

## THE EFFECTIVENESS OF SCHOOL DESEGREGATION PLANS, 1968-1991

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A major debate in school desegregation policy is whether voluntary, market-based mechanisms (such as magnet schools) result in more school desegregation than command-and-control approaches (such as mandatory reassignment). Using data obtained from a national probability sample of 600 school districts, we explore the effects of different types of desegregation plans on White flight, racial imbalance, and interracial exposure from 1968 to 1991. Based on the results of multiple regression analyses, we find that (a) voluntary plans result in lower levels of White flight and higher levels of change in interracial exposure than mandatory-reassignment or controlled-choice plans (which fall between the two approaches) and (b) voluntary plans are not disadvantaged in comparison to mandatory-reassignment or controlled-choice plans in the achievement of racial balance.

**School desegregation**, particularly the court-ordered forced busing that began in the 1970s, has easily been the most controversial issue in public education in this century. Although it no longer receives the national headlines that it did in the 1970s, school desegregation remains an issue that will not go away. Hundreds of school systems, particularly larger ones, maintain active desegregation policies, and many are still under court orders that are over 20 years old. Local controversy flares periodically over such issues as seeking an end to

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court orders (Dallas, San Jose, and Wilmington), local board initiatives to bus for "socioeconomic" balance (La Crosse and Wausau, Wisconsin), and new lawsuits or other initiatives to compel metropolitan desegregation (Hartford, Minneapolis/St. Paul, and Englewood/Tenafly, New Jersey).

In this article, we address the school desegregation issue as it has been implemented over 2½ decades. We have several major objectives: first, to describe national trends in school desegregation using a large national probability sample; second, to describe the prevalence of desegregation techniques, including magnet schools, and various types of plans; third, to present results on the effectiveness of different types of plans. We have also tried to draw conclusions about the effectiveness of compulsory techniques in achieving school desegregation in comparison to approaches that rely on tangible incentives to accomplish the same goal. In short, we hope not only to illuminate the debate over the effectiveness of school desegregation policies but also to make a contribution to the general policy discussion on government regulation.

### STRATEGIES OF GOVERNMENT REGULATION

Of the many issues that have arisen in the debate over school desegregation over the past 25 years, none is more enduring than that of the effectiveness of mandatory desegregation plans—that is, forced busing. Indeed, the debate over school desegregation alternatives is part of a larger debate in the field of public policy over whether government will achieve its goals more efficiently and effectively if it compels persons or agencies directly to perform in some way, rather than if it acts indirectly by establishing market or market-like incentives that make the pursuit of self-interest consistent with the public interest.

In modern states, the choice over which strategy government should use has been made largely in favor of direct government regulation, often called the "command and control" approach (see Reagan 1987). The command and control approach places in the hands of government officials the decision as to how much of a desired goal to achieve and by what means. This strategy typically involves extensive negotiation

between government officials and the affected persons or agencies. And, as a result, the success of the bargaining situation often depends on the skill and creativity of the bureaucrats involved. All too often, the regulated entities outsmart the bureaucrats.

As with other policy alternatives, school desegregation plans can be placed on a continuum from the command and control approach—that is, direct government regulation—to the market incentives approach—indirect government regulation. Mandatory reassignment or "forced busing" plans can be thought of as representing the command and control approach to school desegregation. Courts, federal, and state officials set standards and make findings regarding a violation. They negotiate with school boards to create an acceptable remedy, a process that can take a decade. In the pure model, students are assigned to schools without consultation or choice in order to eliminate segregation.

In the market incentives approach, by contrast, the government's role is to provide positive, and sometimes negative, incentives in order to motivate persons and agencies to act in the desired manner. Voluntary plans, particularly those with magnet incentives, represent the market incentives approach to school desegregation. The goal here is to create, through government action, a new kind of market in previously untraded goods. Many analysts argue that not only is government more likely to achieve the desired goal if it can harness self-interest, it will do so more efficiently than with the command and control approach.

Indeed, it is widely acknowledged that the command and control approach to school desegregation has sparked protest demonstrations, boycotts, marches, and some White flight: all phenomena that have been analyzed extensively by researchers (see, e.g., Armor 1995, 1980, 1988; Coleman, Kelly, and Moore 1975a, 1975b; Coleman 1977; Farley, Wurdock, and Richards 1980; Smylie 1983; Pride and Woodward 1985; Welch and Light 1987; Rossell 1978b, 1983, 1988, 1990a, 1990b, 1994, 1995a; Wilson 1985; Orfield 1988). Although there is a plethora of research on the issue, the conclusions that can be drawn are limited. Only a few of these studies have specifically compared mandatory and voluntary desegregation plans. Even fewer have examined the effect of White flight on the extent of desegregation actually produced by mandatory and voluntary desegregation. The

studies conducted before 1985 are by now outdated, since they are missing recent innovations in desegregation techniques. Several of the more recent studies have limited samples (Armor, 1988; Rossell, 1990a, 1990b, 1994, 1995a; Wilson, 1985), whereas one other study (Orfield, 1988) has not only a small sample but also no control variables.

The study presented in this article overcomes many of these problems. Commissioned by the U.S. Department of Education (DOE), this study represents the largest national sample and most complete data on school desegregation ever assembled. Although the focus of the original DOE study was on the prevalence and characteristics of magnet schools and their impact on desegregation, these data, obtained from national data sources and extensive questionnaires completed by school administrators, can also be used to study the effectiveness of a variety of other desegregation techniques.

### SAMPLE AND DATA COLLECTION

The primary data for this study are derived from a national probability sample of 600 school districts drawn from a universe of about 6,400 school districts, with more than one school for at least one grade grouping.<sup>1</sup> The universe is stratified according to district size and racial composition. Sample sizes within strata are proportional to district size, and thus all 155 districts with very large enrollments (at or above 27,750 students) are sampled with certainty, whereas only 100 districts are sampled to represent approximately 4,800 small districts with enrollments of less than 5,000 students. Samples of 195 and 150 districts, respectively, represent large districts (10,000 to 27,750 students) and medium districts (5,000 to 9,999 students). In addition, at the request of DOE, all school districts that had participated in the federal government Magnet School Assistance Program (MSAP) are also included with certainty.

Two types of data—enrollment data and questionnaire data—are collected for this sample. Enrollment data by school and race are obtained from the DOE's Office for Civil Rights (OCR) enrollment files for the years 1968 to 1986 and from the Department's Common Core of Data files for the years 1987 to 1991.<sup>2</sup>

In the national survey, questionnaires were sent to each school district to be completed either by self-administration or by means of a telephone interview. In addition, districts with formal desegregation plans were asked to submit a copy of their written plan. The questionnaires cover such areas as the number of magnet schools, the existence of a formal desegregation plan, the specific type of plan techniques used currently or previously, whether the district formerly has a desegregation plan, the year the plan started, and the source of the plan. More detailed information was also collected on the types of magnet school programs. Approximately 80% of districts completed the entire questionnaire, and another 10% answered key questions about the existence of magnet schools or desegregation plans and techniques. In some cases, inconsistent or incomplete questionnaire data on plan characteristics were corrected, refined, or completed by using existing data sources (e.g., Welch and Light 1987) and our own extensive case files.

The nature of desegregation plans, and indeed even the need for them, are influenced heavily by the size of a school district. In a smaller school district, for example, with only a single high school, two middle schools, and several elementary schools, desegregation can often be accomplished by a relatively simple adjustment of school attendance zones. The larger the district, the greater the logistical challenges for attaining a given degree of racial balance, and the greater the variety of techniques that may be employed. For this reason, all analyses are carried out separately for three size groupings of school districts. Findings are presented for all districts, districts with enrollments at or above 5,000, and finally for the 150 largest districts in the United States—those with enrollments at or above 27,750.

### NATIONAL TRENDS IN DESEGREGATION

Prior to the 1968 Supreme Court decision, *Green v. Board of Education*, substantial majorities of both Black and White students were enrolled in predominantly one-race schools (i.e., over 90% Black or White) in the South and, to a lesser extent, in the North. However, this began to change after *Green*, and the changes accelerated with *Swann v. Charlotte-Mecklenburg* in 1971. These Supreme Court de-

cisions led to court-ordered racial balance remedies throughout the South, and in the larger cities of the North, during the 1970s.

The impact of these remedies over time can be assessed using several summary measures widely used by social scientists. Our first measure is simply the trend in racial composition—that is, the percentage White—which is important because it affects the potential for desegregation. Figure 1 shows these trends by size of school district.<sup>3</sup> Overall, the percentage White in public school enrollment has been falling since the late 1960s, a trend that is especially marked in the very large school districts (at or above 27,750 students) where most minority students reside. In these very large districts, approximately 66% of the enrollment was White in 1968, but it had dwindled to 44% by 1991. This drop reflects not only a declining White student population, but an increasing Black enrollment (from 29% to 34%), and more recently an increased Hispanic and Asian enrollment (from 7% to 14% and from 1% to 6%, respectively). For all districts and districts with enrollments at or above 5,000 students, the percentage White has also fallen but not nearly as much as in very large districts. Clearly, the loss of White students has reduced the potential for meaningful desegregation in the largest school districts.

We assess the trends in school desegregation<sup>4</sup> with two different indices—the index of dissimilarity (racial imbalance) and the index of interracial exposure. We present both of these measures because they can show very different evaluations of desegregation outcomes. The index of dissimilarity measures the degree of departure from perfect racial balance, regardless of the proportion of Whites in a district. For example, if a school district is 99% Black and every school is 99% Black, the district is perfectly desegregated according to the index of dissimilarity.<sup>5</sup> In other words, there is no dissimilarity between the racial composition of the schools and that of the district. The dissimilarity index thus reflects the effort made at desegregation, even if it ignores the cost in terms of White flight.

A more complete measure of desegregation is the interracial exposure index, which is the percentage White in the average Black child's school.<sup>6</sup> This index reflects both the distribution of races across schools and the absolute percentage of Whites in the schools. Because the percentage White in the average Black child's school increases with improved balance, but decreases with White enrollment loss, the

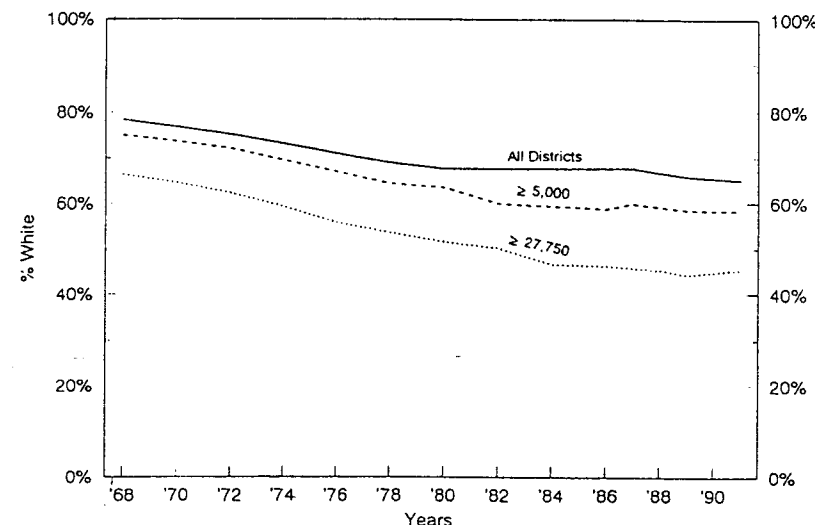


Figure 1: Trends in Percentage White in the United States

exposure index assesses the “net benefit” of school desegregation plans. In the example above, the exposure index would show a very low value of 1%, or virtually no desegregation.<sup>7</sup>

The trend in Black-White racial imbalance, presented in Figure 2, reveals very substantial reductions between 1968 and 1974, and some further reductions until the early 1980s. From that time to the present, there has been less improvement, but there is no suggestion in these data that racial imbalance between Blacks and Whites is worsening, even though many school districts have been released from court supervision in recent years.

Interracial exposure, the percentage White in the average Black child's school, is shown in Figure 3 for Black students. For all size groupings of districts, there are clearly two distinct phases to the trend—first, improvement between 1968 and 1974, and second, decline afterward. For example, in 1968, Black students in the very largest districts were exposed to an average of only 30% White in their schools, which climbed to a high of about 43% in 1972 after courts began implementing the *Green* and *Swann* decisions. But from 1974 onward, interracial exposure began a steady decline as the percentage

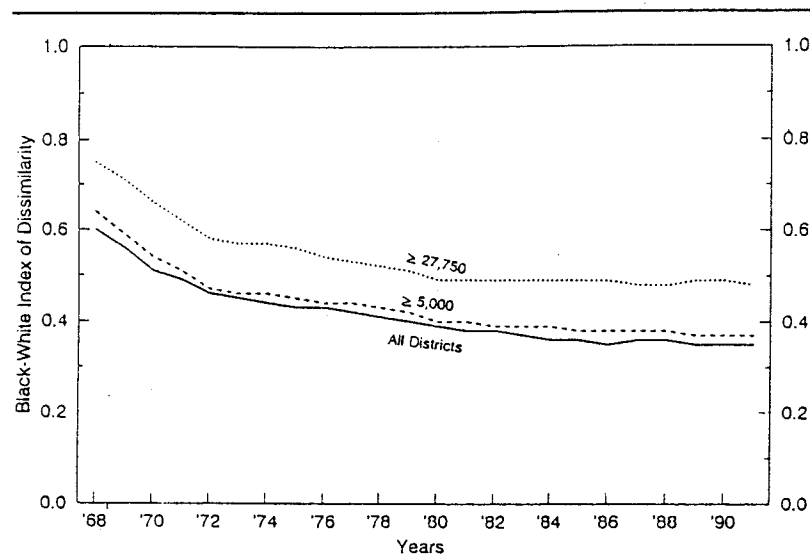


Figure 2: Trends in Racial Imbalance in the United States

White enrollment fell in these districts. By 1991, the exposure index had fallen to 36, six points higher than where it had started. Of course, the percentage White had also declined, so that the degree of exposure relative to available Whites was much higher than it was in 1968, a pattern that is repeated for the other groups of school districts.

#### TRENDS BY DESEGREGATION PLAN STATUS

Although it appears that there has been improvement in school desegregation, these trends do not indicate the influence of desegregation plans as opposed to demographic changes in general. For this, we need to break down the trends by whether or not a district has had a formal desegregation plan. Table 1 shows the frequency of plans—that is, the percentage of districts that currently have a formal desegregation plan, or that formerly had such a plan, according to the size of the district. If we consider all districts, shown in the top row, having a desegregation plan is fairly uncommon; only 12% of all districts currently have desegregation plans, which increases to 17% if we add those with former plans. The reason for this low prevalence rate is the

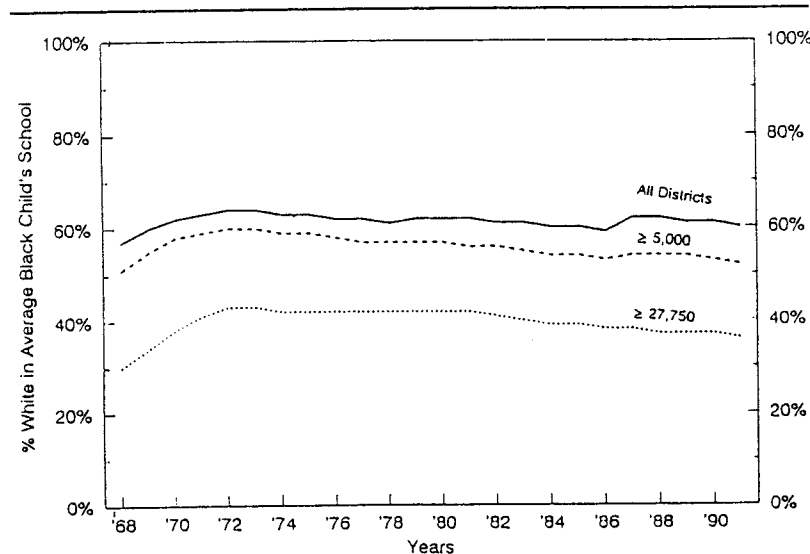


Figure 3: Trends in Interracial Exposure in the United States

large number of small school districts (enrollments less than 5,000) that do not have plans.

If we consider very large districts, however, shown in the bottom row of Table 1, nearly 60% have current desegregation plans and more than 70% have current or former plans. Excluding only the small districts, about 30% of medium or larger districts (the middle row) have current plans, which increases to 40% if we add those with former plans. Because the universe of medium and larger districts is about 1,600, this means that over 450 medium or larger school districts throughout the country have formal desegregation plans as of 1991-1992.

To estimate the contribution of desegregation plans, we compare desegregation trends for those districts that have had formal plans to those that have not, shown in Figures 4a and 4b for very large districts.<sup>8</sup> The trends are further broken down by region because of very different regional patterns. We focus on interracial exposure as our measure of desegregation because, as discussed above, it gives a more complete picture of what most people think of when they think of desegregation—that is, the absolute level of contact between the races. We have

TABLE 1  
Percentage of Districts With a Desegregation Plan

	Currently (1991)	Currently or Formerly
All districts	12	17
Districts > 5,000	29	40
Districts > 27,750	59	71

added trends in percentage White to the same figure, however, to enable the reader to assess the extent to which interracial exposure is a function, not just of desegregation plans, but of the starting point in percentage White for districts with and without desegregation plans.

In both regions, districts without formal desegregation plans have more interracial exposure than those with formal plans throughout the 23-year time period. The reason this is the case, however, is that the districts without plans had a much higher percentage White than those with plans. In short, desegregation plans are characterized by a selection bias—the most segregated and highest percentage minority districts adopted, or were ordered to adopt, desegregation plans. The least segregated and lowest percentage minority districts were left alone.

Considering southern districts first (Figure 4a), the districts with formal plans show the largest gains in exposure, increasing from less than 20% White in the average Black child's school in 1968 to 50% by 1972. The White enrollment in these school districts started at nearly 70%, declined faster between 1968 and 1974 when most desegregation plans were implemented, and then continued a steady decline to about 55% in 1991.

There are only 11 very large districts in the South that did not have formal desegregation plans, and they averaged 90% White in 1968. All accomplished desegregation in 1969 or 1970 by adopting geographic (neighborhood) attendance zones, in some cases closing Black-designated schools in the process. In the aftermath of massive mandatory busing plans during the 1970s, these 11 districts did not consider their early policies to constitute a formal desegregation plan. Nevertheless, dismantling the dual school system, even if by neighborhood attendance zones, produced considerable improvement in Black exposure to Whites between 1968 and 1970 and a high level of exposure and percentage White through 1991 in southern districts

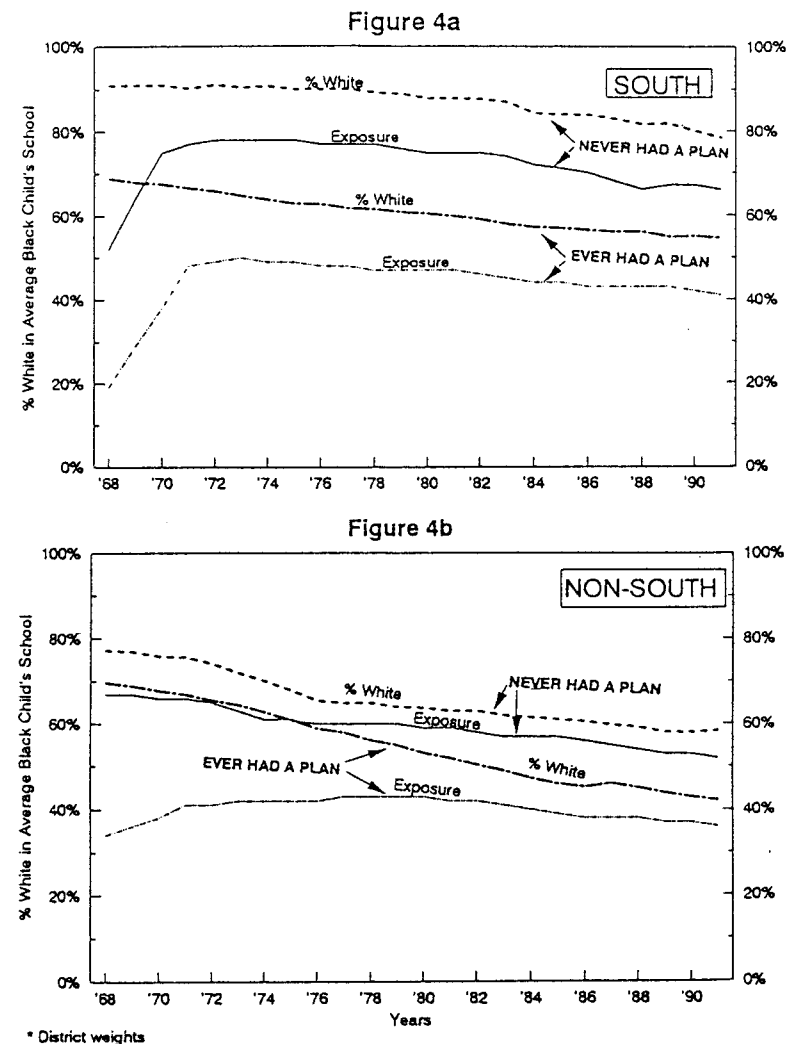


Figure 4: Trends in Interracial Exposure and Percentage White in Districts  $\geq 27,750$  by Plan and Region\*

without formal plans. Indeed, these southern districts without plans still had almost 30 points more exposure than southern districts with plans—virtually the same advantage they had in 1968.

The nonsouthern districts with and without plans (Figure 4b) have different trends in exposure. Very large districts without formal plans have a gradual decline in interracial exposure in response to declining White enrollments. They do, however, show a modest closing of the gap between exposure and the percentage White, suggesting that some improvements in desegregation have taken place even without formal plans.

For very large districts with formal plans, however, Black exposure to Whites improved from about 34% in 1968 to a high of 42% in 1980, with a gradual decline after that in response to falling White enrollments. It should be noted that the percentage White fell more sharply for districts with plans, so that by 1991 these districts had an index of 36%, only a few points greater than in 1968.

Not surprisingly, most of the improvement in national desegregation trends is attributable to some sort of desegregation plan or policy, rather than to demographic changes, with the greatest improvement occurring in the South where a dual school system was dismantled. The only group of districts that did not show an increase in the exposure index were nonsouthern districts without plans. Even nonsouthern districts *with* plans did not have an impressive performance, however, because of a rapidly declining percentage White, which was much steeper than any other group of districts.

#### PREVALENCE OF DESEGREGATION TECHNIQUES

The four decades since *Brown v. Board of Education* have seen many changes in desegregation strategies and techniques, most in response to evolving court doctrines regarding the definition of desegregation. Prior to the 1968 *Green* and 1971 *Swann* decisions, the focus was on eliminating forced or de jure segregation, and techniques such as "freedom of choice" and neighborhood schools were popular and legitimate remedies. The effectiveness of freedom of choice was soon challenged, however, since it allowed students to choose any school without reference to racial impact, thus perpetuating the illegal dual school system. In many smaller school districts, adopting neighborhood attendance zones was quite effective in desegregating schools, but it soon became clear that neighborhood schools could not ensure

racially balanced schools in larger districts that were segregated residentially.

After 1968, effectiveness was defined, not just as ending forced segregation, but as eliminating one-race schools and, by 1971, as the creation of racially balanced schools. In most larger school districts, these new definitions required more dramatic remedies for school segregation, including *forced busing*, a term applied to two techniques that involve noncontiguous attendance zones. The first of these, pairing and clustering, involves combining two or more schools of differing racial compositions, usually in different parts of a city, so that all students attend one school for various grades (e.g., two K-6 schools become one K-3 school and one 4-6 school). The second technique, satellite zoning, also called "island" or "pocket" zoning, consists of assigning a geographic area with a given racial makeup to a school with the opposite racial makeup.

Community opposition to these techniques, and related concerns about White flight, led to increasing interest in voluntary desegregation techniques in the mid to late 1970s. One voluntary technique is a majority-to-minority program (M-to-M), in which students can transfer from a school in which their race is in a majority to a school in which their race is in a minority. The second voluntary technique is magnet schools, which are schools that attract students by offering special curricula not available in regular schools (e.g., computer science or performing arts); racial balance is attained by placing ceilings on the enrollment of each racial group to reflect the district's racial composition. Although magnet schools could be (and were) used as options in a mandatory plan, during the 1980s magnet schools began to be coupled with M-to-M programs and contiguous rezoning to create predominantly voluntary plans as an alternative to the mandatory techniques of pairing, clustering, and satellite zoning.

The newest type of desegregation plan is called controlled choice, which combines elements of both mandatory and voluntary plans. In its purest form, all geographic zones are eliminated and parents are asked instead to list in rank order their choices of schools, which usually can include their current neighborhood school. The administration assigns students to a school in order to maximize choice, but also to maintain racial balance in each school. Although most parents

and students receive their first, second, or third choices, some students are mandatorily assigned to schools that were not chosen by enough students of various races to create racial balance. Another form of controlled choice leaves geographic zones in place, but places racial balance caps on each school so that new residents to the zone can attend the school only if they maintain or improve the racial balance. If the quota for their race has been met in their neighborhood school, they have to choose another school. Most controlled choice programs also utilize magnet schools in order to enhance choices to schools that might otherwise remain segregated.

The prevalence of these techniques has changed over time, and currently most districts use more than one. As of 1991, the most common technique in medium and larger districts that have desegregation plans is contiguous rezoning, used in about 70% of plan districts. The voluntary techniques of M-to-M and magnet schools are used in 52% and 45%, respectively, of medium and larger districts. About 32% of these districts currently use pairing and clustering, while 35% use satellite zoning. Altogether, 47% use one or the other of these mandatory techniques. Finally, only about 6% use controlled choice methods. Very large districts have a somewhat different profile, with magnet schools increasing to 79% and M-to-M utilization dropping to 29%. About 62% of very large districts use either pairing/clustering or satellite zoning, with the latter being more common, whereas only 5% use controlled choice.

In general, most desegregation plans consist of a combination of these techniques. Previous research indicates, however, that the most important factor influencing public response to school desegregation plans is not the specific techniques used, but whether the plan is primarily voluntary or mandatory—that is, whether parents can choose to stay at their neighborhood school. Thus we have developed a typology of desegregation plans to be used throughout the remainder of this article that includes all of the above techniques but that focuses on the basic thrust of the plan combining degrees of plan coercion and the use of magnets as educational options or desegregation incentives. The typology is shown below in the order of the extent of parental choice:

1. Voluntary M-to-M (voluntary, no magnets)
2. Magnet-Voluntary (voluntary with magnets)

3. Controlled choice with magnets<sup>9</sup>
4. Magnet-Mandatory (mandatory with magnets)
5. Mandatory, no magnets

The prevalence of each type of plan in districts with plans as of 1991 is presented in Table 2, broken down according to the size of the district. Voluntary M-to-M plans use only M-to-M and contiguous rezoning techniques and are found in only 8% of medium and larger districts with plans and in only 5% of very large districts with plans. Magnet-voluntary plans use magnet schools coupled either with contiguous rezoning or M-to-M or both; no pairing, clustering, or satellite zoning techniques are used. These plans are found in 21% of medium and larger districts and 29% of very large districts.

Across all size groups, mandatory plans are more common than voluntary plans, but in the larger districts, they typically include magnet schools (49%), whereas across all districts, mandatory plans without magnets are most common (52%). Controlled choice plans are used by 4% to 6% of districts, depending on size, and all in this sample have magnet schools.

It is clear, then, that forced busing is still the most common method of desegregation, in spite of its continuing controversy. Only about one third of the very large districts use voluntary techniques as the predominant mode of desegregation, whereas two thirds use mandatory techniques of some sort, albeit supplemented with magnet schools in most cases. This means that hundreds of thousands of students in hundreds of school districts across the country are still subject to mandatory reassignment plans implemented, on average, about 2 decades ago.

### THE EFFECTIVENESS OF DIFFERENT TYPES OF DESEGREGATION PLANS

In this section, we address the most important question of this article: What is the relative effectiveness of the various types of desegregation plans? In Figures 5a and 5b, we examine trends in interracial exposure, with the districts with formal plans broken down into three desegregation categories: (a) districts that currently or



TABLE 2  
Prevalence of Types of Desegregation Plans (in percentages)

	<i>All Districts With Plans</i>	<i>Districts ≥ 5,000 With Plans</i>	<i>Districts ≥ 27,750 With Plans</i>
Voluntary M to M	4	8	5
Magnet-voluntary	23	21	29
Controlled choice	4	6	5
Magnet-mandatory	17	28	49
Mandatory—no magnets	52	37	12

formerly had a mandatory reassignment desegregation plan, (b) districts that had only voluntary desegregation, and (c) districts that had only a controlled choice plan.<sup>10</sup> This figure also includes, for comparison purposes, the districts that have never had a formal desegregation plan.

Among the districts with formal desegregation plans in the South, between 1970 and 1973 the mandatory plans produced about 15 percentage points more interracial exposure than the voluntary plans. By 1991, however, the advantage of mandatory over voluntary plans had dwindled to less than 5 points and the trend is toward no difference within a few years. Outside the South, the mandatory plans initially produced about 10 percentage points more interracial exposure than the voluntary plans. By 1991, however, there was virtually no advantage to having adopted a mandatory reassignment or a controlled choice plan rather than a voluntary plan. Both types of plans, however, produced more desegregation than no formal plans.

#### MULTIPLE REGRESSION ANALYSIS

The trends depicted in Figures 4 and 5 represent the impact of desegregation plans on interracial exposure with two control variables: size of district and region. In the remainder of this section, we use multiple regression to test for the effects of a large number of variables that might also influence the effectiveness of desegregation plans. Our analysis of effectiveness includes three desegregation outcomes: White flight, racial imbalance, and interracial exposure. The major dependent variable will be change in each of these out-

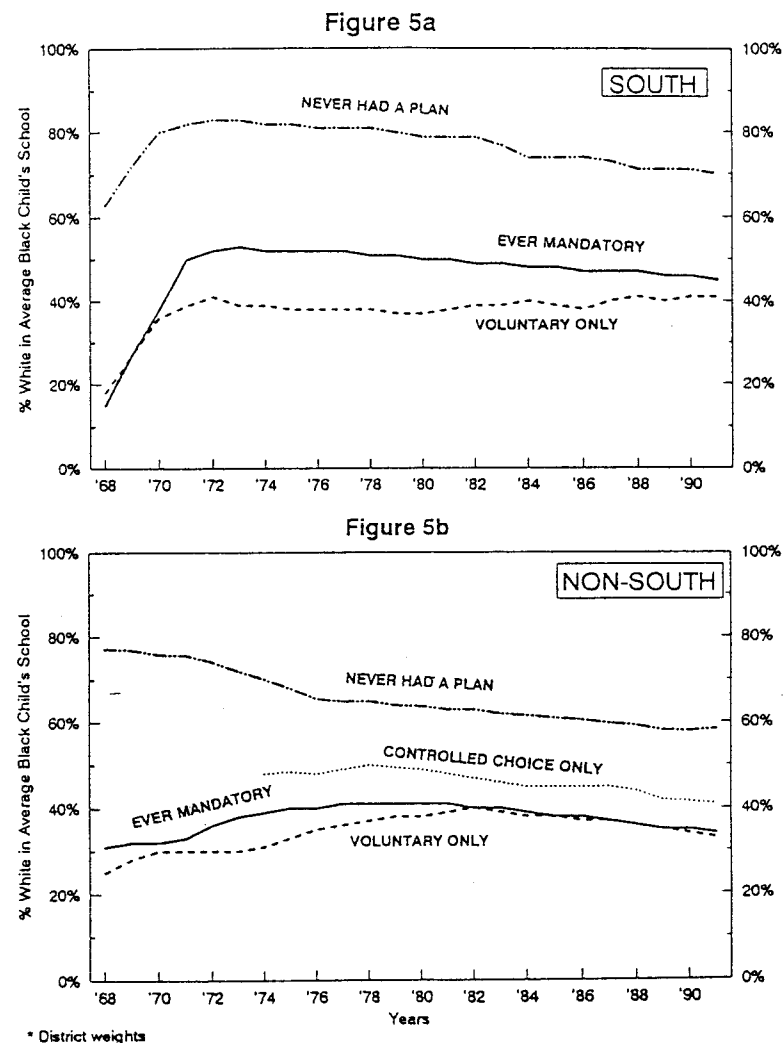


Figure 5: Trends in Interracial Exposure in Districts ≥ 27,750 by Type of Plan and Region\*

comes from 1968 to 1991, the first and the latest years for which we have relatively complete enrollment data.

Our major policy variable of interest is the effectiveness of voluntary versus mandatory desegregation plans, as shown in Figure 5.

Although it might be desirable to distinguish among the specific plan types shown in Table 2, we do not have information for many districts on the details of prior plans beyond whether they were mandatory or voluntary to do this completely. In addition, our experience is that if a district ever had a regular mandatory plan (either a pairing/clustering or noncontiguous zoning plan), its effects will dominate any subsequent plan. Therefore, we combine districts that currently have or formerly had a mandatory pairing/noncontiguous zoning plan into a single category, designating that they ever had a mandatory plan. This category—denoted ever-mandatory plan—is distinguished from districts that have had only a voluntary plan (denoted voluntary-only plan) or only a controlled choice plan (denoted controlled choice-only plan).

For each outcome measure, we estimate two general models using this typology of desegregation plans. In the first model, we utilize data from all school districts, including districts that have never had a formal desegregation plan, to assess the effectiveness of desegregation plans. The major independent policy variables are the dummy variables denoting whether a given district ever had a mandatory plan, voluntary plan only, controlled-choice plan only, and formerly had a plan (characteristics not known). The omitted plan variable in this equation represents districts that never had a desegregation plan.

The second model includes only districts with current or former desegregation plans that can be classified in order to assess the relative effectiveness of voluntary and controlled choice desegregation plans compared to the plan with the least choice—that is, whether the district ever had a mandatory plan. The policy dummy variables are thus voluntary-only plan, controlled choice-only plan, and the omitted dummy variable, ever-mandatory plan.

In both models, we also control for a wide range of social class, demographic, and geographic variables. Social class variables are included because higher social class results in higher levels of White flight associated with the implementation of a desegregation plan, but also the increase in interracial exposure and reduction in racial imbalance (see Rossell 1978b; Rossell 1990a, 1990b, 1995a). To capture these effects, we include two social class variables: percent free/reduced lunch, 1991—the best measure available of the social class

of the public school children<sup>11</sup>—and median family income, 1980—census data aggregated to the level of school districts.<sup>12</sup>

The population and enrollment trend characteristics include the following variables that are thought to have an effect on the outcomes variables. Percentage White 1968 is included because it places limits on interracial exposure, since the percentage White in the average minority child's school can be no higher than the percentage White in the school district. The percentage White also has an accelerating effect on White enrollment decline with the implementation of a desegregation plan (Armor 1980, 1988, 1995; Rossell 1990a, 1990b, 1994, 1995a) and in the absence of a plan.

The next set of variables represents regional categories (south, central, west, and northeast dummy variables, with central region omitted). We include these variables in our models because there are regional variations in state policies, court orders, and demographic trends that can influence the desegregation outcomes. We also include a dummy variable measuring whether a school district is countywide. The argument is often made in the desegregation literature (see, e.g., Orfield 1988) that countywide districts, because they include the city and the suburbs, will have less White loss over time and thus less decline in interracial exposure and increase in racial imbalance. Another set of binary variables represents suburban, rural, and urban school districts, with rural omitted. Suburban and, in particular, rural districts are gaining Whites, and urban districts, regardless of whether they adopt a desegregation plan, are losing them. We also include the proportional change in non-White enrollment, 1968-1991, because interracial exposure is heavily influenced by the percentage White in the district and the percentage White in turn is influenced by two factors: change in White enrollment and change in non-White enrollment. Years since desegregation is also included in the models. Although desegregation plans have the greatest single annual negative effect on White enrollment and a positive effect on interracial exposure and racial imbalance in the first few years following a desegregation plan (see Rossell 1990a, 1990b, 1995a), previous research has found that the greater the number of years since desegregation, the greater the White enrollment loss (see Armor 1980; Coleman, Kelly, and Moore 1975a, 1975b; Rossell 1990a, 1990b, 1995a). We also take the

log of the variable, enrollment 1968, as an estimate of busing distance and logistical difficulty in desegregating a school system; this variable can also be seen as a measure of the underlying normal demographic trend. The greater the busing distance, the greater the White flight (Rossell 1988).

The normal White enrollment trend controls for the underlying demographic trend affecting school districts, independent of any desegregation policy actions. Because there is no predesegregation trend data and no information on metropolitan trends for most school districts (see Rossell 1990a, 1990b, 1995a), our solution to estimating the "normal" demographic trend in White enrollment change is to compute a variable that measures the mean proportional White enrollment change from 1968 to 1991 among the districts that never had a desegregation plan for five different categories of 1968 percentage White crosstabulated by four different regions. This variable then becomes a control variable for the districts with desegregation plans in the same quintile of percentage White in 1968 and the same region. For the nondesegregating districts, the normal demographic trend is simply their actual White enrollment change during this period.

We have estimated these two models using the three district size groupings described earlier, but for the sake of space we will present only the regression results for medium and larger districts with enrollments over 5,000. Generally, the results for the critical desegregation plan variables are similar for all size distinctions, undoubtedly because the control variables remove most of the variations in outcomes that might otherwise be associated with district size.<sup>13</sup>

#### WHITE FLIGHT

Although the issue of White flight from mandatory desegregation plans has been hotly debated since Coleman, Kelly, and Moore (1975a, 1975b) charged that mandatory desegregation plans were counterproductive, in only seven studies (Smylie 1983; Welch and Light 1987; Armor 1980; Rossell 1990a, 1990b, 1995a; Wilson 1985; Orfield 1988) have voluntary and mandatory plans been compared specifically. With the exception of Wilson (1985), mandatory plans have been found to produce more White flight.<sup>14</sup>

White flight is measured by calculating the percentage change in White enrollment from 1968 to 1991.<sup>15</sup> This differs from the percentage White shown in Figure 1 because that variable is a measure of racial composition and thus is influenced by minority, as well as by White, enrollment trends. The change in percentage White is, therefore, not a good measure of White flight from desegregation because increasing minority enrollment alone could produce a declining percentage White even if no Whites left the school system.

The extent of White enrollment change over the 23-year time period differs by plan status. The average percentage White enrollment change for districts in this sample that never had desegregation plans is -3.0% over this time period. For districts that currently or formerly had desegregation plans, however, the loss is much higher, -25%.

Table 3 shows the effect of desegregation plan and control variables on the percentage White enrollment change<sup>16</sup> from 1968 to 1991. (Missing data are deleted listwise.) The model from Equation 1, which explains 86% of the variance in White enrollment decline, depicts the relationship to White flight of the *major* plan type—combining former and current desegregation plan characteristics over the 23-year time period—in comparison to districts that never had a plan, the omitted dummy variable, and controlling for the social, demographic, and geographic variables discussed above.

The results in Equation 1 suggest that school districts that began with a higher percentage White in 1968 experienced more White enrollment decline—probably because they had more of the kinds of Whites likely to leave a school system over time. In addition, county-wide school districts exhibit less White enrollment decline than central city school districts, as hypothesized. Most southern school districts are countywide, and most nonsouthern school districts are central city school districts. Once having controlled for whether a district is countywide, southern school districts, the major locus of desegregation activity in the United States, have significantly greater White enrollment decline if they are not countywide.

Whether a school district is rural, urban, or suburban has no effect on White enrollment decline, nor does the growth in non-White enrollment. The control variable measuring the "normal" percentage White enrollment change 1968-1991 of school districts that never had

TABLE 3  
Relationship Between Percentage White Enrollment  
Change 1968-1991 and School District  
and Major Desegregation Plan Characteristics

	<i>All Districts</i>		<i>Districts With Plans</i>	
	<i>Equation 1</i>		<i>Equation 2</i>	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
Social, demographic, and geographic variables				
Percentage White 1968	-0.518*	-5.530	0.214	1.255
South [vs. Central]	-27.072*	-5.358	-2.606	-0.358
Northeast [vs. Central]	0.780	0.169	-14.322*	-2.746
West [vs. Central]	-0.101	-0.024	9.005	1.662
County district	18.307*	5.007	37.836*	8.591
Suburban [vs. Rural]	0.034	0.008	27.257*	3.841
Urban [vs. Rural]	-1.144	-0.254	9.706	1.601
Percentage non-White enrollment change 1968-1991	0.001	1.197	0.017*	3.443
Normal percentage White enrollment change 1968-1991	0.894*	56.314	-0.004	-0.096
Percentage free/reduced lunch	-0.425*	-4.067	-0.456*	-4.783
Income	0.00002	0.055	-0.002*	-3.002
Log of enrollment 1968	-24.536*	-5.177	-27.522*	-6.295
Years since major desegregation plan	-1.127*	-2.734	0.510	1.902
Desegregation variable <sup>a</sup>				
Ever had a mandatory plan	-32.829*	-7.595		
Voluntary plan only	-1.986	-3.04	17.867*	4.051
Controlled choice only	-26.890*	-2.006	8.594	1.043
Formerly had plan (characteristics not known)	-20.687*	-4.116	—	—
Constant	170.440*	7.814	91.892*	3.602
Adjusted R <sup>2</sup>	0.862		0.567	
N	1,009		267	

NOTE: See appendix for means and standard deviations of variables used in this table. *b* = unstandardized regression coefficient, *t* = test of statistical significance for regression coefficients.

a. The omitted dummy desegregation policy variable for Equation 1 (all districts) is "never had a plan"; the omitted dummy desegregation policy is "ever mandatory plan."

\*Significant at .05 level or better.

a desegregation plan shows a positive relationship to White enrollment decline. In short, the average district in this nationwide sample, most of which never had desegregation plans, exhibits an increase in percentage White enrollment.

In addition, and also as predicted, poorer school districts—that is, those with a higher percentage of students on free or reduced lunch—had more White enrollment decline over this time period. The same can be said for the larger school districts and those with more years since desegregation (i.e., those districts that desegregated earlier). The latter finding indicates that the greater the time period since a plan was implemented, the greater the White enrollment decline.

After controlling for all of these variables—most important, the normal White enrollment loss in the absence of a plan—our results suggest that districts that have ever had a mandatory plan exhibit a 33% reduction in White enrollment over the period from 1968 to 1991, at least in comparison to those districts that never had a plan. This can be compared to the 27% White enrollment decline associated with having a controlled-choice plan.<sup>17</sup> Formerly (but not currently) having a desegregation plan also has a significant influence on White enrollment decline (22%) compared to never having had a desegregation plan.<sup>18</sup> It is likely that most of the plans in the South and border states consisted primarily of neighborhood school plans and contiguous rezoning. Finally, having a voluntary-only plan is associated with a mere 2.9% White enrollment decline, and this effect is not statistically significant.

As previous research has suggested, these results indicate that the plans that do not produce significant White flight are voluntary plans that do not use mandatory reassignments. Although supporters of controlled choice have argued that such plans are primarily a type of voluntary plan (since most parents get their first choice of schools), the fact that they do involve some mandatory reassignments, coupled with the fact that parents do not know for sure whether they will get their first choice, appears to be sufficient to produce significant White flight.<sup>19</sup>

For the results in Equation 2, we test for the effect of the major plan—voluntary-only or controlled choice-only—against the ever-mandatory plans, which constitute the omitted dummy variable. The control variables generally exhibit the same effects in this equation. The major differences are that suburban school districts now have less White enrollment decline, and the northeast region has significantly greater White enrollment decline than other regions. In addition, the

less the percentage growth in non-White enrollment, the greater the White enrollment decline. This finding is probably due to the fact that, as with percentage White, it is these kinds of school districts that have more of the kinds of Whites likely to leave or to have smaller families.

In this equation, voluntary-only desegregation plans produce significantly less White flight than ever-mandatory plans. Controlled-choice desegregation plans produce less White flight than mandatory reassignment plans, but the difference is not significant. In short, as virtually all analysts have found, mandatory reassignments produce significant White flight. Moreover, controlled-choice plans include enough mandatory reassignments, or the perception of mandatory reassignments, that they are not significantly different from an ordinary mandatory reassignment plan in the magnitude of White flight produced.

#### RACIAL IMBALANCE

Despite the fact that racial imbalance tells us little about how many Whites are left in the school system and thus how much actual exposure there is, it has been the standard used by most courts<sup>20</sup> and social scientists. The most common measure of racial imbalance used by social scientists is the index of dissimilarity, discussed above, which measures the extent to which each school deviates from the school district's racial composition.<sup>21</sup> Despite its limitations, racial imbalance does have one important use for school desegregation policy—it is a measure of the effort that has gone into these desegregation plans, since the goal is typically racial balance (i.e., the even distribution of Black and White students across the schools in a district).

As in Figure 2, the scale for the index of dissimilarity ranges from 0.00 to 1.00. The results for Equation 1 in Table 4, which explains only 16% of the variance in racial imbalance, indicate that over the 23-year time period the greatest reduction in racial imbalance (independent of plan type) occurs in lower income school districts that desegregated earlier, experienced greater growth in non-White enrollment, were in the central region, and were in rural areas.

Desegregation plans have a significant effect on reducing racial imbalance independent of these other variables. Districts with volun-

tary and mandatory desegregation plans significantly reduce racial imbalance in the schools compared to districts never having had a plan. Moreover, the magnitude of this reduction ranges from  $-0.074$  for the districts that had only voluntary plans to  $-0.150$  for the districts that ever had a mandatory reassignment plan. Controlled choice plans also reduce racial imbalance, but their average  $-0.131$  change over this time period is not significantly different from the average change of  $-0.093$  for those never having had a plan. Districts that formerly had desegregation plans of unknown characteristics also had a significant reduction in racial imbalance.

The equation explains only 16% of the variation, however, in part because almost all school districts in the United States, even those without a formal plan, experienced a reduction in racial imbalance (i.e., became more racially balanced) over this time period. We believe that this was accomplished by districts consciously opening and closing schools so as to improve racial balance and, when a school was overcrowded, by occasionally redrawing attendance zones in such a way that it did not increase racial imbalance. Thus the civil rights movement appears to have been successful in making school districts aware of the fact that they could be sued for intentional segregation if they did anything that increased racial imbalance.

As a result, out of almost 600 school districts, only 56 had an increase in racial imbalance from 1968 to 1991, and for these the average increase was modest. Several school districts had large increases, but this typically occurred in districts that either had no Blacks in 1968 or no Whites. In the former type of district, one school becoming imbalanced could produce a rather large increase in the index of dissimilarity. In the latter type of district, the school administration probably gave up on school desegregation.

Equation 2 in Table 4 includes only the districts with controlled-choice only and voluntary-only plans, compared to ever-mandatory plans, and the model explains considerably more variance (a total of 28%) than Equation 1. The control variables show similar relationships, but some are not significant because of the reduction in sample size. The one difference between the two equations is in the effect of region. Once we focus only on the districts with plans, the southern school districts exhibit a significantly greater reduction in racial imbalance than do other regions. This is not surprising, in that this

TABLE 4  
Relationship Between Racial Imbalance Change 1968-1991  
and School District and Major Desegregation Plan Characteristics

	All Districts		Districts With Plans	
	Equation 1		Equation 2	
	b	t	b	t
Social, demographic, and geographic variables				
Percentage White 1968	-0.001	1.151	-0.0009	-0.669
South [vs. Central]	0.094*	3.283	-0.193*	-3.364
Northeast [vs. Central]	0.169*	6.598	0.093*	2.290
West [vs. Central]	0.062*	2.629	0.017	0.412
County district	-0.023	-1.122	0.038	1.061
Suburban [vs. Rural]	0.090*	3.780	0.257*	4.363
Urban [vs. Rural]	0.057*	2.260	0.186*	3.869
Percentage non-White enrollment change 1968-1991	-0.00002*	-4.370	-0.00005	-1.346
Normal percentage White enrollment change 1968-1991	-0.00003	-0.329	0.00004	1.223
Percentage free/reduced lunch	0.0001	-0.173	-0.00006	-0.076
Income	-0.000005*	-2.244	-0.000008	-1.442
Log of enrollment 1968	-0.021	-0.768	0.024	0.684
Years since major desegregation plan	-0.008*	-3.558	-0.004	-1.072
Desegregation variable <sup>a</sup>				
Ever had a mandatory plan	-0.150*	-6.046		
Voluntary plan only	-0.074*	-2.048	0.005	0.139
Controlled choice only	-0.131	-1.776	-0.001	-0.009
Formerly had plan (characteristics not known)	-0.078*	-2.811	—	—
Constant	-0.093	-0.746	-0.334	-1.607
Adjusted R <sup>2</sup>	0.158		0.276	
N	927		250	

NOTE: See appendix for means and standard deviations of variables used in this table. b = unstandardized regression coefficient, t = test of statistical significance for regression coefficients. a. The omitted dummy desegregation policy variable for Equation 1 (all districts) is "never had a plan"; the omitted dummy desegregation policy is "ever mandatory plan."

\*Significant at .05 level or better.

region was the focus of most desegregation activity in the United States for at least 2 decades.

After having controlled for the effects of these variables, there is no significant difference between voluntary-only and controlled choice-

only desegregation plans, on one hand, and ever-mandatory plans, on the other. Given the much greater support for a voluntary plan (see Russell 1995a, 1995b), the finding that voluntary plans produce as much racial balance as mandatory plans has considerable legal implications. It means that the courts can actually approve the most popular desegregation plan and expect it to produce as much racial imbalance as the least popular one.

#### INTERRACIAL EXPOSURE

Although the results presented in Table 3 indicate that desegregation plans with mandatory reassignments cause significant White flight, this is an insufficient basis for determining the effectiveness of a particular type of plan. Considering only the White flight costs of school desegregation plans is improper from a policy analysis perspective. If one were only to consider "costs," the most successful desegregation plan would typically be to do nothing, since that produces the least White flight, all other things being equal. On the other hand, the analysis of racial balance, as measured by the index of dissimilarity, largely ignores White flight. Large reductions in racial imbalance can be achieved even if most of the Whites have left the school district, so long as the remaining Whites are evenly distributed across schools.

The measure that most directly reflects both costs and benefits is interracial exposure—that is, the percentage White in the average Black child's school. Interracial exposure increases with racial balance but declines with White enrollment loss. In Equation 1 in Table 5, we estimate the change in interracial exposure from 1968 to 1991 produced by the major desegregation plan, compared to districts that never had a desegregation plan, the omitted dummy variable, controlling for the effects of all other variables.

All of the control variables in Equation 1 are statistically significant at the .05 level, and the model explains 53% of the variation in change in interracial exposure. School districts have a greater increase in interracial exposure if they had a lower percentage White in 1968, probably because they are most likely to have had to deal with the issue of school desegregation earlier in this time period. In addition, school districts have a greater increase in interracial exposure if they

TABLE 5  
Relationship Between Percentage Interracial  
Exposure Change 1968-1991 and School District  
and Major Desegregation Plan Characteristics

	<i>All Districts</i>		<i>Districts With Plans</i>	
	<i>Equation 1</i>		<i>Equation 2</i>	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
Social, demographic, and geographic variables				
Percentage White 1968	-0.304*	-7.449	0.040	0.326
South [vs. Central]	7.871*	3.643	11.959*	2.275
Northeast [vs. Central]	-5.790*	-2.972	-10.018*	-2.663
West [vs. Central]	-12.533*	-7.011	-2.730	-0.699
County district	5.306*	3.396	13.357*	4.204
Suburban [vs. Rural]	-8.362*	-4.683	-7.007	-1.369
Urban [vs. rural]	-9.194*	-4.813	-5.060	-1.157
Percentage non-White enrollment change 1968-1991	-0.001*	-2.550	-0.018*	-5.065
Normal percentage White enrollment change 1968-1991	0.046*	6.796	0.005	0.146
Percentage free/reduced lunch	-0.397*	-8.978	-0.171*	-2.486
Income	-0.001*	-7.547	-0.0003	-0.545
Log of enrollment 1968	5.090*	2.536	-3.744	-1.187
Years since major desegregation plan	0.732*	4.240	0.509*	2.632
Desegregation variable				
Ever had a mandatory plan	11.173*	6.134		
Voluntary plan only	19.101*	6.986	7.113*	2.236
Controlled choice only	4.285	0.764	-6.877	-1.157
Formerly had plan (characteristics not known)	4.463*	2.110	—	—
Constant	32.566*	3.505	27.972	1.520
Adjusted $R^2$	0.530		0.492	
<i>N</i>	955		267	

NOTE: See appendix for means and standard deviations of variables used in this table. *b* = unstandardized regression coefficient, *t* = test of statistical significance for regression coefficients.

a. The omitted dummy desegregation policy variable for Equation 1 (all districts) is "never had a plan"; the omitted dummy desegregation policy is "ever mandatory plan."

\*Significant at .05 level or better.

are from the south or central regions, are countywide (most of them in the South), are rural, have less percentage growth in their non-White enrollment, and are more affluent; all of these contribute to less decline in the percentage White over this time period. Larger school districts

and those that desegregated earlier also exhibit greater increases in interracial exposure. The normal White enrollment change for similar districts without plans is positively and significantly related to an increase in interracial exposure, in that most districts without plans have an increase in their White enrollment. Indeed, what seems to have been happening in this 23-year time period is not just a national decline in the percentage White school enrollment because of the declining birth rate, but a redistribution of Whites from school districts with increasing minority enrollment to those with almost no minorities and no desegregation plans.

After controlling for all of these variables, voluntary-only, ever-mandatory, and formerly having had a desegregation plan produce significantly greater interracial exposure than never having had a plan. The voluntary plans, however, produce a 19-point gain compared to an 11-point gain for ever-mandatory plans. Controlled choice, on the other hand, has no significant effect on interracial exposure compared to districts without plans.<sup>22</sup>

Equation 2 in Table 5 includes only districts with plans compared to the omitted dummy variable—ever mandatory. The control variables are in the same direction as those in Equation 1, but fewer of them are significant, again probably due to the smaller sample size. Most important, voluntary-only plans produce significantly greater interracial exposure—about seven points more—than ever-mandatory desegregation plans. Controlled choice plans, however, do not produce significantly more interracial exposure than a mandatory reassignment plan.

Overall, these data indicate that voluntary desegregation plans ultimately produce more interracial exposure than mandatory reassignment plans primarily because of the White flight costs of the latter. Allowing parents to keep their children at their neighborhood school and providing incentives for transfers to opposite race schools appear to produce more compliance and thus more integration than the command-and-control model of school desegregation.

## CONCLUSIONS

The findings presented in this article have relevance for other public policies. The enduring debate in the field of public policy has been

whether government will more efficiently and effectively achieve its goals if it acts directly on regulated entities by telling them what they are to accomplish and how to do it (also called command-and-control or direct regulation) or if it acts indirectly by establishing market or market-like incentives that make the pursuit of self-interest consistent with the public interest (i.e., the goals of the policy).

In school desegregation policy, the choice over which approach government should use in achieving its goals was made largely in favor of the command-and-control approach—mandatory reassignment—from 1970 through the early 1980s. However, White flight from and protest against school desegregation, coupled with the virtual dismantlement of the legal barriers to equal opportunity, have reduced support by the courts for mandatory reassignment. Beginning in the mid-1970s, the courts began occasionally approving desegregation plans that allowed parents to decide for themselves whether they would stay at their neighborhood school or transfer to an opposite race school. By 1982, all but a few courts ordering new desegregation plans had abandoned the purest form of the command-and-control approach to desegregation—mandatory reassignment plans—in favor of a market-incentives approach. In school desegregation policy, the market incentives approach includes both voluntary M-to-M plans with transportation provided and magnet-voluntary plans with magnet program incentives to motivate Whites to transfer to schools in minority neighborhoods. Although racial balance controls are imposed on *transfers* in these plans, children are free to stay at their neighborhood school if they so desire regardless of its racial impact.

In between these two poles lies controlled choice. Although controlled choice is typically represented as a market-incentives desegregation plan because it gives parents more choice than exists in the average mandatory reassignment plan, the fact that children do not have the right to stay at their neighborhood school if they so desire means it is really a command-and-control approach. Survey results confirm this—controlled choice is only slightly more popular than mandatory reassignment (see Rossell 1995a, 1995b).

The findings of this study suggest something for everyone. For civil rights advocates, these findings indicate what must have always been obvious: that is, mandatory reassignment plans do achieve a desegregated school system. Even though they produce extensive White flight

APPENDIX  
Means and Standard Deviations of Variables in Equations

	Table 3				Table 4				Table 5			
	Equation 1		Equation 2		Equation 1		Equation 2		Equation 1		Equation 2	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Change in dependent variable 1968-1991	12.0	108	-34.2	35.5	-0.286	0.242	-0.377	0.212	0.058	24.6	11.4	23.6
Percentage White 1968	82.3	19.7	72.2	15.1	82.6	19.3	72.8	15.2	82.1	19.2	72.2	15.1
South (vs. Central)	0.323	0.468	0.436	0.497	0.306	0.461	0.398	0.490	0.326	0.469	0.436	0.497
Northeast (vs. Central)	0.145	0.352	0.167	0.373	0.158	0.365	0.178	0.383	0.153	0.360	0.167	0.373
West (vs. Central)	0.294	0.456	0.193	0.395	0.288	0.453	0.206	0.405	0.280	0.449	0.193	0.395
County district	0.344	0.475	0.254	0.436	0.320	0.467	0.231	0.422	0.332	0.471	0.234	0.436
Suburban (vs. Rural)	0.453	0.498	0.231	0.422	0.467	0.499	0.232	0.423	0.457	0.498	0.231	0.422
Urban (vs. Rural)	0.298	0.458	0.642	0.480	0.317	0.465	0.658	0.475	0.315	0.465	0.642	0.480
Percentage non-White enrollment change 1968-1991	619	1,758	129	361	595	1,778	136	372	578	1,755	129	361
Normal percentage White enrollment change 1968-1991	25.9	104	11.0	55.4	23.0	104	9.39	56.2	23.3	103	11.0	55.4
Percentage free/reduced lunch	30.0	21.2	42.2	19.5	29.8	21.6	42.0	19.9	30.1	21.4	42.2	19.5
Income	20,789	5,520	18,998	3,513	20,962	5,528	19,190	3,514	20,819	5,516	18,998	3,513
Log of enrollment 1968	4.01	0.381	4.30	0.413	4.03	0.385	4.33	0.414	4.03	0.381	4.30	0.413
Years since major desegregation plan	15.5	3.41	16.8	6.46	15.5	3.42	16.8	6.43	15.5	3.51	16.8	6.46
Desegregation variables												
Ever had a mandatory plan	0.206	0.405	0.774	0.419	0.206	0.404	0.758	0.429	0.217	0.413	0.774	0.419
Voluntary plan only	0.046	0.210	0.174	0.380	0.050	0.218	0.186	0.390	0.049	0.215	0.174	0.380
Controlled choice only	0.010	0.099	0.037	0.190	0.011	0.103	0.040	0.196	0.010	0.102	0.037	0.190
Formerly had plan (characteristics not known)	0.080	0.272			0.087	0.282	0.000	0.000	0.085	0.279		



and are thus inefficient, they have been more effective in increasing interracial exposure than doing nothing. On the other hand, for those who believe in less, not more, government intervention, the results of this study show what many civil rights advocates have not yet accepted—voluntary plans that emphasize both choice and neighborhood schools can produce as much or more interracial exposure than mandatory reassignment plans. The controlled-choice plans, which seem to produce as much White flight as the mandatory reassignment plans, are the least successful of all the desegregation plans, but some of their apparent lack of success may be due to their late start and their implementation in school districts that already had a high level of interracial exposure.

In the final analysis, government regulation of school segregation has been an effective force in desegregating schools. The costs of government intervention, however, are significant enough that ultimately the most efficient and effective approach is one that allows parents to stay at their neighborhood school regardless of its racial impact but uses market incentives such as magnet schools and free transportation to motivate transfers to opposite race neighborhoods. But even magnet schools have their limits and must be strategically designed and implemented if they are to be effective desegregation tools.

## NOTES

1. The 10,600 very small districts with only one school per grade grouping (elementary, junior high, and high) were excluded because, by definition, they could not be racially imbalanced.

2. Because the Office for Civil Rights survey began sampling school districts after 1974, and even then only in even-numbered years, not every year has complete enrollment data for the sample. Accordingly, trend analyses for desegregation measures rely primarily on the years 1968, 1970, 1972, 1978, 1980, 1986, 1987, 1989, and 1991 when there were between 500 and 600 cases. Data are interpolated for missing years.

3. In Figures 1 to 3, districts are weighted to reflect the universe of students, so that we capture the desegregation trends for the total population of students in the United States. In remaining analyses, where we compare different types of district policies or plans, we weight-sampled districts to reflect the universe of districts.

4. The desegregation measures are limited to Black integration and racial balance because over most of the 21-year period and in most of the districts, the demand for desegregation was made by Blacks and the focus of the plans was integrating Blacks with Whites. Indeed, until recently, Hispanics in the South were classified as White in school enrollment statistics and desegregation plans. Moreover, even when classified separately, Hispanics were such a small

number in most of the school districts in our sample throughout the 1960s and early 1970s that a measure of change in Hispanic desegregation is not reliable for many districts.

5. The formula for the index of dissimilarity  $D$  is

$$D = (|W_i/W - B_i/B|)/2,$$

where  $W_i$  is the number of Whites in school  $i$ ,  $W$  is the total number of Whites in the district as a whole,  $B_i$  is the number of Blacks (or any other racial group) in school  $i$ , and  $B$  is the total number of Blacks (or any other group) in the district. The index ranges from 0 (perfect balance) to 100 (perfect imbalance or segregation). For a 50-50 school district with the same size schools, intermediate values represent the percentage of students that would have to change schools in order to attain perfect balance.

6. The index is a weighted average of the percentage White in schools attended by Blacks. The formula for the index of exposure  $E$  is

$$E = (B_i P W_i)/B,$$

where  $P W_i$  is the percentage White in school  $i$  and the other terms are as defined for  $D$  (note 5). The index ranges from 0, which means complete segregation (no Whites in schools attended by Blacks), to the percentage White in the district as a whole.

7. The use of these measures and their differences is demonstrated in the following hypothetical example of a completely segregated school system with six schools:

School	Blacks	Whites
1	100	0
2	100	0
3	100	0
4	0	100
5	0	100
6	0	100
Total	300	300
Percentage of total	50	50

Outcome A, shown below, has more racial imbalance than Outcome B, which achieves perfect racial balance. There are, however, only six White students remaining in Outcome B; thus, although it has perfect racial balance, it has very little interracial exposure (percentage White in the average minority child's school).

School	Outcome A		Outcome B	
	Blacks	Whites	Blacks	Whites
1	50	45	50	1
2	50	40	50	1
3	50	50	50	1
4	50	45	50	1
5	50	45	50	1
6	50	50	50	1
Total	300	245	300	6
Percentage of total	55	45	98	2
Dissimilarity	7		0	
Exposure	44		2	

A racial balance measure (here the dissimilarity index) is therefore misleading because it would show B to be the best outcome, although it is intuitively the least desirable because it has only 2 percent White students in the average minority child's school. When interracial exposure is used as the measure, however, Outcome A, the intuitively most desirable outcome, is ranked first because it has 44% White students in the average minority child's school. Because racial imbalance can present a misleading picture of the amount of meaningful integration, we believe the interracial exposure index is the superior outcome measure.

8. We select these districts for further display because of their importance for desegregation—94% of all Black students are in these districts. Moreover, as shown in Table 1, almost three fourths of the districts in this size category currently have or formerly had a formal desegregation plan.

9. All of the controlled choice plans in this sample have magnet schools, although not all controlled choice plans in the United States have magnet schools (see Rossell 1995a).

10. Districts that currently do not have a plan, but formerly had a plan, were not queried as to the type of former plan that they had. For this plan typology, these cases are missing.

11. Although data from before desegregation would be preferable, these data are only available for the most recent year. Because our experience has been that the variance is greater between school districts on social class measures than within school districts over time, we include this variable to measure between-district differences in social class characteristics of public schools.

12. Data from 1980 are used because this is the earliest year for which data are available.

13. Readers who wish to see the separate equations by size should contact the authors.

14. Because there are no control variables whatsoever in Orfield's (1988) study, his conclusions must be disregarded.

15. This is calculated as 1991 White enrollment minus 1968 White enrollment, divided by 1968 White enrollment, and multiplied by 100.

16. This is calculated as 1991 White enrollment minus 1968 White enrollment, divided by 1968 White enrollment, and multiplied by 100.

17. The statistically significant coefficients are marked with an asterisk. Hypothesis tests are based on the .05 level with a two-tailed test.

18. There are 29 of these districts in our sample. With district case weights, these represent 110.94 districts. These districts include two in California, one in Florida, one in Georgia, one in Illinois, one in Kansas, one in Louisiana, one in Maryland, one in Mississippi, one in Missouri, seven in North Carolina, one in Pennsylvania, one in Tennessee, six in Texas, three in Virginia, and one in Wisconsin.

19. See Rossell (1990a) for a more extensive discussion of this problem.

20. The courts, however, tend to use as their measure of racial imbalance such categorical measures as the percentage of schools (or students in such schools) within plus or minus 15 or 20 percentage points of the school district's percentage White (or minority). This is a poor measure of racial imbalance by comparison to the index of dissimilarity since (a) it weights all schools equally, and (b) a school can be deemed "segregated" if it is one student outside the limit.

21. This index, however, is not without its critics, even for the limited means of measuring racial imbalance. See, for example, Crain and Rossell (1989), Taeuber and James (1982), Coulter (1989), and Winship (1977). Despite its critics and its biases, it remains the most common measure of racial imbalance used by social scientists.

22. In another equation, not shown, we were able to replicate in the very largest districts with plans Rossell's (1990a, 1990b, 1995a) finding that magnet-voluntary desegregation plans

produce significantly greater interracial exposure than magnet-mandatory desegregation plans. In that equation, the omitted dummy variable was magnet-mandatory rather than ever-mandatory.

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