Deciding About College: How Soon Is Soon Enough?

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Background/Context: Prior research has stressed the importance of timing in the college choice process, especially as it relates to receiving early information and making plans and decisions. Little has been done, however, in terms of empirically demonstrating how soon students make their decisions about college and the ways in which the timing of student decisions are related to planning behaviors.

Focus of Study: This paper examines the relationships between the timing of decisions related to college attendance and outcomes such as aspirations, course-taking patterns in high school, and eventual college application. It also considers how the timing and various sources of information are related to when students make these decisions.

Research Design: This study provides secondary statistical analysis of data obtained from a statewide survey of high school seniors in New Hampshire during the spring of the 2004–2005 school year.

Conclusions/Recommendations: Findings suggest that the dominant model of college choice involving predisposition, search, and choice should be updated to acknowledge that predisposition may begin much earlier than the literature has typically considered. To wit, many students begin gathering information and making decisions about postsecondary education as early as elementary school. Additional resources should be dispatched to address the needs of economically disadvantaged and first-generation students who often lack the types of human, social, and financial capital needed to make the most of their early educational opportunities.

INTRODUCTION

The early part of the 2010–2019 decade has seen a renewed interest in higher education among national and state policy makers (Pérez-Peña, 2014; The White House, 2015). A key component of the conversation has focused on encouraging more students to go to college and earn some type of credential. This movement is intended in part to increase the availability and preparedness of a capable workforce (Lumina Foundation, 2012). Achieving this goal requires a concerted effort to increase the flow of students from high school into the postsecondary education system. Despite the recent attention given to this problem, it is hardly a new one. For decades, K–12 and higher education researchers and policy makers have been looking for ways to improve the transition process. Much of this effort has focused on exploring how factors such as race and ethnicity (Engberg & Wolniak, 2009; Freeman, 1997; Hamrick & Stage, 1998; Hurtado, Inkelas, Briggs, & Rhee, 1997; Perna & Titus, 2005; Pitre, 2006; St. John, 1991), gender (Mau & Bikos, 2000), socioeconomic status (Cameron & Heckman, 2001; Carter, 1999; Leslie, Johnson, & Carlson, 1977; Plank & Jordan, 2001; Tierney, 1980), students' perceptions of affordability (George-Jackson & Gast, 2015), access to financial aid (Cameron & Heckman, 2001; Flint, 1993; Leslie et al., 1977; Perna & Steele, 2011; St. John, 1991), and school-level factors, such as counseling staff, resources, and socioeconomic makeup (Engberg & Gilbert, 2014; Engberg & Wolniak, 2009; Hill, 2008; Perna & Steele, 2011) influence students' probabilities of going to college.

The resulting college choice literature has provided valuable insight with regards to these factors, and over the past several decades, models describing this process have been developed, tested, refined, and expanded (e.g., Hossler & Gallagher, 1987; Hossler, Schmit, & Vesper, 1999; Perna, 2006; Toutkoushian & Paulsen, 2016). Researchers have acknowledged, though, that the earlier stages of the college choice process, the predisposition and search phases, remain the parts we perhaps understand the least (Myers & Myers, 2012; Perna, 2006). In general, the literature contends that the college choice process typically begins around the seventh grade (Cabrera & LaNasa, 2000; Hossler, Braxton, & Coopersmith, 1989). However, due to limitations of existing datasets, we rarely investigate when students actually decide whether they want to go to college or if the timing of this decision is associated with their chances of applying to and enrolling in college, or their ultimate level of educational aspirations. Such limitations may mean we have an underdeveloped idea of how timing affects the college choice process.[1] As recently noted by Sandy Baum:

> Some say [spreading awareness about college is] important to do before the end of high school to give people a chance to prepare, some people say it should happen when the baby's born to make a big difference. . . . I don't think we have enough evidence on when the most important time is. (Thomsen, 2015)

Improving our understanding of the role of timing during the earliest stages of the college choice process may prove invaluable (Bonous-Hammarth & Allen, 2005). It is possible that targeting information to students earlier in their education leads to a snowballing of benefits. For example, in preparing for college, students often need to take a certain number of math and science courses, with later courses requiring investments in prior coursework. Making decisions early, then, should naturally lead to improved outcomes in terms of postsecondary enrollment. If, on the other hand, a student begins planning for such a course path too late, they may not have time to complete the necessary work before college applications are due (Cabrera & La Nasa, 2000; Hossler et al.,1999; McDonough, 1997). Although this approach seems straightforward, it has been argued that many students lack a strong understanding of the college-going process due to a lack of social or cultural capital in the home, leaving schools to fill in the gaps in knowledge (Bryan, Moore-Thomas, Day-Vines, & Holcomb-McCoy, 2011; Croninger & Lee, 2001; Myers & Myers, 2012; Plank & Jordan, 2001). To address this issue some K–12 schools and universities are partnering to provide college-going information and activities for young elementary students as early as the first grade (Adams, 2010, 2014a, 2014b; Pappano, 2015). Others, including some university admissions offices, argue that exposing students to the stresses of the college-going process too early may lead to student burn out (Pappano, 2015). In light of these conflicting positions, we believe a simple question remains: How soon is soon enough to provide students and their families with information and encouragement about college?

Previous studies have used the National Education Longitudinal Study (NELS) datasets to measure the influence of certain events (e.g., discussing future plans with parents or school officials) on high school persistence and the college choice process as early as the eighth grade (Croninger & Lee, 2001; Plank & Jordan, 2001; Somers, Cofer, & VanderPutten, 2002). Other research has considered college perceptions and occupational and educational plans among young children on a limited scale (Cook et al., 1996; Elliott, Sherraden, Johnson, & Guo, 2010; Sherman, 1997). However, we found no large-scale studies that tracked the influence of the timing of important events, such as receiving information, speaking with a school teacher or counselor, or deciding to go to college, for the college

enrollment process from students prior to the eighth grade. Indeed, it is unlikely that a dataset necessary for such a study exists. Data from NELS and the Education Longitudinal Study (ELS) only contain information about student perceptions of postsecondary education beginning in grades eight and 10, respectively.

In this study, we use data from a statewide survey of high school seniors in New Hampshire to help address this gap in the literature. We capitalize on students' responses during their senior year in high school to questions about their very early (elementary school) exposure to information about college, conversations with families and other important sources, and when they decided to go to college. We measure the relationship of these factors to students' selected academic track in high school (college-prep or otherwise), their level of postsecondary aspirations, and whether they applied to college. With these data we address the following research questions:

1. When do students become predisposed to go to college, and what factors are correlated with the timing of their predisposition?

2. How do the timing of the decision to attend college and the receipt of information about college relate to a student's level of postsecondary aspirations?

3. Are the timing of student decisions and receipt of information about college associated with a student's preparation for and application to college?

In estimating our models we consider various aspects of human, cultural, and social capital, paying particular attention to the influence of the timing of student decisions as well as the timing and sources of information on these aspects of the college choice process. By considering students' experiences prior to the eighth grade, we provide evidence of when the predisposition phase truly begins, and as Perna (2006) suggests, explore how these experiences may be related to students' subsequent course-taking behaviors.

THEORETICAL FRAMEWORKS AND LITERATURE REVIEW

THEORETICAL FRAMEWORKS

For the past few decades studies of college choice have been framed according to the three-stage model of predisposition, search, and choice (Cabrera & LaNasa, 2000; Hossler & Gallagher, 1987; Hossler et al., 1999; Perna, 2006). According to this model, students form their opinions about college and decide whether to go to college at some point in time prior to

beginning high school. By high school students begin actively searching for and gathering information about which schools might be a good fit and how they might afford to go to these schools. Most students eventually decide on a school during their senior year. The first two phases have historically received the least attention from scholars (Hossler & Stage, 1992; Myers & Myers, 2012; Perna, 2006). Although the Hossler and Gallagher (1987) model has been widely used, some believe it does not adequately consider the role of institutions in admitting students (Myers & Myers; 2012). This has led some economists to suggest an adjustment to the three-stage model that accounts for the institutions selecting students and then students ultimately deciding based on this revised choice set of schools where they have actually secured admission (Toutkoushian & Paulsen, 2016).

The literature on college choice tends to draw on theories from the fields of economics and sociology. Economic theories of education as an investment in human capital are useful for understanding why students may opt to go to college and how they would benefit from a post-secondary education. Accordingly, students who may expect to benefit more from college are predicted to have higher aspirations for going to college, and perhaps make this decision earlier in their education to increase their chances of being successful (Becker, 1962; Mincer, 1958; Schultz, 1961). Along these lines, economists have used these theories to inform complicated models aimed at identifying causal rather than correlational relationships of human capital indicators on college choice outcomes (Long, 2007).

Given this study's focus on the role of information and timing in the college choice process, we also rely on the theories of cultural and social capital (Bourdieu, 1986; Coleman, 1988). Bourdieu's (1986) notion of cultural capital explained that a person's combined experiences and family background create an individual's *habitus*. This disposition, created through the forces of one's cultural and social capital, significantly influences the decisions and opportunities that a person might encounter. For college choice researchers, factors such as socioeconomic status (SES) and parental education serve as chief components of this process. One might expect, for example, that a student whose parents attended Ivy League institutions would be more likely to do so themselves, or at least have this aspiration. This influence manifests in the form of parental encouragement to attend college or informal conversations about the process. Indeed, research has demonstrated that elements of cultural capital are very much tied to student decisions about college (Hearn, 1988; Kao & Tienda, 1998; Perna, 2006).

Social capital refers to the interpersonal networks individuals have access to that can serve as a valuable resource in the college choice process (Coleman, 1988). Parents are the strongest sources of social capital for many students who rely on them for guidance and information. Other family members as well as peers can also function in this role (Stanton-Salazar & Dornbusch, 1995). Some students face a deficit of cultural and social capital when compared to their peers, however. For example, students whose parents did not attend college may lack the personal knowledge gained from having completed the process themselves. In these cases, schools can become valuable sources of social capital (Bonous-Hammarth & Allen, 2005; Bryan et al., 2011; Croninger & Lee, 2001; Plank & Jordan, 2001; Somers et al., 2002). In particular, schools can serve as a place for students to receive crucial information concerning how to successfully navigate the college choice process. Teachers and counselors both play a vital role in this regard (Bonous-Hammarth & Allen, 2005; Woods & Domina, 2014).

LITERATURE REVIEW

There has been no shortage over the last few decades of research on the college choice and transition to college processes.[2] A comprehensive analysis of the literature surrounding these two intertwined topics, however, is beyond both the purpose and scope of this paper. Instead we highlight studies that have focused on the influence of timing in these processes both in terms of receiving information and making decisions related to college choice and transition. In addition to studies pertaining to these issues, we also discuss those that consider the roles of the family and schools throughout the college choice process, particularly during the early years.

Timing of College Predisposition

The timing at which a student becomes predisposed to go to college may be important because the earlier that a student makes this decision, the more time he or she will have to begin preparing for college (Bonous-Hammarth & Allen, 2005; Myers & Myers, 2012; Somers et al., 2002). Many colleges, for example, either require or favor high-level math and science courses when granting admission to students. The importance of timing in course-taking behaviors means that students need to know necessary information about college requirements with sufficient time to plan for them (Bonous-Hammarth & Allen, 2005). Somers et al. (2002), for example, observed that students who had taken a foreign language course (a typical college prerequisite) in eighth grade were almost nine percentage points more likely to enroll in a 4-year postsecondary institution. Likewise, those

who decide early about college will have more time than other students to prepare financially to cover the cost of attendance (Elliott et al., 2010).

When considering the issue of timing in the college choice process, one is naturally led to wonder when students become predisposed to go to college. The Somers et al. (2002) study provides evidence that students who make plans in the eighth grade to earn a college degree are in fact more likely to attend college after high school. Other research supports the idea that those who seem to be at the greatest advantage are the ones who have grown up from early childhood with plans to attend college (Reay, 1998; Roker, 1993). Some researchers, policy makers, and education practitioners argue that college consideration needs to occur prior to middle school. Indeed, a few studies have considered attitudes about educational outcomes among children as early as kindergarten. Sherman (1997), for example, found that when asked why we go to school, many 5-year-olds were able to articulate on some level the idea that school is a place that prepares children to enter the adult world. Although some may argue that children in this age group are too young to understand the importance of education, Sherman's words challenge that idea: "It is apparent with alarming consistency that the children interviewed were able to discuss the fact that school was necessary for their future success and that their attendance was cardinal in their development of work skills" (p. 120). In a related study, Cook et al. (1996) explored the occupational aspirations and expectations of inner-city youth and remarked, "What is surprising is how early this process of social reproduction begins. It is observable from the open-ended data as early as second grade" (p. 3382).

Although findings from these studies do not specifically reflect very young students' attitudes about college, they provide evidence that they grasp the notion of the importance of education in directing one's future. Elliott et al. (2010) observed such a maturing process in their investigation of students' understanding of college costs during their second and fourth grade years. The authors noted that students who received seed money for a college-savings account and who participated with parents in a financial education program demonstrated significantly improved understandings about the costs of college and the importance of saving for such an expensive endeavor, compared to children in the study's control group. Elliott et al.'s (2010) findings suggest that not only do very young students have some understanding of college costs and the importance of postsecondary education, but also that even at such an early age students can improve their understandings of college costs when presented with helpful information.

Oddly, there seems to be little empirical work that directly investigates the influence of timing in the college choice process, particularly in the

years before high school (Goldrick-Rab, Carter, & Wagner, 2007; Perna, 2006; Somers et al., 2002). This gap in the literature likely stems from a lack of data that investigate this topic prior to students' eighth grade year. Although several studies have considered various aspects of this topic using national longitudinal data from NELS (Croninger & Lee, 2001; Kao & Tienda, 1998; Perna & Titus, 2005; Plank & Jordan, 2001; Sandefur, Meier, & Campbell, 2006; Somers et al., 2002) and ELS (Bryan et al., 2011), as mentioned earlier, these datasets only allow us to investigate student decisions about college as of the eighth or 10th grade. Others have studied information and timing as they relate to college-choice and access issues using national and state-level cross-sectional data on high school students (Flint, 1993; Myers & Myers, 2012; Niu, Sullivan, & Tienda, 2008; Stanton-Salazar & Dornbush, 1995), but these studies, too, have limited data and indicators measuring back before middle school.

The Role of Information in College Choice

Much of the work in the area related to information concerns students' access to social capital either through interactions with family and peers (Ceja, 2006; Myers & Myers, 2012; Perna & Titus, 2005; Plank & Jordan, 2001; Sandefur et al., 2006; Stanton-Salazar & Dornbush, 1995) or via school resources (Bryan et al., 2011; Croninger & Lee, 2001; Niu et al., 2008; Plank & Jordan, 2001; Somers et al., 2002). Plank and Jordan (2001), for example, found that students with higher levels of communication with their parents during high school were more likely to initially enroll in a 4-year institution rather than a 2-year institution or none at all. Myers and Myers (2012) observed that by the ninth grade the majority of parent–student conversations focused on types of colleges and the requirements for admission, with far fewer discussions related to cost and financial aid options. By the students' senior year, nearly three quarters of families reported talking about financial aid and cost. Indeed, the topic of financial aid information has served as a focal point for college-choice researchers for some time now (George-Jackson & Gast, 2015; Perna, 2005). In addition to the availability of financial aid for students, students' perceptions about financial aid can also influence their college-going behaviors (De La Rosa & Tierney, 2006; Kim, DesJardins, & McCall, 2009; Perna & Steele, 2011). Though increasing access to financial aid information has been shown to improve students' probabilities of going to college, the benefits vary substantially by race/ethnicity and socioeconomic status (Bell et al., 2009; George-Jackson & Gast, 2015; Grodsky & Jones, 2007).

Researchers have also acknowledged the critical role that schools can play in providing information and guidance to students to aid their

progress. Teachers and counselors, in particular, can provide students with information and encouragement throughout the college choice process (Bonous-Hammarth & Allen, 2005; Bryan et al., 2011; Croninger & Lee, 2001; Hossler et al., 1999; Perna, 2006; Reay, 1998; Somers et al., 2002; Stanton-Salazar & Dornbush, 1995; Woods & Domina, 2014). Bryan et al. (2011) found that counselors played a significant role in increasing the odds that a student would apply to college. Somers et al. (2002) reported that, all else equal, eighth graders were six percentage points more likely to enroll in a 4-year college if they had spoken with a counselor about college. Concerns exist, though, that there are many schools in which the number of counselors available per student is not adequate to address students' needs (Belasco, 2013; Bridgeland & Bruce 2011; Bruce & Bridgeland, 2012; Bryan et al., 2011; King, 1996; Woods & Domina, 2014). Woods and Domina (2014) observed that, all else equal, increased caseloads for school counselors led to poorer postsecondary outcomes for high school students, especially as counselor shortages manifested in students' later years. Compounding this problem are reports from the College Board's 2012 National Survey of School Counselors that despite the high levels of education of school counselors, many report being inadequately trained for the role of college advising.

Of course, it is important to keep in mind that not only are schools unequally equipped or inclined to assist students in their college-going decisions, but also that students benefit unequally from various school resources like teachers and counselors (Bell, Rowan-Kenyon, & Perna, 2009; Engberg & Gilbert, 2014; Engberg & Wolniak, 2014; George-Jackson & Gast, 2014; Hill, 2008; Perna & Steele, 2011). Research has demonstrated that some groups may rely more heavily than others on school resources to help make decisions about college (Bonous-Hammarth & Allen, 2005; Cabrera & LaNasa, 2000; Reay, 1998). Whereas students with higher SES have more access to and utilize more sources of information (i.e., parents, college representatives, and private guidance counselors), it has been found that lower SES students are more likely to rely heavily on the school guidance counselors for support throughout the college choice process (Berkner & Chavez, 1997; Hossler et al., 1999; King, 1996; McDonough, 1997, 1999; Perna, 2006; Plank & Jordan, 2001; Powell, 1996; Venezia, Kirst, & Antonio, 2003). What is more, the larger socioeconomic context of a particular school can in turn compound the effects an individual's socioeconomic level has on his or her probabilities of attending college (Engberg & Wolniak, 2014).

Factors other than SES can also cause some students to rely more heavily on school resources or even on peers. Stanton-Salazar and Dornbush (1995) found that the function of peers and school officials in forming

information networks matters even more when students and their parents have limited English skills. Ceja (2006) observed that Chicana students, especially first-generation ones, were less able to rely on parents, not because of a lack of support for continuing education but due to basic lack of information. In some cases, Chicana students had to rely on information from siblings or were forced to collect information on their own. Person and Rosenbaum (2006) reported that Latinos in their sample were more likely to enroll at institutions where they had friends enrolled, who would often assist them during the application and enrollment processes. Niu et al. (2008) concluded that Hispanic students who graduated in the top decile of their high school class were significantly less likely than their comparable white peers to know about the Texas' Top 10 percent law, which guarantees admission to any of the state's public institutions for any student who graduated in the top 10% of his or her high school class. Authors of these studies all pointed to the need to improve school resources as one part of the solution to the problem of talent loss addressed in their work.

DATA AND METHODOLOGY

DATA

For this study we used a unique dataset from the state of New Hampshire regarding students who were high school seniors in the spring of 2005. The data were collected from the *Measuring Aspirations and Participation: New Hampshire Senior Survey,* conducted by New Hampshire Partnership for the Advancement of Postsecondary Education Research (NHPAPER). This survey has two particular advantages for our purposes. The first is that the survey asked high school seniors to recall when they had made their decision regarding what to do following graduation from high school. In this way, we could retrospectively determine when students made their decision about college and whether the timing was associated with postsecondary aspirations and plans. The survey data also contained detailed information about students' sources of information on college and other measures related to human, social, and cultural capital.

The second advantage of these data was that the survey encompassed a broad range of students from across the state. All public and private high schools in New Hampshire were invited to participate in the survey, and 63 public (80%) and eight private (62%) high schools accepted the invitation. The total number of responses collected from the survey (8,503) represented more than half of the estimated number of students graduating from high school in New Hampshire for 2005.[3] The final sample used in our study included 6,592 students after omitting cases with missing information on the relevant variables used in our analyses.

Dependent Variables

We created four dependent variables in this study. The first variable represented the timing of college predisposition for students (*Decide*). To reduce data errors due to students having difficulties recalling precisely when they made this decision, we grouped responses into four aggregated categories: (1) decided in grade 6 or earlier to attend college full- or part-time ("early deciders"), (2) decided in grades 7–10 to attend college ("traditional deciders"), (3) decided in grades 11–12 to attend college ("late deciders"), and (4) decided not to attend college in the fall semester after graduation.[4] The second dependent variable that we examined (*Aspire*) measured the highest postsecondary credential that each student hoped to eventually attain. The alternatives for students were defined as: (1) no postsecondary education, (2) less than a bachelor's degree, (3) bachelor's degree, (4) graduate degree, and (5) undecided. The third dependent variable that we used was a dichotomous variable for whether a student took primarily college-preparatory classes during high school (*CollPrep*). The final dependent variable (*Apply*) was a dichotomous variable for whether a student applied to at least one postsecondary institution for the fall semester after graduating from high school.

Table 1 provides the means for each of the dependent variables considered in our study. In terms of the timing of decisions, almost half (47%) of the students in our sample had decided by grade 6 to attend college right after high school, another 20% reached the predisposition stage in grades 7 through 10, 11% decided in grades 11 and 12 to go to college, and close to one-quarter (23%) decided to not attend college in the fall after high school. With regard to their level of postsecondary aspirations, only 4% stated that they had no intention of ever receiving postsecondary training. Nearly one third of seniors indicated that they want to earn a bachelor's degree, 38% expressed an interest in eventually earning a graduate degree, and another 15% planned on earning an associate's degree or other form of postsecondary training. The remaining 10% of students were undecided regarding their level of educational aspiration, which could include a mix of students across all options. More than two thirds of the students in our sample took mainly a college preparatory curriculum during high school, and the vast majority of students (82%) reported having applied to at least one college for the fall.

Table 1. Frequency Breakdowns for Dependent Variables

Variable	Mean
When Decided to Attend College Next Fall:	
Grade 6 or Earlier	46.8%
Grades 7–10	19.7%
Grades 11–12	10.5%
Not Attend	23.0%
Highest Level of Educational Aspiration:	
High School Diploma	3.7%
Less Than BA Degree	14.7%
Bachelor Degree	32.6%
Graduate Degree	38.4%
Undecided	10.6%
Took Mostly College Prep Classes in High School	68.2%
Applied to at Least One College	81.9%

Notes: Sample size = 6,592.

Explanatory Variables

The explanatory variables used in our study fall into several categories. Beginning with personal characteristics, we identified variables for whether the student was male, and whether the student was in an underrepresented racial/ethnic category (defined as all groups except non-Hispanic white or Asian).[5] The academic characteristics that we used include the student's grade point average in high school, and the average number of hours per week spent in extracurricular activities. We also used a series of 65 dichotomous variables for the high school each student attended.[6]

With regard to family characteristics, we created variables for family income, parental education, and family living status. Family income was captured by five income categories plus a variable for whether family income was not reported. We measured parental education by creating dichotomous variables for whether the student's mother possessed at least a bachelor's degree and whether at least one parent had earned a graduate or professional degree. Each student's family living status was represented by four dichotomous variables for whether the student lived with two birth parents, only one parent, one parent and a stepparent, or any other arrangement.

The last set of explanatory variables is related to the information students received about college. The first dichotomous variable was whether the student indicated that his or her parents wanted them to go to college. We calculated the number of years over which students had talked with their parents about what to do after high school and the number of years that they talked with others about their post-graduation plans. Finally, we created dichotomous variables for whether the student received information about college from each of the following sources: elementary school staff, middle school staff, high school teachers, high school counselors, or friends and relatives.

In Table 2 we present descriptive statistics for the explanatory variables in our study. Among all students in the sample, there were relatively few who resided in families where annual income was below $25,000, and more than a third of students did not report family income. We elected to keep these cases in the dataset by coding them as "Income Missing." The mean official high school GPA was 3.22 on a 4.0 scale. Students on average participated in just over 9 hours of extracurricular activities a week. Nearly three quarters of students lived with two parents (birth or step) while 19% lived with a single parent. On parental education, 36% of students reported that their mothers were 4-year college graduates, and 17% of students had at least one parent with a graduate degree.

In terms of the information related variables, most students recalled first receiving information about college while in high school; 10% of students recalled having received information about college in elementary school, and 26% received such information in middle school. Parents were very active in trying to shape their students' postsecondary aspirations. Approximately 70% of students reported that their parents wanted them to go to college, and students reported an average of 3.6 years of conversations with their parents about what to do after high school. Seventy-nine percent of the students surveyed received college information from a high school counselor, and a smaller but still sizable 64% of students reported receiving this information from a high school teacher. As expected, students also received information about college from sources outside of school and family such as relatives and friends (53%).

Multivariate Statistical Models

The multivariate statistical models that we specified are divided into three groups corresponding to the sets of dependent variables: timing of college predisposition, level of educational aspirations, and preparations for college. Because of the categorical nature of each of these dependent variables, we used binomial and multinomial logistic regression analysis for

Table 2. Descriptive Statistics for Explanatory Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
Male	0.474	0.499	0	1
Minority	0.066	0.248	0	1
Minority: Missing	0.027	0.161	0	1
Extracurricular Hours	9.273	7.712	0	22.5
High School GPA	3.222	0.547	0	4
Mother College	0.364	0.481	0	1
Parent(s) Grad Degree	0.171	0.376	0	1
Income Below $25K	0.056	0.229	0	1
Income $25K to $50K	0.147	0.354	0	1
Income $50K to $75K[a]	0.16	0.367	0	1
Income $75K to $100K	0.125	0.331	0	1
Income Above $100K	0.163	0.369	0	1
Income: Missing	0.35	0.477	0	1
Live w/Two Parents[a]	0.643	0.479	0	1
Live w/One Parent	0.191	0.393	0	1
Live w/Stepparent	0.128	0.334	0	1
Live w/Other	0.038	0.191	0	1
Parents Want College	0.705	0.456	0	1
Years College Info	3.159	2.046	0	7
Years College: Missing	0.124	0.33	0	1
Years Parent Info	3.642	1.991	0	7
Years Parent: Missing	0.008	0.089	0	1
Info: Elementary	0.098	0.297	0	1
Info: Middle	0.255	0.436	0	1
Info: HS Counselor	0.786	0.41	0	1
Info: HS Teacher	0.644	0.479	0	1
Info: Friends/Relatives	0.527	0.499	0	1

Notes: Sample size = 6,592. [a] Used as reference category in multivariate models.

our models and report the average marginal effects of each variable to aid in interpretation. Each model included fixed effects for the student's high school, and we clustered the standard errors at the high school level to account for possible correlations among student observations within schools and provide more conservative estimates of the standard errors.

We began by focusing on the variables that may affect when students made the decision whether to go to college in the fall following graduation from high school. To do this, we estimated a multinomial logit model of the form:

$$DECIDEx = \alpha + P\beta + F\gamma + I\delta + S\theta + \varepsilon$$

where *DECIDEx* is the composite variable for decisions about what to do in the fall, P = set of personal characteristics, F = set of family characteristics, I = sources of information about college for each student, and S = fixed effects for the 65 high schools in our sample. We excluded the variables for received information from middle school and high school teachers and counselors from this model to focus on only those information sources that could possibly affect a student's early decision regarding college. Collectively, these models provide insights into the characteristics of groups of students as defined by their post-graduation plans.

To examine whether the timing of the college decision and other factors are related to the level of postsecondary aspirations of students, we next estimated the multinomial logit model:

$$ASPIREx = \alpha + P\beta + F\gamma + I\delta + S\theta + A\omega + DECIDE\varphi + \varepsilon$$

where *ASPIREx* is a composite variable equal to 1 if the student had no intention of acquiring education beyond a high school diploma, 2 if the student aspired to earn at most a postsecondary credential that was below a bachelor's degree, 3 if the highest level of education attainment planned was a bachelor's degree, 4 if the student aspired to eventually earn a graduate degree, and 5 if the student was undecided regarding the level of aspiration. To help focus on whether the timing at which students make the college decision was associated with how far they eventually wanted to go in postsecondary education, we included in the model three dummy variables for the timing at which students made their decisions about going to college in the fall immediately after high school (**DECIDE**), with coefficients φ.[7] In particular, we were interested in determining whether early deciders were more likely than other students to set higher levels of education aspirations. In addition to the variables for personal characteristics, high school fixed effects, and college information, we also controlled for academic performance and experiences of students (**A**) as measured by their grade point average and hours spent in extracurricular activities.

The information variables in this model included whether the student received information about college from elementary, middle, and/or high school teachers or counselors, as well as friends and relatives.

Finally, to isolate the connection between the timing of college decisions and the steps taken by students to prepare for and apply to college, and how the relationship was affected by other factors, we specified a series of models for each of these dependent variables:

$$(3.1) \quad CollPrep = \alpha + P\beta + F\gamma + S\theta + A\omega + \varepsilon$$

$$(3.2) \quad CollPrep = \alpha + P\beta + F\gamma + S\theta + A\omega + I\delta + \varepsilon$$

$$(3.3) \quad CollPrep = \alpha + P\beta + F\gamma + S\theta + A\omega + I\delta + DECIDE\varphi + \varepsilon$$

$$(4.1) \quad Apply = \alpha + P\beta + F\gamma + S\theta + A\omega + \varepsilon$$

$$(4.2) \quad Apply = \alpha + P\beta + F\gamma + S\theta + A\omega + I\delta + \varepsilon$$

$$(4.3) \quad Apply = \alpha + P\beta + F\gamma + S\theta + A\omega + I\delta + DECIDE\varphi + \varepsilon$$

$$(4.4)$$

$$Apply = \alpha + P\beta + F\gamma + S\theta + A\omega + I\delta + DECIDE\varphi + \tau COLLPREP + \varepsilon$$

where *CollPrep* = 1 if the student primarily took college-preparatory classes in high school, *Apply* = 1 if the student applied to at least one postsecondary institution, and all other variables are defined as before. In the first three equations we focused on whether the timing at which students decided whether or not to go to college in the fall was associated with whether they took classes that primarily followed a college prep trajectory. Likewise, in the final four equations we considered how the variables of interest were related to whether students had applied to any type of postsecondary institution. In particular, in the fourth model for the variable *Apply* we added a control for whether the student took college preparatory classes to determine if the timing of decisions about college had an independent connection with application to college even after taking college preparations into account. For each model, we used binary logistic regression to estimate the parameters of interest, and as with previous models we report the results using average marginal effects. We estimated multiple equations for each dependent variable to help identify how the connections between the timing of the decision to go to college and college preparations/applications were affected by whether we controlled for other factors in the model that were also associated with the timing of the college decision.

RESULTS

We began the analysis by disaggregating the sample based on the timing of students' college decisions to see how the distribution of the dependent variables changed. Table 3 shows how the distribution of values for the other three dependent variables differed for students depending on when students made the decision regarding college. The values in the table show the percentages of each outcome for the four categories of the timing of decisions about college. For educational aspirations, students who decided early to attend college had substantially higher degree goals than did other students. The differences were particularly pronounced with regard to whether a student aspired to eventually earn a graduate degree, where two thirds of these students were early deciders and only 4% were late deciders. Early deciders were more likely than other students to take college preparatory classes and apply to at least one college. In contrast, late deciders generally had lower educational aspirations and were less likely to take college preparatory classes during high school. Interestingly, though, late deciders were equally likely to apply to college, and some students applied to college even though they indicated that they did not plan on attending college in the fall after graduation. Even among those students who reported that they were not planning to go to college in the fall, 12% of them had applied to at least one institution and one quarter expressed an interest in eventually earning a bachelor's or graduate degree in the future.

Another way to look at the associations between the timing of college predisposition and the other dependent variables is through correlations, as shown in Table 4. In most instances, the correlations were statistically significant and were in the directions expected by theory and prior empirical studies. For example, students who decided early to attend college immediately after high school were less likely to aspire to earn only a 2-year degree and more likely to want to eventually earn a graduate degree. Early deciders were also more likely to take college prep courses and apply to college. Not surprisingly, the opposite relationships can be seen among late deciders. However, simple correlations do not account for personal, family, and school characteristics that may also be associated with these behaviors. For this reason, we turn to the multivariate statistical models described in the methods section.

Table 3. Breakdown of Dependent Variables by Timing of College Decision

Dependent Variable	When Student Decided Whether to Attend College Next Fall:			
	Early	Traditional	Late	Not Attend
Level of Educational Aspiration:				
High School Diploma	4.9%	2.8%	2.4%	89.9%
Less Than BA Degree	15.1%	18.6%	22.8%	43.6%
Bachelor Degree	45.8%	25.9%	13.4%	14.9%
Graduate Degree	66.9%	18.9%	4.2%	10.0%
Undecided	36.7%	10.6%	10.2%	42.6%
Took College Prep Classes	58.8%	19.6%	7.5%	14.1%
Applied to One or More College	55.1%	22.4%	10.9%	11.7%
Overall	46.8%	19.7%	10.5%	23.0%

Notes: Sample size = 6,592. Early deciders = decided to attend college in grade 6 or earlier. Traditional deciders = decided to attend college in grades 7–10. Late deciders = decided to attend college in grades 11–12. Not attend = decided to not attend college in the Fall after graduation. The proportions of responses for timing of college decision for each dependent variable are significant at p = 0.001 (Chi-square test of independence).

Table 4. Correlations of Timing of College Decision with Dependent Variables

Variable	Timing of College Decision for Next Fall			
	Early	Traditional	Late	Not Attend
Aspire: No College	-0.17***	-0.08***	-0.05***	0.31***
Aspire: Less Than BA	-0.26***	-0.01	0.17***	0.20***
Aspire: BA	-0.02	0.11***	0.07***	-0.13***
Aspire: Grad	0.32***	-0.01	-0.16***	-0.24***
Aspire: Undecided	-0.07***	-0.08***	0.00	0.16***
Took College Prep Classes	0.35***	0.00	-0.14***	-0.31***
Applied to College	0.35***	0.14***	0.02*	-0.57***

Notes: Sample size = 6,592. $* p < .05$, $** p < .01$, $*** p < .001$. Early deciders = decided to attend college in grade 6 or earlier. Traditional deciders = decided to attend college in grades 7–10. Late deciders = decided to attend college in grades 11–12. Not attend = decided to not attend college in the fall after graduation.

TIMING OF DECISION TO ENROLL

To explore the differences between late and early deciders in more detail, in Table 5 we focused on the factors that are related to when students made the decision about what to do in the fall after graduation. With regard to personal factors, the results showed that students who made the decision early to attend college tended to be female and nonminority. Parents played a significant role in influencing the timing at which students decided to go to college. For example, students who lived with a stepparent, and those living in other situations, were 9% and 16% less likely, respectively, than students living with two parents to make the college decision prior to seventh grade. Likewise, students with college-educated parents were more likely than other students to make the decision early to go to college, and they were less likely to plan on not attending college immediately after graduation. The relationship between parental education and the timing of student decisions about college was even greater when at least one parent had a graduate degree. Parental expectations played a large role in the timing of the college decision, in that students whose parents expected them to go to college were themselves 14% more likely to decide early to do so, and were 19% less likely to not attend college in the fall. Finally, students appeared to be influenced by others as well, in that those who received information about college from elementary school teachers, friends, relatives as well as parents were more likely to decide early to go to college in the fall after graduation.

LEVEL OF POSTSECONDARY ASPIRATIONS

In Table 6 we explored how the timing of college predisposition and other factors were associated with students' ultimate postsecondary aspirations. The aspirations captured each student's eventual highest planned degree, regardless of whether they wanted to enroll in college in the fall after graduation from high school or at a later date. It should be noted that the undecided category may include students who eventually planned on going to college but had chosen not to do so in the fall, and those who planned on earning a college degree but did not know at what level they would stop.

   We found that even after controlling for the other variables in the model, the timing at which students decided to go to college was related to their ultimate educational aspirations. Those students who had decided early to go to college were 5% to 9% less likely than traditional deciders to want to settle for a bachelor's degree or lower and were 8% more likely to aim for someday earning a graduate degree. On the other hand,

Table 5. Multinomial Logit Models for Timing of College Decision

	When Decided Whether to Attend College Next Fall:			
	Early (5a)	Traditional (5b)	Late (5c)	Not Attend (5d)
Male	-0.131***	0.002	0.026***	0.103***
	(0.012)	(0.010)	(0.007)	(0.009)
Minority	-0.049*	0.018	-0.018	0.048**
	(0.023)	(0.018)	(0.015)	(0.016)
Income Below $25K	0.056+	-0.041+	-0.016	0.002
	(0.031)	(0.025)	(0.021)	(0.028)
Income $25K to $50K	-0.025	0.010	0.000	0.015
	(0.022)	(0.021)	(0.011)	(0.018)
Income $75K to $100K	0.034	-0.003	-0.025+	-0.006
	(0.021)	(0.019)	(0.015)	(0.021)
Income Above $100K	0.047*	-0.029	-0.015	-0.003
	(0.022)	(0.018)	(0.015)	(0.019)
Live w/Stepparent	-0.092***	0.020	0.005	0.067***
	(0.019)	(0.018)	(0.011)	(0.014)
Live w/One Parent	-0.066***	0.015	0.003	0.047***
	(0.016)	(0.013)	(0.010)	(0.012)
Live w/Others	-0.162***	0.019	-0.015	0.158***
	(0.036)	(0.027)	(0.022)	(0.023)
Mother: College Grad	0.066***	0.008	-0.015+	-0.059***
	(0.012)	(0.008)	(0.008)	(0.011)
Parent(s): Grad Degree	0.114***	-0.055***	-0.029*	-0.030
	(0.016)	(0.017)	(0.013)	(0.020)
Parents Want College	0.144***	0.039***	0.007	-0.190***
	(0.012)	(0.010)	(0.009)	(0.009)
Years Discussed: Parents	0.042***	-0.003	-0.032***	-0.006*
	(0.003)	(0.002)	(0.002)	(0.003)
Years Discussed: Anyone	0.013***	0.003	-0.013***	-0.003
	(0.003)	(0.003)	(0.002)	(0.003)
Info: Elementary	0.047*	-0.101***	-0.011	0.065***
	(0.020)	(0.018)	(0.017)	(0.017)
Info: Friends/Relatives	0.051***	0.027**	-0.010	-0.068***

	When Decided Whether to Attend College Next Fall:			
	Early (5a)	Traditional (5b)	Late (5c)	Not Attend (5d)
	(0.009)	(0.009)	(0.007)	(0.010)
Log Likelihood: Null	-8238.69			
Log Likelihood: Model	-6887.22			
Pseudo R2	0.16			

Notes: Sample size = 6,592. Dependent variable indicates when a student decided whether or not to go to college in the fall after graduation. Coefficients are shown as average marginal effects. Standard errors are in parentheses and are clustered at the high school level. Reference category for race is non-Hispanic white/Asian. Reference category for income is $50K to $75K. Reference category for family is living with two parents. Models include fixed effects for high schools. Model also includes dichotomous variables for missing data on race, family income, years parents discussed post-high school plans, and years anyone discussed college. $+ p < .10$, $* p < .05$, $** p < .01$, $*** p < .001$.

late deciders about what to do after high school were 16% less likely than traditional deciders to plan on pursuing a graduate degree, and were 8% more likely to aspire for something less than a bachelor's degree. Not surprisingly, those students who decided not go to college in the fall had significantly lower educational aspirations for their lifetimes but were only slightly more likely (3%) than traditional deciders to express an intent to earn less than a bachelor's degree.

For the personal characteristics in our model, we found that males were more likely than females to opt for a bachelor's degree or no college, and were less likely to aspire to earn a graduate degree. There were few significant differences in the level of educational aspirations by either race/ethnicity or family income. Turning to the relationship of parents, we found that parental education was related to whether a student aspired to earn some form of postsecondary credential, and those students with one or more parent who had a graduate degree were themselves more likely to plan on earning a graduate degree during their lifetime. Parental aspirations for their children also correlated with their student's aspirations in that students from families where the parents expected them to go to college were more likely to want to eventually earn a bachelor's or graduate degree. Likewise, the more time that students talked with their parents about college, the more likely they were to aim for a graduate degree. The results were mixed for other sources of information and/or encouragement about college.

Table 6. Marginal Effects From Multinomial Logit Models for Level of College Aspirations

	(6a)	(6b)	(6c)	(6d)	(6e)
	No College	Less Than BA	Bachelor's Degree	Graduate Degree	Undecided
Male	0.014**	0.021*	0.033**	-0.058***	-0.010
	(0.005)	(0.009)	(0.011)	(0.012)	(0.007)
Minority	0.001	-0.000	-0.025	0.006	0.019
	(0.007)	(0.017)	(0.026)	(0.025)	(0.018)
Income Below $25K	-0.022	-0.022	-0.012	0.012	0.044*
	(0.014)	(0.021)	(0.026)	(0.025)	(0.018)
Income $25K to $50K	0.001	0.006	0.010	-0.018	0.001
	(0.008)	(0.016)	(0.022)	(0.020)	(0.016)
Income $75K to $100K	0.006	-0.012	-0.032+	0.047**	-0.010
	(0.010)	(0.014)	(0.017)	(0.016)	(0.017)
Income Above $100K	0.000	-0.019	-0.024	0.026	0.018
	(0.009)	(0.019)	(0.025)	(0.023)	(0.017)
Live w/Stepparent	-0.017**	0.021	-0.010	-0.006	0.011
	(0.006)	(0.014)	(0.018)	(0.017)	(0.012)
Live w/One Parent	-0.027***	0.012	-0.000	-0.004	0.019*
	(0.007)	(0.008)	(0.013)	(0.015)	(0.009)
Live w/Others	0.006	0.019	-0.083*	0.027	0.031*
	(0.008)	(0.019)	(0.036)	(0.037)	(0.016)
Mother: College Grad	-0.026***	-0.054***	0.014	0.046***	0.020*
	(0.006)	(0.011)	(0.014)	(0.013)	(0.009)
Parent(s): Grad Degree	0.013	-0.025	-0.140***	0.124***	0.029*
	(0.008)	(0.015)	(0.015)	(0.013)	(0.012)
Parents Want College	-0.019***	-0.087***	0.090***	0.072***	-0.056***
	(0.004)	(0.008)	(0.013)	(0.013)	(0.007)
Years Discussed: Parents	-0.002+	0.001	-0.011**	0.024***	-0.012***
	(0.001)	(0.002)	(0.003)	(0.003)	(0.002)
Years Discussed: Anyone	-0.002	-0.008**	0.006	0.003	0.001
	(0.002)	(0.003)	(0.005)	(0.004)	(0.002)
Info: Elementary	0.020**	-0.012	-0.004	0.006	-0.010
	(0.006)	(0.014)	(0.023)	(0.022)	(0.013)

	(6a)	(6b)	(6c)	(6d)	(6e)
	No College	**Less Than BA**	**Bachelor's Degree**	**Graduate Degree**	**Undecided**
Info: Friends/ Relatives	-0.011**	-0.036***	0.007	0.038**	0.003
	(0.004)	(0.009)	(0.010)	(0.013)	(0.008)
Decide: Early	0.002	-0.087***	-0.051***	0.079***	0.057***
	(0.015)	(0.015)	(0.015)	(0.014)	(0.014)
Decide: Late	-0.005	0.081***	0.034+	-0.156***	0.046**
	(0.016)	(0.013)	(0.020)	(0.021)	(0.015)
Decide: Not Attend	0.076***	0.032**	-0.115***	-0.103***	0.110***
	(0.011)	(0.012)	(0.018)	(0.016)	(0.012)
Log Likelihood: Null	-9068.77				
Log Likelihood: Model	-7368.47				
Pseudo R2	0.19				

Notes: Sample size = 6,592. Dependent variable indicates the student's highest planned level of education. Coefficients are shown as average marginal effects. Standard errors are shown in parentheses and are clustered at the high school level. Reference category for race is white/Asian. Reference category for income is $50K to $75K. Reference category for family is living with two parents. Models include fixed effects for high schools. Models also include dichotomous variables for missing data on race, family income, years parents discussed post-high school plans, and years anyone discussed college. Reference category for timing of education decision is traditional (Grades 7–10). + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

POSTSECONDARY PREPARATION AND APPLICATION

In our final set of models (Tables 7 and 8) we measured how the timing of the decision to go to college and other factors such as the sources of information about college were associated with whether students made course related decisions in high school that should improve their chances of transitioning to college (Table 7). We also focused on how these factors predicted whether students eventually applied to college by the spring semester of their senior year of high school (Table 8).

The results showed that males were less likely than females to take college preparatory classes during high school as well as apply to college. Minority students were about 6% less likely than nonminority students to apply to college, but no significant differences were found between

the two groups in the rate at which they take college preparatory classes. Family income had no association with a student's likelihood of taking college preparatory classes or applying to college, and the only family status category that was significant was that students in the "all other" category were less likely than students living with two parents to take college preparatory classes and apply to college. We noted that students who spent more time in extracurricular activities in high school were more likely to take college preparatory classes and apply to college. Not surprisingly, there was a very strong positive association between a student's academic performance in high school and his/her preparations for college.

Turning to the relationship of parents and their children, we found that students who had a college-educated mother were more likely to take college preparatory classes and apply to college. Similarly, when students indicated that their parents wanted them to go to college, they were more likely to take college preparatory classes and apply to college. Receiving information about college from high school teachers and guidance counselors were found to be positively associated with both dependent variables; however, it is not known whether the students sought out the information from school workers or vice versa.

Finally, with regard to the main explanatory variables of interest in our study, we observed that early deciders were 13% more likely than traditional deciders to take college preparatory classes in high school. In contrast, late deciders were 8% less likely than the reference group to take college preparatory classes. The relationships between most of the other explanatory variables on college preparations did not change when we added controls for the timing of the college decision to the model. The exceptions to this were that gender and family status had smaller connections to college plans after controlling for the timing of the student's decision about going to college.

Table 7. Marginal Effects From Logit Models for College Preparations

	Model (7a)	Model (7b)	Model (7c)
Male	-0.127***	-0.082***	-0.049**
	(0.014)	(0.015)	(0.015)
Minority	-0.044+	-0.027	-0.016
	(0.026)	(0.026)	(0.027)
Income Below $25K	-0.030	-0.010	-0.019
	(0.026)	(0.025)	(0.024)
Income $25K to $50K	-0.049**	-0.034+	-0.030+
	(0.019)	(0.017)	(0.018)
Income $75K to $100K	0.036+	0.030+	0.023
	(0.019)	(0.018)	(0.017)
Income Above $100K	0.025	0.024	0.013
	(0.023)	(0.020)	(0.020)
Live w/Stepparent	-0.084***	-0.049***	-0.027*
	(0.016)	(0.015)	(0.013)
Live w/One Parent	-0.030*	-0.022	-0.007
	(0.015)	(0.014)	(0.013)
Live w/Others	-0.199***	-0.154***	-0.111***
	(0.026)	(0.026)	(0.024)
Mother College	0.115***	0.080***	0.060***
	(0.013)	(0.014)	(0.013)
Parent(s): Grad Degree	0.090***	0.073***	0.049*
	(0.020)	(0.021)	(0.019)
Parents Want College	——	0.135***	0.091***
		(0.012)	(0.012)
Years Discussed: Parents	——	0.024***	0.015***
		(0.003)	(0.003)
Years Discussed: Anyone	——	0.001	-0.001
		(0.004)	(0.004)
Info: Elementary	——	-0.011	-0.012
		(0.021)	(0.021)
Info: Middle	——	0.003	0.006
		(0.017)	(0.016)
Info: HS Counselors	——	0.094***	0.078***
		(0.014)	(0.014)

	Model (7a)	**Model (7b)**	**Model (7c)**
Info: HS Teachers	——	0.055***	0.049***
		(0.011)	(0.010)
Info: Friends/Relatives	——	0.036**	0.024+
		(0.013)	(0.012)
Decide: Early	——	——	0.129***
			(0.015)
Decide: Late	——	——	-0.084***
			(0.016)
Decide: No College	——	——	-0.092***
			(0.016)
Log Likelihood: Null	-4116.39	-4116.39	-4116.39
Log Likelihood: Model	-3551.31	-3256.87	-3092.38
Pseudo R2	0.14	0.21	0.25

Notes: Sample size n = 6,579. Dependent variable Y = whether student took college preparatory classes in high school (1 = yes, 0 = no). Estimates are reported as average marginal effects. Standard errors are in parentheses and are clustered at the high school level. Reference category for race is white/Asian. Reference category for income is $50K to $75K. Reference category for family is living with two parents. Reference category for timing of college decision is traditional (Grades 7–10). Models include fixed effects for high schools. Models also include dichotomous variables for missing data on race, family income, years parents discussed post-high school plans, and years anyone discussed college. + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Turning to Table 8, we found that even after controlling for the personal, family, and school characteristics in models (8a) through (8d), late deciders were less likely than traditional and early deciders to apply to college for the fall. There was no statistically significant difference, however, between early and traditional deciders with regard to their likelihoods of applying to college. These findings held even after controlling for the connection between college preparations and whether a student applied to college (Model 8d). As in Table 7, the associations between family status, grade point average, and applying to college fell after we added controls for the timing of the college decision, yet remained statistically significant. Interestingly, adding these controls not only attenuated the magnitude of the relationship of gender to application status, but it also rendered the association statistically insignificant. This aligns, however, with the previous findings (Table 5) that suggest males were significantly less likely to

decide early and significantly more likely to decide late. In other words, differences by gender in application behaviors observed in models 8a–8c likely reflect the tendencies of females to make their postsecondary decisions early on when compared to their male peers.

Table 8. Marginal Effects From Logit Models for Whether Applied to College

	Model (8a)	Model (8b)	Model (8c)	Model (8d)
Male	-0.053***	-0.041***	-0.011	-0.008
	(0.008)	(0.008)	(0.008)	(0.007)
Minority	-0.059***	-0.056***	-0.043***	-0.041***
	(0.011)	(0.010)	(0.011)	(0.011)
Income Below $25K	-0.018	-0.011	-0.014	-0.012
	(0.024)	(0.023)	(0.021)	(0.021)
Income $25K to $50K	0.001	-0.002	-0.005	-0.003
	(0.015)	(0.014)	(0.012)	(0.012)
Income $75K to $100K	0.020	0.018	0.010	0.010
	(0.019)	(0.018)	(0.015)	(0.015)
Income Above $100K	0.035+	0.027	0.017	0.015
	(0.020)	(0.017)	(0.016)	(0.015)
Live w/Stepparent	-0.040***	-0.028**	-0.011	-0.011
	(0.010)	(0.010)	(0.010)	(0.010)
Live w/One Parent	-0.013	-0.012	-0.001	-0.002
	(0.013)	(0.012)	(0.010)	(0.010)
Live w/Others	-0.112***	-0.093***	-0.054**	-0.048**
	(0.020)	(0.018)	(0.017)	(0.018)
Extracurricular Hours/Week	0.004***	0.003***	0.002***	0.002**
	(0.001)	(0.001)	(0.000)	(0.001)
Grade Point Average	0.175***	0.129***	0.072***	0.059***
	(0.008)	(0.008)	(0.008)	(0.008)
College Grad: Mother	0.053***	0.033***	0.020*	0.016*
	(0.009)	(0.009)	(0.008)	(0.008)
Parent(s): Grad Degree	0.034*	0.032*	0.017	0.015
	(0.017)	(0.016)	(0.012)	(0.012)
Parents Want College	——	0.160***	0.103***	0.097***
		(0.007)	(0.006)	(0.006)
Years Discussed: Parents	——	0.007**	0.004+	0.004+
		(0.002)	(0.002)	(0.002)

	Model (8a)	Model (8b)	Model (8c)	Model (8d)
Years Discussed: Anyone	——	0.002	0.001	0.001
		(0.003)	(0.003)	(0.003)
Info: Elementary	——	-0.020	-0.004	-0.005
		(0.015)	(0.013)	(0.013)
Info: Middle	——	-0.033***	-0.028**	-0.029**
		(0.010)	(0.009)	(0.009)
Info: HS Counselors	——	0.033***	0.018*	0.014+
		(0.010)	(0.008)	(0.008)
Info: HS Teachers	——	0.013	0.007	0.006
		(0.010)	(0.008)	(0.008)
Info: Friends/Relatives	——	0.029**	0.013	0.012
		(0.009)	(0.008)	(0.008)
Decide: Early	——	——	0.016	0.008
			(0.012)	(0.013)
Decide: Late	——	——	-0.043**	-0.038**
			(0.013)	(0.013)
Decide: No College	——	——	-0.203***	-0.199***
			(0.011)	(0.011)
Took College Prep Classes	——	——	——	0.055***
				(0.007)
Log Likelihood: Null	-3112.64	-3112.64	-3112.64	-3112.64
Log Likelihood: Model	-2408.82	-2158.23	-1769.77	-1746.12
Pseudo R2	0.23	0.31	0.43	0.44

Notes: Sample size n = 6,592. Dependent variable Y = whether applied to college (1 = yes, 0 = no). Estimates are reported as average marginal effects. Standard errors are in parentheses and are clustered at the high school level. Reference category for race is white/Asian. Reference category for income is $50K to $75K. Reference category for family is living with two parents. Reference category for timing of college decision is traditional (Grades 7–10). Models include fixed effects for high schools. Models also include dichotomous variables for missing data on race, family income, years parents discussed post-high school plans, and years anyone discussed college. + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

DISCUSSION

In this study we focused on the predisposition stage of college—when it happens, how it happens, and whether it matters. The results show that students in this sample who received postsecondary information early and made decisions about life prior to beginning high school had higher probabilities of behaviors associated with going to college and earning graduate degrees. As can be seen in the findings, these relationships mostly seemed to be expressed through the timing of student decisions. Interestingly, a large proportion of students in our sample made the decision about going to college at a very early age, and on average those who did so made different decisions than other students related to their planning for college.

Across models we observed that earlier and more varied information was often positively and significantly related to predicting whether students took steps associated with pursuing a path toward college. Students who received timely information and those who spoke to school officials tended to decide to attend college earlier, aspire to higher levels of postsecondary education, take classes in high school that earned college credits, and eventually apply to college. In general, we found that information received in the early years tended to be significantly and positively associated with students making earlier decisions to attend college while information received later was associated with explaining students' high school course-taking behaviors.

Our findings concerning aspirations indicate that the predisposition stage may begin at different times for different students, depending on their ultimate goals. Those students whose human, cultural, and social capital influenced them to aspire to pursue graduate education may in fact begin the college choice process before their peers who are likely to be headed toward a baccalaureate track. Although our cross-sectional models cannot substantiate such a temporal relationship, we believe that, combined with theory, they can make a compelling argument in support of this idea.

There are several policy prescriptions that are suggested from our findings. The first is the importance of providing information about college to students at an early age, perhaps into the elementary grades. Given that almost half of the students in our sample reported having decided prior to seventh grade to enroll in college and aspire to higher degrees, and that these students were more likely than their peers to take the steps needed to go to college, those students who have not made up their minds by this time are at a distinct disadvantage. Because students at this point in time are not yet at the search phase, information should be focused on the general importance of education and college and not aimed at

helping students choose a specific institution. In addition to helping students understand the importance of going to college, early information would also help them prepare for college not only by urging them to take courses that will enable them to be accepted for admission, but also by encouraging them and their families to save money to help pay for college. Indeed, K–12 schools and universities across the nation have been active in developing programs aimed at introducing elementary school students to the idea and possibility of college attendance (Adams, 2010, 2014b; Pappano, 2015). For example, Rice University hosts campus tours for elementary and middle school students (Pappano, 2015), and high demand for a similar program at the University of Maryland meant the institution had to turn away children for whom it did not have sufficient tour space. In light of this, some institutions have created web-based resources for schools and teachers to use in order to encourage their young students to begin thinking about college (Pappano, 2015). States are getting involved, too. A state-sponsored program in Alaska, for example, arranged for nearly 2,000 fourth and fifth graders to be college students for a day (Adams, 2010), and the 21st Century Scholars program in Indiana asks seventh and eighth graders to commit to focusing on academics in return for financial and logistical support to go to an in-state college or university.

A second policy prescription is to broaden the set of individuals and entities who help provide information to students about college. First and foremost, parents should be encouraged to start thinking and preparing early to send their children to college. Our findings in this study reveal that there are strong connections between the plans that parents have for their children and their ultimate decisions, bolstering the recommendations of a recent report from the Urban Institute (Baum, Minton, & Blatt, 2015) that stresses the importance of ensuring that financial aid information is not targeted to students only but also to their families. Baum et al. (2015) explain that including families is especially important for those from low SES backgrounds. The authors recommend that, rather than simply directing low-income families to websites containing financial aid information, policy makers and schools create programs that truly educate families about the importance and availability of aid options, particularly the federal Pell Grant. Targeting these programs to families of middle school students, Baum et al. (2015) suggest, will give them sufficient time to begin planning for their children's future education once they learn that financial aid options exist for their child and how to avail themselves of those resources.

Likewise, school staff members, particularly school counselors, play an important role in helping to shape the plans of students. Unfortunately, these professionals often find themselves mired in administrative work

related to scheduling and printing grade reports. Lambie and Williamson (2004) criticize this historical trend involving school counselors and call for a movement to free school counselors to do the work for which they were trained. Considering the importance of counselors in the college choice process discussed herein, school systems should find ways to expand their counseling staffs or to reassign much of the administrative work to other employees (Woods & Domina, 2014). In addition, Lambie and Williamson (2004) also stress the importance of properly training principals and administrators concerning the strengths and responsibilities of school counselors. Schools and districts should not only strive to promote the work of school counselors, but also actively structure more student-counselor involvement into their operations (Adams, 2014a).

A final policy recommendation is that schools could begin to ask students and their families at an early age about their plans for college and work with undecided students to help them make an informed decision. It is not sufficient to simply let the student wait until he or she has arrived at high school to reach a conclusion about college. Late deciders may not have time to take the right courses to allow them to apply to college, as well as they may not have sufficient time to save for college either. This can to some extent be addressed early on by schools simply creating a college-going climate in their buildings and among their students (Schneider, 2007). These recommendations, of course, cannot be brought to fruition without increasing the resources given to schools to hire more counselors and better train their faculty and staff members. Additional funds provided for these purposes should first be targeted to schools serving larger portions of low-income students, who often lack support for the college choice process at home and rely substantially on their teachers and counselors for advice and assistance.

This study has several limitations that bear mentioning. First, in our study we do not observe whether students ultimately enrolled in college and graduated. By necessity, we focused on the predisposition stage of college choice. Second, despite our large sample size, our data are not nationally representative and the state from which the data were drawn (New Hampshire) is not typical for the United States. Nevertheless, the data are appropriate for answering the research questions put forward in this paper, and our study provides insight into how and when students in one particular region make decisions regarding postsecondary education. It also demonstrates the utility from gathering information about when students decide to go to college. Future studies might compare and contrast these findings to other states.

We believe that the findings and discussion we present herein merit close attention. The renewed focus on college completion and promoting

postsecondary access and success for our nation's students requires us to improve our understanding of how and when students make their decisions about life after high school. The findings of this study lay the groundwork for important new areas of focus as they provide evidence that students and parents should indeed begin discussing and, perhaps, even planning for college well before the student begins high school. In many cases, these conversations will need to be supported through real collaboration efforts between schools and families that move beyond the simple distribution of college information materials. This is especially true for those families who lack the types of social and cultural capitals traditionally associated with groups most likely to attend college and aspire to earn high-level degrees. Going forward, thought should be given to broadening the scope of traditional theoretical models of college choice to include students at much earlier ages than are currently considered. Further research should improve upon this study by expanding it to a nationally representative sample or to states with more socioeconomic and/or racial diversity. Additionally, attention should be given to discerning the differences between the college choice behaviors of males and females as well as would-be first generation students and those from lower levels of SES strata. As states and the nation increasingly rely on public education to transition young people from high school to postsecondary education and then into the workforce, we must improve our efforts with a heightened and more focused understanding of the factors that influence student college-choice decisions and behaviors.

ACKNOWLEDGMENT

NOTES

1. For an in-depth discussion of this idea see Bonous-Hammarth and Allen (2005).

2. Cabrera and LaNasa (2000) present an oft-cited review of the literature from the 1980s and 1990s. Two later publications synthesized more recent work in terms of both the college choice process (Perna, 2006) and the transition to college (Goldrick-Rab et al., 2007).

3. According to the New Hampshire Department of Education (http://www.education.nh.gov/data/documents/fall_enroll04_05.pdf), in the 2004–2005 academic year there were 16,854 students in grade 12 (14,847 in public schools and 2,007 in nonpublic schools). NHPAPER did not record the actual number of surveys distributed to students, and thus an exact "survey response rate" cannot be determined. However, the number of completed surveys represents 50.4% of the state total.

4. The survey question asked high school seniors: "When did you decide to continue your education after high school?" Students were given seven choices corresponding to grades 6 (or earlier) through 12, and an additional choice for "I have always known I would continue my education."

5. Minorities (defined as non-Hispanic White or Asian) comprised only 6% of the students, which is not surprising given the racial demographics in New Hampshire at the time (U.S. Census Bureau, 2000, 2010).

6. Seven high schools with 10 or fewer students were aggregated into one "small school" dummy variable.

7. We created four dichotomous variables corresponding to the original options in the variable DECIDE. The reference category for this variable was whether a student decided in grades 7–10 to enroll in college after graduation.

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APPENDIX

DATA DEFINITIONS

Variable	Definition
Decide: Early	1 if decided by grade 6 to go to college in the fall, else 0
Decide: Traditional	1 if decided in grades 7 to 10 to go to college in the fall, else 0
Decide: Late	1 if decided in grades 11 or 12 to go to college in the fall, else 0
Decide: Not Attend	1 if decided to not attend college in the fall, else 0
Aspire: No College	1 if do not aspire to go to college, else 0
Aspire: Less Than BA	1 if aspire to earn less than a bachelor's degree or "other degree", else 0
Aspire: Bachelor	1 if aspire to earn a bachelor's degree, else 0
Aspire: Graduate	1 if aspire to earn a graduate degree, else 0
Aspire: Undecided	1 if undecided about the highest degree to attain, else 0
CollPrep	1 if high school courses were mostly college-preparatory, else 0
Apply	1 if applied to at least one college, else 0
Grade Point Average	High school GPA, obtained from the school
Male	1 if male, else 0
Minority	1 if not Asian or non-Hispanic white, else 0
Minority: Missing	1 if minority status is missing, else 0
Mother College	1 if mother has a bachelor's degree or higher, else 0
Parent(s): Grad Degree	1 if at least one parent has a graduate or professional degree, else 0
Income Below $25K	1 if household income is less than $25,000, else 0
Income $25K to $50K	1 if household income is between $25,000 and $50,000, else 0
Income $50K to $75K	1 if household income is between $50,000 and $75,000, else 0
Income $75K to $100K	1 if household income is between $75,000 and $100,000, else 0
Income Above $100K	1 if household income is more than $100,000, else 0
Income: Missing	1 if household income is missing or not known, else 0
Live w/Two Parents	1 if live with biological mother and father, else 0
Live w/One Parent	1 if live with only one biological parent, else 0
Live w/Stepparent	1 if live with biological parent and stepparent, else 0
Live w/Other	1 if live with any other family arrangement, else 0

Variable	Definition
Years College Info	Number of years student has received information about postsecondary education from any source. Seven or more years are coded as seven.
Years Info: Missing	1 if number of years student received info about college is missing, else 0
Years Parent Info	Number of years student has received information about post-high school plans from parents. Seven or more years are coded as seven.
Years Parent: Missing	1 if number of years student received info from parents is missing, else 0
Extracurricular Hours	Average hours spent during senior year on extra- or cocur-ricular activities
Info: Elementary	1 if received postsecondary information from elementary school, else 0
Info: Middle	1 if received postsecondary information from middle school, else 0
Info: HS Counselor	1 if received postsecondary information from high school counselor, else 0
Info: HS Teachers	1 if received postsecondary information from high school teacher, else 0
Info: Parents	1 if received postsecondary information from parents, else 0
Info: Friends/Relatives	1 if received postsecondary information from friends or rela-tives, else 0
School1 to School65	Dummy variables for 64 high schools. High schools with fewer than 10 respondents were grouped into one artificial "school"

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