clark v. Board of Education of the Little Rock School District, 705 F.2d 265 (8th Cir., 1982); Keyes v. School District No. 1, Denver, Colorado, 504 F.Supp. 399 (Denver 1982); Riddick (Beckett) v. School Board of the City of Norfolk, 784 F.2d 521 (4th Cir. 1986).

busing. Mecklenburg County, North Carolina was the first district to implement such a rezoning scheme and many others followed after the landmark Swann decision was handed down.[26] Some districts assign students to secondary schools on the basis of the school they attended for lower grades. Thus, junior and senior high schools are often rezoned by altering the feeder patterns rather than by changing geographic attendance zones. Dallas presents an example of this technique; the district also desegregated its upper elementary (grades 4-6) schools by altering the feeder patterns from the grade K-3 schools.[27]

In designating students for reassignment, districts may use criteria other than geographic locale or feeder patterns. In Wichita, Kansas, students at three predominantly black schools were reassigned to schools throughout the district, and white students were sent to the three schools. Volunteers for reassignment were first solicited, and then a lottery was used. Siblings of students selected by the lottery were given the option of transfering to the same school.[28] Some districts--Boston and Detroit, for example--were divided into "sub-districts", and rezoning was done within these smaller units.

- Pairing and clustering involves reassigning students between a pair or a group of schools, usually via grade restructuring. The schools grouped together may have either contiguous or noncontiguous attendance zones.

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[26] Swann v. Charlotte-Mecklenburg Board of Education (North Carolina), 402 U.S. 1 (1971).

[27] This is described in the unreported order Tasby v. Wright (Dallas Independent School District), 1982.

[28] The plan is detailed in Linker v. Unified School District #259, Wichita, Kansas 344 F.Supp. 1187 (1972).

For example, a (predominantly) white school and a (predominantly) black school, both offering grades K-6, could be paired by converting one into a lower elementary school (grades 1-3) and the other into an upper elementary school (grades 4-6); kindergarten students would be unaffected by the plan. This is a common grade restructuring scheme that was used in Little Rock[29] and elsewhere. In an earlier plan, Little Rock reorganized grades as K-5, 6-7, 8-9 and 10-12. Another Little Rock plan paired fourth and fifth grade students in schools on opposite sides of the city; this resulted in some schools offering grades K-4 and 6, and others offering grades K-3 and 5-6.[30] Pairing and clustering plans frequently produce single grade centers. In Fresno, California, for example, three freshman schools (grade 9) were formed. Los Angeles established a number of three-school clusters, with each school in the cluster offering grade 4, 5, or 6; other schools were paired, with one school becoming a fourth grade center and the other specializing in fifth grade.[31]

Most pairing and clustering plans rely on grade restructuring, but students can be exchanged on the basis of other criteria. In Jefferson County, Kentucky, all first grade students attended their neighborhood schools for the fall quarter, and then entire classes were exchanged during the winter and spring quarters. Students in grades 2-12 were random-

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29 See Clark v. Board of Education of the Little Rock School District, 705 F.2d 265 (8th Cir., 1982).

30 The 5-2-2-3 scheme is detailed in Clark v. Board of Education of the Little Rock School District, 328 F.Supp. 1205 (1971). The second pairing scheme is reported in Clark v. Board of Education of the Little Rock School District, 465 F.2d 1044 (1972).

31 See "School Desegregation in Fresno, California," prepared by the Fresno Unified School District, 1978 and the unreported opinion Crawford v. Board of Education of the City of Los Angeles, 1978.

ly grouped by race and grade. Each group was then told for how many years it would be reassigned (one or two for white groups and eight or nine for minorities), and the grades in which reassignment would occur. Since clusters consisted of one minority school and several white schools, minority students were also told which school they would attend.[32]

3.2 LANDMARK COURT CASES: THE EVOLUTION OF DESEGREGATION TECHNIQUES

School districts have many options to choose from in designing a plan that meets their specific needs. However, the plan must also be acceptable to the court. The ensuing discussion of landmark court cases indicates how the court's definition of "acceptable" has evolved. It is not intended to be a comprehensive history of school desegregation, but merely a demonstration that legal precedent is a constraint imposed upon the design of a desegregation plan.

Desegregation efforts began with the Topeka, Kansas case Brown v. Board of Education, 347 U.S. 483 (1954) which outlawed de jure segregation. For the most part, early plans appeared in the South and consisted of freedom of choice; this satisfied the imperative to dismantle the dual school systems.

Green v. Board of Education of New Kent County, Virginia, 391 U.S. 430 (1968) ended the use of freedom of choice. This decision noted that such plans had virtually no impact on the level of segregation, and decreed that alternative methods be used. For a short period, the choice of technique re-

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[32] See Newburg Area Council, Inc. v. Board of Education of Jefferson County, 521 F.2d 578 (6th Cir. 1975).

quired to achieve desegregation was debated. Swann v. Charlotte-Mecklenburg (North Carolina) Board of Education, 402 U.S. 1 (1971) dramatically altered the nature of desegregation plans. This decision stated that racially identifiable schools must cease to exist, and it sanctioned the use of districtwide busing. In the early 1970s, districts throughout the South implemented large-scale, involuntary plans.

The first major decision outside the South was Keyes v. School District No. 1, Denver, Colorado, 413 U.S. 189 (1973) which stated that official action leading to de facto segregation must be viewed in the same manner as de jure segregation. This decision was also noteworthy because it extended the remedy to Hispanics.

In Milliken v. Bradley, 418 U.S. 717 (1974) the Detroit school system was denied an interdistrict remedy, but the court detailed the conditions under which such a plan would be acceptable. The inclusion of a suburban district in a metropolitan remedy required proof that it had engaged in segregative practices and that those actions had an interdistrict effect. Newburg Area Council, Inc. v. Board of Education of Jefferson County, 521 F.2d 578 (6th Cir. 1975) decreed that the stringent conditions set out in Milliken v. Bradley were met, and ordered the first interdistrict remedy for the Louisville and Jefferson County, Kentucky school districts.

A decision concerning the Boston schools, Morgan v. Kerrigan, 401 F.Supp. 216 (D.Mass. 1975) sanctioned magnets as a component of a desegregation plan. The court later decided that a magnet plan could substitute for involuntary techniques and the first all-magnet plan was implemented in Milwaukee (see D. Bennett, "The Impact of Court-Ordered Desegregation: A Defendant's View," 1979).

Section 4

SOURCES AND CHARACTERISTICS OF THE DATA

4.1 THE UNICON/SDC SAMPLE

In 1968, there were 21,782 public school districts in the United States, although the majority were quite small. All but 374 districts had under 15,000 students and only 79 had more than 50,000 students. A sample of 125 districts was chosen to permit detailed analysis of the methods and effects of desegregation. The following criteria were used in selecting the sample:

- Every district with 50,000 or more students in 1968 and 20 to 90 percent minority representation was chosen.
- Districts with 15,000 or more students in 1968 and ten to 90 percent minority representation were chosen with sampling probabilities proportional to their size and regional representation.
- The remaining districts--those with fewer than 15,000 students, less than ten percent minority representation, or greater than 90 percent minority representation--were excluded from the sample.

These criteria yield a sample with 68 large districts (50,000 or more students) and 57 districts with 15,000 to 49,999 students. Of the 68 large districts, 56 were chosen because they met the first criterion. The 12 others have minority representation between ten and 90 percent and were randomly selected under the second criterion. Since there were only 79 districts with at least 50,000 students in 1968, this implies that all but 11 were included in

the sample. Eight were omitted because their minority representation was below ten percent. They are Baltimore County (Maryland), Fairfax County (Virginia), Montgomery County (Maryland), Dekalb County (Georgia), Granite (Salt Lake City, Utah), Jefferson County (Colorado), Kanawha County (West Virginia), and San Juan Unified (Sacramento, California). One district--Washington, D.C., the eleventh largest in the country--was omitted because it was greater than 90 percent minority. This leaves two districts that were eligible for the sample under the second criterion, but were not chosen in the random draw. They are Anne Arundel (Annapolis, Maryland) and Garden Grove (California).

Subsequent to 1968, four districts in the sample underwent consolidations.[33] The Louisville, Kentucky and Jefferson County School Districts combined in 1975, and 11 districts in New Castle County, Delaware (including Wilmington) were consolidated in 1976. In 1981, the Indianapolis school district implemented an interdistrict plan involving a number of suburban districts. In 1985, the Fayetteville, North Carolina and Cumberland County districts combined. The sample includes all of these districts, but districts that ultimately consolidate are treated as a composite.

The sample includes the ten largest districts in the country: New York, Los Angeles, Chicago, Detroit, Philadelphia, Houston, Dade County (Miami), Baltimore, Dallas, and Cleveland. Although the 125 districts amount to less than one percent of all school districts, the sample accounts for approximately 20 percent of national public school enrollment in 1968. Since the larger districts have disproportionately large shares of minority students, the sam-

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[33] Although the Indianapolis city and suburban districts remained autonomous, it is included in this group because the interdistrict transfers were integral to desegregation efforts.

ple includes about 45 percent of all minority students attending public schools in 1968.

The exclusion of small districts and those with extreme racial compositions is justified, since any desegregation efforts they might undertake are viewed with less interest. Districts that are predominantly white or minority will not be able to avoid single race schools unless they merge with other districts. While extremely small districts may include multiple racial groups, their size limits the extent of desegregation efforts. If a district has only one school at each level, then it is perfectly integrated since the composition of each school corresponds to the composition of the district. About 25 percent of all students attend school districts that might meet this description--i.e., they have less than 3,000 students and an average of less than five schools. Slightly more than one-third of all students attend districts with between 3,000 and 15,000 students and an average of 11 schools. While desegregation may not be moot in these districts, it is likely to involve simplistic measures.

For purposes of summarizing and analyzing the sample, we characterize the districts along two dimensions: region and metropolitan status. Four regional categories are used, following Census classifications (although, in analyzing districts, we aggregate the nonsouthern regions into one group). The sample has 58 districts in the South, 29 in the West, 25 in the North Central region, and 13 in the North. The six metropolitan categories are large urban (with 27 districts), medium urban (26 districts), small urban (29 districts), suburban (five districts),[34] countywide (35 districts), and rural (four dis-

[34] The Indianapolis suburbs are placed in this category, while the city district is categorized as large urban. Thus, these numbers add to 126.

tricts). Districts located in urban areas are grouped according to their city's 1972 population. Large urban districts are located in cities with 400,000 or more residents. Medium urban is defined as 165,000 to 400,000 residents, and small urban is defined as under 165,000 residents.[35] Countywide refers to those districts that are the sole source of public education within the county. Rural districts are a subset of this group, but are located in counties that do not have central cities.

4.2 ENROLLMENT DATA

The project's main objective was to compile enrollment data (by ethnicity) from 1967 to 1985 for every school in every district in the sample. We have succeeded in compiling an extraordinarily complete record. When omissions occur, it is usually because the enrollment records for all of the schools in a given district and a given year could not be located; rarely were partial records found for a given year. The data are reported for up to five ethnic groups (white, black, Hispanic, Asian, and Native American). School names and grade levels are also included.

Most of the data are from three sources: the Office of Civil Rights of the U.S. Department of Education, Tauber-Wilson tapes, and individual school districts.[36] OCR data are machine readable and are available for 1968 through 1974 and even-numbered years between 1976 and 1982.[37] The Tauber-Wilson data

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[35] This is similar to the classification scheme used in Reynolds Farley, Toni Richards, and Clarence Wurdock, "School Desegregation and White Flight: An Investigation of Competing Models and Their Discrepant Findings," Sociology of Education, Vol. 53 (July, 1980): 123-139.

[36] In a few cases the enrollment data were collected from state boards of education rather than from the individual districts.

are cleaned versions of the OCR data and are available for 1968 through 1974 and 1976. All available Tauber-Wilson data were used. Data were gathered directly from the school districts to fill in the odd-numbered years and extend the time period past 1982. SDC collected data for two to three years per district, and Unicon collected the remaining years. Of the over 200,000 school-by-year observations in the data, approximately 57 percent are taken from Tauber-Wilson tapes, five percent are from OCR tapes, and 38 percent come from the districts (seven percent via SDC and 31 percent via Unicon).

If the data were complete, there would be records for 19 years (1967 to 1985) for each of the 125 school districts, for a total of 2,375 years of data (where each year of data reports enrollment by race for every school in that district). In fact, there are 2,073 years of data (or close to 90 percent of the targeted number). For 88 districts, 1967 data are missing and 1985 data are missing for 44 districts. However, data are available prior to 1967 for ten districts (24 years) and district totals are available for an additional 12 years. Appendix B indicates the years available for each district in the sample.

The full data are being released in machine readable format, so interested parties can examine what they wish. Table A2 (see Appendix A), provides end-point summaries for all 125 districts, listed alphabetically by state. The summaries include the first and last year for which enrollment data are available alongside total enrollment, the percentage of enrollment that is minority and the dissimilarity index for both years.[38]

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[37] The 1984 OCR tape was released after data for the project were compiled.

[38] This index is defined and discussed in subsequent sections.

4.3 DESEGREGATION PLAN DATA

Information on the desegregation plans implemented by each district in the sample was obtained from the following sources:[39]

- Published Court Documents --Since many desegregation plans were ordered by a federal court, the issues and resolutions may be chronicled in the Federal Reporter. The documents vary in their level of detail. Some list the schools involved in pairing and clustering or rezoning, describe new attendance zones, list the schools that open, close, or convert to magnets, etc. Others describe the strategy to be used, but do not indicate the scope of the plan. Many documents provide only scant detail.
- Unpublished Court Documents --For many districts, extremely detailed plan information is available in an unpublished consent decree.
- School District Documents --Districts often prepare reports describing their plans. Such reports may be required by the courts or a government agency, or they may be for internal use. Brochures designed to inform patrons about new educational opportunities (especially magnet programs) often provide useful information. In addition to formal reports, minutes from school board meetings, correspondence, and other documents were examined.
- Government Agency Documents --These include reports solicited by the United States Commission on Civil Rights and information gathered by the Department of Education.
- Other Published Documents --These include newspaper clippings, journal articles, and books written by education researchers.

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[39] Appendix C lists most of the documents that were examined.

- Surveys --SDC conducted a survey to learn about the desegregation plans. Each district in the sample was either visited by an SDC employee or mailed a survey.[40] The districts were asked which techniques were used for each plan, and how many schools and students were involved. Additional questions focused on phasing, busing, attempts to upgrade school quality, efforts to disseminate information to the community, and magnet programs.

Table A3 in Appendix A provides information on each desegregation plan in the sample. The year or years of implementation and the techniques used are listed for 283 plans in 108 districts. The remaining 17 districts apparently did not implement plans, although they may have magnet programs. Multiple implementation years appear when a plan was phased in or when implementation was partially delayed. We assign most magnet plans a three-year implementation period (if the relevant data are available), beginning with the year the magnets began operation. We adopt this convention because magnet programs typically have a gradual impact on integration levels.

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[40] Site surveys were administered to 37 districts and mail surveys were completed by 46 districts. The remaining 42 districts either failed to respond or never implemented a desegregation plan.

Section 5

ENROLLMENT AND INTEGRATION LEVELS: OVERVIEW

5.1 MEASURING LEVELS OF INTEGRATION

There are a variety of ways to describe integration levels. In our analysis of national aggregates in Section 2, we characterized a school according to the fraction of students who are white, black, Hispanic, Asian, and Native American. We then counted the number of students in each racial group attending schools of a given racial mix. This permits us to measure, for example, the percentage of black students nationwide who, in a given year, attended schools where at least one-third of their classmates were white. This kind of description provides a detailed view of interracial exposure, but it is not easily summarized. Therefore, we use a single summary index of integration levels in our analysis of the 125 school districts. In doing so, we combine all minorities into a single group and contrast their enrollment distribution between the schools in a district with the distribution of white students.

The measure we use is the dissimilarity index, which is inversely related to the level of integration. The index is the ratio of two numbers. The numerator is the number of students who must be reassigned for each school to have the districtwide average minority representation. The denominator is the number of students who would be reassigned to move from complete segregation to districtwide average minority representation in every school.[41] The dissim-

[41] Formally, the dissimilarity index is defined as $\sum t_s \, |p_s - p|/2Tp(1-p)$ where

ilarity index takes as given the proportion of students in a district who are white; it can be viewed as the fraction of the segregation gap that remains.

Suppose that ten percent of a district's students are minority and that the current distribution is such that nine percent must be reassigned in order for every school to be ten percent minority. If this district were completely segregated, it would be necessary to reassign 18 percent of the students to achieve perfect integration (where each school is ten percent minority). The dissimilarity index in this case is 0.50 (0.09 divided by 0.18).

To understand how the denominator is calculated note that, in the example, it would be necessary to replace ten percent of the students attending all-white schools with minority students and to replace 90 percent of the students at minority schools with whites. This involves transferring ten percent of the white students (who comprise 90 percent of the total) and 90 percent of the minorities (who comprise ten percent of the total), or 18 percent of all students (0.10x0.90 + 0.90x0.10). Letting p be the fraction of students who are minority (p=0.10 in the example), the general formula is that the proportion of all students to be reassigned is 2p(1-p). The fraction of minority students reassigned is (1-p) and the fraction of white students reassigned is p.

The dissimilarity index is often criticized because it is not sensitive to the districtwide percentage of minority students. For example, a district with 90 percent minority students has an index of 0.50 if reassigning nine

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the subscript s indicates a school, t_s is total enrollment in school s, p_s is the fraction of students in the school who are in one of the minority groups, p is the district's average for p_s and T is the number of students in the district.

percent of its students would result in every school being 90 percent minority. The denominator in this case is 0.18 (as in the previous example), since ten percent of the minority students and 90 percent of the whites would have to be reassigned to move from complete segregation to complete integration. The dissimilarity index is the same as in the previous example where only ten percent of the students are minority. Moreover, the index would also be 0.50 if half the students were minority and if reassigning 25 percent of the students would achieve racial homogeneity.[42]

We examined alternative indices of integration[43] and found that they usually provide similar information in describing changes within a district over time. That is, if one index shows that a desegregation program resulted in massive integration, the others agree.[44] The fact that the dissimilarity index is useful in describing changes within a district does not imply that it is useful in comparing districts. The previous examples of three districts with identical indices and very different racial mixes illustrate this point.

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[42] When evaluating desegregation plans, there is generally concern with the busing burden imposed on each racial group. The above examples show that, when starting with dual school systems, an equal busing burden does not imply that the fraction of white students bused will equal the fraction of minorities bused. Instead, it implies that the number of whites and minorities bused will be the same. This requires that the proportion of the numerical majority that is bused is below the corresponding proportion for the numerical minority.

[43] These include the exposure, gini, Coleman, variance ratio, entropy, and Atkinson indices.

[44] When a school district's racial mix changes rapidly over time, however, indices that adjust for racial mix (i.e., normalized indices) often show different patterns than do unnormalized indices. The exposure index is the only normalized index we examine. Section 6 gives examples where trends in the exposure index differ from trends in the dissimilarity index.

For purposes of comparing districts and evaluating alternative desegregation strategies, several kinds of information are important. It is useful to know what proportion of all students would have to be reassigned to achieve racial uniformity among schools. The dissimilarity index, together with knowledge of the fraction of students who are minority, gives that number. It is also useful to know how the reassignment burden would be shared between the minority and majority groups. Unless the dissimilarity index equals one (i.e., the district is fully segregated), it cannot answer this question. The districtwide minority representation tells us what the racial composition of each school would be if the district were fully integrated. But the dissimilarity index cannot be used to infer information about minority representation under existing assignment patterns. Thus, changes in racial composition that coincide with movement to full integration cannot be inferred from the dissimilarity index.

5.2 TRENDS IN THE DATA

The enrollment data for the 125 districts in our sample show that, in general, total enrollments have fallen sharply, minorities have increased as a percentage of all students and schools are much more integrated in 1984 and 1985 than in 1967 and 1968. The largest decline in total enrollment was in San Lorenzo, California, where it fell at an average annual rate of 4.9 percent.[45] The leaders in this category tend to be older, nonsouthern cities: St. Louis, Indianapolis, Seattle, Dayton, and Cleveland follow San Lorenzo.

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[45] In discussing enrollment changes over the entire period studied, we report average annual geometric growth rates. Letting W68 and W85 represent the natural logarithms of white enrollment in 1968 and 1985, the growth rate over this 17 year period is calculated as $100(e^{(W85-W68)/17}-1)$.

Enrollment increased for only 19 districts, with Mesa, Arizona showing the largest gain (5.5 percent per year, on average). With the exceptions of Modesto, California and Harford County, Maryland, all districts showing growth are located in the Sunbelt.

Minority enrollment declined in 30 districts. Jefferson County, Alabama had the largest decline (an average annual rate of 5.1 percent per year), followed by St. Louis, Cleveland, Indianapolis, Compton, California, Pittsylvania County, Virginia, and Pittsburgh. The next largest decline was in Raleigh County, West Virginia, which is the only district in the sample where white enrollment increased and minority enrollment decreased. The largest increases in minority enrollment occurred in Long Beach, California (7.6 percent per year, on average), followed by Prince George's County, Maryland, Modesto, California, and Mesa, Arizona.

The level of segregation increased in eight districts during the period under study. They are listed in Table 12, along with the five districts showing the smallest decline. A distinguishing feature of the districts in Table 12 is that, for most, we have no record that a desegregation plan was adopted during the period when enrollments are observed. The exceptions are Santa Clara, California where rezoning plans were implemented in 1979, 1981, and 1984 and Raleigh County, West Virginia where rezoning was used in 1973. For four others (Newark, Oakland, Hartford, Connecticut and Richmond, California), implementation either preceded or coincided with the start of the enrollment data so changes associated with plan implementation cannot be observed. Seven of the districts listed in Table 12 apparently have not implemented desegregation plans. (They are among only 17 districts in the sample without plans.)

TABLE 12

Districts Where Dissimilarity Index Increased or Showed the Smallest Decline

District	Dissimilarity Index First	Last	Change
Districts Where Dissimilarity Index Increased			
Raleigh County, West Virginia	0.46	0.57	0.11
Newark, New Jersey	0.75	0.80	0.05
Yonkers, New York	0.51	0.55	0.04
Oakland, California	0.60	0.63	0.03
East Saint Louis, Illinois	0.77	0.80	0.03
Norwalk, California	0.30	0.32	0.02
Santa Clara, California	0.18	0.19	0.01
New York, New York	0.66	0.67	0.01
Districts With the Smallest Reduction in Dissimilarity Index			
Modesto, California	0.37	0.34	-.03
Richmond, California	0.45	0.42	-.03
Mesa, Arizona	0.27	0.22	-.05
Hartford, Connecticut	0.64	0.59	-.05
Saginaw, Michigan	0.76	0.70	-.06

Table 13 lists the ten districts (in rank order) showing the largest decline in the dissimilarity index. All ten adopted one or more major desegregation plans. The major plan implemented by nine districts involved rezoning and all but one (Pittsylvania County, Virginia) also used pairing and clustering.[46]

The ten districts shown in Table 13 have another factor in common: they were all highly segregated in the first year. In addition, eight (all but Dayton and Cleveland) are in the South and seven of the eight are also county-

[46] The tenth district is New Castle County, Delaware, where urban-suburban transfers were used.

wide (only one countywide district in the sample--Clark County, Nevada--is not in the South). None of the countywide districts experienced as sharp an enrollment decline as did the three central city districts. This is true for total enrollment and also for white enrollment. Norfolk, Virginia experienced a 63 percent fall in white enrollment,[47] while New Castle County, Delaware and Dougherty County, Georgia experienced roughly 50 percent reductions in white enrollment. The four other countywide districts (including Pittsylvania County, Virginia, which is rural) lost no more than 25 percent of their white students. In comparison, the three urban districts (Cleveland, Dayton, and Oklahoma City) lost more than 70 percent of their white students.

TABLE 13

Districts Showing the Greatest Reduction in the Dissimilarity Index

District	Dissimilarity Index First	Last	Change
Mecklenburg County (Charlotte), North Carolina	1.00	0.19	-0.81
Greenville County, South Carolina	1.00	0.24	-0.76
Rapides Parish (Alexandria), Louisiana	0.96	0.26	-0.70
Dayton, Ohio	0.86	0.19	-0.67
Cleveland, Ohio	0.87	0.20	-0.67
Norfolk, Virginia	0.83	0.17	-0.67
Pittsylvania County, Virginia	0.88	0.22	-0.66
Oklahoma City, Oklahoma	0.89	0.23	-0.66
New Castle County (Wilmington), Delaware	0.80	0.15	-0.65
Dougherty County (Albany), Georgia	0.94	0.30	-0.64

[47] These numbers refer to changes made over an 18-year period (1967 to 1985). When a district's observation interval is shorter than 18 years, the data are extrapolated (assuming constant geometric growth), so a standard interval is used to compare districts.

Based on Table 13, one might conclude that countywide districts have greater integrative potential because the broader geographic base makes white flight more difficult. Another conjecture is that the largest integrative changes were experienced by districts that were initially highly segregated. The phenomenon discussed earlier of dramatic reductions in white enrollment in large central city districts, with smaller losses in suburban districts, is also supported by Table 13. However, it would be wrong to conclude that any of these factors--or the type of desegregation plans used--caused the large drops in the dissimilarity index. Explanations of differential enrollment losses among districts require much finer analysis than our simple summaries provide. The data compiled by this project will be useful for subsequent studies of this issue.

Table 14 lists the ten districts in the sample with the lowest dissimilarity indices (based on the most recent enrollment data) and Table 15 lists the ten districts with the highest indices. For purposes of comparison, percentages of students who are minority are listed, along with the 1967 to 1985 loss in white enrollment. The most segregated districts are central cities where total enrollment is much greater than in the least segregated districts. As a general rule, minority percentages are also much higher in these districts and white enrollments have dropped more sharply. As Table 15 shows, minority representation in the highly segregated districts ranges from two-thirds of total enrollment (Saginaw) to 98 percent (East Saint Louis) and white enrollment losses range from 57 percent (New Orleans) to 94 percent (East Saint Louis). Among the least segregated districts, New Hanover County, North Carolina stands at one extreme, with only a two percent loss of white students and minority representation of 30 percent (1985 enrollment was 19,318 students). At

the other extreme, 77 percent of the students in Pasadena, California are minority and white enrollment in the Pasadena schools dropped 72 percent between 1967 and 1985.

TABLE 14

Districts With the Lowest Dissimilarity Index (Most Recent Available Year)

District	Dissimilarity Index	Percent Minority	Percent Loss in White Enrollment*
Stamford, Connecticut	0.08	46.3	62
San Lorenzo, California	0.13	35.9	70
New Hanover County, North Carolina	0.14	30.3	2
Columbus, Ohio	0.14	45.5	59
Lawton, Oklahoma	0.14	35.0	24
New Castle County, Delaware	0.15	32.5	48
Pasadena, California	0.16	76.6	72
Buffalo, New York	0.16	55.5	58
Hayward, California	0.16	46.6	63
Lansing, Michigan	0.17	39.4	26

* Projection when enrollment data do not coincide with 1967-1985 start and end dates.

TABLE 15

Districts With the Highest Dissimilarity Index (Most Recent Available Year)

District	Dissimilarity Index	Percent Minority	Percent Loss in White Enrollment*
Newark, New Jersey	0.80	91.1	69
East Saint Louis, Illinois	0.80	97.8	94
Atlanta, Georgia	0.76	93.0	90
Birmingham, Alabama	0.74	81.4	77
New Orleans Parish, Louisiana	0.71	86.2	57
Saginaw, Michigan	0.70	66.8	62
Chicago, Illinois	0.69	85.8	74
Philadelphia, Pennsylvania	0.68	74.5	59
Memphis, Tennessee	0.68	76.9	69
New York, New York	0.67	73.7	62

* Projection when enrollment data do not coincide with 1967-1985 start and end dates. Beginning and ending dates for enrollments are listed for individual districts in Appendix Table A2.

Section 6

CHANGES IN WHITE ENROLLMENT AND THE SEGREGATION INDEX SURROUNDING IMPLEMENTATION OF MAJOR PLANS

Desegregation programs are intended to increase interracial contact among students. By causing white and minority students to attend the same schools, they should also expose them to the same quality instruction. Do they? Are all plan types equally successful? How does the enrollment of white students respond to desegregation efforts? Are enrollment responses the same for all types of plans?

Questions related to integration of classrooms within schools cannot be addressed with the data we have compiled, nor can questions related to instructional quality or educational achievement. The data describe total enrollment and the racial composition of enrollment in each school, supplemented with information on plan implementation dates and the primary features of plans. In many cases, the schools that were involved in a program can be identified and subsequent enrollment changes can be traced but we have not tried to link plans to individual schools. The questions our data can address refer to changes in districtwide levels of integration across schools and to changes in enrollment. This section summarizes broad patterns of change surrounding the implementation of different plan types.

6.1 MAJOR PLAN CLASSIFICATION

Seventeen districts in the sample apparently did not adopt a school desegregation plan. The remaining 108 districts implemented at least one plan during the period under study.[48] When multiple plans are observed, all but one or two are invariably first attempts, modifications, or follow-ups, and can be considered of secondary importance. We consider only the most important plan or plans adopted by each district. They are called major plans, although their magnitude varies among districts. Some had an enormous impact on segregation levels: the rezoning plan implemented in Muscogee County, Georgia lowered the dissimilarity index by 74.9, which was the largest one-year change seen. At the other extreme, the 1981 Los Angeles plan and the 1976 plan in New Bedford, Massachusetts coincide with an increase in the dissimilarity index.

When districts implemented a series of plans in succeeding years (e.g., Denver and Little Rock), it is not practical to distinguish between them. In such cases, we treat the series as a single plan and define an implementation window that encompasses the entire period. We classify 96 districts as having one major plan [49] and another 13 as having two major plans. Most dual-plan districts had a period of relative inactivity between two distinct desegregation programs, but there are exceptions; in Kansas City, Kansas, for example, elementary and secondary plans were enacted in separate years. A total of 122

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[48] See Table A3. Multiple plans are observed for 83 of the 125 districts. The largest number of programs (six) is observed in Little Rock, Orange County, Florida, and Mecklenburg County, North Carolina; another seven districts introduced five programs each.

[49] This number includes the Indianapolis suburbs, which we analyze separately from the city district.

major plans are analyzed in this section.

The objective is to examine changes in integration levels and white enrollment accompanying the introduction of major desegregation programs. We stratify by technique in order to identify plan types that achieve the greatest reduction in segregation and plan types that elicit the greatest enrollment response. The primary components of each major plan are classified as one of the following: pairing and clustering, pairing and clustering with rezoning, pairing and clustering with magnets, rezoning, rezoning with magnets, major voluntary, and other voluntary.[50]

A number of factors dictated the choice of categories and the classification of each plan. Voluntary and involuntary programs should be analyzed separately to assess the widespread sentiment that magnet programs minimize white flight. It is also desirable to distinguish between the later, large-scale voluntary plans--which are viewed as the modern alternative to mandatory reassignment--and the early, smaller programs. For this reason, large-scale magnet and transfer programs implemented in the absence of mandatory techniques are classified as major voluntary. Other voluntary refers to transfer and magnet programs (and one freedom of choice plan) that affected a relatively small proportion of students; five of the eight plans in this category predate the enrollment data. The two voluntary categories account for 22 plans. Another 12 plans that combined voluntary techniques with rezoning and/or pairing and clustering are analyzed separately.[51] In classifying mandatory tech-

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[50] Detailed descriptions of each plan technique appear in Section 3.

[51] The pairing and clustering with magnets category may also include rezoning. However, the rezoning with magnets category excludes plans that used pairing and clustering to any significant degree.

niques, a distinction is made between pairing and clustering and rezoning. Pairing and clustering typically involve busing students to nonadjacent schools, while rezoning alters attendance zones and usually requires less transportation. Plans using satellite rezoning and urban-suburban transfers (e.g., New Castle County, Delaware and the 1981 Indianapolis plan) are classified as pairing and clustering, since they are closest in spirit to that technique. A large number of plans use significant amounts of both rezoning and pairing and clustering. Of the 88 pure mandatory plans, 37 combine techniques, while 34 rezone and 17 pair and cluster.

We also classify plans by their scope. The intent is to isolate plans that had a relatively large effect on the level of integration and assess the accompanying change in white enrollment. Since southern districts usually began their desegregation efforts with higher levels of segregation than nonsouthern districts, two definitions of "full scope" are applied. If a southern district initially had a dissimilarity index of 0.66 or higher and ended with an index of 0.40 or lower, the plan is considered to be full. For nonsouthern districts, the initial level of dissimilarity must be at least 0.50 and the ending level no higher than 0.40. These criteria yield 30 full plans in the South and 27 outside the South. Among the nonsouthern full plans, the smallest reduction in the dissimilarity is -0.16 in Rochester, and the second smallest is San Diego's -0.25. The smallest reduction among the southern districts is -0.27 in Prince George's County, Maryland, followed by -0.35 in Fayette County, Kentucky.

Table A3 (see Appendix A) lists all the plans implemented by the 108 districts and identifies the major plans. Table A4 groups the 122 major plans by

plan type and district type (large urban, etc.) and indicates the region and scope. Table 16 summarizes the number of plans in each category.

TABLE 16

Number of Plans in Plan-Type and District-Type Category

		PAIR & CLUSTER		REZONE/ PAIR & CLUSTER		PAIR & CLUSTER MAGNETS		REZONE		REZONE/ MAGNETS		MAJOR VOLUN-TARY		OTHER VOLUN-TARY		TOTAL
		S	N	S	N	S	N	S	N	S	N	S	N	S	N	
LARGE URBAN	F		1		4		3				1		2			31
	P		2	4	2	1	2	2				1	5		1	
MEDIUM URBAN	F	1	1	1	2				3		1		2			26
	P	1	1	1	2			2	2				2		4	
SMALL URBAN	F	1	1	1	2				1				2			18
	P		3			1		1	2		1				2	
SUB-URBAN	F	1	1													5
	P							3								
RURAL	F			1				2								4
	P							1								
COUNTY-WIDE	F	2		14				5		1						38
	P		1	3				10		1				1		
TOTAL		17		37		7		34		5		14		8		122

Note: S=South (TOTAL=63 plans)
N=nonsouth (TOTAL=59 plans)
F=full plan (TOTAL=57 plans)
P=partial plan (TOTAL=65 plans)

In addition to using the strata shown in Table 16, we also classify plans by their implementation date. As described in Section 3, the 1971 Swann decision changed the nature of desegregation efforts by ordering large-scale busing. If implementation began in 1970 or earlier, the plan is classified as pre-Swann, while remaining plans fall into the post-Swann category. Of the 37 pre-Swann plans, only nine were implemented outside the South and the majority involved rezoning; 16 used only rezoning, and an additional 12 used rezoning with pairing and clustering. Three of the remaining pre-Swann plans used pairing and clustering, another one is classified as major voluntary, and five are classified as other voluntary.

6.2 AN ILLUSTRATION OF THE CALCULATIONS

For each group of plans, we compute a series of average changes in the dissimilarity index and average annual percent changes in white enrollment surrounding implementation.[52] The period surrounding plan implementation is divided into five phases. The change during implementation is computed from the

[52] Although the results are not reported, we also computed changes in an alternative index that reflects interracial exposure. The normalized exposure index--also called the Coleman index--measures the districtwide average proportion of white students in schools attended by minorities relative to the districtwide proportion of students who are white. For example, if on average minority students attend schools where 30 percent of their classmates are white and if 50 percent of all students in the district are white, the normalized exposure index is 0.60 (0.30 divided by 0.50).

Other researchers argue that because the dissimilarity and exposure indices measure different facets of integration, both should be reported. We find, however, that they are almost perfectly (negatively) correlated. For the groupings of plans that are reported in this section, the alternative index shows the same pattern as the dissimilarity index.

In addition to examining changes in white enrollment, we also examined changes in minority enrollment. We do not find patterns of change in minority enrollment, although more sophisticated analyses might succeed in doing so.

year prior to implementation to the year of implementation (or the last year, in cases where an implementation window has been assigned). The period preceding implementation is divided into one year before and more than one year before (beginning with the first year for which data are available). The post-implementation period is divided into one year after and more than one year after.

To illustrate the format used to report the data, we consider a hypothetical district that introduced a desegregation plan in 1976. Assume that we have data on the numbers of white and minority students enrolled in each school from 1968 through 1985, so the dissimilarity index can be computed for each year. Table 17 provides the numbers that enter into our calculations.

TABLE 17

Hypothetical Values to Illustrate Calculations of Changes in White Enrollment and Dissimilarity Index (Major Plan Implemented in Fall, 1976)

Implementation Period	Year	Fall Enrollment of White Students	Dissimilarity Index
More than one year before (6-year interval)	1968	50,000	0.70
	.		
	.		
	.		
	1974	44,000	0.65
One year before	1975	42,680	0.63
During	1976	38,412	0.40
One year after	1977	36,876	0.35
	.		
More than one year after (8-year interval)	.		
	.		
	1985	30,976	0.33

In the hypothetical district, the observed period starts in 1968 with 50,000 white students and a dissimilarity index of 0.70. In the six-year period between 1968 and 1974, enrollment falls 12 percent to 44,000 and the index falls to 0.65. The average annual change in white enrollment is -2.0 percent and the change in the index is -0.05 during the interval more than one year before implementation. Between 1974 and 1975, enrollment falls from 44,000 to 42,680 (three percent) and the index falls from 0.65 to 0.63 (0.02 points). These are the changes one year before implementation. Between 1975 and 1976, or during implementation, enrollment falls ten percent from 42,680 to 38,412 and the index falls from 0.63 to 0.40 (a decline of 0.23). Between 1976 and 1977, or one year after implementation, enrollment falls from 38,412 to 36,815 (a four percent loss) and the index falls by 0.05, from 0.40 to 0.35. In the period more than one year after implementation (the eight years between 1977 and 1985), enrollment falls from 36,815 to 30,976 (a 16 percent drop, for an annual average decline of two percent) and the dissimilarity index falls from 0.35 to 0.33 (a decline of 0.02).

In the tables that follow, these figures are averaged over groups of major plans. The display of averages is illustrated below, using the data for the single hypothetical district:

	Before		During	After	
	More Than One Year	One Year		One Year	More Than One Year
Index	-.050	-.020	-.230	-.050	-.020
Enrollment	-2.00	-3.00	-10.0	-4.00	-2.00
Departure from trend	-	-1.00	-8.00	-2.00	0.00
Cumulative departure	-	-1.00	-9.00	-11.0	-11.0

The numbers in the first two rows refer to changes in the dissimilarity index and white enrollment as described. Our main results (Tables 19-22) report only these two rows for various groupings by plan type, implementation period, region, and district type.

The final two rows of the illustration suggest a way to interpret enrollment changes. Until two years prior to implementation, white enrollment had been falling at an annual average rate of two percent. Using this rate as a naive forecast of the enrollment trend in the absence of a desegregation program, the third row gives estimated departures from trend in the years surrounding implementation. We get these numbers by subtracting the -2.0 percent trend from subsequent changes. Thus, the -10.0 percent average annual change experienced during implementation is estimated to be a -8.0 percent departure from trend.

The final row of the illustration estimates the plan's cumulative effect. We observe a one percent departure from trend one year before implementation, an eight percent departure during implementation, and an additional two percent departure immediately following implementation. The cumulative loss in white enrollment during implementation is -9.0 percent (-1.0 plus -8.0) and it is -11.0 over the extended period. If we extrapolate the trend in white enrollment that was observed between 1968 and 1974, then the predicted enrollment in 1985 is 34,807 white students. Actual 1985 enrollment is 30,976, or 11.0 percent below the projected value.

We refer to this type of estimate as naive. Clearly, it is wrong if external forces would have resulted in accelerating losses. Examples of such forces include general demographic changes, falling birth rates, and population

redistribution away from large central city districts. In these cases, naive forecasts overstate responses to desegregation programs. It is less clear that the naive projections distort comparisons of the effects of different types of plans, which is our primary objective.

In supplementary Tables 19a-22a, we provide calculations like the ones in the third row of the illustration. We do not provide calculations analogous to those in the final row showing cumulative departures from trend.[53]

6.3 CHANGES IN WHITE ENROLLMENT AND THE SEGREGATION INDEX

In reviewing these calculations, it should be noted that the trend in white enrollment was not uniform during the period studied. The baby boom resulted in births peaking in 1957 and the number of school-age youths peaking in the late 1960s. Although the timing varied regionally, white enrollment began to decline after the peak had passed and the rate of descent accelerated at least through the mid 1970s. Because of this general population trend, the averages show greater losses in white enrollment for plans that were implemented in later years.

A benchmark of changes in white enrollment is provided by Table 18, which reports aggregate national enrollment and percent changes in numbers of white students between 1966 and 1985. It should be noted that these figures also include Hispanic students. The reason is that the Current Population Surveys, from which these data are taken, classify almost all Hispanics as white,

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[53] They are more problematic because not all intervals have equal width. The one year before and one year after changes refer to single years, but the during period is often more than one year. Obviously, the widths of the more than one year intervals also vary.

whereas the school enrollment data in all other tables define white as neither black, Hispanic, Asian, nor Native American.

The first column of Table 18 gives national white enrollment, measured in October of each year. The second column gives the change from the previous year expressed as a percentage. Beginning at the bottom and moving up, we see that enrollment rose in the late 1960s and then fell continuously from 1970 through 1980. In the most recent five-year period, the general pattern of decline continues to hold, but the year-to-year changes sometimes show minor increases. Between 1979 and 1980, there is a 0.43 percent increase and between 1984 and 1985, there is a 0.76 percent increase. During the 20 years, national enrollment reached a maximum in 1969 when 44.6 million white students were enrolled, and a minimum of 35.8 million students in 1984. Thus, there was a cumulative decline in white enrollment of 19.9 percent between 1969 and 1984. The largest single year drop is between 1977 and 1978, when enrollment fell 2.88 percent.

As we shall see, a drop in white enrollment as small as 2.88 percent during plan implementation is rare. Usually, a much larger decline is observed. The numbers in Table 18 refer to national trends, and not to specific public school districts which often display sharply divergent patterns. This phenomenon has already been demonstrated in Section 2, where losses in the large central city districts are highlighted.

The final two columns of Table 18 summarize patterns over five-year intervals. The third column reports the sum of the percentage changes for each of the five component years, while the last column gives the average annual change for the period. For example, between 1966 and 1970, enrollment in-

creased at an average annual rate of 1.13 percent. It fell at a rate of 1.2 percent per year during the next five years. Over the five-year period between 1976 and 1980, enrollment shows the largest annual loss of 2.17 percent.

TABLE 18

Trends in National Enrollment of White (Including Hispanic) Students in Public and Private Elementary and Secondary Schools, 1966-1985

Year	Total Enrollment (1,000 Students)	Annual Change (Percent)	Five Year Cumulative Change (Percent)	Five Year Annual Average Change (Percent)
1985	36,031	0.76	-3.06	-0.61
1984	35,758	-1.35		
1983	36,248	-0.83		
1982	36,551	-2.07		
1981	37,322	0.43		
1980	37,161	-2.15	-10.87	-2.17
1979	37,979	-2.30		
1978	38,873	-2.88		
1977	40,025	-2.07		
1976	40,871	-1.47		
1975	41,481	-0.93	-5.99	-1.20
1974	41,869	-0.80		
1973	42,206	-1.33		
1972	42,777	-2.60		
1971	43,920	-0.33		
1970	44,067	-1.28	5.65	1.13
1969	44,638	2.17		
1968	43,688	1.01		
1967	43,252	2.97		
1966	42,006	0.78		

Source: Current Population Reports P-20 Series (various issues).

Tables 19-22 summarize average changes in the dissimilarity index and white enrollment surrounding implementation of major plans. We begin with fairly crude aggregates and proceed to finer strata. Table 19 shows average changes when all plans are combined together. Plans are then divided according to

whether implementation occurred before or after the Swann decision and are subdivided by plan type. Table 20 is similar to Table 19, but regional classifications (South and nonsouth) are added. Table 21 subdivides the plans even further. Plans are classified by the district's urban status as well as by region, plan type, and implementation date. Table 22 presents the same strata as Table 21, but averages only over plans that are full scope--that is, plans associated with the largest changes in the dissimilarity index. We adopt the convention in these tables of not reporting averages when there are fewer than three districts in a group.

It should be noted that Tables 19-22 show averages among heterogeneous districts. With the exception of Table 22, they mix programs that had relatively minor desegregative effects with programs that brought about major changes. Consider, for example, plans that combine pairing and clustering with rezoning. Table 19 shows that pre-Swann plans are associated with greater average changes in the dissimilarity index than are post-Swann plans. Even so, the 1970 plan in Dade County, Florida (Miami) shows a reduction of only 0.077, although the average for the 12 pre-Swann plans is 0.430. The average for the post-Swann plans is 0.250, but only four of 23 plans show changes smaller than the one for Dade County. Three show a change that is greater than the average reported for the pre-Swann plans.[54] The average enrollment changes also conceal a lot of diversity. For example, white enrollment in Memphis fell 36 percent when the 1973 plan (which used rezoning with pairing and clustering) was implemented; it had dropped 12 percent the year before and it fell another

[54] Among the post-Swann plans using pairing and clustering with rezoning, the four showing the smallest change in the dissimilarity index are Sacramento in 1976 (.033), Atlanta in 1973 (.048), Fresno in 1978 (.048), and Tulsa in 1971 (.074). The three with the largest change are Dayton in 1976 (.464), Jefferson County, Kentucky in 1975 (.510), and Cleveland in 1979 (.654).

ten percent the year after implementation. The 1971 plan adopted in Dallas also involved rezoning with pairing and clustering and coincided with a nine percent decline in white enrollment. An average computed among large, southern districts using rezoning with pairing would combine the Memphis and Dallas experiences.

The districts become more homogeneous as we move to increasingly finer partitions in Tables 21 and 22. The averages in these tables are more sensitive to extreme (and perhaps anomalous) changes, however, because sample sizes are smaller. While we believe the patterns that emerge in Tables 19-22 should be taken seriously, the averages are discussed without regard to statistical confidence.

Turning to Table 19 we see that, among the 116 plans described in the top panel, the dissimilarity index falls an average of 0.217 during implementation and by smaller amounts in the years before and after.[55] In contrast, the enrollment decline starts to accelerate before implementation. Enrollment drops more sharply during implementation than either before or after and the rate of enrollment loss is greater one year after implementation than one year before or more than one year after.

The national enrollment data presented in Table 18 show that losses were greater during the late 1970s than in earlier periods. It is not surprising, therefore, that enrollment losses are typically greater after implementation than before. But the fact that enrollment losses are greater <u>during</u> implementation than either before or after should remove any doubt about the existence

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[55] Although we list 122 major plans in Table A4, six predate our enrollment data so the summaries in Tables 19-22 refer to 116 plans.

TABLE 19

Average Change in Dissimilarity Index and Average Annual Percent Change in White Enrollment Before, During, and After Plan Implementation by Plan Type and Implementation Date

Number	Type	Before		During	After	
		More Than One Year	One Year		One Year	More Than One Year
116	All:					
	Index	-.066	-.023	-.217	-.010	-.010
	Enrollment	-2.51	-3.76	-6.27	-4.58	-2.85
Pre-Swann (1970 or Earlier):						
3	Pair/Cluster:					
	Index	-.013	-.036	-.189	.045	.015
	Enrollment	-3.55	-2.17	-4.94	-9.35	-3.84
12	Rezone/Pair/Cluster:					
	Index	-.072	-.025	-.430	-.024	.026
	Enrollment	1.55	3.08	-2.20	-1.23	-1.76
17	Rezone:					
	Index	.001	-.036	-.247	-.014	-.047
	Enrollment	-.118	.795	-2.59	-1.53	-1.97
Post-Swann (1971 or Later):						
14	Pair/Cluster:					
	Index	-.051	-.025	-.209	-.007	.025
	Enrollment	-3.00	-4.32	-7.75	-5.48	-3.76
23	Rezone/Pair/Cluster:					
	Index	-.098	-.019	-.250	-.007	-.021
	Enrollment	-3.05	-6.68	-11.7	-7.29	-3.58
6	Pair/Cluster/Magnets:					
	Index	-.026	-.017	-.165	-.015	-.032
	Enrollment	-4.05	-6.29	-12.7	-7.85	-3.33
17	Rezone:					
	Index	-.062	-.038	-.178	-.004	.014
	Enrollment	-1.06	-2.86	-4.20	-2.87	-2.09
5	Rezone/Magnets:					
	Index	-.130	-.016	-.143	-.014	-.022
	Enrollment	-2.98	-2.13	-3.50	-3.39	.368
13	Major Voluntary:					
	Index	-.081	-.007	-.111	-.019	-.019
	Enrollment	-3.90	-6.72	-5.13	-6.09	-3.25
3	Other Voluntary:					
	Index	-.012	.000	-.038	-.032	.005
	Enrollment	-3.86	-10.2	-7.42	-7.11	-4.75

of an enrollment response to desegregation. The pattern is clear: desegregation efforts lower the index of racial dissimilarity, and they also reduce enrollments of white students.

The remaining panels of Table 19 partition plans on the basis of implementation dates. The plans are further partitioned according to their primary techniques. In either period (before or after Swann) programs that combine rezoning with pairing and clustering are associated with the greatest changes in desegregation indices.

Table 19 shows that districts implementing rezoning with pairing and clustering plans prior to the Swann decision had been experiencing enrollment growth, on average, and that implementation coincided with a reversal in trend. These plans were introduced in 1969 or 1970, so the reversal in trend coincides with the nationwide transition from expanding to contracting enrollments (see Table 18). Because the timing of the reversal varied across districts, there are no obvious patterns in enrollment changes among plan types. This is not true for the post-Swann era, when enrollments are generally falling. All pairing and clustering plans (used in isolation or in combination with rezoning or magnets) are associated with the largest reductions in white enrollment. To underscore this point, Table 19a shows departures from trend obtained by subtracting the growth rate experienced more than one year before implementation from subsequent rates.

The finding that pairing and clustering leads to greater departures from trend than rezoning reflects qualitative differences between the two techniques. Although we classify both as mandatory, they differ in the degree to which they disrupt students' lives. There are cases where changes in atten-

TABLE 19a
Departures from Trend in White Enrollment Loss by Plan Type
(Post-Swann Plans Only)

Type	Before		During	After	
	More Than One Year	One Year		One Year	More Than One Year
Pair/Cluster	--	-1.32	-4.75	-2.48	-0.76
Rezone/Pair/Cluster	--	-3.63	-8.65	-4.24	-0.53
Pair/Cluster/Magnets	--	-2.24	-8.65	-3.80	+0.72
Rezone	--	-1.80	-3.14	-1.81	-1.03
Rezone/Magnets	--	+0.85	-0.52	-0.41	+3.35
Major Voluntary	--	-2.82	-1.23	-2.19	+0.65
Other Voluntary	--	-6.34	-3.56	-3.25	-0.89

dance zones constitute more than minor interruptions. For the most part, however, pairing and clustering require that greater distances be travelled.

A district's ability to desegregate its schools depends crucially on housing patterns. When the residential distance between whites and minorities is not great, desegregation can be achieved by readjusting attendance zones. As distance increases, rezoning becomes less feasible. The alternatives are magnets or mandatory reassignment via pairing and clustering. If we compare changes in dissimilarity indices between programs using pairing and clustering and those using voluntary techniques in Table 19, we see the greatest decreases associated with pairing and clustering and the smallest decreases associated with magnet programs. Pairing and clustering plans also differ dramatically from major voluntary programs in the enrollment response.

Table 20 is like Table 19 except that plans are subdivided by region (southern versus nonsouthern). Given the South's history of <u>de jure</u> segrega-

TABLE 20

Average Change in Dissimilarity Index and Average Annual Percent Change in White Enrollment Before, During, and After Plan Implementation by Region, Plan Type and Implementation Date

Number	Type	Before		During	After	
		More Than One Year	One Year		One Year	More Than One Year
Southern Districts; Pre-Swann:						
11	Rezone/Pair/Cluster:					
	Index	-.077	-.032	-.437	-.030	.039
	Enrollment	2.04	3.35	-2.14	-.920	-1.49
16	Rezone:					
	Index	-.002	-.036	-.254	-.011	-.036
	Enrollment	.671	.639	-2.44	-1.75	-1.91
Southern Districts; Post-Swann:						
5	Pair/Cluster:					
	Index	-.114	-.032	-.361	.006	.064
	Enrollment	-1.65	-4.79	-8.38	-6.43	-3.56
12	Rezone/Pair/Cluster:					
	Index	-.099	-.020	-.273	-.010	.005
	Enrollment	-2.49	-5.46	-12.7	-7.89	-3.40
10	Rezone:					
	Index	-.055	-.042	-.228	.001	.041
	Enrollment	-.260	-2.59	-4.28	-2.37	-1.83
Non-Southern Districts; Post-Swann:						
9	Pair/Cluster:					
	Index	-.011	-.020	-.125	-.014	.004
	Enrollment	-3.97	-4.03	-7.40	-4.96	-3.87
11	Rezone/Pair/Cluster:					
	Index	-.098	-.017	-.226	-.004	-.053
	Enrollment	-3.77	-8.15	-10.6	-6.64	-3.81
4	Pair/Cluster/Magnets:					
	Index	-.042	-.030	-.173	-.014	-.025
	Enrollment	-4.69	-8.66	-14.3	-8.50	-3.20
7	Rezone:					
	Index	-.071	-.031	-.106	-.009	-.024
	Enrollment	-2.09	-3.32	-4.10	-3.58	-2.46
3	Rezone/Magnets:					
	Index	-.110	-.010	-.117	-.034	-.027
	Enrollment	-3.44	-4.04	-5.56	-6.54	-2.96

TABLE 20 (Continued)

Average Change in Dissimilarity Index and Average Annual Percent Change in White Enrollment Before, During, and After Plan Implementation by Region, Plan Type and Implementation Date

Number	Type	Before		During	After	
		More Than One Year	One Year		One Year	More Than One Year
Non-Southern Districts; Post-Swann:						
12	Major Voluntary:					
	Index	-.085	-.007	-.117	-.019	-.014
	Enrollment	-3.42	-6.66	-4.99	-5.58	-2.93
3	Other Voluntary:					
	Index	-.012	.000	-.038	-.032	.005
	Enrollment	-3.86	-10.3	-7.42	-7.11	-4.75

tion, we expect to see a major distinction. Table 20 reveals that plans implemented in the South generate larger reductions in the dissimilarity index than do nonsouthern plans. Responses in white enrollment do not vary dramatically across the two regions, although rezoning--used alone and with pairing and clustering--generates slightly greater white loss in the South. The pattern seen in Table 19 continues to hold: the greatest white loss occurs during implementation, and changes are more pronounced immediately before and after than in more distant periods.

Table 20a measures changes in white enrollment as departures from trend for nonsouthern, post-Swann plans. There are no surprises in this table. Departures from trend in white enrollment are much larger in districts using pairing and clustering than in districts using other techniques. As Table 20 shows, these plans also cause the greatest changes in the dissimilarity index in both regions. Greater enrollment responses occur when pairing and clustering are combined with rezoning or magnets than when they are used in isolation.

TABLE 20a
Departures from Trend in White Enrollment Loss by Plan Type
(Post-Swann Plans in Nonsouthern Districts Only*)

Type	Before		During	After	
	More Than One Year	One Year		One Year	More Than One Year
Pair/Cluster	--	-0.06	-3.43	-0.99	+0.10
Rezone/Pair/Cluster	--	-4.38	-6.83	-2.87	-0.04
Pair/Cluster/Magnets	--	-3.97	-9.61	-3.81	+1.49
Rezone	--	-1.23	-2.01	-1.49	-0.37
Rezone/Magnets	--	-0.60	-2.12	-3.10	+0.48
Major Voluntary	--	-3.24	-1.57	-2.16	+0.49

* Other voluntary plans are deleted since they are the same as those shown in Table 19a.

Table 21 subdivides the plans even further by identifying the type of district. The southern, countywide districts[56] are particularly interesting because their greater geographic spread provides a buffer against white flight. Not only is there less opportunity for short-distance migration, but the districts typically encompass suburban areas where white students are concentrated. In some ways, however, desegregation is more difficult in these districts. It is likely that white and minority students are separated by greater distances, so transportation costs are greater.

In comparing white enrollment changes more than one year prior to implementation during the post-Swann era, different population trends are evident. Among countywide districts using rezoning, white enrollment had been falling at an average annual rate of only 0.07 percent. Among those using rezoning with pairing and clustering, it had been falling at a rate of only 0.11 per-

[56] Of the 35 countywide districts in the sample, only one, Clark County (Las Vegas) Nevada is not in the South.

TABLE 21

Average Change in Dissimilarity Index and Average Annual Percent Change in White Enrollment Before, During, and After Implementation by Region, District Type, Plan Type and Implementation Date

Number	Type	Before		During	After	
		More Than One Year	One Year		One Year	More Than One Year
Countywide Southern Districts; Pre-Swann:						
10	Rezone/Pair/Cluster:					
	Index	-.088	-.034	-.442	-.037	.050
	Enrollment	2.04	3.04	-2.50	-.835	-1.55
11	Rezone:					
	Index	-.002	-.043	-.248	-.008	-.050
	Enrollment	4.30	2.00	-.787	-.199	-.898
Countywide Southern Districts; Post-Swann:						
5	Rezone/Pair/Cluster:					
	Index	-.122	-.034	-.373	.003	.005
	Enrollment	-.113	-2.56	-7.86	-4.47	-1.94
4	Rezone:					
	Index	-.061	-.028	-.356	.020	.087
	Enrollment	-.073	-4.62	-5.45	-.970	-1.38
Large Urban Southern Districts; Post-Swann:						
4	Rezone/Pair/Cluster:					
	Index	-.047	-.015	-.147	-.012	.034
	Enrollment	-5.48	-10.6	-20.4	-11.6	-5.33
Large Urban Nonsouthern Districts; Post-Swann:						
3	Pair/Cluster:					
	Index	-.004	-.045	-.148	-.014	-.009
	Enrollment	-8.27	-6.25	-13.2	-9.74	-6.54
6	Rezone/Pair/Cluster:					
	Index	-.085	-.019	-.222	-.013	-.103
	Enrollment	-4.40	-9.83	-10.7	-7.53	-4.51
4	Pair/Cluster/Magnets:					
	Index	-.042	-.030	-.173	-.014	-.025
	Enrollment	-4.69	-8.66	-14.3	-8.50	-3.20
7	Major Voluntary:					
	Index	-.035	-.002	-.132	-.017	-.035
	Enrollment	-3.67	-7.39	-5.47	-7.05	-3.99

TABLE 21 (Continued)

Average Change in Dissimilarity Index and Average Annual Percent Change in White Enrollment Before, During, and After Implementation by Region, District Type, Plan Type and Implementation Date

Number	Type	Before		During	After	
		More Than One Year	One Year		One Year	More Than One Year
Medium Urban Nonsouthern Districts; Post-Swann:						
4	Rezone/Pair/Cluster:					
	Index	-.107	-.019	-.211	.011	.005
	Enrollment	-2.96	-6.39	-10.2	-5.91	-3.05
4	Rezone:					
	Index	-.087	-.030	-.174	-.005	-.041
	Enrollment	-1.70	-3.32	-4.41	-4.18	-2.33
4	Major Voluntary:					
	Index	-.139	-.023	-.087	-.016	.011
	Enrollment	-3.02	-5.20	-4.01	-5.07	-2.98
Small Urban Nonsouthern Districts; Post-Swann:						
3	Pair/Cluster:					
	Index	-.054	-.010	-.097	.002	.006
	Enrollment	-2.33	-3.54	-5.48	-3.53	-4.24
3	Rezone:					
	Index	-.050	-.033	-.016	-.015	-.002
	Enrollment	-2.60	-3.32	-3.68	-2.79	-2.63

cent. The apparent pre-plan stability of white enrollment in the countywide districts stands in sharp contrast to the pre-plan trend in large, urban, southern districts, where losses average 5.48 percent annually.

Table 21 demonstrates that desegregation plans in the countywide districts had an exceedingly large desegregative effect. The average changes in the dissimilarity index during implementation are larger for these districts than for any other group.

Departures from trend in white enrollment are shown in Table 21a. Among countywide districts, it remains true that departures from enrollment trend are greater for the pairing and clustering plans than for those using rezoning only, but the distinction between them is less pronounced than for other strata. The enrollment response to pairing and clustering is smaller for countywide districts than for large urban districts. The four large urban southern districts that used pairing and clustering with rezoning show the greatest losses in white enrollment. The average cumulative loss (from one year before to one year after implementation) is 26.2 percent, yet the change in the dissimilarity index is not large relative to other groups. Since white enrollment is falling rapidly in such areas, it may be that desegregation plans accelerate movements that would have occurred in any case. However, the evidence for such a response--an initial acceleration in white loss followed by subsequent deceleration--is not observed. The pace of white enrollment loss increases one year before, during, and one year after implementation, but the subsequent trend (more than one year after) does not differ from the one that preceded the programs (a 5.33 average annual loss versus a 5.48 loss).

Table 21 shows a sharp contrast between post-Swann pairing and clustering and major voluntary plans among large urban districts outside the South. Plans using pairing and clustering achieve a greater desegregation response but the difference between them and the major voluntary plans is not very dramatic (-0.148, -0.222, and -0.173 versus -0.132). However, the departure from trend in white enrollment (Table 21a) is significantly greater for the mandatory plans than for the major voluntary plans.

TABLE 21a
Departures from Trend in White Enrollment Loss
by Region, District Type, Plan Type and Implementation Date

Type	Before		During	After	
	More Than One Year	One Year		One Year	More Than One Year
Countywide Southern Districts Pre-Swann:					
Rezone/Pair/Cluster	--	+1.00	- 4.54	-2.88	-3.59
Rezone	--	-2.30	- 5.09	-4.50	5.20
Countywide Southern Districts Post-Swann:					
Rezone/Pair/Cluster	--	-2.45	- 7.75	-4.36	-1.83
Rezone	--	-4.55	- 5.38	-0.90	-1.31
Large Urban Southern Districts Post-Swann:					
Rezone/Pair/Cluster	--	-5.12	-14.92	-6.12	+0.15
Large Urban Non-Southern Districts Post-Swann:					
Pair/Cluster	--	+2.02	- 4.93	-1.47	+1.73
Rezone/Pair/Cluster	--	-3.43	- 6.30	-3.13	-0.11
Pair/Cluster/Magnets	--	-3.97	- 9.61	-3.81	+1.49
Major Voluntary	--	-3.72	- 1.80	-3.38	-0.32
Medium Non-Southern Districts Post-Swann:					
Rezone/Pair/Cluster	--	-3.43	- 7.24	-2.95	-0.09
Rezone	--	-1.62	- 2.71	-2.48	-0.63
Major Voluntary	--	-2.18	- 0.99	-2.05	+0.04
Small Urban Non-Southern Districts Post-Swann:					
Pair/Cluster	--	-1.21	- 3.15	-1.20	-1.91
Rezone	--	-0.72	- 1.08	-0.19	-0.03

Table 22 (and its companion Table 22a) is restricted to plans that had the largest effect on segregation levels. The first panel of Table 22 shows the averages over all such plans. While, by construction, these plans caused a greater response in the dissimilarity index than the full sample (Table 19), they show a smaller average change in white enrollment.

TABLE 22

Average Change in Dissimilarity Index and Average Annual Percent Change in White Enrollment Before, During, and After Implementation by Region, District Type, Plan Type and Implementation Date

(Full Plans Only)

		Before		During	After	
Number	Type	More Than One Year	One Year		One Year	More Than One Year
54	All:					
	Index	-.096	-.029	-.323	-.011	-.008
	Enrollment	-1.63	-2.88	-5.65	-4.12	-2.53
18	All Pre-Swann:					
	Index	-.044	-.026	-.396	-.014	-.008
	Enrollment	1.13	1.70	-1.63	-1.21	-1.65
36	All Post-Swann:					
	Index	-.111	-.030	-.289	-.009	-.007
	Enrollment	-2.21	-4.63	-7.66	-5.49	-2.96
Southern Countywide Districts; Pre-Swann:						
7	Rezone/Pair/Cluster:					
	Index	-.109	-.038	-.489	-.046	.023
	Enrollment	2.41	3.63	-1.28	.240	-1.16
3	Rezone:					
	Index	-.009	-.010	-.453	-.009	.040
	Enrollment	4.30	1.33	1.67	2.08	.583
Southern Countywide Districts; Post-Swann:						
5	Rezone/Pair/Cluster:					
	Index	-.122	-.034	-.373	.003	.005
	Enrollment	-.113	-2.56	-7.86	-4.47	-1.94
Large Urban Nonsouthern Districts; Post-Swann:						
4	Rezone/Pair/Cluster:					
	Index	-.100	-.020	-.248	-.005	-.138
	Enrollment	-3.73	-10.6	-10.7	-6.85	-4.43

Thirteen of the 18 pre-Swann plans underlying Table 22 occurred in the South where the history of de jure segregation virtually assured that simple

rezoning would produce large desegregation responses. Twelve of the 13 southern plans were implemented by countywide districts where enrollment responses tend to be less pronounced. These characteristics are partly responsible for the apparent ability of pre-Swann full plans to achieve large desegregative effects with relatively minor enrollment responses.

TABLE 22a
Departures from Trend in White Enrollment
by Region, District Type, Plan Type and Implementation Date
(Full Plans Only)

Type	Before		During	After	
	More Than One Year	One Year		One Year	More Than One Year
All	--	-1.25	-4.02	-2.49	-0.90
All Pre-Swann	--	+0.57	-2.76	-2.34	-2.78
All Post-Swann	--	-2.42	-5.45	-3.28	-0.75
Southern Countywide Districts Pre-Swann:					
Rezone/Pair/Cluster	--	+1.22	-3.69	-2.17	-3.57
Rezone	--	-2.97	-2.63	-2.22	-3.72
Southern Countywide Districts Post-Swann:					
Rezone/Pair/Cluster	--	-2.45	-7.75	-4.36	-1.83
Large Urban Non-Southern Districts Post-Swann:					
Rezone/Pair/Cluster	--	-6.87	-6.97	-3.12	-0.70

6.4 ADDITIONAL COMMENTS

Our examination of 116 major plans addresses two questions. Are school districts desegregating? Do desegregation efforts influence the movement of students between school districts? The answer to the first question is that racial balance improves when desegregation plans are implemented. Regarding