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ABSTRACT

Earlier studies of the effect of desegregation on white flight were in conflict, largely because of methodological differences in study design and analysis. More recent studies have used more comparable methodologies and tend to show that under certain conditions desegregation does have a significant effect on white loss, although there is still disagreement on the size and duration of the effect. The present study offers a demographic projection method for estimating the size and duration of the white phenomenon and applies the method to school districts experiencing court-ordered mandatory desegregation. Findings indicate that white losses are such that, in many cases, the amount of desegregation (defined as minority exposure to whites) is declining, and for some districts has fallen below the pre-segregation level. As a result, court-ordered desegregation, coupled with normal demographic trends, is producing increasing ethnic and racial isolation in many larger school districts. If this trend is to be stopped or reversed other remedies need to be considered. Given the strong public opposition to mandatory busing as well as the current legal situation, the prospects for metropolitan desegregation appear limited. On the other hand, voluntary methods have worked well in some cases and may offer a more viable alternative in larger cities. (Author/EB)

WHITE FLIGHT, DEMOGRAPHIC TRANSITION, AND THE FUTURE OF SCHOOL DESEGREGATION

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with the assistance of
Donna Schwarzbach

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*To be presented at the American Sociological Association meetings in San Francisco, September, 1978. The comments of Kevin McCarthy, Christine Rossell, and Mike Ross are gratefully acknowledged.

ABSTRACT

The earlier studies of the effect of desegregation on white flight were in conflict, largely because of methodological differences in study design and data analysis. The most recent studies have used more comparable methodologies and tend to show that under certain conditions desegregation does have a significant effect on white loss, although there is still disagreement on the size and duration of the effect.

The present study offers a demographic projection method for estimating the size and duration of the white phenomenon and applies the method to school districts experiencing court-ordered mandatory desegregation. In most cases the size of the effect is both large and long-term, accounting for 30 to 60 percent of all white losses over extended periods following desegregation. The white losses are such that, in many cases, the amount of desegregation -- defined as minority exposure to whites -- is declining, and for some districts has fallen below the pre-desegregation level.

Court-ordered desegregation, coupled with normal demographic trends, is producing increasing ethnic and racial isolation in many larger school districts. If this trend is to be stopped or reversed other remedies need to be considered. Given the strong public opposition to mandatory busing as well as the current legal situation, the prospects for metropolitan desegregation appear limited. On the other hand, voluntary methods have worked well in some cases and may offer a more viable alternative in larger cities.

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INTRODUCTION

Among the many debates that have raged over school busing, few have engaged social scientists with more intensity than the "white flight" debate. Although the white flight phenomenon has a long history in both public and social science discussions, it did not become a truly controversial issue in sociology until James Coleman's well-publicized work on the subject, in which he concluded that school desegregation was a significant cause of declining white enrollments in public schools (1975).

Shortly after Coleman's work appeared, three other major studies were published (or presented) which concluded, quite firmly, that Coleman's analysis was defective and that school desegregation has little or no effect on white flight. The first of these was a study by Reynolds Farley (1975), the second a study by Christine Rossell (1975), and the third a study by Thomas Pettigrew and Robert Green (1976). This latter study relied heavily on the Farley and Rossell data supplemented by some original analyses.

What makes the white flight controversy especially intriguing is that all four of these studies used substantially the same data base; namely, the public school ethnic enrollment reports published since 1967 by the Office of Civil Rights (OCR) of HEW. While social scientists frequently disagree about conclusions from data, one would not think such disagreement could result from analyzing as simple and straightforward a data base as this one. Moreover, while most methodological debates are esoteric and dull, this controversy has generated considerable heat both within and without the profession. Undoubtedly, one of the reasons is that a great deal is at stake in this debate, with major policy decisions hinging upon its outcome. A large number of educational policy makers and social scientists have been supporters of court-ordered desegregation as a means of attaining racial integration. If the white flight thesis is true, then court interventions seeking to eliminate segregation may actually be expanding it. In this event many judges, educators, and social scientists will be in the unfortunate position of promoting the very condition they seek to halt.

All of these earlier studies were based upon enrollment data through 1972 or 1973 at the latest, prior to implementation of many northern court-ordered desegregation cases (e.g., Denver and Boston). After the initial furor, both Farley and Rossell added enrollment data for subsequent years and refined their analysis techniques. As a result, they modified their original conclusions to some extent, finding more evidence for white flight due to desegregation than they had previously (Farley, 1977; Rossell, 1977a). Interestingly, these newer studies have not been well-publicized as yet, and many social scientists are unaware that there is now less disagreement on the fact of white flight. Disagreement still exists, however, over the size and duration of the effect, and the conditions under which it occurs.

Accordingly, given the importance of the issue for future policy actions, another look at the white flight phenomenon seems justified. This paper reconsiders the white flight issue in several ways. First, the works of Coleman, Farley, and Rossell are reviewed briefly. While some of their latest conclusions differ, due mainly to somewhat different analysis strategies, points of agreement will be emphasized. It is maintained that much of the remaining disagreement stems from a common failure to use demographic methods to establish underlying population trends.

Second, results of a new white flight study will be presented. The new study attempts to determine both the magnitude and the duration of white flight effects by using demographic projection techniques for the school-aged population. The method is applied to court-ordered cases, which are judged most important for future policy decisions. Although the courts have held that mandatory desegregation or "busing" is more effective than voluntary methods, this claim must be reevaluated in the light of induced white losses and the resultant possibility of resegregation. Changes in desegregation levels for court-ordered cases will be assessed and compared to a voluntary plan underway in San Diego.

Finally, implications for future school desegregation policies will be discussed. The reasons for white flight must be understood in order to improve upon current policies. If white flight is caused by prejudice and opposition to racially integrated schools, then mandatory plans may continue to find support. On the other hand, if white flight

is caused by opposition to mandatory reassignments away from neighborhood schools, voluntary plans may prove more successful than mandatory plans for intradistrict desegregation, at least for those districts not yet under court orders. For court-ordered districts experiencing resegregation, of course, metropolitan remedies--mandatory or voluntary--may be the only solution.

THE COLEMAN AND FARLEY STUDIES

Coleman and Farley used a similar conceptual approach to study white flight, although their initial methods differed considerably. Basically, their approach is to analyze the relationship between changes in white enrollment and changes in a quantitative desegregation index for the same period.

In Coleman's approach the dependent variable is annual change in white enrollment Δw, from 1968 to 1973, while the independent variables are changes in desegregation Δd,[1] proportion black enrollment p_B, log of district size n, a region dummy r (North versus South), and the extent of desegregation within the SMSA d_s. Coleman then examines various linear regression models of the form

$$\Delta w = f(\Delta d;\ p_B,\ n,\ r,\ d_s) \qquad (1)$$

applied to the largest 21 central city school districts and the next 46 largest. He also tested various interactions with Δd, including $\Delta d \times p_B$, $\Delta d \times r$, and $\Delta d \times d_s$.

In Coleman's best model (with an R^2 of .60 for the 21 largest districts and .40 for the next 46 districts) the strongest and most consistent coefficients occur for changes in desegregation, desegregation within the SMSA, and the interaction between desegregation change and proportion black. If we interpret SMSA desegregation as a surrogate for the existence of white suburbs, then Coleman's major finding is that white loss is accelerated whenever desegregation occurs in large, central city school districts with a substantial proportion

[1] The desegregation measure used is a relative exposure index which measures the average proportion of white students in schools attended by the average black student (Coleman, 1975).

of black enrollment, and this effect is enhanced whenever predominantly white suburbs exist around the district. He did not find any evidence for substantial long-term effects, although he admitted his analysis was not adequate for this test. Also, he found the effect strong in the South and much weaker in the North; but it must be emphasized that his latest data was for 1973, prior to the start of large-scale desegregation in larger northern cities.

Farley's first analysis (Farley I) was based on 125 school districts for cities with over 100,000 population (excluding those districts with less than three percent black). Like Coleman, he examined the changes in white enrollment from 1967 to 1972, and related it to change in a desegregation index (a different one than Coleman's[2]). But here the similarity ends.

Farley analyzed total change in white enrollment from 1967 to 1972 rather than year-to-year changes. Since Coleman found the largest white losses occurred in the first year following a significant desegregation action, longer time-intervals might obscure the relationship. More important, Farley did not experiment with more complex regression models, and in particular he did not test for the crucial interaction between desegregation and proportion black. His main results showed only the bivariate relationship between white loss and desegregation change, separately for the North and the South; in a footnote he showed a three-variable regression using desegregation change and proportion black. Perhaps not surprisingly, then, he did not find evidence to support Coleman's conclusion.

Farley's second analysis (Farley II) was quite different (1977). Basically the same set of school districts were used as in Farley I, but enrollment data was added for 1973 and 1974. More crucial, however, he applied a regression model much like (1) to annual changes in white enrollment. He also added several variables not used by Coleman including year, a metropolitan district versus central city district dummy variable (Coleman analyzed only central city districts), and average white enrollment change in the two years preceding desegregation ($\Delta\bar{W}$).

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[2] The index of dissimilarity (Taueber and Taueber, 1965).

With these modifications, Farley II comes to conclusions not unlike Coleman's. The highest t ratios were found for proportion black, change in desegregation, the metro variable (such that metro districts have less loss than central city districts), and the interaction terms $\Delta d \times p_B$, $\Delta d \times n$, and $\Delta d \times \Delta \bar{w}$. In other words, the effect of desegregation on white loss will be strongest in larger central city school districts that have a substantial proportion of blacks and that show pre-existing white enrollment declines. Coleman found that, for a large central city school district with white suburbs and 25 percent black, a change of 20 points in his desegregation index is associated with an additional white loss of 8 percent; Farley II finds that, for a large central city district with 30 percent black enrollment, the incremental white loss associated with a 20 point change in his desegregation index is 6 percent.

While it is encouraging that the Coleman and Farley II analyses show a convergence in conclusions, there are still many analytic difficulties and several unanswered questions. First, their common conceptual approach makes the assumption that only the amount, and not the type of desegregation makes a difference. If the reasons for white flight are mandatory reassignment to non-neighborhood schools, rather than integrated schools per se, then changes in a desegregation index caused by voluntary transfers of minority students to predominantly white schools might not cause white losses. Moreover, it is possible that white flight will be diminished or non-existent whenever desegregation -- mandatory or voluntary -- is supported by the community rather than being imposed by a court upon a protesting community.

A second and possibly more serious problem is that no attempt is made to model the basic demographic processes that are the primary causes of white losses in the absence of desegregation; namely, white out-migration to the suburbs and declining white birth rates. If large-scale desegregation causes white loss, and if the mechanism involves conscious choices of white families, then it is possible that some white losses--"anticipatory" white flight--might occur prior to the onset of desegregation. Such a result would be missed in Coleman's model and confounded with an independent variable in the Farley II model (average white loss for the previous two years).

Finally, neither analysis deals adequately with the issue of longer-term effects of desegregation, particularly for large scale court-ordered plans. The main reason, of course, is that the earlier works had data for only 1972 or 1973, and courts did not begin issuing large-scale desegregation orders until 1970 or 1971. Even 1974 is too early to determine long-term effects in the North, since many northern desegregation orders were not implemented until 1973 or 1974. Clearly, the full policy implications of white flight cannot be evaluated without knowing the longer-term effects of desegregation.

THE ROSSELL STUDIES

The original Rossell study (Rossell I, 1975) took a different conceptual approach for assessing the effects of desegregation on white flight. Observing that Coleman's analysis could not separate the effects of government-imposed desegregation from other types of desegregation, including changes in natural residential patterns, she adopted a quasi-experimental design. Her basic approach is to compare pre-desegregation rates of white loss with post-desegregation losses for school districts that implemented school desegregation plans, and to then compare shifts, if any, to a group of control districts. The districts chosen for study comprised a non-random sample of 86 northern school districts (a subset of the National Opinion Research Corporation's Permanent Community Sample of 200 cities that were in the North and had at least 3,000 black residents). The year of desegregation was established by means of a mail questionnaire sent to school district administrators.

While Rossell I had a distinct advantage over the Coleman and Farley work by identifying government and court-ordered desegregation, a number of analysis problems hampered this first study, leading to the conclusion of no relationship between desegregation and white flight. First, the dependent variable used was not change in white enrollment but, rather, change in the percent white. This measure confounds the possibly different movements of two independent populations, whites and blacks. For example, the percent white will decline if black enrollment is increasing while white enrollment is stable.

After a desegregation action, if black enrollment levels off and white enrollment starts declining, the percent white will continue to drop, thereby masking a significant shift in population movements. This phenomenon has actually occurred in a number of desegregation cases, including Boston.

Like Farley I, Rossell I enrollment data stopped in 1972, and no attempt was made to control for most of the significant factors identified by Coleman as intervening in the relationship between desegregation and white losses, such as proportion black, existence of white suburbs, and so forth. Finally, the effect of desegregation was evaluated by fitting a regression line to pre-desegregation white loss rates and comparing this slope to a post-desegregation regression slope. Since the year of desegregation is simply the year of the most significant government action, the slope of the pre-desegregation regression might be influenced by other desegregation events -- or several events -- prior to the year chosen. For example, the year of desegregation chosen for San Francisco is 1971, when court-ordered busing began, but a major school-board busing plan was adopted in 1969 and implemented in 1970, during which time substantial white losses occurred. As a result San Francisco does not have significant white flight in Rossell's studies.

Rossell II (1977) represents a major updating with more data and more extensive analyses. She added southern school districts as well as enrollment data through 1975. She also grouped the districts according to type of desegregation plan (government-ordered or school board-initiated), extent of desegregation, and region. In this new analysis she finds more districts with significant white losses associated with desegregation changes. The strongest effects are found for those districts with court-ordered desegregation that have substantial portions of white students reassigned by the plan.[3]

This improved analysis still has several difficulties. Districts are not grouped adequately by size, by percent black enrollment and by availability of white suburbs. Moreover, like Farley and Coleman, there is no demographic analysis against which to establish white loss rates in the absence of desegregation. This is an even more

[3] A more recent paper by Rossell was received too late for full consideration here (Rossell, 1978). In brief, multiple regressions show that first-year losses are most strongly related to percent black, percent whites reassigned, their interaction, and district/SMSA segregation ratio. No long-term effects are found.

critical problem in Rossell's analysis, since the use of pre-desegregation enrollment trends assumes that no white loss is occurring due to anticipatory effects or to the effects of less major desegregation actions. If such effects occur, then the pre-desegregation trend being used to compare against post-desegregation trends may be steeper than they would have been with no desegregation at all. Clearly, other types of analysis must be adopted to investigate this possibility.

There have been other white flight studies besides the ones reviewed so far. For the most part, however, they provide little additional information over and above the combined Coleman, Farley, and Rossell findings. The Pettigrew and Green study (1976) does present some new analyses for the 21 largest cities, but their approach is basically the same as Farley I: they do not analyze year-to-year changes; they do not include critical interaction terms in their models (especially $\Delta d \times p_B$); their data stops in 1973; and they do not identify court-ordered desegregation. A study by Fitzgerald and Morgan (1977) attempts to offer a broader model of white out-migration from larger cities (over 50,000) using such variables as crowded housing, crime, and poverty. But these variables are not studied on a yearly basis in association with desegregation changes, and no demographic analysis is conducted to establish changes in white birth rates.

A NEW STUDY

Given the latest works of Farley and Rossell, there seems to be substantial agreement on several critical points. First, the fact that white loss is associated with desegregation in some instances is not in dispute. Second, it is a conditional relationship: it occurs under some conditions but not others. Third, the effect is seen most clearly in the year that desegregation takes place, which in most cases is the first year of a plan's implementation except when a plan is implemented in several phases (as for Boston or Oklahoma City).

Although there is variation in the nature of the conditions cited by each investigation, some convergence is apparent when all three studies are compared. First, the effect appears to depend upon a

substantial proportion of black (or minority) students, perhaps on the order of 20 to 25 percent. Second, the effect appears strongest for central city districts surrounded by accessible white suburbs (e.g., Boston) and weakest for large metropolitan school districts surrounded by minimally developed rural areas (e.g., Charlotte, N.C.). Finally, the effect appears strongest when there is a significant shift in the racial balance of schools, and especially when white students are included in the shift. In the Coleman and Farley studies this shows up as a desegregation index change of 20 points or so, while in the Rossell study this corresponds to reassignment of at least 20 percent or so of black students or at least 5 percent or so of the white students.[4]

In the vast majority of cases, however, shifts on this order of magnitude rarely occur outside of court-ordered desegregation plans. In Coleman's list of the 70 largest central city districts, 16 showed an annual change of 20 percentage points or more on his desegregation index, and only one was not involved in a court-ordered desegregation case (Wichita, Kansas, which was involved in a HEW mandate). Of the 86 Rossell II school districts, 22 showed a change in the index of dissimilarity of 20 points or more, but only 6 were not brought about by court order (Wichita and Tyler and Amarillo, Texas, which were involved in HEW mandates; and Berkeley and Riverside, California, and Ann Arbor, Michigan, which had school-board initiated plans). Perhaps more important, of the 16 Rossell II districts that showed at least 5 percent of white students reassigned -- which may offer the greatest potential for white flight -- only Berkeley was not by court order.

It seems fairly clear, then, that while changes in desegregation indices are the empirical correlates of white losses, large changes are generally brought about only through court-orders.

Given this state of knowledge, the new study was designed to focus specifically on court-ordered desegregation cases in which mandatory reassignment (as opposed to voluntary transferring) takes

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[4] The percentage of students reassigned is actually based on those students who show up at schools to which they are reassigned. Thus when white flight occurs, the percent of white students actually reassigned is probably considerably higher.

place. Furthermore, the emphasis of the study is on certain questions not adequately answered by the existing research; namely, the magnitude and duration of the effect of court-ordered mandatory desegregation. In order to answer these questions with greater precision, we have employed demographic techniques to project school enrollments in the absence of desegregation.

Methods

The potential universe for the study consisted of all school districts undergoing court-ordered mandatory desegregation (COMD), by which is meant a desegregation plan involving mandatory reassignment of students arising from a court order. Mandatory reassignment plans not due to court order and court-ordered voluntary plans will not be analyzed in detail. (This is not a serious restriction since there are relatively few such cases.)[5] Given the Coleman and Farley findings, the universe was further restricted to school districts enrolling over 20,000 students and having at least 10 percent minority enrollment in 1968, which is prior to the start of COMD cases.[6]

Searches of published studies, legal references, and telephone interviews with school district officials yielded 54 school districts meeting the selection criteria. Excluded from the present study are Stockton, California, Dayton, Ohio, Milwaukee, Wisconsin, and Omaha, Nebraska whose court-ordered plans did not begin until 1976, and Charleston, South Carolina, for which complete data could not be obtained.

In addition to the OCR enrollment data, extensive telephone interviews were conducted with school district officials to determine critical dates of court orders and plan implementation; characteristics of plans, including number of schools affected by pairing, clustering, or other reassignment mechanisms; and the existence and accessibility of developed suburbs. Written court orders and plans were obtained wherever possible, and additional information about suburbs was obtained by examining maps and OCR enrollment data for surrounding school districts. Two different types of analyses have been conducted with the data.

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[5] Rossell lists 8 board-initiated, city-wide, mandatory plans all but one of which (Berkeley) had no white reassignment; none but Berkeley had significantly accelerated white losses. The author knows of only two court-ordered voluntary plans meeting the inclusion criteria after 1971: Dayton, Ohio, which was recently ordered to implement a mandatory plan in 1976, and San Diego which started a court-ordered voluntary plan in 1977.

[6] Most COMD cases occurred after the Swan v. Board of Education (402 U.S. 1), decided in 1971.

Analysis I. Again, one difficulty of the Coleman, Farley, and Rossell analyses is the presumption that white flight will occur only in the year when there is a change in a desegregation index or during the years following the largest desegregation action. But if the white flight phenomenon is real, it is reasonable to expect that some "anticipatory" flight will take place when the community becomes aware that mandatory desegregation is about to take place. This might occur after a court order but prior to implementation, while appeals are being exhausted, as in cases like Denver and Detroit. It also could occur during an intense community controversy when a lawsuit is brought but before a court order is issued, as in cases like Boston, Pasadena, and Pontiac. Such possibilities cannot be investigated with the methods used in these other studies.

In an attempt to solve this problem, the first analysis was a modified quasi-experimental design with pre- and post-desegregation enrollment changes compared to a control group (Armor, 1976). The major differences between this analysis and Rossell's are (a) following the Coleman and Farley II findings, districts are grouped according to proportion of minority enrollment and the availability of suburbs and (b) pre-desegregation enrollment changes are measured prior to any significant court orders or partial implementations. A revised summary of this analysis, which encompasses all 54 districts, will be presented.

This first attempt to establish a loss rate prior to the first significant court order was not wholly satisfactory. First, in some cases the time of the court order and the time of the actual start of busing are separated by several years, raising the possibility that demographic changes alone -- such as declining births -- might explain some of the difference in loss rates. That is, post-desegregation loss rates might have been higher than pre-desegregation loss rates even if the court case had not occurred. The second problem is that many desegregation cases are long and complex, with many orders and controversies covering an extended period of years. Locating a single year to divide the pre- and post-desegregation period is liable to generate much argument and disagreement.

Analysis II. A more adequate solution for these problems requires some sort of demographic method similar to those used by many school districts to project future school enrollments. The unique advantage of projecting a school age population is that at any one point in time the cohorts who will be entering school during the next five years actually exist in the population at large (i.e., children born in the previous five years). Thus birth data, adjusted for net migration rates, permit projection of a future school population five years from any given year. This in turn offers a test for both anticipatory and long-term white flight.

The demographic projection method used here relies on birth data from 1950 to 1972 and census data for 1950, 1960, and 1970. Persons born from 1950 to 1962 represent the potential school age population in 1967, with most 12th graders having been born in 1950 and most

kindergarteners in 1962. If all births survive and there is no net migration, then the sum of births from 1950 to 1962 would be the projected school age population for 1967. The projected population for 1968 would be obtained by subtracting the graduating seniors (1950 cohort) and adding the incoming kindergarten (1963 cohort), and so forth for succeeding years, with 1972 births being used to project the 1977 population. Thus year-to-year changes in the potential population can be calculated and projected for 1968 to 1977 using birth data that is at least five years prior to any given year. The crucial advantage of this approach for school desegregation cases is that a given event, such as filing a lawsuit or a court order, cannot affect birth rates that preceded it by several years. This is especially useful for extended litigation cases, where an initial order might occur in 1971 but not be implemented until 1974. Projecting the potential change between 1971 and 1974 depends upon 1969 births at the latest, two years prior to the court order.

Of course, not all births survive, and net migration can occur which reduces (or increases) a potential cohort by the time it reaches any given grade level. Hence birth rates must be adjusted to reflect both survival and net out-migration. This can be done using 1950 to 1970 census data to establish cohort retention rates. For a number of reasons, including statistical reliability and coverage, the 0-4 cohort is used for estimating migration. The 1950 to 1960 retention rate is simply the ratio of white children aged 10 to 14 in 1960 to white children under 5 in 1950. Since this ratio is actually a 10-year rate, we can convert it to an 11-year rate by using an exponential law; for a given birth cohort this gives us the retention rate when that cohort reaches sixth grade, which is midway in the school career. Rates would of course be lower in earlier grades and higher in later grades, but we assume that the midpoint is very close to the average. For instance, if the 11-year retention rate is .70, then 1950 births can be reduced by .70 to estimate that proportion who would be in the school population 11 years later. A similar rate can be calculated for 1960 to 1970; in most cases it is lower than the 1950-1960 rate reflecting the fact that net out-migration for whites is higher in the 1960's than in the 1950's. This rate is applied to births in 1960. Since annual census data is not available, our method interpolates retention rates between 1950 to 1960, assuming that the annual change occurs in equal increments. Given the relatively steady growths/declines in most school populations, once birth cohort changes are taken into account, this is not an unreasonable assumption for our purposes.

The critical question is how to adjust 1960's births for net migration during the 1970's; this requires a retention rate for 1970 to 1980. We have used two approaches: Method A assumes that net white out-migration is the same in the 1970's as in the 1960's; and Method B assumes that whatever change occurs between 1950-1960 and 1960-1970 (which is nearly always a decrease) also occurs between 1960-1970 and 1970-1980. Hence if the retention rate drops from .7 to .6, the estimated 1970-1980 retention rate under Method B would be .5.

An important feature of the demographic method is that its validity can be tested by examining projected and actual loss in years prior to a desegregation controversy. In applying the method to numerous cities in our sample, Method A usually produces a better fit to enrollment losses prior to desegregation events, particularly when a significant desegregation event occurred by 1970. Method B may overstate out-migration in the 1970's, particularly since out-migration did not get underway in most cities until the late 1950's. Also, if desegregation actually began in 1970 and some white flight has occurred, the 1970 census will reflect accelerated out-migration. Accordingly, the projections in this report are based on the method that gives a better fit to actual losses prior to the start of any significant court action.

For the purpose of comparing projected and actual school enrollments, annual rates of change are used rather than absolute numbers. The reason is that even correcting for net out-migration, projected school populations usually differ from the actual school enrollments because (1) not all 5 year olds go to kindergarten, (2) some students drop out before age 17, (3) some children attend private schools and (4) in a few cases school districts are slightly larger (or smaller) than civil divisions used for birth and census counts. Thus the projected school enrollment starts with the actual school enrollment as of a certain year (usually 1967 or 1968) and is reduced by the rates of change derived from the projected school-age population.

To put all this more formally, the 10-year retention rate for year i, R_i, is found by

$$R_{50} = N_{60}^{10-14} / N_{50}^{<5}$$

$$R_{60} = N_{70}^{10-14} / N_{60}^{<5} \qquad (2)$$

$$R_{70} = R_{60} \qquad \text{(Method A)}$$

$$R_{70} = R_{60} - (R_{50} - R_{60}) \qquad \text{(Method B)}$$

The 11-year rate R_i is found by applying the compound interest law to R_i to obtain a yearly rate, and then converting this back to an 11-year rate; thus

$$R_i = (R_i)^{11/10} \qquad (3)$$

Rates for intermediate years are found by interpolation (and for 1971 and 1972 by extrapolation of the 1960-1970 trend). Then the initial projected white population in 1967 is given by

$$W_{67} = \sum_{i=50}^{62} (R_i B_i) \qquad (4)$$

where B_i are white births in year i. To get the projected population in 1968 we subtract $R_{50}B_{50}$ (1967 graduates) and add $R_{63}B_{63}$ (1968 kindergarten) to W_{67}, and similarly for successive years. The projected loss rates are then $1 - W_{t+1}/W_t$, and these are applied to the 1967 or 1968 actual school enrollment to obtain the projected enrollments.[7]

In most cases the projection method is fairly close to a linear projection of pre-desegregation losses, provided that no years with significant desegregation activity are included, although generally the demographic method yields somewhat steeper rates of loss. The reason is that the declining birth rates in the sixties are coupled with very high birth rates in the fifties. It can be shown that linear increases in births coupled with subsequent linear decreases in births can combine to yield non-linear increases and decreases in school age populations.

Another refinement is required for certain districts. White birth data includes Mexican-American births, and in western school districts where this population is substantial white births must be reduced accordingly. This is accomplished by using school ethnic enrollments to project relative proportions of Mexican and Anglo back to 1960 and 1950 and applying an estimated Anglo fraction to the white birth rate.

It is emphasized that the method used here does not attempt to model the out-migration process itself, but rather takes out-migration as a given and (by our model) assumes that those forces operating to cause (or accelerate) out-migration between the fifties and sixties operate to cause it (or increase it) in 1970's. The central question in our approach is not whether court-ordered desegregation causes white loss, but rather whether desegregation causes an <u>increase</u> in white loss rates over and above what would have happened without it, assuming -- conservatively -- that out-migration would continue in the 1970's. It is possible that changes in other unmeasured events in the 1970's including crime, higher taxes, and other urban problems might have accelerated white loss rates in these cities, but the out-migration rate used for the 1970's, based on known trends, probably incorporates most of their effects.

[7] Raw data, and calculations are provided in the Appendix.

A final point on methods deserves comment. Although we are using the term "white flight," in keeping with customary usage among researchers in this field, it must be emphasized that we are not studying only residential relocation. As applied to the school desegregation field, white flight means white losses in school enrollments in excess of what would have been observed without desegregation. Given this meaning, there are three major processes which can give rise to white flight from public schools: (1) residential relocation outside the district; (2) transfer of children from public to private schools; and (3) failure of new area residents to replace regular outmigrants who are leaving the area for reasons unrelated to desegregation. The third source is frequently overlooked. Although our methods do not enable systemmatic appoftionment of white flight according to these three sources, special data from one school district will enable a preliminary look at this issue.

Results

Analysis I. We can get a broad picture of the white flight phenomenon through the crude "quasi-experimental" analysis applied to all 54 districts. First, the districts are grouped according to characteristics already known to be related to white losses; namely, the proportion of minority students, the availability of suburbs, and region.[8] To determine whether white flight exists, post-desegregation loss rates are compared to pre-desegregation loss rates and to analogous loss rates for a control group.

A summary of this analysis is shown in Table 1. It is readily apparent that, if there is a white flight effect, it appears most prominent among school districts that have over 20 percent minority and accessible suburbs. In these cases the northern post-desegregation white loss rate is three times the pre-rate, and double the rate in the control districts for the first two years after the start of desegregation. Moreover, the loss rates remain high, compared to both the pre-rate and the control district rate, 3 and 4 years after desegregation. No appreciable difference is found for northern and southern districts within this category; this differs from Coleman's results, which showed a stronger effect for southern districts. However, Coleman's data stopped prior to the start of court-ordered desegregation in many northern cities.

[8] Size of district is controlled by confining the analysis to districts with over 20,000 enrollment. The amount of desegregation is not controlled, but since all are court-ordered plans the amount of mandatory reassignment is substantial in all but a few cases.

Table 1

ANNUAL ENROLLMENT CHANGES BEFORE AND AFTER COURT-ORDERED MANDATORY DESEGREGATION

Type of District	Average Annual Percentage Change: Two years Pre-Order	Two years Post-Start	3-4 years Post-Start	Number of Districts
Over 20% Minority, Suburbs				
Northern White[a]	-3.6	-11.5	-8.4	(9)
Southern White[b]	-3.2	-11.6	-8.8	(16)
Minority	+3.6	- 0.6	+0.8	(25)
Over 20% Minority, No Suburbs[c]				
White	-0.8	-6.0	-1.9	(15)
Minority	+1.7	+0.4	+0.4	(15)
10-20% Minority[d]				
White	+1.0	-2.3	-2.5	(5)
Minority	+1.4	+2.0	+2.2	(5)
Florida Districts[e]				
White	+2.4	+0.6	+1.6	(9)
Rossell Non-desegregation Districts[f]				
White North	-2.7	-5.0	-5.0	(18)

[a] See Table 2 for districts.

[b] Dallas, Houston, Ft. Worth, Texas; Atlanta, Georgia; Oklahoma City; Birmingham, Alabama; Little Rock, Arkansas; Memphis, Nashville, and Chattanooga, Tennessee; Norfolk, Richmond, and Roanoke, Virginia; Greensboro and Raleigh, North Carolina; Jackson, Mississippi.

[c] Mobile and Montgomery Counties, Alabama; Bibb, Chatham, Muscogee, and Richmond Counties, Georgia; Louisville-Jefferson County, Kentucky; Baton Rouge, Shreveport, Louisiana; Winston-Salem, Charlotte, North Carolina; Greenville, South Carolina (data for Charleston incomplete); Austin, Texas; Portsmouth, Newport News, Virginia.

[d] Minneapolis; Las Vegas; Tulsa; Lexington, Kentucky; Fulton County, Georgia.

[e] All are counties; Palm Beach, St. Petersburg, Pensacola, Daytona, Gainesville, Ft. Lauderdale, Miama, Jacksonville, Tampa are the main cities in their respective county school districts.

[f] Rossell northern "control" and "token plan" districts which reassigned no white students and less than three percent black students and which had total enrollments over 20,000 with 20-60 percent minority in 1968. Pre-order is the average annual loss rates for 1969 and 1970 (prior to the start of most court-ordered mandatory desegregation); 1-2 years post-start is average loss for 1972 and 1973; 3-4 years post-start in average loss for 1974 and 1975. See Appendix for list of districts.

Districts that have substantial minority enrollments but less (or no) access to suburbs, all of which are southern county-wide school districts, also appear to show an effect, but it is smaller in absolute terms and drops off rapidly in the 3rd and 4th years. Actually, the rate of acceleration of white loss (from -0.8 to -6.0) is greater than for the districts with suburbs, due mainly to the existence of several districts which were growing prior to the court order (e.g., Charlotte, North Carolina and Newport News, Virginia) and which stopped growing after desegregation. This raises the possibility that some white flight effects are manifested by the slowing down of white growth rather than the acceleration of white decline. In any event, from the point of view of providing desegregated education such an effect has less policy relevance, since a relatively stable white population is all that is needed to maintain racially balanced schools.

School districts with 10 to 20 percent minority have no significant white losses associated with COMD. The underlying reason undoubtedly has to do with the fact that relatively little reassignment of students -- especially white students -- is necessary in such cases, thereby minimizing the opposition by white parents. For example, before Minneapolis desegregated in 1973 no school was predominantly minority, and according to Rossell, only 7 percent of black students and 1 percent of white students had to be reassigned to accomplish desegregation.

Finally, I have grouped the Florida districts together because they represent a distinctly different situation. All Florida districts were desegregated by a state court order between 1969 and 1971, and all are very large county-wide school districts. Thus the white flight phenomenon can occur in Florida only if whites leave (or do not move into) the state or if they enroll in private schools. This apparently has not happened to any great extent, and therefore the Florida group represents the only group where a majority of the school districts are still showing white enrollment gains well into the 1970's. These districts clearly show that the white flight phenomenon is conditional, with crucial dependence upon the environment surrounding the desegregating district.

In summary, the quasi-experimental analysis shows that the most serious white flight effects may occur in districts having substantial proportions of minorities, which require more extensive mandatory reassignment to accomplish desegregation, and in central-city districts with available suburbs, which offer the opportunity for convenient residential relocation. Districts with substantial minority populations but without developed suburbs -- all of which are county-wide or "metropolitan" districts -- may have less white flight due to the inconvenience of relocation. The fact that there is some apparent white flight in those districts, especially in the first year or two, raises the possibility that private school transfers may well comprise a significant portion of white losses in metropolitan desegregation cases.

Analysis II: Demographic Method. While the quasi-experimental method is suggestive, it is not definitive. The pre-court order loss rates may be affected by anticipatory white flight, leading to an underestimate of the true magnitude of the effect. Conversely, demographic trends may be such that loss rates in the desegregating districts would be increasing even in the absence of desegregation; if so, the pre-post comparison would overstate the size of the effects, especially the long-term effects.

The demographic analysis can help alleviate these problems. We have applied demographic projections to those districts in the first group in Table 1, which are the most likely candidates for white flight. These districts include all of the important busing cases in larger cities, including Dallas, Memphis, Denver, Boston, and San Francisco. The critical questions at issue here are the magnitude and duration of the effect, given a demographic projection of what school enrollments would have been without the desegregation activity.

The average actual and projected white loss rates are shown for the nine northern districts in Figure 1. Prior to the filing of lawsuits in these districts, the average projected loss rate is nearly identical to the actual loss rate. But after the lawsuits were filed, prior to the start of desegregation, the actual loss rates are over one and one-half the projected loss rates, thereby offering evidence that anticipatory effects do occur.

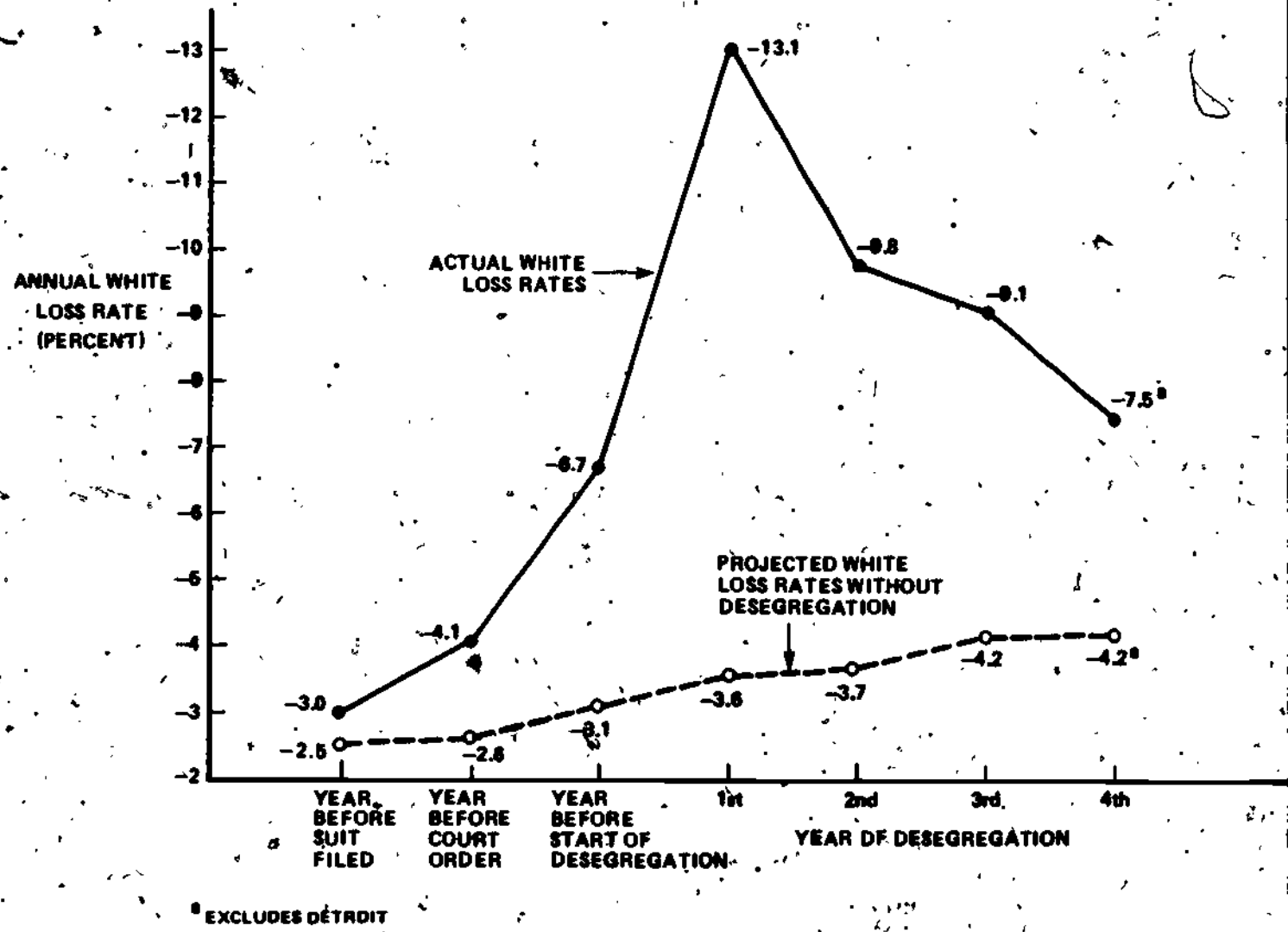
The most substantial acceleration of white loss for these districts occurred in the first year of desegregation implementation, when the actual rate is nearly four times the projected rate. The actual rates of loss drop somewhat after the first year, but they remain between 1-1/2 to 2-1/2 times greater than projected loss rates up to four years after the start of busing. It would appear, then, that the magnitude and duration of the effect of court-ordered desegregation may have been underestimated by previous studies.

In order to demonstrate the impact of these accelerated loss rates, it might be helpful to give a hypothetical example. Consider a school district with 50,000 white students prior to the lawsuit, and assume that the loss rates in Figure 1 apply to six consecutive years following the filing year. At the end of the six-year period the projected white loss would be about 10,000 students, while the actual white loss would be about 20,000. Therefore, the average long-term effect of the court intervention is to double the number of white students lost, over and above the losses due to demographic factors alone.

It is important to note that the projected loss rates do in fact rise in these districts, on the average, from 2.5 to 4.2 percent over the six to seven years spanning their desegregation periods. This reflects a combination of long-term declines in births and continuing white out-migration during the 1970's. Thus a comparison of post- to pre-desegregation loss rates will probably overstate white flight effects, especially over the long run. However, neither the magnitude nor the pattern of these moderate demographic changes can begin to explain the dramatic increase in white loss rates during a desegregation controversy and after its implementation.

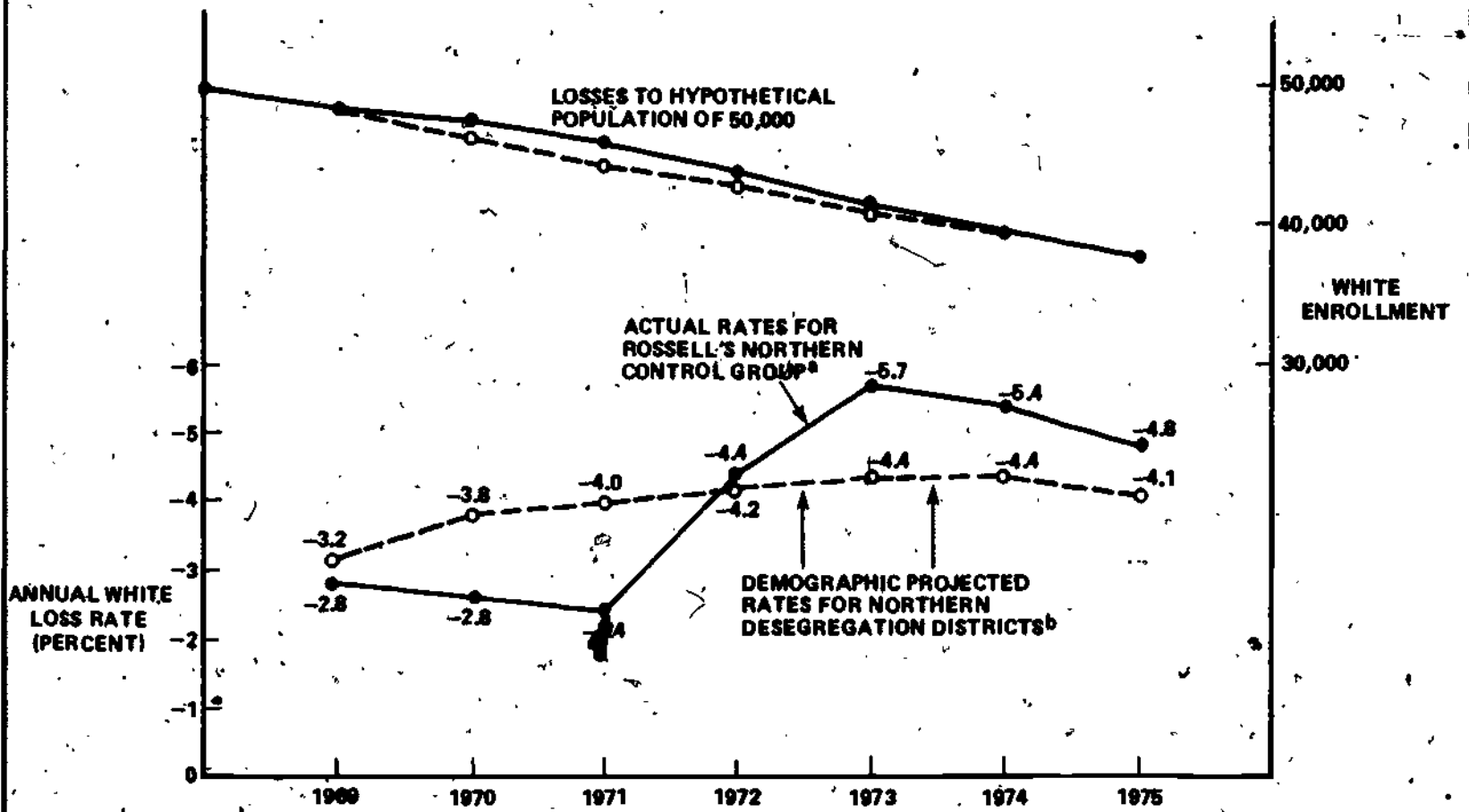
Another way to test the validity of these demographic projections is to compare them to other similar districts not experiencing desegregation. Figure 2 shows the projected rates for the northern desegregation cases compared to the actual loss rates of the 18 school districts

FIGURE 1 – ACTUAL AND PROJECTED WHITE LOSS RATES FOR NORTHERN SCHOOL DISTRICTS WITH COURT-ORDERED MANADTORY DESEGREGATION



a EXCLUDES DETROIT

FIGURE 2– DEMOGRAPHIC PROJECTION FOR NORTHERN DESEGREGATION DISTRICTS COMPARED TO ROSSELL NORTHERN CONTROL GROUP



[a] DISTRICTS HAVING BETWEEN 20 AND 80 PERCENT MINORITY, AND OVER 20,000 ENROLLMENT IN 1969.

[b] EXCLUDES PRINCE GEORGES COUNTY.

from Rossell's northern non-desegregation group matched in size and percent minority.[9] The fit is fairly good, although the control districts show somewhat more variability with a decrease in loss rates followed by a steeper increase from 1971 to 1973 than the projected rates. However, the total losses explained by these two sets of rates, shown in the upper portion of Figure 2 for a hypothetical population, are nearly exact. Therefore, we conclude that the demographic projection method being used here yields realistic loss rates when compared to similar non-desegregating districts.

It might be worthwhile to examine the detailed results for one of these districts. Figure 3 shows the projected and actual white enrollment in Boston, which has been one of the most celebrated court-ordered cases. First of all, it is observed that the projected and actual loss rates for Boston are very close for the five-year period between 1967 and 1972. This is evidence that, for Boston, a projection method based on birth rates and net out-migration (R_1 is .67 for the fifties and the sixties) can account virtually for all of the white losses during this period. But in 1973, after a lawsuit was filed and after considerable controversy over actions by the State Board of Education, the actual loss rate is -6.6 compared to a projected rate of -3.8. While this is not a large difference, it does reflect some anticipatory behavior; any linear projection that includes the 1973 white enrollment for the pre-desegregation trend (such as Rossell's) would clearly overestimate the white losses in the absence of desegregation. The Boston plan was implemented in two phases, with Phase II involving more students than Phase I. When Phase I was implemented in 1974, the actual loss rate was nearly four times the projected rate; when Phase II was implemented in 1975, the actual rate of loss jumped to over five times the projected rate. In the third year of implementation the loss rate was 10 percent, which is still more than twice the projected rate.

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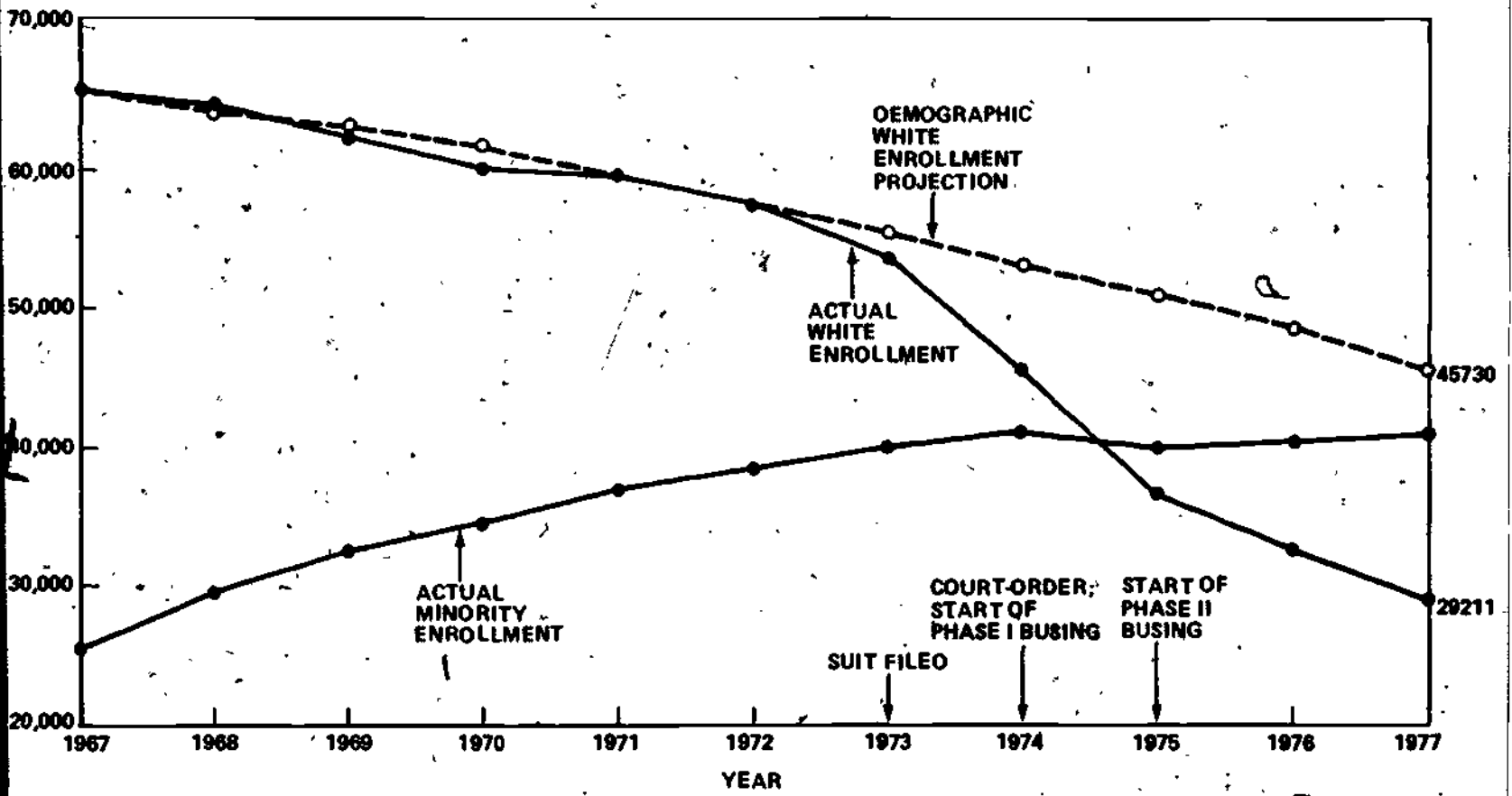
[9] Prince Georges County is excluded from the desegregating districts because none of Rossell's districts had comparable growth rates during the late 1960's. It should also be noted that some of Rossell's districts, including Grand Rapids, Cleveland, Cincinnati, and Omaha were involved in court actions in the early 1970's, so that anticipatory white flight might be a partial cause of the rise from 1971 to 1973. In fact, it is hard to find any large school district with a substantial minority enrollment that has not been involved in some type of desegregation lawsuit.

FIGURE 3 – PROJECTED AND ACTUAL ENROLLMENT FOR BOSTON



Before the desegregation action in Boston (1972) there were 57,000 white students, but by 1977 there were only 29,000. Of this total decline of 28,000, about 16,000 (or three-fifths) is attributable to desegregation activities. As a direct result of court-ordered busing, Boston became a majority black school district in 1975. It is interesting to note, also, that minority enrollment stopped growing rather suddenly in 1975; while not shown on the graph, projected black enrollment should have continued to grow slightly during this period. This suggests that black flight -- which has not been studied -- may also be a phenomenon in court-ordered desegregation, although its magnitude is very small compared to white flight.

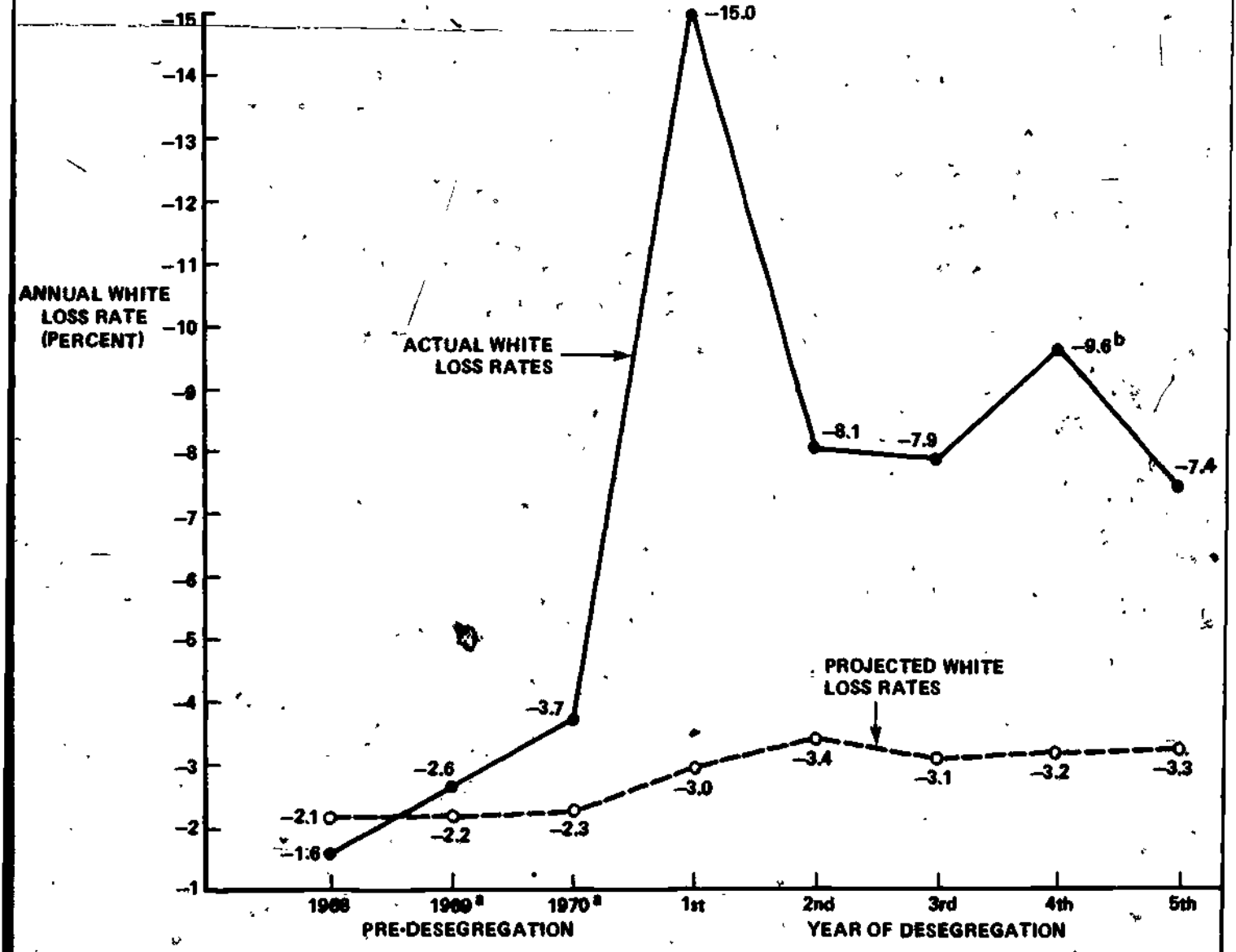
Southern Districts. The demographic projection method has also been applied to southern districts with over 20 percent minority and available suburbs.[10] The results are quite similar to those for the north, although the average effects are somewhat larger.

Figure 4 summarizes the actual and projected loss rates for 14 southern districts. Since nearly all these districts began desegregation in 1970 or 1971, the before-desegregation rates are given by year, with those districts which began desegregation in 1970 excluded from the 1970 averages. Interestingly, anticipatory effects seem weaker in the south; this may be due in part to the fact that these were the earliest cases, when the concept of mandatory busing was in its infancy; persons may have been less aware of what to expect.

The effects after busing started, however, are stronger than in the north, with the actual loss rates rising to over five times the projected rate in the first year of busing. In the second to fifth years of busing the actual rate ranges from two to three times the projected rate. The elevation of the actual loss rate in the fourth year of desegregation is caused by major second-stage desegregation actions in three cities (Atlanta, Chattanooga, and Oklahoma City) which occurred coincidentally at this time.

[10] Richmond and Norfolk, Virginia could not be analyzed due to annexations which could not be disentangled from enrollment changes.

FIGURE 4 -- ACTUAL AND PROJECTED WHITE LOSS RATES FOR SOUTHERN SCHOOL DISTRICTS WITH COURT-ORDERED MANDATORY DESEGREGATION



[a] 1967 AND 1968 FOR OKLAHOMA CITY, WHICH STARTED DESEGREGATION IN 1969 AND 1971 AND 1972 FOR MEMPHIS, WHICH STARTED IN 1973.

[b] MAJOR DESEGREGATION ACTIONS IN OKLAHOMA CITY, BIRMINGHAM, AND ATLANTA.

It is noteworthy that, like the north, the projected loss rates do rise from the pre- to post-desegregation periods. The rates of white loss for the south are, however, smaller than for the north. This reflects the fact that most of these districts were gaining in school-age population in the 1950's, and out-migration levels in the 1960's were lower than in most northern cities.

District Variations. The previous discussion has presented average white flight effects for groups of school districts. The extent of variation in effects from one district to another can be examined in Table 2, which provides the actual and projected rates of white loss for each of the northern court-ordered cases.

First, it is noted that in the years prior to filing of lawsuits, all but two cases (San Francisco and Prince Georges County) have projected rates of changes that closely match the actual rate, thereby giving substantial evidence for the validity of the demographic technique being used here. San Francisco's projected losses exceed the actual, leading to the possibility that white flight in San Francisco is underestimated by the method. This is balanced to some extent by a possible overestimate in white flight for Prince Georges County, whose projected gain exceeds the actual gain prior to the lawsuit. As a conservative test of white flight effects, the last row in Table 2 shows average loss rates excluding Prince Georges County; the results are not substantially different.

Second, during the first year of desegregation all but one district--Springfield, Mass.-- show a white loss rate at least two and one-half times the projected rate, and five show accelerated losses on the order of 3 to 5 times the projected rates. In other words, the first year effects are both massive and consistent. Moreover, with the same exception, the long-term effects are also consistent, with actual 4th year losses ranging from 1-1/2 to 2 times the projected rates.

The sole exception to these strong white flight effects requires some explanation. One reason may be that in 1974 Springfield desegregated only five predominantly black elementary schools (out of 35) under court order, with a corresponding small involvement of the white student population. The secondary schools were already desegregated by 1970,

Table 2

ACTUAL AND PROJECTED WHITE LOSS RATES IN NORTHERN SCHOOL DISTRICTS WITH COURT-ORDERED MANDATORY DESEGREGATION[a]

		Two Years Before Suit	Year Before Suit	Year Before Order	Year Before Start	Year of Start	Years after Start 1st	2nd	3rd	4th	Retention Rate (R_{70})[b]
Boston	Actual	-4.2	-3.3	-6.6	--	1974	-14.9	-20.0	-11.3	- 9.8	.644
	Proj.	-3.2	-3.4	-3.7	--		- 4.1	- 3.8	- 4.8	- 5.9	
Denver	Actual	-1.1	-1.4	-2.3	-6.6	1974	-13.2	- 8.6	- 7.7	- 7.9	.636
	Proj.	--	-1.4	-2.0	-3.6		- 3.4	- 3.5	- 4.3	- 5.2	
Pasadena	Actual	-4.3	-5.2	-6.0	--	1970	-12.4	-11.5	-11.4	- 9.1	.638
	Proj.	--	-4.4	-4.7	--		- 5.1	- 5.4	- 5.4	- 5.0	
Pontiac	Actual	0.0	-1.4	+ .4	-5.9	1971	-18.0	- 2.6	- 4.4	-4.6	.644
	Proj.	--	-2.1	-2.2	-2.0		- 2.3	- 2.7	- 2.6	- 2.8	
Springfield, Mass.	Actual	-4.7	-4.2	-4.2	-6.8	1974	- 6.6	- 3.4	- 3.9	- 5.0	.723
	Proj.	-3.0	-3.8	-4.4	-4.5		- 4.9	- 4.1	- 4.5	- 4.7	
Indianapolis[c]	Actual	+ .6	-2.0	-3.5	-6.7	1973	- 9.8	- 6.1	- 5.3	4.6	--
	Proj.	--	--	--	-2.8		- 2.9	- 3.0	- 3.1	- 3.2	
San Francisco	Actual	-.8[d]	-3.5[d]	--	-7.4	1971	-17.6	- 9.0	-12.9	-11.1	.478
	Proj.	--	-5.4	--	-6.0		- 6.8	- 6.3	- 6.0	- 5.9	
Detroit	Actual	-4.3	-6.1	-7.0	-9.5	1975-76[e]	-16.2	-21.5	-18.8		.591
	Proj.	-4.5	-4.8	-5.1	-6.5		- 6.0	- 6.3	- 6.8		
Prince Georges Co. (Washington, D.C. Suburb)[f]	Actual	+2.2	0	-3.3	-3.7	1973	- 9.4	- 5.9	- 6.5	- 8.2	1.00
	Proj.	+5.8	+4.0	+4.0	+3.8		+ 2.7	+ 2.0	+ .3	- .8	
AVERAGE WHITE LOSS RATE	Actual	-1.8	-3.0	-4.1	-6.7		-13.1	- 9.8	- 9.1	- 7.5	
	Proj.	-1.2	-2.5	-2.6	-3.1		- 3.6	- 3.7	- 4.2	- 4.2	
WHITE LOSS RATE, EXCLUDING PRINCE GEORGES	Actual	-2.4	-3.4	-4.2	-7.2		-13.6	-10.3	- 9.5	- 7.4	
	Proj.	-3.6	-3.6	-3.6	-4.2		- 4.4	- 4.4	- 4.7	- 4.7	

[a] All northern districts with enrollments over 20,000 and over 20% minority prior to desegregation that implemented court-ordered mandatory desegregation by 1975. See Appendix for raw data and calculations.

[b] Estimated 11-year net migration rate during the 1970's.

[c] Birth data not available; linear projection of 1967-1970 enrollment used.

[d] Years before board order of mandatory busing (1967 and 1968).

[e] Busing began in January, 1976.

[f] Three years before suit actual rate of gain is +5.2 and projected rate is +6.0.

largely due to school board actions under pressure from the Massachusetts State Board of Education.[11] Thus, pre-court order white losses might have been accelerated by secondary school desegregation, and post-order losses might be smaller than expected because of the small proportion of elementary schools affected by the plan. Of course, it is also possible that white flight has not occurred in Springfield, for reasons not fully understood at present.

Table 3 offers similar data for each of the southern districts. Again, the actual pre-desegregation loss rates in 1968 and 1969 either match or are exceeded by the projected rates in all but three cases. Oklahoma City, Little Rock and Birmingham have less projected than actual white losses during the 1967-69 period and thus may have somewhat overstated white flight effects. At the same time the method may be understating the white flight effects for Dallas, Forth Worth, and Greensboro.

It is quite apparent that, even though the average first-year effect in the South is larger than in the North, the South also has more variability. Dallas, Fort Worth, Houston, and Roanoke, Virginia, experienced only a doubling of the expected loss rates, while Jackson, Mississippi and Memphis, Tennessee experienced enormous loss rates of 40 percent during the first year of busing. One reason for the lower rates for the Texas and Virginia districts may be that they had very little white reassignment during their first year of desegregation. For example, in the first year of Dallas's court-ordered plan, only black students were bused; a reassignment order for majority-white schools was stayed. During this first year, Dallas's white loss was 9 percent compared to a projected loss of 4 percent. But when a grade 4 to 8 plan was implemented in 1976, which bused both black and white students, Dallas's white loss was nearly 13 percent compared to an expected loss of 3 percent. In contrast Roanoke, Virginia, implemented only satelliting and attendance zone revisions in 1971. Its loss rate was 6.6 percent compared to an expected 3.5 percent during the first year, but within three years the projected and actual rates

[11] Massachusetts passed a racial balance act in 1965, which required all public schools to have no more than 50 percent minority enrollment. There was considerable controversy over confrontations between the Springfield School Committee and the State Board between 1966 and 1971, which included two threats by the State to withhold state funds for non-compliance with the law.

Table 3

ACTUAL AND PROJECTED WHITE LOSS RATES FOR SOUTHERN SCHOOL DISTRICTS

		1968	1969	1970	Year of Start	Year of Desegregation 1st	2nd	3rd	4th	5th	Retention Rate (R_{70})
Dallas	Actual	--	-0.8	-2.[illegible]	1971	-9.0	-9.3	-11.3	-8.8	-9.6	.86
	Proj.	-1.6	-2.9	-3.4		-4.0	-4.1	- 3.4	-3.1	-2.5	
Ft. Worth	Actual	+0.8	-1.0	-2.2	1971	-8.4	-5.0	- 9.0[a]	-7.0	-4.4	.76
	Proj.	-3.2	-3.6	-4.6		-5.3	-4.8	- 3.9	-4.0	-4.2	
Houston	Actual	-1.2	-5.1	-4.2	1971	-9.8	-8.6	-10.7	-4.9	-10.0	.67
	Proj.	-1.1	-2.1	-3.4		-4.2	-4.3	- 4.3	-2.2	-2.7	
			1967	1968							
Oklahoma City	Actual	--	-1.4	-1.6	1969	-8.6	-5.6	- 1.8	-14.8[a]	-11.3	.93
	Proj.		--	+0.4		-.1	-1.3	- 2.2	-2.4	-2.4	
Little Rock	Actual	-0.8	-4.0	-2.9	1971	-10.4	-10.2	- 3.0	-6.0	-4.3	.89
Arkansas	Proj.	+2.6	+2.0	+0.1		-0.5	-0.4	- 1.0	-1.9	-2.8	
Jackson	Actual	-3.1	-2.9	--	1970	-40.4	-7.5	- 8.8	-8.6	-9.2	.79
Miss.	Proj.	-2.3	-3.1	--		-4.2	-4.8	- 3.6	-2.6	-2.4	
Greensboro	Actual	+1.9	-0.3	-1.7	1971	-8.9	-8.9	- 3.2	-3.3	-3.0	.95
N.C.	Proj.	-2.0	-1.9	-2.9		-2.5	-1.6	- 0.5	-0.0	-0.5	
Raleigh	Actual	-1.7	--	+0.1	1971	-7.4	-7.4	- 5.1	-5.4	-4.0	.74
N.C.	Proj.	-1.7	-0.8	-1.4		-0.6	-2.0	- 1.3	-2.7	-2.5	
Roanoke	Actual	--	-3.7	-3.8	1971	-6.6	-6.5	- 3.7	-4.8		.67
Va.	Proj.	-1.4	-2.4	-3.1		-3.5	-4.0	- 4.4	-4.7		
Chattanooga	Actual	-0.9	-2.6	-6.2	1971	-22.9	-11.4	-10.5	-20.1[a]	-8.4	.66
Tenn.	Proj.	-3.2	-3.4	-4.5		-5.0	-5.1	- 4.3	-4.0	-5.8	
Nashville	Actual	+0.2	+2.1	-1.3	1971	-10.5	-4.2	- 3.4	-3.4	-2.0	.88
Tenn.	Proj.	+0.1	-0.1	-0.9		-1.4	-2.1	- 2.5	-2.3	-2.8	
			1971	1972							
Memphis	Actual	-1.9	-5.6	-14.2	1973	-41.4	-5.4	- 7.7			--
	Proj.	--	-1.5	-1.5		-1.5	-1.6	- 1.6			
Birmingham	Actual	-3.3	-3.9	--	1970	-10.0	-7.4	-10.2	-11.1	-7.2	.67
Ala.	Proj.	-1.0	-.9			-2.1	-3.3	- 3.3	-3.7	-3.7	
Atlanta	Actual	-8.1	-7.5	--	1970	-16.1	-16.1	-21.7	-26.2[a]	-19.5	.58
Ga.	Proj.	-7.6	-7.4			-7.8	-8.4	- 7.6	-7.6	-7.0	
AVERAGE WHITE LOSS	Actual	-1.6	-2.6	-3.7		-15.0	-8.1	- 7.9	-9.6	-7.4	
	Proj.	-2.2	-2.2	-2.3		-3.0	-3.4	- 3.1	-3.2	-3.3	

[a] Indicates that a major mandatory reassignment took place that year, either equalling or surpassing the initial reassignment.

[b] Because of pre-1970 annexations demographic projection cannot be used; projected rates are based on a linear projection of 1965 to 1968 enrollments (major annexations occurred in 1969 and 1970). Actual rates in 1973 to 1975 exclude additional annexations of the Raleigh area.

were nearly identical; no additional reassignments took place. It would appear, then, that the white flight effect is more heavily influenced by the amount of white student reassignment than by the amount of black student reassignment. This conclusion is amply supported by data from the Rossell II study (1977).

The long-term effects four or five years after the start of desegregation are also substantial in most cases, exceeding a factor of 1-1/2 for all districts except Roanoke and Nashville. Considering all 22 districts, then, all but three show substantial short- and long-term acceleration of white losses as a result of court-ordered mandatory desegregation.

Effects of Court Orders on Resegregation

The primary purpose of desegregation orders by courts has been to remedy ~~illegal segregation~~ existing within a school district. It has long been assumed by the courts that voluntary plans will not "work," in the sense of providing a sufficient degree of desegregation. Mandatory plans do, indeed, provide a greater amount of desegregation, at least initially. However, given the substantial accelerated white losses over a prolonged period, the possibility arises that mandatory plans ultimately fail because of resegregation. If so, the question arises whether voluntary plans might be more successful for intra-district desegregation.

One of the difficulties in evaluating the extent of resegregation involves the definition of desegregation. If it means no more than ethnic or racial balance, then mandatory plans can always be successful, even if white flight causes a district's proportion white to drop to very low levels. As long as each school reflects the district ratio, even if the district is only 10 percent white, then a strict balance criteria would mean successful desegregation. However, neither the courts nor social scientists have ever held to such a standard of desegregation; rather, most definitions embody the concept of substantial opportunities for contact between minority and majority students. Therefore, if the proportion of white students in a district drops too low, then the district as a whole becomes either segregated or imbalanced compared to the ethnic composition of a region as a whole. If this condition is undesirable for individual schools, then it is certainly undesirable for

an entire school district. Accordingly, to study resegregation we adopt measures of desegregation that reflect the absolute proportion of white students within each school in a district.

Before turning to such desegregation indices, Table 4 shows the total losses of white students attributable to court orders, along with the effect this has had on the overall percent white. The long-term impact of court orders is massive in 15 out of 23 districts, accounting for over half of all white losses over periods of at least seven years. In larger districts this translates into tens of thousands of students. In six other cases the effects have been substantial, accounting for nearly a third of all white losses. Only Springfield, Massachusetts and Fort Worth, Texas, have experienced insignificant losses attributable to court orders.

Of those districts that were majority white prior to the start of mandatory busing, most are now predominantly minority or fast approaching that status. Of these cases, the projected percent white shows that many would still be majority white or close to 50-50 including Boston, Denver, Pasadena, Pontiac, Dallas, Houston, Little Rock, Jackson, and Chattanooga, if the court order had not occurred. Of those districts that were predominantly minority prior to the start of the court case, the accelerated white loss has contributed to transforming most of them into virtually minority isolated school districts, including Detroit, San Francisco, Memphis, and Atlanta.

Another way to evaluate the effect of court orders on resegregation is by means of a desegregation index. The index chosen for use here is called an "exposure" index, which is the average percent white in schools attended by minority students (Coleman, et al., 1975).[12] If all minority students were distributed in a completely random fashion throughout most regions of the United States, and all schools

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[12] The index of dissimilarity and Coleman's relative exposure indices are not appropriate for measuring desegregation as defined here, since they can attain "perfect" scores of 0 when all schools are racially balanced, regardless of the actual exposure of minority to majority students.

TABLE 4

LONG-TERM EFFECTS OF COURT-ORDERED DESEGREGATION ON WHITE LOSSES

District	Total White Loss, Before Start to Present[a]	Percent of Loss due to Court Orders	Initial % White	Projected % White Without Court Orders	Present % White
North					
Boston	30,179	55	62	53	42
Denver	23,615	52	60	55	47
Pasadena	11,087	30	63	44	36
Pontiac	6,146	59	66	56	49
Springfield, Mass.	5,721	16	60	58	56
Indianapolis	22,562	51	64	61	55
San Francisco	24,429	29	40	30	22
Detroit	50,328	60	31	26	16
Prince Georges	48,820	100[b]	80	72	56
South					
Dallas	47,880	52	61	49	39
Ft. Worth	18,486	7	67	54	53
Houston	36,014	51	53	44	36
Oklahoma City	27,427	72	80	75	65
Little Rock	5,619	94	64	57	47
Jackson, Miss.	13,246	64	55	46	30
Greensboro, N.C.	5,908	52	68	63	58
Raleigh, N.C.	4,418	53	72	66	62
Roanoke, Va.	3,944	29	76	71	69
Chattanooga	8,114	44	52	46	33
Nashville	14,560	31	76	73	70
Memphis	40,882	54	47[c]	43	29
Birmingham	14,856	54	49	44	34
Atlanta	37,959	36	41	24	11

[a] In order to include anticipatory effects, "before start" means losses two years before actual implementation; "present" ranges from 1975 to 1977; depending on the districts (see Appendix for detailed data).

[b] Prince Georges County's projected enrollment is larger than the initial enrollment.

[c] In 1967, prior to annexations.

were desegregated, each school would be between 70 and 80 percent white, and thus each district would have an exposure index between 70 and 80.

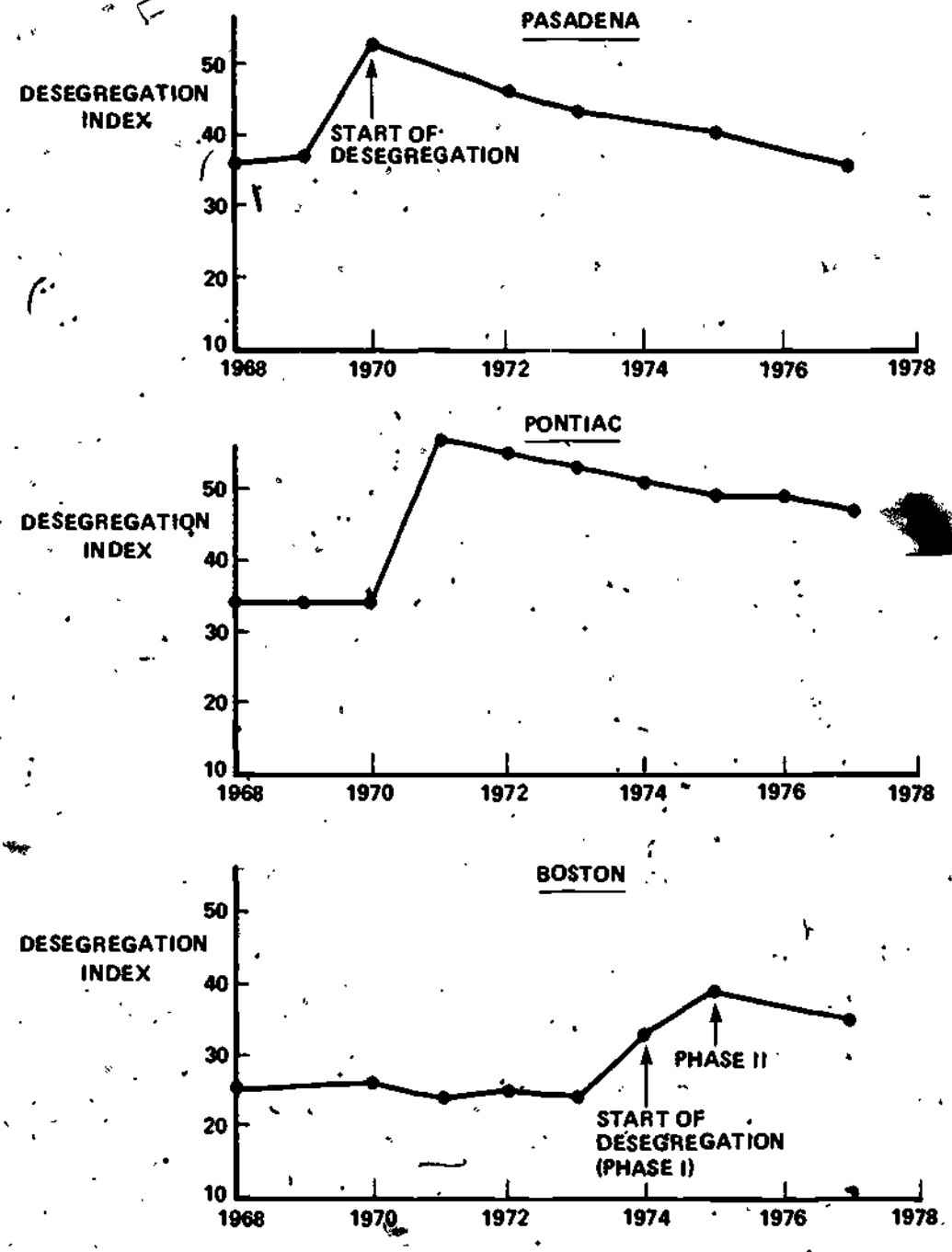
Figure 5 shows the trends in the amount of desegregation in those four northern school districts that have "tipped" as a result of court orders. The most interesting case is Pasadena, which had an index value of 37 the year before court-ordered desegregation. The success of the court's mandatory plan is seen in the first year of busing, when the index rose to 53. But because of white flight the index dropped to 35 by 1977, two points less than it was before desegregation. Although there was considerable ethnic imbalance in Pasadena in 1969, on the average the amount of minority exposure to white students was higher then than today in spite of a massive busing program.

The other three districts have not yet reached that point, but it is noteworthy that none of them have been able to maintain an index level over 50. In Boston the white flight has been so massive that even when Phase II was implemented the index reached only 39, and it has dropped sharply to 35 during the past two years. In spite of the strong court actions in Boston, this low degree of minority and white contact makes it hard to claim that its schools are desegregated today. The major social and political upheaval experienced by Boston seems a high price to pay for raising the percent white in the average black student's school by 10 points.

The trends in these four cities can be contrasted to San Diego which has pursued a strictly voluntary plan. Although the percent white declined from 70 percent in 1968 to 64 in 1977, the demographic projections shown in the Appendix reveal that there has been no accelerated white flight. During this time the desegregation index has actually increased slightly to a high of 46 due to a vigorous voluntary program. Under court orders this plan will be expanded over the next four years, and the index is projected to increase by several points by the early 1980s. Of course, some minority students are relatively isolated while others are in schools ranging from 60 to 80 percent white. But by avoiding white flight (so far), San Diego has managed to offer desegregated education to about half of its minority students.

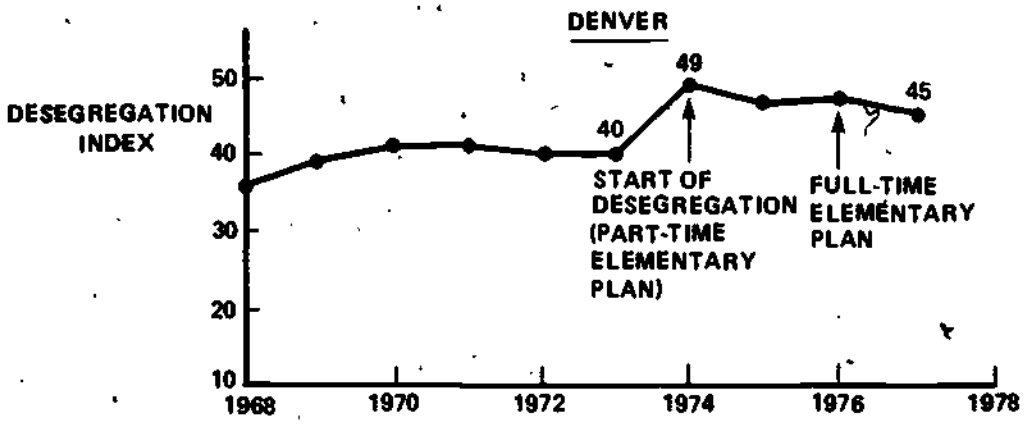
It is frequently overlooked that mandatory busing increases the desegregation experience of the isolated minority student only by

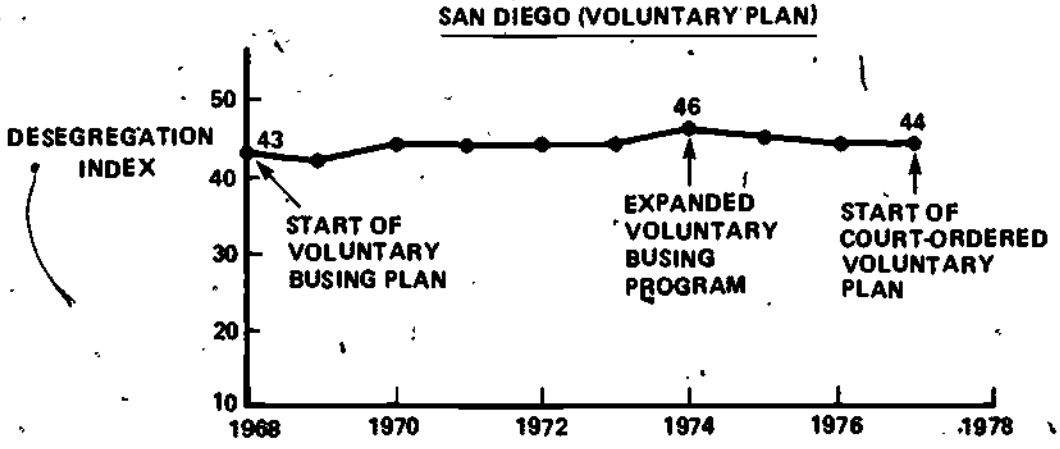
FIGURE 5 – CHANGES IN DESEGREGATION INDEX FOR SELECTED CITIES*



* DESEGREGATION INDEX IS THE AVERAGE PERCENT WHITE IN SCHOOLS ATTENDED BY MINORITY STUDENTS.

FIGURE 5 — (con't)





decreasing the desegregation of other minorities. Then, after ethnic balance is attained, desegregation is decreased for all minority students by white losses, which are accelerated by white flight. When the percent white drops below 50 for the district as a whole, none of the minority students are truly desegregated. By contrast, a voluntary plan can avoid white flight, thereby allowing a district to maintain its majority-white schools and offer desegregation to both resident minority students as well as to isolated minority students who transfer into these majority-white schools. Under such conditions, a voluntary plan like San Diego which desegregates a significant proportion of its minority students may well be considered more successful than a mandatory plan like Boston in which no minority students are desegregated.

Although not all the districts studied here have experienced the same degree of white flight as Boston, it is noteworthy that only four districts are now over 60 percent white, thereby providing for a substantial degree of desegregation. Five others are between 50 and 60 percent white, but the rate of white loss in these districts is such that most will probably "tip" within a few years. Even now some of these districts (e.g., Fort Worth, Springfield, and Indianapolis) have desegregation indices below 50. It seems clear; then, that nearly all school districts meeting the percent minority and suburban access criteria have experienced sufficient court-induced white flight to be in clear danger of resegregating.

Metropolitan Plans: Jefferson County

The existence of white flight in central city school districts has led some policy analysts to conclude that desegregation should be carried out on a metropolitan basis. A metropolitan plan combines central-city and suburban school districts and, if mandatory, exchanges inner-city minority students with suburban white students. Many advocates of mandatory metropolitan plans believe that eliminating the possibility of suburban relocation largely solves the white flight problem. Moreover, for those school districts that already have predominately minority enrollments, a metropolitan plan of some type -- either mandatory or voluntary -- may be the only recourse for desegregation.

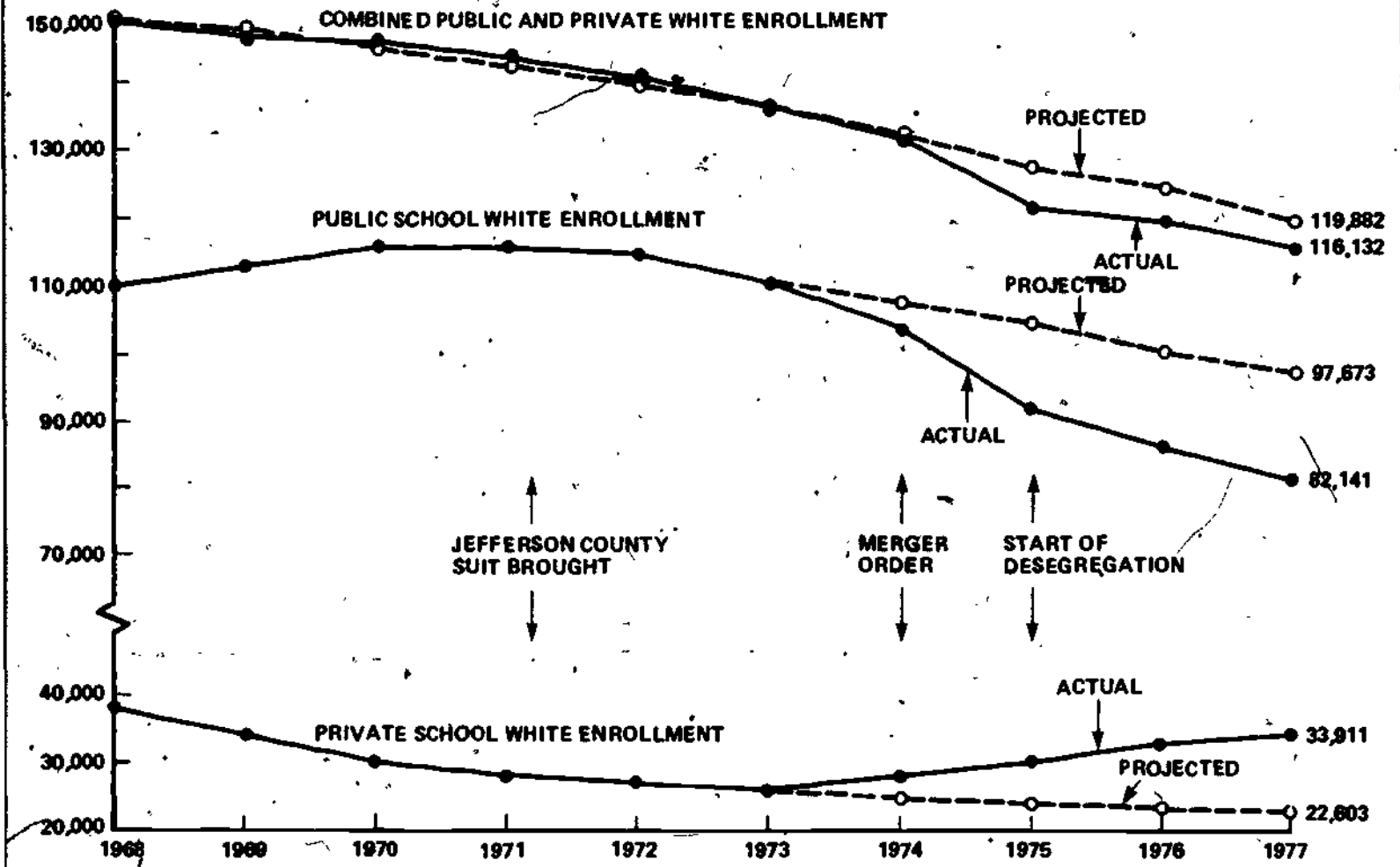
Unfortunately, the evidence is not yet complete for evaluating white flight in mandatory metropolitan plans. It might be argued that the county-wide school districts without suburbs shown in Table 1 can be used for this purpose. However, generalization from these districts to true metropolitan plans -- such as those proposed for Detroit or Atlanta -- presents several hazards. First, the Florida districts, which do show very little white flight, are unique because all counties came under court orders, so that white flight could occur only if persons left the state or enrolled in private schools. Second, all of the other cases (except Louisville) involve a single county-wide school district and all are in relatively rural regions of the South, where mobility may be constrained. Even so, the quasi-experimental analysis shows that some of these districts appear to have experienced white flight.

The fact is that the Supreme Court has imposed stringent requirements for metropolitan remedies, and as a result only two large-scale plans have been approved to date. One is Wilmington, Delaware and the other is Louisville, Kentucky, but only the latter has been implemented. Furthermore the Louisville plan, involving a merger of Louisville with the surrounding Jefferson County school district, might be debatable as a metropolitan case since it excludes several suburban school districts in Indiana located immediately across the Ohio River from Louisville. Nonetheless, the Jefferson County-Louisville desegregation plan comes closest to a true mandatory metropolitan plan of any implemented so far, and therefore its outcome is of considerable interest for clues about metropolitan white flight.

The existence of a comprehensive study of enrollment trends in Jefferson County (Johnson, et al. 1977), which documents both public and private white enrollment data from 1968 to 1977, can improve the projection analysis. The private school data enables a unique examination of the relationship between public and private school enrollments during court-ordered desegregation, an issue that may be especially important for metropolitan plans.

Actual and projected white enrollments for Jefferson County are shown in Figure 6 (see Appendix for detailed data). The uppermost solid line is the actual combined public and private enrollment for grades 1-12. Since our demographic technique projects the total

FIGURE 6 – PROJECTED AND ACTUAL WHITE SCHOOL ENROLLMENTS FOR THE LOUISVILLE-JEFFERSON COUNTY DISTRICT, 1968-1977



school-age population, it is most appropriately applied to this combined enrollment; the projected enrollment is shown by the uppermost dashed line. It is clear that the actual and projected enrollments are extremely close between 1969 and 1974, the year before desegregation began, thereby again supporting the validity of the projection method. In 1975, the first year of desegregation, the actual loss rate jumps to 7.1 percent while the projected rate is 3 percent, yielding an excess loss of nearly 6,000 white students. Not all of this loss appears to be due to relocation, however, since during the next two years the actual loss rate is smaller than the projected rate. By 1977 the excess loss is reduced to about 3,000 students; this suggests that during the first year of desegregation several thousand students were kept out of school.

The actual and projected public and private school enrollments are shown by the two lower sets of lines. Between 1968 and 1971 there appears to have been a general transfer taking place from private to public schools, so that the public schools were actually gaining white enrollment even though the school-age population was declining. This gain clearly came from private schools, since they were declining more rapidly than the school-age population. For this reason the separate demographic projections for private and public schools have been applied starting in 1973 when both public and private enrollments begin to match the total school-age trend. The projected loss rates used are those for the total school-age population, which of course assumes that both private and public schools would have continued to lose students at the same rate. This is a refinement of the projection method which can be applied only when private school enrollments are available. Similar transfer patterns between public and private schools in the late 1960's could explain why the projected losses are higher than actual losses for several cities described in previous tables.

After some anticipatory white loss in 1974, there is a very substantial public school loss of 11.3 percent in 1975 when busing began, which is more than 3-1/2 times the projected rate of 3 percent. The next two years the actual loss rate is between 1-1/2 to 2 times higher than the

projected rate. Thus the first-year white flight effect in Jefferson County is comparable to what we have found for central-city districts, but the longer-term effect is not quite as strong. This demonstrates that mandatory metropolitan plans can indeed have white flight, but perhaps with somewhat weaker long-term effects.

What is equally interesting about these results is the amount of flight due to relocation (or failure to move in) versus the amount due to transfers to private schools. By 1977, the excess white loss in Jefferson County public schools due to the court order was about 15,500 students. The excess increase in private schools, over and above their projected white enrollment, is about 11,000. Therefore, it appears that most of the white flight in Jefferson County is in the form of private school transfers; only about one-third of the loss is attributable to relocation.

These results reveal that significant white flight is possible in metropolitan plans, although, if Jefferson County is any indication, it may take the form of transfers to private schools. However, perhaps because of the expense and availability of private schools, the long-term white flight effects in metropolitan plans may be smaller than for central-city districts.

DISCUSSION

Summary of Findings

The findings of Coleman, the latest Farley and Rossell studies, and the present study all agree on one important fact. Desegregation can cause accelerated white flight, particularly in larger school districts with substantial minority enrollments (over 20 percent or so) and in districts with accessible white suburbs. This conclusion is robust, based on a concensus from four different studies employing different conceptual and analytic strategies.

Rossell's latest study and the present study clarify certain aspects of the white flight effect. The effect tends to happen only when significant numbers of students are mandatorily reassigned (or "bused"), and especially when white students are reassigned to formerly minority schools. This situation develops mostly in court-ordered cases, although there are several mandatory HEW-ordered plans

and at least one case of a community-initiated mandatory plan.[13] Therefore court-ordered mandatory plans, rather than desegregation per se, have been the primary causes of accelerated white flight in desegregating school districts. Voluntary busing plans such as that adopted by San Diego do not appear to have any significant effect on white flight.

Using demographic projection methods, the present study offers further information about white flight induced by court-ordered desegregation. The effect is strongest in the first year of desegregation, with average white losses accelerating by factors of 2 to 4 in most cases. But the projections also show that many districts suffer anticipatory white losses, usually between the initial legal activities and the actual start of desegregation. More important, the method also shows that in most districts the accelerated white losses last for prolonged periods up to four or five years or more. Sometimes these longer-term effects are boosted by subsequent court actions taken to broaden desegregation.

The longer-term effects are stronger in larger central-city school districts that have ample two-way busing, available suburbs, and higher minority concentrations. In some of these cases the court action seems to have permanently altered the rate of white decline in the public schools.

It is important to stress that not all white losses are attributable to the court actions. Many districts, especially those in the larger urban areas, would have experienced substantial white declines during the 1970's without the court orders. Most of these "natural" declines are due to a demographic transition characterized by declining white births combined with increasing central-city white outmigration rates. Nonetheless, the extra white losses caused by court-ordered mandatory desegregation are very substantial, in most cases amounting to over half of all white losses over periods of six to eight years.

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[13] Berkeley, California is the only city meeting our size and percent minority criteria which has voluntarily implemented a comprehensive two-way busing plan, although Seattle, Washington, has proposed to do so in the Fall of 1978.

White flight appears to be insignificant in most Florida districts and in districts with small concentrations of minority students. The latter cases are apparently explained by the relatively minor dislocation necessary for desegregating relatively small numbers of minority students. In other county-wide districts without suburbs -- which might be considered "metropolitan" -- court orders have induced white flight, but the effect may not be long-term like that in central city districts. According to the Louisville-Jefferson County experience, the reason may have to do with cost and availability of private schools, which logically forms the primary avenue for white flight in metropolitan plans. Of course, should the supply of private schools be increased, as it might with tuition tax credits or with property tax cuts such as those occurring in California, metropolitan plans could rival intra-district plans in white flight.

The Future of School Desegregation

Having provided further evidence that court-ordered desegregation does cause white flight, and that under certain conditions the effect is very substantial, it must be conceded that the present study will probably not end the debate. All projection studies must make assumptions, and while the assumptions adopted here seem reasonable, they can be challenged. Moreover, at least one other recent study using different methods has argued that long-term effects are rare (Rossell, 1978). As a result, it is likely that there will be continuing argument, not over the existence of court-induced white flight, but over its full magnitude.

Nonetheless, this argument should not be allowed to obscure the central policy issue. Most of the school districts studied here are losing whites at a rapid rate. While part of the cause may be demographic, the court action only increases the rate of loss and increases the risk of resegregation. For persons who sincerely desire to increase the total amount of integration, this risk has to be disturbing. At precisely a time when policies are needed to halt or reverse the normal white declines in urban areas, we have instead court actions which are exacerbating the condition. Although the effects may be relatively

small in some cases, in other cases they are large. In either case they seem inappropriate during an era when most urban experts are urgently seeking ways to attract whites back into cities. Clearly, other remedies for school desegregation should be considered.

One alternative, of course, is to abandon "induced" school desegregation policies entirely, and let school desegregation take place "naturally" by housing choices of white and minority families. Given the failure to document definitive and meaningful educational and social benefits from induced school desegregation policies (Armor, 1972; St. John, 1975), we may eventually discover that natural desegregation is the wisest policy.

However, given current knowledge about housing segregation, which appears to be increasing in many metropolitan areas, many educational policy makers will not be content with the amount of desegregation arising naturally from neighborhood school assignments. Accordingly, for many policy makers there are only two meaningful alternatives: expanded voluntary plans, either on an intradistrict or metropolitan basis, or mandatory metropolitan plans.

In evaluating the relative merits of these two options, it is essential to gain some understanding of the reasons for white flight. If we are to improve upon present policies, so that the participants do not undermine and ultimately defeat the goal of desegregation, we must learn more about why whites oppose mandatory desegregation and how strong these feelings are. Obviously, it is beyond the scope of this paper to present an in-depth study of this issue. But it is possible to offer some helpful insights from attitudinal studies of busing which complement the behavioral findings already presented.

Most national public opinion polls have shown that whites are strongly opposed to busing for the purpose of desegregation (on the order of 75 to 85 percent), a stance that has changed little in spite of the increasingly commonplace status of busing during this decade (Weidman, 1975). Similar results have been found in recent special surveys in Los Angeles, San Diego, and Wilmington, Delaware, all of

which are involved in court desegregation cases (Armor, 1977; Kaplan, 1977). Thus attitudinal opposition to busing is consistent, in the aggregate, with the behavioral white flight phenomenon.

Yet these same surveys document substantial white support for the concept of integrated schools, and there is little opposition among whites to the prospect of minority children coming into their children's present schools. In the Los Angeles survey, 87 percent of white parents said they would not object if their child attended a school that was one-third black and two-thirds white, and 74 percent would not object if minority students were bused into their child's present school "in large numbers" (18 percent objected). Again, the behavioral evidence in white flight studies validates these attitudinal findings. Many school districts, including Los Angeles and San Diego, have promoted voluntary busing programs that have brought large numbers of minority students into schools that were formerly nearly all white. Yet little or no white flight has been observed as a result of these voluntary programs.

Contrary to the suggestions of some policy commentators, these results are not consistent with the thesis that opposition to busing and white flight are latent forms of prejudice and racism. Of course, prejudice and racism do exist, and undoubtedly persons with such attitudes are among the first to flee a desegregation program. But racism as an explanatory factor is not alone sufficient to account for the fact that the vast majority of whites accept desegregated schools when brought about by voluntary methods but reject them when their children are mandatarily bused or reassigned to schools outside their neighborhoods. The conclusion that racism is not the explanation is also supported by special analyses of the NORC 1974 survey, which found that whites with low racial prejudice scores were nearly as opposed to busing as persons with high prejudice (82 percent and 88 percent, respectively; Weidman, 1975).

If racism does not explain white flight, what does? The Los Angeles survey offers two further clues which support a different explanation. First, when asked about their reasons for opposing busing, the majority of whites mentioned a belief in the neighborhood school or related

issues such as distance, loss of choice, lost time, and lost friends. Second, when asked about the benefits and harms of desegregation, a large majority of white parents believed it would improve neither minority education nor race relations, while it would increase discipline problems and racial tensions. A majority of black parents believed the opposite, while Mexican-American parents were in between. Thus most white parents believe they are being forced to give up something they value -- the neighborhood school -- in return for a policy that benefits no one and may even be harmful. Given the strength of these feelings, and their persistence over time, it is quite possible that we have underestimated the depth of belief in and commitment to the neighborhood school.

This substantial public opposition to mandatory busing makes it unlikely that legislative bodies, whether state or federal, will enact mandatory metropolitan desegregation. Realistically, the only hope for mandatory metropolitan plans rests upon further court action. Before federal courts can order metropolitan remedies, however, they must show that suburban school districts have had a direct and substantial effect on the central-city's school segregation. At present, this has been found for Wilmington, Delaware and may yet be found for Indianapolis, both for quite special reasons.[14] As was true for Detroit, however, it will be difficult to show such connections in most cities. The NAACP and the ACLU are pursuing metropolitan remedies in Cincinnati and Atlanta on the grounds of government-caused housing segregation, but it is an open question whether federal courts will agree with this allegation.

An important exception may be California, whose school desegregation cases are being handled in state courts under the State Supreme Court edict that all school segregation is unconstitutional regardless of its

[14] Wilmington's metropolitan remedy was imposed because of a state law which specifically prevented the largely black Wilmington School District from annexing suburban districts. Indianapolis may get a metropolitan remedy because of state actions that created a metropolitan local government but which kept the school district intact. The Louisville-Jefferson County merger was first ordered by an Appellate Court but was actually implemented by the State Board of Education after the Supreme Court disapproved the appellate order.

causes. There is nothing in the logic of the state court's holdings that would preclude a judge from ordering a metropolitan remedy. Given the strong majority opposition to busing, however, and the inevitable legal and political battles that will ensue, it is unclear whether any court will try to do so. For example, if any school district needs a metropolitan remedy it is Los Angeles, where the Anglo enrollment is already down to 35 percent. The projected Anglo losses under busing are likely to turn Los Angeles into a minority-isolated district by 1980 or so, where few minority children will attend desegregated schools (Armor, 1977). Yet, the court is allowing an intradistrict plan to start and has given no indication it will expand it into a metropolitan plan.

Even if the courts were to order metropolitan mandatory desegregation, there is no guarantee of success. The experience of Jefferson County, Kentucky, shows that white flight can occur in a metropolitan plan, albeit via transfers to private schools. The current dissatisfactions with public education coupled with growing pressure for California-style property tax cuts could lead to an upturn in private school resources. Property tax cuts can accelerate the trend with a two-pronged affect: they make it harder for public schools to deliver services, while at the same time increasing a family's ability to pay for private schooling. Tuition tax credits now being considered by Congress will have a similar affect. In this context, a court order of metropolitan busing could deliver a devastating blow to public eduoation.

If the courts fail to order metropolitan desegregation, then voluntary plans will be the only remaining alternative, possibly on a metropolitan basis if state or federal funds become available. Although voluntary plans are widely believed to be ineffective, we have shown that San Diego's voluntary plan has maintained a substantial degree of desegregation, surpassing the amount of desegregation offered by the celebrated mandatory plans in Pasadena, Denver and Boston. Although we cannot generalize from the success of a single city, the fact remains that in recent times the voluntary approach has not led to the intense controversy observed in mandatory busing cases. Perhaps we have not given voluntary methods a fair trial. If other school districts can duplicate San Diego's experience, voluntary plans would provide desegregation for a large fraction of minority students, perhaps for those who could benefit most.

Most important, a voluntary program eliminates the inevitable social costs of programs which are forced upon an unwilling and protesting public. Aside from the direct costs in the form of white flight, it is quite possible that mandatory busing has already added to the erosion of confidence in public education. Indeed, recent Gallup polls show that integration/busing is named as the number two problem facing public education (AIPO, 1978). Given this climate of opinion, voluntary desegregation programs not only offer more enrollment stability; they may also help to stop this unfortunate decline in support for the public schools.

APPENDIX

The tables in the following pages present raw data and calculations for the demographic projections of the school-age population in each school district in the study. All birth data, except as otherwise noted, are live births by place of residence from *Vital Statistics of the United States*, National Center for Health Statistics. School data are fall enrollments from the Office of Civil Rights, HEW, racial and ethnic census reports, unless otherwise noted. The court actions are taken from written decisions and school district interviews.

The last table in the appendix is adapted from the Rossell Study (Rossell, 1977).

WHITE ENROLLMENT PROJECTIONS FOR BOSTON, MASSACHUSETTS 1968-1977

Year	White Births	Retention Rate (R)	Net
1950	15076	.64370	9704
1951	(15018)[a]	.64370	9666
1952	(14960)[a]	.64370	9630
1953	(14902)[a]	.64370	9592
1954	(14844)[a]	.64370	9555
1955	14787	.64370	9518
1956	(14411)[a]	.64370	9276
1957	(14164)[a]	.64370	9117
1958	(13857)[a]	.64370	8920
1959	(13550)[a]	.64370	8722
1960	13244	.64370	8525
1961	13158	.64370	8470
1962	11990	.64370	7718
1963	11726	.64370	7548
1964	11788	.64370	7588
1965	10178	.64370	6552
1966	9382	.64370	6039
1967	9082	.64370	5846
1968	8746	.64370	5630
1969	8082	.64370	5202
1970	8446	.64370	5437
1971	6952	.64370	4475
1972	5788	.64370	3726

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966							66425[b]			
1967				118413		65378	65378[b]	-1.6%	70.5%	25466
1968	9704	7548	2156	116257	-1.8%	64201	64500	-1.3%	68.5%	29674
1969	9666	7588	2078	114179	-1.8%	63046	62657	-2.9%	66.0%	32230
1970	9630	6552	3078	111101	-2.7%	61343	62014	-1.0%	64.0%	34680
1971	9592	6039	3553	107548	-3.2%	59380	59390	-4.2%	61.5%	37192
1972	9555	5846	3709	103839	-3.4%	57361	57405	-3.3%	59.5%	38722
1973	9518	5630	3888	99951	-3.7%	55239	53593	-6.6%	57.2%	40054
1974	9276	5202	4074	95877	-4.1%	52974	45624	-14.9%	52.4%	40889
1975	9117	5437	3680	92197	-3.8%	50961	36522	-20.0%	47.4%	40217
1976	8920	4475	4445	87752	-4.8%	48515	32393	-11.3%	44.4%	40613
1977	8722	3726	4996	82756	-5.7%	45750	29211	-9.8%	41.6%	40981

WHITES, U. S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	66496	46179	R_{50}	≈.67	.64370
1960	56346	44796	R_{60}	≈.67	.64370
1970	35212	38179	R_{70}	.67	.64370

[a] Interpolated.

[b] District white figures included American Indian and Asian based on 1968-70 enrollments for these groups; 1625 and 1650, respectively, have been subtracted.

COURT ACTIONS (Morgan v. Kerrigan)

1973	Suit brought.
1974	First order and start of desegregation (Phase I).
1975	Final plan (Phase II).

ANGLO ENROLLMENT PROJECTIONS FOR DENVER, 1968-1977

Year	White Births	Anglo Fraction	Retention Rate (R)	Cohort Net
1950	9745	.810	.695	5486
1951	(9845)[a]	.817	.689	5542
1952	(9845)[a]	.814	.683	5494
1953	10045	.811	.677	5515
1954	10145	.808	.671	5500
1955	10245	.805	.665	5484
1956	10345	.802	.659	5468
1957	10445	.799	.653	5450
1958	10545	.796	.647	5431
1959	10645	.783	.641	5343
1960	10730	.790	.636	5391
1961	11074	.778	.630	5428
1962	10328	.766	.624	4937
1963	9632	.754	.619	4496
1964	9074	.742	.613	4127
1965	7910	.730	.607	3505
1966	7528	.718	.601	3248
1967	7673	.706	.595	3223
1968	7926	.694	.590	3245
1969	8590	.682	.584	3421
1970	8584[b]	.670	.578	3324
1971	8012[b]	.658	.572	3015
1972	7298[b]	.646	.566	2668

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent Anglo	Min.
1966							64955		68.0%	31003
1967				70564		64226	64226	-1.1%	66.6%	32194
1968	5486	4496	990	69574	-1.4%	63327	63398	-1.4%	65.6%	33179
1969	5542	4127	1415	68159	-2.0%	62060	61912	-2.3%	64.1%	34722
1970	5515	3505	2010	66149	-2.9%	60261	59716	-3.5%	62.1%	36372
1971	5500	3248	2252	63897	-3.4%	58212	57177	-4.3%	60.3%	37661
1972	5468	3223	2245	61652	-3.5%	56174	53420	-6.6%	58.3%	38196
1973	5450	3245	2205	59447	-3.5%	54512	49892	-6.6%	57.0%	37728
1974	5431	3421	2010	57437	-3.4%	52311	42838	-13.2%	53.8%	36832
1975	5343	3324[b]	2019	55418	-3.5%[b]	50480	39519	-8.6%	50.4%	38803
1976	5391	3015[b]	2376	53042	-4.3%[b]	48309	36460	-7.7%	48.8%	38218
1977	5428	2668[b]	2760	50282	-5.2%[b]	45797	33562	-7.9%	47.0%	37904

	WHITES, U.S. CENSUS			ANGLOS			
	<5	10-14	% Anglo	<5	10-14	10 Year Retention	11 Year Retention
1950	51343	28412	.81	41588	23014	R_{50} .718	.695
1960	48194	37805	.79	38073	29866	R_{60} .663	.636
1970	35852	37682	.67	24021	25247	R_{70} .608	.578

[a] Interpolated.

[b] Potential effect of 1970-71 court actions on births.

[c] From Denver Public School Ethnic Distribution Reports.

COURT ACTIONS (Keyes v. School District)

1969 Suit brought; Park Hills area desegregated.
1970 First order of general desegregation.
1973 Supreme Court affirmed.
1974 Start of desegregation; part-time elementary plan.
1976 Full time elementary plan.

ANGLO ENROLLMENT PROJECTIONS FOR PASADENA, CALIFORNIA 1968-1977

Year	White Births	Anglo Fraction	Retention Rate (R)	Cohort Net
1950	1721	.97	.959	1601
1951	(1706)[b]	.968	.927	1531
1952	(1690)[b]	.966	.895	1461
1953	1674	.964	.863	1393
1954	1659	.962	.831	1326
1955	1644	.96	.799	1261
1956	1638	.958	.767	1204
1957	1622	.956	.735	1140
1958	1607	.954	.703	1078
1959	1582	.952	.671	1011
1960	1566	.95	.638	949
1961	1516	.93	.638	900
1962	1554	.91	.638	902
1963	1596	.89	.638	906
1964	1476	.87	.638	819
1965	1330	.85	.638	721
1966	1240	.83	.638	657
1967	1224	.81	.638	633
1968	1300	.79	.638	655
1969	1358	.77	.638	667
1970	1448	.75	.638	693
1971	1118[c]	.73	.638	521
1972	989[c]	.71	.638	448

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[a]	Actual Loss Rate	Percent Anglo	Minority
1966							20958		65.6	11019
1967				15757		20049	20049	-4.3%	63.1	11731
1968	1601	906	695	15062	-4.4%	19167	19008	-5.2%	60.4	12476
1969	1531	819	712	14350	-4.7%	18266	17859	-6.0%	58.3	12763
1970	1461	721	740	13610	-5.1%	17334	15647	-12.4%	53.7	13476
1971	1393	657	736	12874	-5.4%	16398	13848	-11.5%	50.3	13699
1972	1326	633	693	12181	-5.4%	15513	12271	-11.4%	46.8	13954
1973	1261	655	606	11575	-5.0%	14737	11188	-9.1%	44.0	14226
1974	1204	667	537	11038	-4.6%	14059	10970	-1.9%	42.2	15084
1975	1078	693[c]	385[c]	10653	-3.5%	13567	10664	-2.8%	40.9	15419
1976	1011	521[c]	490[c]	10163	-4.6%[c]	12943	9839	-7.7%	38.3	15879
1977	949	448	501	9662	-4.9%[c]	12309	8962	-8.9%	36.3	15771

WHITES, U.S. CENSUS				ANGLO			
	<5	10-14	Percent Anglo	<5	10-14	10 Year Retention	11 Year Retention
1950	6421	4250	.97	6228	4122	R_{50} .963	.959
1960	6854	6315	.95	6511	5999	R_{60} .665	.638
1970	5549	5769	.75	4162	4327	R_{70} .665	.638

[a] From "Racial and Ethnic Distribution of Enrollments," Pasadena schools.
[b] Interpolated.
[c] Potential effect of start of desegregation (1970) on birth rates.

COURT ACTIONS (Spangler v. Pasadena)

1969 Suit brought.
1970 Order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR PONTIAC, MICHIGAN 1968-1977

Year	White Births	Retention Rate (R)	Net
1950	1918	.832	1596
1951	(1938)[b]	.813	1576
1952	(1968)[b]	.794	1563
1953	1998	.775	1548
1954	2127	.756	1608
1955	2162	.737	1593
1956	2350	.718	1687
1957	2259	.699	1579
1958	2189	.680	1489
1959	2009	.661	1328
1960	2098	.644	1351
1961	2048	.644	1319
1962	1820	.644	1172
1963	1844	.644	1188
1964	1812	.644	1167
1965	1852	.644	1193
1966	1754	.644	1130
1967	1755	.644	1130
1968	1764	.644	1136
1969	1896	.644	1221
1970	1984	.644	1278
1971	1778[c]	.644	1145
1972	1530[c]	.644	985

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[a]	Actual Loss Rate	Percent White	Minority
1966							16071		68.6%	7363
1967				19409		16074	16074	0.0%	67.6%	7695
1968	1596	1188	408	19001	-2.1%	15736	15845	-1.4%	66.3%	8043
1969	1576	1167	409	18592	-2.2%	15390	15915	+0.4%	64.8%	8603
1970	1563	1193	370	18222	-2.0%	15082	14977	-5.9%	62.2%	9100
1971	1548	1130	418	17804	-2.3%	14736	12277	-18.0%	56.8%	9358
1972	1608	1130	478	17326	-2.7%	14338	11953	-2.6%	56.4%	9212
1973	1593	1136	457	16869	-2.6%	13965	11422	-4.4%	53.6%	9754
1974	1687	1221	466	16403	-2.8%	13574	10899	-4.6%	52.1%	9900
1975	1579	1278	301	16102	-1.8%	13330	10652	-2.3%	51.5%	10206
1976	1489	1145[c]	344	15758	-2.1%[c]	13050	10358	-2.8%	50.4%	10416
1977	1328	985[c]	343	15415	-2.2%[c]	13343	9699	-6.4%	48.8%	10408

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	6704	4668	R_{50}	.846	.832
1960	8015	5672	R_{60}	.670	.644
1970	6864	5371	R_{70}	.670	.644

[a] Supplied by Pontiac School District. Includes less than 1% minorities other than black and Hispanic for consistency with early data; 1975-77 excludes County Special Education Centers which were excluded in earlier years.

[b] Interpolated.

[c] Possible effect of desegregation.

COURT ACTIONS (Davis v. School District

1969 Suit brought.
1970 First order.
1971 Affirmed; start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR SPRINGFIELD, MASSACHUSETTS 1968-1977

Year	White Births	Retention Rate (R)	Net	Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1950	3427	.888	3043	1966							25808			
1951	(3491)[a]	.872	3044	1967				37109		24606	24606	-4.7%	77.7%	7062
1952	(3553)[a]	.855	3038	1968	3043	2273	770	36339	-2.1%	24089	24222	-1.6%	76.4%	7478
1953	3614	.838	3029	1969	3044	2140	904	35435	-2.5%	23487	23604	-2.6%	74.5%	8067
1954	3674	.822	3020	1970	3038	1964	1074	34361	-3.0%	22784	22501	-4.7%	71.8%	8845
1955	3743	.806	3017	1971	3029	1710	1319	33042	-3.8%	21917	21547	-4.2%	69.6%	9407
1956	3726	.789	2940	1972	3020	1560	1460	31582	-4.4%	20952	20631	-4.2%	67.6%	9866
1957	3710	.772	2864	1973	3017	1582	1435	30147	-4.5%	20010	19220	-6.8%	64.9%	10408
1958	3702	.756	2799	1974	2940	1463	1477	28670	-4.9%	19029	17946	-6.6%	62.4%	10821
1959	3676	.740	2720	1975	2864	1680	1184	27486	-4.1%	18248	17327	-3.4%	60.1%	11512
1960	3658	.723	2645	1976	2799	1560	1239	26247	-4.5%	17609	16656	-3.9%	58.9%	11633
1961	3570	.723	2581	1977	2720	1490	1230	25017	-4.7%	16746	15826	-5.0%	56.5%	12206
1962	3276	.723	2369											
1963	3144	.723	2273											
1964	2960	.723	2140											
1965	2717	.723	1964											
1966	2365	.723	1710											
1967	2158	.723	1560											
1968	2188	.723	1582											
1969	2024	.723	1463											
1970	2324	.723	1680											
1971	2157	.723	1560											
1972	2061(est)	.723	1490											

WHITES, U. S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	14816	8527			
1960	17134	13303	R_{50}	.898	.888
1970	10740	12764	R_{60}	.745	.723
			R_{70}	.745	.723

[a]Interpolated.

COURT ACTIONS (School Committee v. School Board--state)

1967-69	Secondary school desegregation mandated by State Board.
1970	State Board voted to withhold funds.
1971	Suit brought.
1972	First order (Sept. 1973 start ordered).
1974	Start of elementary desegregation.

WHITE ENROLLMENT PROJECTIONS FOR INDIANAPOLIS, 1968-1976

Year	Actual K-12	Actual Loss Rate	Projected Loss Rate[a]	Projected K-12	Minority	Percent White
1967	73449				35700	67.3%
1968	72010	-2.0%			36577	66.3%
1969	70204	-2.5%			37988	64.9%
1970	67772	-3.5%		67772	38044	64.1%
1971	63334	-6.6%	-2.7%	66150	38992	61.9%
1972	59079	-6.7%	-2.8%	64266	38522	60.5%
1973	53292	-9.8%	-2.9%	62382	38422	58.1%
1974	50041	-6.1%	-3.0%	60498	37550	57.1%
1975	47390	-5.3%	-3.1%	58615	37235	56.0%
1976	45210	-4.6%	-3.2%	56731	36815	55.1%

[a] Based on linear regression of 1967 to 1970 actual enrollment; slope = -1884, constant = 75568

COURT ACTIONS (U.S. v. Board of School Comm.)

1968 Suit brought.
1971 First order.
1973 Start of "interim" plan (partial desegregation).
1973 Metro order; not yet decided.

WHITE ENROLLMENT PROJECTIONS FOR SAN FRANCISCO, CALIFORNIA 1968-1977

Year	White Births	Anglo Fraction	Retention Rate (R)	Cohort Net
1950	12782	.880	.575	6468
1951	(12621)[b]	.872	.562	6185
1952	(12460)[b]	.864	.549	5910
1953	12298	.856	.536	5642
1954	11842	.848	.523	5252
1955	11132	.840	.510	4769
1956	10902	.832	.496	4499
1957	11366	.824	.483	4524
1958	11082	.816	.470	4250
1959	10498	.808	.457	3876
1960	10476	.800	.444	3721
1961	10418	.782	.444	3617
1962	9974	.764	.444	3383
1963	9462	.746	.444	3134
1964	9082	.728	.444	2936
1965	8224	.710	.444	2593
1966	7322	.692	.444	2250
1967	7310	.674	.444	2188
1968	6966	.656	.444	2029
1969	6894	.638	.444	1953
1970	6492[c]	.620	.444	1787
1971	5684[c]	.602	.444	1519
1972	4522	.584	.444	1173

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[a]	Actual Loss Rate	Percent White	Percent Minority
1966							39877		41.9%	55294
1967				62096		39559	39559	- .8%	40.8%	57400
1968	6468	3134	3334	58762	-5.4%	37383	38159	-3.5%	39.9%	57478
1969	6185	2936	3249	55513	-5.5%	35327	34700	-9.1%	37.1%	58831
1970	5910	2593	3317	52196	-6.0%	33208	32133	-7.4%	35.1%	59414
1971	5642	2250	3392	48804	-6.5%	31049	26484	-17.6%	31.7%	57061
1972	5252	2188	3064	45740	-6.3%	29093	24094	-9.0%	29.4%	57860
1973	4769	2029	2740	43000	-6.0%	27347	20988	-12.9%	26.9%	57035
1974	4499	1953	2546	40454	-5.9%	25734	18654	-11.1%	25.3%	55079
1975	4524	1787	2737	37717	-6.8%	23984	17405	-6.7%	24.4%	53928
1976	4250	1519[c]	2463	35254	-6.5%[c]	22425	14958	-14.1%	22.9%	50297
1977	3876	1173[c]	2703	32551	-7.7%	20698	13730	-8.2%	21.9%	48932

WHITES, U.S. CENSUS

	<5	10-14
1950	52970	29715
1960	40937	35243
1970	25304	25229

ANGLO

Percent Anglo	<5	10-14
.88	46614	26149
.80	32750	28194
.62	15688	15642

	10 Year Retention	11 Year Retention
R_{50}	.605	.575
R_{60}	.478	.444
R_{70}	.478[c]	.444

[a] Supplied by San Francisco Schools; excludes "other non-white."

[b] Interpolated.

[c] Possible effects of desegregation.

COURT ACTIONS (Johnson v. San Francisco)

1969 School Board plan adopted (partial).
1970 Start of school board plan.
1971 First court order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR DETROIT, MICHIGAN, 1968-1977

Year	White Births	Retention Rate (R)	Net
1949	36384[a]	.613	22303
1950	35984	.612	22022
1951	35553[a]	.611	21723
1952	35123[a]	.610	21425
1953	34692	.609	21127
1954	33882	.608	20600
1955	32131	.607	19504
1956	31574	.606	19134
1957	29418	.605	17798
1958	27164	.604	16407
1959	24260	.603	14629
1960	22496	.602	13543
1961	21296	.601	12799
1962	19648	.600	11789
1963	19426	.599	11636
1964	18654	.598	11155
1965	17808	.596	10614
1966	17518	.595	10423
1967	15792	.594	9380
1968	14304	.593	8482
1969	13964	.592	8267
1970	14144	.591	8359
1971	12048	.590	7108
1972	9901	.589	5832

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[b]	Actual Loss Rate	Percent White	Minority
1966				243014		126354	126354		42.5%	170681
1967	22303	11789	10514	232500	-4.3%	120921	120544	-4.6%	40.9%	174321
1968	22022	11636	10386	222114	-4.5%	115479	115295	-4.3%	39.1%	180005
1969	21723	11155	10568	211546	-4.8%	109936	108264	-6.1%	36.8%	185595
1970	21425	10614	10811	200735	-5.1%	104330	100717	-7.0%	34.8%	189046
1971	21127	10423	10704	189924	-5.3%	98800	96269	-9.6%	33.3%	193188
1972	20600	9380	11220	178704	-5.9%	92971	86555	-9.0%	30.8%	194521
1973	19504	8482	11022	167682	-6.6%	86835	74965	-13.4%	28.2%	190613
1974	19134	8267	10867	156815	-6.5%	81191	67833	-9.5%	26.4%	189563
1975	17798	8359	9439	147376	-6.0%	76319	56855	-16.2%	22.8%	192741
1976	16407	7108	9299	138077	-6.3%	71511	44614	-21.5%	18.7%	194600
1977	14629	5832	8797	129280	-6.8%	66648	36227	-18.8%	15.8%	192544

WHITES, U. S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	150825	96185	R_{50}	.640	.612
1960	103729	96022	R_{60}	.630	.602
1970	59535	65310	R_{70}	.620	.591

[a] Interpolated or extrapolated.

[b] Supplied by Detroit Public School District; includes pre-K students for consistency with 1966-67 data.

COURT ACTIONS (Milliken v. Bradley)

1969-70	Board ordered plan (not implemented).
1971	First court order.
1972	Metro order (vacated, 1973).
1975-76	Start of general desegregation (January, 1976)

WHITE ENROLLMENT PROJECTIONS FOR PRINCE GEORGES COUNTY, MARYLAND 1968-1977

Year	White Births	Retention Rate (R)	Net
1950	4493	1.32	5931
1951	(5046)[a]	1.32	6661
1952	(5599)[a]	1.31	7335
1953	6152	1.31	8059
1954	6186	1.30	8042
1955	6661	1.30	8659
1956	7322	1.29	9445
1957	7602	1.29	9807
1958	8528	1.28	10916
1959	8886	1.28	11374
1960	9604	1.27	12197
1961	9974	1.24	12368
1962	10002	1.22	12202
1963	11202	1.19	13330
1964	12318	1.16	14289
1965	12382	1.14	14115
1966	12424	1.11	13791
1967	12702	1.08	13718
1968	12240	1.05	12852
1969	12318	1.03	12688
1970	11400	1.00	11400
1971	10426	.97	10113
1972	8750	.94	8225

Year	Loss	Gain	Net Gain/ Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966							108906		88.1%	14581
1967				122996		118476	118476	+8.8%	86.8%	17984
1968	5931	13330	+7399	130395	+6.0%	125585	124663	+5.2%	84.8%	22313
1969	6661	14289	+7628	138023	+5.8%	132868	127438	+2.2%	82.1%	26743
1970	7335	14115	+6780	144803	+4.9%	139379	127296	0.0%	79.5%	33101
1971	8059	18791	+5732	150535	+4.0%	144954	123592	-3.3%	75.9%	39236
1972	8042	13718	+5676	156211	+3.8%	150462	119033	-3.7%	73.5%	42396
1973	8659	12852	+4193	160404	+2.7%	154525	107809	-9.4%	69.9%	46495
1974	9445	12688	+3243	163647	+2.0%	157616	101497	-5.9%	67.1%	49713
1975	10916	11400	+484	164131	+0.3%	158088	94872	-6.5%	64.0%	53464
1976	11374	10113	-1261	162870	-0.8%	156824	87047	-8.2%	60.2%	57485
1977	12197	8225	-3972	158898	-2.4%	153060	78476	-9.8%	56.3%	60826

WHITES, U. S. CENSUS

	<5	10-14
1950	23861	11054
1960	43672	31498
1970	56722	55675

Retention	
R_{50}	1.32
R_{60}	1.27[b]
R_{70}	1.00

[a] Interpolated.

[b] Assumes no net growth in 1970s.

COURT ACTIONS (Vaughn's v. Board of Ed.)

1971 Suit brought.
1972 First order.
1973 Start of general desegregation.

ANGLO ENROLLMENT PROJECTIONS FOR DALLAS, TEXAS 1968-1976

Year	White Births	Anglo Fraction	Retention Rate (R)	Cohort Net
1950	9764	.940	1.270	11656
1951	(10653)[b]	.938	1.229	12281
1952	(11543)[b]	.936	1.188	12835
1953	12432	.934	1.147	13318
1954	12792	.932	1.106	13186
1955	12708	.930	1.065	12587
1956	13144	.928	1.024	12490
1957	12990	.926	.983	11824
1958	13106	.924	.942	11408
1959	12948	.922	.901	10756
1960	13166	.920	.860	10417
1961	12550	.909	.860	9811
1962	12338	.898	.860	9528
1963	12008	.887	.860	9160
1964	11356	.876	.860	8555
1965	10514	.865	.860	7821
1966	10372	.854	.860	7618
1967	10606	.843	.860	7689
1968	11512	.832	.860	8237
1969	12212	.821	.860	8622
1970	12536	.810	.860	8733
1971	11460	.799	.860	7875
1972				

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[a]	Actual Loss Rate	Percent Anglo	Min.
1966										
1967				152097						
1968	11656	9160	2496	149601	-1.6%	97888	97888		61.4%	61431
1969	12281	8555	3726	145875	-2.5%	95441	97103	-.8%	59.6%	65772
1970	12835	7821	5014	140861	-3.4%	92196	95012	-2.2%	58.2%	68341
1971	13318	7618	5700	135161	-4.0%	88508	86482	-9.0%	55.0%	70824
1972	13186	7689	5497	129664	-4.1%	84879	78434	-9.3%	51.9%	72655
1973	12587	8237	4350	125314	-3.4%	81993	69603	-11.3%	48.2%	74758
1974	12490	8622	3868	121446	-3.1%	79451	63503	-8.8%	45.4%	76519
1975	11824	8733	3091	118355	-2.5%	77465	57426	-9.6%	42.5%	77691
1976	11408	7875	3533	114822	-3.0%	75141	50008	-12.9%		
1977										

	WHITES, U.S. CENSUS		PERCENT ANGLO		ANGLOS		
	<5	10-14	<5	10-14	<5	10-14	
1950	40268	20838	.94	.99	37852	20630	R_{50} 1.243 1.270
1960	59295	48488	.92	.97	54551	47033	R_{60} .872 .860
1970	50636	55970	.81	.85	41015	47574	R_{70} .872 .860

10 Year Retention | 11 Year Retention

[a] Figures supplied by school district; excludes kindergarten, which was started after desegregation.

[b] Interpolated.

COURT ACTIONS (Estes v. Tasby)

1970 Suit brought (October).
1971 Order and start of partial desegregation (stayed white reassignment in August).
1976 Start of general desegregation in grades 4-8.

ANGLO ENROLLMENT PROJECTIONS FOR FORT WORTH, TEXAS, 1968-1976

Year	White Births	Anglo Fraction	Retention Rate (R)	Cohort Net
1950	6603	.940	1.051	6523
1951	(7019)[a]	.938	1.022	6729
1952	(7436)[a]	.936	.993	6911
1953	7852	.934	.964	7070
1954	7486	.932	.935	6523
1955	7418	.930	.906	6250
1956	7692	.928	.876	6253
1957	8128	.926	.847	6375
1958	7326	.924	.818	5537
1959	7298	.922	.789	5309
1960	7088	.920	.760	4956
1961	6606	.909	.760	4564
1962	6222	.898	.760	4246
1963	6002	.887	.760	4046
1964	6110	.876	.760	4068
1965	5452	.865	.760	3584
1966	5234	.854	.760	3397
1967	5345	.843	.760	3424
1968	6072	.832	.760	3839
1969	6228	.821	.760	3886
1970	6470[b]	.810	.760	3983
1971	5476	.779	.760	3242
1972				

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent Anglo	Min.
1966										
1967				77246		57579	57579		67.3%	28016
1968	6523	4046	2477	74769	-3.2%	55736	58011	+.8%	67.0%	28510
1969	6729	4068	2661	72108	-3.6%	53730	57429	-1.0%	65.2%	30600
1970	6911	3584	3327	68781	-4.6%	51258	56139	-2.2%	63.7%	31956
1971	7070	3397	3673	65108	-5.3%	48541	51436	-8.4%	61.3%	32476
1972	6523	3424	3099	62009	-4.8%	46211	48839	-5.0%	59.4%	33429
1973	6250	3839	2411	59598	-3.9%	44409	44455	-9.0%	57.6%	32678
1974	6253	3886	2367	57231	-4.0%	42633	41339	-7.0%	54.5%	34495
1975	6375	3983[b]	2392	54839	-4.2%[b]	40842	39525	-4.4%	53.0%	35083
1976	5537	3242	2295	52544	-4.2%	39127				
1977										

WHITES, U.S. CENSUS			PERCENT ANGLO		ANGLOS				
	<5	10-14	<5	10-14	<5	10-14		10 Year Retention	11 Year Retention
1950	25658	14165	.94	.99	24119	14023	R_{50}	1.046	1.051
1960	32217	26002	.92	.97	29640	25222	R_{60}	.779	.760
1970	26150	27173	.81	.85	21182	23097	R_{70}	.779	.760

[a] Interpolated.
[b] Possible effect of 1971 orders.

COURT ACTIONS/(Flax v. Potts)

1961 Suit brought.
1971 Order and start of partial desegregation.
1973 Second order and start of general desegregation.

ANGLO ENROLLMENT PROJECTIONS FOR HOUSTON, TEXAS, 1968-1976

Year	White Births	Anglo Fraction	Retention Rate (R)	Cohort Net
1950	13556	.810	1.358	14911
1951	(14948)[a]	.808	1.323	15979
1952	(16340)[a]	.806	1.288	16966
1953	17732	.804	1.253	17863
1954	17650	.802	1.218	17241
1955	17946	.800	1.184	16998
1956	14678	.798	1.149	13458
1957	15088	.796	1.114	13379
1958	16372	.794	1.079	14026
1959	18252	.792	1.044	15092
1960	13324	.790	1.009	10621
1961	18352	.784	.975	14028
1962	18640	.778	.941	13646
1963	18174	.772	.907	12726
1964	17756	.766	.873	11874
1965	16568	.760	.840	10577
1966	16750	.754	.806	10179
1967	16966	.748	.772	9797
1968	17902	.742	.738	9803
1969	19114	.736	.704	9904
1970	18858[b]	.730	.670	9223
1971	17754[b]	.724	.670	8612
1972				

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent Anglo	Min.
1966										
1967				194208		132700	132700		55.6%	107649
1968	14911	12726	2185	192023	-1.1%	131240	131099	-1.2%	53.3%	114999
1969	15979	11874	4105	187918	-2.1%	128484	124451	-5.1%	52.7%	111769
1970	16966	10577	6389	181529	-3.4%	124116	119181	-4.2%	49.4%	121957
1971	17863	10179	7684	173845	-4.2%	118903	107517	-9.8%	46.4%	123976
1972	17241	9797	7444	166401	-4.3%	113790	98282	-8.6%	43.6%	127128
1973	16993	9803	7195	159206	-4.3%	108897	87776	-10.7%	40.4%	128206
1974	13458	9904	3554	155652	-2.2%	106501	83439	-4.9%	38.6%	130019
1975	13379	9223[b]	4156	151496	-2.7%[b]	103626	75085	-10.0%	36.5%	134190
1976	14026	8612[b]	5414	146082	-3.6%[b]	99895				
1977										

	WHITES, U.S. CENSUS		PERCENT ANGLO		ANGLOS	
	<5	10-14	<5	10-14	<5	10-14
1950	51361	29210	.81	.88	41602	25705
1960	87775	64658	.79	.85	69342	54959
1970	78119	88469	.73	.79	57027	69891

	10 Year Retention	11 Year Retention
R_{50}	1.321	1.358
R_{60}	1.008	1.009
R_{70}	.695	.670

[a] Interpolated.

[b] Possible effect of desegregation.

COURT ACTIONS (Broussard v. Houston)

1966	Suit brought.
1970	Order of partial plan.
1971	Start of partial plan.
1973, 75	Expansions of plan.

WHITE ENROLLMENT PROJECTIONS FOR OKLAHOMA CITY, OKLAHOMA, 1968-1976

Year	White Births	Retention Rate (R)	Net
1950	5717	1.050	6003
1951	(5963)[a]	1.037	6184
1952	(6208)[a]	1.024	6357
1953	6454	1.011	6525
1954	6426	.998	6413
1955	6595	.985	6496
1956	6662	.972	6475
1957	6710	.959	6435
1958	6734	.946	6370
1959	7316	.933	6826
1960	7572	.921	6974
1961	7390	.908	6710
1962	7664	.899	6890
1963	7170	.883	6331
1964	7054	.870	6137
1965	6096	.858	5230
1966	5512	.845	4658
1967	5364	.832	4463
1968	5526	.819	4526
1969	6064	.807	4894
1970	6394	.794	5077
1971	6000	.781	4686
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1965							60288		79.9%	15169
1967				84370		59417	59417	-1.4%	79.1%	15699
1968	6003	6331	+328	84698	+.4%	59655	58472	-1.6%	78.2%	16255
1969	6184	6137	-47	84651	-.1%	59595	53470	-8.6%	73.3%	19475
1970	6357	5230	-1127	83524	-1.3%	58820	50495	-5.6%	72.1%	19547
1971	6525	4658	-1867	81657	-2.2%	57526	49571	-1.8%	71.7%	19569
1972	6413	4463	-1950	79707	-2.4%	56146	42224	-14.8%	70.1%	18051
1973	6496	4526	-1970	77737	-2.4%	54798	37453	-11.3%	69.3%	16586
1974	6475	4894	-1581	76156	-2.0%	53702	34568	-7.7%	66.8%	17147
1975	6435	5077	-1358	74798	-1.8%	52736	32861	-4.9%	65.0%	17691
1976	6370	4686	-1684	73114	-2.3%					
1977										

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	22784	14105	R_{50}	1.045	1.050
1960	33503	23911	R_{60}	.928	.921
1970	24036	28300	R_{70}	.811	.794

[a] Interpolated.

COURT ACTIONS (Dowell v. School Board)

1965	Suit brought.
1968	Order of partial secondary desegregation.
1969	Start of partial secondary desegregation.
1972	Order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR LITTLE ROCK, ARKANSAS, 1968-1976

Year	White Births	Retention Rate (R)	Net
1950	1851	.892	1651
1951	(1898)[a]	.922	1750
1952	(1945)[a]	.952	1852
1953	1992	.982	1956
1954	1878	1.013	1902
1955	1973	1.043	2058
1956	2078	1.073	2230
1957	2186	1.104	2413
1958	2192	1.134	2486
1959	2134	1.164	2484
1960	2064	1.194	2464
1961	1850	1.164	2153
1962	2290	1.134	2597
1963	2164	1.104	2389
1964	2168	1.073	2326
1965	1790	1.043	1867
1966	1788	1.013	1811
1967	1822	.982	1789
1968	1860	.952	1771
1969	1818	.924	1680
1970	1832	.892	1634
1971	1816	.892	1620
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966										
1967		2597		27996		16018	16018		65.3%	8495
1968	1651	2389	+738	28734	+2.6%	16434	15895	-.8%	64.0%	8959
1969	1750	2326	+576	29310	+2.0%	16763	15264	-4.0%	62.0%	9364
1970	1852	1867	+15	29325	+.1%	16780	14815	-2.9%	60.6%	9639
1971	1956	1811	-145	29180	-.5%	16696	13273[b]	-10.4%	57.0%	10033
1972	1982	1789	-113	29067	-.4%	16629	11921	-10.2%	53.3%	10427
1973	2058	1771	-287	28780	-1.0%	16463	11562	-3.0%	51.0%	11110
1974	2230	1680	-550	28230	-1.9%	16150	10869	-6.0%	48.8%	11412
1975	2413	1634	-779	27451	-2.8%	15698	10399	-4.3%	47.0%	11727
1976	2486	1620	-866	26585	-3.2%	15196				
1977										

WHITES, U.S. CENSUS

	<5	10-14
1950	7400	4393
1960	7159	6665
1970	7015	8456

	10 Year Retention	11 Year Retention
R_{50}	.901	.892
R_{60}	1.175	1.194
R_{70}	.901	.892[c]

[a] Interpolated.

[b] Based on known total, interpolated minority.

[c] Reduction to R_{50} assumed to obtain better pre-desegregation fit.

COURT ACTIONS

1959 Suit brought.

1971 Order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR JACKSON, MISSISSIPPI, 1968-1976

Year	White Births	Retention Rate (R)	Net
1950	1425	1.49	2123
1951	(1520)[a]	1.42	2158
1952	(1615)[a]	1.35	2180
1953	1710	1.28	2189
1954	1602	1.21	1938
1955	1557	1.14	1775
1956	1558	1.07	1667
1957	1680	1.00	1680
1958	1506	.93	1401
1959	1436	.86	1235
1960	2096	.79	1656
1961	2298	.79	1815
1962	2036	.79	1608
1963	1998	.79	1578
1964	1836	.79	1450
1965	1594	.79	1259
1966	1470	.79	1161
1967	1538	.79	1215
1968	1604	.79	1267
1969	1522	.79	1202
1970	1698	.79	1341
1971	1484	.79	1172
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966										
1967		1608		23425		21450	21450[b]		55.0%	17580
1968	2123	1578	-545	22880	-2.3%	20957	20793[b]	-3.1%	53.6%	17980
1969	2158	1450	-708	22172	-3.1%	20307	20200[b]	-2.9%	52.4%	18380
1970	2180	1259	-921	21251	-4.2%	19454	12029[a]	-40.4%	39.1%	18729
1971	2189	1161	-1028	20223	-4.8%	18520	11129[a]	-7.5%	36.7%	19229
1972	1938	1215	-723	19500	-3.6%	17853	10153[a]	-8.8%	34.0%	19742
1973	1775	1267	-508	18992	-2.6%	17389	9353[a]	-8.6%	-----	-----
1974	1667	1202	-465	18527	-2.4%	16972	8496	-9.2%	30.6%	19298
1975	1680	1341	-339	18188	-1.8%	16666	8204	-3.4%	29.8%	19292
1976	1401	1172	-229	17959	-1.3%	16449				
1977										

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	5594	3319	R_{50}	1.437	1.49
1960	10784	8039	R_{60}	.807	.79
1970	6637	8708	R_{70}	.807	.79

[a] Interpolated.

[b] Based on known total, interpolated minority.

COURT ACTIONS (Evers v. Jackson)

1963 Suit brought.
1970 Order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR GREENSBORO, NORTH CAROLINA, 1968-1976

Year	White Births	Retention Rate (R)	Net
1950	1596	1.508	2407
1951	(1646)[a]	1.452	2390
1952	(1696)[a]	1.397	2396
1953	1746	1.341	2341
1954	1610	1.285	2069
1955	1448	1.230	1781
1956	1552	1.174	1822
1957	1744	1.118	1950
1958	1934	1.062	2054
1959	1976	1.007	1990
1960	2096	.951	1993
1961	2092	.951	1989
1962	1898	.951	1805
1963	1862	.951	1771
1964	1806	.951	1718
1965	1626	.951	1546
1966	1720	.951	1636
1967	1688	.951	1605
1968	1652	.951	1571
1969	1812	.951	1723
1970	1828	.951	1738
1971	1736	.951	1651
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966										
1967		1898		26960		21596	21596		69.0%	9719
1968	2407	1862	-545	26415	-2.0%	21164	21996	+1.9%	68.5%	10098
1969	2309	1806	-503	25912	-1.9%	20762	21921	-.3%	67.9%	10368
1970	2369	1626	-743	25169	-2.9%	20160	21554[a]	-1.7%[b]	66.7%	10737
1971	2341	1720	-621	24548	-2.5%	19656	(19638)[a]	-8.9%[b]	-----	-----
1972	2069	1688	-381	24167	-1.6%	19342	17722	-8.9%[b]	62.6%	10599
1973	1781	1652	-129	24038	-.5%	19245	(17152)[a]	-3.2%	-----	-----
1974	1822	1812	-10	24028	-.04%	19237	16582	-3.3%	59.6%	11227
1975	1950	1828	-122	23906	-.5%	19141	16088	-3.0%	58.4%	11474
1976	2054	1736	-318	23588	-1.3%	18892				

WHITES, U.S. CENSUS

	<5	10-14	10 Year Retention	11 Year Retention
1950	5443	3213	R_{50} 1.453	1.508
1960	9898	7910	R_{60} .955	.951
1970	8010	9457	R_{70} .955	.951[c]

[a] Interpolated.

[b] Average annual change from 1970 to 1972.

COURT ACTIONS (McCoy v. Greensboro)

1959 Suit brought.
1971 Order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR RALEIGH, NORTH CAROLINA, 1968-1976

Year	White Births	Retention Rate (R)	Net
1950	1202	1.440	1731
1951	(1129)[a]	1.404	1585
1952	(1056)[a]	1.368	1445
1953	(984)[a]	1.332	1311
1954	1096	1.396	1530
1955	1136	1.260	1431
1956	1416	1.224	1733
1957	1410	1.188	1675
1958	1370	1.152	1578
1959	1302	1.116	1453
1960	1472	1.084	1596
1961	1688	1.050	1772
1962	1544	1.015	1567
1963	1416	.980	1388
1964	1512	.946	1430
1965	1288	.912	1175
1966	1356	.877	1189
1967	1363	.842	1148
1968	1470	.808	1188
1969	1586	.774	1228
1970	1656	.739	1224
1971	1422	.739	1051
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966										
1967		1567		20407						
1968	1731	1388	343	20064	-1.7%	16666	16666		72.5%	6327
1969	1585	1430	155	19909	-0.8%	16533	(16675)[a]	+0.1%	--	
1970	1445	1175	270	19639	-1.4%	16302	16684	+0.1%	71.1%	6785
1971	1311	1189	122	19517	-0.6%	16204	(15448)[a]	-7.4%[b]	--	
1972	1530	1148	382	19135	-2.0%	15880	14212	-7.4%[b]	64.5%	7820
1973	1431	1188	243	18892	-1.3%	15674	(13484)[a]	-5.1%	--	
1974	1733	1228	505	18387	-2.7%	15251	12756	-5.4%	63.5%	7336
1975	1675	1224	451	17936	-2.5%	14870	12248	-4.0%	61.8%	7562
1976	1578	1051	527	17409	-2.9%	14439				
1977										

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	3905	2307	R_{50}	1.392	1.440
1960	6935	5437	R_{60}	1.076	1.084
1970	6745	7461	R_{70}	.076	.739

[a] Interpolated.

[b] Average annual change from 1970 to 1972.

COURT ACTIONS (Holt v. Raleigh)

1958 Suit brought.
1971 Order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR ROANOKE, VIRGINIA, 1968-1976

Year	White Births	Retention Rate (R)	Net
1950	1613	.899	1450
1951	(1662)[a]	.888	1476
1952	(1712)[a]	.876	1500
1953	(1761)[a]	.865	1523
1954	1810	.854	1546
1955	1884	.842	1586
1956	1934	.831	1607
1957	2088	.820	1712
1958	1904	.809	1540
1959	1582	.797	1261
1960	1630	.786	1281
1961	1520	.775	1178
1962	1558	.763	1189
1963	1570	.752	1181
1964	1396	.741	1034
1965	1286	.730	939
1966	1260	.718	905
1967	1221	.707	863
1968	1242	.696	864
1969	1286	.684	880
1970	1346	.673	906
1971	1296	.673	872
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966										
1967		1189		18849						
1968	1450	1181	-269	18580	-1.4%	15247	15247		76.0%	4818
1969	1476	1034	-442	18138	-2.4%	14881	(14685)[a]	-3.7%	--	
1970	1500	939	-561	17577	-3.1%	14420	14122	-3.8%	74.4%	4854
1971	1523	905	-618	16959	-3.5%	13915	13184	-6.6%	72.5%	4993
1972	1546	863	-683	16276	-4.0%	13358	12331	-6.5%	70.5%	5151
1973	1586	864	-722	15554	-4.4%	12770	11875	-3.7%	69.4%	5248
1974	1607	880	-727	14827	-4.7%	12170	11303	-4.8%	68.7%	5161
1975	1712	906	-806	14021	-5.4%	11513				
1976	1540	872	-668	13353	-4.8%	10960				
1977										

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	7540	4637	R_{50}	.908	.899
1960	7635	6848	R_{60}	.803	.786
1970	5022	6129	R_{70}	.698	.673

[a]Interpolated.

COURT ACTIONS (Green v. Board of Education)

1969 Suit brought.

1971 Order and start of desegregation (satelliting and attendance boundary changes).

WHITE ENROLLMENT PROJECTIONS FOR CHATTANOOGA, TENNESSEE, 1968-1976

Year	White Births	Retention Rate (R)	Net
1950	2151[b]	.804	1729
1951	(2182)[b]	.797	1739
1952	(2214)[b]	.790	1749
1953	(2246)[b]	.783	1759
1954	(2276)[b]	.776	1766
1955	2220	.769	1707
1956	2114	.762	1611
1957	2308	.755	1743
1958	2132	.748	1595
1959	2038	.741	1510
1960	1966	.733	1441
1961	1736	.726	1260
1962	1634	.719	1175
1963	1604	.712	1142
1964	1604	.705	1131
1965	1390	.698	970
1966	1354	.691	936
1967	1417	.684	969
1968	1584	.677	1072
1969	1572	.670	1053
1970	1448	.663	960
1971	1500	.663	994
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[a]	Actual Loss Rate	Percent White	Minority
1966							14284		52.6%	12879
1967		1175		18349		13846	13846	-3.1%	51.7%	12922
1968	1729	1142	587	17762	-3.2%	13403	13728	-.9%	51.7%	12834
1969	1739	1131	608	17154	-3.4%	12947	13375	-2.6%	50.9%	12880
1970	1749	970	779	16375	-4.5%	12365	12549	-6.2%	50.0%	12669
1971	1759	936	823	15552	-5.0%	11746	9672	-22.9%	43.8%	12421
1972	1766	969	797	14755	-5.1%	11147	8567	-11.4%	41.5%	12101
1973	1707	1072	635	14120	-4.3%	10668	7670	-10.5%	39.4%	11803
1974	1611	1053	558	13562	-4.0%	10241	6131	-20.1%	34.8%	11500
1975	1743	960	783	12779	-5.3%	9647	5614	-8.4%	33.0%	11399
1976	1595	994	601	12178	-4.7%	9194				
1977										

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	9050	6192	R_{50}	.820	.804
1960	8137	7418	R_{60}	.754	.733
1970	5244	6133	R_{70}	.688	.663

[a] Figures supplied by school district. Excludes enrollment of suburban schools annexed in 1968, 1969 and 1973-75.

[b] 1950 births estimated from 1950 census under 1 (adjusted by 1960 ratio of births to 1960 census under 1); 1951 to 1954 interpolated.

COURT ACTIONS (Mapp v. Board of Education)

1961 Suit brought.
1971 Order of general desegregation; start of partial.
1974 Expansion of desegregation.
1973-75 Annexation of suburban schools.

WHITE ENROLLMENT PROJECTIONS FOR NASHVILLE, TENNESSEE, 1968-1976

Year	White Births	Retention Rate (R)-	Net
1950	6273	1.057	6631
1951	(6382)[a]	1.048	6688
1952	(6491)[a]	1.039	6744
1953	6600	1.030	6798
1954	6906	1.021	7051
1955	7122	1.012	7207
1956	7174	1.004	7203
1957	7498	.995	7461
1958	7386	.986	7283
1959	7358	.977	7189
1960	7590	.968	7347
1961	7360	.959	7058
1962	7154	.950	6796
1963	7104	.942	6692
1964	7078	.933	6604
1965	6392	.924	5906
1966	6040	.915	5527
1967	5713	.906	5176
1968	5636	.898	5061
1969	5926	.889	5268
1970	5870	.880	5166
1971	5750	.880	5060
1972			

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Minority
1966							70094			
1967		6796		91456		70852	70852	+1.1%	76.2%	22171
1968	6631	6692	+61	91517	+.1%	70923	71039	+.2%	75.8%	22681
1969	6688	6604	-84	91433	-.1%	70852	72564	+2.1%	75.7%	23258
1970	6744	5906	-838	90595	-.9%	70214	71603	-1.3%	75.1%	23710
1971	6798	5527	-1271	89324	-1.4%	69231	64114	-10.5%	72.7%	24076
1972	7051	5176	-1875	87449	-2.1%	67777	61402	-4.2%	71.9%	24004
1973	7207	5061	-2146	85303	-2.5%	66083	59322	-3.4%	71.0%	24199
1974	7203	5268	-1935	83368	-2.3%	64563	57622	-3.4%	70.8%	23745
1975	7461	5166	-2295	81073	-2.8%	62755	56479	-2.0%	70.5%	23686
1976	7283	5060	-2223	78850	-2.7%	61061				
1977										

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	27074	17433	R_{50}	1.052	1.057
1960	35545	28480	R_{60}	.971	.968
1970	27201	34526	R_{70}	.890	.880

[a]Interpolated.

COURT ACTIONS (Kelly v. Board of Education)

1955 Suit brought.
1971 Order and start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR MEMPHIS, 1968-1975

Year	Projected Loss Rate	Projected K-12[a]	Actual K-12[b]	Actual Loss Rate	Percent White[c]	Minority
1965			59158			
1966			58577	-1.0%		
1967			57803	-1.3%	47.2%	64695
1968			56681	-1.9%	45.6%	67542
1969		56006	Annexations		44.2%	74437
1970	-1.5%	55185	69809		48.4%	76561
1971	-1.5%	54366	65919	-5.6%	46.1%	78661
1972	-1.5%	53546	56542[b]	-14.2%	42.0%	80405
1973	-1.5%	52726	33122	-41.4%	31.7%	81422
1974	-1.6%	51906	31335[b]	-5.4%	29.4%	75217
1975	-1.6%	51086	28927	-7.7%	29.2%	75946

[a] Projected rate is based on linear regression of 1965 to 1968 enrollments
slope = -820; constant = 60106

[b] From Memphis school district (Stephens, 1976)
Excludes 1973 and 1975 Raleigh annexations of 2792 and 2723 white students, respectively.

[c] Based on total white enrollment.

COURT ACTIONS (Northcross v. Memphis)

1972 First order.
1973 Start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR BIRMINGHAM, ALABAMA, 1966-1977

Year	White Births	Retention Rate (R)	Net
1950	4214	.838	3531
1951	(4419)[a]	.822	3632
1952	(4623)[a]	.805	3722
1953	4828	.789	3809
1954	4782	.772	3692
1955	4886	.756	3694
1956	4956	.740	3667
1957	5272	.723	3812
1958	5086	.707	3596
1959	4752	.690	3279
1960	4594	.674	3096
1961	4126	.658	2715
1962	3928	.642	2522
1963	4954	.626	3101
1964	5290	.610	3227
1965	4720	.594	2804
1966	4126	.578	2385
1967	4113	.562	2312
1968	4018	.546	2194
1969	4220	.530	2237
1970	4478	.514	2302
1971	4050[b]	.498	2017
1972	3505[b]	.482	1689

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12	Actual Loss Rate	Percent White	Percent Minority
1966							33800		49.3%	34814
1967				44767		33614	33614	-.6%	49.4%	34486
1968	3531	3101	-430	44337	-1.0%	33278	32504	-3.3%	48.9%	34156
1969	3632	3227	-405	43932	-.9%	32978	31252	-3.9%	47.3%	34879
1970	3722	2804	-918	43014	-2.1%	32286	28125	-10.0%	45.4%	33869
1971	3809	2385	-1424	41590	-3.3%	31220	26031	-7.4%	43.4%	33876
1972	3692	2312	-1380	40210	-3.3%	30190	23372	-10.2%	40.5%	34357
1973	3694	2194	-1500	38710	-3.7%	29073	20781	-11.1%	38.1%	33731
1974	3667	2237	-1430	37280	-3.7%	27997	19283	-7.2%	36.5%	33495
1975	3812	2302	-1510	35770	-4.2%[b]	26821	17758	-7.9%	33.9%	34589
1976	3596	2017	-1579[b]	34191	-4.4%[b]					
1977	3279	1689	-1590[b]	32601	-4.6%[b]					

WHITES, U.S. CENSUS

	<5	10-14	10 Year Retention	11 Year Retention
1950	19809	12095	.852	.838
1960	20650	16876	.699	.674
1970	11678	14436	.546	.514

[a] Interpolated and extrapolated.

[b] Possible effects of desegregation.

COURT ACTIONS (Dwight Armstrong v. Board of Education)

1963 Suit brought.
1970 Order and start of partial desegregation.

WHITE ENROLLMENT PROJECTIONS FOR ATLANTA, GEORGIA, 1968-1977

Year	White Births	Retention Rate (R)	Net
1950	(7500)[b]	1.278	9585
1951	(7500)[b]	1.209	9068
1952	(7500)[b]	1.139	8542
1953	7690	1.070	8228
1954	7162	1.001	7169
1955	7108	.932	6625
1956	7018	.862	6050
1957	6868	.793	5446
1958	6452	.724	4671
1959	6472	.654	4233
1960	6330	.585	3703
1961	5482	.585	3207
1962	5952	.585	3482
1963	5972	.585	3494
1964	6194	.585	3623
1965	5432	.585	3178
1966	5006	.585	2929
1967	4724	.585	2764
1968	4396	.585	2572
1969	4408	.585	2579
1970	4188	.585	2450
1971	3508	.585	2052
1972	2848	.585	1666

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[a]	Actual Loss Rate	Percent White	Minority
1966										
1967				80009		46270	46270		40.8%	67200
1968	9585	3494	6091	73918	-7.6%	42753	42506	-8.1%	38.2%	68721
1969	9068	3623	5445	68473	-7.4%	39589	39318	-7.5%	35.8%	70346
1970	8542	3178	5364	63109	-7.8%	36501	32990	-16.1%	31.3%	72333
1971	8228	2929	5299	57810	-8.4%	33435	27688	-16.1%	27.6%	72504
1972	7169	2764	4405	53405	-7.6%	30894	21683	-21.7%	22.6%	74323
1973	6625	2572	4053	49352	-7.6%	28546	15997	-26.2%	18.2%	72128
1974	6050	2579	3471	45881	-7.0%	26548	12884	-19.5%	15.1%	72414
1975	5446	2450	2996	42885	-6.5%	24822	10810	-16.1%	12.8%	73490
1976	4671	2052	2619	40266	-6.1%	23308	9438	-12.7%	11.4%	73434
1977	4233	1666	2567	37699	-6.4%	21816	8311	-11.9%	10.6%	70283

WHITES, U.S. CENSUS

	<5	10-14		10 Year Retention	11 Year Retention
1950	19485	11595	R_{50}	1.250	1.278
1960	27072	24360	R_{60}	.614	.585
1970	16047	16615	R_{70}	.614	.585

[a] Provided by school district.

[b] Estimated: 1950 births of 6244 invalid due to major annexation in 1952.

COURT ACTIONS (Calhoun v. Cook)

1960 Suit brought.
1969 First order of general desegregation.
1970 Start of partial desegregation.
1971-72 Minor expansions.
1973 Final order and major expansion of plan.

PROJECTED WHITE ENROLLMENT FOR THE LOUISVILLE-JEFFERSON COUNTY SCHOOL DISTRICT, 1967-1977

Year	White Births	Retention Rate (R)	Net
1950	10898	1.062	11574
1951	(11262)[b]	1.054	11870
1952	(11626)[b]	1.046	12161
1953	11990	1.037	12434
1954	12762	1.029	13132
1955	13018	1.021	13291
1956	14070	1.013	14253
1957	14220	1.005	14291
1958	13706	.996	13651
1959	13660	.988	13496
1960	13528	.980	13257
1961	12994	.972	12630
1962	12672	.964	12216
1963	12340	.956	11797
1964	12036	.948	11410
1965	10586	.940	9951
1966	10322	.931	9610
1967	10092	.923	9315
1968	10126	.915	9265
1969	10528	.907	9459
1970	10940	.899	9835
1971	10542	.891	9393
1972	9107	.883	8041

Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected Public K-12	Actual 1-12[a]	Actual Loss Rate	Projected Private 1-12	Actual Private 1-12
1966										
1967				169153			107340			
1968	11574	11797	+223	169976	+.1%		110500	+2.9%		38277
1969	11870	11410	-460	169516	-.3%		113115	+2.4%		34180
1970	12161	9951	-2210	167306	-1.3%		116404	+2.9%		30157
1971	12434	9610	-2824	164482	-1.7%		116324	-.1%		28216
1972	13132	9315	-3817	160665	-2.3%		114800	-1.3%		26705
1973	13291	9265	-4026	156639	-2.5%	111131	111131	-3.2%	25718	25718
1974	14253	9549	-4704	151935	-3.0%	107797	103837	-6.6%	24946	27915
1975	14291	9835	-4456	147479	-3.0%	104563	92081	-11.3%	24198	30329
1976	13651	9393	-4258	143221	-2.9%	101531	87249	-5.2%	23496	32944
1977	13496	8041	-5455	137766	-3.8%	97673	82141	-5.9%	22603	33911

WHITES, U.S. CENSUS

	0-4	10-14	10 Year Retention	11 Year Retention
1950	47028	27711	R_{50} 1.056	1.062
1960	64260	49665	R_{60} .982	.980
1970	49410	63085	R_{70} .908	.899

Year	Projected Public & Private	Actual Public & Private	Actual Private 1-12
1968	148771	148777	
1969	147736	147295	-1.0%
1970	145667	146561	-.5%
1971	143191	144540	-1.4%
1972	139898	141505	-2.1%
1973	136400	136849	-3.1%
1974	132308	131752	-3.7%
1975	128339	122410	-7.1%
1976	124817	120193	-1.8%
1977	119882	116132	-3.4%

[a] From Jefferson County Education Consortium (Johnson, et al, 1977).

[b] Interpolated.

[c] Based on 1969-77 projected loss rates for school-age population.

COURT ACTIONS

1971 Jefferson County suit filed.
1972 Louisville suit filed.
1973 First court order.
1974 Merger order (actually implemented by state board).
1975 Start of general desegregation.

WHITE ENROLLMENT PROJECTIONS FOR SAN DIEGO, 1968-1977

Year	White Births	Anglo Fraction	Retention Rate (R)	Cohort Net	Year	Loss	Gain	Net Loss	Net K-12	Projected Loss Rate	Projected K-12	Actual K-12[a]	Actual Loss Rate	Percent Anglo	Min.
1950	8004	.860	1.20	8260	1966							94182		77%	27696
1951	(8875)[b]	.856	1.17	8888	1967				122310		95878	95878	+1.1%	76%	30281
1952	(9746)[b]	.852	1.14	9466	1968	8260	8341	+ 181	122491	+0.1%	95973	98163	+2.4%	76%	30540
1953	10610	.848	1.10	9903	1969	8388	7671	-1217	121274	-0.9%	95110	96221	-2.0%	74%	33310
1954	11232	.844	1.07	10143	1970	9466	6651	-2815	118459	-2.4%	92827	95208	-1.1%	74%	33672
1955	10672	.840	1.04	9323	1971	9903	6601	-3302	115157	-2.8%	90228	93829	-1.4%	73%	34498
1956	11346	.836	1.01	9580	1972	10143	6539	-3604	111553	-3.2%	87341	89307	-4.8%	72%	35227
1957	12244	.832	.98	9983	1973	9323	6675	-2648	108905	-2.4%	85245	87237	-2.3%	71%	36329
1958	12074	.828	.94	9397	1974	9580	6981	-2599	106306	-2.4%	83199	85823	-1.6%	69%	37291
1959	13198	.824	.91	9896	1975	9983	6934	-2947	103359	-2.8%	80869	82492	-3.9%	68%	39006
1960	12898	.820	.88	9307	1976	9397	5812	-3585	99774	-3.5%	78039	80153	-2.8%	66%	41270
1961	12716	.816	.88	9131	1977	9896	5702	-4194	95580	-4.2%	74761	75770	-5.5%	64%	42690
1962	12642	.812	.88	9033											
1963	11730	.808	.88	8341											
1964	10842	.804	.88	7671											
1965	9448	.800	.88	6651											
1966	9424	.796	.88	6601											
1967	9382	.792	.88	6539											
1968	9626	.788	.88	6675											
1969	10028	.784	.88	6981											
1970	10102	.780	.88	6834											
1971	8512	.776	.88	5812											
1972	8394	.772	.88	5702											

WHITES, U.S. CENSUS			PERCENT ANGLO		ANGLOS			10 Year Retention	11 Year Retention
	<5	10-14	<5	10-14	<5	10-14			
1950	33515	16255	14%	12%	28823	14304	R_{50}	1.18	1.20
1960	56889	40662	18%	16%	46649	34156	R_{60}	.89	.88
1970	46126	52051	22%	20%	36080	41532	R_{70}	.89	.88

[a] Supplied by San Diego School District.

[b] Interpolated.

COURT ACTIONS (Carlin v. San Diego Schools)

1967 Suit filed.
1977 Hearing and order of a voluntary plan.

ANNUAL WHITE LOSS RATES IN
NORTHERN CONTROL DISTRICTS FROM THE ROSSELL STUDY[a]

	1969	1970	1971	1972	1973	1974	1975
New York	-3.1	-3.6	-2.8	-5.6	-5.0		
Syracuse	-3.2	-4.9	-4.4	-6.7	-4.2	-4.3	
Grand Rapids	1.7	- .1	-3.2	-4.0	-5.6	-5.8	-2.8
Toledo	1.4	-1.8	.2	-1.9	-4.9	-3.7	
Los Angeles	-2.6	-5.2	-4.5	-5.2	-7.4	-7.6	-4.0
San Diego	-2.0	-1.1	-1.4	-4.8	-2.3	-1.6	-3.9
Philadelphia	-3.5	-3.7	-5.1	+3.0	-7.9	-3.4	-2.8
Hartford	-9.1	-9.9	-6.1	-9.3	-8.3	-7.9	-7.8
Cleveland	-6.1	-1.5	-3.0	-3.2	-5.9	-5.1	-3.7
Youngstown	-7.3	-4.5	-1.0	-7.1	-1.3	-8.8	-12.1
Cincinnati	-3.2	-3.3	-4.8	-7.0	-9.1	-6.4	-3.3
Albuquerque	+ .7	+1.6	+1.0	+ .8	-3.0	-3.2	0
Jersey City	-3.5	-5.6	- .5	-6.7	-10.7	-8.7	-11.6
Phoenix	- .7	- .2	-1.1	-4.9	-2.3	-4.3	
Columbus, Ohio	-1.3	-1.3	- .7	-5.2	-5.5	-4.8	-3.9
Akron	-3.9	-1.8	-2.3	-3.7	-6.4	-5.0	-3.2
Kansas City, Kansas	-3.3	-2.3	-3.5	-6.3	-7.3	-6.9	-4.6
Omaha	- .7	1.6	0	-1.9	-4.9	-3.4	-3.1
Average White Loss	-2.76	-2.64	-2.4	-4.43	-5.67	-5.35	-4.77

[a]Includes control group cities as well as northern "token desegregation" districts that showed no white reassignment and less than three percent black reassignment and which had total enrollments over 20,000 and minority enrollments in the 20-60 percent range in 1968 (Rossell, 1977).

REFERENCES

American Institute of Public Opinion (AIPO), *The Gallup Opinion Index*, Princeton, New Jersey, February 1978.

Armor, David J., "Segregation and Desegregation in the San Diego Schools," Unpublished manuscript, December 1976.

Armor, David J., "Offer of Proof in Reference to the Testimony of David J. Armor," in *Crawford v. Board of Education of the City of Los Angeles*, Superior Court of the State of California for the County of Los Angeles, No. C822 854, June 6, 1977, Exhibit C.

Coleman, James S., Sarah D. Kelly, and John A. Moore, *Trends in School Segregation, 1968-73*, An Urban Institute Paper, UI 722-03-01, August 1975.

Farley, Reynolds, *School Integration and White Flight*, Population Studies Center, University of Michigan, 1225 South University Avenue, Ann Arbor, Michigan, August 1975.

Farley, Reynolds and Clarence Wurdock, *Can Governmental Policies Integrate Public Schools?* Population Studies Center, The University of Michigan, 1225 South University Avenue, Ann Arbor, Michigan, March 1977.

Fitzgerald, Michael R. and David R. Morgan, *Assessing the Consequences of Public Policy: School Desegregation and White Flight in Urban America*: Prepared for delivery at the 1977 annual meeting of the Midwest Political Science Association, Chicago, April 21-23, 1977.

Johnson, J., et al., *The Impact of Court-Ordered Desegregation on Student Enrollment and Residential Patterns in the Jefferson County, Kentucky, Public School District: An Interim Report*, Jefferson County Education Consortium, 1977.

Kaplan, O., *School Integration Surveys, Preliminary Report*, San Diego City Schools, 1977.

Pettigrew, Thomas F. and Robert L. Green, *School Desegregation in Large Cities: A Critique of the Coleman 'White Flight' Thesis*, Harvard Educational Review, Vol. 46, No. 1, February 1976.

Rossell, Christine H., *School Desegregation and White Flight*, Political Science Quarterly, 90 (1975-76), 675-95.

Rossell, Christine H., *"School Desegregation, White Flight, and Re-segregation,"* Prepared for San Diego Case, Boston University, Unpublished manuscript, 1977.

Rossell, Christine H., *The Unintended Impacts of Public Policy: School Desegregation and Resegregation*, Institute of Policy Sciences, Duke University, 1978.

Stephens, O. Z., *Induced Desegregation: Its Effects on White Pupil Population and Resegregation in the Memphis City School System*, Memphis City Schools, Division of Research, 1976.