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## **Abstract**

This work examines the four-year trajectories of a national cohort of tenth graders by socioeconomic status to better understand pathways of educational movement. Drawing on the Education Longitudinal Study, we identify large differences in post high school transitions, conditional upon the type of educational status one secures during high school, across low-income and middle/high-income samples. Only when we take into account college readiness at high school graduation do we see similar proportions of low-income and middle/high-income students make the transition to college immediately after high school graduation. As the population of low socioeconomic status students in the U.S. continues to expand and the importance of obtaining a four-year higher education degree increases, understanding students' post-high school behavior in light of their secondary education outcomes can guide policy to identify and close the gap in the pipeline to college access.

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## Introduction

A college education has been and remains a valuable commodity, beneficial to individuals and the broader community (Swail, 2000). An educated individual is more likely to be committed to society, contribute to the economy, and be more financially independent (Perna, 2004; Swail, 2000). But research by prominent higher education scholars has shown that there are significant disparities in college access and choice among students from different socioeconomic groups (Perez & McDonough, 2008; Perna, 2006a; Walpole, 2007). Many students do not enroll in higher education, and these students are disproportionately from low-income backgrounds (Horn & Berger, 2005; Orfield, Marin, & Horn, 2005; Rosenbaum, 2001). Moreover, attendance at certain selective institutions and receipt of particular types of college degrees—bachelor’s versus associate, for example—generally result in greater social and economic benefits (Bowen & Bok, 2000; Carnevale & Rose, 2004; Rosenbaum, 2001). As the population of low socioeconomic status (SES) students in the United States continues to expand (Goldrick-Rab & Roksa, 2008; Walpole, 2007), it is essential that educational leaders and policymakers gain a better understanding of their decisions about whether or not to attend college and of what types of institutions they attend.

Charting students’ educational pathways allows us to identify areas of intervention so that more students remain on track to securing educational and subsequent employment opportunities for themselves. Specifically, understanding post-high school behavior can help guide policy aimed at identifying and closing gaps in the pipeline to college access. With that in mind, this study examined students’ post-high school trajectories, focusing on socioeconomic background to better understand its effects on pathways of educational movement. In particular, the study asked:

- 1) What are the postsecondary education enrollment trajectories of low-income students and how do these trajectories differ from those of students from middle/higher-income backgrounds?
- 2) How do low- and middle/high-income students’ trajectories vary by key characteristics, such as academic preparedness for postsecondary education and institutional choices?

To answer these questions, we present the trajectories of a nationally representative cohort of students who were tenth graders in 2002. We followed these students’ paths for four years to better understand how their socioeconomic backgrounds and educational statuses at the end of high school might have influenced their pathways into postsecondary education, the labor force, or elsewhere. In order to illustrate the effects of socioeconomic

status, the educational trajectories of low-income students are compared to those of their middle- and higher-income counterparts throughout the paper.

We present a full range of pathways, including community colleges and other short-term degree and certificate institutions, that are accessed by significant proportions of the U.S. population (Cohen & Brawer, 2008). Indeed, recent research points to the growth of two-year career and technical education programs as well as other programs offered by for-profit institutions (Kinser, 2005, 2007; Tierney & Hentschke, 2007). While higher payouts are generally returned for bachelor's degree attainment (Strayer, 2002), these alternate sectors are becoming increasingly important, especially to students from lower-income backgrounds.

## Background and Literature Review

The literature review is organized according to the possible educational pathways that students travel. We begin with the high school dropout literature and then include a discussion of college bound versus non-college bound student academic preparation. We follow with the literature on overall SES differences in access and college choice, and then briefly highlight the literature on proprietary and for-profit colleges. While not typically included in discussions of postsecondary education (PSE) options, research evidence shows that this growing sector is heavily marketed towards low-income populations (Tierney & Hentschke, 2007), and is therefore deserving of greater attention.

### High School Dropouts

Assessing high school dropout rates is important for educational policy, research, and practice, but the process is not as straightforward as it may seem. The National Center for Educational Statistics (NCES), for example, reports four distinct but related estimates of high school completers and dropouts in the United States: the event dropout rate, the status dropout rate, the status completion rate, and the average freshman graduation rate.<sup>1</sup> Together, these figures are intended to provide a more comprehensive picture of student performance in secondary education, but each is associated with distinct sources of bias and there are serious disagreements about which is the most accurate estimate of how the U.S. educational system is actually doing.

The lack of consensus regarding measurement of dropout rates has important implications for research on postsecondary outcomes. For example, the GED is an important component of these measures collectively, and while it is recognized as a high school diploma equivalent by most employers and postsecondary institutions, it may not have the same effect on postsecondary trajectories as a high school diploma. Specifically, research shows that GED recipients are less likely than high school graduates to complete

two- or four-year degrees, and that their social and economic outcomes are more similar to high school dropouts than high school completers (Cameron & Heckman, 1993; Heckman & LaFontaine, 2005). On the other hand, GED recipients are more likely to pursue job training programs or higher paying jobs than high school dropouts, suggesting at least some economic return for this certification (Murnane, Willett, & Parker Boudet, 1995). As such, grouping them together may complicate our understanding of post-high school pathways and should be done with caution. Keeping these issues in mind, we present a selected overview of the dropout literature focused on low-income youth.<sup>2</sup>

Research consistently documents that students from low-income backgrounds are more likely to drop out of high school than their middle- or upper-income counterparts (Harding, 2003; NCES, 2007; Rumberger, 2001). After controlling for family structure, income, and parents' education levels, students living in high density poverty neighborhoods are more likely to drop out than their counterparts who have grown up in higher mean income neighborhoods (Harding, 2003). This is partly due to higher incidences of residential and school mobility among these youth (Rumberger & Larson, 1998; Swanson & Schneider, 1999).

Vallerand, Fortier and Guay (1997) found that self-determination—associated with feelings of support from parents, teachers, and school administrators—positively predicts persistence. Likewise, Jimmerson, Egeland, Sroufe and Carlson (2000) have suggested that the foundation for success is laid in early childhood: Through a longitudinal study, these researchers demonstrated the connection between early home environments and caregiving and subsequent decisions to drop out of high school. These findings were echoed by Ensminger and Slusarcick (1992), who found that poor grades and behavioral problems in first grade are among the best predictors of subsequent high school dropout.

Certain features of schools also contribute to or prevent student dropout. For example, controlling for demographics, McNeal (1995) demonstrated that involvement in certain school-based programs, such as after-school athletics and fine arts, positively predicts persistence. Moreover, private schools and Catholic schools have lower dropout levels, even after controlling for student socioeconomic characteristics (Altonji, Edler, & Taber, 2002). Within-school processes also influence dropout rates: Goldschmidt and Wang (1999) found that students are more likely to drop out if their schools have harsh disciplinary policies, and grade retention is actually the strongest predictor of dropping out.

It is important to note that most dropout research focuses on high schools, perhaps because most attrition happens during the ninth and tenth grades (Rotermund, 2008; Rumberger, 1995; Silver, Saunders, & Zarate, 2008). This focus excludes the importance of the middle school—and even elementary—years in predicting high school retention,

however, and this is an area greatly in need of further study.

### **Academic Preparation**

Rigorous academic preparation—also understood as a college preparatory curriculum—typically includes advanced math, advanced English, and other courses that meet four-year college admissions standards (Oakes, 2005; Oakes, Mendoza, & Silver, 2006). College enrollment is higher among students who complete this type of coursework rather than vocational or general education curriculum tracks, even after controlling for other variables (Oakes, 2005; Perna, 2000a, 2000b). That said, there is a relationship between academic preparation and socioeconomic status: Alexander and colleagues (1987) found that coming from a higher income level has a larger positive effect on college enrollment for students in non-academic tracks than for those in academic tracks. In other words, a student's socioeconomic background takes on even greater importance in the absence of sufficient academic preparation.

Cabrera and LaNasa (2001), in a seminal piece on the college-going process, empirically tested some of the assertions and past understandings of college choice. Using NELS:88 data, the authors highlighted the factors integral to our understanding of college choice across three stages: 1) acquiring at least minimal qualifications, 2) graduating from high school, and 3) applying to a four-year college or university. They found that SES, academic ability in the eighth grade, planning for college early, and parental involvement in school activities are all significantly related to whether students become college qualified; risk factors for not becoming qualified include having siblings who dropped out of school, repeating a grade, or switching schools multiple times, all of which decrease the odds of securing minimal qualifications.

Many of the same factors that influence securing minimal qualifications are included in the college qualification index. Created by Berkner and Chavez (1997), this index is based on cumulative grade point average (GPA), senior class rank, NELS aptitude scores, SAT/ACT scores, and an adjusted score for rigorous course-taking. These researchers found that factors that influence applying for college include maintaining high educational expectations, completing a high quality academic curriculum, and securing information on financial aid. Those students less likely to apply for college reported less parental support and more risk factors, and also attended schools with fewer resources.

### **Socioeconomic Status and College Choice**

The literature on the impact of socioeconomic status on college choice suggests that whether or not students attend college and the types of institutions they select are both strongly related to family income level (Carnevale & Rose, 2004; Swail, Cabrera,

& Lee, 2004). Students from low socioeconomic backgrounds are more likely to attend overcrowded K–12 schools, live in poor neighborhoods, and have working parents, and they are often the first in their families to even consider attending college (Perna & Titus, 2005). These circumstances can impact students' higher education choices and opportunities.

In practical terms, the literature on college choice shows that students from low socioeconomic backgrounds have less access to pre-collegiate opportunities that prepare them academically to enter college (Adelman, 1999, 2006; Cabrera & La Nasa, 2000a, 2000b, 2001; Nora, 2004; Perna, 2000b). And importantly, Fullinwider and Lichtenberg (2004) and McDonough (1997) have suggested that further stratification occurs due to unequal access to college counseling and the associated packaging of applicants, making the college choice process unequal as well.

The very real cost of college attendance is also an influential and salient factor in students' (and their parents') decisions about the types of postsecondary institutions they aspire to and attend (Cabrera & La Nasa, 2000b; Lillis & Tian, 2008; Terenzini et al., 2001). Conley (2001) found that low SES parents typically have lower levels of education and thus fewer financial resources to support their children in college. Indeed, the higher the tuition, the less likely students from low socioeconomic backgrounds are to apply or enroll, opting instead for less expensive institutions that are often closer to home (Carter, 1999; Lillis & Tian, 2008). This may be exacerbated by the understandable resistance on the part of lower-income families to take out loans to finance their children's education (Bloom, 2007). Perna (2006b) has suggested that, because they are relative, college costs represent a bigger psychological barrier for low SES students than for higher SES students. Consequently, she questions the ability of high tuition/high aid systems to allow these students access to a full range of college choices.

Bragg (2001) suggests that community colleges serve as an important point of PSE entry for students—including low-income students, students of color, recent immigrants, and students who are the first in their families to attend college—who might not otherwise have had the opportunity to attend. For such students, the college choice process is radically different than it is for those who attend four-year institutions. As Cohen and Brawer (2008) note, this is at least partially attributable to the perception that community colleges are affordable and accessible. This finding is consistent with Perna's (2006b) assertion that students' perceptions of family finances limit the range of colleges they consider.

Further complicating matters, Dowd and Melguizo (2008) suggest that an “upper-class takeover” of the transfer function in relatively affordable institutions like community colleges has frozen low SES students out of this important pathway to four-year degrees. Consequently, it appears that both psychological and structural barriers influence college

choice for low-income students. Perhaps as a result, American higher education institutions are more socioeconomically stratified today than they were 30 years ago (Astin & Oseguera, 2004).

### **For-Profit Colleges & Proprietary Institutions<sup>3</sup>**

Recently there has been a rapid increase in proprietary college enrollment. Tierney and Hentschke (2007) note that nearly half (47%) of postsecondary institutions are now organized as for-profit schools. Despite this large proportion, for-profit colleges and universities (FPCUs) are still less visible than traditional colleges and universities, because their campuses tend to be smaller in size and their enrollment amounts to less than 5% of the postsecondary student population (Kinser, 2005, 2007; Tierney & Hentschke, 2007). Nevertheless, these institutions are the fastest-growing segment of the PSE market: Between 1998 and 2003, for-profit enrollment increased by 80% in less-than four-year schools and 91% in degree-granting institutions (Tierney & Hentschke, 2007).

Low-income students and students of color are often heavily recruited by FPCUs, yet we know relatively little about the secondary schooling experiences of those who attend (Chung, 2008; Tierney & Hentschke, 2007). Indeed, while our understanding of the college choice process has expanded greatly in the last 50 years (Hossler et al., 1999; Kinzie et al., 2004; McDonough, 2004), much of the existing research is still based on students enrolled in not-for-profit institutions. Where we do have data on for-profit colleges, they may be misrepresented (Chung, 2008). In the scarce available literature, for-profit colleges are often equated with community colleges because they share an occupational focus (Jones, 1996). However, Apling (1993) has noted that this comparison may be problematic, as for-profit colleges have aggressively adopted four-year degree programs, placing them in direct competition with a wider variety of institutional types (Hawthorne, 1995; Lee & Merisotis, 1990; Tierney & Hentschke, 2007). This disparity highlights the importance of a more nuanced understanding of for-profit college enrollees as a distinct population. There are major gaps in the literature on these institutions—a limitation that the educational pathways presented in this work will attempt to address.

An abundance of research addresses the question of why low-income students pursue various types of postsecondary options if they attend college at all. The literature is limited, however, in that it does not look closely enough at the vital years that traditionally span the end of high school and, for many, the beginning of the postsecondary years. The current study builds upon the existing research base to better understand this transition, paying close attention to specific differences between the pathways of low-income students and middle/high-income students. Special consideration is given to students' completion status at the end of high school, as well as their choices in the years that immediately follow.

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## Methods

### Data Source and Sample

The data were drawn from the Educational Longitudinal Study (ELS) 2002–2006 panel, collected for the National Center for Education Statistics (NCES). The NCES surveyed 14,000 United States tenth graders in spring 2002, and these same respondents were re-surveyed in spring 2004 (when students were asked to report their intended high school graduation status) and in spring 2006 (two years post-high school, assuming a traditional high school path). The final sample of respondents who completed all three surveys included 12,554 youth attending public, religious, and private high schools throughout the United States. Data were weighted using panel weights provided by ELS to reflect the responses of all U.S. students who were tenth graders in 2002 and as such can only be generalized to those students who were tenth graders in 2002. Information was also collected from the students' parents, teachers, and school administrators.

To account for the common problem of incomplete data on surveys, we used multiple imputation (Rubin, 1987), which uses information from the sample distributions of the variables to replace missing values with randomly generated but contextually appropriate values. Our actual imputation procedure used Imputation by Chained Equations (ICE) in the STATA software. ICE draws imputed values from a posterior distribution using OLS regression models to replace missing values for continuous variables and logit models to replace missing values for binary or ordinal variables (Royston, 2004). Since the imputed data sets themselves have no missing values, sample size was preserved.

### Measures

**Income Measure.** The main variable of interest in this analysis was income level. Low-income status was determined based on students' family income in 2002, when the students were in the tenth grade and the federal poverty level for a family of four was \$18,392. We calculated the number of children and adults in each household as reported on the parent survey, and then adjusted reported income for family size. Respondents whose family incomes were at or below 185% of the federal poverty line (e.g., \$34,025 for a family of four) were identified as low-income. This more nuanced definition is in line with the federal designation that determines a student's qualification for free or reduced-price school lunch programs. The final unweighted sample size resulted in 4,302 students who were identified as low-income and 8,252 students who were identified as middle/high-income.

**Outcome Measures: Educational Pathways.** Students' educational pathways were generated using a variety of variables from the ELS. Because the data were longitudinal, we

could identify precisely which path each student pursued. In contrast to many other studies on this topic (e.g., the Current Population Survey), the educational attainment figures in the current study were not cross-sectional or based solely on population estimates.

For the first layer, we examined the students' educational pathways two years after their tenth grade year, in 2004. Students were categorized into one of four paths: 1) had dropped out of high school;<sup>4</sup> 2) were still enrolled in high school; 3) expected to graduate from high school with a diploma or equivalent<sup>5</sup> and had not completed an academic concentrator requirement; or 4) expected to graduate from high school with a diploma or equivalent and had completed an academic concentrator requirement (i.e., were "college ready").<sup>6</sup> To the extent possible, NCES confirmed the twelfth grade status reported by students in this survey.

Although this measure reflects a point in time close to high school graduation (assuming a traditional four-year high school trajectory), it also includes the experiences of students who repeated lower grades or who had dropped out and were therefore not in the twelfth grade. Nevertheless, for the sake of clarity and brevity, this point in time will be referred to as the students' twelfth grade status.

We traced students' post-high school transitions, two years later in 2006, whether into college (various types) or elsewhere (e.g., into the military or the labor force). Note that students were classified into non-overlapping categories. For example, they were considered to have enrolled in PSE if they had entered college (either part-time or full-time), regardless of employment status. We considered the types of colleges they enrolled in: 1) two-year (or less) public or private community college; 2) two-year (or less) proprietary college; 3) four-year proprietary college; or 4) four-year public or private college or university. We then examined whether students de-enrolled or stopped out of college in the two years after completing the twelfth grade.<sup>7</sup>

Among the students who did not enter college, we evaluated how many were employed for at least nine months out of a given year (classified as employed in our study); were unemployed for three or more months in a given year (classified as unemployed); or had entered the military. Again, although the experiences of students in this group were diverse (making it difficult to assign a succinct label), for readability's sake this point in time will be referred to as two years post-high school.

## **Analyses**

In order to evaluate significant differences between low-income and middle/high-income young adults, chi-square tests were employed. Additionally, using the odds ratio formula from Agresti (1990) and Rudas (1998), we calculated odds ratios based on the

contingency tables of these categorical variables to obtain a sense of the magnitude of the differences in likelihood of obtaining educational pathways between the low-income and middle/high-income students.<sup>8</sup>

The educational pathway figures that follow can be understood as representative of 100 students. In other words, in most cases numbers (rather than percentages) are used to demonstrate how many out of 100 students took each given path. This method has been used effectively in other reports of educational movement for various populations (see Rivas et al., 2007; Solorzano et al., 2005). It is especially useful because it allows the reader to think very concretely and vividly about the distribution of students across possible outcomes. Note that an additional feature of this model is that the figures can be interpreted as percentages since the denominator is 100 (see Appendix A for additional percentage interpretations). Where important for emphasis, we have also provided tables that show the data as percentages.

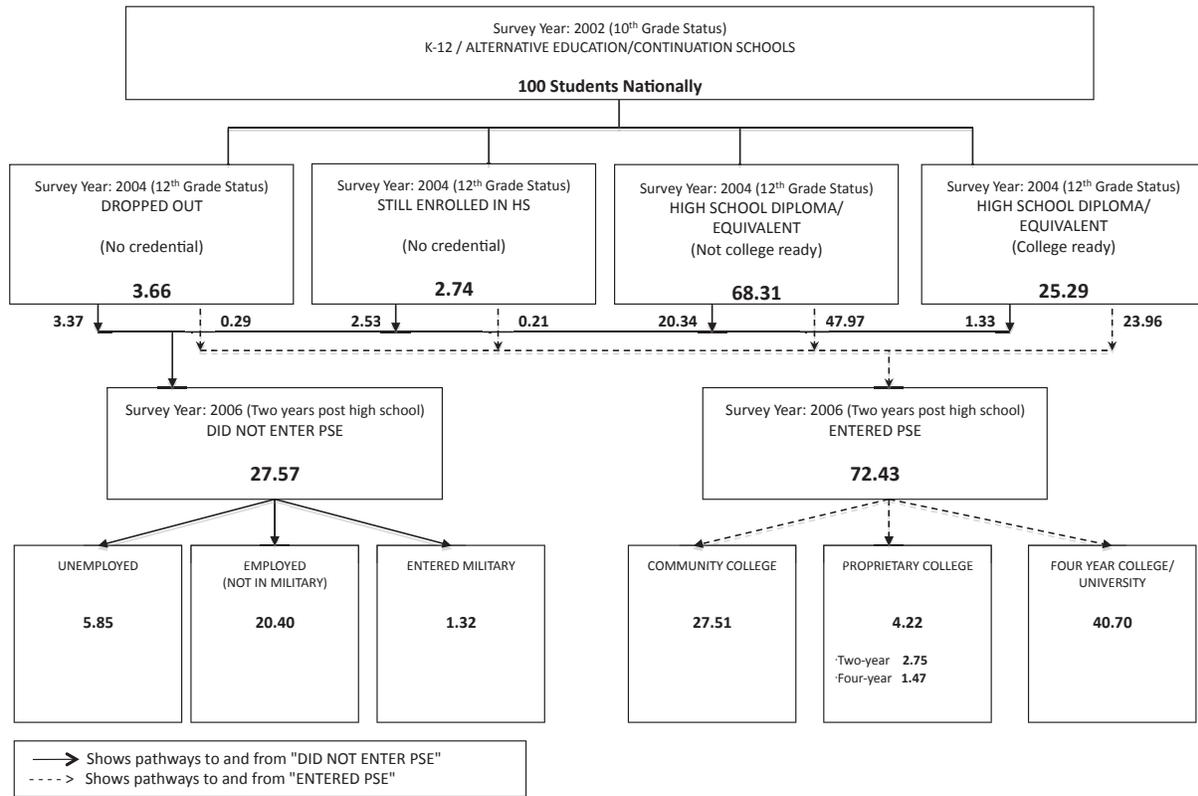
## Findings

### Educational Pathways of the 2002 Cohort

By 2004, out of 100 students who were in tenth grade in 2002, 3.66 had dropped out of school, 2.74 were still enrolled in high school, 68.31 had graduated with a diploma or equivalent but were not college ready, and 25.29 had graduated college ready with a diploma or equivalent (**Figure 1**). By 2006—two years post-high school—5.85 out of 100 were unemployed, 20.40 were employed but not in the military, and 1.32 had entered the military (a total of 27.57 students were not in some form of postsecondary education). At the same time, 72.43 had entered some type of PSE, whether a community college (27.51), a two- or four-year proprietary college (4.22), or a four-year college or university (40.70).

**Table 1** provides additional detail regarding the 72.43 students who entered a PSE institution between 2004 and 2006. Here we see that 13.52 (or 18.7%) had already stopped out, and there important variations in this finding by college type. Specifically, only 10.5% of the students who had enrolled in four-year colleges or universities had stopped out within the first two years of postsecondary study. In contrast, students who had entered community colleges or proprietary two- or four-year colleges were more likely to no longer be enrolled (29.5%, 26.5%, and 28.6%, respectively).

**Figure 1. Educational Pathways of Entire 2002 Cohort (N=3,086,655)**



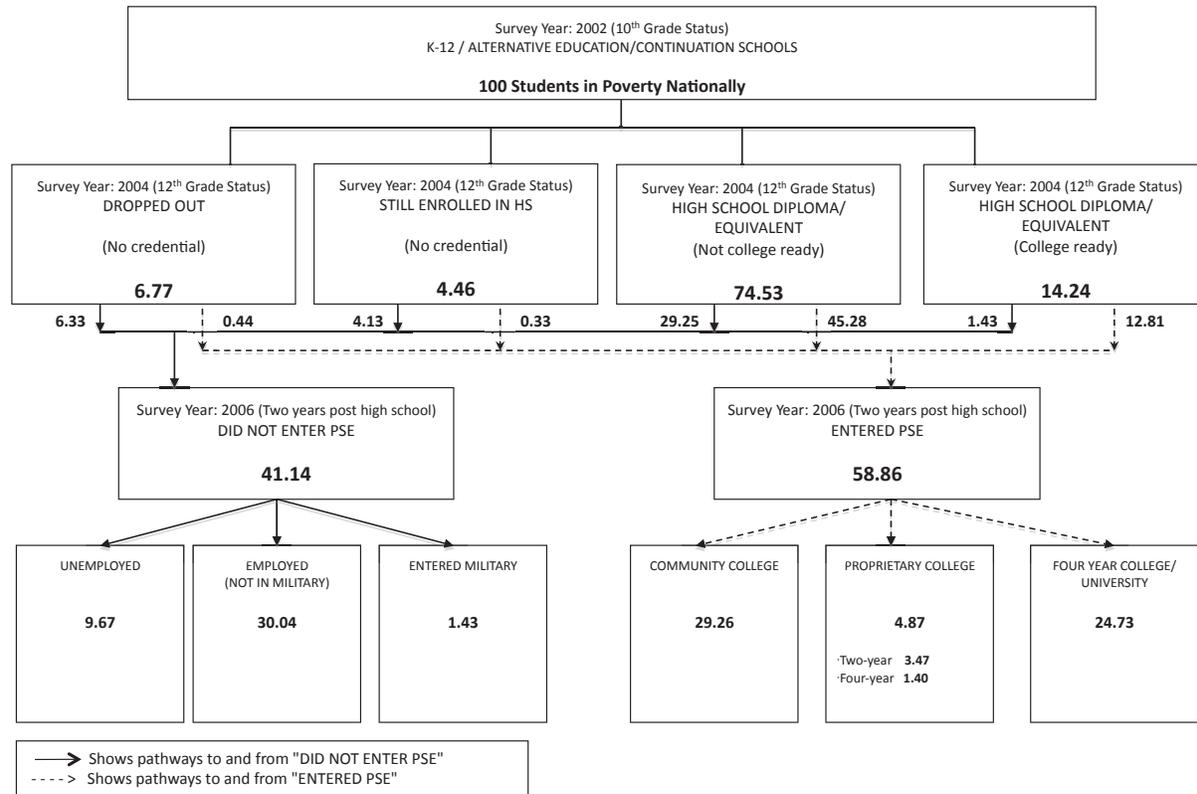
**Table 1. Students Who Left PSE without Credentials within Two Years of Entry (by PSE Type)**

PSE Type	# out of 100 students nationally who entered PSE	# (%) who left w/o credentials within two years of PSE entry
Community College	27.51	8.11 (29.5%)
For-Profit Two-Year	2.75	0.73 (26.5%)
For-Profit Four-Year	1.47	0.42 (28.6%)
Four-Year College/University	40.70	4.26 (10.5%)
<b>All PSE Types</b>	<b>72.43</b>	<b>13.52 (18.7%)</b>

**Comparing Pathways of Low- and Middle/High-Income Students**

Figure 2 presents educational pathways data only for students on the lower end of the income scale. Out of 100 low-income students, 74.53 finished high school without completing an academic concentrator curriculum and only 14.24 graduated having done so. Of the remaining students, 6.77 had dropped out and 4.46 had not secured credentials by the end of their twelfth grade year. Two years later, 41.14 of the 100 students had not entered PSE—9.67 were unemployed, 30.04 reported employment, and 1.43 had entered the military. Of the 58.86 who had entered PSE, 24.73 students entered four-year colleges,

**Figure 2. Educational Pathways of Low-Income Students (N=1,128,699)**



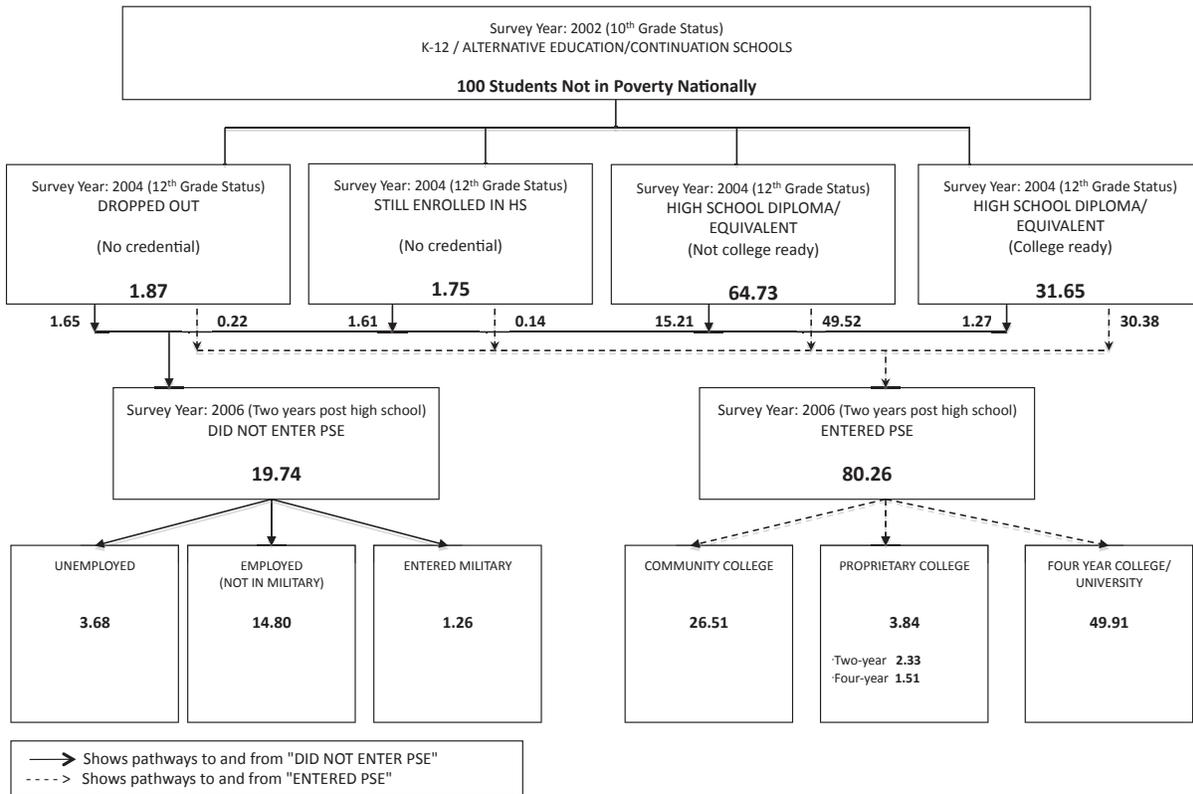
while a greater number (34.13 students) entered community colleges (29.26) or proprietary colleges (4.87).

The frequency with which lower-income students entered community and proprietary colleges has important implications, as students who do so are less likely to secure credentials beyond a two-year degree if they even secure credentials at all. In fact, **Table 2** highlights that roughly one third of low-income students who entered either community colleges (33.2%) or two- or four-year proprietary colleges (30.8% and 33.6%, respectively) had already stopped out within the first two years of entry.

**Table 2. Low-Income Students Who Left PSE without Credentials within Two Years of Entry (by PSE Type)**

PSE Type	# out of 100 low-income students nationally who entered PSE	# (%) who left w/o credentials within two years of PSE entry
Community College	29.26	9.72 (33.2%)
For Profit Two-Year	3.47	1.07 (30.8%)
For Profit Four-Year	1.40	0.47 (33.6%)
Four-Year College/University	24.73	3.62 (14.6%)
<b>All PSE Types</b>	<b>58.86</b>	<b>14.88 (25.3%)</b>

**Figure 3. Educational Pathways of Middle/High-Income Students (N=1,957,955)**



**Figure 3** presents the educational pathways of middle/high-income students only. Here we see that out of 100 middle/high-income students, 31.65 graduated college ready, having completed an academic concentrator curriculum, and 64.73 graduated without these credentials. Two years later, of 19.74 middle/high-income students who had not entered PSE, 3.68 reported unemployment, 14.80 reported employment, and 1.26 students had entered the military. Of the 80.26 middle/high-income students who had entered PSE by this time (including both those who graduated from high school college ready and those who did not), 26.51 were at community colleges, 3.84 attended proprietary colleges, and 49.91 attended traditional four-year institutions.

Looking more closely only at the 80.26 students who had entered PSE in some form, 12.73 (or 15.9%) left before earning credentials (**Table 3**). Most of these students had enrolled at community colleges—a smaller proportion (9.3%) of students who had enrolled at four-year institutions had stopped out at this point.

**Table 3. Middle/High-Income Students Who Left PSE without Credentials within Two Years of Entry (by PSE Type)**

PSE Type	# out of 100 middle/high-income students nationally who entered PSE	# (%) who left w/o credentials within two years of PSE entry
Community College	26.51	7.18 (27.1%)
For Profit Two-Year	2.33	0.54 (23.2%)
For Profit Four-Year	1.51	0.38 (25.2%)
Four-Year College/University	49.91	4.63 (9.3%)
<b>All PSE Types</b>	<b>80.26</b>	<b>12.73 (15.9%)</b>

When we compare the experiences of low-income students and middle/high-income students (see **Figures 2 and 3**), important differences emerge. First, low-income students were 3.77 times more likely than their middle/high-income peers to drop out of school before securing high school credentials. Moreover, the college readiness of low-income students was half that of their middle/high-income counterparts (14.24 versus 31.65). In fact, middle/high-income students were 2.78 times more likely to complete a college ready curriculum in high school. It is not surprising, therefore, that these students were also 2.27 times more likely to begin PSE at traditional four-year schools while low-income students were 1.27, 2.00, and 2.09 times more likely to begin at four-year for-profit, two-year for-profit, or two-year community colleges, respectively.

Regardless of college readiness, many low-income students had not entered PSE within two years of high school exit. Roughly 20 out of 100 middle/high-income students (19.74) did not enter PSE, but this figure more than doubled (41.14) for low-income students. Thus, low-income students were 2.84 times more likely not to enter PSE within two years of high school exit. And low-income students who did not enter PSE were 1.12 times more likely to be unemployed and 1.90 times more likely to enlist in the military than their middle/high-income counterparts who did not enter college.

Troubling across both low-income and middle/high-income students is the fact that within the first two years of PSE, high numbers of students had already stopped out (see **Tables 2 and 3**). While students from both income backgrounds entered and stopped out of college, low-income students were 1.8 times more likely to leave before earning degrees. Of the 80.26 middle/high-income students who entered PSE, 15.9% left within two years of entry; of the 58.86 low-income students who entered PSE, 25.3% left without credentials. This difference exists regardless of the college types the students entered.

**Tables 2 and 3** show stop-out as it relates to the types of colleges entered, but **Table 4** introduces the high school experience into the equation. More specifically, it answers the question, what proportion of students from each income group left PSE without credentials

within the first two years, and how does this vary by students’ twelfth grade status? Of the small number of low-income students who reported dropping out as of the twelfth grade but who, nonetheless, managed to enroll in college within two years, 93.2% had already left PSE before earning degrees (see **Table 4**). This figure is also high (72.7%) among their middle/high-income peers. Among students who graduated from high school but were not college ready and yet still attended PSE within two years, 20.4% of middle/high-income students and 28.7% of low-income students left without credentials.

**Table 4. PSE Entrance and Persistence, by Family Income and Twelfth Grade Status (Students Who Had Entered PSE Only)**

Twelfth Grade Status	Low-Income		Middle/High-Income	
	# who entered PSE two years post-high school	# (%) who left w/o credentials within two years of entry	# who entered PSE two years post-high school	# (%) who left w/o credentials within two years of entry
Dropped Out	0.44	0.41 (93.2%)	0.22	0.16 (72.7%)
Still Enrolled in HS	0.33	0.17 (51.5%)	0.14	0.02 (14.3%)
High School Diploma/ Equivalent (Non-College Ready)	45.28	13.01 (28.7%)	49.52	10.1 (20.4%)
High School Diploma/ Equivalent (College Ready)	12.81	1.29 (10.1%)	30.38	2.45 (8.1%)
<b>All Statuses</b>	<b>58.86</b>	<b>14.88 (25.3%)</b>	<b>80.26</b>	<b>12.73 (15.9%)</b>

Although almost all of the low-income students who had dropped out of high school but still entered PSE had stopped out within two years, the findings are somewhat more encouraging for those who were still enrolled in high school as of their twelfth grade status—only half (51.5%) of these low-income students had stopped out within two years of high school graduation. Troubling, though, is that when we compare these students with their middle/high-income counterparts in the same twelfth grade status category, we see that they were 9.26 times more likely to leave college before securing credentials (51.5% vs. 14.3%, respectively).

One promising finding is that only 10.1% of the 12.81 college ready low-income students who entered college left without credentials within the first two years of study (**Table 4**). This figure is equally low (8.1%) among their middle/high-income peers who also graduated from high school eligible for college.

This section has provided a broad context for understanding educational pathways for all students nationally, and then separately by low-income and middle/high-income

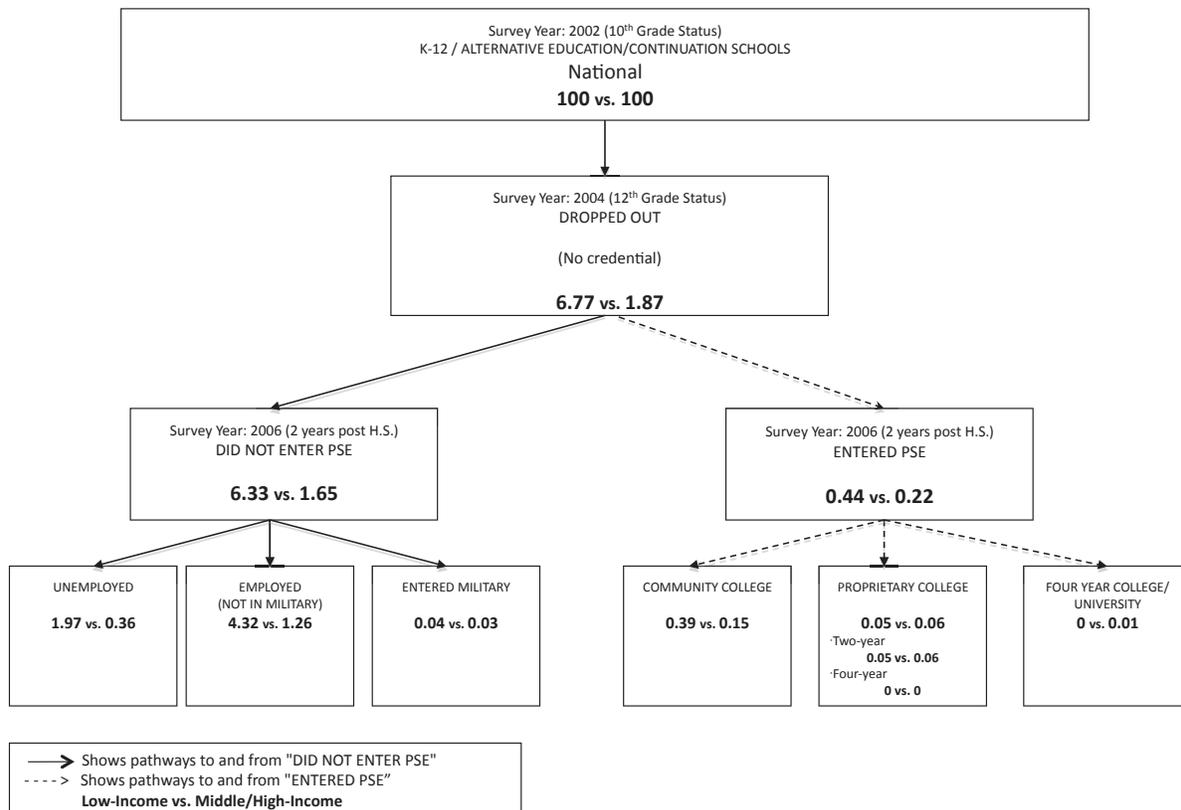
status. The next section further unpacks each of the four twelfth grade high school statuses to better understand their effects on low-and middle/high-income students.

### Deeper Focus on Twelfth Grade High School Status

The next four figures (Figures 4 through 7) isolate and zoom in on each of the four high school status conditions separately (i.e., dropout, still enrolled, non-college ready high school graduate, and college ready high school graduate) to more clearly visualize the educational trajectories of low-income students relative to their middle/high-income peers. The numbers on the left side of each figure represent low-income students and the numbers on the right side represent middle/high-income students. The data are again presented in terms of 100 students nationally, but because we are focusing on smaller subgroups, the numbers of students in each category are smaller.

**Twelfth Grade Status: Dropouts.** Figure 4 isolates the 6.77 out of 100 low-income students and 1.87 out of 100 middle/high-income students who had dropped out as of their twelfth grade year. Not surprisingly, most of these students had not entered PSE by 2006.

**Figure 4. Educational Pathways of High School Dropouts, by Family Income**



Among the relatively few students who experienced dropping out of high school but who eventually enrolled in college, both low-income students (88.6%) and middle/high-income students (68.2%) were likely to enter at the community college level (Table 5). Middle/high-income students were 2.98 times more likely than their low-income counterparts to enroll in for-profit, two-year colleges.

**Table 5. PSE Type of High School Dropouts, by Family Income (Students Who Had Entered PSE Only)**

PSE Type	# of students who dropped out of high school and subsequently entered PSE	
	Low-Income	Middle/High-Income
Community College	0.39 (88.6%)	0.15 (68.2%)
For Profit Two-Year	0.05 (11.4%)	0.06 (27.3%)
For Profit Four-Year	0.00 (0.0%)	0.00 (0.0%)
Four-Year College/University	0.00 (0.0%)	0.01 (4.5%)
<b>Total HS Dropouts Who Entered PSE</b>	<b>0.44 (100%)</b>	<b>0.22 (100%)</b>

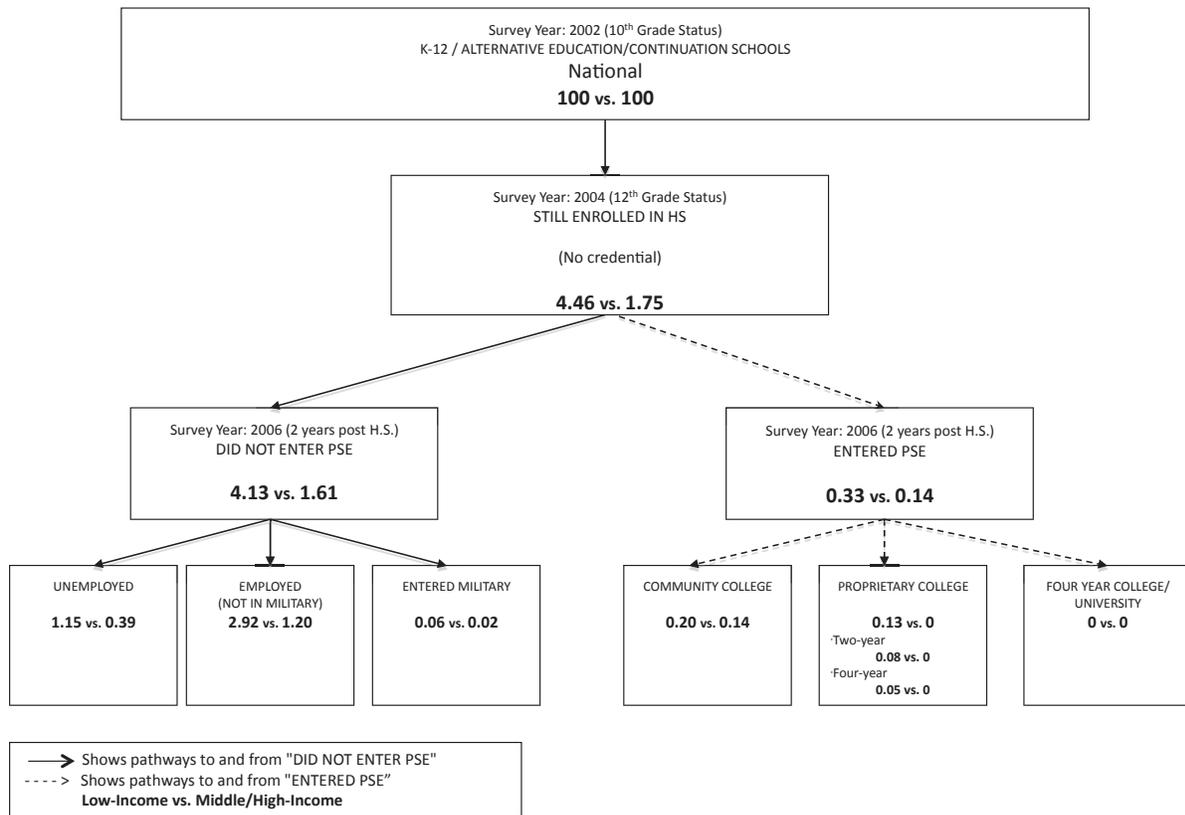
Of 100 low-income students, almost seven (6.77) dropped out of high school. Almost all of these students (94%, or 6.33 of 6.77) had not entered PSE two years later. Nearly one third of that group (31.1%, or 1.97 of 6.33) reported unemployment (Table 6). This compares to 1.65 out of the 1.87 (88.2%) middle/high-income students who dropped out of high school and did not enter PSE (Figure 3); only 21.8% (.36 of 1.65) of these young adults reported unemployment (Table 6). Middle/higher-income students who had dropped out were 1.49 times more likely than their low-income peers to be employed and were 3.04 times more likely to enter the military.

**Table 6. Labor Market Status of High School Dropouts Who Did Not Enter PSE, by Family Income (Students Who Had Not Entered PSE Only)**

Labor Market Status	# of students who dropped out of high school and did not enter PSE	
	Low-Income	Middle/High-Income
Unemployed	1.97 (31.1%)	0.36 (21.8%)
Employed (Not in Military)	4.32 (68.2%)	1.26 (76.4%)
Entered Military	0.04 (0.6%)	0.03 (1.8%)
<b>Total HS Dropouts Who Did Not Enter PSE</b>	<b>6.33 (100%)</b>	<b>1.65 (100%)</b>

**Twelfth Grade Status: Still Enrolled in High School.** Of the 4.46 low-income students and 1.75 middle/high-income students who reported that they would still be enrolled in high school following what should have been their twelfth grade year, 92.6% (4.13) and 92% (1.61) did not enter PSE in the subsequent two years (Figure 5).

**Figure 5. Educational Pathways of Students Still Enrolled in High School as of Twelfth Grade Status, by Family Income**



Among the low-income students who said they would still be enrolled in high school as of their twelfth grade status but who had also enrolled in PSE two years later, 60.6% reported community college enrollment, while 24.2% and 15.2% reported two- and four-year for-profit college enrollment, respectively (Table 7). In this sample, all of the middle/high-income students who reported they would still be enrolled in high school beyond what should have been their twelfth grade year and who subsequently entered PSE were enrolled in community colleges.

**Table 7. PSE Type of Students Enrolled in High School as of Twelfth Grade Status, by Family Income (Students Who Had Entered PSE Only)**

PSE Type	# of students still enrolled in HS at 12 <sup>th</sup> grade status who entered PSE	
	Low-Income	Middle/High-Income
Community College	0.20 (60.6%)	0.14 (100.0%)
For-Profit Two-Year	0.08 (24.2%)	0.00 (0.0%)
For-Profit Four-Year	0.05 (15.2%)	0.00 (0.0%)
Four-Year College/University	0.00 (0.0%)	0.00 (0.0%)
<b>Total Still Enrolled in HS Who Entered PSE</b>	<b>0.33 (100%)</b>	<b>0.14 (100%)</b>

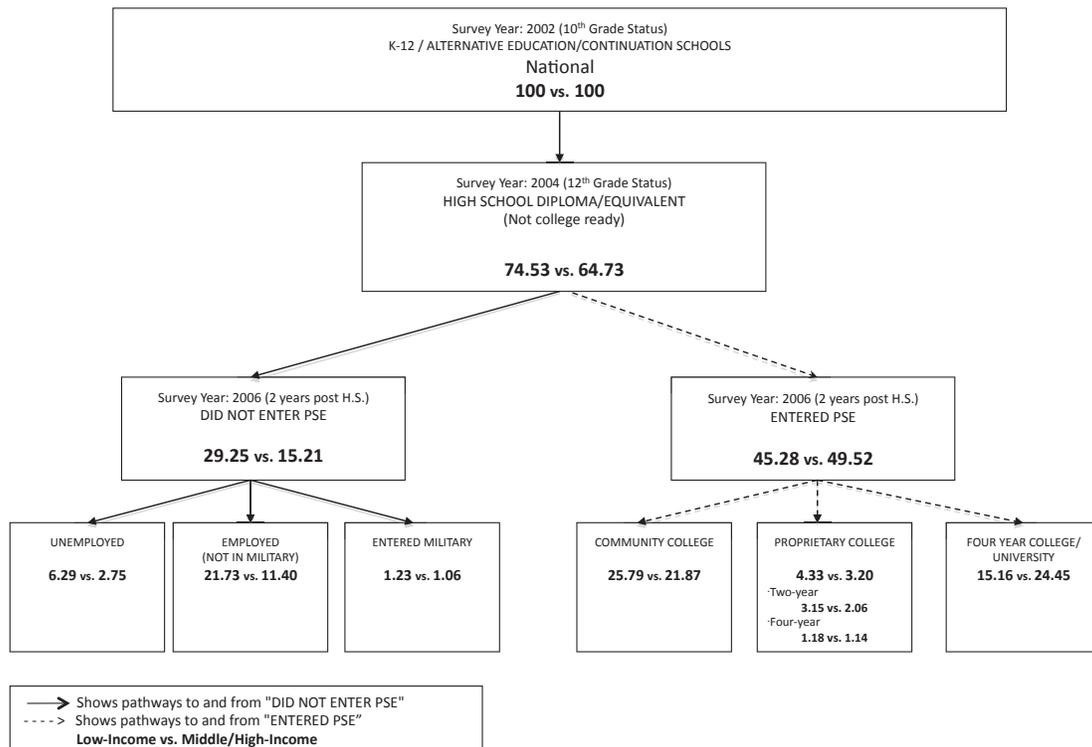
Among low-income students who reported they would still be in high school beyond their expected twelfth grade year and who did not enroll in PSE within the following two years, 27.8% reported unemployment; this proportion was similar for their middle/high-income still-enrolled peers (24.2%) (Table 8). Additionally, there were only minor differences between income groups in terms of employment, whether by the military or elsewhere.

**Table 8. Labor Market Status of Students Still Enrolled in High School as of Twelfth Grade Status, by Family Income (Students Who Had Not Entered PSE Only)**

Labor Market Status	# of students still enrolled in HS at 12 <sup>th</sup> grade who did not enter PSE	
	Low-Income	Middle/High-Income
Unemployed	1.15 (27.8%)	0.39 (24.2%)
Employed (Not in Military)	2.92 (70.7%)	1.20 (74.5%)
Entered Military	0.06 (1.5%)	0.02 (1.2%)
<b>Total Still Enrolled in HS Who Did Not Enter PSE</b>	<b>4.13 (100%)</b>	<b>1.61 (100%)</b>

**Twelfth Grade Status: Non-College Ready High School Graduates.** Of the low-income students who graduated with high school diplomas (or the equivalent) not college ready, 60.8% (45.28 of 74.53) entered PSE; 76.5% (49.52 of 64.73) of the middle/high-

**Figure 6. Educational Pathways of Non-College Ready High School Graduates, by Family Income**



income students with the same twelfth grade status did the same (**Figure 6**).

As **Table 9** shows, 57% of the 45.28 low-income students who finished high school not college ready but who still went on to PSE did so at community colleges; 44.2% of the 49.52 middle/high-income students in this group did the same. Non-college ready middle/high-income students were 1.93 times more likely to enter college at the traditional four-year level compared to their low-income counterparts (49.4% compared to 33.5%, respectively).

**Table 9. PSE Type of Non-College Ready High School Graduates, by Family Income (Students Who Had Entered PSE Only)**

PSE Type	# of Non-College Ready HS Graduates Who Entered PSE	
	Low-Income	Middle/High-Income
Community College	25.79 (57.0%)	21.87 (44.2%)
For-Profit Two-Year	3.15 (7.0%)	2.06 (4.2%)
For-Profit Four-Year	1.18 (2.6%)	1.14 (2.3%)
Four-Year College/University	15.16 (33.5%)	24.45 (49.4%)
<b>Total Non-College Ready HS Graduates Who Entered PSE</b>	<b>45.28 (100%)</b>	<b>49.52 (100%)</b>

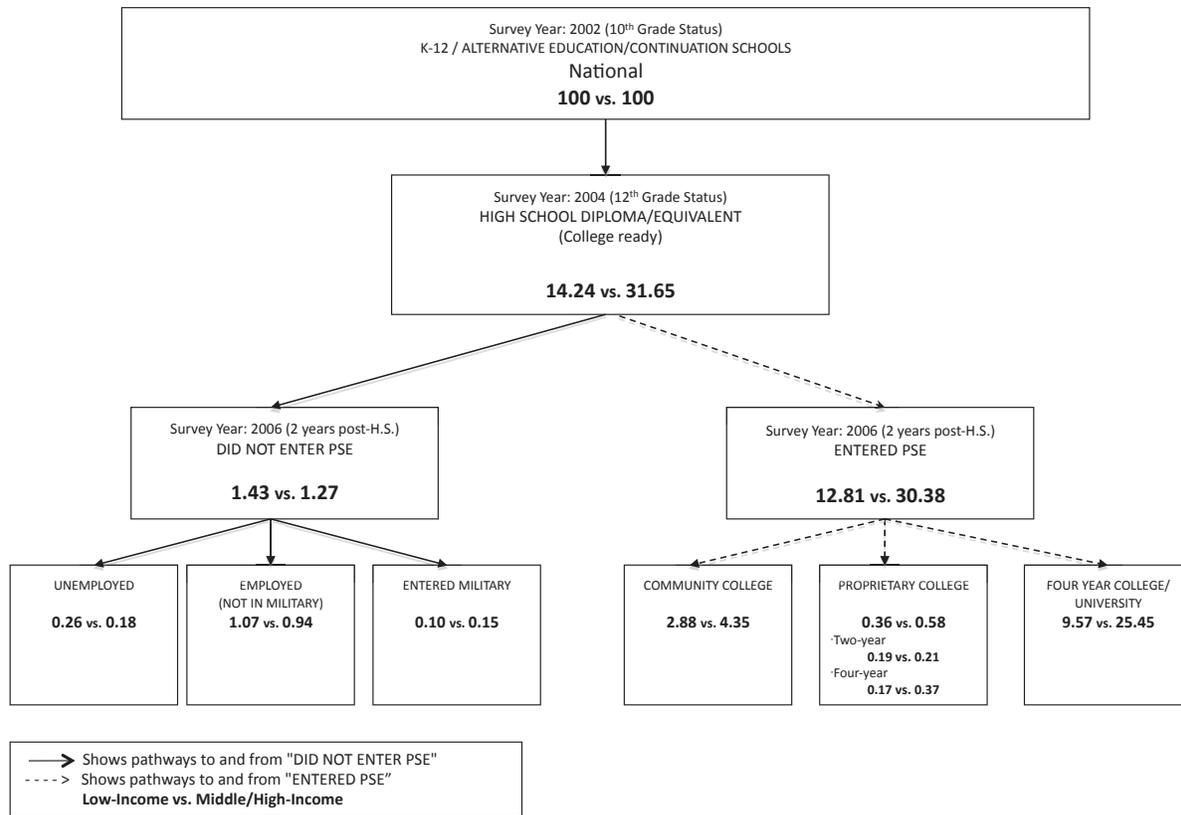
Among students who completed high school without college preparedness and who did not go on to PSE within two years, there were only small differences in labor market status by income level. As **Table 10** demonstrates, roughly 75% of the students in each income group were employed but not in the military.

**Table 10. Labor Market Status of Non-College Ready High School Graduates, by Family Income (Students Who Had Not Entered PSE Only)**

Labor Market Status	# of Non-College Ready HS Graduates Who Did Not Enter PSE	
	Low-Income	Middle/High-Income
Unemployed	6.29 (21.5%)	2.75 (18.1%)
Employed (Not in Military)	21.73 (74.3%)	11.40 (75.0%)
Entered Military	1.23 (4.2%)	1.06 (7.0%)
<b>Total Non-College Ready HS Graduates Who Did Not Enter PSE</b>	<b>29.25 (100%)</b>	<b>15.21 (100%)</b>

**Twelfth Grade Status: College Ready High School Graduates.** Among low-income students, graduating college-eligible led to vastly different trajectories compared to the other three conditions. Close to 90% of these students (12.81 of 14.24) entered college (see **Figure 7**). Likewise, 96% of middle/high-income students (30.38 of 31.65) did the same.

**Figure 7. Educational Pathways of College Ready High School Graduates, by Family Income**



Interestingly—but perhaps not surprisingly—middle/high-income students who graduated college ready were 2.67 times more likely to enter college than their low-income counterparts; they were also 1.76 times more likely to begin at traditional four-year campuses. As **Table 11** shows, however, the majority of college ready low-income students still began at four-year colleges (74.7%, or 9.57 of 12.81); recall from the previous section (**Table 9**) that only about a third of low-income students who graduated from high school without completing a college preparatory curriculum did the same. Entry at the four-year level is important to consider, as past research shows that the odds of securing educational credentials are higher for students who take this path than they are for those who begin at other college types (Adelman, 2006; Seidman, 2005).

**Table 11. PSE Type of College Ready High School Graduates, by Family Income (Students Who Had Entered PSE Only)**

PSE Type	# of College Ready HS Graduates Who Entered PSE	
	Low-Income	Middle/High-Income
Community College	2.88 (22.5%)	4.35 (14.3%)
For-Profit Two-Year	0.19 (1.5%)	0.21 (0.7%)
For-Profit Four-Year	0.17 (1.3%)	0.37 (1.2%)
Four-Year College/University	9.57 (74.7%)	25.45 (83.8%)
<b>Total College Ready HS Graduates Who Entered PSE</b>	<b>12.81 (100%)</b>	<b>30.38 (100%)</b>

Among students who were college ready when they completed high school but who did not go on to PSE within two years, there were only small differences in their labor market status. As shown in **Table 12** (and comparable to their non-college ready counterparts), roughly 75% of students in each income group were employed but not in the military.

**Table 12. Labor Market Status of College Ready High School Graduates, by Family Income (Students Who Had Not Entered PSE Only)**

Labor Market Status	College Ready HS Graduates Who Did Not Enter PSE	
	Low-Income	Middle/High-Income
Unemployed	0.26 (18.2%)	0.18 (14.2%)
Employed (Not in Military)	1.07 (74.8%)	0.94 (74.0%)
Entered Military	0.10 (7.0%)	0.15 (11.8%)
<b>Total College Ready HS Graduates Who Did Not Enter PSE</b>	<b>1.43 (100%)</b>	<b>1.27 (100%)</b>

## Discussion

The complexity of these educational trajectories reminds us of the importance of understanding variations that begin in high school. We have highlighted the pathways of students who dropped out of high school but navigated their way back to postsecondary education. Likewise, we saw the pathways of students who completed high school prepared for college but instead chose to enter the labor force after graduation. We also saw many variations in between. And through this, we are reminded of many factors in the college access and choice process, including the importance of community colleges as initial points of PSE entry for students of varied high school education backgrounds.

While the overall figures paint a particular portrait of U.S. educational pathways, we see vastly different scenarios when we disaggregate by low-income and middle/high-income

status. For example, while only 1.87 of 100 middle/high-income students dropped out of high school after the tenth grade, 6.77 out of 100 low-income students did so. And while 31.65 of 100 middle/high-income students graduated from high school college ready, the comparable figure for low-income students was only 14.24. These types of gross disparities existed in both the educational and labor markets.

One important exception was in college persistence, particularly with respect to institutions other than four-year colleges and universities. While these numbers need to be interpreted with caution, we see that, regardless of income level, similarly high proportions of students who began at community colleges or for-profit colleges stopped out within the first two years of entry, before earning any type of credential—close to one third across income levels. These higher education sectors, particularly vital to our low-income students, are in need of further investigation so that talent is not lost.

Other clear differences emerged with respect to post-high school pathways depending on the type of twelfth grade status that a student secured. For example, there was roughly a 10% difference in the post-high school unemployment rate between high/middle- and low-income students who had dropped out of high school (**Table 6**). Low-income students who took longer than four years to complete high school were more likely than their middle/high-income counterparts to enroll in for-profit colleges. And among those who graduated from high school without satisfying an academic curriculum, close to 50% of the middle/high-income students nevertheless enrolled in four-year colleges, but only 33.5% of low-income students did so (**Table 9**). This is especially important given the connection between entrance into four-year colleges or universities and persistence to degree.

The only pathway where income differences were relatively small was among the college ready population. The majority of both low-income and middle/high-income students who graduated from high school having completed a college preparatory curriculum then moved on to higher education, specifically to four-year colleges. This finding is a stark reminder of the incredibly urgent need to ensure that students graduate from high school having completed a college preparatory curriculum.

## Limitations

There are two important limitations to this study that must be acknowledged. First, high school completion and enrollment rates reported here are higher than in other national reports. This is because most attrition happens during ninth and tenth grade (Rumberger, 1995; Silver, Saunders, & Zarate, 2008), and—because of the limitations of our dataset—we

evaluated group status after the tenth grade. Second, we were only able to capture students' behavior within a two-year time frame after high school. Future follow-ups will allow for a longer time period in which to calculate educational movement so that we may capture those students who took longer than two years to enroll in any postsecondary education training or who returned to PSE after stopping out within the first two years.

With these caveats in mind, this work remains a useful examination of the late high school and early post-graduation behavior of low- and middle/high-income students. In particular, it contributes to our understanding of how secondary school experiences may influence post-high school pathways, whether into postsecondary education or elsewhere. As we seek ways to improve educational opportunities and outcomes for all students, this is an especially important issue to consider, because we know that delayed college enrollment results in lower odds of baccalaureate degree completion (Bozick & DeLuca, 2005). Therefore, we must identify ways to facilitate smooth transitions from high school into higher education.

## Next Steps

As noted above, future work will explore students' pathways for a period of time longer than two years post-high school, providing us with a richer understanding of their choices and circumstances. For instance, we can determine whether low-income students who report they will still be enrolled in high school beyond what should be their twelfth grade year are simply taking longer to secure high school and postsecondary credentials. Similarly, we can learn whether students who have stopped out of PSE within two years of high school graduation subsequently return, secure employment, or neither.

We must also explore in greater detail these students' middle school and secondary school conditions. To this end, we will draw upon a comprehensive conceptual framework for college access to formulate guiding research questions. Specifically, Oakes (2003) highlights seven conditions in the secondary school context that can positively impact students' post-high school behavior: 1) safe and adequate school facilities; 2) a college-going school culture; 3) a rigorous academic curriculum; 4) qualified teachers; 5) intensive academic and social supports; 6) opportunities to develop a multi-cultural college-going identity; and 7) family-neighborhood-school connections. We will use this framework to design studies that evaluate the extent to which school conditions can explain the educational trajectories of youth from various economic backgrounds. Specifically, we will seek to understand why certain students end up in what can effectively be considered higher education tracks while others are not sufficiently prepared for either college or work.

Future work will tap into other datasets—such as the National Education Longitudinal Survey (NELS)—that include middle school experiences. This will allow us

to examine early dropouts, including those who do not make the transition to high school. Again drawing from Oakes' work, we can use these datasets to learn more about the school and community conditions that do or do not lead to enrollment in college preparatory coursework in high school.

We will also explore more deeply the paths of students who do not pursue postsecondary education. Past research has offered a number of reasons why low-income students stop out of or do not enroll in college, including poor academic preparation and high college costs. Future multivariate analyses will explore the types of secondary school experiences these students are exposed to that may contribute to limited post-high school trajectories or that can explain early college stop out behavior. While students in the current study who did not pursue PSE often did report employment or military enlistment (i.e., few reported being unemployed), a deeper understanding of their opportunities for employment without credentials is warranted in order to better understand social mobility opportunities.

The current study can serve as an important foundation for these future explorations. Moreover, it should serve as a reminder that, when it comes to ensuring equitable access to our institutions of higher education, there is work to be done. Specifically, this study highlights the pressing need to make sure that students graduate from high school having completed the courses that will enable them to apply for and attend college, so that the barriers to post-high school education and career options are minimized. Moreover, it points to the importance of supporting students who, for any of a variety of reasons, do not have access to the courses that will prepare them and make them eligible for college. These students are still quite capable of pursuing a range of postsecondary options and must receive the resources and guidance they need, should they choose to do so. Finally, it reminds us of how important it is to carefully consider the family income levels of students when shaping higher education research and policy, since there remains an effect even when a student's high school curriculum supports a college pathway.

Throughout their educational careers, students who grow up with fewer economic resources face obstacles that may limit their choices when (or if) they graduate from high school. Only when we more completely understand the paths that these students follow—and the obstacles they encounter along the way—can we truly close the gaps in the pipeline to college access.

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## Endnotes

- 1** The event dropout rate is the percentage of private and public high school students who left school between the beginning and end of one school year. The status dropout rate is the percentage of individuals in a given age range who are not in school and have not earned a traditional high school diploma or General Educational Development (GED) credential, irrespective of when they dropped out. The status completion rate is the percentage of individuals in a given age range who are not in high school and who have earned a traditional high school diploma or GED, irrespective of when the credential was earned. These three measures are calculated with Community Population Survey data. The average freshman graduation rate is the proportion of public high school freshmen who graduated with regular diplomas four years after starting ninth grade. This rate is calculated with Common Core of Data (CCD) State Nonfiscal Survey of Public Elementary/Secondary Education data.
- 2** Readers who are further interested in this topic are referred to Rumberger and Lim (2008), who provide a comprehensive review of the past 25 years of literature on high school dropouts, arguing that the literature converges on two types of predictive factors: 1) individual or student-level characteristics, including educational performance, as well as values, beliefs, and student background characteristics; and 2) institutional characteristics, which refer specifically to aspects of the schools that students attend.
- 3** The terms “proprietary” and, in particular, “for-profit” have widespread historic and contemporary usage. While they are sometimes used to refer to differing institutional types, these distinctions are less germane to our analysis. As such, we use the terms interchangeably in this document.
- 4** Our dropout rates are only representative of students nationally who were enrolled in high school as tenth graders in 2002. We cannot capture students who dropped out prior to reaching the tenth grade year, which, unfortunately, is when most attrition occurs (Rumberger, 1995; Silver, Saunders, & Zarate, 2008).
- 5** Because the widely accepted status completion rate aggregates high school diploma earners with GED or equivalent earners, this study also aggregates these groups. This decision is premised on the idea that securing either of these credentials enables access to multiple types of PSE options.
- 6** The academic concentrator curriculum is based on the 1998 taxonomy of secondary schools and is characterized by having enrolled in four credits of English, three credits of mathematics (with at least one credit higher than algebra II), three credits of science (with at least one credit higher than biology), three credits of social studies (with at least one credit in U.S. or world history), and two credits in a single foreign language (NCES, 2005).
- 7** We use “dropping out” in reference to the high school years, while “stopping out” refers to statuses at the postsecondary level. This is how these terms are used most often in research on students who leave school before securing credentials. The phrase “stopping out” is also commonly used to reflect a pause in a student’s education, rather than the end-point connoted by “dropping out.” Since this work captures a short time frame after high school, we invoke a term that might therefore be more characteristic of PSE behavior (Adelman, 1999).
- 8** The chi-square test results and odds ratio calculations are available from the author upon request.

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## Appendix A

### Technical Note on Interpreting Numbers in the Education Pathway Figures

Figures 1, 2, and 3 in the main body of the text provide an initial understanding of the postsecondary educational pathways of low- and middle/high-income students. With additional detail, they reveal even greater complexity. With that in mind, this appendix includes expanded versions of these figures containing color-coded numbers that allow us to trace students' paths by specific combinations of college-readiness and post-high school behavior. This technical note offers readers a guide for using Figure A1, Figure A2, and Figure A3 to derive more nuanced findings. In our explanation we use Figure A1 as an example, but the same types of calculations can be performed on the other two figures.

In Figure A1 we see that of 100 students in survey year 2002, 68.31 graduated from high school not college ready. The data below the twelfth grade status box (in blue) show that 20.34 of these students did not enter PSE, and 47.97 did. The blue numbers contained in the boxes for two years post-high school (i.e., 2006) describe just this subset of students; the sum of all of the blue numbers is equal to 68.31, or the number within that twelfth grade status box. The same detail can be derived for students who had dropped out (red), were still enrolled (green), and who were college ready and had high school diplomas/GEDs (pink). This same color-coding system is also used in Figure A2 and Figure A3, allowing for more in-depth analysis and understanding of how various factors interrelate. Importantly, this additional information can be interpreted differently, depending on the question of interest.

As examples, this technical note includes three different calculations for the same three numbers in the figures. First, if we want to know nationally how many students graduate from high school college ready, we have that percentage on the figure—e.g., in the overall sample, 25.29% (25.29 students out of 100) fall into this category (Figure A1). If we want to compare outcomes for these college ready graduates to outcomes for students who fell into other categories (i.e., dropping out, remaining in high school, or graduating without college preparedness), we simply follow the pathways that are included on the figure and keep the denominator as 100. Specifically, out of 100 students overall, .21 (.21%) were college ready but unemployed; .99 (.99%) were college ready and employed; .13 students (.13%) were college ready and entered the military; the remainder were college ready and entered a community college (3.82, or 3.82%), a two-year proprietary college (.20, or .20%), a four-year proprietary college (.30, or .30%), or a four-year college or university (19.64, or 19.64%). Note that these figures add up to 25.29 students, or 25.29% of the 100 students nationally. These same calculations could be performed for students in the other categories (such as graduating from high school without college credentials), and

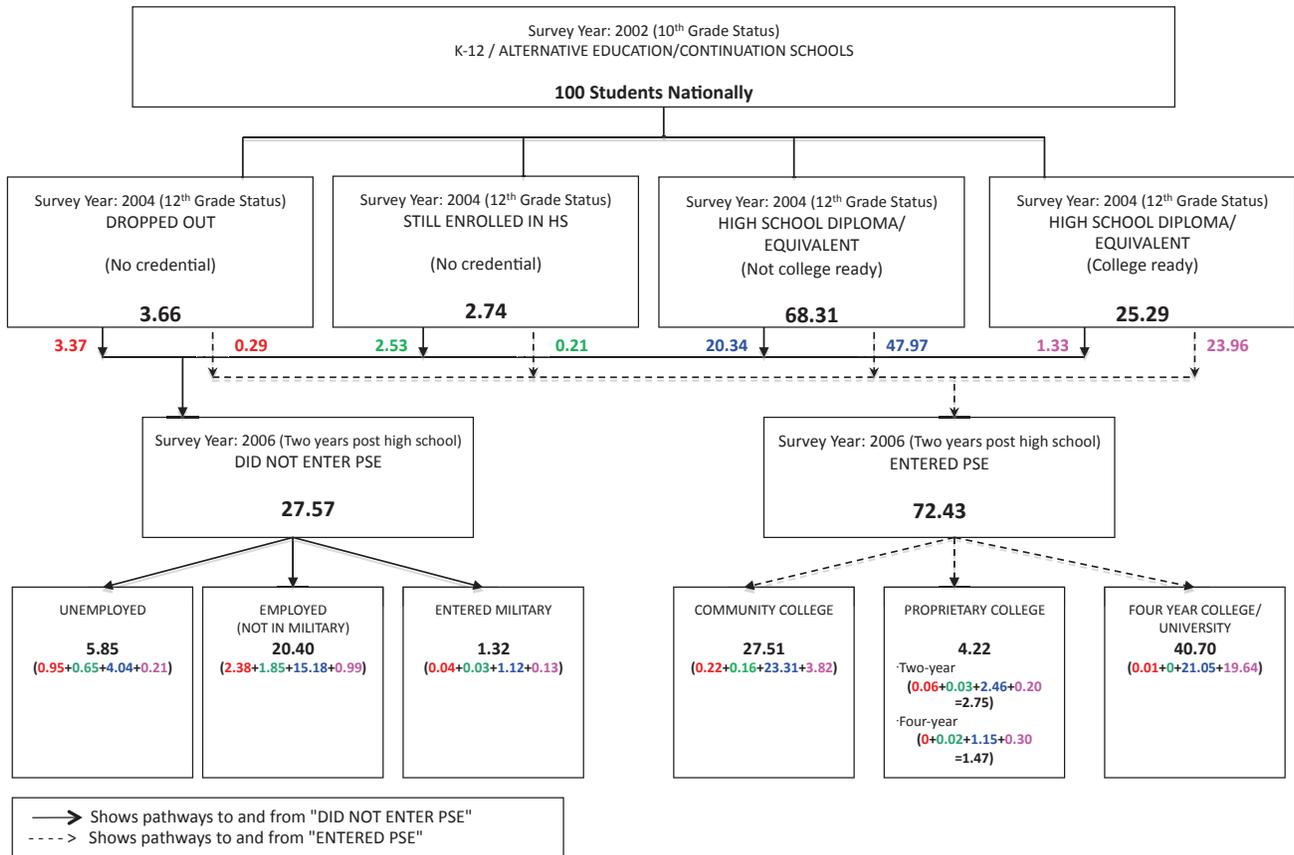
*the interpretation and the denominators change depending on what part of the figure you are interested in.*

If instead we are interested in comparing the 25.29 college ready high school graduates only to each other, our denominator is now 25.29 instead of 100. So, among the 25.29 students who graduated high school college ready, .21 of the 25.29 (or .83%) were unemployed; .99 (or 3.9%) were employed; .13 students (.51%) entered the military; 3.82 (15.1%) entered a community college; .20 (.79%) entered a two-year proprietary college; .30 (1.2%) entered a four-year proprietary college, and 19.64 (77.7% of the original 25.29 students) entered a four-year college or university. Notice that while the *number* is the same on the figure, the *percentage* differs because we are talking specifically about the 25.29 college ready high school graduates.

Still another way to look at the data is to examine differences in outcomes depending on students' status when they graduated from high school and whether or not they entered PSE. For example, of the 1.33 students who graduated from high school college ready but who did not enter PSE: .21 students (or 15.8% of that 1.33) were unemployed; .99 students (or 74.4% of the original 1.33) were employed; and .13 students (9.8% of 1.33) entered the military. Similarly, of the 23.96 students who graduated from high school college ready and who did enter PSE, 3.82 (15.9% of 23.96) entered a community college; .20 (.83%) entered a two-year proprietary college; .30 (1.3%) entered a four-year proprietary college; and 19.64 students (82.0% of the 23.96 who entered college) enrolled in a four-year college or university. Again, the *number* on the figure has not changed, just the denominator and hence the *percentage* and *interpretation*.

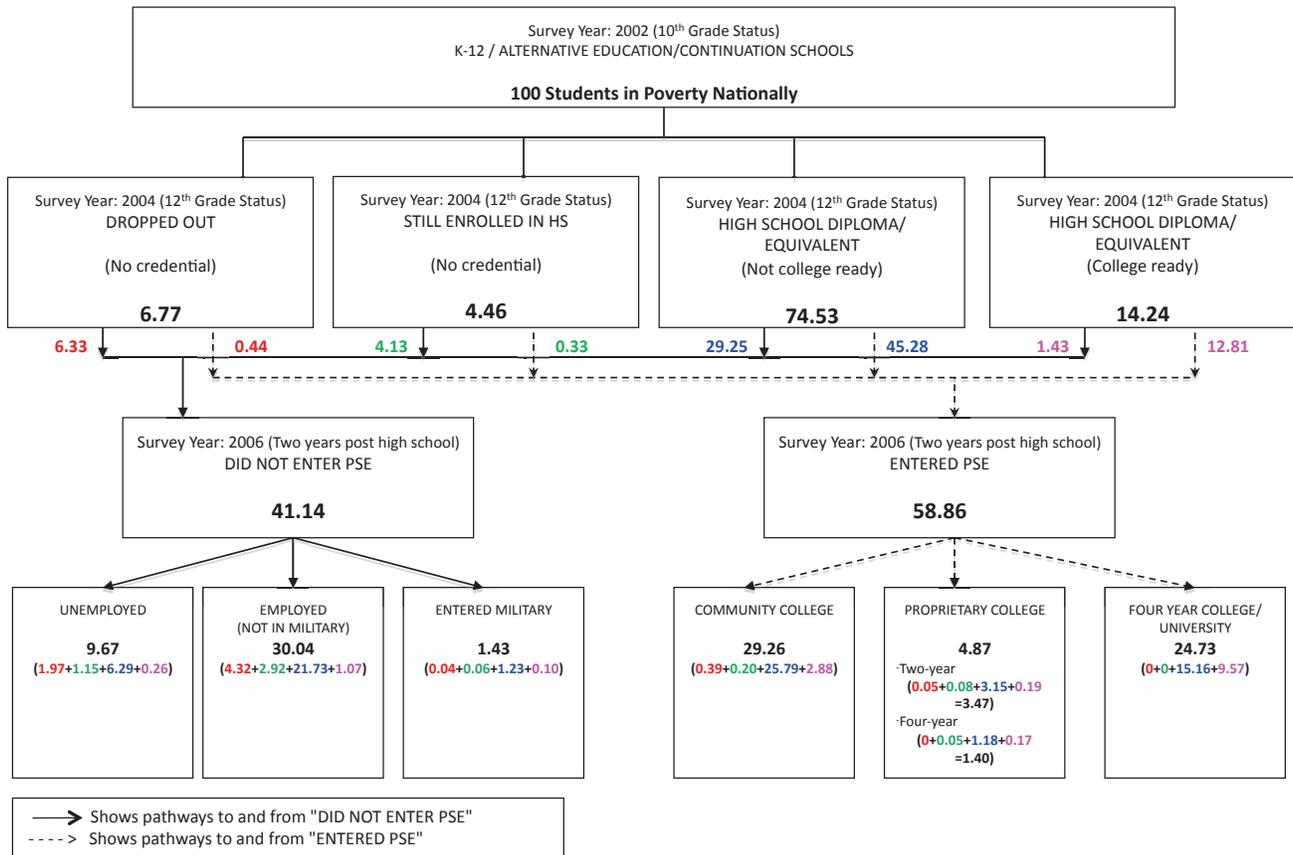
A firm understanding of these various ways of interpreting the data is important, because it allows one to calculate specific percentages according to the specific condition of interest. This discussion makes clear why these figures could not contain simple percentages, as the percentages change depending on the denominators employed.

**Figure A1. Educational Pathways of the Entire 2002 Cohort (Expanded Findings)**



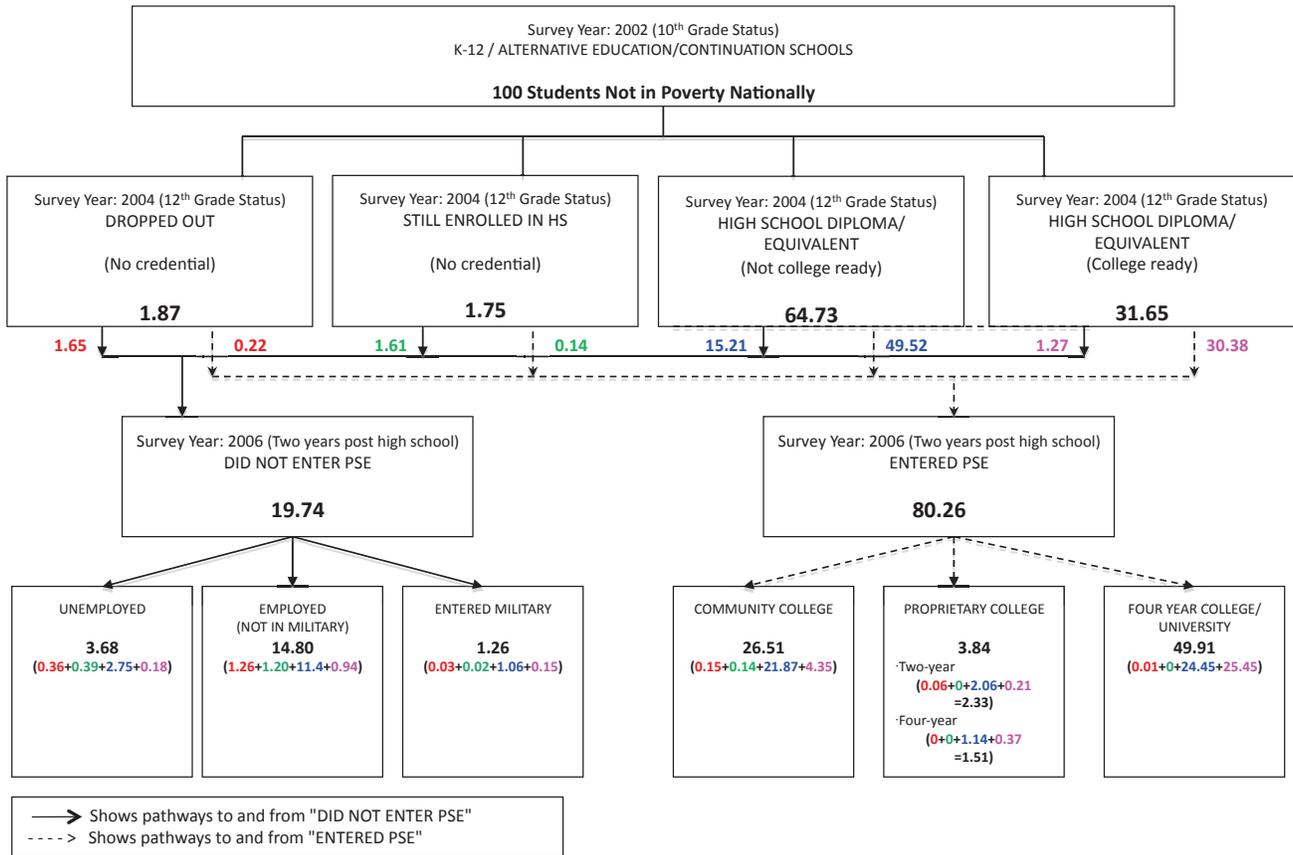
Note: The color-coded numbers allow the reader to trace students' pathways from each 12th grade status. Red numbers (listed first) correspond to students who dropped out of high school; Green numbers (listed second) correspond to students who were still enrolled in high school; Blue numbers (listed third) correspond to students who graduated from high school not college ready; Pink numbers (listed fourth) correspond to students who did graduate from high school college ready. The numbers within the parentheses sum to the number immediately above.

**Figure A2. Educational Pathways of Low-Income Students (Expanded Findings)**



Note: The color-coded numbers allow the reader to trace students' pathways from each 12th grade status. Red numbers (listed first) correspond to students who dropped out of high school; Green numbers (listed second) correspond to students who were still enrolled in high school; Blue numbers (listed third) correspond to students who graduated from high school not college ready; Pink numbers (listed fourth) correspond to students who did graduate from high school college ready. The numbers within the parentheses sum to the number immediately above.

**Figure A3. Educational Pathways of Middle/High-Income Students (Expanded Findings)**



Note: The color-coded numbers allow the reader to trace students' pathways from each 12th grade status. Red numbers (listed first) correspond to students who dropped out of high school; Green numbers (listed second) correspond to students who were still enrolled in high school; Blue numbers (listed third) correspond to students who graduated from high school not college ready; Pink numbers (listed fourth) correspond to students who did graduate from high school college ready. The numbers within the parentheses sum to the number immediately above.





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