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Factors That Influence Participation in Secondary Vocational Education

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EXECUTIVE SUMMARY

Since the early 1990s, federal legislation has encouraged secondary vocational education to go beyond its traditional focus of providing narrowly-defined workplace skills to a broader goal of providing career preparation. These reforms also have encouraged vocational education to strengthen the academic skills of participants. In short, the objective was to encourage vocational education to change in ways that better prepare participants with the skills needed to pursue whatever path – work or college – they choose after high school.

When making this change, the vocational education community needs to understand who participates in vocational education, because the way in which vocational education is changed should be tailored to meet the needs of participants. Recent research shows that vocational education attracts the same segments of the student population that it has attracted for decades: students with low academic achievement, students with low educational aspirations, students with disabilities, and students with behavioral problems (Levesque et al., 2000). Though informative, these findings do not necessarily indicate the factors that *influence* vocational education participation. For example, they do not indicate whether students with a disability participate at a higher rate than those without one because of their disability, or whether other differences between these two groups are responsible.

We examine the factors that influence participation in vocational education. The analysis is based on a nationally representative sample of students who graduated high school in 1992 – that is, around the time when the focus of federal vocational education policy began to change. The factors we examine include three types of characteristics of students, their parents, and their high schools: demographics, behaviors, and expectations. The influence of each characteristic is assessed by examining the difference in vocational education participation rates among students who do and do not possess the characteristic, adjusted for other differences between students that may affect participation. For example, to understand how sex affects vocational education participation, we examine the difference in the percent of males and females who participated in vocational education, adjusted for other important differences between these two groups, such as prior academic achievement.

We find that:

- Three different types of students are more likely to participate in vocational education: (1) those with low academic achievement, (2) those with low educational aspirations, and (3) those from low socioeconomic backgrounds.
- Students with disabilities or behavior problems have higher participation rates; however, these higher rates are related to their low academic achievement, low educational aspirations, and low socioeconomic backgrounds – not to their disabilities or behavior problems.
- After adjusting for other characteristics, black students are just as likely as white students to participate in vocational education, whereas Hispanic students are slightly *less* likely to participate.

Our findings indicate that fewer characteristics influence participation in vocational education than what previous research has found. For example, a study of a few select high schools found that, among 1988 seniors with similar academic achievement and college plans, those from minority racial and ethnic groups – particularly Hispanic students – were more likely to participate in vocational education than white students (Oakes et al., 1992). In contrast, our findings indicate that, on a national level, race and ethnicity have little, if any, independent influence on participation. In fact, we find that Hispanic students are slightly *less* likely to participate than white students. Consistent with previous research, however, we do find that students from poor families are more likely to participate in vocational education, regardless of their prior achievement or college aspirations. Additional research is needed to understand this participation pattern because the possible reasons – which range from unfair tracking practices to student choice – have very different policy implications.

Our findings also highlight several challenges facing vocational education. One particularly important challenge is how to meet the objectives of recent education reforms, which aim to increase academic achievement and college enrollment of *all* students. Previous research indicates that, during the early 1990s, participating in vocational education had no effect on students' academic achievement (Rasinski and Pedlow, 1994; and Agodini, 2001) or college enrollment (Plank, 2001). This suggests that the vocational experiences of the students we studied would not likely contribute to the objectives of recent education reforms. Several initiatives that started in the early 1990s, such as Tech-Prep and career academies, are trying to address this challenge, in part, by integrating vocational education with academic instruction. In light of the objectives of recent education reforms, the success of these initiatives is likely to be important in the ongoing debate about the role of vocational education in the educational system.

INTRODUCTION

Vocational education was originally designed to provide high school students with the skills needed to enter and succeed in the workplace after graduation. The specific strategy for meeting this goal was to provide vocational education students with occupation-specific skills. Little, if any, emphasis was placed on providing academic skills.

Since the early 1990s, federal legislation has sought to change vocational education in fundamental ways. Specifically, legislation has encouraged vocational education to go beyond its traditional focus of providing narrowly-defined workplace skills to a broader goal of providing career preparation. These reforms also have encouraged vocational education to strengthen the academic skills of participants. In short, the objective was to encourage vocational education to change in ways that better prepare participants with the skills needed to pursue whatever path – work or college – they choose after high school. Several initiatives of the early 1990s, such as Tech-Prep education and career academies, are based on this objective.

When making this change, the vocational education community needs to understand who participates in vocational education, because the way in which it is changed should be tailored to meet the needs of participants. For decades, vocational education has attracted struggling academic learners and students who are uncertain about attending college. Other segments of the population that have been attracted to vocational education include students with disabilities and students with behavioral problems. Recent research shows that vocational education continues to attract the same segments of the student population. Though informative, these findings do not necessarily indicate the factors that *influence* vocational education participation. For example, they do not indicate whether students with a disability participate at a higher rate than those without one because of their disability, or whether other differences between these two groups are responsible.

Most previous research on participation in curricular programs focused on the factors that influence participation in academic rather than vocational education, but we can infer from these studies what factors influence participation in vocational education. For example, earlier studies have found that students with high levels of prior achievement are more likely to pursue an academic program (Heyns, 1974; Alexander and Cook, 1982; Garet and DeLany, 1988; Gamoran, 1992). This suggests that students with low prior achievement are more likely to pursue vocational education. Another study suggests that, among students with similar prior achievement, students from minority racial and ethnic groups, students from poor families, and students with behavioral problems also are more likely to pursue vocational education (DeLany, 1991). A study that specifically examined the factors that drive vocational education participation confirms these findings (Oakes et al., 1992).

Aside from the fact that we need to make inferences from previous research about the factors that influence participation in vocational education, this issue is not well understood, for two other reasons. First, previous research was based either on a nationally-representative sample of students who attended high school years before recent vocational education reforms, or a sample from a more recent cohort that attended only a few select high schools. Second, previous research did not examine the influence that all potentially important factors have on vocational education participation.

FOCUS OF THIS STUDY

This study examines the factors that influence participation in vocational education among students who attended high school during the early 1990s – that is, when the focus of federal vocational education policy began to change. We assess the influence of various factors by examining the difference in vocational education participation rates among students who do and do not possess a particular characteristic, adjusted for other differences between students that may affect participation. For example, to understand how sex affects vocational education participation, we examine the difference in the percent of males and females who participated in vocational education, adjusted for other differences between these two groups, such as prior achievement, that may affect participation. The analysis is based on the National Education Longitudinal Study (NELS) – a nationally-representative sample of students who attended high school during the early 1990s. More details about the NELS and our analysis file are provided in Appendix A.

The factors we examine include three types of characteristics of students, their parents, and their schools: demographics, behaviors, and expectations. The demographics include academic achievement, sex, race and ethnicity, and so on. The behaviors include measures that indicate problem student behaviors; measures that indicate the extent to which students and parents are engaged in the educational process; as well as measures that indicate the extent to which administrators report that various factors, such as test scores, influence the curricular program students pursue. Last, the expectations include such measures as a student's college plans.

The characteristics of students and their parents were measured just before students entered high school, whereas the school characteristics were measured when students were halfway through high school. We measured student and parent characteristics just before students entered high school, to understand how these characteristics influence vocational education participation during high school. In contrast, we measured school characteristics when students were halfway through high school, to understand how the characteristics of the high schools students actually attend influence vocational education participation.

We focus on the relationship between these characteristics and whether or not a student became a vocational concentrator – that is, whether or not a student earned at least three credits in a single occupational area during high school. We also examine how these characteristics are related to two alternative definitions of vocational education. The first alternative definition – vocational explorer – includes students who earned at least three credits in vocational courses but not in the same occupational area. This definition may be of particular interest to those who believe that schools should prepare students with broader occupational training. The second definition – vocational investor – includes both vocational concentrators and vocational explorers. This is one of the broadest definitions of vocational education participation.

Results were examined for overall 1992 high school graduates and for three subgroups: (1) students in the lowest third of eighth-grade math and reading achievement, (2) students who attended a high school where more than half of the students received a free or reduced-priced lunch, and (3) students who, before starting high school, were not planning to pursue any type of postsecondary education. For ease of exposition, we refer to the first subgroup as "low achievers"; the second subgroup as "students who attended poor schools"; and the third subgroup

as the "non-college-bound." We examined results for low achievers and students who attended poor schools to understand the factors that influence vocational education participation among students with barriers to educational achievement and students from economically-disadvantaged families, respectively – two special populations named in the Carl Perkins Vocational Technology Education Act, hereafter referred to as the Perkins Act.[1] We examined results for the non-college-bound to understand the factors that influence vocational education participation among a segment of the student population that has historically been attracted to vocational education.

SUMMARY OF OUR FINDINGS

Table 1 summarizes our results for overall 1992 high school graduates and the three subgroups we described above. The rows indicate the characteristics we examined; the columns indicate the relationship between each characteristic and whether or not a student became a vocational concentrator. For example, the "+" in the row labeled "sex" and the column labeled "overall 1992 high school graduates" indicates that males were more likely than females to become a vocational concentrator, all other characteristics in the table held equal. Tables in Appendix B present these results in greater detail, as well as results when the two alternative definitions of vocational education – vocational explorer and vocational investor – are used instead of the concentrator definition. All these results are based on students who attended all types of high schools – that is, public and other types of high schools. The results are similar for students who attended only public high schools, which are not presented.

Consistent with historical participation patterns, students with low academic achievement or low educational aspirations are more likely to participate in vocational education.

Vocational education has historically attracted several special populations, including students with low academic achievement and students who do not plan to go to college.[2] Other types of students that have been attracted to vocational education include students with disabilities and students with behavioral problems. These special populations have been attracted to vocational education partly because it has been considered a viable option for them, and partly because federal policymakers took steps during the 1960s and 1970s to improve access to vocational education among these populations.

[1]Other special populations named in the Perkins Act that we can identify in our analysis file include students with disabilities. We did not examine results for these students because the number of students with a disability in our analysis file is too small to support the analysis.

[2]Included in "students who do not plan to go to college" are those who, before entering high school, do not plan to pursue any type of postsecondary education.

TABLE 1

FACTORS THAT INFLUENCE VOCATIONAL EDUCATION PARTICIPATION

Characteristic	Overall 1992 High School Graduates	Subgroups: Low Achievers	Subgroups: Students in Poor Schools	Subgroups: Non-College-Bound
Demographics				
Sex (Male vs. Female)	+	+		+
Race/Ethnicity (Black or Hispanic vs. White/Other)	–	–	–	
Socioeconomic Status (Low vs. High)	+	+		
Disability (Yes vs. No)				
Ever Held Back (Yes vs. No)	+			
Number of Risk Factors (One or More vs. None)	–		+	
Advanced 8th-Grade Course Taking (Yes vs. No)			–	
8th-Grade Test Score (Low or Average vs. High)	+	NA	+	
Mother's Education (HS/Less vs. More than HS)				
School Location (North-Central/South vs. Other)	+	+		+
School Urbanicity (Rural vs. Other)	+	+		+
Type of School (Public vs. Other)	+			
School Enrollment (Small vs. Large)				
School Reduced-Price Lunch Participation (High vs. Low)			NA	
Behaviors				
Problem Student Behaviors:				
Misbehave (Yes vs. No)				
School problems (Yes vs. No)				
Fight (Yes vs. No)				
Cut/skip class (Yes vs. No)				
Tardy (Yes vs. No)		–		
Good Student Behaviors:				
Homework done per week (A Lot vs. A Little)				
Discuss program with counselor (Yes vs. No)				+
Discuss courses with counselor (Yes vs. No)			–	
Parental Involvement:				
Attend school meetings (Yes vs. No)	–			
Speak to teacher/counselor (Yes vs. No)			+	
Check student's homework (Yes vs. No)				–
Factors Schools Say Influence Course Taking:				
Test scores (Yes vs. No)				
Counselors (Yes vs. No)				
Teachers (Yes vs. No)				
Parents (Yes vs. No)				
Expectations				
Student's College Plans (HS/Less vs. More than HS)	+	+	+	NA
Locus of Control (Low or Average vs. High)				
Parent's College Plans for Student (HS/Less vs. More than HS)				
School Has High Academic Standards (Yes vs. No)				

NOTE: Student and parent characteristics were measured at the end of the eighth-grade, whereas school characteristics were measured at the end of the tenth-grade.

+ indicates positive and statistically significant influence on vocational education participation, all other characteristics in the table equal.

– indicates negative and statistically significant influence on vocational education participation, all other characteristics in the table equal.

NA indicates not applicable because the subgroup includes only students with this characteristic.

Currently, federal policymakers are debating whether these special populations are well served by vocational education. Some believe that vocational education has come to be known as a "track" for students who are difficult to teach, that these students do not develop any useful skills by participating in vocational education. Others believe that vocational education serves an important purpose, but that the effectiveness of vocational education will reach its full potential only if participation is expanded to a broader group of students, such as high achievers. The idea is that, by attracting high achievers, the effectiveness of vocational education will improve, either because of peer effects or because having more high achievers participate will cause vocational teachers to improve the instruction. Whatever the case, this debate suggests that understanding who participates in vocational education is an important issue for federal policymakers.

We find that, among 1992 high school graduates, those who started high school with low academic achievement, or those who did not expect to go to college, were more likely to participate in vocational education than were otherwise identical students. For example, students in the lowest third of eighth-grade reading achievement were about 7 percentage points more likely to become a vocational concentrator than students in the highest third who are otherwise identical, as seen in Table B.1. Similarly, students who did not plan to go to college were about 15 percentage points more likely to become a vocational concentrator than otherwise identical students who planned to get at least a bachelor's degree.

Although these findings are based on 1992 high school graduates, and therefore do not necessarily indicate the factors that influence vocational education participation among today's students, they highlight several challenges facing vocational education. One particularly important challenge is how to meet the objectives of recent education reforms, which aim to increase academic achievement and college enrollment of *all* students. The pressure to increase academic achievement is exemplified by the fact that most of today's students need to satisfy rigorous academic requirements in order to graduate from high school. However, previous research indicates that, during the early 1990s, participation in vocational education had no effect on students' academic achievement (Rasinski and Pedlow, 1994; and Agodini, 2001) or college enrollment (Plank, 2001). Taken together, these findings suggest that many students who participated in vocational education during this time period probably would not have met the objectives of recent education reforms.

Several federal and state initiatives that started in the early 1990s, such as Tech-Prep education and career academies, are changing vocational education in ways that, some hope, will meet the challenges facing vocational education. Included in these changes is the integration of vocational education with academic instruction, in an effort to increase both the appeal of vocational education and its effectiveness. By targeting a broader group of students than were historically attracted to vocational education, these initiatives also expect to change the patterns of participation. In light of the objectives of recent education reforms, the success of these initiatives is likely to be important in the debate about the role of vocational education in the educational system.

Regardless of their academic achievement and educational aspirations, students from poor families are more likely to participate in vocational education.

Many educators have been concerned about the reasons why students pursue a particular curriculum program – that is, academic, general, or vocational. Ideally, school staff would work with students to help them select a program that matches their academic abilities, expressed interests, and career goals. However, some prior research suggests that other factors also influence this process. For example, Oakes et al. (1992) interviewed school staff in three California high schools and analyzed transcripts of students who attended those schools. They found that, even after controlling for academic achievement and college plans, minority students and students from poor families were more likely to participate in vocational education. These findings led the authors to conclude that minority students and students from poor families at these schools were being encouraged to pursue vocational education based on social stereotyping, not on student achievement or future educational plans.

Like earlier research, we find that students from poor families are more likely to pursue vocational education than are otherwise identical students. In particular, we find that students from families in the lowest socioeconomic quartile were 14 percentage points more likely to participate in vocational education than students from families in the highest socioeconomic quartile, even after controlling for prior achievement, educational aspirations, and other important characteristics.

Our findings, as well as those of Oakes et al. (1992), raise the question of whether poor students are more likely to pursue vocational education because of unfair tracking practices or for other reasons. One possible explanation is that students from poor backgrounds choose to participate in vocational education because they realize that they will need to work if they want to go on to college. Another possible reason is that these students choose to participate in vocational education because they are encouraged to do so by peers and family.

Additional research is needed to help us better understand whether this pattern of participation is the result of unfair tracking practices or student choice. It is important to understand which of these possibilities explains this pattern because the answers have very different policy implications. On the one hand, if school staff based their judgment about which program a student should pursue on characteristics other than student achievement, expressed interest, and educational plans, then schools need to work with staff to ensure that staff exercise fair and equal judgment. On the other hand, if the need to earn money for college – which students from poor families plan to pursue, either immediately after high school or at some time in the future – is what motivates them to pursue vocational education, then schools need to make sure that these students are aware of scholarships and grants that may be available.

After adjusting for other characteristics, disability status and behavior problems do not influence vocational education participation.

Students with a disability, as well as those with behavior problems, have higher rates of vocational education participation; however, these higher rates appear to be related to low academic achievement, low educational expectations, and low socioeconomic status – not to

disability status or behavior problems. For example, the percentage of students with and without a disability who became vocational concentrators differs by 11 percentage points. When we adjust for other characteristics, however, we find that students with a disability are only 2 percentage points more likely to become vocational concentrators than are students without a disability. Moreover, this adjusted difference is not statistically significant.

Nevertheless, the fact that students with a disability and students with behavior problems have high participation rates means that vocational educators need to be prepared to address the needs of these students. This may require structural changes to the physical environment. It may also require flexibility and creativity in carrying out the curriculum.

Black students are just as likely as white students to participate in vocational education, whereas Hispanic students are slightly *less* likely to participate.

As mentioned earlier, the findings of previous studies suggest that minority students – and students from poor families – are encouraged to participate in vocational education on the basis of social stereotyping (Oakes et al., 1992). These findings were especially true for Hispanic students.

Our findings about the relationship between race and ethnicity on the one hand and vocational education participation on the other differ from those of previous studies. In particular, we find that the participation rates of black students and white students were similar. This is true even when we adjust for other differences between these two groups. In contrast, we find that Hispanic students were 5 percentage points less likely than otherwise identical white students to become vocational concentrators.

One possible explanation why Hispanic students participate at lower rates than do otherwise identical white students could be differences in the extent to which students in the two groups are classified as limited English proficient (LEP). If Hispanic students are more likely to be classified as LEP, and to have to spend part of their school day taking courses to improve their English proficiency, they may have less opportunity to take vocational courses. We considered this possibility by examining participation rates among non-LEP students, and found that Hispanic students in this subgroup also are slightly less likely to participate in vocational education than are white students in this subgroup. These findings suggest that LEP status does not, by itself, explain why Hispanic students participate at lower rates.

Another possibility – which we could not explore – is that Hispanic students participate at lower rates because they do not want to be separated from their peers. This possibility might suggest that Hispanic students need to be encouraged to explore the opportunities vocational education may provide them. Of course, there may be other important reasons that could explain why Hispanic students participate at lower rates. Therefore, understanding the reasons why Hispanic students participate in vocational education at lower rates should be further explored.

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APPENDIX A

THE NATIONAL EDUCATION LONGITUDINAL STUDY AND OUR ANALYSIS FILE

The National Education Longitudinal Study

Our analysis is based on the National Education Longitudinal Study (NELS). The base-year survey of the NELS, conducted in 1988, contained a nationally-representative sample of about 25,000 eighth-graders. Follow-up surveys were conducted in 1990, 1992, 1994, and 2000. While respondents were of school age – which includes the 1988, 1990, and 1992 surveys – information was collected from students, one of their parents, two of their teachers, and their school's administrator. Some students, though of school age, were not in school during the 1990 and 1992 surveys because they dropped out. To understand why these students dropped out, information related to dropping out was collected from them. After respondents should have graduated from high school – which includes the 1994 survey and the yet-to-be-released 2000 survey – information was collected only from respondents, not from others who were previously surveyed, such as parents. High school transcripts of respondents also were collected.

Our Analysis File

Our analysis file contains students who responded to all four NELS surveys that are currently available, who had transcript information, and who graduated from high school. A student was considered a high school graduate if he or she took at least 16 credits, took at least one English course, and received a regular or honors diploma by June 1992. Excluding students who graduated after June 1992 does not significantly reduce the size of this sample, as only a few students graduated after June 1992. The analysis was limited to high school graduates, to ensure that students completed enough coursework to allow them to meet the requirements of an academic or vocational curricular program.

Weights

All statistics were computed using weights. A weight provided by the NELS (F3PNLWT) applies to students who responded to all four surveys – one of the criteria that students had to meet in order to be included in our analysis file. However, students also had to have transcript information to be included in our analysis file. If students who did not have transcript information were completely random, the weight provided by the NELS would have been adequate. However, students who were missing transcript data were not completely random. Instead, various characteristics of students – age, sex, race, socioeconomic status, achievement, educational expectations, and risk of dropping out – and the schools they attended – type, region, and level of urbanicity – affected the likelihood of having transcript data. We used these characteristics and the weight provided by the NELS to produce a weight that applies to students in our analysis file. In particular, using students who responded to all four NELS surveys, we estimated a weighted logistic regression to determine each student's predicted probability of having transcript information. The inverse of this predicted probability was multiplied by the weight provided by the NELS to produce a weight that applies to students in our analysis file.

Determining Who Participated in Vocational Education

We used transcript information from the second follow-up of the NELS to determine whether or not a student participated in vocational education. We processed these data according to the framework described in the 1998 Revision of the Secondary School Taxonomy. In particular, using the Classification of Secondary School Courses codes provided by the NELS, we grouped courses into the categories of the revised Secondary School Taxonomy (SST). For each student, we then determined the number of credits taken in each SST category.

Defining Characteristics

Many of the characteristics we examined were created directly from NELS variables. For example, "Took Advanced Math During 8th-Grade" was created from the NELS variable BYS66D (Are you enrolled in advanced, enriched, or accelerated courses in mathematics?).

For several of the other characteristics we examined, we combined some of the response categories of the NELS variables. The "Enrollment" variable provides an example. The NELS variable F1SCENRL, which categorizes the entire school enrollment as reported by the school, has nine categories. We combined several of these categories for our analysis.

For some of the remaining characteristics, we combined two or more NELS variables, to produce a single variable. For example, we combined the NELS variables BYS51AA (Since the beginning of this school year, have you talked to a counselor at your school to get information about high schools or high school programs?) and BYS51AB (Since the beginning of this school year, have you talked to a teacher at your school to get information about high schools or high school programs?), to create the characteristic "Talked to Teacher/Counselor About Curricular Program Since Beginning of School Year."

Finally, we created categorical variables from the NELS variables that indicate socioeconomic status, math test score, and reading test score. For socioeconomic status, we created a categorical variable that indicates the quartile to which each student belongs. For test scores, we created categorical variables that indicate the third of the test score distribution to which each student belongs.

APPENDIX B

TABLES OF RESULTS

TABLE B.1

PERCENT OF VOCATIONAL CONCENTRATORS AMONG
1992 HIGH SCHOOL GRADUATES

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Total	22.2		
Demographics			
Student			
Sex			
Male	26.2	7.8*	5.8*
Female	18.4	—	—
Race/Ethnicity			
White/Other	22.2	—	—
Black	23.8	1.6	-2.7
Hispanic	20.2	-2.0	-5.4*
Socioeconomic Status			
1st quartile (lowest)	33.4	24.4*	14.3*
2nd quartile	26.8	17.8*	11.9*
3rd quartile	19.4	10.4*	8.1*
4th quartile (highest)	9.0	—	—
Student has a Disability According to Parent/Teacher[c]			
Yes	33.1	11.4*	2.2
No	21.7	—	—
Ever Held Back[c]			
Yes	34.5	14.5*	4.3*
No	20.0	—	—
Number of Risk Factors[d]			
0	19.5	—	—
1	26.1	6.6*	1.0
2 or more	27.5	8.0*	-3.1*
Took Advanced Math During 8th-Grade[c]			
Yes	19.7	-4.2*	1.0
No	23.9	—	—
Took Advanced English During 8th-Grade[c]			
Yes	19.6	-3.6*	-1.9
No	23.2	—	—
8th-Grade Math Test Score[c]			
Lowest third	30.0	16.9*	3.3
Middle third	23.5	10.4*	4.1*
Highest third	13.1	—	—

TABLE B.1 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
8th-Grade Reading Test Score[c]			
Lowest third	31.9	19.1*	7.1*
Middle third	22.0	9.2*	3.3*
Highest third	12.8	—	—
Parent			
Mother's Education[c]			
High school diploma or less	28.1	15.1*	-0.7
Some postsecondary	18.9	5.9*	-1.3
Bachelor's degree or more	13.0	—	—
School			
Geographic Location[c]			
Northeast	19.7	1.9	2.7
North Central	25.1	7.3*	5.2*
South	23.8	6.0*	4.2*
West	17.8	—	—
Level of Urbanicity[c]			
Urban	15.3	—	—
Suburban	20.5	5.2*	2.2
Rural	30.4	15.1*	7.2*
Type[c]			
Public	24.2	19.5*	14.2*
Other	4.7	—	—
Enrollment[c]			
1 to 599	24.5	—	—
600 to 999	21.9	-2.6	-1.5
1,000 to 1,599	22.3	-2.2	0.0
1,600 or more	20.0	-4.5*	1.3
Percent Receiving Free/Reduced-Price Lunch[c]			
0	7.5	—	—
1 to 10	20.5	13.0*	2.8
11 to 50	27.2	19.7*	3.3
51 to 100	26.2	18.7*	2.2
Behaviors			
Student			
Sent to Office for Misbehaving During Past Semester[c]			
Yes	28.8	8.8*	1.3
No	20.0	—	—

TABLE B.1 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Sent to Office for School Problems During Past Semester[c]			
Yes	31.5	10.1*	2.6
No	21.4	—	—
Got into Fight with Another Student During Past Semester[c]			
Yes	29.3	8.6*	1.4
No	20.7	—	—
Ever Cuts/Skips Class[c]			
Never/almost never	21.3	—	—
More frequently	31.7	10.4*	3.7
Ever Late for School in Past Month[c]			
Yes	21.8	0.0	-0.4
No	21.8	—	—
Time Spent Doing Homework per Week[c]			
Less than 3 hours	26.1	8.4*	1.7
3 to 5.5 hours	22.2	4.5*	1.0
More than 5.5 hours	17.7	—	—
Talked to Teacher/Counselor About Curricular Program Since Beginning of School Year[c]			
Yes	22.1	-0.3	0.8
No	22.4	—	—
Talked to Teacher/Counselor About Course Taking Since Beginning of School Year[c]			
Yes	22.1	-0.3	-1.1
No	22.4	—	—
Parent			
Parents Attended School Meeting Since Beginning of School Year[c]			
Yes	18.1	-9.5*	-2.4*
No	27.6	—	—
Parents Spoke with Teacher/Counselor Since Beginning of School Year[c]			
Yes	20.6	-3.2*	-1.3
No	23.8	—	—

TABLE B.1 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Parents Checked Homework Sometimes or Often[c]			
Yes	21.9	-0.8	-0.4
No	22.7	—	—
School			
Test Scores Influence High School Program[c]			
A little or none	24.0	—	—
Moderate	22.3	-1.7	0.4
A lot	21.3	-2.7	2.0
Counselors Influence High School Program[c]			
A little or none	19.3	—	—
Moderate	24.0	4.7*	0.9
A lot	22.3	3.0	-1.5
Teachers Influence High School Program[c]			
A little or none	24.3	—	—
Moderate	23.2	-1.1	-0.3
A lot	21.1	-3.2	-1.4
Parents Influence High School Program[c]			
A little or none	21.1	—	—
Moderate	22.4	1.3	-0.4
A lot	22.8	1.7	1.5
Expectations			
Student			
Student's Educational Expectations[c]			
High school diploma or less	48.2	32.2*	14.5*
Some postsecondary education	34.5	18.5*	8.4*
Bachelor's degree or more	16.0	—	—
Locus of Control[c]			
Lowest third	28.2	9.5*	0.3
Middle third	21.2	2.5	-0.4
Highest third	18.7	—	—
Parent			
Parents' Educational Expectations[c]			
High school diploma or less	42.3	24.2*	-0.6
Some postsecondary education	36.5	18.4*	2.2
Bachelor's degree or more	18.1	—	—

TABLE B.1 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
School			
School Requires New Basics[c]			
Yes	22.4	0.2	3.9
No	22.2	—	—
Total Unweighted Sample Size	**9,135**		

SOURCE: Authors' calculations based on the National Education Longitudinal Study. Statistics were computed using sample weights.

NOTE: Vocational concentrator includes students who completed three or more credits of vocational courses in a single occupational area. Student and parent characteristics were measured at the end of the eighth-grade, whereas school characteristics were measured at the end of the tenth-grade.

[a]Equals the difference in participation rates between each characteristic and the reference category within each characteristic. A dash is used to indicate the reference category within each characteristic.

[b]Equals the average marginal effect based on parameter estimates of a logit model, which regressed whether or not a student was a vocational concentrator on all of the characteristics in the table.

[c]Due to missing values, statistics for this characteristic are based on less than the total sample size of 9,135. However, none of the statistics are based on less than 85 percent of the total sample size.

[d]This variable measures how many of the "at risk of school failure" factors were present for the sample members in 1988. The factors include: parent is single, parent has no high school diploma, limited English proficiency, income less than $15,000, sibling dropped out of high school, and home alone more than three hours a day.

*Significantly different from zero at the .05 level, two-tailed test. An adjusted difference was considered statistically significant if the logit coefficient was statistically significant. The complex sample design of the NELS was taken into consideration when statistical tests were conducted.

TABLE B.2

PERCENT OF VOCATIONAL CONCENTRATORS AMONG STUDENTS WITH LOW PRIOR ACHIEVEMENT

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Total	32.5	—	—
Demographics			
Student			
Sex			
Male	37.3	10.2*	10.5*
Female	27.1	—	—
Race/Ethnicity			
White/Other	36.5	—	—
Black	27.9	-8.6*	-9.6*
Hispanic	23.4	-13.1*	-9.3*
Socioeconomic Status			
1st quartile (lowest)	36.5	20.0*	17.1*
2nd quartile	34.8	18.3*	14.0*
3rd quartile	29.5	13.0*	10.6
4th quartile (highest)	16.5	—	—
Student has a Disability According to Parent/Teacher[c]			
Yes	35.3	1.2	-3.5
No	34.1	—	—
Ever Held Back[c]			
Yes	36.3	5.6	4.9
No	30.7	—	—
Number of Risk Factors[d]			
0	32.5	—	—
1	34.2	1.7	0.4
2 or more	30.7	-1.8	-4.2
Took Advanced Math During 8th-Grade[c]			
Yes	34.2	2.2	0.2
No	32.0	—	—
Took Advanced English During 8th-Grade[c]			
Yes	33.0	0.6	1.5
No	32.4	—	—
8th-Grade Math Test Score[c]			
Lowest third	NA	NA	NA
Middle third	NA	NA	NA
Highest third	NA	NA	NA

TABLE B.2 *(continued)*

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
8th-Grade Reading Test Score[c]			
Lowest third	NA	NA	NA
Middle third	NA	NA	NA
Highest third	NA	NA	NA
Parent			
Mother's Education[c]			
High school diploma or less	36.6	10.2*	1.0
Some postsecondary	27.6	1.2	-1.0
Bachelor's degree or more	26.4	—	—
School			
Geographic Location[c]			
Northeast	37.6	16.3*	18.7*
North Central	39.8	18.5*	12.7*
South	32.8	11.5*	13.0*
West	21.3	—	—
Level of Urbanicity[c]			
Urban	21.8	—	—
Suburban	34.4	12.6*	8.6*
Rural	40.1	18.3*	11.3*
Type[c]			
Public	34.1	23.8*	12.6
Other	10.3	—	—
Enrollment[c]			
1 to 599	36.1	—	—
600 to 999	37.2	1.1	1.5
1,000 to 1,599	30.7	-5.4	2.3
1,600 or more	28.3	-7.8	6.7
Percent Receiving Free/Reduced-Price Lunch[c]			
0	13.5	—	—
1 to 10	35.1	21.6*	6.4
11 to 50	37.1	23.6*	9.8
51 to 100	29.2	15.7*	5.1
Behaviors			
Student			
Sent to Office for Misbehaving During Past Semester[c]			
Yes	36.4	6.0	2.9
No	30.4	—	—

TABLE B.2 *(continued)*

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Sent to Office for School Problems During Past Semester[c]			
Yes	31.6	-1.0	-0.1
No	32.6	—	—
Got into Fight with Another Student During Past Semester[c]			
Yes	36.9	5.8	2.9
No	31.1	—	—
Ever Cuts/Skips Class[c]			
Never/almost never	31.8	—	—
More frequently	38.5	6.7	4.4
Ever Late for School in Past Month[c]			
Yes	28.0	-6.7*	-5.1
No	34.7	—	—
Time Spent Doing Homework per Week[c]			
Less than 3 hours	32.9	0.5	-4.4
3 to 5.5 hours	31.5	-0.9	-2.5
More than 5.5 hours	32.4	—	—
Talked to Teacher/Counselor About Curricular Program Since Beginning of School Year[c]			
Yes	32.7	0.8	2.4
No	31.9	—	—
Talked to Teacher/Counselor About Course Taking Since Beginning of School Year[c]			
Yes	32.9	0.9	-0.3
No	32.0	—	—
Parent			
Parents Attended School Meeting Since Beginning of School Year[c]			
Yes	28.7	-7.1*	-1.5
No	35.8	—	—
Parents Spoke with Teacher/Counselor Since Beginning of School Year[c]			
Yes	30.5	-2.8	-0.6
No	33.3	—	—
Parents Checked Homework Sometimes or Often[c]			
Yes	31.6	-3.8	-3.4
No	35.4	—	—

TABLE B.2 *(continued)*

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
School			
Test Scores Influence High School Program[c]			
A little or none	31.9	—	—
Moderate	35.5	3.6	0.6
A lot	30.5	-1.4	1.5
Counselors Influence High School Program[c]			
A little or none	29.5	—	—
Moderate	33.3	3.8	0.6
A lot	34.1	4.6	2.3
Teachers Influence High School Program[c]			
A little or none	31.1	—	—
Moderate	36.7	5.6	2.1
A lot	30.7	-0.4	-3.5
Parents Influence High School Program[c]			
A little or none	32.7	—	—
Moderate	31.2	-1.5	-4.4
A lot	34.6	1.9	-1.8
Expectations			
Student			
Student's Educational Expectations[c]			
High school diploma or less	44.2	20.4*	12.1*
Some postsecondary education	39.2	15.4*	9.3*
Bachelor's degree or more	23.8	—	—
Locus of Control[c]			
Lowest third	34.4	5.1	2.7
Middle third	31.6	2.3	1.0
Highest third	29.3	—	—
Parent			
Parents' Educational Expectations[c]			
High school diploma or less	36.1	8.6	-6.6
Some postsecondary education	42.2	14.7*	3.1
Bachelor's degree or more	27.5	—	—

TABLE B.2 *(continued)*

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
School			
School Requires New Basics[c]			
Yes	33.2	1.1	-3.2
No	32.1	—	—
Total Unweighted Sample Size	**1,848**		

SOURCE: Authors' calculations based on the National Education Longitudinal Study. Statistics were computed using sample weights.

NOTE: Vocational concentrator includes students who completed three or more credits of vocational courses in a single occupational area. Student and parent characteristics were measured at the end of the eighth-grade, whereas school characteristics were measured at the end of the tenth-grade.

[a]Equals the difference in participation rates between each characteristic and the reference category within each characteristic. A dash is used to indicate the reference category within each characteristic.

[b]Equals the average marginal effect based on parameter estimates of a logit model, which regressed whether or not a student was a vocational concentrator on all of the characteristics in the table.

[c]Due to missing values, statistics for this characteristic are based on less than the total sample size of 9,135. However, none of the statistics are based on less than 85 percent of the total sample size.

[d]This variable measures how many of the "at risk of school failure" factors were present for the sample members in 1988. The factors include: parent is single, parent has no high school diploma, limited English proficiency, income less than $15,000, sibling dropped out of high school, and home alone more than three hours a day.

*Significantly different from zero at the .05 level, two-tailed test. An adjusted difference was considered statistically significant if the logit coefficient was statistically significant. The complex sample design of the NELS was taken into consideration when statistical tests were conducted.

NA indicates not applicable because the subgroup only contains students with this characteristic.

TABLE B.3

PERCENT OF VOCATIONAL CONCENTRATORS AMONG STUDENTS WHO ATTENDED POOR SCHOOLS

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Total	26.2		
Demographics			
Student			
Sex			
Male	29.2	6.1	4.5
Female	23.1	—	—
Race/Ethnicity			
White/Other	30.3	—	—
Black	24.4	-5.9	-10.8*
Hispanic	21.5	-8.8	-5.8
Socioeconomic Status			
1st quartile (lowest)	28.8	14.3*	4.6
2nd quartile	29.3	14.8	8.0
3rd quartile	19.7	5.2	0.7
4th quartile (highest)	14.5	—	—
Student has a Disability According to Parent/Teacher[c]			
Yes	50.3	25.0*	17.1
No	25.3	—	—
Ever Held Back[c]			
Yes	30.7	6.4	-0.8
No	24.3	—	—
Number of Risk Factors[d]			
0	20.7	—	—
1	36.1	15.4*	15.4*
2 or more	24.8	4.1	2.7
Took Advanced Math During 8th-Grade[c]			
Yes	24.9	-3.9	6.8
No	28.8	—	—
Took Advanced English During 8th-Grade[c]			
Yes	21.0	-10.3*	-10.9*
No	31.3	—	—
8th-Grade Math Test Score[c]			
Lowest third	27.8	11.9*	14.8*
Middle third	28.2	12.3*	15.4*
Highest third	15.9	—	—

TABLE B.3 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
8th-Grade Reading Test Score[c]			
Lowest third	28.6	2.4	-5.9
Middle third	22.7	-3.5	-10.5
Highest third	26.2	—	—
Parent			
Mother's Education[c]			
High school diploma or less	30.0	16.3*	5.6
Some postsecondary	15.8	2.1	-4.1
Bachelor's degree or more	13.7	—	—
School			
Geographic Location[c]			
Northeast	33.5	14.5*	14.6
North Central	29.3	10.3	13.3
South	27.3	8.3	7.6
West	19.0	—	—
Level of Urbanicity[c]			
Urban	23.6	—	—
Suburban	28.2	4.6	5.5
Rural	27.1	3.5	1.0
Type[c]			
Public	26.9	14.9*	13.2
Other	12.0[e]	—	—
Enrollment[c]			
1 to 599	24.6	—	—
600 to 999	32.6	8.0	8.7
1,000 to 1,599	29.1	4.5	6.2
1,600 or more	20.2	-4.4	1.2
Percent Receiving Free/Reduced-Price Lunch[c]			
0	NA	NA	NA
1 to 10	NA	NA	NA
11 to 50	NA	NA	NA
51 to 100			
Behaviors			
Student			
Sent to Office for Misbehaving During Past Semester[c]			
Yes	28.6	3.5	-0.7
No	25.1	—	—

TABLE B.3 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Sent to Office for School Problems During Past Semester[c]			
Yes	34.3	8.7	0.6
No	25.6	—	—
Got into Fight with Another Student During Past Semester[c]			
Yes	31.2	6.4	4.3
No	24.8	—	—
Ever Cuts/Skips Class[c]			
Never/almost never	26.2	—	—
More frequently	21.4	-4.8	-11.4
Ever Late for School in Past Month[c]			
Yes	23.0	-4.2	-4.4
No	27.2	—	—
Time Spent Doing Homework per Week[c]			
Less than 3 hours	25.2	-2.0	-2.5
3 to 5.5 hours	26.6	-0.6	-1.5
More than 5.5 hours	27.2	—	—
Talked to Teacher/Counselor About Curricular Program Since Beginning of School Year[c]			
Yes	25.4	-3.1	-0.4
No	28.5	—	—
Talked to Teacher/Counselor About Course Taking Since Beginning of School Year[c]			
Yes	23.2	-8.6	-9.5*
No	31.8	—	—
Parent			
Parents Attended School Meeting Since Beginning of School Year[c]			
Yes	21.2	-8.2	-3.8
No	29.4	—	—
Parents Spoke with Teacher/Counselor Since Beginning of School Year[c]			
Yes	26.9	4.7	11.1*
No	22.2	—	—

TABLE B.3 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Parents Checked Homework Sometimes or Often[c]			
Yes	23.6	-8.7	-6.3
No	32.3	—	—
School			
Test Scores Influence High School Program[c]			
A little or none	25.3	—	—
Moderate	27.9	2.6	9.7
A lot	27.1	1.8	1.0
Counselors Influence High School Program[c]			
A little or none	26.5	—	—
Moderate	28.4	1.9	8.2
A lot	26.2	-0.3	4.9
Teachers Influence High School Program[c]			
A little or none	27.2	—	—
Moderate	23.0	-4.2	-1.4
A lot	29.9	2.7	-0.6
Parents Influence High School Program[c]			
A little or none	26.8	—	—
Moderate	24.4	-2.4	-4.9
A lot	30.1	3.3	-4.8
Expectations			
Student			
Student's Educational Expectations[c]			
High school diploma or less	35.9	17.3*	12.5
Some postsecondary education	37.1	18.5*	14.0*
Bachelor's degree or more	18.6	—	—
Locus of Control[c]			
Lowest third	26.4	1.0	-0.8
Middle third	26.3	0.9	4.5
Highest third	25.4	—	—
Parent			
Parents' Educational Expectations[c]			
High school diploma or less	32.9	8.1	-5.4
Some postsecondary education	34.2	9.4	2.2
Bachelor's degree or more	24.8	—	—

TABLE B.3 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
School			
School Requires New Basics[c]			
Yes	31.7	4.6	-12.1
No	27.1	—	—
Total Unweighted Sample Size	**710**		

SOURCE: Authors' calculations based on the National Education Longitudinal Study. Statistics were computed using sample weights.

NOTE: Vocational concentrator includes students who completed three or more credits of vocational courses in a single occupational area. Student and parent characteristics were measured at the end of the eighth-grade, whereas school characteristics were measured at the end of the tenth-grade.

[a]Equals the difference in participation rates between each characteristic and the reference category within each characteristic. A dash is used to indicate the reference category within each characteristic.

[b]Equals the average marginal effect based on parameter estimates of a logit model, which regressed whether or not a student was a vocational concentrator on all of the characteristics in the table.

[c]Due to missing values, statistics for this characteristic are based on less than the total sample size of 9,135. However, none of the statistics are based on less than 85 percent of the total sample size.

[d]This variable measures how many of the "at risk of school failure" factors were present for the sample members in 1988. The factors include: parent is single, parent has no high school diploma, limited English proficiency, income less than $15,000, sibling dropped out of high school, and home alone more than three hours a day.

[e]Result is questionable because the statistic is based on fewer than 30 students.

*Significantly different from zero at the .05 level, two-tailed test. An adjusted difference was considered statistically significant if the logit coefficient was statistically significant. The complex sample design of the NELS was taken into consideration when statistical tests were conducted.

NA indicates not applicable because the subgroup only contains students with this characteristic.

TABLE B.4

PERCENT OF VOCATIONAL CONCENTRATORS AMONG NON-COLLEGE-BOUND STUDENTS

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Total	48.2		
Demographics			
Student			
Sex			
Male	52.6	11.5*	11.7*
Female	41.1	—	—
Race/Ethnicity			
White/Other	49.7	—	—
Black	53.4	3.7	1.6
Hispanic	34.9	-14.8*	-10.9
Socioeconomic Status			
1st quartile (lowest)	51.4	3.0	5.7
2nd quartile	44.5	-3.9	1.3
3rd quartile	42.1	-6.3	6.0
4th quartile (highest)	48.4[e]	—	—
Student has a Disability According to Parent/Teacher[c]			
Yes	40.7	-10.0	-8.2
No	50.7	—	—
Ever Held Back[c]			
Yes	43.2	-5.5	-6.7
No	48.7	—	—
Number of Risk Factors[d]			
0	47.4	—	—
1	53.6	6.2	0.3
2 or more	43.6	-3.8	-5.8
Took Advanced Math During 8th-Grade[c]			
Yes	48.2	-2.1	-2.6
No	50.3	—	—
Took Advanced English During 8th-Grade[c]			
Yes	50.0	0.9	4.6
No	49.1	—	—
8th-Grade Math Test Score[c]			
Lowest third	47.1	6.0	8.2
Middle third	54.4	13.3	8.7
Highest third	41.1	—	—

TABLE B.4 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
8th-Grade Reading Test Score[c]			
Lowest third	46.2	0.9	4.9
Middle third	55.0	9.7	11.6
Highest third	45.3	—	—
Parent			
Mother's Education[c]			
High school diploma or less	51.8	7.0	7.5
Some postsecondary	42.2	-2.6	4.4
Bachelor's degree or more	44.8	—	—
School			
Geographic Location[c]			
Northeast	63.3	35.4*	30.5*
North Central	50.5	22.6*	19.0*
South	49.7	21.8*	21.5*
West	27.9	—	—
Level of Urbanicity[c]			
Urban	33.8	—	—
Suburban	48.7	14.9*	5.1
Rural	55.1	21.3*	14.0*
Type[c]			
Public	49.5	34.1*	33.3
Other	15.4[e]	—	—
Enrollment[c]			
1 to 599	47.7	—	—
600 to 999	56.7	9.0	2.2
1,000 to 1,599	42.4	-5.3	-4.4
1,600 or more	45.6	-2.1	8.3
Percent Receiving Free/Reduced-Price Lunch[c]			
0	47.4[e]	—	—
1 to 10	52.8	5.4	-10.3
11 to 50	48.0	0.6	-20.5
51 to 100	35.9	-11.5	-25.8
Behaviors			
Student			
Sent to Office for Misbehaving During Past Semester[c]			
Yes	49.4	1.6	-4.9
No	47.8	—	—

TABLE B.4 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Sent to Office for School Problems During Past Semester[c]			
Yes	45.0	-4.1	-2.1
No	49.1	—	—
Got into Fight with Another Student During Past Semester[c]			
Yes	49.4	1.3	7.8
No	48.1	—	—
Ever Cuts/Skips Class[c]			
Never/almost never	49.1	—	—
More frequently	40.4	-8.7	-0.8
Ever Late for School in Past Month[c]			
Yes	45.2	-2.8	2.9
No	48.0	—	—
Time Spent Doing Homework per Week[c]			
Less than 3 hours	44.9	-3.7	-4.4
3 to 5.5 hours	48.9	0.3	-0.7
More than 5.5 hours	48.6	—	—
Talked to Teacher/Counselor About Curricular Program Since Beginning of School Year[c]			
Yes	53.9	11.7*	10.1*
No	42.2	—	—
Talked to Teacher/Counselor About Course Taking Since Beginning of School Year[c]			
Yes	50.2	3.5	-2.7
No	46.7	—	—
Parent			
Parents Attended School Meeting Since Beginning of School Year[c]			
Yes	47.6	-1.5	4.1
No	49.1	—	—
Parents Spoke with Teacher/Counselor Since Beginning of School Year[c]			
Yes	48.1	-2.3	-2.2
No	50.4	—	—

TABLE B.4 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Parents Checked Homework Sometimes or Often[c]			
Yes	47.1	-3.8	-10.8*
No	50.9	—	—
School			
Test Scores Influence High School Program[c]			
A little or none	57.7	—	—
Moderate	44.9	-12.8*	-6.2
A lot	48.4	-9.3	2.3
Counselors Influence High School Program[c]			
A little or none	53.5	—	—
Moderate	56.1	2.6	4.9
A lot	40.9	-12.6	-7.8
Teachers Influence High School Program[c]			
A little or none	50.2	—	—
Moderate	58.6	8.4	4.1
A lot	42.1	-8.1	-8.5
Parents Influence High School Program[c]			
A little or none	46.1	—	—
Moderate	48.6	2.5	2.7
A lot	51.2	5.1	3.5
Expectations			
Student			
Student's Educational Expectations[c]			
High school diploma or less	NA	NA	NA
Some postsecondary education	NA	NA	NA
Bachelor's degree or more	NA	NA	NA
Locus of Control[c]			
Lowest third	46.2	-7.9	-0.6
Middle third	47.8	-6.3	-6.9
Highest third	54.1	—	—
Parent			
Parents' Educational Expectations[c]			
High school diploma or less	51.1	6.7	-0.1
Some postsecondary education	50.0	5.6	0.7
Bachelor's degree or more	44.4	—	—

TABLE B.4 (*continued*)

Characteristics	Vocational Concentrator (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
School			
School Requires New Basics[c]			
Yes	65.7	20.1	7.0
No	45.6	—	—
Total Unweighted Sample Size	**659**		

SOURCE: Authors' calculations based on the National Education Longitudinal Study. Statistics were computed using sample weights.

NOTE: Vocational concentrator includes students who completed three or more credits of vocational courses in a single occupational area. Student and parent characteristics were measured at the end of the eighth-grade, whereas school characteristics were measured at the end of the tenth-grade.

[a]Equals the difference in participation rates between each characteristic and the reference category within each characteristic. A dash is used to indicate the reference category within each characteristic.

[b]Equals the average marginal effect based on parameter estimates of a logit model, which regressed whether or not a student was a vocational concentrator on all of the characteristics in the table.

[c]Due to missing values, statistics for this characteristic are based on less than the total sample size of 9,135. However, none of the statistics are based on less than 85 percent of the total sample size.

[d]This variable measures how many of the "at risk of school failure" factors were present for the sample members in 1988. The factors include: parent is single, parent has no high school diploma, limited English proficiency, income less than $15,000, sibling dropped out of high school, and home alone more than three hours a day.

[e]Result is questionable because the statistic is based on fewer than 30 students.

*Significantly different from zero at the .05 level, two-tailed test. An adjusted difference was considered statistically significant if the logit coefficient was statistically significant. The complex sample design of the NELS was taken into consideration when statistical tests were conducted.

NA indicates not applicable because the subgroup only contains students with this characteristic.

TABLE B.5

PERCENT OF VOCATIONAL INVESTORS AMONG
1992 HIGH SCHOOL GRADUATES

Characteristics	Vocational Investor (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Total	38.8		
Demographics			
Student			
Sex			
Male	43.6	9.5*	7.4*
Female	34.1	—	—
Race/Ethnicity			
White/Other	38.1	—	—
Black	41.7	3.6	-2.0
Hispanic	41.4	3.3	-3.4
Socioeconomic Status			
1st quartile (lowest)	55.2	34.9*	16.2*
2nd quartile	43.7	23.4*	10.8*
3rd quartile	35.8	15.5*	9.0*
4th quartile (highest)	20.3	—	—
Student has a Disability According to Parent/Teacher[c]			
Yes	51.8	13.9*	3.3
No	37.9	—	—
Ever Held Back[c]			
Yes	51.6	15.2*	1.8
No	36.4	—	—
Number of Risk Factors[d]			
0	34.9	—	—
1	43.2	8.3*	0.5
2 or more	48.9	14.0*	-3.0
Took Advanced Math During 8th-Grade[c]			
Yes	34.6	-7.0*	0.3
No	41.6	—	—
Took Advanced English During 8th-Grade[c]			
Yes	34.6	-5.9*	-2.9
No	40.5	—	—
8th-Grade Math Test Score[c]			
Lowest third	49.8	24.2*	4.3*
Middle third	41.0	15.4*	4.9*
Highest third	25.6	—	—

TABLE B.5 (*continued*)

Characteristics	Vocational Investor (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
8th-Grade Reading Test Score[c]			
Lowest third	51.4	27.2*	9.7*
Middle third	41.0	16.8*	7.5*
Highest third	24.2	—	—
Parent			
Mother's Education[c]			
High school diploma or less	47.4	21.8*	0.4
Some postsecondary	33.9	8.3*	-1.5
Bachelor's degree or more	25.6	—	—
School			
Geographic Location[c]			
Northeast	32.7	-2.8	-2.2
North Central	45.1	9.6*	6.0*
South	39.3	3.8	1.1
West	35.5	—	—
Level of Urbanicity[c]			
Urban	30.7	—	—
Suburban	35.9	5.2*	-0.6
Rural	49.7	19.0*	3.6
Type[c]			
Public	42.1	31.9*	25.4*
Other	10.2	—	—
Enrollment[c]			
1 to 599	44.6	—	—
600 to 999	37.6	-7.0*	-5.0*
1,000 to 1,599	37.2	-7.4*	-6.7*
1,600 or more	36.1	-8.5*	-6.1*
Percent Receiving Free/Reduced-Price Lunch[c]			
0	15.0	—	—
1 to 10	36.1	21.1*	5.2
11 to 50	47.4	32.4*	6.7
51 to 100	47.8	32.8*	5.8
Behaviors			
Student			
Sent to Office for Misbehaving During Past Semester[c]			
Yes	46.8	10.6*	0.8
No	36.2	—	—

TABLE B.5 (*continued*)

Characteristics	Vocational Investor (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Sent to Office for School Problems During Past Semester[c]			
Yes	49.8	11.8*	2.6
No	38.0	—	—
Got into Fight with Another Student During Past Semester[c]			
Yes	47.6	10.6*	2.2
No	37.0	—	—
Ever Cuts/Skips Class[c]			
Never/almost never	37.7	—	—
More frequently	49.6	11.9*	2.4
Ever Late for School in Past Month[c]			
Yes	38.8	0.6	0.4
No	38.2	—	—
Time Spent Doing Homework per Week[c]			
Less than 3 hours	44.4	11.7*	2.2
3 to 5.5 hours	38.7	6.0*	0.6
More than 5.5 hours	32.7	—	—
Talked to Teacher/Counselor About Curricular Program Since Beginning of School Year[c]			
Yes	39.0	0.5	3.2*
No	38.5	—	—
Talked to Teacher/Counselor About Course Taking Since Beginning of School Year[c]			
Yes	38.3	-1.3	-3.6*
No	39.6	—	—
Parent			
Parents Attended School Meeting Since Beginning of School Year[c]			
Yes	33.4	-12.4*	-2.6
No	45.8	—	—
Parents Spoke with Teacher/Counselor Since Beginning of School Year[c]			
Yes	37.0	-3.0	0.2
No	40.0	—	—

TABLE B.5 (*continued*)

Characteristics	Vocational Investor (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Parents Checked Homework Sometimes or Often[c]			
Yes	38.4	-1.3	-1.6
No	39.7	—	—
School			
Test Scores Influence High School Program[c]			
A little or none	42.7	—	—
Moderate	38.4	-4.3	-1.0
A lot	36.7	-6.0*	1.3
Counselors Influence High School Program[c]			
A little or none	33.2	—	—
Moderate	41.5	8.3*	3.2
A lot	39.0	5.8*	-0.1
Teachers Influence High School Program[c]			
A little or none	41.4	—	—
Moderate	40.5	-0.9	0.6
A lot	36.8	-4.6	-1.2
Parents Influence High School Program[c]			
A little or none	37.7	—	—
Moderate	39.4	1.7	-0.5
A lot	38.7	1.0	0.5
Expectations			
Student			
Student's Educational Expectations[c]			
High school diploma or less	70.4	40.3*	20.6*
Some postsecondary education	57.8	27.7*	12.8*
Bachelor's degree or more	30.1	—	—
Locus of Control[c]			
Lowest third	47.8	14.8*	2.1
Middle third	38.1	5.1*	0.8
Highest third	33.0	—	—

TABLE B.5 (*continued*)

Characteristics	Vocational Investor (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Parent			
Parents' Educational Expectations[c]			
High school diploma or less	59.8	27.1*	-4.2
Some postsecondary education	61.0	28.3*	6.3*
Bachelor's degree or more	32.7	—	—
School			
School Requires New Basics[c]			
Yes	36.4	-2.7	5.1
No	39.1	—	—
Total Unweighted Sample Size	**9,135**		

SOURCE: Authors' calculations based on the National Education Longitudinal Study. Statistics were computed using sample weights.

NOTE: Vocational investor includes students who completed three or more credits in any vocational course. Student and parent characteristics were measured at the end of the eighth-grade, whereas school characteristics were measured at the end of the tenth-grade.

[a]Equals the difference in participation rates between each characteristic and the reference category within each characteristic. A dash is used to indicate the reference category within each characteristic.

[b]Equals the average marginal effect based on parameter estimates of a logit model, which regressed whether or not a student was a vocational concentrator on all of the characteristics in the table.

[c]Due to missing values, statistics for this characteristic are based on less than the total sample size of 9,135. However, none of the statistics are based on less than 85 percent of the total sample size.

[d]This variable measures how many of the "at risk of school failure" factors were present for the sample members in 1988. The factors include: parent is single, parent has no high school diploma, limited English proficiency, income less than $15,000, sibling dropped out of high school, and home alone more than three hours a day.

*Significantly different from zero at the .05 level, two-tailed test. An adjusted difference was considered statistically significant if the logit coefficient was statistically significant. The complex sample design of the NELS was taken into consideration when statistical tests were conducted.

TABLE B.6

PERCENT OF VOCATIONAL EXPLORERS AMONG
1992 HIGH SCHOOL GRADUATES

Characteristics	Vocational Explorer (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Total	16.6		
Demographics			
Student			
Sex			
Male	17.5	1.7	1.8
Female	15.8	—	—
Race/Ethnicity			
White/Other	15.9	—	—
Black	17.9	2.0	0.9
Hispanic	21.2	5.3*	2.5
Socioeconomic Status			
1st quartile (lowest)	21.8	10.5*	2.4
2nd quartile	16.9	5.6*	0.1
3rd quartile	16.4	5.1*	2.0
4th quartile (highest)	11.3	—	—
Student has a Disability According to Parent/Teacher[c]			
Yes	18.7	2.5	0.5
No	16.2	—	—
Ever Held Back[c]			
Yes	17.1	0.7	-2.8
No	16.4	—	—
Number of Risk Factors[d]			
0	15.3	—	—
1	17.1	1.8	-0.5
2 or more	21.4	6.1*	0.7
Took Advanced Math During 8th-Grade[c]			
Yes	14.9	-2.8*	-0.9
No	17.7	—	—
Took Advanced English During 8th-Grade[c]			
Yes	15.0	-2.3*	-1.3
No	17.3	—	—
8th-Grade Math Test Score[c]			
Lowest third	19.8	7.3*	1.5
Middle third	17.5	5.0*	1.3
Highest third	12.5	—	—

TABLE B.6 (*continued*)

Characteristics	Vocational Explorer (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
8th-Grade Reading Test Score[c]			
Lowest third	19.5	8.1*	3.1
Middle third	19.0	7.6*	4.9*
Highest third	11.4	—	—
Parent			
Mother's Education[c]			
High school diploma or less	19.3	6.7*	1.2
Some postsecondary	14.9	2.3	-0.1
Bachelor's degree or more	12.6	—	—
School			
Geographic Location[c]			
Northeast	13.0	-4.7*	-5.1*
North Central	19.9	2.2	0.8
South	15.6	-2.1	-3.2
West	17.7	—	—
Level of Urbanicity[c]			
Urban	15.4	—	—
Suburban	15.4	0.0	-3.1
Rural	19.3	3.9*	-4.1*
Type[c]			
Public	17.9	12.4*	12.2*
Other	5.5	—	—
Enrollment[c]			
1 to 599	20.2	—	—
600 to 999	15.7	-4.5*	-3.5
1,000 to 1,599	14.9	-5.3*	-6.7*
1,600 or more	16.1	-4.1*	-7.4*
Percent Receiving Free/Reduced-Price Lunch[c]			
0	7.5	—	—
1 to 10	15.6	8.1*	3.3
11 to 50	20.2	12.7*	4.4
51 to 100	21.5	14.0*	5.0
Behaviors			
Student			
Sent to Office for Misbehaving During Past Semester[c]			
Yes	18.0	1.8	-0.7
No	16.2	—	—

TABLE B.6 (*continued*)

Characteristics	Vocational Explorer (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Sent to Office for School Problems During Past Semester[c]			
Yes	18.3	1.8	-0.5
No	16.5	—	—
Got into Fight with Another Student During Past Semester[c]			
Yes	18.2	1.9	0.6
No	16.3	—	—
Ever Cuts/Skips Class[c]			
Never/almost never	16.4	—	—
More frequently	17.9	1.5	-1.3
Ever Late for School in Past Month[c]			
Yes	17.0	0.6	0.9
No	16.4	—	—
Time Spent Doing Homework per Week[c]			
Less than 3 hours	18.3	3.2*	0.8
3 to 5.5 hours	16.5	1.4	-0.1
More than 5.5 hours	15.1	—	—
Talked to Teacher/Counselor About Curricular Program Since Beginning of School Year[c]			
Yes	16.9	0.8	2.3*
No	16.1	—	—
Talked to Teacher/Counselor About Course Taking Since Beginning of School Year[c]			
Yes	16.2	-1.0	-2.3*
No	17.2	—	—
Parent			
Parents Attended School Meeting Since Beginning of School Year[c]			
Yes	15.3	-2.9*	-0.1
No	18.2	—	—
Parents Spoke with Teacher/Counselor Since Beginning of School Year[c]			
Yes	16.4	0.3	1.4
No	16.1	—	—

TABLE B.6 (*continued*)

Characteristics	Vocational Explorer (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
Parents Checked Homework Sometimes or Often[c]			
Yes	16.4	-0.6	-1.2
No	17.0	—	—
School			
Test Scores Influence High School Program[c]			
A little or none	18.7	—	—
Moderate	16.1	-2.6	-1.6
A lot	15.5	-3.2	-0.6
Counselors Influence High School Program[c]			
A little or none	13.9	—	—
Moderate	17.6	3.7*	2.3
A lot	16.7	2.8	1.4
Teachers Influence High School Program[c]			
A little or none	17.1	—	—
Moderate	17.3	0.2	0.8
A lot	15.7	-1.4	0.1
Parents Influence High School Program[c]			
A little or none	16.6	—	—
Moderate	17.0	0.4	-0.3
A lot	15.9	-0.7	-1.2
Expectations			
Student			
Student's Educational Expectations[c]			
High school diploma or less	22.2	8.1*	3.0
Some postsecondary education	23.3	9.2*	3.9*
Bachelor's degree or more	14.1	—	—
Locus of Control[c]			
Lowest third	19.6	5.3*	2.1
Middle third	16.8	2.5*	1.3
Highest third	14.3	—	—
Parent			
Parents' Educational Expectations[c]			
High school diploma or less	17.5	2.9	-3.4
Some postsecondary education	24.6	10.0*	3.3
Bachelor's degree or more	14.6	—	—

TABLE B.6 (*continued*)

Characteristics	Vocational Explorer (Percent)	Difference Between Categories (Percentage Points)	
		Simple Difference[a]	Adjusted Difference[b]
School			
School Requires New Basics[c]			
Yes	14.1	-2.8	1.2
No	16.9	—	—
Total Unweighted Sample Size	**9,135**		

SOURCE: Authors' calculations based on the National Education Longitudinal Study. Statistics were computed using sample weights.

NOTE: Vocational explorer includes students who completed three or more credits of vocational courses, but not in a single occupational area. Student and parent characteristics were measured at the end of the eighth-grade, whereas school characteristics were measured at the end of the tenth-grade.

[a]Equals the difference in participation rates between each characteristic and the reference category within each characteristic. A dash is used to indicate the reference category within each characteristic.

[b]Equals the average marginal effect based on parameter estimates of a logit model, which regressed whether or not a student was a vocational concentrator on all of the characteristics in the table.

[c]Due to missing values, statistics for this characteristic are based on less than the total sample size of 9,135. However, none of the statistics are based on less than 85 percent of the total sample size.

[d]This variable measures how many of the "at risk of school failure" factors were present for the sample members in 1988. The factors include: parent is single, parent has no high school diploma, limited English proficiency, income less than $15,000, sibling dropped out of high school, and home alone more than three hours a day.

*Significantly different from zero at the .05 level, two-tailed test. An adjusted difference was considered statistically significant if the logit coefficient was statistically significant. The complex sample design of the NELS was taken into consideration when statistical tests were conducted.