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ABSTRACT

Transferring from one high school to another may be an important alternative to dropping out. While the public school dropout rate is over four times the dropout rate in Catholic schools, the percentages of transfer students reveal a different scenario. With transfer rates nearly three times their drop out rates, the Catholic schools' reported success with holding at-risk students in school may not be as complete as previously believed. To determine whether transfer behavior is an alternative or a precursor to dropping out of school, data were obtained from the High School and Beyond longitudinal study (initiated in 1980 by the Center of Educational Statistics) regarding the first followup in 1982 of the sophomore cohort. The results for both the private and the Catholic sector indicate that females are less likely to drop out or to transfer, blacks are the most prevalent among the transfers, and Hispanics are the most likely to drop out. Among the public school students, just under 47 percent of the in-school students display above average at-riskness, but 60 percent of the transfer students--and over 82 percent of the dropouts--display students above average at-riskness. A similar scenario exists in the Catholic sector. Transfer students (from either sector) are poised between the extremes of remaining in school and dropping out altogether. (48 references) (KM)

CHANGING HIGH SCHOOL -- AN ALTERNATIVE TO DROPPING OUT?

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ABSTRACT

The study reported here investigated a hypothesized continuum of school behavior, whereby school transfer was seen as an alternative to dropping out. Comparing in-school, drop out, and transfer students from the first follow-up of High School and Beyond, sophomore cohort, we found evidence to support this continuum while comparing operational differences in this continuum between public and Catholic school students. Measures of at-riskness and absenteeism predicted not only drop out behavior, but transfer behavior as well. Earlier reports of very low drop out rates in Catholic schools (compared to public schools) may be partly explained by higher transfer rates from Catholic to public schools. The implications of this evidence suggest that an option of "dropping down" may reduce dropping out.

Introduction

Dropping out of school and school transferring are two possible choices of American high school students, each involving the disengagement of the student from the school in which he or she is enrolled. The former choice is the ultimate reaction to alienation, discouragement, and disatisfaction. The latter can be used to escape from the localized disatisfaction of a particular school. But at what point does this localized discontent shift to a more global level? Will students who make the choice of transferring, ultimately make the choice to drop out? Is transfer behavior an important alternative, or perhaps sometimes even a precursor to drop out behavior, along a continuum of exercising choice?

The existence of the private school option in the United States presents, at least for some individuals, a long-established choice of educational possibilities. In the last twenty years, alternatives within the public school system have been proposed, implemented, discarded, and attempted anew. The proliferation of these choice schemes over the last dozen years has focused on, among other issues, the understanding that there is no single best educational system for all youngsters and the growing determination of Americans to have and exercise a choice (Raywid, 1985). In this area of research, however, the main emphasis seems to be upon the intial choice of school, not subsequent choices made in response to academic progress, or lack thereof. Our research addresses these issues by investigating both the initial choice of school type and subsequent decisions of school leaving.

Theoretical Background

Drop out behavior has been an undeniably hot topic in educational research and policy discussions during the last several years. A recent review of the issues and evidence surrounding research on high school drop outs noted that the two previous years had generated more publications on the problem than the preceeding 15 (Rumberger, 1987). Since the appearance of that article, there has been a steady continuation of that interest and research. Transfer behavior and its possible implications and results have not received comparable study.

Our knowledge of the drop out phenomenon, while far from complete, has grown considerably in recent years. Three major themes can be documented within the main body of research: 1) Description of the individual characteristics of students who drop out and the types of schools they are especially likely to drop out of, 2) Prevention of the act of dropping out, and 3) Costs of dropping out to the individual and society.

The majority of prior research has focused on the personal attributes of the drop out -- demographics, academic, psychological, and social behavior. While the origins of these patterns remain somewhat unclear, the patterns themselves have been clearly and consistently tracked. Social class and ethnicity are strongly related to the drop out problem, with lower class and minority students at a heightened risk of dropping out. Recent work has also looked at important differences within ethnic groups. While blacks and Hispanics both exhibit higher drop out rates than average, less in known about influences that work within these groups -- what keeps, for example, some Hispanic students in school until graduation while others drop out? (Velez, 1989; Williams, 1987; Valverde, 1987; Ekstrom, et. al., 1986). These patterns are far from simple, and some thoughtful research has revealed interesting and important differences in drop out behavior for particular demographic subgroups. Higher family income appears to reduce the probability of dropping out, but only for whites, while black females seem to be triply advantaged after background controls: blacks display a lower likelihood of dropping out (net of other demographic controls), females a lower likelihood than males, and black females even lower than what the main effects would predict (Pallas, 1986; Rumberger, 1983). The at-risk student typically receives lower grades, lower test scores, and displays a higher sense of alienation and the resulting psychological and personal difficulties. Indeed, the at-risk student is often defined precisely in these terms. In addition, drop outs come more often from single or step-parent households and larger families than their peers who remain in school (Zimilies & Lee, in press; Kagan, 1988; Rumberger, 1987; Ekstrom, 1986; Sewell, 1981). Only recently has the focus shifted to schools as potential contributors to the drop out problem (Calabrese, 1988; Wehlage & Rutter, 1986; Fine, 1986). In particular, the Catholic school system has been widely praised for its lower failure rates and seemingly

greater success with at-risk students (Bryk & Thum, 1989; Coleman & Hoffer, 1987).

The recent article by Bryk and Thum (1989) stands as an important comparison to our research. Investigating the sources of Catholic schools' low drop out rates, they concentrated on school organizational factors (heretofore overlooked except by Welhage and Rutter [1986] where only weak school effects were found). The orderly environment, with less differentiation in student experience and high emphasis on academic pursuits, leads to lower likelihood of student drop out, especially for at-risk youth. While the technique employed (HLM) allows researchers to separate school effects from individual effects, it was not designed for use with dichotomous outcome variables, particularly with extreme distributions (e.g. less than 4% of the Catholic school students dropped out). However, while dropping out was a major outcome variable in their study, student transfer was not considered. Nevertheless, this paper adds an important new dimension to the study of dropping out, since it focuses on what schools may do to help keep at-risk students in school.

Building upon this foundation of indentification, intervention and follow-up programs have been discussed and evaluated in order to discover the means by which these patterns can be broken (Catterall, 1989; Cuban, 1989; Conrath, 1988; Hahn, 1987; Gallagher, 1985). Finally, as further incentive to change the prevailing patterns, investigations into the personal and social costs of dropping out are illuminating the repercussions of this action at all levels of society (Natriello et. al., 1989; LeCompte, 1987; Alexander et. al., 1985).

Currently, one of the main hindrances to effective research and greater understanding of the high school attrition problem lies within the data specification and collection process itself. The initial conceptualization of the process and identification of dropping out remains ambiguous. The label of "drop out" is applied in no standard manner, often including those who might best be omitted and failing to include others for want of adequate information (LeCompte & Goebel, 1987; Hammack, 1986; Morrow, 1986). Currently, three different drop out rates are computed -- event, status, cohort[1] -- and often confused (NCES, 1989). Extensive lists and

classification codes have been isolated in the practice of labelling students (Barber & McClellan, 1987). The so-called transfer student (in itself a problematic label with over thirty different sub-headings reported by Barber, 1987) has been cited both in discussions of inadequate standardization practices as well as in discussions of potential at-riskness. However, almost no research is available on the transfer student, other than at the post-secondary level (see Coleman & Hoffer, 1987, for one of the few descriptive investigations).

The Research Question

The problems cited with the data collection practices and the non-standardization of classifications are symptoms of the missed philosophical issue of why students are transferring, why they are exercising that choice. Our research focuses on this under-investigated subgroup, presenting it as a necessary component if one wishes to understand more thoroughly the drop out pattern. We suggest that transferring from one high school to another may be an important alternative to dropping out, with all students distributed along a continuum of school behavior: remaining in school, transferring to a different school, or dropping out of school altogether.

Table 1 includes initial descriptive results using the High School and Beyond data set of the percent of students, within each school type, who remain in school, who drop out, or who transfer between the sophomore and senior years of high school.[2] While the public school drop out rate (15.1%) is over four times the drop out rate in Catholic schools (3.5%), the percentages of transfer students reveal a different scenario. The public schools exhibit a lower transfer rate (6.9%), with the Catholic schools containing many more transfers than drop outs (10.2%).

PLACE TABLE 1 ABOUT HERE

Table 2 indicates the type of school that the transfer student entered after leaving his or her previous school. The majority of all transfer

students, regardless of their original school type, transferred into public schools. Most pertinent to this research is the large percentage of Catholic-to-public transfers: 81.7% of those students who transfer from a Catholic school enter a public school.

PLACE TABLE 2 ABOUT HERE

If this hypothesized continuum is a valid representation of the school-leaving process, factors known to lead to dropping out should predict, although to a lesser extent, the act of school transfer. This continuum dramatically alters the conceptualization of the drop out problem along institional lines, especially for Catholic schools. With transfer rates nearly three times their drop out rates, the Catholic schools' reported success with holding at-risk students in school may not be as complete as previously believed (Bryk & Thum, 1989). Our hypothesis is that the Catholic school transfers (who almost all move to a public school) may be "dropping down" to a less rigorous academic setting as an alternative to dropping out, an option not as easily available to public school students. Such a hypothesis is consistent with recent findings of the decreased academic expectations in public schools as compared to their Catholic counterparts (Lee & Bryk, 1988; Coleman, Hoffer & Kilgore, 1982). In general, if a student leaves a Catholic school to enter public school and sometime later in the future drops out of public school, they will most likely be counted as a public school drop out, having only transferred out of Catholic school. If, however, this student subsequently completes his or her high school diploma, their choice to transfer was the winning one. In either case, investigating drop out behavior without regard to transfer behavior may misrepresent schools' success with at-risk students and this may overlook the importance of alternatives and choices short of abandoning the whole system.

School transfer may be the result of numerous factors, some academic, some financial, some personal. If transfer behavior is linked to dropping down, particularly in the non-public sector, differences in the motivation for the transfer should be apparent. Table 3, which summarizes student

explanations, reveals such patterns. Seven possible groupings were collapsed from student responses to why they transferred (from HS&B variable, FT1A):

(1) MOVED (because parents changed jobs, parents divorced, separated, or remarried, or other personal reasons);

(2) MOVED (no reason given);

(3) FAMILY ISSUES (financial reasons, family problems, relatives went to or reccommended new school, etc.);

(4) PERSONAL ISSUES (religious or racial concerns, pregnant, married, wanted change of pace, etc.);

(5) SCHOOL ISSUES (redisticting, counselor recommendation, similar to old school, etc.);

(6) SCHOOL DIFFICULTIES (disagreement with teachers, suspended or expelled, wasn't doing well, wanted a fresh start); and

(7) DESIRE FOR A DIFFERENT SCHOOL (different environment, specific programs being sought, different academic or administrative setting).

Groups 5 and 7 are quite similar, but distinguished by an explicitly stated desire on the part of the student for a different school.

PLACE TABLE 3 ABOUT HERE

Over 60% of the public school transfers moved (either giving reasons or not), with school issues and desire for a different school of next importance. Nearly a third (30.7%) of the Catholic school transfers desired a different school, with another 45% spread evenly between moved (for no reason), and personal and family issues.

Students who move in conjunction with school transfer posed a two-fold problem for us. Those students for whom an independent decision to move necessitated a school transfer are not suitable individuals for discussion here. The proposed continuum of student behavior is based upon choice, not necessity. As such, the inclusion of such students distorts the analysis. Unfortunately, we have no way of distinguishing between these legitimate movers and students for whom the decision to move was silently inspired, at

least in part, by the desire for a different school. Additional discussion of this problem occurs in subsequent sections.

Is transfer behavior an alternative or a precursor to drop out behavior, and as such an overlooked piece of the pattern? Does this continuum exist? And is it operational in both the Catholic and public schools? The following research seeks to address these concerns.

Method

Data

The data used in this study come from the High School and Beyond (HS&B) data base, a longitudinal study initiated in 1980 by the Center of Education Statistics. During the base year survey in the spring of 1980, a national two-stage probability sample of high school students gathered a random sample of up to 36 sophomores in each of 1,015 schools. Two years later, the First Follow-up Survey was conducted in the spring of 1982.[3] Predictor variables are all base year measures (end of sophomore year), with the identification of student status (in school, drop out, or transfer) measured from the First Follow-up (as indicated from HS&B variable, FUSTTYPE).

Variable specification. The following is a description of all predictor variables, their names and constructions from the original HS&B variables:

FEMALE: dummy coded gender variable, 1=female, 0=male (recoded from SEX).

BLACK: dummy coded race variable, 1=black, 0=non-black (recoded from RACE).

HISPANIC: dummy coded race variable, 1=Hispanic, 0=non-Hispanic (recoded from RACE).

OVER16: dummy coded age variable, 1=over 16 years of age, 0=16 years or younger. This categorical version of the age variable was selected for both methodological and theoretical reasons. Conceptually, research supports the hypothesis that the over-age student is of particular risk of dropping out, with 15-16 years the usual age for high school sophomores (Pallas, 1985). Thus the dummy indicates those "over-age" students. While a continuous age measure could also capture this phenomenon, the statistical techniques to be discussed are best exploited through categorical measures (recoded from BB084).

NATFAM: dummy coded home life variable, 1=living with both biological parents, 0=living with step-parent and/or single parent. While it is not accurate to suggest that step-parent and single parent households are identical, for simplicity here, all non-traditional households will be compared to the traditional, two biological parents, home life. Previous research indicates the importance of the intact family for reduced probability of dropping out, with nearly equal increased risk for the single-parent or remarried families (Zimilies & Lee, in press) (recoded from the BB036 variables).

SIBLING: an integer-valued measure of the number of sibings present in the household (sum of the BB096 series).

BYSES: a standardized-normal measure of social class, with mean of 0 and standard deviation of 1.

SOCCLASS: dummy coded collapse of BYSES, 1=above average BYSES, 0=average or below average BYSES

ACADEMIC: dummy coded curriculum program variable, 1=academic track, 0=non-academic track (recoded from BB002).

AT-RISKNESS: a standardized-normal, factor-analytic measure of general "at-riskness" based on behavior and attitude, with mean of 0 and standard deviation of 1, identical to that created by Bryk and

Thum, 1989, and incorporating low grades during the first two years of high school (BB007), dissatisfaction with school (BB059A), discipline problems (BB059B), disinterest with school (BB059C), suspension/probation from school (BB059D), cutting classes (BB059E), serious trouble with the law (BB061A), and a dislike for working hard in school (BB061E).

RISKY: dummy coded collapse of AT-RISKNESS, 1=above average AT-RISKNESS, 0=average or below average AT-RISKNESS.

ABSENT: number of days absent, unexcused, from school during the first four months of the sophomore year (recoded from BB016).

ABSENT10: dummy school attendence variable collapsed from ABSENT, 1=more than 10 unexcused absences, 0=10 or fewer unexcused absences.

While not appearing in the final models, the following variables are used for purely descriptive purposes:

HOMEWRK: continuous measure of self-reported hours spent on homework each week (recoded from BB015).

BYTEST: standardized test composite averaging the reading, vocabulary and math achievement scores, with a mean of 50, and standard deviation of 10.

Methodology

In order to test our hypotheses, we selected various known measures of drop-out behavior, all measured in the sophomore year (Bryk & Thum, 1989; Natriello, 1986; Pallas, 1986; Rumberger, 1983). As the outcome, we selected student status two years later: in the same school, dropped out, or transferred to another school. Early graduates were removed from the sample. Given the 3-level categorical outcome variable, regular regression techniques are not appropriate. Instead, we have employed a multinomial logit model, a special case of the general log-linear model, as the analytic method. Expanding upon the historical investigation of

contingency tables, the multinomial logit model estimates the log-odds of one event occuring in contrast to some other event, and the linear change in log-odds due to various independent variables. This translates into a non-linear probability model, essentially distinct from the linear probability model based on ordinary regression with a dichotomous outcome variable. The following is a brief, non-technical introduction to the multinomial model. For a more detailed discussion, see Feinberg (1987), Knoke & Burke (1980), or Anderson et. al. (1980).

The log-odds of an event is mathematically defined as $L = \log(P/1-P)$, where P = the probability of the event. This non-linear transformation eliminates the arbitrary range restiction in the probability metric ($0 \leq P \leq 1$) and results in an unbounded measure of likelihood ($-\infty < L < \infty$). As with many transformed variables, readers may be less comfortable in "log-odds" units, just as many are less comfortable in log-dollars or kilometers. Initially, the reader simply needs to recognize that an increase in the log-odds results in an increase in the probability, or likelihood, of one event as opposed to the other.

The simple logit model (only two outcomes) is an additive linear model for the log-odds:

$$(1) \quad L = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_N X_N$$

where each X_i serves as a predictor variable, and each β_i indicates the associated change or contrast in log-odds. It is not, in general, advisable to attempt to transform the results back into the probability metric. There the model is non-linear and non-additive, with non-constant partial derivatives (slopes). While most of the statistical and computational framework is quite different between the log-linear and ordinary least squares regression models (for example, the log-linear estimates are generated iteratively through a maximum likelihood procedure based on cell frequencies), interpretations can be made similarly, especially when suitably formatted. The following research capitalizes on this fact by presenting results in a setting identical to that of hierarchical regression, with predictors entered in sequenced groups[4].

With three outcome categories, two contrasts are possible. For the purposes of this research, the decision to drop out and the decision to transfer will each be simultaneously contrasted with the decision to remain in school. Hence, predictor variables will estimate the increase or decrease in the likelihood of dropping out or transferring, using, as a base, those students who remain in school.

Finally a word about the predictor variables. Categorical predictors are used quite distinctly from continuous predictors in the computational process. The log-linear technique creates a multi-dimensional contingency table (based on all categorical variables in the model) and computes cell frequencies. From these frequencies, the effects of the categorical predictors on the outcome are estimated. Goodness-of-fit measures, which are a measure of how well the model fits the data, are based on this framework. Continuous predictors are involved in the model as cell covariates through the use of cell means. Interpretations of coefficients, for either type of variable, remains similar to regression.

Missing Data and Sample Size

Problems with missing data arise in several contexts. The coding of variables (most notably SIBLING) required certain concessions. After calculating cases based on available information, missing values were replaced by the mean value within student type. For example, a drop out student with no information on the number of siblings was assigned the mean number of siblings for all drop out students.

Unlike regression with its optional pairwise deletion, the log-linear algorithm has only a listwise treatment of data -- only those cases with complete information are acceptable. Consequently, many cases would be lost here. For the sake of consistency, we used similar restictions throughout, except for descriptive reports. Sample size is indicated for each table.[5] The correlation matrix and final models are based on identical samples.

Results

Descriptive Differences

Table 4 focuses on descriptive mean score differences as a preamble to the final log-linear models. Here the percentages and mean scores on the various demographic and academic variables are reported for each student type, within public and Catholic schools, and initial evidence for the thesis of "dropping down" from Catholic school is presented.

PLACE TABLE 4 ABOUT HERE

In the public sector, females are less likely to drop out or transfer (as evidenced by their decreased percentage in these two groups), while blacks and Hispanics are more likely both to drop out and to transfer. Interestingly, blacks are most represented among the transfers (14%), while Hispanics are most likely to drop out (17%). An increase in the percentage of non-traditional home lives (single and step-parent households) occurs among the drop out and transfer students, and a substantially lower average social class typifies the drop outs. The drop out students are more frequently over the normal sophomore age of 16 years (over 19% as opposed to only 3% of the in-school and transfer students), less frequently in the academic track, and score lower on the general achievement test. Little difference is seen between the in-school and transfer students on these variables. Four variables display a steady increase in mean from the in-school, to the transfer, to the drop out population, supporting, in both the public and Catholic schools, the possible underlying continuum connecting these behaviors -- factors related to drop out behavior are often present in smaller quantities in the transfer population. The frequency of absences increases along this continuum, homework decreases, at-riskness increases, and family size increases. The percent of students at above average at-riskness presents a particularly strong case: just under 50% of the in school students display above average at-riskness (as expected), but 60% of the transfer students and over 80% of the drop outs display above average at-riskness.

Similar trends are seen in the Catholic sector. The percent of females is low among the drop outs, and once again Hispanics are most prevalent among the drop outs while black are most prevalent among the transfers. Six variables display a steady increase along the continuum, substantiating the possible "dropping down" interpretation of Catholic transfer students. Once again, absences and at-riskness increase, homework, test scores, social class, and frequency in the academic track decrease. The collapsed at-risk measure reveals the same scenario as before: less than 40% of in-school students are at-risk, but over 70% of the transfers and nearly 90% of the drop outs display above average at-riskness. Transfer students from either sector thus appear to be poised between the extremes of remaining in school and dropping out altogether -- especially so in the Catholic schools.

Multinomial Logit Model, Full Sample

Despite the observed differences in test score and homework, these two variables were removed from the final model due to their non-significant contribution in a multivariate context. Also, we chose to utilize the dichotomized versions of the continuous measures of absence, social class, and at-riskness in order to exploit the advantages of the log-linear model.[6]

PLACE TABLE 5 ABOUT HERE

Table 5 presents the correlation matrix for these variables, paired by school type. Few correlations anywhere in the matrix exceed r = .200. Sector differences, while not striking, are noteworthy in some instances. In public schools, academic track placement is negatively associated with absenteeism (r = -.240), but little relationship is indicated in the Catholic r (r = -.040). Academic track is correlated with social class near the r = .200 level for both sectors. Over-age students are equally more likely to drop out either from public or Catholic schools (r = .239 and r = .240, respectively). Students at-risk and student

absentees are more likely to drop out of public school (r = .234 and r = .250), but such behavior in the Catholic schools is not correlated as highly with dropping out (r = .166 and r = .075). While at-riskness is negligibly correlated with public school transferring, not so with Catholic transfers (r = .212). These final correlations further support the "dropping down" interpretation of Catholic school transfers.

PLACE FIGURE 1 ABOUT HERE

The final log-linear model, estimated separately for the Catholic and public school students, proceeds hierarchically. The first model involves personal background variables (gender, ethnicity, and being over-age), followed by family background variables (social class -- above average versus average or below, number of siblings, biological two-parent household). Finally, three high school behavior variables (academic track placement, at-riskness -- above average versus average or below , and frequent unexcused absences -- more than 10 versus 10 or less) are entered. Figure 1 summarizes the model and tables 6 and 7 present the results for the public and Catholic schools respectively. Table 8 gives the results of testing the difference in effects across models, revealing the significant differences between the two sectors.[7]

PLACE TABLES 6, 7, 8 ABOUT HERE

Within the public sector, the initial background model reveals that femalesre less likely to transfer and blacks more likely to transfer, while Hispanics and over-age students are more likely to drop out. After controlling for family background and school behavior, no significant demographic differences for transferring are present and the greater likelihood for Hispanics to drop out has been eliminated. Over-age students continue to be highly at risk of dropping out, but blacks are now less likely to drop out, after adjusting for the controls. Females are somewhat more likely to drop out after adjustments.

The family model indicates the increased likelihood of dropping out or transferring when the student comes from a single or step-parent household, or as family size increases. As previous research has suggested, lower social class students remain at a higher risk of dropping out, even after suitable controls, but appear to be less likely to transfer. Given that a majority of the public school transfers moved as well as transferred, this result may be more indicative of movers rather than transfers.

Finally, the school model provides some evidence to support our hypothesized view of student choice behavior. Students at-risk are much more likely to drop out or to transfer, although the contrast here is smaller. Student attendence records are similarly conclusive -- excessive unexcused absences lead both to drop out and transfer behavior. Indeed, excessive unexcused absence is the largest of the logit coefficients for transferring, almost twice as large as its nearest competitor (NATFAM). As in regression, these effects are unique, computed net of the other variables in the model.

The goodness of fit statistics indicate the presence of significant higher-order interaction terms[8]. This fact is not surprising given previously mentioned research in this area. Despite the possible need for more complex models including these interactions if a more complete model is desired, only the one way contrasts are investigated at this time. This decision seems justified by our more modest research goals. We are not proposing a model of drop out and transfer behavior as such, rather we are attempting to uncover evidence to support the need for such models that include both alternatives.

Turning to the Catholic sector, substantial differences from the results of public school students are evident. At the same time, the smaller sample size increases the sparsity of the cells in the underlying contingency table with at least one unfortunate consequence: the standard errors of the estimates are much larger, hence the estimates are often large but not statistically significant.[9]

The demographic patterns here bear little resemblance to those found in

the public sector. While no gender differences are present after controlling for all other variables, blacks are much more likely to transfer or drop out of Catholic schools, and Hispanics are more likely to transfer (the standard error for the Hispanic drop out estimate prevents it from statistical significance despite its magnitude). Over-age students are much more likely to drop out, the largest of all the adjusted effects, while the large non-significant coefficient for transfer suffers from a similarly large standard error. In the second stage, however, before controlling for school behavior, over-age students are significantly more likely to transfer.

No social class contrasts remain after applying the controls, but larger family size leads to dropping out and transferring. The additional economic costs of private school may in part explain why students from larger families transfer, especially in light of the fact that most who transfer move into the public sector.

Although the effects are large, equally large standard errors caused by small cell counts in the underlying contingency table prevent track placement and absenteeism from displaying a significant impact on dropping out. The small cell counts are due to the fact that very few Catholic school students evidence excessive absence, even the subsequent drop outs (see table 4). At the same time, while only 14% of the Catholic or public school drop outs come from the academic track, Catholic students in general are more often in the academic track than their public school peers: 54% of Catholic in school students as compared to only 35% of public in school students (see table 4). Higher risk Catholic school students do drop out significantly more often, and transfer significantly more often as well. Indeed, the impact of at-riskness seems comparably related to the drop out and transfer option. This provides the strongest yet indication that the transfer option may be an alternative to the drop out option, and that the "dropping down" opportunity available to Catholic school students is both real and consciously exercised.

Multinomial Logit Model, Reduced Sample (Deleting Movers)

In our introduction, we acknowledged the problematic nature of the data due to the presence of students who move. Including students who cite moving as the primary reason for school transfer masks our ability to identify school-related reasons for transferring. It is difficult to assess which choice dictated the other. Even though the move may have been in truth specifically inspired by the choice or desire for a new school, we decided to eliminate those subjects from the sample who moved and re-run the model.[10] Because the greater percentage of movers occurred in the public sector, the log-linear results should differ more there than in the Catholic model. In particular, previously registered causes of transfer behavior that are really predictors of moving will be diminished or eliminated, while the true contrasts between the non-moving students who transfer and those who do not should be more accurate. If anything, the choice continuum might be under-represented by these new results. We may have unavoidably removed students who moved with the unstated, but strong, interest in a different school. Hence, those individuals who are willing to go to more drastic measures in search of educational alternatives than merely switching within the local options are now lost to the model, but the potentially more severely confounding effect of moving has likewise been eliminated.

PLACE TABLES 9, 10, 11 ABOUT HERE

Concentrating on major changes in the final stage (school model) of table 9, one discovers that the demographic pattern has now shifted in public schools. After deleting movers, black and Hispanics are both more likely to transfer schools, even after all else has been controlled (previously, no demographic patterns emerged on the transfer students). Higher social class no longer predicts transferring (consistent with the deletion of more affluent transfer students who moved), and excessive absence and at-riskness are now substantially stronger predictors of transferring. While "dropping down" (previously suggested as an explanation for Catholic-to-public transfers) might not be a legitimate term for these

students in public school as much as "dropping across", the hypothesized choice continuum gains further credance.

Changes in the final stage of the model for Catholic school students (table 10) occur mostly in terms of lower standard errors, resulting in previously non-significant results becoming significant with little change in effect size. Over-age students are not only significantly more likely to drop out, but to transfer as well. The significant positive impact of academic track placement on remaining in school surfaces, and lower social class is predicting both drop out and transfer behavior. Since moving was not a major reason for Catholic school transfers, more dramatic changes were not expected.

Discussion

Choices presuppose options. Winning choices presuppose options which lead to success. Clearly, dropping out of school is always an option open to school age youth and one that has been consistently exercised over the decades. Despite short-term fluctuations and recent outcries to the contrary, the overall drop out rate in this country has not increased in recent years, but has remained fairly steady at about 13% (status drop out rate) for more than 20 years, with a recent narrowing of the differential between black and white drop out rates (NCES, 1989; Hahn, 1987).

Certainly, no one would argue that this option in general contributes to common measures of success and achievement. The subsequent loss in cognitive performance, potential unemployment, and decreased wage earnings are slowly becoming documented while more research is being sought (Natriello et. al, 1986; Alexander et. al., 1985; Beck et.al, 1980). We still do not understand the full implications or repercussions of leaving school before graduation. Students themselves seem to become aware of these problems and frequently choose to return and complete high school. Nearly half (46%) of the drop outs from this sophomore class of 1980 had actually graduated from school by 1986, 4 years after the expected date of completion (NCES, 1989). Thus, leaving one's cohort might not have the serious long-term implications that recent public outrage and research

suggest. The act of dropping out is thus neither necessarily so disasterous nor final. Indeed, while cognitive performance is enriched by continued schooling, the effects are far from substantial, averaging only about .10 of a standard deviation unit (Alexander et. al., 1985).

A less immediately drastic choice is that of school transfer. Students remain in school, although they may be moving down a road approaching the more dramatic option. At the same time, the different setting may be exactly what is needed to turn around a shaky academic or social environment. The transfer option is neither clearly a winning nor a losing strategy. If, however, the transfer occurs as a student searches out viable alternatives, differences in those alternatives are critical. A choice among identical offerings is no better that no choice at all.

Two research questions guided this analysis: (1) is there an underlying continuum of choice behavior whereby students who transfer schools are seen to be poised between those who stay in school and those who drop out of school, and (2) if this hypothesized continuum exists, is it any more apparent in Catholic schools where transferring to public schools provides a possible "dropping down" interpretion of the choice behavior? The results presented here support a positive response to both inquiries.

Regardless of school sector, typical measures of at-riskness suggest transfer students are separated from both their in-school and drop out peers. Transfer students have more unexcused absences than in-school students, but less than drop outs. The factor of at-riskness employed here provides the stongest and clearest example of this continuum. The combination of low grades, dissatisfaction with and disinterest in school, cutting classes, and suspension/probation occur with greater frequency among transfer students, but less than among dropouts. In the final hierarchical model (after eliminating student movers) these two effects are of equal stength in predicting transfer behavior across the two sectors (see table 11).

These findings suggest a new conceptualization of the attrition problem. Former emphasis on and definitions of the drop out student not only need to be standardized but broadened to include the transfer student.

The continuum of choices expands beyond the simple dichotomy of dropping out or remaining in school until graduation.

The implications of this new conceptualization are potentially quite distinct for the two school sectors investigated here. During the last several years, Catholic schools have been praised for their much lower drop out rates and scrutinized for the institutional effects that cause this success (Bryk & Thum, 1989; Coleman & Hoffer, 1987). While this fact is born out here, when student transfer is taken into consideration, the differences are diminished. Even though the public school drop out rate reported here is over four times that in Catholic schools (13.2% versus 3.1%), the overall retention rates are less dissimilar. Twenty percent of the public school students and almost thirteen percent of the Catholic school students either dropped out or transferred. Given that over 60% of the public transfers moved, while just over 20% of the Catholic transfers moved, after adjusting for movers, only about a fifty percent higher rate of school leaving is calculated (15.8% in the public schools versus 10.5% in Catholic schools). Catholic schools still exhibit greater success in preventing attrition, but no longer at the highly disparate levels suggested solely by drop out rates.

A promising challenge for public schools may lie in a renewed effort for different and more effective alternative school options within the public sector. Whenever transferring is selected as an alternative to dropping out, a suitably different environment must be available to the student. Otherwise, the act of transfer may be nothing more than a vain attempt, bringing no change, and driving the student closer to dropping out entirely. Indeed, alternative schools were suggested in the 1960's and 1970's as one potential solution to the drop out problem; they might be essential components of the solution to the conjoined problem.

Now that the scope of the attrition pattern has been enlarged, we may find that minority transfer patterns could be every bit as complicated as the drop out patterns, although quite distinct from them. Very little work has been done with demographic interaction in general, and none here. Without these more complicated inclusions, the models are surely over-simplifications of an extremely complex social phenomenon. While these

choices may be inherently unpredictable at an individual level, societal patterns are nevertheless strong and persistent. Also, a thorough follow-up on the long-term results of school transferring is needed. Do these students ultimately succeed in their new schools, or simply drop out later? How successful is this choice and what factors influence their chance of success?

We are fighting neither a losing battle nor a new one -- school attrition has had a long and persistent life. The duration of this stalemate may be due in part to inadequately conceived battle lines. By focusing only on the extreme of a continuum and concentrating on the drop out choice (itself subject to reversal) and ignoring the transfer alternative, we fail to see that continuous process of change and choice. Filling in the mid-region of this continuum by including student transfers does not complete the line, but does enhance its resolution.

TECHNICAL NOTES

[1] The event drop out rate is the proportion of students who drop out in a single year without completing high school. The status drop out rate is the proportion of the population who have not completed high school. The cohort drop out rate is the proportion within a single group of students who have not completed high school.

[2] By the first follow-up, data were separated into four files -- those who: (a) remained in the same high school; (b) graduated early; (c) dropped out of high school between 1980 and 1982; or (d) transferred out of their base year high schools between 1980 and 1982. These four samples received separate questionnaires in 1982, although all four groups provided demographic information and test scores. In total, 25,150 remained in the same school, 2601 dropped out, 1290 transferred, and 696 graduated early (NCES, 1983). Since the files were separate, most researchers have pursured questions only on the largest group. Other than Coleman and Hoffer (1987), we know of no research examining the transfers, from whom little information was collected about the schools into which they transferred (other than sector).

[3] Follow-up response rates varied, but remained unusually high even for the drop outs and transfers. Among the drop outs, 88% completed the questionnaire and 78% completed the tests. Among the transfers, 91% completed the questionnaire and 83% completed the tests.

[4] We conducted many discriminant analyses as preliminary investigations before reducing the final model to its present state. The multinomial model partially dictated the ultimate form of several of the variables.

[5] The HS&B data require case weighting to adjust for intentional oversampling of certain subgroups. Without this adjustment, generalization to all high school students in 1980 is not possible. Reported sample sizes are unweighted values. All other reported statistics are based on the weighted data. Hence, percentages are not directly calculable from reported unweighted sample sizes.

[6] The log-linear model, while allowing for continous covariates, is optimally a statistical technique for categorical variables. Despite the loss in information, given the significance which even these gross categorizations subsequently display, the decision seems warranted.

[7] The test employed for significance difference is the t-statistic calculated as follows:

$$t = (b_p - b_c) / (se_p^2 + se_c^2)^{1/2}.$$

[8] Because of the numerous near-empty cells, the likelihood-ratio statistic (G^2) is less accurate in measuring goodness-of-fit. The Pearson Chi-square statistic (X^2) is less sensitive to sparse tables and is, in general, preferable in this situation (Fienberg, 1987).

[9] The G^2-statistic here is even less accurate in its measure of goodness-of-fit and is radically different than the X^2-statistic. The former should be ignored in favor of the Chi-square statistic, where once again, the significant p-value indicates the presence of needed interaction terms.

[10] The simple inclusion of a categorical variable distinguishing between movers and non-movers might appear to be an alternative approach to this issue. However, the resulting increase in the dimension of the underlying contingency table and its increased sparseness (especially in the Catholic school sample) proved too severe for the data, since the maximum likelihood estimates failed to converge.

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TABLE 1

PERCENT STUDENT TYPE BY SCHOOL TYPE

	in school	dropout	transfer
Public[1]	80.0[a]	13.2	6.8
Catholic[2]	87.3	3.1	9.6

[1](n = 18,104 unweighted sample size)
[2](n = 2,169 unweighted sample size)

[a] weighted percentages

TABLE 2

TRANSFER STUDENTS: PERCENT WHERE TRANSFER BY SCHOOL TYPE

		New school type		
		Public	Catholic	Private
Original school type	Public[1]	91.7[a]	4.4	3.9
	Catholic[2]	81.7	12.0	6.3

[1](n = 640 unweighted sample size)
[2](n = 152 unweighted sample size)

[a] weighted percentages

TABLE 3

TRANSFER STUDENTS: PERCENT WHY TRANSFER BY SCHOOLTYPE

	1	2	3	4	5	6	7
Public[1]	28.5[a]	32.6	1.4	6.0	9.	5.0	17.2
Catholic[2]	7.2	15.8	15.9	15.9	8.2	6.2	30.7

KEY:

1 -- moved, with reasons.
2 -- moved, no reasons.
3 -- family issues.
4 -- personal issues.
5 -- school issues.
6 -- school difficulties.
7 -- desire for different school.

[1](n = 640 unweighted sample size)
[2](n = 152 unweighted sample size)

[a] weighted percentages

TABLE 4

MEANS FOR DEMOGRAPHIC AND ACADEMIC VARIABLES
IN SCHOOL, TRANSFER, AND DROPOUT
IN CATHOLIC AND PUBLIC SCHOOL

	PUBLIC			CATHOLIC		
	in school	transfer	dropout	in school	transfer	dropout
N	16,015[a]	640	1449	1973	152	44
percent	80.0[b]	6.8	13.2	87.3	9.6	3.1
% female	51.2	47.9	48.7	56.2	49.9	36.1
% black	10.6	14.1	12.3	4.6	13.4	7.8
% Hispanic	12.1	13.1	17.7	8.6	13.7	27.6
% over 16	3.3	2.9	19.3	0.7	2.5	17.3
% natural family	74.9	61.6	55.0	83.4	80.0	53.6
% above average ses	46.0	46.3	27.2	65.8	61.4	26.6
% academic track	34.4	31.8	13.2	64.6	41.6	13.7
% >10 absences	3.3	9.4	21.5	1.4	1.6	6.8
number of siblings	2.89	3.12	3.64	3.04	2.79	3.99
% above average risk	46.7	60.3	82.0	36.2	73.4	87.2
bytest	51.2	50.4	45.0	54.9	52.4	47.9
hours of homework	3.89	3.38	2.60	5.41	4.31	1.40

[a]unweighted sample sizes
[b]weighted percents and means

TABLE 5

CORRELATION MATRIX, BY SCHOOL TYPE

P = Public school, C = Catholic school

	black		hispanic		over16		natfam		sibling		socclass	
	P	C	P	C	P	C	P	C	P	C	P	C
female	.024	.004	-.047	.021	-.071	-.057	-.030	-.058	.004	-.014	-.045	-.070
black					.080	-.005	-.172	-.129	.137	-.070	-.136	-.034
Hispanic					.085	.147	-.034	-.068	.100	-.013	-.130	-.076
over16							-.060	-.075	.091	.025	-.097	-.033
natfam									-.097	.012	.133	.197
sibling											-.163	.033
socclass												
academic												
risky												
absent10												

	academic		risky		absent10		dropout		transfer	
	P	C	P	C	P	C	P	C	P	C
female	.039	.023	-.160	-.182	-.012	-.025	-.015	-.068	-.015	-.033
black	-.018	.010	.026	-.018	.005	.031	.016	.018	.027	.110
hispanic	-.087	-.032	.070	.04	.033	.028	.056	.109	.001	.044
over16	-.108	-.098	.121	.110	.092	.087	.239	.240	-.030	.033
natfam	.051	.015	-.079	-.090	-.083	-.010	-.141	-.133	-.058	-.018
sibling	-.112	-.097	.080	.080	.068	-.016	.116	.084	.015	-.042
socclass	.209	.189	-.097	-.062	-.038	.007	-.129	-.140	.015	-.019
academic			-.240	-.237	-.240	-.040	-.154	-.172	.003	-.128
risky					.175	.088	.234	.166	.043	.212
absent10							.250	.075	.037	.000

Figure 1: Causal Model for Analysis

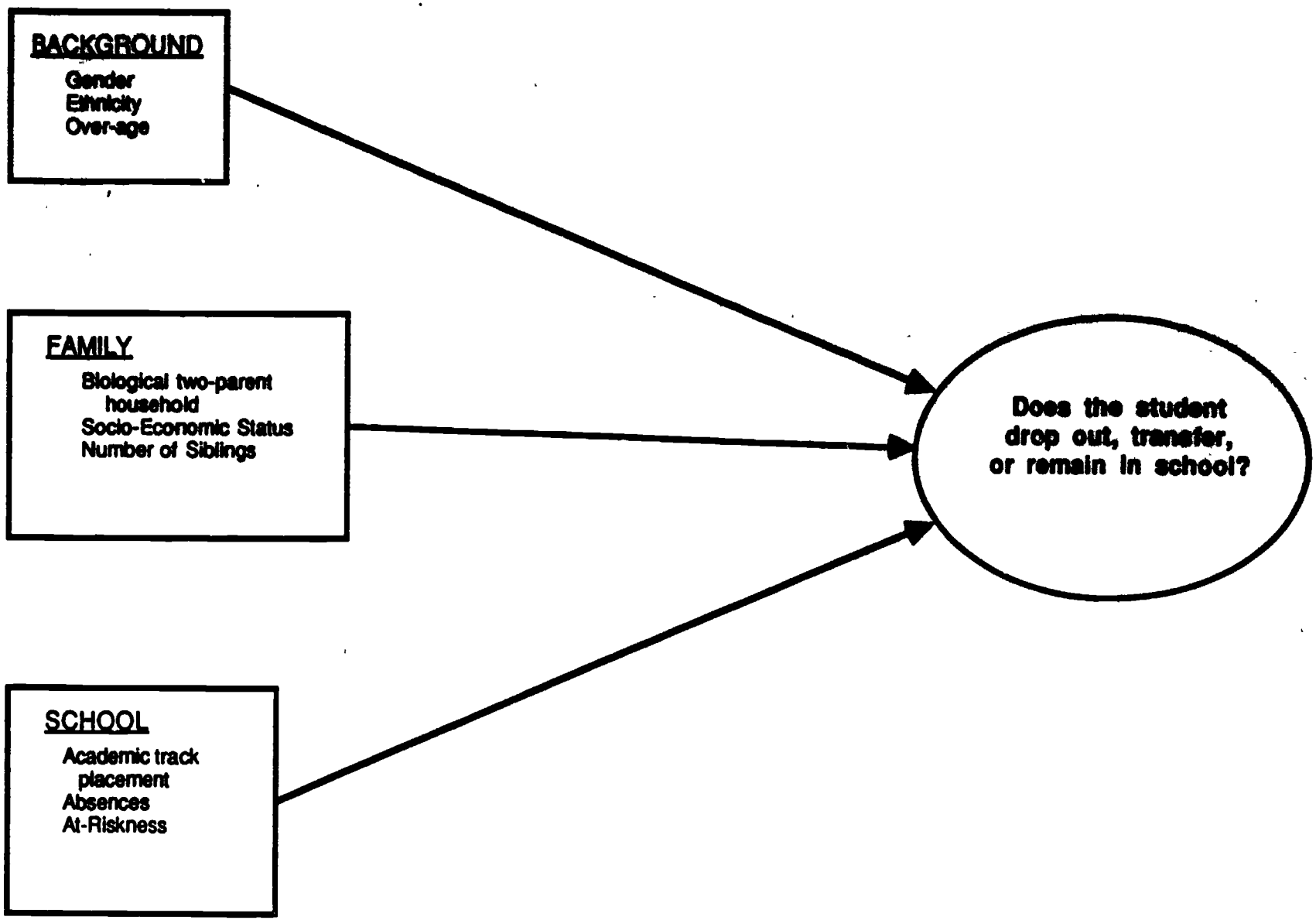

TABLE 6

HIERARCHICAL LOGIT MODEL, PUBLIC SCHOOL STUDENTS, FULL SAMPLE

	BACKGROUND MODEL		FAMILY MODEL		SCHOOL MODEL	
	drop out[a]	transfer[a]	drop out	transfer	drop out	transfer
Predictors						
female	.0115[b]	-.1375*	-.0399	-.1408*	.1501**	-.0670
	(.0379)[c]	(.0585)	(.0460)	(.0590)	(.0487)	(.0600)
black	.0579	.3620***	-.4599***	.0366	-.3092***	.1305
	(.0711)	(.0860)	(.0779)	(.0944)	(.0815)	(.0940)
hispanic	.3119***	.1345	-.0201	-.0833	.0020	.0213
	(.0620)	(.0880)	(.0672)	(.0911)	(.0695)	(.0912)
over16	1.8982***	-.2069	1.7355***	-.2413	1.4943***	-.3017
	(.0697)	(.1730)	(.0729)	(.1744)	(.0764)	(.1748)
natfam			-.7662***	-.5736***	-.6961***	-.5522***
			(.0473)	(.0622)	(.0501)	(.0626)
sibling			.2446***	.2295***	.0813*	.1121**
			(.0334)	(.0371)	(.0373)	(.0375)
socclass			-.5302***	.2072**	-.4666***	.1735**
			(.0535)	(.0632)	(.0569)	(.0639)
academic					-.6233***	.0563
					(.0686)	(.0671)
risky					1.2666***	.4518***
					(.0587)	(.0630)
absent10					1.5669***	.9288***
					(.0725)	(.1085)
constant	-.9552	-2.4583	-1.9263	-3.1330	-1.2135	-2.3915
GOODNESS OF FIT	G^2=3283.2 (p=.000) X^2=3882.5 (p=.000) df=556		G^2=2650.0 (p=.000) X^2=3281.0 (p=.000) df=550		G^2=1193.6 (p=.000) X^2 1373.6 (p=.000) df=544	

* p < .05
** p < .01
*** p < .001

[a] as compared to in-school
[b] change in log-odds
[c] standard error
unweighted sample size = 18,104

TABLE 7

HIERARCHICAL LOGIT MODEL, CATHOLIC SCHOOL STUDENTS

	BACKGROUND MODEL		FAMILY MODEL		SCHOOL MODEL	
	drop out[a]	transfer[a]	drop out	transfer	drop out	transfer
Predictors						
female	-.7572[b]*	-.2622	-.8953*	-.1428	-.6381	-.0975
	(.3313)[c]	(.1830)	(.3616)	(.1897)	(.3683)	(.1980)
black	.8607	1.2348***	1.2828	1.5785***	1.3554*	1.6579***
	(.5951)	(.2897)	(.6695)	(.3244)	(.6884)	(.3322)
hispanic	1.1760**	.6064*	.6943	.7127*	.8736	.7733**
	(.3937)	(.2765)	(.4954)	(.2829)	(.4868)	(.2880)
over16	2.8726***	1.1180	3.8267***	2.1448**	2.6706***	1.2880
	(.5557)	(.6484)	(.7144)	(.6909)	(.7268)	(.6929)
natfam			-1.0424**	.2467	-.9074*	.1755
			(.3888)	(.2747)	(.3909)	(.2683)
sibling			1.0130***	.9255***	.6302***	.5933***
			(.1357)	(.1079)	(.1640)	(.1167)
socclass			-1.2997**	-.2155	-.8156	-.1273
			(.3978)	(.2013)	(.4332)	(.2062)
academic					-1.6174	-.5205**
					(.4770)	(.2004)
risky					1.3079*	1.2470***
					(.5180)	(.2235)
absent10					1.1720	.2221
					(.9334)	(.7792)
constant	-1.6511	-1.2165	-3.7904	-3.2507	-3.0793	-2.6580
GOODNESS OF FIT	G^2=426.4 (p=.000) X^2=635.2 (p=.000) df=298		G^2=308.6 (p=.241) X^2=818.9 (p=.000) df=292		G^2=245.4 (p=.960) X^2=420.5 (p=.000) df=284	

* $p < .05$
** $p < .01$
*** $p < .001$

[a] as compared to in-school
[b] change in log-odds
[c] standard error
unweighted sample size = 2,169

TABLE 8

DIFFERENCES IN LOGLINEAR COEFFICIENTS
(CATHOLIC - PUBLIC)

	MODEL 1		MODEL 2		MODEL 3	
Predictors	drop out	transfer	drop out	transfer	drop out	transfer
female	-	0	-	0	+	0
black	0	++	++	+++	+	+++
hispanic	+	0	0	++	0	+
over16	0	+	++	+++	0	+
natfam			0	++	0	++
sibling			+++	+++	+++	+++
socclass			0	-	0	0
academic					-	--
risky					0	+++
absent10					0	0

KEY: 0 no significant differences between coefficients
+ coefficient significantly larger in Catholic sector
- coefficient significantly larger in public sector

number of symbols indicates level of significance: one ($p < .05$), two ($p < .01$), three ($p < .001$)

TABLE 9

HIERARCHICAL LOGIT MODEL, PUBLIC SCHOOL STUDENTS
DELETING MOVERS

	BACKGROUND MODEL		FAMILY MODEL		SCHOOL MODEL	
	drop out[a]	transfer[a]	drout	transfer	drop out	transfer
Predictors						
female	.0122[b]	-.2574**	-.0356	-.2736**	.1434**	-.1633
	(.0450)[c]	(.0907)	(.0461)	(.0912)	(.0488)	(.0928)
black	.0562	.8630***	-.4461***	.5858***	-.3043***	.6322***
	(.0712)	(.1173)	(.0784)	(.1266)	(.0820)	(.1276)
hispanic	.3170***	.6127***	-.0075	.4937***	.0036	.4734***
	(.0620)	(.1206)	(.0675)	(.1236)	(.0699)	(.1264)
over16	1.8992***	.1459	1.7544***	.1007	1.4998***	-.0152
	(.0696)	(.2155)	(.0729)	(.2171)	(.0765)	(.2181)
natfam			-.7671***	-.5320***	-.6911***	-.4678***
			(.0474)	(.0950)	(.0502)	(.0959)
sibling			.2285***	.1685***	.0818*	.1029*
			(.0342)	(.0399)	(.0381)	(.0416)
socclass			-.5388***	.1223	-.4661***	.1115
			(.0535)	(.0985)	(.0570)	(.0994)
academic					-.6194***	.1586
					(.0687)	(.1057)
risky					1.2609***	.7375***
					(.0587)	(.1022)
absent10					1.5665***	1.4287***
					(.0726)	(.1351)
constant	-.9543	-3.0426	-1.8703	-3.5320	-1.2116	-2.8053
GOODNESS OF FIT	G^2=3270.1 (p=.000) X^2=4252.0 (p=.000) df=556		G^2=2694.6 (p=.000) X^2=3630.0 (p=.000) df=550		G^2=1199.1 (p=.000) X^2=1566.0 (p=.000) df=544	

* p < .05
** p < .01
*** p < .001

[a] as compared to in-school
[b] change in log-odds
[c] standard error
unweighted sample size = 17,756

TABLE 10

HIERARCHICAL LOGIT MODEL, CATHOLIC SCHOOL STUDENTS
DELETING MOVERS

	BACKGROUND MODEL		FAMILY MODEL		SCHOOL MODEL	
	drop out[a]	transfer[a]	drop out	transfer	drop out	transfer
Predictors						
female	-.7669[b]*	-.5938***	-.9026*	-.5482*	-.6596	-.3672
	(.3315)[c]	(.2089)	(.3626)	(.2210)	(.3719)	(.2255)
black	.8762	1.5231***	1.3731*	1.6221***	1.4268*	1.7390***
	(.5954)	(.3014)	(.6710)	(.3433)	(.6943)	(.3486)
Hispanic	1.1770**	.6777*	.7256	.5599	.8922	.6903*
	(.3936)	(.3099)	(.4944)	(.3215)	(.4875)	(.3199)
over16	2.8808***	1.3355*	3.9003***	2.3778***	2.8223***	1.6942*
	(.5555)	(.6541)	(.7124)	(.6957)	(.7243)	(.6983)
natfam			-1.0095**	-.0211	-.8934*	-.0194
			(.3886)	(.2930)	(.3920)	(.2891)
sibling			1.0494***	1.0124***	.7033***	.7171***
			(.1394)	(.1234)	(.1717)	(.1311)
socclass			-1.3346**	-.4703*	-.8577***	-.4431*
			(.3980)	(.2217)	(.4340)	(.2235)
academic					-1.5826***	-.4529*
					(.4787)	(.2274)
risky					1.2538*	.9490***
					(.5209)	(.2479)
absent10					.9800	-.9919
					(.9328)	(1.3506)
constant	-1.6438	-1.3148	-3.8532	-3.4271	-3.3053	-3.4260
GOODNESS OF FIT	G^2=384.6 (p=.000) X^2=609.0 (p=.000) df=298		G^2=265.6 (p=.845) X^2=784.3 (p=.000) df=292		G^2=223.9 (p=.996) X^2=465.8 (p=.000) df=284	

* $p < .05$
** $p < .01$
*** $p < .001$

[a] as compared to in-school
[b] change in log-odds
[c] standard error
unweighted sample size = 2147

TABLE 11

T-TESTS DIFFERENCES IN LOGLINEAR COEFFICIENTS
(CATHOLIC - PUBLIC)
DELETING MOVERS

	MODEL 1		MODEL 2		MODEL 3	
Predictors	drop out	transfer	drop out	transfer	drop out	transfer
female	-	0	-	0	+	0
black	0	+	++	++	+	++
Hispanic	+	0	0	0	0	0
over16	0	0	++	++	0	+
natfam			0	0	0	0
sibling			+++	+++	+++	+++
socclass			-	--	0	-
academic					-	-
risky					0	0
absent10					0	0

Key: 0 no significant differences between coefficients
+ coefficient significantly larger in Catholic sector
- coefficient significantly larger in public sector

number of symbols indicates the level of significance: one ($p < .05$), two ($p < .01$), three ($p < .001$)