The CollegeKeys Compact™

Getting Into College:

A Cross-Cohort Examination of College Preparations by Lower-SES Students

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Introduction

Reaching the point where college is a viable option requires planning and a variety of actions by students while they are still enrolled in high school (taking college-preparatory courses, taking college entrance exams, applying to college and for financial aid, etc.). Many teachers, counselors and parents recognize that traditionally underserved students and those with fewer resources stand to benefit greatly from guidance, support, and accurate information designed to help them meet these college-going milestones. The research supports their insight.[1]

Talent Search is a TRIO program that seeks to assist low-income students in overcoming information barriers. Talent Search participants were more likely than comparison students to apply for federal student aid and enroll in public postsecondary institutions (Constantine et al. 2006).

There exists substantial effort in the way of existing student programs and services that seek to improve disadvantaged students' educational aspirations, information and overall ability to navigate the college-going process. Such programs include long-standing federal programs, like the TRIO programs, but also more grass-roots programs and services that have sprung up in specific cities or institutions.[2] One way to garner evidence for whether these sorts of college-preparatory programs are successful at improving the college opportunities of lower-socioeconomic status (lower-SES) students is to conduct evaluations of individual programs. This is advantageous because proper program evaluation can take into account specific attributes of the program or student service and uncover the causal impact of the program on student outcomes. Alternatively, as in this brief, we might look for evidence of improvement at a more aggregate level by examining nationally representative data on several cohorts of students, where we would expect to observe increases over time (across cohort) in the proportion of lower-SES students planning for and engaging in college-going activities.

This brief highlights some evidence on existing programs that may improve the early information on which students base their college-going decisions, and it provides new evidence from two cohorts of students. We examine data on lower-SES students' college-preparatory actions and their plans for engaging in these actions measured at an earlier point in time. We compare lower-SES students' plans and actions across time and to their higher-SES peers. This provides a better understanding of how and at what point in time

Breakthrough Austin provides a path to college, starting in middle school, for low-income students who will be first-generation college graduates. The program addresses fundamental gaps in students' skills and resources by providing academic enrichment, mentoring, family involvement, leadership and service, test preparation, and clear information on navigating the college-going process. This program's effectiveness has not yet been rigorously evaluated.

additional information around college-going may be most useful to lower-SES students. By examining changes over time in college-preparatory plans and actions, we shed light on the progress that has been made in helping students to successfully navigate the college-going processes. Finally, we examine whether gains by lower-SES students in participating in college-going processes have successfully translated into improvements in college application and enrollment for lower-SES students.

Data

Our analysis relies on two data sets published by the National Center for Education Statistics (NCES): the National Education Longitudinal Study of 1988 (NELS) and the Education Longitudinal Study of 2002 (ELS). Each data set is based on a nationally representative survey that follows students through the secondary-to-postsecondary transition. NELS surveys eighth-graders in 1988 and follows up with the same students during their sophomore year in high school (1990), senior year in high school (1992), and two years after high school graduation (1994). ELS surveys sophomores in high school in 2002 and follows up in their senior year in high school (2004) and two years after high school graduation (2006). When we examine students from these two cohorts at the same point in the education pipeline, the students in these two cohorts are 12 years apart.

The two data sets are well suited for analyzing multiple stages in students' educational plans, opportunities and choices. In students' sophomore year, both surveys include questions on their plans for college-preparatory activities, including whether they plan to take tests and courses geared toward postsecondary study. In the students' senior year, both surveys include questions about their college-preparatory actions, including whether or not they acted on their plans to take college-related tests and courses, as they may have indicated when surveyed two years prior. Finally, two years after high school graduation, students detail whether they applied to or enrolled in any two- or four-year postsecondary institution.

Beyond the similarities in the timing of these surveys in students' education pipelines, NELS and ELS are comparable in other important ways that permit a direct comparison of students in the two cohorts. Most of the questions utilized in our analyses benefit from identical question wording and format. Additionally, the survey designs and sampling methods are very similar, and each survey captures the responses of thousands of students from across the SES distribution.

Although there is substantial correlation between socioeconomic status, race/ethnicity, income and first-generation status, we choose to focus on lower-SES students in the analysis. Research indicates that family socioeconomic status is not only a strong predictor of educational aspirations in the eighth grade but is also the most important factor in maintaining strong educational aspirations through high school and beyond.[3] Both NELS and ELS define SES identically as a continuous variable based on father's education level, mother's education level, father's occupation, mother's occupation and

family income. In all analyses, lower-SES is defined as being below the median SES, and higher-SES is defined as being above the median SES, where median SES is based on predefined variables in each survey.

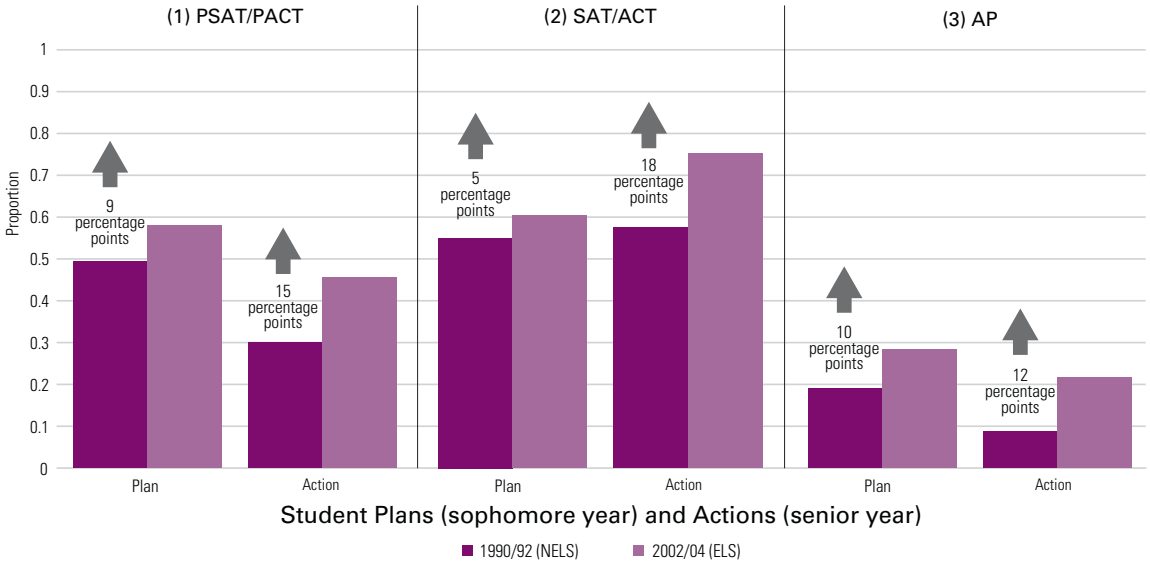
Analysis

We identify three precollegiate activities that both the NELS and ELS data sets address and that are positively associated with college-going in the research literature.[4] Specifically, both cohorts are asked to provide information about college-preparatory plans as of their sophomore year and actions as of their senior year regarding: (1) PSAT/PACT test-taking, (2) SAT/ACT test-taking and (3) AP® course taking.[5]

Improvements in Lower-SES Student Plans and Actions

Figure 1 examines lower-SES high school sophomores' plans to engage in college-preparatory activities and the degree to which such plans are turned into actions by seniors in both cohorts upon being resurveyed. Figure 1 is organized to highlight aggregate changes between the NELS and the ELS cohorts, so gains across cohorts are attributable to changes in college-preparatory activities and actions and other observable changes over the 12-year span. We see evidence of aggregate improvements in both plans and actions for our three college-going processes over time. As depicted in panel (1) of Figure 1, there is a 9 percentage-point increase in the proportion of lower-SES sophomores reporting that they plan to take the PSAT/NMSQT® or PACT between 1990 and 2002. When these two cohorts are examined two years later as high school seniors, there is a 15 percentage-point increase in the proportion of lower-SES seniors that actually took the PSAT/NMSQT or PACT.[6]

Figure 1: Growth in College-Going Plans and Actions
Lower-SES Sophomores; 1990/92 and 2002/04 cohorts



Notes: Data are from the National Education Longitudinal Study (NELS) and the Education Longitudinal Study (ELS) and include nationally representative sample weights. All changes between NELS and ELS cohorts are statistically significant at the 1 percent level. NELS asked students if they planned to take the PSAT and ELS asked if students planned to take the PSAT/PACT.

Panel (2) of Figure 1 shows a small growth in planned SAT/ACT test-taking between the two sophomore cohorts, and an appreciably larger 18 percentage-point increase between cohorts in actual SAT/ACT test-taking by lower-SES students as of their senior year. These gains are not unique to lower-SES students, but the gains by their higher-SES peers in SAT/ACT test-taking were substantially smaller.[7] Panel (3) of Figure 1 presents similar information for AP plans and actions. There is a 10 percentage-point increase between cohorts in plans to take AP coursework and a 12 percentage-point increase between cohorts in AP course taking.[8]

The ***College Opportunity and Career Help*** (COACH) program brings students from Harvard University into three public high schools in Boston to work as coaches to help high school seniors make future plans and submit college and financial aid applications. There exists considerable evidence of lower-income students with high aspirations and high implicit valuations of college failing to clear seemingly minor hurdles in the process of applying for college and financial aid. A large share of students register for the SAT but fail to take it or fail to complete an application to a four-year college out of an aversion to writing essays (Avery and Kane 2004).

It is useful to unpack the evidence in Figure 1 a bit more by discussing those students who report, as high school sophomores, that they have not thought about the PSAT/PACT, SAT/ACT or AP courses. Over time, we see 10, 7 and 15 percentage-point declines in the proportion of lower-SES students who report that they "haven't thought about" taking the PSAT/PACT, SAT/ACT or AP courses, respectively. These declines, not depicted in Figure 1, likely drive much of the improvement evident in Figure 1. It seems quite plausible that better and earlier information about the importance of planning for and engaging in these college-going activities is responsible for these shifts and, more important, that the shifts in plans translate into even more substantial growth in actions.

Multiple Mechanisms by Which College Information Might Influence Students

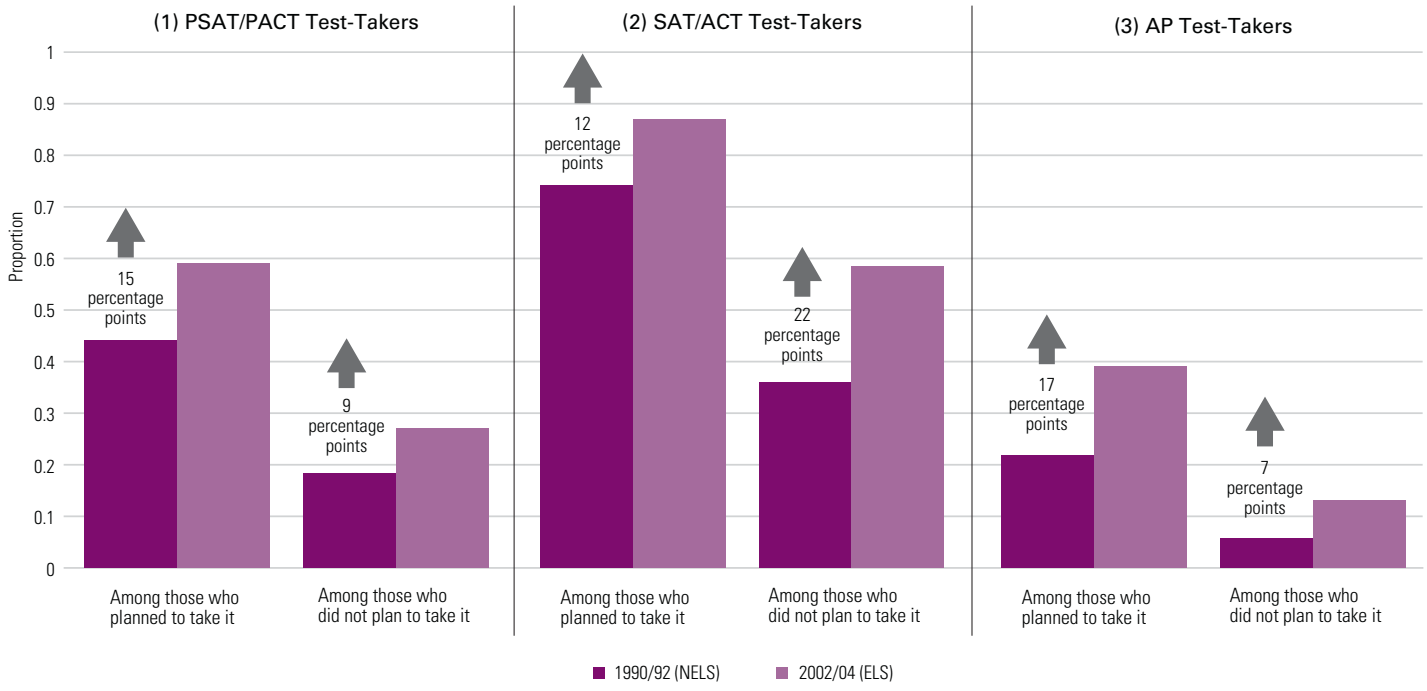
Figure 1 masks an important distinction in the data: some students may be taking these college-going tests and courses regardless of whether they indicated a plan to do so when surveyed in their sophomore year. The distinction is an important one because it reveals that the mechanism underlying improvements for lower-SES students evident in Figure 1 may stem from either (1) students being more likely to follow through on their plans or (2) students being more likely to participate in college-going activities despite not having planned to do so. Taken in the context of the role of early information, college-going programs and services have two potential paths through which they might work to improve student progress toward college. Figure 2 elucidates these concepts graphically by breaking down student participation in the PSAT/PACT, SAT/ACT and AP by students' indicated plan for participating in these tests and courses.

Panel (1) of Figure 2 shows that, among those who planned to take the PSAT/PACT as sophomores, there is a 15 percentage-point increase over time in the proportion

Philadelphia's ***Sponsor-A-Scholar*** program provides a comprehensive array of services and resources to students and their families (beginning in the ninth grade) to remove the academic, financial and social barriers that traditionally prevent low-income, first-generation-to-college students from achieving college success. Research evidence indicates that program participants have statistically significantly higher average high school GPAs and rates of college attendance than a comparison group (Johnson 1999).

of lower-SES students who actually did so by their senior year. Yet, even among lower-SES sophomores that did not plan to take the PSAT/PACT, we see a 9 percentage-point increase over time in the proportion who participate. Panel (2) of Figure 2 shows that, among lower-SES students who planned to take the SAT/ACT when interviewed as sophomores, there is a 12 percentage-point increase over time in the proportion who actually did so by their senior year. Among those who did not indicate a plan to participate, the proportion of SAT/ACT test-takers increased substantially, by 22 percentage points. Finally, panel (3) of Figure 2 indicates that, among those who planned to take AP courses, there was a 17 percentage-point increase over time among lower-SES sophomores who did take AP by their senior year. Among those who did not indicate a plan to take AP, there is still a 7 percentage-point increase over time in participation. It is worth noting that AP availability at the school level and individual course level may have influenced both students' plans and actions, and that this likely became less restrictive for students over time, as AP availability has expanded dramatically.[9]

Figure 2: Gains in College-Preparatory Activities by Lower-SES Students



Notes: Data are from the National Education Longitudinal Study (NELS) and the Education Longitudinal Study (ELS) and include nationally representative sample weights. All changes between NELS and ELS cohorts are statistically significant at the 1 percent level. NELS asks students if they plan to take the PSAT and ELS asks if students plan to take the PSAT/PACT.

It is worth noting that none of the bars in Figure 2 achieve 100 percent, indicating some amount of plan-to-action "melt" for lower-SES students in both cohorts (e.g., Panel (2) of Figure 2 indicates that approximately three-fourths of sophomores in 1990 who planned to take the SAT® or ACT follow through before graduating from high school in 1992). What is most interesting about the evidence in Figure 2 is that we see improvement over time in lower-SES students' ability to turn college-going plans into actions and that, even among their peers who do not report engaging in similar planning, participation in these college-preparatory activities is still rising over time. Thus, perhaps programs and services that seek to influence student aspirations at a later point in high school have the potential to be as powerful as programs and services that aim to increase college aspirations and planning earlier in a student's career. Additionally, the findings in Figure 2 are consistent with research that suggests that lower-SES students hold similar college aspirations as their higher-SES peers, but they are less likely to turn those aspirations and plans into action.[10] Figure 2 suggests that we are seeing improvement in this dimension of student behavior.

A pilot study that randomly assigned students to college counseling estimates that those students who were offered counseling were 7.9 percentage points more likely than students not offered counseling to enroll in colleges ranked by *Barron's* as "Most Competitive" (Avery 2010).

When we return to the data underlying Figure 1, which looks at NELS and ELS student plans and actions in the aggregate (that is, recombining students who report planning but do not act with students who act but do not report planning), we estimate statistically significant improvements over time in all three of our measures of student progress toward college. We see substantial gaps in the NELS sample between reported plans and observed actions of lower-SES students. Relative to those gaps in NELS, the gaps between plans and actions observed 12 years later in the ELS sample have improved by 6 percentage points for PSAT/PACT participation, 13 percentage points for SAT/ACT participation and 2 percentage points for AP participation.

Do Student Actions Translate into Increases in College-Going?

Taking college-preparatory tests and courses are "process indicators." They simply indicate that students are engaging in necessary parts of the process of getting into college, but they are not the same as the student outcomes that we hope to eventually influence. Although a means to an end, process indicators are still important because information, programs and student services have the power to influence student planning for and participation in these important steps. Additionally, student-level data that contain information on achieving a set of process indicators can be readily examined to provide information to policymakers and practitioners about where in the process students might be struggling. NELS and ELS permit us to examine one additional, crucial process indicator — applying to college — and one important student outcome: enrolling in college. In light of the evidence from Figures 1 and 2 that lower-SES students are improving the extent to which they engage in important college-going processes like planning for and participating in the PSAT/PACT, SAT/ACT and

Table 1: College Application and Enrollment Gaps by SES and Across Cohorts

	NELS			ELS		
	Lower-SES	Higher-SES	Gap	Lower-SES	Higher-SES	Gap
Applied to College	74.2%	92.3%	18.0	74.1%	91.9%	17.8
Enrolled in College	60.8%	86.9%	26.1	60.3%	86.1%	25.8

Notes: Data are from the National Education Longitudinal Study (NELS) and the Education Longitudinal Study (ELS) and include nationally representative sample weights. All within-survey gaps by SES are statistically significant at the 1 percent level, but cross-survey gaps by SES are not statistically significant.

AP, we would hope to also see evidence that these improvements have translated into increases in the proportion of lower-SES students applying to and enrolling in college over this same time period.

Table 1 indicates that 74 percent of lower-SES students in NELS apply to at least one college, and that proportion remains flat when measured 12 years later in the ELS survey. Table 1 also indicates that approximately 60 percent of lower-SES students in NELS enroll in college, and that proportion remains flat when measured 12 years later in the ELS survey. The substantial gaps in college application and enrollment between lower-SES students and their higher-SES peers — 18 and 26 percentage points, respectively — are unchanged 12 years later. That the improvements we see in lower-SES student plans and actions over time do not appear to have translated into improvements in college application and enrollment is somewhat surprising, although the aggregate measures in Table 1 may mask patterns of individual behavior.

Implications and Recommendations

This brief has provided descriptive evidence of improvements in lower-SES students' plans and actions associated with successfully navigating the path to college. However, we caution that this analysis does not identify any causal influence of early information programs on lower-SES student plans, actions, or collegiate opportunities and choices. We see improvement over time in lower-SES students' ability to turn college-going plans into actions and that, even among their lower-SES peers who do not report engaging in similar planning, participation in these college-preparatory activities is still rising over time. While it is disappointing not to find evidence of shrinking gaps in college application and enrollment rates between lower-SES and higher-SES students, this finding is broadly consistent with the literature that shows that the convergence of educational aspirations by various types of students has not translated into comparable educational attainment for these groups.[11] Many of the improvements we document

for lower-SES students also exist to some extent for their higher-SES peers, so it is not surprising that college application and enrollment gaps by SES status depicted in Table 1 do not shrink.

Recommendation One

Given the strong potential for information, guidance and support to improve lower-SES students' progress toward college in conjunction with the evidence presented here that lower-SES students are accomplishing important college-going milestones in greater proportions over time, we recommend: (1) increased availability and participation in rigorous high school courses and precollege and college entrance exams, and (2) increased support for programs and student services that provide information, guidance and assistance in navigating college-going processes.

Recommendation Two

We recommend additional research that examines the causal relation between early information about college and the ability of lower-SES students to plan for and achieve important college-going milestones. We have scant causal evidence on whether and how information influences: (1) college aspirations and planning, (2) lower-SES students' ability to implement college-going plans, and (3) the achievement of college-going milestones and college opportunity for those students who did not plan to engage in college-preparatory activities.

Recommendation Three

We recommend additional research that addresses the causal relation between accomplishing college-going milestones — like the three process indicators examined here — and a more nuanced set of college outcomes for lower-SES students. Although we do not find evidence that SES gaps in college application rates are shrinking over time, this analysis may be looking too broadly at college application decisions. We suggest examining cross-cohort evidence on changes in application portfolios that takes into account the number of applications submitted and the diversification of college types sought by lower-SES students. Similarly, college enrollment choices by lower-SES students may, in fact, be changing if examined with more nuances, such as enrollment in two-year colleges, four-year colleges and competitive four-year colleges. These more nuanced changes in application and enrollment behavior would be indicators of lower-SES student progress that are not evident in the results presented here. Finally, rising college prices over the 1990s and the established challenges associated with navigating the financial aid system may result in lower-SES student "melt" very close to the point of college entry, even though we see evidence that these students are meeting important milestones prior to that point.[12]

Recommendation Four

It is important to continue to examine nationally representative data that permits cross-cohort comparisons so that we document changes in lower-SES student college-going plans and actions, and the extent to which those are translated into

college opportunities and outcomes. The NCES's newly launched High School Longitudinal Study (HSLS) follows a ninth-grade cohort beginning in 2009 and into their postsecondary years. In a first look at this cohort, we see that 91 percent of ninth-graders in 2009 report that they will "probably" or "definitely" graduate from college; half report "definitely."[13] These aspirations are equally strong across race/ethnicity and in all except the lowest SES quintile (84 percent report such confidence in their aspirations). It will be important to track student progress on a set of college-going process indicators to measure how successfully, relative to the previous cohorts examined in this brief, those students are able to turn their aspirations into actions. When more HSLS data become available, they will provide another snapshot of a cohort navigating this process a decade after ELS and more than two decades after NELS.

Recommendation Five

This analysis examines two groups of students that take the PSAT/PACT, SAT/ACT and AP courses: those who planned to engage in these activities as of their sophomore year and those who did not. While there have been improvements over time in both groups' test-taking and course taking, not surprisingly, a smaller proportion of the latter group (the nonplanners) engage in these college-preparatory activities. Hence, lower-SES students who did not plan ahead are a group in which we see potential for improvement. Influencing these students' choices must involve programs, interventions and advising in their junior or senior year of high school. While early information is seemingly important, later information and outreach appears to be equally as important.

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Endnotes

1. Expanding Options for Low-Income Students: A Review of Barriers, Research and Strategies.
2. TRIO programs consist of Upward Bound, Talent Search, Student Support Services, Education Opportunity Centers, and the Ronald E. McNair Post-Baccalureate Achievement Program.
3. See Kao and Tienda (1998).
4. See Adelman (1999) and Long, Conger and Iatarola (2010), for example.
5. When students are asked whether they plan to take a test or a course (e.g. PSAT/PACT, SAT/ACT or AP), respondent options included: "Have not thought about it," "Do not plan to take," "Yes, this year," "Yes, next year," or "Yes, in 12th grade." The first two responses are recoded as "No plans to take" and the last three responses are recoded as "Yes, plans to take."
6. The NELS questionnaire only considered PSAT/NMSQT plans and participation. Therefore, these increases across cohorts may be partially attributable to counting PACT plans and participation in the 2002 ELS survey. Among higher-SES survey respondents, the increase in PSAT/PACT plans is half as large (and the difference-in-differences estimate is statistically significant) and the increase in PSAT/PACT participation by higher-SES students is similar to what we observe for lower-SES students.
7. This may be a function of higher SAT/ACT participation among higher-SES students, although even in percentage terms, the gains made by lower-SES students in SAT/ACT test taking across the two cohorts are three times as large.
8. In results not shown, AP plans and course taking increase more for higher-SES students, which is likely a reflection of increased availability for students who attend high schools with more resources.
9. The number of high schools offering AP Exams increased from 9,786 to 14,353 between 1990 and 2002 (source: College Board's Annual AP Program Participation 1956–2010).
10. See Hossler, Schmit, and Vesper (1999) and Rouse (2004).
11. See Kao and Tienda (1998).
12. See Trends in College Pricing (2011) for data on rising college prices over time, evidence on financial aid complexity in Dynarski and Scott-Clayton (2006, 2007) and Bettinger, Long, Oreopoulos and Sanbonmatsu (2009), and evidence on summer melt in Castleman and Page (2011).
13. See U.S. Department of Education (2011).

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