



Permeability and Transparency in the High School-College Transition

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Abstract

Dramatic changes have taken place in the "who", "where", and "how" of higher education. Colleges are no longer dominated by traditional undergraduates attending traditional colleges. Now there is great variety in the types of students who attend college, the institutions they attend, and their attendance patterns. This paper proposes a conceptual framework for thinking about how higher education policies shape students' pathways through higher education. We present evidence about the operation of American higher education in terms of this framework and then use the framework to consider three policy areas: high school counseling policies, community college policies including open-admissions, and financial aid policies. We argue that while the current policies have increased accessibility and choice in higher education, they also obscure the pathway to completion.

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Introduction

Dramatic changes have taken place in the “who”, “where”, and “how” of higher education. No longer dominated by traditional undergraduates attending traditional colleges, there is great variety in the types of students who attend college, the institutions they attend, and their attendance patterns. While students’ pathways through higher education have become increasingly varied, not all pathways lead to degree attainment with equal probability, even for similar students, and some research suggests that students may be unaware of the implications of the pathways they choose. This chapter proposes a conceptual framework for thinking about how higher education policies shape students’ pathways through higher education. We present evidence about the operation of American higher education in terms of this framework and then use the framework to consider three policy areas: high school counseling policies, community college policies including open-admissions, and financial aid policies. We argue that while the current policies have increased accessibility and choice in higher education, they also obscure the pathway to completion.

In analyzing the school-to-work transition, Hamilton (1994) characterizes the relationship between the education system and labor-market along two dimensions: permeability, which refers to how easy it is to move between the education system and labor market, and transparency, which refers to how clearly individuals can see the implications of their early educational decisions on later occupational outcomes. Generalizing these concepts, we develop a framework to characterize higher education systems and ask: To what extent is the current U.S. higher education system permeable? To what extent is it transparent? How does the U.S. system’s current location on this typology compare to its historical location? And, how can we

better understand the effects of higher education policies using a permeability-transparency framework? Reviewing recent studies, we find that the U.S. higher education system has become increasingly permeable but is characterized by low transparency. We then examine how high school counseling, community college, and financial aid policies simultaneously contribute to an increase in permeability and a decrease in transparency.

Relatively new college options which offer open admissions, low cost, proximal locations, and flexible schedules increase the permeability of the higher education system. This is an important accomplishment as it paves the way for increased opportunity for all students. However, low levels of transparency impair students' ability to navigate the increasingly complex higher education system and may disproportionately affect students with the fewest social and economic resources. This calls into question whether the opportunities provided by a more permeable system are real.

In the following section, we review Hamilton's concepts of permeability and transparency, and building on those concepts, we introduce a framework to characterize higher education systems. Next, using descriptive statistics and previous research, we review evidence about the operation of the U.S. system with respect to permeability and transparency and discuss historical changes. Finally, we consider the effects of three policies on opportunity using the developed framework.

Theoretical Background

Permeability and Transparency

To characterize the link between the education system and labor market, Hamilton (1994) introduces the ideas of permeability and transparency. He defines permeability as "the ease of movement from one point in the education-labor market system to another" (Hamilton, 1994, p.

268), and transparency as “how well youth can see through the educational system and labor market and plot a course from where they are in the present to a distant future goal” (Hamilton, 1994, p. 268). Formal credentials impact permeability and transparency in opposite directions: while they make it easier to see how to obtain a particular job, they place hurdles in the way of actually obtaining one. Hamilton compares education-labor market systems in different nations to illustrate his model. Because the middle tier of the U.S. occupational hierarchy has few licensing requirements, Hamilton finds that this system is highly permeable but not transparent. The lack of occupational licensing requirements means that workers can easily switch employers and types of jobs, but at the same time, the lack of requirements obscures the pathway to a particular job. In contrast, in Germany, occupational and trade associations, collaborating with employers, stipulate highly specific skill requirements for licensing, which require apprenticeship training. The specificity of job requirements in Germany makes the system transparent, but the organization of students into different highly specialized and stratified apprenticeship tracks impairs permeability (Hamilton, 1994). Hamilton’s model provides a way to conceptualize characteristics of the education-labor market link and the relationship between these characteristics.

Proposed Framework

The constructs of permeability and transparency can be extended to describe the higher education system more generally. Doing so provides insight into how educational policies shape the pathways of students into and through higher education. Similarly to Hamilton, we define *permeability* as how easy it is to move into and within the higher education system, and *transparency* as how easy it is to see a path towards educational attainment. Conceptually, researchers have considered two levels of educational attainment, enrollment and completion,

and we separate transparency into how it relates to these two attainments. We define *enrollment transparency* as how easy it is to see a path into college, and *completion transparency* as how easy it is to see a path from enrollment to completion. Most students enter higher education seeking a degree, and this analysis is primarily concerned with them. Over 80% of high school seniors in 1992 planned to get an associate's degree or higher (authors' calculation using NELS), and, in a national sample of all beginning postsecondary students (of all ages), 75% enter expecting to complete an associate's degree or higher (authors' calculation using BPS 96/01). We argue that policies, institutional structures, and socio-cultural expectations combine to locate a higher education system on a plane defined by permeability and transparency. For simplicity, higher education systems may be modeled as low or high on each dimension, as depicted in Figure 1.

[Insert Figure 1 about here]

Highly permeable higher education systems not only open college doors to a more diverse set of students (greater inter-individual opportunity), but they also allow greater opportunity for individuals to attend college in diverse ways (greater intra-individual opportunity), for example simultaneously taking college courses while working, or piecing together a degree from multiple postsecondary institutions. Increased inter- and intra-individual opportunity could help equalize the social distribution of educational attainment and promote individual well-being.

However, transparency also affects the distribution of educational attainment and individuals' well-being. Highly permeable systems that are also highly transparent assure that students understand the pathways leading into college and then towards a degree. A highly permeable system provides students a variety of types and selectivity of postsecondary

institutions, but high enrollment transparency is needed to provide guidance to students and their families for selecting an option that fits with their aspirations, preparation, and preferences. A system high on permeability and completion transparency would allow students to pursue multiple pathways to completion but at the same time make clear the specific steps necessary and the implications of pursuing alternative attendance patterns for completion. Based on their individual circumstances, students can then decide which path is best for them. Systems with high permeability and high transparency provide students the opportunity for educational attainment as well as adequate information on how to enroll and attain a degree. Thus, we label the high permeability/high transparency quadrant in Figure 1 *Informed Choice*.

On the other hand, a system with high permeability and low enrollment transparency is characterized by a variety of colleges and ways to enroll but a poor student understanding of which institutions fit their needs or the steps required to enroll. A system with high permeability and low completion transparency allows students to take several paths through college without providing clear information about which paths are more likely to lead to degree completion. For example, a system high on permeability but low on completion transparency would give students the option of delayed college entry, but would not make it clear that delay can lead to lower degree attainment rates or persistence (Bozick & DeLuca, 2005; Horn, Cataldi, & Sikora, 2005; Kempner & Kinnick, 1990). While delayed entry is the only way some students can attend, it is optional for others (particularly if they take advantage of underutilized federal and state financial aid entitlements). We label the high permeability and low transparency quadrant in Figure 1 as *Uninformed Choice*. The opportunity provided by permeability may be diminished if students do not realize the negative impact of delayed entry, and students who lack social, cultural, or

economic capital may be the least likely to have such knowledge. Permeability is related to, but not equivalent to, opportunity. Transparency also matters.

Higher education systems with low permeability limit access to college and the ways students attend college. Systems with high transparency and low permeability provide a clear pathway into college and then to degree completion, but only for particular students who attend college in a particular way. For example, a higher education system that caters only to recent high school graduates from middle-class families who seek to attend full-time at a four-year college lacks permeability, but may have high enrollment and completion transparency. The limited variety of institutions and ways of attendance may make the steps to both enrollment and completion easier for students to see. In such a system, students can judge for themselves whether they can or want to fit this mold. We label the low permeability and high transparency quadrant in Figure 1 as *Known Limits*. Finally, a higher education system with low transparency and low permeability provides few opportunities and little direction about how to access them, and we label this quadrant in Figure 1 as *Unknown Limits*.

Location of the U.S. System in the Framework

Permeability—ease of movement into and within higher education

Shifts in economic, social, and policy factors have resulted in increased diversity in the types of students attending college, their attendance patterns, and the institutions they attend, all of which attest to the increasing permeability of the higher education system. Traditional undergraduates, defined as financially dependent students who enter college directly after attaining a high school diploma, who attend full-time, and work less than full-time, comprised just 27% of all undergraduates in 1999-2000 (Choy, 2002). Table 1 shows significant changes in

the characteristics of college students and their attendance patterns between the 1970's¹ and 2000.

[Insert Table 1 about here]

The proportion of minorities² increased from 15% to 28% of total fall college enrollments between 1976 and 2000 (NCES, 2005, Table 205). Among recent high school graduates, enrollments increased 90% for low-income students between 1972 and 2000 compared to an increase of 21% for high-income students (NCES, 2006, Table 29-1). In addition, a substantial proportion of undergraduates are older. Students 25 or older made up 28% of total fall enrollments in 1970 compared to 39% in 2000, and students 35 or older increased from 10% to 18% of enrollments in the same period (NCES, 2005, Table 172). Greater access to college as well as greater economic and social pressure for higher education has resulted in a shift towards a more diverse student body. This increased diversity, however, may increase the importance of transparency since upwardly mobile students cannot rely on parents to provide college information that they need.

Permeability has also increased in terms of *how* students attend college. Part-time enrollment, discontinuous attendance, delayed entry, and college mobility have become major ways of accessing college.

The incidences of part-time enrollment and employment during college have both increased significantly. Between 1970 and 2000, part-time enrollments increased from 32% to 41% of total fall enrollments. While some of the increase is due to greater enrollment among older students, part-time enrollments have increased even for students of traditional age, from 17% to 24% (NCES, 2005, Table 172). Among recent high school graduates, the percent of full-time students who were employed increased from 28% to 41% between 1970 and 2000; the

percent of part-time students who work increased less, from 67% to 78% (NCES, 1971, Table 150; NCES, 2002, Table 383). In addition, a significant portion of students attend discontinuously. Goldrick-Rab (2006) estimates that 25 - 30% of undergraduates temporarily stop-out.

Delayed entry has also become common. Inspiring stories are told of students getting great benefits from delaying college entry (Harder, 2006). In their advertising, many colleges, both two- and four-year, encourage students to enroll at any time, implying no costs to delayed-entry. Students have gotten the message. Among students first-entering postsecondary education in 1995-96, about one-third of students had delayed their enrollment (Horn *et al.*, 2005). College mobility has also become more common. For students who began at a four-year college, 39% of the 1972 high school graduation cohort attended more than one institution. This rate increased to 50% for students of traditional age entering college during 1989-1990 (Adelman, 1999, Table 19).

While a significant portion of students engage in non-traditional patterns of enrollment, students from lower SES backgrounds or those with lower academic achievement tend to do so at higher rates. This is true for part-time (Hearn, 1992; Stratton, O'Toole, & Wetzel, 2004), discontinuous, (Goldrick-Rab, 2006), and delayed enrollment (Bozick & DeLuca, 2005; Hearn, 1992). Students with lower SES work more hours (Walpole, 2003), and those with lower academic achievement are more likely to engage in multiple institution attendance (Goldrick-Rab, 2006; McCormick, 2003; Peter & Cataldi, 2005). Instead of following a direct path from high school to full-time, continuous enrollment at a single institution, today a significant portion of college students delay college, enroll in multiple institutions, attend discontinuously or part-time, and combine work with college attendance.

Variation in the types of colleges attended has also increased. Enrollments at two-year and for-profit colleges have increased in particular. Between 1970 and 2000, total fall enrollment increased 50% for four-year colleges compared to 156% for two-year colleges. Across the nearly 40 year period, 1965 to 2004, the growth rates are even more divergent: 126% for four-year colleges compared to 458% at two-year colleges (NCES, 2005, Table 171). At for-profit degree-granting institutions, enrollment increased 189% between 1996 and 2004 (NCES, 2005, Table 171). Today, 42% of undergraduates are enrolled in public two-year colleges (commonly called community colleges), 31% in public four-year colleges, 14% in private not-for-profit four-year colleges, and 5% in for-profit institutions (Horn, Peter, & Rooney, 2002).

Although community colleges are not a new type of college, they account for a significantly greater share of enrollments than thirty years ago, and they have changed in their mission and focus. Community colleges evolved as middle-class institutions serving as feeder schools into traditional four-year colleges, but in recent decades, they have begun to emphasize occupational programs (Brint & Karabel, 1989; Dougherty, 1994; Grubb, 1996), which are not necessarily meant to lead to transfer. Community colleges today serve many purposes, including adult education, job training, remedial education, and vocational education. With over 1,000 institutions, community colleges offer students convenient locations as well as low tuition; the median community college student pays just \$1,803 in tuition and required fees (NCES, 2005, Table 314 and Table 243). In addition, community colleges provide students flexible schedules, serve significantly more part-time students than other colleges (Bailey, Badway, & Gumport, 2001), and offer a variety of courses that allow students to explore potential career interests. The open admissions policies of community colleges attract students from academically and socio-economically disadvantaged backgrounds, who may not otherwise have attended college.

Representing the largest share of two-year enrollments, community colleges are characterized by diversity and access.

New institutional forms, however, have been attracting both attention and enrollments. For-profit institutions account for a small but rapidly growing share of enrollments. Two-thirds of students enrolled in a degree granting for-profit college attend a four-year college while the remaining one-third attend a two-year college (NCES, 2005, Table 174). The vast majority of students enrolled at (degree granting) private two-year colleges are enrolled in for-profit institutions: in 2003, 85% of private two-year college enrollments were at for-profit colleges (NCES, 2005, Table 174). The mission and structure of for-profit colleges differs from that of more traditional institutions. Compared to community colleges, for-profits have a narrower mission, one focused on a limited number of primarily vocational program offerings (Bailey et al., 2001), and students primarily attend full-time (Bailey et al., 2001), generally as a result of the program structure (Deil-Amen & Rosenbaum, 2003). In a case study of one for-profit institution and three community colleges, Bailey et al. (2001) find that the for-profit institution has more centralized curriculum development, more applied and structured programs, and more developed student services compared to the community colleges. In a study of seven community colleges and seven high-quality private two-year occupational colleges, Deil-Amen and Rosenbaum (2003) find that the private occupational colleges provided more structured programs, more college-initiated academic guidance, significantly greater access to counselors, and better access to financial aid. The sticker price at for-profits is relatively high, but so is financial aid; net tuition is about \$4,100 higher at two-year for-profits compared to community colleges and about \$5,400 higher at four-year for-profits compared to public four-year colleges (Bailey et al., 2001).

For-profit colleges provide an interesting alternative model of how colleges, especially two-year colleges, might operate.

The classic three-box model divides the life-course into schooling, work, and retirement. Increasingly, this model provides a poor description of individuals' lives (Settersten, 2005) as the patterns in who, where, and how students attend college testify. Compared to today's higher education system, the system 30 years ago was characterized by low permeability as evidenced by the high proportion of traditional college students attending traditional colleges in traditional ways. Since then, the educational system has become increasingly permeable, blurring the lines between schooling and work and redefining what counts as a college education. This suggests increased opportunity for individuals of all ages and backgrounds. Yet the extent to which this increased permeability represents real opportunity depends importantly on the transparency of the system.

Transparency

Enrollment transparency: how easy it is to see a path into college. The admissions and sorting mechanisms of higher education have varied in their level of transparency over the 20th century. Between the 1920's and 1940's, the ideal college candidate was a man of "character," largely defined according to social background (Karabel, 2005; Lemann, 1999). College admissions were closely linked to where a student attended secondary school, with students from college-prep schools finding relatively easy access into college (Lemann, 1999; Powell, 1996). Unsurprisingly, this process resulted in a student body largely homogeneous with respect to race, religion, and socioeconomic status. The SAT, first administered in 1926 and widely adopted by the late 1950's, was conceived as a way to identify students, regardless of background, who had the academic aptitude for college success (Lemann, 1999). At the time, the SAT was one of just

a few criteria for determining admissions (Lemann, 1999). A system of admissions based on social standing and one based on the SAT differed in their definition of merit, but both restricted admissions to an elite group of students (low permeability) and at the same time made admissions criteria clear (high transparency).

Over the past four decades, the admissions process has been characterized by increasing variance. During the 1960's, admissions departments, at least at Princeton, Harvard, and Yale, began adding new criteria and weighing them more heavily in the selection process (Karabel, 2005). Today, selective colleges, particularly highly selective ones that devote significant resources to processing applications, use multiple criteria, ones not well-specified, for selecting students. While the SAT continues to play an important role, scoring highly is not sufficient for admission to highly selective schools. Meanwhile, at two-year colleges, open-admissions policies make the SAT unnecessary. In addition to the expansion of admissions criteria at selective colleges, the level at which students must achieve those criteria may have been increasing (Kirst and Venezia, 2004) as the competition for available places increases. Admissions criteria range from none at some two-year colleges to expansive, unspecified, and dynamic criteria at highly selective colleges. Such changes have contributed to a decline in enrollment transparency. In recent years, there has been much public criticism of the complexity and arbitrariness of the college admissions process (Washor and Majkowski, 2007).

The most direct consequence of the system's poor enrollment transparency is confusion or misunderstanding among students and their families. Research of students' and families' perceptions and reactions to the college process is limited. However, Kirst and Venezia (2004), in studies of six states, find that students and their parents are confused by admissions requirements regarding high school coursework, details of college placement exams, and paying

for college. In case-studies, McDonough (1994) finds that students from upper-middle class families have difficulty negotiating the college selection and application process. Specifically, families at upper-middle class schools sought supplemental help from private counselors, likely expending significant time and large financial payments to do so. Parents explained that their actions were necessary because they were confused about available choices; they needed help to organize necessary steps; and, they felt they had inadequate information to help their children navigate the process. It is noteworthy that many of these upper-middle-class parents were likely to be college educated. So if the enrollment process is difficult for middle-class parents to navigate, what must this mean for first-generation students?

In addition to the above case studies, the vast number of programs and products to assist students in the enrollment process provides some indirect evidence for the widespread perception of problems with enrollment transparency. In 2007, for example, the Lumina Foundation for Education launched a public service campaign, KnowHow2GO, which targets low-income and first generation college students. The campaign assumes that students know why they should go to college but lack information on the steps necessary for enrollment. The plethora of guide books, software, websites, test-prep companies, private college counselors, and college-prep camps addressing the college admissions process may further testify to low transparency and a perception that students and their families are struggling to understand the process. Although limited, some evidence suggests that students who seek admission to any college as well as those seeking admission to the “right” college have difficulty seeing the path to enrollment. Whether these multiple resources actually increase transparency or simply add to the confusion is not clear

Completion transparency—how easy it is to see a path from enrollment to completion.

The structure and processes of the higher education system affect how well students see both the path to enrollment as well as the path to degree completion. Poor completion transparency is most clearly indicated by students who do not understand that their choices about the “where,” “when,” and “how” of college affect their time to degree completion or chances of completing a degree. As noted, a significant portion of college enrollments, and much of the growth in enrollments, has occurred at community colleges. However, research reviewed below shows significant problems with transparency in these types of institutions. We know of very little research that considers these issues at four-year colleges, but some students, particularly those at less selective four-year colleges, may have similar experiences. As discussed below, research also indicates that non-traditional patterns of attendance can reduce completion rates. There is no indication, however, that students receive information about the association between non-traditional attendance patterns and reduced completion chances and some indication that students sometimes choose such attendance patterns without realizing their implications. The fact that students pursuing non-traditional attendance patterns are largely concentrated in community colleges potentially compounds the completion transparency problems associated with these two factors. Although permeability has increased significantly, the implications of new options for degree completion may be hard to see.

Poor completion transparency at two-year colleges. Certain aspects of two-year colleges make it difficult for students to see what courses they need to fulfill their degree plans. Community colleges typically offer multiple levels of associate’s degrees with different requirements. An associate’s of applied sciences (AAS) degree requires lower-level courses than an associate’s of sciences (AS) degree, and an associate’s of general studies (AGS) has even lower requirements. Since employers often do not understand the distinctions among these

degrees, students with achievement deficiencies could get employment benefits in less time by choosing an AAS or AGS, but it is hard to discern these options, and hard to figure out which courses are required for each (Rosenbaum, Deil-Amen, & Person, 2006). Two-year colleges are often unclear about which courses count for transfer to four-year colleges (Dougherty, 1994), although some colleges have developed explicit articulation agreements with specific four-year colleges (Rosenbaum et al., 2006). Department heads report that school-wide counselors are often unfamiliar with specific department requirements (Deil-Amen & Rosenbaum, 2003), and students report ambiguity in course catalogs as well as poor advice from counselors regarding course requirements (Rosenbaum et al., 2006). Two-year colleges appear to be characterized by a low-level of transparency, at least with respect to course selection, a key step towards degree completion.

Low levels of transparency help explain students' reports of information problems regarding degree requirements. In a local sample of two-year college students, Person, Rosenbaum, and Deil-Amen (2006) report that students have difficulty figuring out which courses count for their majors or for transfer credit to four-year colleges: 35% of community college students report that they are not certain which courses they need for their degree plans, and 46% report that they have taken courses that do not apply towards their degree. In interviews, complaints about wasted time and tuition were common among disadvantaged students for whom these resources were scarce. Students' confusion about degree requirements may help explain why, in the NELS national survey, while 8% of 1992 high school seniors attained an associate's degree by 2000, another 10% had enough credits for an associate's degree (60 or more credits) but did not have any degree (Adelman, 2004, Table 3.1; Rosenbaum et al., 2006). At least at two-year colleges, students appear to have significant information problems

about the steps required to complete a degree, and they are making course choices which they later realize do not lead to their degree goal.

Remedial courses are another area where poor transparency explains some of students' problems in seeing the steps to degree completion. Remedial courses are a major component of colleges, particularly community colleges. For the high school senior cohort of 1992, 61% of students first entering community colleges and 25% of those first entering four-year colleges took at least one remedial class (Adelman 2004, Table 7.1). However, remedial placements are difficult to anticipate and to understand. The placement test is one of the first tasks when students arrive at college (particularly for unselective colleges), yet colleges and high school guidance counselors rarely mention placement tests; some students are unaware of placement exams, and many do not know specifics about the tests (e.g., tested subjects or test formats) (Kirst and Venezia, 2004; Rosenbaum, 2001). Moreover, even if students knew details about the exams, they would have no basis for predicting their performance on such exams since very few high schools give exams aligned with college placement tests (Kirst & Venezia 2004).

Seeking to avoid stigmatizing or discouraging students, community colleges sometimes are not clear about the implications of remedial courses and the fact that they do not confer college credits (Deil-Amen and Rosenbaum, 2002). As a result, remedial courses are poorly understood even by students taking them (Person et al., 2006). In a local sample of two-year college students, analyses comparing college catalogs with students' perceptions find that only 27% of students in remedial courses realized that these courses do not count towards their degree (Rosenbaum et al., 2006). Analyses of the BPS national survey indicate that 95% of first-year students who are taking three or more remedial courses planned to complete a college degree, but

less than a third had attained a degree or remained in college six years after entry (Deil-Amen and Rosenbaum, 2002).

Colleges are also unclear about timetables for attaining degrees. In a local sample of community colleges, a so-called “two-year associate's degree” takes an average of over three years (Rosenbaum et al., 2006). In a national survey (NELS), almost half of students take more than three years to complete this degree (Goble et al., 2007). The obstacles to quicker completion include those noted above (i.e., noncredit remedial courses, students’ mistaken choices of courses that do not count towards their degree, and students’ ignorance of alternative associate’s degrees with lower-level requirements). In addition, some required courses are not offered in the order and at the times that students need them. This lack of completion transparency about timetables has implications for student perceptions. Students enter these colleges expecting to complete a “two-year associate’s degree” in two years, but, even in the second-year, some students do not realize that it will take longer than two years to complete the degree (Rosenbaum et al. 2006).

Person et al. (2006) find that among a local sample of two-year college students, those who are racial minorities, younger, have lower high school grades, and whose parents have low education or income were relatively more likely to report information problems. These results suggest that some students cannot see the steps necessary for degree attainment and that the students who struggle with information problems the most may be those that lack other social and economic capital.

Poor completion transparency about attendance patterns may also be a problem. As noted, increased permeability allows students to attend college in new ways (delaying entry, stopping-out, part-time enrollment, and attending multiple institutions), and these patterns have

become extremely common, especially for students from disadvantaged backgrounds. However, in offering these options, society may not be clear about their implications. Media reports give the impression that non-traditional attendance patterns have no particular consequences. News magazines provide fascinating stories of affluent high school seniors delaying entry to highly selective colleges to engage in exotic activities and travels (known as taking a “gap year”). The prevalent catch-phrase “lifelong learning” conjures images of more mature adults seeking out personal enrichment but the phrase also suggests that delayed or discontinuous enrollment has no implications for degree completion. In addition, colleges make efforts not to discourage students who have pursued these pathways, which may also give the impression that these patterns have no negative implications. The enormous increase in students pursuing these pathways suggests that students may not see any disadvantages to these pathways.

Although media accounts give the impression that alternative attendance pathways are costless alternatives, research indicates that these alternative pathways are associated with reduced likelihood of degree completion. Delayed enrollment appears to lower the odds of degree attainment (Bozick & DeLuca, 2005; Horn et al., 2005; Kempner & Kinnick, 1990). Bozick and DeLuca (2005) estimate that postponing postsecondary enrollment by 1 year decreases the odds of bachelor’s degree attainment by 64%; furthermore, delay is more harmful for students with the lowest SES, and those with less academic preparation. Length of delay, however, may have non-linear effects. Horn et al (2005) find that short delays (<1 year) correspond to lower persistence but longer delays do not. Although analyses have not ruled out influences from unmeasured variables, the evidence suggests that delayed entry may reduce the chances of degree completion. While delayed entry offers options to those who have no alternatives, the odds of graduating appear to improve if students avoid delayed entry.

College mobility seems to have a similar negative impact. For four-year college students in general, multiple-institution enrollment is associated with lower persistence and bachelor's degree attainment rates and increased time to degree completion (Adelman, 2006; Peter & Cataldi, 2005), while discontinuous enrollment decreases the probability of bachelor's degree attainment (Adelman, 2006). Adelman (2006) finds that multiple-institution attendance decreases the probability of bachelor's degree attainment by 15% for 1992 seniors followed for 8 years after graduation, while continuous enrollment increases the probability of attainment by 43%. For students who began at community colleges, attending more than two institutions is associated with decreased bachelor's degree attainment rates and increased time to bachelor's degree completion (Peter & Cataldi, 2005). However, the details of the patterns also matter. For students beginning at four-year institutions, transferring institutions or enrolling in a community college are associated with lower six-year persistence rates while co-enrollment increases persistence (Peter & Cataldi, 2005).

Overall, research suggests that work or part-time enrollment negatively affect persistence, degree completion, and time to degree (Ehrenberg & Sherman, 1987; Gleason, 1993; Jacobs & King, 2002; O'Toole et al., 2003; Pascarella & Terenzini, 2005). However, research distinguishes between on- and off-campus work finding that off-campus work negatively affects persistence or attainment (Anderson, 1981; Ehrenberg & Sherman, 1987) while on-campus work does not appear to harm, and may benefit students (Anderson, 1981; DesJardins et al., 2002; Ehrenberg & Sherman, 1987). Adelman (2006) finds that ever being enrolled part-time decreases the probability of bachelor's degree completion by 25% for four-year college students in a nationally representative sample.

Students follow alternative pathways through college for a variety of reasons. Some

students cannot attend college any other way. However, other students have the option of choosing traditional or alternative pathways, and the lack of completion transparency makes it difficult for them to make informed choices. Interestingly, some college counselors report that they can discourage part-time studies by strong warnings about negative impacts (Rosenbaum et al. 2006). Unfortunately, only a few counselors give such warnings, possibly because counselors may be unaware of the implications of part-time studies. Counselors generally cannot tell whether students who do not complete degrees at their college might do so at other colleges since colleges rarely collect follow-up information on their students. The only information on this question comes from studies like those we have cited, which rely on longitudinal surveys that follow students overtime (like NELS and BPS), and they indicate poor completion rates. Unfortunately, colleges rarely collect comparable follow-up information on their students. The above findings indicate the need for transparency so that students can make informed choices.

The problem of poorly informed choices leading to reduced opportunity is most clearly seen in the case of high school students. Because of poor transparency regarding remedial courses and their implications for degree completion, many high school students with college plans believe that high school is irrelevant for their future and that there is no penalty for low effort in high school. While open admissions policies make it possible to attend college despite low academic achievement, students may plan college degrees which they have little chance of attaining. Of the 1982 high school graduation cohort, 52% of seniors with low grades planned to get a college degree, but less than 20% of these students actually attained any degree over the next 10 years (Rosenbaum, 2001). Indeed, poor completion transparency seems to prevent some students from taking the increased efforts that would advance their degree goals. Two separate studies found that roughly 40% of college-bound students report that they can obtain their

educational plans even if they do poorly in high school (Steinberg, 1996; Rosenbaum, 2001), and, not surprisingly, this attitude is associated with low efforts in school. Probably unaware of placement tests, noncredit remedial courses, or the connection between high school achievement and later educational attainment, these students fail to take advantage of their high school experience in a way that would promote their college degree goals.

More research is needed to better establish the level of transparency in American higher education, especially with respect to the range of four-year colleges. Research is also needed to identify how often students choose low probability options without realizing their implications, in effect sacrificing a better opportunity because of poor transparency. The available research suggests a low level of enrollment and completion transparency. Institutions offer many different options, but they do not specify the implications of the various options. Students do not appear to have clarity about how to effectively navigate the higher education system to degree attainment or about the implications of their earlier actions for later outcomes. The lack of transparency in the system gives advantages to students with more social, economic, and cultural capital, who can call on additional resources for assistance. But, if that is the case, then high levels of permeability are not sufficient to provide opportunity for those without such resources. Instead, it is the intersection of permeability and transparency that matters; real opportunity requires high levels of both.

Assessing Educational Policies within a Permeability-Transparency Framework

The permeability-transparency framework helps us understand how policy reforms may affect the higher education system. It allows us to decompose educational policies into their effects on opening new pathways and their effects on increasing transparency regarding the pathways to enrollment and completion. Such a decomposition helps us to understand the

processes encouraging or blocking opportunity, how existing policies and practices influence those processes, and perhaps how policies and practices can be reformed. The following sections use the permeability-transparency framework to consider the effects of three specific policies on higher education: community college policies, high school guidance counseling policies, and financial aid policies.

High School Counseling Policies

In the 1960's and 1970's, high school counselors functioned as gatekeepers whose advice affected, and sometimes limited, students' postsecondary pathways (Cicourel & Kitsuse, 1963; Rosenbaum, 1976). However, by the 1990's, nearly all high school seniors were planning to attend college (Schneider & Stevenson, 1999), and, as noted, open admissions and low costs at community colleges erased most barriers to access. Without much public discussion, high schools adopted a college-for-all norm, which may have changed guidance counselors' behaviors. In a qualitative study of 27 counselors in 8 large high schools, Rosenbaum (2001) finds that counselors, citing open-admissions policies at community colleges, have abandoned the gatekeeper role, and they avoid discouraging students' plans, no matter how unrealistic. Other research supports this observation. Comparing national surveys of students in two successive decades, research finds that while 32% of seniors said their counselors urged them to go to college in 1982, in 1992 more than twice as many seniors reported such counselor encouragement (66%). Even among students in the bottom half academically, 57% said their counselors recommended college in 1992 (Gray, 1996). Rather than limiting students' choices and redirecting their pathways, counselors encourage all students to attend college. The changing role of counselors has increased permeability. Counselors no longer place roadblocks on the path to college.

But, do counselors provide enough guidance to students who need help with the process of college enrollment? Prior research finds that with enough involvement, counselors can play an important role in students' college choice and application process (Freeman, 1997; King, 1996; McDonough, 1997; Plank & Jordan, 2001). At the same time, however, high school counseling policies sometimes contribute to low levels of transparency with respect to enrollment. For instance, some current policies limit access to college counseling. First, there are few counselors to meet the needs of high school students. In 2002, the average ratio of students to counselors was 284:1 for public high schools nationally and more than 300:1 for large or urban schools, or those schools serving more than 20% minorities (Parsad, Farris, & Hudson, 2003). Further, there are significant differences in the student-to-counselor ratio by state, with some exceeding 700:1 (McDonough, 2005). Second, even when counselors are present, they are expected to take on many other tasks including administrative, discipline, and testing responsibilities (Kirst & Venezia 2004; McDonough, 2005). A majority (57%) of public high schools report that their guidance staff spends less than 20% of their time on postsecondary admissions and selections (Parsad., et al, 2003). McDonough (2005) estimates that counselors, on average, spend 38 minutes per year on each student for college counseling.

Moreover, there appears to be inequity in access to counselors across schools (Lee & Ekstrom, 1987; McDonough, 1997). In a case-study of four California high schools, McDonough (1997) finds that at an affluent private school, students received 10 to 15 hours of individualized attention, compared to just 45 minutes in a public school in the same upper-middle class neighborhood and no individualized attention at a school in a working-class neighborhood. In a highly transparent system, all students would see the steps in the application processes clearly and have the necessary information and guidance to make an appropriate choice given their

personal needs and aspirations. Policies regarding high school counseling can limit transparency of enrollment by not providing resources that could assist students in these tasks. Reforms that provide more counseling resources or more efficient ways of reaching high school students may increase the transparency of the system.

Policies regarding counselor training also need to be reconsidered. Although guidance counselors are the staff responsible for providing information about college, they receive little formal training about the college choice process. While some states require guidance counselors to have certain courses, courses in college counseling are not always required (Rosenbaum, 2006). Further, the formal training that counselors do receive is based on psychology, not sociology or economics. An examination of counseling textbooks suggests that while counselors are trained to help students understand their own interests and aptitudes, they do not receive training on the array of college options, their requirements, or their payoffs. While some counselors may seek out information from counselor associations or special courses on college counseling, many must rely on their own limited experiences, which may not include highly selective colleges or community colleges. Policies that rely on commonsense or counselors' own experience, however, preserve the status quo; they reproduce traditional biases and exclude new options.

Community College Policies

Community college policies increase the permeability of the higher education system by increasing the diversity of students who attend college and the ways in which they attend. The low cost and open admissions policies enable socio-economically and academically disadvantaged students who may otherwise not have enrolled in college to do so. Community colleges also try to accommodate a variety of student aspirations. In their missions, community

colleges support vocational training, transfer to four-year colleges, and non-degree enrollment (Cohen & Brawer, 2003; Cross & Fideler, 1989). Further, community colleges allow students to engage in a variety of non-traditional enrollment patterns. For example, community colleges schedule classes during evenings and weekends and operate satellite campuses for convenience, all of which allow students to combine school with other commitments (Person et al., 2006). Both with respect to diversity in students and also flexibility in attendance patterns, the policies of community colleges contribute significantly to the high permeability of American higher education. In addition to high permeability, community colleges have high enrollment transparency. Nearly everyone qualifies for admission, and the application process (though not necessarily the financial aid process, as discussed later) is straightforward.

At the same time, however, even as they emphasize permeability and have high enrollment transparency, community college policies provide low levels of completion transparency. Community colleges try to address students' information needs by providing more information (Person et al., 2006). Information dissemination regarding financial aid and requirements is largely decentralized, however, placing the burden for gathering information on the student. In addition, the information about the range of choices and their implications is not always easy to interpret, and students are often left to tackle this on their own as well (Deil-Amen & Rosenbaum, 2003). Complicating this situation, counseling at community colleges is peripheral: there are relatively few counselors and the counseling that does occur must be initiated by students (Deil-Amen & Rosenbaum, 2003; Person et al., 2006). In the process of offering diversity and flexibility, and perhaps because of the ways they do so, community colleges appear to contribute significantly to the low levels of transparency in the higher education system.

“Cooling out” could be considered one institutional response to a system characterized by high permeability and low completion transparency. In a study of a single community college, Burton Clark (1960) described how counselors get students to lower their plans to fit their low achievement. Although he did not describe it this way, such cooling out is, in effect, required because high permeability gives students access to community colleges, but low transparency does not warn them that they may have trouble succeeding. Low transparency gives counselors more leverage to change students’ plans and contributes to individuals’ susceptibility to having their plans adjusted. While some have rightly criticized cooling out for being biased against minorities and low SES students (Karabel, 1972), some community college counselors have tried to avoid cooling out entirely, which allows students to continue pursuing goals without realizing their costs, timetables, and low chances of attainment (Rosenbaum et al., 2006). A more helpful strategy would be to provide advice that would increase the transparency of completion.

Alternative policies might increase the level of transparency of completion. Research by Rosenbaum et al. (2006), using a local sample of public and private two-year colleges, finds that the private two-year colleges provide a good model of high transparency. These private colleges (which the authors call “occupational colleges” because they focus on training in occupational fields) provide many counselors per student and require students to meet with counselors at least once per term. Information regarding financial aid and requirements is much more centralized and streamlined at the private two-year colleges. Moreover, the private two-year colleges decrease the need for information and guidance by structuring programs, advising, and peer support (Person et al., 2006), and student information systems monitor student progress and quickly catch student mistakes (Deil-Amen & Rosenbaum, 2003; Person et al., 2006). Like occupational colleges, community colleges could shift the burden of information from students

to advisors, who would take responsibility for assuring student progress as part of their job description. Some of the advising (e.g., concerning courses, time management) does not need to be done one-on-one, and colleges could save money with group advising, particularly if students are in similar programs or have similar goals.³

The processes of private two-year colleges seem to make a difference. Person et al (2006) find, in their local college sample, that public two-year (community) college students are significantly less likely to know what courses they need for their degree plans, less likely to know which courses give credit for their planned degree, and less likely to agree that they have enough information about requirements. This is the case even though the private and public two-year colleges in their sample enroll similar students (and to the extent that they do not, the occupational colleges actually enroll less advantaged students) (Person et al., 2006). In a national sample of degree seekers (based on NELS), students who first enter private two-year colleges attain degrees at a rate 16 percentage points higher than similar students who first enter community colleges (52% vs. 36% rates of degree completion respectively). With respect to permeability, community colleges offer several advantages over private two-year colleges. These recommendations do not necessarily inhibit high levels of permeability, but they may improve completion transparency.

A significant amount of debate revolves around whether community colleges provide opportunity or reinforce existing social stratification (see Dougherty (1994) for a review); so suggesting that community colleges may not provide real opportunity is not a new idea. However, analyzing community college policies within the permeability-transparency framework suggests the ways in which community colleges may hinder real opportunity as well as shows ways in which such policies could be revised to lead to a system of informed choice.

Financial Aid Policies

Financial aid provides an opportunity for students to attend college regardless of income, and therefore increases the permeability of the higher education system. Beyond enrollment, more financial aid is associated with a lower likelihood of stopping out and increased persistence (Bettinger, 2004; DesJardins et al., 2002), particularly for low income students (Pascarella & Terenzini, 2005). For students in Ohio's public two- and four-year colleges, a \$1,000 increase in Pell grants corresponded to an 8.6 percentage point decrease in the likelihood of stopping out (Bettinger, 2004). Financial aid also affects a student's choice of institution (Avery & Hoxby, 2004; DesJardins et al., 2002; Dynarski, 2004; Perna & Titus, 2004). Dynarski (2004), for example, finds that state merit-aid programs have shifted attendance towards four-year colleges. Not only can financial aid increase opportunity for accessing the system, it can shift attendance patterns to those that research suggests are most efficient for educational attainment.

At the same time, however, the financial aid system contributes to low levels of enrollment and completion transparency. Research suggests that students and families have difficulty understanding or accessing aid. In 1999-2000, less than one-third of eligible college students claimed higher education tax credits (Long, 2004); 26% of low-income students do not apply for federal aid (Burdman, 2005); and, students and parents routinely overestimate college costs and lack information on the availability of aid (Avery & Kane, 2004; Perna, 2004). These statistics are startling examples of the importance of transparency. While policymakers may reasonably assume that students will respond to free (or low cost) money, in fact, transparency can be an important obstacle. Even with financial aid policies associated with high permeability, students and parents may not be taking advantage of available funds because financial aid systems lack transparency. In a study of high-achieving high school students, Avery and Hoxby

(2004) find that “‘bewildering’ and ‘confusing’ are the modal words” (p. 290) in parents’ comments about the financial aid process. Reviewing several studies, Perna (2006) concludes that awareness and understanding of college costs and financial aid is particularly low for Latino and Black students and their families as well as for parents without college experience. Free and low cost financial aid is available, but poor transparency may prevent some students and parents from taking advantage of it.

Poor transparency results, in part, from poor financial aid counseling. In colleges, the only time a student is certain to receive financial aid counseling is in a mandatory interview conducted by colleges after a student takes out loans, but even these are increasingly administered on-line and in perfunctory ways (Burdman, 2005). In a study of 14 two-year colleges, Deil-Amen and Rosenbaum (2003) find that students at community colleges were confused about financial aid, and some students report that when they tried to get help, their encounters with financial aid staff were “unpleasant and even hostile” (p. 125; see also Orfield & Paul, 1994). In interviews, high school counselors suggest that they focus more on aspirations and academic preparation rather than finances, although it is not clear whether counselors do so because they are uninformed or uncomfortable with financial matters (Burdman, 2005). McDonough and Calderone (2006) found, in interviews and focus groups with counselors at 14 high schools, that most counselors did little besides discuss college costs with their students and some steered students away from more selective colleges for financial reasons.

Financial aid policies themselves also lead to confusion. The formula for the expected family contribution is not explained on the FAFSA (Kane, 1999). Some community colleges have policies that require students to request loans before staff can provide information about them, and students are not told about loans if they do not explicitly ask (Burdman, 2005).

Institutional pricing and scholarship policies may also make it difficult for students to know the real cost of an education. Private college scholarships are not usually awarded based on explicitly stated criteria, and in some cases, they can be negotiated. As a result, applicants are unable to anticipate the cost of college at the time of application. In a study of 28 elite private four-year colleges, Hill, Winston, and Boyd (2005) find that students in the lowest-income quartile paid a net price ranging from \$800 to \$11,390 across institutions. Students in similar economic circumstances pay significantly different amounts of tuition and would be unable to predict this before receiving aid award letters. In addition, the relationship between sticker price and net price (sticker price – grants) is increasingly decoupled. Among 10 elite private four-year colleges, average sticker price increased 9% over a five year period but net prices went down for all institutions except one (where the rise was just 0.8%) (Hill et al., 2005). One role of financial-aid policy is to mitigate lack of access to information, but the patchwork and nature of policies appears to create significant information problems. It is not clear how lack of information affects enrollment, persistence, or the choice of particular attendance patterns since students more committed to getting information may be those more committed to college anyway.

Beyond the difficulty of understanding the financial aid process, the meaning of financial aid may differ between policymakers and recipients. Affordability has a socio-cultural dimension; it depends on an individual's reference points, and the meaning of money may vary by social class (McDonough & Calderone, 2006). As policymakers change the composition of financial aid (from grants to loans and from need- to merit-based grants), it is important to consider that different types of aid have a value not necessarily represented by dollar value. Loans comprised 41% of financial aid in 1980 compared to 58% in 2000 (Witkowsky, 2002). Some research suggests that low income and minority students are less willing to accept loans

because of the uncertainty of being able to repay them or the size of the debt relative to family income (Baker & Velez; McDonough & Calderone, 2006). Avery and Hoxby (2004) find that the offer of a loan positively affects a student's selection of a particular college except for low income students, for whom it has no effect. With respect to the effects of loans on stop-out or persistence, the evidence is mixed. DesJardins et al. (2002) find that loans have less of an impact on stop-out compared to scholarships, work-study, and campus employment at one particular four-year college. They estimate that converting loans to scholarships would increase the median time to stop-out from 8.9 to 11 academic terms. Other research, however, finds positive effects of loans on persistence (Pascarella & Terenzini, 2005). Loans may affect students' pathways differently than monetarily equivalent aid of a different type because of students' reluctance to take out a loan or the complexity of applying and evaluating the value of loans.

Policymakers are also increasingly awarding merit-based rather than need-based aid. The amount of aid not based on need tripled at public and private four-year colleges between 1983 and 1991 (Kane, 1999). In this case too, the value of the type of aid goes beyond monetary value. Avery and Hoxby (2004) find that for a sample of high-achieving high school students, calling a grant a "scholarship" matters: A scholarship increases the probability of matriculation at a particular institution by 86% compared to a grant of equal monetary value. Among students who attended the University of Minnesota, DesJardins et al. (2002) find that scholarships have the greatest impact (negative) on stop-out, while grants have no significant impact. They suggest that students may interpret merit-based aid as commitment by the institution to their success and therefore feel more committed in return. Neither of these studies, however, provides insight into the effects of this compositional change on students attending two-year colleges, for whom financial aid may matter more or differently. The point is not that merit-based aid is better than

need-based aid, but that part of the complexity of the financial aid system is the different meanings that students attach to different types of aid.

While the financial aid system increases the permeability of higher education, it also reduces transparency. While students who are able to take advantage of the system are more likely to pursue pathways with a high probability of leading to degree completion, other students are confused by the system, and still others have a socio-cultural construction of aid that may be inconsistent with the structure of the system, especially given recent trends in aid composition. The structure of the system makes some students unable or uncomfortable accessing it, which could leave them unsure of their pathways into college or towards completion.

Conclusion

Expanding on Hamilton's constructs, this chapter suggests that higher education systems can be characterized along two dimensions: permeability and transparency. While *Known Limits* – a situation corresponding to low permeability but high transparency – once characterized the American system, a combination of economic, social, and policy factors have increased the permeability of the system, which paves the way for increased equality and greater flexibility for individuals to combine multiple roles with education. At the same time, however, transparency is low, which makes it difficult for students to see pathways to college and to degree completion. Students with limited access to economic and social capital may have the most difficult time negotiating the web of possible pathways to arrive at one that will efficiently lead to degree completion. We characterize the current situation of American higher education as *Uninformed Choice*, a location characterized by high permeability but low transparency.

Why has the American system developed in the way that it has rather than, for example, retaining its high level of transparency and adding high permeability? Critics might argue that

high permeability and low transparency is a deliberate strategy to give the appearance of increased opportunity while maintaining traditional patterns of social stratification (Karabel, 1972,1986; Pinkus, 1980). Brint and Karabel (1989) considered the possibility that employers somehow had a hand in influencing community college practices (testing a hypothesis suggested by Bowles and Gintis, 1976), but they discovered that the business community was remarkably indifferent and uninvolved in the development of community colleges. Moreover, detailed interviews with college staff find no indications of such motives. Indeed, community college faculty seem remarkably motivated by the idea that they are providing second chances for upward mobility to disadvantaged students, and many report working 60 hours per week to try to assist such students (Rosenbaum, et al., 2006). If there is a hidden conspiracy, the conspirators have not been identified.

Another possibility is that in their focus on increasing access to college, policymakers have not paid attention to transparency. As a result, while colleges, governments, and media have encouraged dramatically greater permeability, corresponding actions have not been taken to increase transparency. While existing practices may have provided a sufficient level of transparency when just a few students were passing through higher education and these students were receiving advice from college-educated parents, it may no longer suffice given the diversity of students, institutions, and attendance patterns.

Throughout this review, we have often seen that policy dilemmas can result because the same procedure can have contradictory influences on permeability and transparency. American society has lowered the barriers to college access, offered remedial courses to reduce barriers of low achievement, provided many new ways to attend college (delayed, part-time, discontinuous, and multiple-institution attendance), and offered financial aid to support increased access, yet

each example of increased permeability was rarely accompanied by new information and guidance about the long-term implications of the new option.

Permeability reforms, which add new low-probability paths through higher education, increase opportunity for those already on those paths and those who have no alternative. However, without transparency, some students who can choose among several paths will choose low-probability paths without realizing the implications. Research is needed to examine how often this happens, for which individuals and which circumstances. At the same time, policymakers must be aware that increasing permeability in a way that adds new low-probability pathways carries risks unless special steps are taken to improve transparency and inform students' choices.

Some may think we place too much emphasis on information, assuming an overly simple rational choice model. While information is probably not sufficient to assure appropriate choices, it is surely necessary. We cannot be certain that a student would choose a particular type of institution or attendance pattern if she were aware of the likely impact on her chances of success, but a student who lacks information on the likely consequences of her choices cannot possibly be expected to make choices that increase her likelihood of success. Future work on the risks of alternative pathways should also attempt to better control for selection bias to separate the consequences of choosing a particular pathway from the factors that lead to the choice in the first place. Where possible, methods such as regression discontinuity, may help to provide insight into this issue.

Identifying the problem as transparency, not permeability, suggests practical policy actions. The best way to reduce remedial needs in college is to improve high school preparation, provide clear warning to high school students about their likelihood of being placed in

(noncredit) remedial courses (using exams aligned with college remedial tests), and give clear advice about actions students can take to improve their chances of avoiding remedial placement.

A broader conception of counseling is also needed. As noted, counselors' reliance on commonsense knowledge preserves old biases, ignores the needs of new students, and prevents students from seeing new options. Instead of merely being trained in counseling psychology, high school guidance counselors must also be trained in "counseling sociology." They must understand the new institutional and program options, various ways of attending and funding college, and how these choices affect degree completion. Permeability presents new opportunities, but improved counseling is needed to improve transparency about these opportunities.

In addition, this analysis suggests the need for system-wide reforms. The college admissions system and financial aid system have become overwhelmingly complex. At the same time that permeability reforms have sought to increase access to disadvantaged students, these systems have created such complexity that students who lack social and economic capital remain at a disadvantage. The same motivations that drove prior increases in permeability should now be redirected to increase transparency.

		Permeability	
		High	Low
Transparency	High	Informed Choice	Known Limits
	Low	Uninformed Choice	Unknown Limits

Figure 1. Permeability-transparency framework

Table 1. Postsecondary Student Characteristics and Attendance Patterns: 1970 - 2000

	1970	2000	% Δ
Fall enrollments by student characteristics	(1)	(2)	(3)
% Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska native	14.5% ^a	28.2%	94.5%
% Low-income ^e	26.1% ^b	49.7%	90.4%
% High-income ^e	63.8% ^b	76.9%	20.5%
% Age 25 or older	27.8%	39.0%	40.3%
% Age 35 or older	9.6%	18.0%	87.5%
Fall enrollments by student attendance patterns			
% Part-time	32.2%	41.1%	27.6%
% Part-time for students age 18 - 24	16.9%	24.0%	42.0%
% Working while attending college full-time ^e	27.8%	40.8%	46.8%
% Working while attending college part-time ^e	67.1%	77.6%	15.6%
% Attending more than one institution (among those beginning at a 4-yr college)	38.8% ^c	50.1% ^d	29.1%

Sources: Digest of Education Statistics 1971 (Table 150), 2002 (Table 383), and 2005 (Tables 172 and 205); Condition of Education Statistics 2006 (Table 29-1); and, Adelman 1999 (Table 19).

^aPercentage in column (1) based on 1976 data.

^bPercentage in column (1) based on 1972 data.

^cPercentage in column (1) based on data from the National Longitudinal Study of the High School Class of 1972.

^dPercentage in column (2) based on data from the Beginning Postsecondary Study of the 1989/1990 cohort limited to students age 17-23.

^eAmong recent high school completers.

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Footnotes

¹When available, data from 1970 and 2000 were compared. The few exceptions are noted both in the table and in the text.

²Minority students are defined here as black, Hispanic, Asian/Pacific Islander, and American Indian/Alaska native.

³Some critics will object that these procedures are too expensive for community colleges. Many community colleges have faced repeated and severe budget cuts, and, from our observations, policymakers often respond to budget cuts by striving to preserve course offerings while cutting other services, including counseling. Funding agents should realize the harm that budget cuts impose. Moreover, community colleges should realize that counseling and other information sources may be necessary for improving degree completion rates, which may justify retaining counseling even if this requires cuts in course offerings. Unfortunately, funding formulas that pay community colleges for enrollment, but not for completion, create perverse incentives that do not encourage steps to improve graduation rates.