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Another Look at Tracking, Vocational Education and Social Reproduction

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Another Look at Tracking, Vocational Education and Social Reproduction

ABSTRACT

The sociology of education has been concerned with the extent to which formal education reproduces social inequality across generations. One of the major mechanisms by which schools are said to reproduce inequality is curricular tracking. Numerous studies argue that students of low class origins and ethnic/racial minorities are more likely to be placed in low tracks, which in turn inhibit their future educational and occupational attainments. We too show -- consistent with Social Reproduction Theory -- that vocational track placement inhibits the attainment of post-secondary education and excludes these students from the professions and managerial occupational positions. However, we also find -- consistent with Human Capital Theory -- that some forms of vocational education are valuable in allocating students to skilled compared to unskilled jobs, and in reducing these students likelihood of unemployment. We thus suggest that for students who do not aim at the professions or for whom post-secondary education is unlikely, vocational education could provide a valuable occupational safety-net during their initial years in the labor market.

Introduction

This paper sets out to question the common assertion that placement in the vocational tracks of high schools inhibits students' future occupational attainment. We argue that while vocational education does inhibit students' likelihood of attending post-secondary education and finding employment in the most desirable occupational classes, it also reduces their chances of being unemployed and ending up as unskilled workers. Our results suggest that for students who are not very likely to continue to college, vocational education is a safety net which reduces the risk of falling to the bottom of the labor queue.

Many sociologists of education argue that formal education serves to reproduce social inequality across generations. It is argued that students from low socioeconomic strata are more likely to fail in school than those from privileged social origins and that this failure then places them in less rewarding occupations. One of the mechanisms by which school systems are said to reproduce inequality is curricular tracking. Low SES students are more likely to be placed in non-college tracks, which in turn inhibit their chances to attend college and to reach professional and managerial positions in the labor market.

There are several mechanisms by which lower track placement inhibits the likelihood of college enrollment.

First, the low tracks offer students a more restricted curriculum (Gamoran 1987, Oakes 1985). For example, they are less likely to take advanced courses in math and science. Consequently, lower track students reach lower levels of achievement and are less likely to do well on standardized tests (but see Jencks and Brown 1975 for a counter argument). Second, students are an important asset in the learning process. Attending a class along side highly motivated and academically successful students enhances ones own chances to succeed (Coleman et. al. 1966, Sewell et. al. 1976, Hallinan and Williams 1989). Ethnographers have described important differences between higher and lower tracks in the climate of student interaction. In the former, students are more likely to set high norms for achievement and motivation while in the latter, students tend to be contemptuous of 'rate busters' who aspire to succeed (Schwartz 1981, Ogbu 1974). Third, being placed in a lower track or ability group signals to students they are less worthy, which in turn dampens both their expectations of themselves and their aspirations for the future (Shavit and Williams 1985, Vanfossen et. al. 1987). Fourth, in low track classrooms there is less time devoted to actual instruction (Oakes 1985), and instruction in these classes is conducted at a diminished level of intellectual complexity (Metz 1978). Consequently, students

in the lower track learn less than those in the upper tracks. Fifth, lower track classes are more likely to be taught by less experienced and less effective teachers (Finley 1984). Finally, non-college tracks are not chartered to prepare students for college and simply do not teach material which is required of college candidates. Thus, vocational track placement at the secondary level inhibits students' chances to succeed in school and to continue on to college.

The effect of track placement, however, is small when compared to the effects of students' families and their scholastic aptitude (e.g. Shavit 1984, Gamoran 1987). Students' educational opportunities are determined primarily by the resources that they bring from home rather than by the track in which they are placed. Consequently, some students are very unlikely to do well in high school and to make it into college. Can these students benefit from vocational secondary education? Does vocational education enhance the opportunity structure that these students face in the labor market?

Track placement is also presumed to have a direct effect on occupational attainment, above and beyond its influence on educational achievement. There are two competing theoretical explanations for the manner by which track placement affects educational opportunities. The first, the

human capital argument, maintains that vocational track students who are exposed to pedagogically effective and occupationally relevant curricular programs acquire skills which would enhance their productivity if they were to work in jobs which require these skills (hereafter, in related jobs). Therefore, their expected earnings would be higher in related jobs than in unrelated jobs. Consequently, vocational track graduates would seek employment in such jobs. Furthermore, employers may prefer to hire graduates of vocational programs for jobs which require the kinds of skills that are taught in such programs. This argument receives some empirical support from Li's (1980) cost-benefit analysis of vocational education using 1970 United States census data, in which he finds that vocational education increases future employability and earnings. Another American study (Grasso and Shea 1979), however, does not find positive returns as measured by earnings, occupational prestige, or employability, when vocational secondary education is compared to several other forms of secondary education.[1]

The alternative argument is presented by the "tracking as reproduction" literature. Thurow (1976) and Collins (1979) tend to down play the relevance of school knowledge for job performance; both argue that job skills are learned primarily on the job. Consistent with the earlier position

of Sorokin (1927), Thurow assumes that schools are simply sorters and signallers, with school performance functioning to indicate to potential employers how hard working a job applicant is and how well he or she can learn new skills. Presumably, employers seek to reduce training costs by recruiting fast learning employees. According to this logic, a vocational track student would not be preferred by employers, even for jobs which are consistent with the vocational specialization of the student while in school, because having attended vocational tracks signals that the student is not amongst the brightest. The 'reproduction' literature finds support for its theoretical argument in findings which show that, ceteris paribus, the mean prestige of occupations attained by graduates of vocational education is lower than that attained by graduates of academic tracks (e.g. Shavit 1992). However, all that this means is that vocational track students are less likely than other students to reach the professions. It does not test the argument that vocational education enhances employability nor does it address the possibility that vocational education enhances students' chances to find employment in skilled, rather than in unskilled jobs. Proponents of vocational education would argue that the effect of vocational education on the opportunity of academically weak students, should not be judged against the odds of obtaining

a college education or of entering the professions. Rather, it should be evaluated by the extent to which it enhances their employment opportunities and by the extent to which it enhances their chances of becoming skilled (versus unskilled) workers.

The major objective of this paper is to put these arguments to an empirical test. We ask: does vocational education reduce the risk of unemployment and does it enhance the likelihood of being employed in skilled jobs?

Data and Variables

DATA

The High School and Beyond (HSB) data-set (Carrol 1987) contains longitudinal information on the educational and occupational outcomes of a high school cohort from their sophomore year in 1980 through 1986 - generally four years out of high school. Thirty thousand U.S. students from public and private schools were originally included in the 1980 sample. Only a sub-sample of 14,825 youths, however, were followed-up after high school. The HSB is a two-stage stratified probability sample. Over 1,000 schools were selected in the first stage of the study in a manner designed to ensure an over-sampling of various racial categories (e.g., Cuban-Americans and African-Americans) and certain types of high schools (e.g., Catholic and high

performance private schools). In the second stage of the survey, students were randomly sampled at each of the schools. Estimates are produced in this paper using unweighted data, since the major stratifying variables of the sample (race and high school type) are included as independent variables in the equations.

Of the 14,825 cases which were included in the follow up, as many as 4,887 are lost to missing values on one or more of the variables we employ. Clearly, such a high proportion of missing cases is worrisome because, unless these cases are orthogonal to the variables involved, they may bias our results. We explored the extent of bias by the mean substitution method: cases with missing values on 1980 SES scores were assigned scores bases on their composite 1982 SES scores, and those with missing values on tenth grade cognitive scores were assigned the mean scores of other students in their track. This reduced the number of missing cases by about forty percent and the results remained virtually unchanged.[2] The reported results are based on the analysis of all data present cases.

THE DEPENDENT VARIABLE

Individuals' labor market outcomes will be measured by the use of a constructed variable measuring school or employment activity for the first week of February, 1986 (for most students, this is slightly less than four years

out of high school). Individuals were placed in one of seven categories: 1. attending post-secondary school (including academic, vocational, graduate, professional and apprenticeship programs); 2. unemployed (defined as looking for work or on temporary layoff); 3. not presently in labor force nor in school (including keeping house, break from work or school, or other unspecified activity); and four classifications of employment for individuals who were working and not also attending school. The employment categories were developed from a modified version of the class schema created by Erikson, Goldthorpe and Portocarero (Erikson et. al 1979). Occupational data from the High School and Beyond survey uses 1970 U.S. census occupational codes; these codes were re-coded into a four category condensed E.G.P. scale: 4. supervisors and self-employed occupations (including the original EGP classes of higher controllers, lower controllers, self-employed with employees, self-employed without employees and self-employed farmers); 5. skilled manual laborers; 6. routine non-manual occupations; and 7. unskilled employment (including semi-unskilled manual workers and farm laborers).

Our analysis will estimate the effects of placement in the various high school tracks on the odds of being, in February, 1986, in each of categories 1,2,3,4,5 and 6, relative to being in category 7 (unskilled employment). We

will also estimate models in which the odds of being employed, attending post-secondary school, and not being presently in the labor force nor in school, are contrasted with the odds of being unemployed. While the second set of regressions appears statistically related to the first, in fact it is statistically independent due to a slightly larger number of valid cases for the latter regression set. This occurs as a result of approximately one percent of the sample reporting employment activity, but not providing occupational information that can be classified in a modified E.G.P. scale.

THE INDEPENDENT VARIABLES

Identifying an appropriate technique for measuring students' track placement is a reoccurring problem with several facets. First, examinations of tracking in the United States have often assumed a curriculum dichotomy between college/non-college tracks (see e.g., Rosenbaum 1980, Wiatrowski et. al. 1982, Alexander and Cook 1982, Alexander et. al. 1978, Gamoran and Mare 1989). Garet and Delaney (1988) noted that this dichotomous pattern is "a nearly universal feature of the research on high schools and stratification (p. 64)." This traditionally employed research design does not allow comparisons between non-college oriented general programs and non-college oriented vocational programs. Curricular program options

have also been oversimplified to include only three track choices: academic, general, and vocational. While this simplification is an appropriate technique for examining levels of educational attainment, the method distorts analysis of occupational outcomes since different vocational programs prepare students for distinct types of employment opportunities.

A second issue in the measurement of track location involves the use of either self-reports or transcript data to identify track position. The traditional measurement of track placement has relied on student self-assessment of curricular program. This approach was criticized by Rosenbaum (1980) who found that students perceptions of their track placement and school records of track location had a correlation of only .60. Vanfossen et. al (1987), however, later compared student identified track placement with math and science courses taken for those students who completed high school and found that the error between these approaches was smaller than Rosenbaum's earlier work had suggested (less than 20 percent). Researchers, thus, have generally been willing to continue to accept self- reported track measures as useful approximations of actual track positions (for its continued use, see for example, Vanfossen et. al. 1987; Alexander et. al. 1989; Hallinan and Williams 1990; and Gamoran 1992). Studies have accepted these self

reports as relevant, according to Gamoran (1992), because "self-reports are likely to capture the social-psychological aspects of tracking."

The final issue of measuring track placement has to do with the timing of the measurement. Some studies which have employed the HSB data-set measured track placement during tenth grade, while others measured it during twelfth grade. Others still -- including those who employed transcript data to define track placement -- classify respondents to tracks on the basis of their whole educational trajectory, but tend to exclude respondents who have dropped out. Each of these measurements has its disadvantages. Measuring track placement for the senior year ignores the fact that some students have already left school previous to this grade level and should be recognized as an intrinsic outcome of enrollment in a particular curricular programs. Furthermore, those vocational track students who reach twelfth grade constitute a more able and more select subset of those who had been initially placed in that track. On the other hand, measuring track solely on the basis of tenth grade placement ignores the fact that large number of students shift among tracks after tenth grade.

This study will use both self-reported and transcript identified measures of track placement. Student self-reported track location will be identified on the basis

of students' last self reported position in high school -- either senior year or tenth grade reports if student has dropped out. We employ the self-reported measure to create three separate sub-categories of vocational programs. A vocational business track consisting of programs which prepare students for routine non-manual occupations. A second vocational track consisting of technical, trade and industrial vocational programs. Lastly, a third miscellaneous vocational sub-category which includes four smaller vocational programs (agriculture, health, home economics and distributive education). The use of vocational track sub- categories begins to allow for the recognition of variety in the curricular content of vocational programs.

The study will also use course concentration patterns in student transcripts to identify track location. Course concentration patterns have been calculated for math, science and vocational programs within the HSB data-set. Course patterns have been evaluated and students coded separately in the HSB data-set for math and science course work. In these two academic subject areas, students have been designated as either subject area concentrator, four year college bound student, general science student, or limited/non-participating student. In mathematics, students who completed four or more credits in this subject area were

assigned to one of two "academic" categories based on an evaluation of course work: concentrators had taken at least one advanced course, such as analytical geometry, pure mathematics, solid geometry, analysis, calculus, mathematics 3 or statistics and probability; four year college bound students had taken at least one class in algebra, plain or solid geometry, trigonometry, or mathematics 1 or 2. In science, concentrators were considered those students who had taken at least one course in biology, physics and chemistry in addition to any credit earned in general science courses. Four year college bound science students had taken one or more credit in an advanced physical science or advanced life science course in addition to other science course work. Students' vocational- oriented course work has also been evaluated and students were categorized as vocational course concentrators, limited concentrators, samplers, or non-participants in vocational classes. Concentrators and limited concentrators each earned four or more credits in vocational courses; concentrators, however, had earned these credits in a single vocational instructional program (e.g., business).

Students who are identified as concentrators or as taking four year college bound course work in the subject areas of both math and science are considered for this study to be in the academic track. Students who are identified as

concentrators or limited concentrators in vocational course work will be considered as in the vocational track. A limitation to these course concentration measures, however, is that they are only available for students that have completed high school. A dropout measure, indicating that the student has not completed a high school program through the traditional method of completing course work, thus will be added to the model for regressions that utilize transcript based measures.

Table I presents a cross-tabulation of self-reported and transcript based measures of track. The transcript measure gives a slightly larger estimate of students being in the vocational track and corresponding smaller estimates of students being in either general or academic programs than students' own perception based self-reports. The transcript based indicator shows students in the following course patterns: 23.5% general, 23.9% academic, 30.8% vocational, 16.0% high school dropout, and a small number of students as both academic and vocational, 5.8%. Self-reported track location has 35.4% general, 40.3% academic, and 24.3% in vocational programs.

The table reveals a marked inconsistency between the self-reported track and the transcript-based classification. Inconsistencies involving the general track are especially pronounced. Of those classified to the General Track

according to their transcripts, only 41.2 percent self reported it as their track, and 42.4 percent reported Academic as their track. Among those whose transcripts indicate vocational track placement, only about 45 percent reported placement in one of the three vocational tracks and 39.4 reported a general track. Agreement between the two classification is greatest with respect to the academic track but here too there is considerable slippage. Thus, we find the familiar (Rosenbaum 1980) inconsistency between self-reported and 'objective' track measures. Rather than choosing one of the two methods of classification, we run our models with both measurements and find relatively consistent results (see below).

CONTROL VARIABLES

Student socioeconomic background will be used as a control and is measured by using the S.E.S. composite index within the High School and Beyond data-set. The index is based on father's occupation, father's education, mother's education, family income and a summary of household possessions and educational resources. Sex is included as a dummy variable in the analysis with males set equal to one. African-American, Hispanic and other non-white students, as well as students from Catholic and non-Catholic private sector schools, have also been assigned dummy variables. A composite measure of students' tenth grade performance on a

battery of tests will be used as a control for students' ability level. The test battery included sections on vocabulary, reading, and mathematics. In Table II, we present descriptive statistics and percent of missing values for the variables involved in the analysis.

Multivariate Analyses

To test for vocational education's effect on occupational outcomes, a multinomial logistic regression is employed (Hanushek and Jackson 1977: chapter 7). The general track is the omitted category to which we compare the effects of the academic and vocational track(s). In our first set of regressions, the omitted category of the dependent variable is the 'unskilled' occupational class category. We then conduct a second set of regressions with 'unemployment' as the omitted category of our dependent variable. In both sets of regressions, a composite S.E.S. score, a composite 1980 test score (as an ability measure), and dummy variables for gender, race and high school type are used as controls.

Table III presents findings of a multinomial logistic regression for the likelihood of particular educational and occupational outcomes as of February, 1986, with track position identified by student self-reports. Relative to students who are in the general, non-college bound track,

vocational programs decrease an individual's likelihood of attending a post-secondary institution. However, a student's likelihood of holding a routine non-manual job four years out of high school is enhanced by enrollment in a vocational business program during secondary school. Furthermore, a student's likelihood of occupying a skilled occupation is enhanced by enrollment in a vocational trade and technical program. Enrollment in this track, however, dampens the likelihood of holding a routine non-manual position relative to holding an unskilled job. A student's enrollment in the other miscellaneous vocational program track does not affect occupational outcomes significantly but, like the other vocational tracks, has a negative effect on the odds of continuing to post-secondary education.

But how do the effects of vocational programs compare to the effect of the academic track? In unreported analysis we tested for the significance of the effects of the vocational tracks when contrasted against the academic track. The positive effect of vocational business programs on the odds of being in the 'routine non-manual' category is not significantly different from the effect of the academic track, but the positive effect of 'trade and technical' on the odds of being in the skilled category, relative to being in the unskilled category, is significantly higher than the effect of the academic track ($p<0.05$). The vocational

technical and trade program track, thus, is significantly better than any other curricular program at improving a student's likelihood of obtaining a skilled compared to an unskilled manual job.

Table IV presents results for a similar multinomial regression calculated using transcript based indicators of track position. For this calculation, we were not able to differentiate the vocational tracks by type. The results for this regression replicate most of our initial findings. In particular, vocational programs decrease ones likelihood of attending post-secondary school, while increasing the likelihood of obtaining a skilled, relative to an unskilled position. The business programs are now combined with technical and trade vocational programs and no overall gains occur for a student's likelihood of obtaining a routine non-manual position. Evidently, the negative effect of 'technical and trade' cancels out the positive effect of 'business' (see table III). It should be noted again that the positive effect of the vocational track on the odds of being employed in a skilled job is also significant when contrasted against the academic track ($p<0.01$).

In Tables V and VI, we estimate the models again but now contrast 'unemployment' against three other categories: being employed; being enrolled in post-secondary education; and being both out of the labor force and out of school.

The objective of this analysis is to test the hypothesis that vocational education affects the relative odds of unemployment. In Table V we measure track placement on the basis of self-reports and in Table VI it is measured on the basis of course-concentration patterns. The regression conducted on the basis of student self-reported track location shows no significant effects for any curricular track, including the academic track, in improving an individual's likelihood of being employed compared to being unemployed (see Table V). The regression conducted based on transcript identified track location (Table VI), however, does show significant improvement for both vocational and academic programs relative to the general curricular program in reducing the odds of unemployment. The difference between the academic and vocational programs in reducing the likelihood of unemployment, when examined in a separate regression (not shown) with academic as a reference category, was not shown to be significant. Both academic and vocational programs, thus, have relatively an equal ability to improve a students' chances of employability. For students who have completed high school, vocational programs as measured by objective transcript-based indicators reduce the likelihood of unemployment for a student who is in the labor force.

Summary and Conclusions

Our findings indicate that vocational education at the secondary level is not as pernicious, nor as detrimental, as some of its opponents have maintained. True, it does inhibit students' chances of continuing on to college and as such, it probably inhibits their chances of reaching the professions and most prestigious occupations. However, it also serves as a safety net: vocational programs reduce the risk of ending up as unskilled workers and, when measured by transcript data, reduce the odds of becoming unemployed.

Fewer than half of American birth cohorts ever attain any post-secondary education (Statistical Abstract of the United States 1992). For those who do not, vocational secondary education serves an important function. It enhances their chances for employment and for employment in higher quality jobs.

What does this mean for the theoretical debate between Human Capital and Social Reproduction theories of education? Clearly, the results are consistent with hypotheses derived from Human Capital Theory. They also refute the implications of Thurow's argument to the effect that vocational secondary education in schools is simply a negative signal about students' learning potential. Whether tracking serves to reproduce social inequality across generations depends on the process of track placement and

the actual curricular content of the programs. To the extent that able students from lower socioeconomic strata are placed in non-college bound tracks, tracking reproduces inequality across generations. However, when only students who are unlikely to matriculate to colleges are placed in effective vocational programs, tracking enhances their life chances.

Our findings also have important implications for the current U.S. policy debate on the future of vocational education. Federal and state governments have recently shown renewed interest in vocational programs, after more than a decade of reduced funding and a decline in support for this type of schooling.[3] While some educators have supported this new initiative to reemphasize the place of vocational training in traditional high school curricular programs, others have criticized vocational education as overly costly and ineffective in achieving positive occupational outcomes. The findings reported here support claims by proponents of vocational education that these programs do indeed have measurable occupational benefits for certain students; this study thus should provide added impetus to efforts of educational reformers attempting to reinvigorate occupational training programs in the secondary schools.

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Endnotes

1. Hotchkiss and Dorsten (1987) study the effects of curriculum on various early career outcomes such as unemployment, occupational prestige and earnings and find some positive effects of vocational secondary education. However, we believe that their analysis is flawed in that they measure two dimensions of the curriculum: the degree to which it consists of high status subjects (labeled 'curriculum index') and the degree to which it exhibits vocational concentration. The latter, is their measure of vocational education. Its effect on the various outcomes are estimated net of the curriculum index. In other words, they find that vocational concentration, has a positive effect at a given level of 'curriculum index'. However, students in vocational programs do not maximize both forms of curriculum. Rather, they take vocational studies at the expense of high status subjects. Therefore, an evaluation of the effect of vocational curriculum should consider both the direct effect of vocational concentration and the indirect effect of reduced participation in other courses.

2. Most importantly, the effects of track placement and their significance levels remained essentially the same as in the reported results. For example, in Table III, the

effect of the Business track on becoming a routine non-manual worker increased (relative to our reported results) from 0.3209 to 0.4079 and its standard error declined from 0.1303 to 0.1197; the effect of Vocational Trade and Technical Track on becoming a skilled worker declined slightly from 0.3366 to 0.3254 and its standard error declined from 0.1495 to 0.1346. The complete results of the unreported analysis are available from the first author upon request.

3. Examples of this renewed interest in vocational programs include: on a national level, the Department of Education's administration of increased federal support of vocational programs through the Perkins Act, the Department of Labor's sponsorship of new apprenticeship programs in the secondary schools, and President Clinton's sponsorship of the "School to Work Opportunities Act"; on the state level, California has sponsored school-business Academy partnerships that are designed to prepare students for entry level jobs in local industry, and Oregon has initiated a two-plus-two educational system that tracks students into two years of vocational secondary school course work followed by two years of community college or trade school.

Table I: Cross-Tabulation of Self-Reported Track Loaction and Transcript Indicated Course-Concentration Pattern

	Transcript General Course Pattern	Transcript Academic Course Pattern	Transcript Vocational Course Pattern	Transcript Both Acad. & Voc. Pattern	Transcript Identified Dropout	Total
Self-Reported General Track	1234 27.3% 41.2%	399 8.8% 13.1%	1,544 34.2% 39.4%	199 4.4% 27.2%	1138 25.2% 55.7%	4514 35.4%
Self-Reported Academic Track	1269 24.7% 42.4%	2580 50.3% 84.6%	632 12.3% 16.1%	403 7.9% 54.9%	247 4.8% 12.1%	5131 40.3%
Self-Reported Business Vocational Track	151 17.3% 5.0%	23 1.9% 0.8%	803 66.0% 20.5%	61 5.0% 8.3%	178 14.6% 8.7%	1216 9.5%
Self-Reported Trade-Technical Vocational Track	178 18.9% 5.9%	33 3.5% 1.1%	488 51.9% 12.4%	40 4.3% 5.5%	201 21.4% 9.8%	940 7.4%
Self-Reported Other Vocational Program Track	164 17.3% 5.5%	15 1.6% 0.5%	456 48.2% 11.6%	31 3.3% 4.2%	280 29.6% 13.7%	946 7.4%
Total	2996 23.5%	3050 23.9%	3923 30.8%	734 5.8%	2044 16.0%	12747

Missing Cases = 2078

Cell Entries: number
row percentage
column percentage

Table II - Descriptive Statistics (N = 14,825)

	Mean	% for Categorial Variables	S.D.	Missing
S.E.S. (range -2.658 to 2.184)	-0.074		0.758	11.8%
Ability (range 28.50 to 74.24)	50.125		8.966	14.8%
Dropout		15.4%		0
Male		49.6%		0
Race				0
African-American		15.1%		
Hispanic		16.3%		
Other Non-White		6.9%		
White		61.6%		
High School Sector				0
Public		79.1%		
Catholic		18.2%		
Private		2.7%		
Track (Self-Reported)*				7.2%
General		35.4%		
Academic		40.3%		
Voc. Business		9.4%		
Voc. Trade/Tech.		7.4%		
Voc. Other		7.4%		
Track (Transcript)*				14.0%
General		23.5%		
Academic		23.9%		
Vocational		30.8%		
Both Acad & Voc		5.8%		
Dropout		16.0%		
Dependent Activity Measure				11.1%
Supervisor/Self-Em.		10.2%		
Skilled		5.0%		
Routine Non-Manual		18.5%		
Post-Secondary		37.7%		
Not School nor L.F.		7.0%		
Unemployed		8.0%		
Unskilled		13.5%		

* See Table I for cross tabulation of these variables.

Unskilled Omitted

Table III - Multinomial Logistic Regression (Self-Reported Track Location): Likelihood of Educational or Occupational Outcomes as of February 1986

Variable	Supervisor or Self-Employed	Skilled	Routine Non-Manual	Post-Secondary	Not in Labor or Post-Secondary	Unemployed
Intercept	-2.3041**	-1.7660**	0.2790	-2.1760**	0.3731	0.4280
	(0.3029)	(0.3905)	(0.2740)	(0.2539)	(0.3581)	(0.3375)
10th Grade Test Score	0.0574**	0.0070	0.0326**	0.0902**	0.0095	-0.0022
	(0.0060)	(0.0076)	(0.0056)	(0.0051)	(0.0074)	(0.0070)
S.E.S.	0.1882**	0.2084*	0.2654**	0.7548**	0.0907	-0.0622
	(0.0665)	(0.0835)	(0.0610)	(0.0561)	(0.0801)	(0.0749)
Male	-0.6331**	0.0765	-2.2245**	-1.2349**	-2.9342**	-0.9944**
	(0.0934)	(0.1290)	(0.0876)	(0.0795)	(0.1351)	(0.1015)
African-American	-0.0776	0.3441**	0.1293*	-0.2938**	0.0375	-0.2328**
	(0.0676)	(0.1006)	(0.0598)	(0.0559)	(0.0795)	(0.0667)
Hispanic	-0.1272*	0.0563	-0.2580**	-0.3322**	-0.0674	0.0018
	(0.0638)	(0.0805)	(0.0566)	(0.0543)	(0.0745)	(0.0716)
Other Races	-0.0997	0.1970	-0.1639	-0.4757**	-0.0994	-0.1361
	(0.1014)	(0.1384)	(0.0925)	(0.0819)	(0.1193)	(0.1074)
Non-Catholic Private School	-0.0931	-0.1357	0.4557	0.2330	0.3402	-0.5300
	(0.3472)	(0.4559)	(0.3060)	(0.2791)	(0.3910)	(0.5152)
Catholic School	0.1680	-0.0888	0.4467**	0.5168**	-0.0922	0.0481
	(0.1277)	(0.1779)	(0.1145)	(0.1050)	(0.1596)	(0.1512)
Academic Track	0.1614	-0.0908	0.1609	0.9863**	-0.1309	-0.0376
	(0.1105)	(0.1491)	(0.1021)	(0.0913)	(0.1345)	(0.1304)
Vocational Business Track	0.0331	-0.4325	0.3209*	-0.3720**	-0.3047	0.1800
	(0.1558)	(0.2357)	(0.1303)	(0.1420)	(0.1646)	(0.1565)
Vocational Trade Technical Track	-0.2113	0.3366*	-0.3971**	-0.5630**	-0.5227*	-0.1637
	(0.1453)	(0.1495)	(0.1552)	(0.1376)	(0.2400)	(0.1602)
Other Programs Vocational Track	-0.0623	0.0011	-0.1865	-0.4975**	-0.1744	-0.0860
	(0.1541)	(0.1821)	(0.1400)	(0.1478)	(0.1699)	(0.1590)

Valid Cases = 10,439
Missing Cases = 4,386
* $\leq$ .05; ** $\leq$ .01
(Standard Errors)
Omitted dependent category for logistic regression is unskilled employment.

Table IV - Multinomial Logistic Regression (Track Location by School Transcript): Likelihood of Educational or Occupational Outcomes as of February 1986

Variable	Supervisor or Self-Employed	Skilled	Routine Non-Manual	Post-Secondary	Not in Labor or Post-Secondary	Unemployed
Intercept	-1.9157**	-1.9783**	0.4481	-1.0798**	0.1472	0.3159
	(0.3267)	(0.4220)	(0.2950)	(0.2749)	(0.3880)	(0.3619)
10th Grade Test Score	0.0508**	0.0046	0.0299**	0.0733**	0.0140	0.0041
	(0.0063)	(0.0080)	(0.0059)	(0.0054)	(0.0077)	(0.0073)
S.E.S.	0.1765**	0.1778*	0.2287**	0.7351**	0.1010	-0.0757
	(0.0677)	(0.0848)	(0.0617)	(0.0575)	(0.0814)	(0.0753)
Male	-0.6266**	0.1877	-2.2623**	-1.2915**	-2.9595**	-1.0574**
	(0.0925)	(0.1256)	(0.0859)	(0.0794)	(0.1335)	(0.0990)
African-American	-0.0667	0.4001**	-0.1080	-0.2788**	-0.0288	-0.2749**
	(0.0696)	(0.1052)	(0.0613)	(0.0578)	(0.0804)	(0.0672)
Hispanic	-0.1347*	0.0636	-0.2267**	-0.3117**	-0.0635	-0.0109
	(0.0653)	(0.0822)	(0.0577)	(0.0560)	(0.0765)	(0.0725)
Other Races	-0.0883	0.2265	-0.1283	-0.3920**	-0.2099	-0.1676
	(0.1027)	(0.1418)	(0.0939)	(0.0838)	(0.1175)	(0.1080)
Non-Catholic Private School	-0.0496	-0.3638	0.4186	0.2071	0.0746	-0.5367
	(0.3488)	(0.5159)	(0.3084)	(0.2829)	(0.4213)	(0.5160)
Catholic School	0.1591	0.0069	0.4455**	0.4428**	-0.0898	0.0668
	(0.1337)	(0.1850)	(0.1202)	(0.1106)	(0.1701)	(0.1594)
Dropout	-0.7241**	-0.1287	-0.5936**	-1.7557**	0.2913*	-0.0493
	(0.1402)	(0.1684)	(0.1230)	(0.1383)	(0.1499)	(0.1366)
Academic Track	0.1634	-0.0729	0.0343	1.0450**	0.0633	-0.3985*
	(0.1262)	(0.1753)	(0.1199)	(0.1046)	(0.1663)	(0.1709)
Vocational Track	0.0009	0.4001**	0.0941	-0.4093**	-0.1817	-0.1344
	(0.1043)	(0.1370)	(0.0962)	(0.0881)	(0.1325)	(0.1210)

Valid Cases = 9,948
Missing Cases = 4,887
* $\leq$ .05; ** $\leq$ .01
(Standard Errors)
Omitted dependent category for logistic regression is unskilled employment.

Unemployed Omitted

Table V - Multinomial Logistic Regression (Self-Reported Track Location): Likelihood of Outcomes as Contrasted with Unemployment

Variable	Employed	Post-Secondary	Not in Labor Force or Post-Secondary
Intercept	0.4582	-2.5681**	0.1353
	(0.2861)	(0.3035)	(0.3685)
10th Grade Test Score	0.0277**	0.0901**	0.0083
	(0.0059)	(0.0062)	(0.0077)
S.E.S.	0.2502**	0.8070**	0.0851
	(0.0640)	(0.0677)	(0.0828)
Male	0.0164	-0.1514	-1.5502**
	(0.0839)	(0.0890)	(0.1223)
African-American	0.1735**	-0.0470	0.3272**
	(0.0550)	(0.0600)	(0.0770)
Hispanic	-0.1404*	-0.3174**	-0.0414
	(0.0613)	(0.0660)	(0.0779)
Other Races	0.0808	-0.3291**	0.0281
	(0.0913)	(0.0951)	(0.1176)
Non-Catholic Private School	0.7040	0.7563	0.6302
	(0.4643)	(0.4670)	(0.5339)
Catholic School	0.2120	0.4664**	-0.2205
	(0.1257)	(0.1278)	(0.1668)
Academic Track	0.1406	1.0226**	-0.0304
	(0.1108)	(0.1134)	(0.1414)
Vocational Business Track	0.0326	-0.5536**	-0.4943**
	(0.1243)	(0.1469)	(0.1601)
Vocational Trade & Technical Track	0.0946	-0.4056*	-0.1024
	(0.1455)	(0.1718)	(0.2199)
Other Programs in Vocational Track	0.0351	-0.4015*	-0.0275
	(0.1371)	(0.1678)	(0.1741)

Valid Cases = 10,583
Missing Cases = 4,242
* ≤ .05; ** ≤ .01
(Standard Errors)
Omitted dependent category for logistic regression is unemployment.

Table VI - Multinomial Logistic Regression (Track Location by School Transcript): Likelihood of Outcomes as Contrasted with Unemployment

Variable	Employed	Post-Secondary	Not in Labor or Post-Secondary
Intercept	0.7418*	-1.3549**	-0.0739
	(0.3086)	(0.3292)	(0.3991)
10th Grade Test Score	0.0178**	0.0664**	0.0088
	(0.0062)	(0.0066)	(0.0080)
S.E.S.	0.2392**	0.7998**	0.1268
	(0.0646)	(0.0692)	(0.0837)
Male	0.0928	-0.1210	-1.4833**
	(0.0818)	(0.0882)	(0.1189)
African-American	0.2285**	0.00896	0.2944**
	(0.0559)	(0.0618)	(0.0776)
Hispanic	-0.1093*	-0.2790	-0.0438**
	(0.0623)	(0.0677)	(0.0792)
Other Races	0.1398	-0.2081*	-0.0595
	(0.0923)	(0.0973)	(0.1163)
Non-Catholic Private School	0.6861	0.7373	0.3859
	(0.4655)	(0.4707)	(0.5560)
Catholic School	0.1936	0.3806**	-0.2005
	(0.1325)	(0.1351)	(0.1768)
Dropout	-0.3391**	-1.6881**	0.4639**
	(0.1181)	(0.1533)	(0.1517)
Academic Track	0.4637**	1.4535**	0.4633**
	(0.1487)	(0.1482)	(0.1874)
Vocational Track	0.2129*	-0.2746**	-0.0186
	(0.1027)	(0.1075)	(0.1369)

Valid Cases = 10,080
Missing Cases = 4,745
* $\leq$ .05; ** $\leq$ .01
(Standard Errors)
Omitted dependent category for logistic regression is unemployment.

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