

# MAXIMIZING RESOURCES FOR STUDENT SUCCESS

## Maximizing Resources for Student Success by Reducing Time- and Credits-to-Degree

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# 1. ON-TIME GRADUATION AND COLLEGE AFFORDABILITY

## PROBLEM STATEMENT

Public regional universities have played a vital role in this country in providing college access to broad sectors of the population. While policymakers and college leaders have focused appropriately on the valuable access mission, the traditional goal of that access, college graduation within a four-year window, has become an increasingly unusual occurrence. Four-year college graduation has declined over the past 40 years, with students taking an increasingly long time to graduate.<sup>1</sup> By 2009, across the public four-year college sector, only 38.4 percent of first-time bachelor's degree recipients graduated within 48 months of enrollment.<sup>2</sup> The problem is not limited to students taking a semester or two beyond the minimum. For students who began their studies at a public four-year institution, 27 percent took longer than five years to graduate. The numbers for the non-flagship segment of the public university sector are worse. Only 16 percent of full-time students at non-flagship universities graduate in four years, and the average time-to-degree for full-time students is 4.9 years.<sup>3</sup>

Excess credits are another measure of untimely graduation. Students in non-flagship public universities graduate with an average of 136.2 credits, even excluding remedial credits, far more than the 120 semester credits typically required for a bachelor's degree. Excess time and excess credits have overlapping, but not identical, explanations. It would be difficult to accumulate a lot of excess credits without also extending enrollment beyond four years, simply because it requires an average of 15 completed credits each of two semesters for four consecutive years to complete 120 credits. But a student can take more than four years to graduate even without taking excess credits if he or she attends part-time or even at the federally defined "full-time" rate of 12 credits per semester. Part-time enrollment is a major factor in excess time to graduation in non-flagship universities, as only 26 percent of undergraduates in fall 2012 enrolled in a course load that would put them on track to graduate on time.<sup>4</sup> But as we will detail throughout this paper, there are many reasons why students take excess credits, such that for most students enrolled in non-flagship public universities, the excess time and excess credit problems co-exist.

Excessive time-to-degree is a worsening problem, especially in public regional universities where there are fewer resources to help low-income, at-risk populations. Researchers compared the 1972 cohort with the 1992 cohort of high school graduates and found a statistically significant decline of 13.7 percentage points in four-year graduates and an increase in mean time-to-degree from 4.48 to 4.81 years.<sup>5</sup> They found the increases to be greatest in the "non-top 50 public sector." They ruled out changes in college preparedness or the demographic composition of degree recipients as potential explanations for increased time-to-degree, finding instead that the increase was related to resources—both the decline in institutional resources in the less-selective public sector and the likely related increased hours of employment among students who feel they must work more to meet rising college costs. They note, in particular, the impact that scarce institutional resources can have on students' ability to access needed courses. This trend of increased time-to-degree persists in more recent data, with public universities lagging behind private universities, especially in broad-sector public universities.<sup>6</sup>

Extra time and credits are very costly for students. Estimates and actual costs vary, because of different tuition and aid policies, but additional time in college hits students' pocketbooks in two ways: the direct added costs of tuition, fees, books and related expenses, and the indirect opportunity costs of delaying entry into the job market with wages that reflect the college degree. Public concerns about college costs are usually limited to annual costs, but it is far more relevant to consider the total costs, including those incurred from extended enrollment. This is especially important in public regional universities that strive to serve large numbers of low-income students with severely constrained resources compared with their flagship counterparts. In 2011–12, 51 percent of students in public four-year non-doctoral institutions had two or more risk factors (e.g., single parent, working full-time, financial independence) compared with 28 percent in public four-year doctoral institutions. Let's look at what these costs might be for two students who represent different profiles of at-risk students likely to attend a public regional university.

Diana is an 18-year old, low-income student entering college right out of high school. She is enrolled in 12 credits in her first semester and intends to sustain that enrollment intensity while working 20 hours per week at a low-wage job paying \$10 per hour. She plans to work full-time in the summer and attend college only in fall and spring semesters. Even if she passed all of her courses, stayed continuously enrolled and took no classes that ended up not counting toward her major, it would take her five years to graduate. Assuming she passes only 80 percent of her courses (a reasonable assumption), needs two remedial courses and changes her major such that two courses she completes won't count toward the 120 credits, it will take her almost two extra years to graduate. At an average net cost (accounting for financial aid) of \$3,050 each year,<sup>7</sup> and with annual costs for books, supplies, transportation and housing (above what she might have incurred out of college) of \$3,000,<sup>8</sup> the direct excess costs will be \$6,050 each of the two years. The two years of lower wages (about \$13,000 annually) compared with two years at an annual salary of \$27,000<sup>9</sup> yield an opportunity cost of \$28,000 in lost wages. The direct and opportunity costs of the two extra years of college total \$40,100.

Nick is a 28-year old, low-income working adult who has some community college credits but no substantial progress toward a degree. Owing to his family obligations, he continues to work full-time while attending the university. He plans to take 6 credits each term, including summers, which will take him seven years provided he passes every course and every course counts toward his degree. However, assuming he needs 6 remedial credits (having been out of school so long), withdraws from 10 percent of his classes due to family considerations and passes 80 percent of the remaining courses, it will take him nine years to earn his degree. Working through these numbers illuminates why only a small minority of part-time students ever graduate, estimated at 16 percent by Complete College America. Assuming Nick is one of the perseverant few, he can expect to incur \$30,000 of direct costs (using, for simplicity, the same \$6,000 annual value as for Diana). His annual opportunity cost related to wage differential is lower than Diana's because he continues to work full-time, but he suffers the opportunity cost for five years. Assuming his annual salary would go from \$30,000 to \$40,000<sup>10</sup> once he earned his degree, the opportunity cost from five extra years of wage differential is \$50,000—bringing the total costs of an extra five years of college to \$80,000.

One of the pillars of President Obama’s ambitious goal to increase college graduation is keeping costs down. It is the “shared responsibility of states and higher education institutions—working with the federal government—to promote access, affordability and attainment in higher education by reining in college costs, providing value for American families, and preparing students with a high quality education to succeed in their careers.”<sup>11</sup> Extended time-to-degree hurts access as well as affordability. When students spend unnecessary time in class, they consume scarce spots available in America’s colleges and universities. Ensuring efficient progress toward a degree in public regional universities guarantees that these vital institutions are able to serve more students.

This report examines how leaders of public regional universities with large concentrations of low-income students may be able to improve affordability by implementing practices and fostering cultures that support efficient and timely student degree completion.

## STRATEGIES TO INCREASE ON-TIME GRADUATION: SCOPE OF THIS PAPER

The literature about factors that correlate with retention and graduation has only recently turned to time-to-degree as a key issue. This report seeks to isolate the issue of time-to-degree as well as possible, while acknowledging the symbiotic relationship between timely graduation and successful graduation. Institutional efforts to improve student performance in the first year, to improve second- and third-year retention rates, and to improve performance in critical math and English courses and bottleneck courses with low pass rates all stand to improve time- and credits-to degree if they improve retention in the first place. Such efforts are commonplace across the nation’s public universities. In order to define a reasonable scope for this paper, we focused as much as possible on those strategies that institutions themselves present and describe as oriented toward improving *timely* student completion. We note, however, that many of these strategies were cited in a survey of college leaders as among the most common approaches they are taking to increase graduation rates (not necessarily timely graduation).<sup>12</sup>

We developed a conceptual framework for identifying institutional strategies to reduce time- and credits-to-degree that we validated by reviewing the research-based evidence on factors that contribute to timely graduation and subsequently confirmed in interviews with college leaders. The framework divides strategies into demand-side and supply-side strategies.

**Demand-side strategies** are aimed at helping students make good choices about unit load, courses and majors so they will move expeditiously through the curriculum. These strategies include:

- intrusive advising to make sure students get help with their course and major selection and get directed to available student supports;
- use of large sets of data on historical patterns of student course-taking (called “data analytics” throughout this paper), to help advisors and students make informed choices about courses and majors;

- degree road maps for each major, showing students effective sequences of courses and how majors can be completed in four years; and
- informational campaigns about the benefits and costs of true full-time enrollment.

**Supply-side strategies** are aimed at providing a curriculum of well-structured programs and a course schedule that will allow students who exercise informed enrollment and course-taking choices to make timely progress toward graduation. These strategies include:

- reforming remedial education so that students take less time to become ready for college-level instruction;
- reducing or simplifying unit requirements for bachelor’s degrees, including general education requirements;
- improving course availability—i.e., the number and scheduling of the courses that students need to graduate; and
- adopting institutional policies that encourage students to make efficient progress through to graduation—e.g., policies on declaring and changing majors or repeating or withdrawing from courses.

Institutions rarely implement just one of these strategies, usually taking multiple steps to improve timely graduation. This paper will discuss strategies one at a time, not to imply that an individual strategy will suffice but to explain and provide examples of each.

Our study scope excludes four sets of strategies that could also be used to increase timely graduation. Financial incentives such as loan forgiveness for on-time graduation or loss of financial aid eligibility for failure to maintain pace toward timely graduation are the subject of another paper in this larger study, as are improvements in the transfer and articulation of credits from community colleges and other institutions. The various means by which high school students can earn college credit before enrolling in high school (e.g., advanced placement, dual credit, dual enrollment) have not been widely used by the low-income target population of this project; more recent efforts to use dual enrollment and early college to assist “at risk” students are far more prevalent in the two-year sector than in regional universities. Finally, online instruction can increase students’ access to courses they need but has not yet been shown to be very effective with the target population for this project.

## OUTLINE OF PAPER

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In the second section of the paper, we summarize the evidence base in support of the supply-and-demand framework that we will use throughout the paper to organize the strategies we have identified for increasing timely graduation. We provide some examples of institutions that are implementing the strategies, along with any evidence of effectiveness that is available about these practices. In the third section, we discuss implementation considerations for each of the strategies, addressing both opportunities and potential obstacles

facing college leaders who seek to adopt these practices as well as costs. In the fourth and final section of the paper, we summarize our findings by rating each practice on a set of seven criteria. Based on that qualitative assessment, we offer recommendations aimed at leaders of public regional universities who seek to improve timely graduation in their institutions, particularly among low-income students.

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## 2. EVIDENCE BASE FOR THE STRATEGY AND EXAMPLES OF PRACTICES

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While the research evidence identifying the important factors for time-to-degree is quickly developing, strong econometric evidence identifying the partial effects of each potential institutional intervention is generally lacking. Time-to-degree has only recently emerged on the policy radar and, as a result, even cutting-edge institutional responses have begun fairly recently. The best analysis of time-to-degree is based on longitudinal data, which follows individual students through the college process and is therefore better able to control for student demographics and incoming quality. Many of the efforts being studied are too recently implemented to have generated data beyond retention rates—and certainly not yet on four-year versus five- or six-year graduation rates, or longer.

Moreover, it is impractical to insist on rigorous partial-effect evidence. Education is not well suited ethically, politically or pragmatically to most kinds of random controlled experiments to isolate the effect of a “treatment” variable. The treatment, in the real world of universities today, generally consists of a range of strategies implemented at once. College leaders are motivated by the urgent need to improve outcomes rather than by the more nuanced need to determine the cause and effect of specific interventions. They draw from the professional and academic literatures and take myriad actions. Even studies aimed at isolating causal factors for graduating at all (irrespective of the time element) come up largely empty. As noted by researcher Matthew Chingos, the “bottom line is that it is difficult, if not impossible, to make credible inferences about the causal effects of institutional policies using traditional cross-sectional methods.”<sup>13</sup>

In the absence of rigorous research evaluating specific reforms aimed at decreasing time- and units-to-degree, we offer evidence of two types. First, we present findings from the research literature about underlying factors related to time-to-degree that support the supply-and-demand framework we use to identify and assess institutional strategies to improve timely graduation. Second, we report preliminary outcomes from some of the institutions that have implemented one or more of the strategies we discuss.

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### WHAT FACTORS PREDICT TIMELY GRADUATION?

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The research literature has identified three sets of factors that predict, or correlate with, increased time-to-degree: (1) demographic characteristics of incoming students; (2) student choices; and (3) institutional qualities and programs. Because this paper is aimed at identifying promising strategies that institutional

leaders might adopt to help the kinds of populations that traditionally take longer to graduate, if they graduate at all, the research on the impact of student characteristics on timely graduation is not relevant. It would be counterproductive to the goal of this project to suggest that institutions change their admission policies to limit the enrollment of at-risk students. Here we discuss the research on the two other sets of actionable factors.

## **DEMAND-SIDE FACTORS: RESEARCH ON STUDENT CHOICES AND TIME-TO-DEGREE**

The literature on student choice is directly applicable to our paper. Complete College America has identified causes of excess credits, concluding that about 30 percent of those excess units are from “poor student choices.”<sup>14</sup> Researcher Sarah Turner argues that information problems plague students’ college decisions. She points to two kinds of information problems that may help explain why time-to-degree has increased during a period when the increased economic benefits of a college education would be expected to improve timely completion. One is that “individuals face considerable uncertainty about both the costs and benefits of college investments.” The second is that they “make systematic mistakes” by enrolling or persisting in college when the costs could be predicted to outweigh the benefits.<sup>15</sup>

Uncertainty about costs and benefits can play out in students’ choices of majors and courses. For example, if a student lacks information about the competitiveness of a major, he or she could spend time and money taking and retaking prerequisites for a major, eventually changing majors to one with fewer barriers to entry. Students’ systematic mistakes can include decisions about employment during college and its impact on course load. Research studies suggest that student choices about employment, course load and majors have an impact on time-to-degree, and that advising (presumably to help students make choices about all of the above) can improve prospects for timely graduation.

**Employment.** Concurrent with the increase in time-to-degree has been an increase in the hours worked by undergraduate students. This increase in hours worked has been identified as a strong risk factor for decreased likelihood of graduation.<sup>16</sup> The relationship is particularly strong for students who work more than 20 hours per week, where researchers have found a correlation with low academic performance, measured in grade point average.<sup>17</sup> In 2011, 72 percent of undergraduates were actively employed. Among those who chose to work, more than half worked more than 20 hours per week, though college students vary as to their total weeks worked per year.<sup>18</sup> Increases in employment are also associated with extended time-to-degree. Researchers have found it difficult to quantify the exact relationship, but one study concludes that “the magnitude of the increase is large enough that it is likely this change has played a role as a proximate factor in increased time to degree.”<sup>19</sup> The causal link between increased employment and increased time-to-degree is clear. Employment encourages part-time course loads that make it impossible to graduate in a timely period.<sup>20</sup>

**Course loads and student performance.** Survey data from a recent task force on graduation conducted at the University of California, Riverside showed that students consistently believed that a lower course load would improve their grade point average and job prospects.<sup>21</sup> But an econometric study at the University of Texas at Austin found that, even after controlling for many of the demographic characteristics and factors that predict academic performance, including grade point average, there was a positive rather than a negative relationship

between credits taken and academic performance. The relationship was particularly pronounced at the extremes, where students who took fewer than 12 credits did particularly poorly and students who took more than 17 did particularly well.<sup>22</sup> There are several possible explanations for a finding that runs counter to the UC Riverside students' beliefs and choices. First, students who take a smaller class load tend to be students who disengage from the campus environment, while the opposite is true for students who take particularly heavy course loads. Research has clearly shown that connection with the campus community can be a strong predictor for academic success and graduation.<sup>23</sup> Second, students who take higher and lower course loads may differ in respects beyond the ability of the researchers to control econometrically—for example, in motivation. Nonetheless, the flat-to-slightly-positive relationship between credit hours and grades among moderate course loads suggests at the least that students who choose to take more credits do not tend to harm their academic performance.<sup>24</sup> One study showed that the opposite could be true—that students' choices to take reduced course loads could harm their job prospects, as employers see inflated time-to-degree as a signal of weaker academic performance.<sup>25</sup>

**Transition among majors.** Research has shown that students' choices about majors contribute to decreased graduation and increased time-to-degree. For example, at UC Riverside, among the half of pre-business students who unsuccessfully attempted to transfer to the business program, the four-year graduation rate was 29 percent, and the five- and six-year rates were 43 percent and 47 percent, respectively, about 20 percent lower than the campus proportions. These students and students applying to similarly competitive majors constituted a significant portion of the timely graduation problem, where approximately 10 percent of all matriculating students were unsuccessful business students in 2006.<sup>26</sup> To the extent that students seek strong financial or intrinsic returns from competitive majors based on inadequate information to judge costs and benefits, the research suggests that better information would save students time and money before they are involuntarily redirected to a less competitive major. Aside from these forced changes in pathways, voluntary changes of majors are often cited as a reason for increases in time-to-degree. The University of Texas at Austin found significant variation in timely graduation among those students who switched majors, finding that number of switches and time of the switches were the strongest factors in the impact on time-to-degree. There was no significant difference in time-to-degree among those students who never switched and those who switched a single time, but the chances of timely graduation dropped precipitously with two or more changes of major. Similarly, changes of major within the first two semesters had no negative effect on time-to-degree, whereas changes after four semesters significantly delayed graduation.<sup>27</sup>

**Academic advising.** Either information problem postulated by Turner—uncertainty about future benefits or irrational decisions—may be alleviated by effective academic advising. Uncertainty about future benefits may be alleviated by increasing the information available, giving the students more of a basis for their decisions. Suboptimal decisionmaking may be helped by a strong advisor who is able to guide the student to reach a better decision on the basis of real costs and benefits. One study that followed 16,000 high school students into postsecondary education found that the more a student reported seeing an academic advisor, the higher his or her four-year college persistence rate. The study found that the positive benefit of seeing an advisor was greatest for low-income students.<sup>28</sup>

In addition to the evidence from research studies, institutional data from (mostly) public regional universities supports the underlying hypothesis that student choices made without good information account for significant delays in graduation.

- A study of student and advisor perspectives conducted for the Indiana Commission for Higher Education identified several themes that point to insufficient information: Students initially chose programs for which they were not suited, students made inappropriate course selections, and advisors who lacked up-to-date information had difficulty providing effective guidance.<sup>29</sup>
- Data reported by California State University, San Bernardino indicate that students who change majors more than twice take, on average, an additional half-year to graduate compared with those who change majors no more than twice.
- A survey of students administered by Sacramento State University found that students are very unrealistic about course-taking behaviors that are needed to graduate in four years. Forty-five percent of incoming freshmen expect to graduate in four years, but nearly half of this group expects to take four or fewer classes per term—a course load that cannot lead to on-time graduation.
- A survey of Indiana college students similarly found that 75 percent believed they could graduate in four years while only 50 percent were enrolled in enough courses per semester to do so.
- A study of attitudes among higher-risk students, including some from an urban public university, reported that a key barrier to greater success was lack of adequate academic advising, particularly from full-time advisors.<sup>30</sup>

## **SUPPLY-SIDE FACTORS: RESEARCH ON INSTITUTIONAL PRACTICES AND TIME-TO-DEGREE**

Another strand of the research introduces the role that institutional qualities and practices play in affecting time- and units-to-degree. Drawing on the field of cognitive psychology, a body of research points to the impact that institutional structures can have on student choice-making. Much of this research has involved community colleges, whose students share many of the characteristics of the low-income population at public regional universities that are the focus of our study.

In a seminal study in this field, researchers Person, Rosenbaum and Deil-Amen explored some central questions about whether incoming students face serious information problems and whether college procedures and institutional structures affect those problems.<sup>31</sup> They contrasted the informational burdens imposed on students by loosely structured community colleges with the tight structures and clear pathways in private occupational colleges. Their findings from 200 interviews of students and administrators led them to conclude that many students have trouble understanding college requirements, a problem that hampers their educational planning and discourages them. They found that “college structures and procedures might indeed help the ‘new’ college students by improving their information and confidence,” noting in particular the apparent benefit to students of reducing the information burden for students by creating “highly structured programs that require little information.” Such programs at the private occupational colleges they studied “specify a clear sequence of

courses that leads efficiently to students' goals. By limiting students' choices and providing information targeted toward students' immediate needs, students are prevented from making mistakes that increase tuition, the time needed to complete the courses, and the risks of noncompletion."<sup>32</sup> The researchers also identified more structured student support programs, such as mandatory advising, that were intended to guide students along more efficient pathways to completion.

Judith Scott-Clayton furthered this line of inquiry with her paper "The Shapeless River: Does a Lack of Structure Inhibit Students' Progress at Community Colleges?"<sup>33</sup> She drew on ideas from behavioral economics and psychology to posit "the structure hypothesis: that community college students will be more likely to persist and succeed in programs that are tightly and consciously structured, with relatively little room for individuals to unintentionally deviate from paths toward completion, and with limited bureaucratic obstacles for students to circumnavigate." Empirical studies have confirmed the importance of program structure in community colleges, finding that students who enter a program of study within the first year have far greater rates of success than students who take longer to enter a program.<sup>34</sup>

Placement in long sequences of remedial education delays a student's entry into a program of study. There is growing research evidence that remedial education, as currently structured, is not improving graduation rates.<sup>35</sup> In one rigorous statistical study, researchers evaluated the impact of remedial education on time-to-degree and graduation rates, and found that taking any or many (three or more) remedial courses lowered bachelor degree attainment while increasing time-to-degree.<sup>36</sup> If remediation does not improve retention and graduation, as the bulk of recent evidence suggests, then requiring students to enroll in remediation as currently structured only threatens time-to-degree with little or no benefits of increasing the likelihood of graduation. Thirty-one percent of students enrolled in nonselective public universities take at least one remedial course.<sup>37</sup> Therefore, more effective remediation could have a substantial impact on timely graduation in these universities.

Many institutional policies and practices are constrained by resources. Not surprisingly, there is research that suggests that variations in resources affect the time it takes students to graduate. After determining that changes in demographics, though a strong predictor at the individual level, fail to explain the increase in time-to-degree experienced over the past 40 years, researchers Bound, Lovenheim and Turner investigated institutional factors more closely. They concluded that "the underlying rate at which students complete college studies may be impeded by limited availability of courses and institutional resources more generally at public colleges as well as increased difficulties faced by individuals in financing full-time collegiate study."<sup>38</sup> They found that increases in time-to-degree have been concentrated in states that have experienced rapid growth in the college-age population, suggesting that increased demand generates crowding, where resources per student in public higher education do not fully match increases in enrollment demand.

This evidence suggests that efforts by less affluent institutions to optimize student access to courses for any given amount of institutional resources would likely improve timely graduation. Additional evidence supports the potentially large benefit to students of institutional practices aimed at helping students gain "academic momentum" in their first year. A statistical study of longitudinal course-taking data for 6,870 students found significant benefits among students who attained early momentum by means including enrolling full-time and in

summer.<sup>39</sup> The study authors concluded that strategies and practices that encourage high-momentum behaviors for at-risk student groups can alleviate some of the inequalities related to socioeconomic status and academic preparation. While the study was concerned with graduation, irrespective of the time elapsed, it suggests that institutional strategies put in place by public regional universities could help overcome some of the barriers that its low-income and at-risk students face getting to timely graduation as well.

In addition to the evidence from research studies, institutional data from (mostly) public regional universities indicate how institutional practices that do not incentivize or encourage effective student choices can readily lead to significant delays in graduation.

In a study of perceptions of barriers to their success, students identified lack of understanding of academic requirements, excessive general education requirements and an inability to get the courses they need.<sup>40</sup>

- A task force at one public regional university wrote that “many students, faculty, staff and administrators...perceive the first- and second-year General Education Requirement not as a positive, formative experience, but as a hurdle over which each student must jump, a hurdle that stands in the way of the real purpose of the student’s major program of study....”
- At another public regional university, the president described the general education program as “pretty much incomprehensible” and added that “faculty themselves knew they could not explain the general education program and all of its various waivers....”
- The **California State University** System, via an executive order, allows its campuses to permit students to repeat up to 28 semester units—up to 16 in order to have the earlier grade “forgiven” and up to 12 to have the earlier grade averaged with the new grade.
- **California State University, San Bernardino** allows its students to repeat the maximum number of units allowed. Described by a campus official as “very permissive,” this policy has resulted in one-quarter of courses being repeated, sometime after students negotiate with faculty to lower the grade below a C, which is the threshold for repeating a course.

Having confirmed that the supply-and-demand framework has an evidence base in research and practice, we turn to specific cases where public universities are implementing some or all of the four demand-side and four supply-side strategies we have identified as worthy of study.

## **DEMAND-SIDE STRATEGIES WITH SELECTED OUTCOMES: SOME EXAMPLES**

We have learned of a number of regional public universities that have implemented some or all of the four demand-side strategies we have identified. Here we present a few to illustrate the approaches being taken, along with outcomes data where available. We end this short listing with a few examples of institutions that are implementing multiple demand-side strategies.

**Indiana University-Purdue University Indianapolis** has incorporated a Personal Development Plan into freshman seminars to help students identify their own success-related interests and competencies, identify realistic and informed academic and career goals, and locate programs, information, people and opportunities to help them understand how realistic their goals are.

**Fort Lewis College** implemented, in fall 2012, a degree-tracking system called Maps to Student Success. Its goal is to transform the current “loosely coupled system of course offering and course taking into a tightly coupled system.” The demand-side part of the strategy includes the creation of four-year plans for students to complete each program along with the implementation of a new degree-planning and tracking technology programmed with the degree maps and instructional plans. The supply-side part includes efforts by departments to simplify the curriculum to have it “more easily navigable” and to remove institutional obstacles to on-time completion stemming from the design and structure of the curriculum.

**Montclair State University** is focused on improving advising through greater and more strategic use of professional advisors, with a focus on low-income and first-generation students. It has changed the practice of assigning advisors to students so that a student stays with the same advisor when he or she becomes a sophomore, rather than changing professional advisors or being assigned faculty advisors. The faculty role in advising has been reconfigured to work only with students later in their college careers, once they declare a major. Professional advisors teach one-unit foundation courses, required of all entering students, that provide basic “college success” information as well as information about careers and choices of majors.

- **Outcomes data.** The first-to-second-year retention rate increased from 82 percent to 87 percent, which the institution credits to the implementation of the required foundation courses and the more intrusive advising.

At **Western Illinois University**, almost all advising is done by full-time professional advisors, first in a central office for students who have not declared a major and then by specialists in each academic area.

The **Indiana Commission for Higher Education** has partnered with public and private colleges on a public awareness campaign, “15 to Finish,” to send the signal to all students that it takes a semester load of 15 credits to stay on track for on-time graduation.

**The University of Hawaii** has also begun a “15 to Finish” campaign for students at all of its colleges and universities.

**Georgia State University** has implemented a GPS Advising System, which uses data analytics to generate 700 different markers for when students go off track from timely progression toward completion. Based on a rolling 10-year history of student registration, course-taking and academic patterns, the system draws on these markers to send notices to academic advisors, who then reach out to their assigned students within 48 hours. It is intended to prevent students from making bad decisions by intervening sooner than has been done in the past, if at all. As an example, in the past students majoring in political science would not have been contacted

until they earned grades of D or F in required courses. Now, based on the predictive analytics for success in the major, advisors contact and meet with students who earn below a B in the first class to discuss available supports or other courses or majors. As another example, accounting majors had been required to earn at least a C in the prerequisite math course, but the data analytics revealed that a B+ grade was actually a better predictor of success in upper-level accounting courses. This new threshold now guides both department policy and advisors' interactions with their advisees. A third example is in nursing, where nationally thousands of pre-nursing students languish for years while attempting to score high enough in prerequisite courses. GSU is using data analytics to help students understand sooner, rather than later, their chances of meeting the highly competitive threshold for admission into nursing. Hundreds of alerts are issued each semester to flag, for example, if a student failed to register for a needed course. The university hired many new advisors, choosing mostly recent college graduates with the computer skills and interests to work well with the new data analytics. The system allows advisors to structure data-driven conversations about students' majors that can guide them into majors with the best chance of success sooner than has traditionally been the case. Historically at Georgia State, the average student moves through three different majors.

- **Outcomes data:** Georgia State reports a high level of student response to the invitations to meet with advisors, based on notices generated by the GPS system. In one year 34,000 student appointments with advisors occurred in response to these notices (not unduplicated student count). The percentage of returning second-year students with enough credits for sophomore status tripled, from 22 percent to 67 percent. The GPS system's predictive analytics reported that two of three sophomores improved their chances for a timely graduation. Although not a direct measure of the impact on time and units, it should be noted that Georgia State has received national recognition for having increased graduation rates by 20 percent in the past 10 years, including higher rates for Pell recipients, African American students and Hispanic students.

**Austin Peay State University** is also using a system of data analytics, called Degree Compass, aimed more toward helping students with course selection than with major selection, as in the case with Georgia State. The college describes it as a course recommendation system that pairs current students with the courses that best fit their talents and program of study for upcoming semesters. The system combines hundreds of thousands of past students' grades with student transcripts to make individualized recommendations for each student. It uses predictive analytics techniques based on grade and enrollment data to rank courses according to factors that measure how well each course might help the student progress through his or her program. From the courses that apply directly to the students' programs of study, the system selects those courses that fit best with the sequence of courses in their degrees and are the most central to the university curriculum as a whole. That ranking is then overlaid with a model that predicts in which courses the students will achieve their best grades. Students and advisors can quickly see the students' outstanding academic requirements and which courses would be most advantageous. The system has predicted course passage with an accuracy of 90 percent. It also encourages students to take courses that fulfill requirements for multiple majors so that students who change majors will have already satisfied some of the requirements.

- **Outcomes data:** The university reports that about half of classes selected by students since the implementation of Degree Compass have been among the top 10–15 classes recommended based on the data analytics. Combined with the system’s accuracy in predicting course-passing, this suggests some early effectiveness of the system in improving rates of converting course enrollments into completed credits. In fact, the percentage of students earning grades of A, B or C has shown a statistically significant gain between 2010 and 2012, including for African American students and Pell Grant recipients.

**Indiana State University** has implemented activities covering all four of the demand strategies. It has increased its use of professional advisors and implemented an “off the shelf” suite of tools designed to provide students and advisors with an easy-to-understand, clearly defined pathway toward degree completion. The system includes a semester-by-semester plan of study, worksheets showing graduation requirements, a degree audit and advising notes. ISU has instituted a graduation guarantee supported by degree roadmaps and the force of Indiana state law that requires institutions to provide courses tuition-free if students are unable to access them in their maps. As part of the state’s 15 to Finish informational campaign, ISU has moved the posting of midterm grades earlier in each term, to increase the number of students who can take corrective action and stay enrolled in a full course load rather than drop courses in which they are struggling. This was based on the finding that many students register for a 15-unit load but drop down during the term.

**Florida State University** has implemented Guided Pathways to Success, an approach combining several strategies to direct student choices toward more timely completion. Students are required to select an area of interest or a major upon entering. Academic maps have been prepared for each of its programs that show a term-by-term sample course schedule for four-year completion, along with “milestone” courses that should be met in each term to ensure timely progression. Missing milestones will result in one of two types of registration stops. The first level is placed following grade posting if the student has missed a milestone (course and/or GPA) for the first time in the major. If a student is out of compliance with milestones for two consecutive semesters, excluding summers, he or she will be required to change majors and a stop will be placed on the student’s registration.

- **Outcomes data.** An internal study showed that the university’s efforts to improve course availability and provide maps improved retention and graduation slightly, but did not reduce excess credits. However, once students were required to select an area of interest or a major and held accountable for meeting milestones, the number of students with over 120 units decreased from 30 percent to fewer than 5 percent.<sup>41</sup> Complete College America reports that since starting the degree maps, FSU has cut in half the number of students graduating with excess credits.

**California State University, Long Beach** has implemented several “interventionist advising programs” to improve timely graduation. All first-year students are required to meet with advisors three times their first year. At the other end of the college career spectrum, Destination Graduation advisors work with students beginning at the start of the junior year to ensure students are making degree progress. Seniors are referred to advisors to ensure that their graduation plans are attainable, and those who do not participate in the required advisement have holds placed on their registration until they do so. The advising function, so central to these strategies, has moved to a greater reliance on professional (rather than faculty) advisors and shifted to a decentralized, college-

level model. Administrators view intrusive advising as one of three necessary parts of a cohesive strategy, along with the supply-side strategies of offering a more coherent curriculum and improving the availability of courses through better scheduling. One part of the intrusive advising involves notifying seniors who file for graduation but are not taking the right courses to graduate.

- **Outcomes data.** The university reports an increased number of rising seniors filing for graduation and a decreased number of “super seniors” (those with excessive numbers of earned units), but no data are yet available on time-to-degree changes.

## SUPPLY-SIDE STRATEGIES WITH SELECTED OUTCOMES: SOME EXAMPLES

We have identified a number of regional public universities that have implemented some or all of the four supply-side strategies aimed at simplifying and streamlining the curriculum and class schedule and otherwise structuring the options facing students so as to reduce impediments to timely progression toward graduation. We include outcomes data where available. Efforts to improve college readiness and to reform remedial education within public universities to accelerate and improve student success are widespread, and any thorough coverage of this topic is beyond the scope of this paper.

The **California State University System** adopted in 2012 the Early Start policy that requires incoming students who are not college-ready to begin remediation before they enroll at a CSU campus. Early Start course options include online and face-to-face intensive courses in writing and mathematics. At the time the policy was adopted, about 60 percent of incoming CSU freshmen did not meet proficiency requirements.

Taking a different approach to accelerating student readiness to begin accumulating college credits, **Texas State University-San Marcos’** FOCUS program allows students with math placement test scores in a range below but near the “cut score” to enroll simultaneously in remedial math and college math, with tutoring support.

- **Outcomes data.** In a 2012 pilot, 61 percent of students in the FOCUS program completed algebra with a C or better versus 52 percent of college-ready students. Based on those outcomes, FOCUS is being expanded to seven community colleges and six universities across the state.

**Austin Peay State University** eliminated its two remedial math courses altogether, and instead offers enhanced sections of its two gateway college-level mathematics courses. Remedial math students enroll in a core math course and a linked workshop simultaneously.

- **Outcomes data.** Students at Austin Peay who complete the co-requisite workshop and core math courses have succeeded at more than twice the rate of those who previously took the traditional remedial courses. The pass rate for remedial students rose from 23 percent to 54 percent in Elements of Statistics and from 33 percent to 71 percent in Mathematical Thought and Practice. Furthermore, more of these students are returning and enrolling in college courses the following school year. The effect of these gains in retention on time and units is unknown and not easily projected.

Some states have moved aggressively to limit remediation in four-year institutions. **Florida** lawmakers approved legislation that will allow many students at the state's public colleges to skip remedial classes and enroll in college-level courses. **Colorado** adopted legislation allowing public four-year colleges to place borderline students into regular credit-bearing classes and provide them additional support. **Connecticut** adopted legislation requiring public colleges to build remedial education into credit-bearing courses and restricting separate remedial courses to one semester per student.

**California State University, Long Beach** launched an initiative in 2009–10 to review curricula in all of its departments to identify high-unit majors that were prolonging time-to-degree for students and to identify majors with unusually complex pathways to degree completion. It led to reductions in degree requirements in a number of majors and the elimination of some “overly prescriptive” requirements and “hidden prerequisites.”

Actions to reduce degree requirements to 120 semester credits are widespread and not new. As examples, **Florida** reduced its minimum degree requirement to 120 in 1995; **Pennsylvania** did the same in 2002. **California** reduced its requirement from 124 to 120 in 2000; **Idaho** reduced its minimum from 128 to 120 in 2010. These are minimum requirements, though, and efforts to enforce these as standard continue apace.

**California State University, Long Beach** has adopted a Timely Graduation for Undergraduate Students policy that allows students to earn additional majors, minors or certificates only if those requirements can be completed without exceeding 120 percent of the number of units required for their principal major program. Further, it allows students to change majors after completing 90 units only if they submit a plan demonstrating that all requirements in the new major can be completed within the 120 percent of the units applicable to whichever of the majors requires more units.

**Austin Peay State University** uses its Degree Compass analytics system not only to help students make good course-taking choices (demand-side strategy) but to optimize the course schedule so that students can access their chosen courses. It does this by aggregating the courses that the system recommends to students. The more effective the system is in guiding student course choices, the more effective it can be in making chosen courses available to students.

The **State University System of Florida** requires all students entering with fewer than 60 semester credits to earn at least nine semester hours prior to graduation by attending at least one summer term (with some exceptions).

In response to a survey in which students reported that the inability to get needed courses was a serious barrier to timely graduation, **San Francisco State University** changed its course registration practices to have two registration periods, with the first limited to 8 units, in which students were instructed to choose their highest-priority courses. The intent was to give students access into more courses before they fill and to give departments time to react to student demand and adjust course offerings.

**Cleveland State University** began in 2013 to allow, and encourage, students to register for an entire year's worth of courses before the fall semester. Sixty percent of students chose this option, which is intended in part to save students money as they are able to plan ahead for the courses they know they need to take.

In 2013, in an effort to encourage institutions to optimize class schedules to better match offerings to student needs, lawmakers in **Indiana** passed House Bill 1348. It requires public colleges to provide degree maps to all full-time students *and*, more on point, to guarantee to these students that if a course on a student's degree map for a particular semester is not offered or is full, the institution must provide the course free in a future semester unless it provides a revised degree map.

**Indiana State University** has taken steps to address several supply-side strategies. It has reduced most majors to 120 units, in part by minimizing specialized "foundational" major courses and maximizing those that are more "universal," in that the courses can fulfill the foundational requirements of multiple majors. It has acquired a software tool, Platinum Analytics, that will enable it to match course section offerings much more closely to student demand. Incorporating data from previous students' course-taking patterns, class sizes and room characteristics, ISU expects these efforts to greatly improve students' access to the courses they need for timely completion. It has encouraged more summer term enrollment by branding it "Summester" and offering discounted tuition with an emphasis on 21<sup>st</sup> Century Scholarship students, who make up one-fourth of the university's enrollment.

**California State University, Northridge** implemented the Super Senior Project to reduce the large numbers of seniors who accumulate units but don't complete degrees. The focus was on setting and enforcing institutional policies such as number of course repeats allowed, number of majors and minors a student can have, defining points after which a major or minor cannot be changed or added, preventing these students from registering for classes until certain actions have been taken, and administratively graduating students in the major where they have completed the requirements.

- **Outcomes data.** The number of students with more than 130 units declined by 52.5 percent over three years, and the number with 140 units declined by 56.6 percent over the same period. The number of repeat course enrollments decreased by about 2,500 over two years. During the same period, the percentage of students repeating one or more courses declined from 14 percent to 10 percent, and the percentage repeating more than two courses in a single term declined from 1.2 percent to 0.4 percent. The number of students graduating with more than one major declined by more than three-fifths over a seven-year period.

## APPLICABILITY TO PUBLIC REGIONAL UNIVERSITIES AND LOW-INCOME POPULATIONS

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The examples and evidence cited above were, for the most part, from the public regional sector. All of the demand-side strategies seem very well suited to helping the low-income populations that are the target for this project, as they all aim to better inform students as they navigate the college environment. One of the key challenges facing low-income students is their lack of “college knowledge.” In addition, at least in the community college environment, in which low-income students are prevalent, it has become a point of great consensus that “students don’t do optional.” Therefore, intrusive and mandatory advising as the means to transmit better information to students seems an appropriate and potentially effective approach. Yet better college knowledge and data-driven advice on course and major selection will not help much if the supply-side strategies do not produce coherent curricula, clear degree pathways and institutional policies to which students can apply their enhanced knowledge base.

We turn now to the on-the-ground issues of implementation. Public regional universities are complex organizations with multiple internal and external stakeholders whose assent or opposition can be critical to major reform efforts. They face serious resource constraints as well, which create limitations on their ability to implement costly initiatives. We describe the opportunities and challenges related to the implementation of each of the eight strategies.

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### 3. IMPLEMENTATION CHALLENGES AND OPPORTUNITIES

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In this section we take demand- and supply-side strategies in turn and discuss implementation issues related to support or opposition to the strategy, cost and other potential barriers to successful implementation. We also comment on the potential impact of the strategy in terms of the portion of the student body to which it could apply.

#### **DEMAND-SIDE STRATEGIES**

One overriding concern that college leaders should keep in mind is the danger that, if not framed well, approached carefully and paired with supply-side strategies, demand-side strategies can be interpreted as an implicit judgment that what the college puts out (i.e., supplies) for students is fine and that students just need to make better choices. Leaders must be very clear that improving timely graduation requires the college to ask itself tough questions about what it can do better to simplify and empower the choices that students make as they navigate the institution.

### *Intrusive Advising*

The provision of advising has been a difficult political issue on college and university campuses for decades. There are two fundamental issues—who should provide the advising, and how prescriptive should the institution be in mandating it. On the first issue, there is a strong and persistent cultural belief in the value of faculty advising, based on traditional roles of faculty as mentors and strengthened by data showing the benefit of student engagement with faculty in and out of the classroom. At the same time, there is a trend toward greater use of professional advisors, driven by the growing numbers of students who need help with basic college success strategies unrelated to core academics and the complexity of graduation requirements that many faculty find to be beyond their expertise. On the second issue, the evidence is clear that at-risk students benefit from intrusive advising, yet some faculty may not fully understand the need for guidance of many students today. And those who do may be uncomfortable imposing requirements on vulnerable students who are already juggling many life requirements.

A key to overcoming barriers to the implementation of intrusive, professional advising is to be clear about three different purposes of advising and assign roles accordingly. Students need academic advising to help them:

- identify their personal goals, interests and predispositions or competencies so that they can choose appropriate majors;
- understand general education, major and graduation requirements; and
- think about future education or career pathways within their chosen major and career field, once they have settled on a major.

Faculty are best suited for the third activity, and professional advisors—provided they are well-trained—are probably best suited for the first two activities.

Traditionally, and frequently still today, undeclared students are referred to a central campus advising center while students with declared majors obtain advising from their departments or colleges, usually from faculty but sometimes from professional advisors. Advising centers may use professional advisors and/or faculty on assignment. This model assumes that once a student declares a major, faculty in that discipline can provide the best advice. However, it fails to account for the fact that many students change majors—often several times. Faculty members are probably not in the best position to help students through the kinds of exploratory discussions about various majors. Moreover, faculty members may not understand general education and graduation requirements. Said one faculty member to whom we spoke: “I am a faculty advisor and I can’t keep all the rules straight, so it is best if I give advice on our program only. Professional advisors can answer questions about credit hours, fees, registration holds and other issues that cause students anxiety.” Said another from an institution that has increased the use of professional advisors: “We used to have a terrible time with faculty advisors who hadn’t realized that rules had changed, particularly for General Education, residency requirements and things like that.”

Even the assumption that faculty can effectively advise their majors is questionable. For example, faculty at one institution we studied reportedly claim they cannot effectively advise about upper division general education requirements because they are very complicated with too many choices. Institutions that rely on the faculty to provide advising face the added challenge that more and more adjunct faculty are being hired, many with union contracts that are limited to teaching. Adjunct faculty whose job duties can include advising likely struggle more than full-time faculty to understand course and major requirements. Even full-time faculty are typically less available on a routine basis for students to meet with, obtain signatures, and take care of other deadlines.

A few comments from college task force reports on retention and graduation are telling evidence of how presidents may face a culture that could impede implementation of intrusive advising. One report includes the timid recommendation that “colleges should consider intensive advising practices.” Another recommends updating the faculty advising handbook to rectify the outdated information, suggests that advising be mandatory and states that “undeclared majors with intent and all students who have declared majors” should be advised by their departments. The traditional administrative divisions between academic affairs and student affairs may also present a barrier, as academic advising is sometimes assigned organizationally to student affairs, and efforts to better integrate the two large units have seen mixed success.

It will take, and has taken in the successful cases, strong leadership by presidents, academic vice presidents, deans and faculty to understand the prevailing culture around advising and work carefully to introduce new models, if necessary. An important tool for leaders to use is data—so the lack of a well-staffed and competent institutional research office to show faculty the need for, and benefits of, intrusive advising can also be a barrier. A third barrier may be personnel classifications that govern who can provide advising. Institutions with long histories of faculty advising may have limitations to the job duties for student service professionals that would have to be modified. In addition, there may be issues to work out between counselor and advisor job duties. There is a trend toward using counselors primarily for personal counseling, but there is still some confusion and overlap between the duties of counselors and those of academic advisors.

Cost is, of course, a factor. Student-to-advisor ratios are very poor in comparison with the standard of 300–1 recommended by the National Academic Advising Association, and they have worsened at public universities during the recent recession. Public regional universities devote far fewer resources to student support (when they should devote more, in view of their students’ needs), and the paucity of resources has been found in academic studies to account for poorer student outcomes compared with better-endowed institutions, even controlling for student academic preparation and demographics.<sup>42</sup>

Intrusive advising, implemented well, has tremendous potential to affect the target population because most students, and particularly low-income and other at-risk students, can benefit from advice during all periods of their college careers.

### *Data Analytics*

The issues here are similar to those noted above because data analytics is a tool for academic advisors to use with and for students. The advent of data analytics can introduce some new barriers. Georgia State University reports that there has been some opposition voiced by those who fear that the data may be used to steer students into “easier majors” and that it is “social engineering.” Similarly, an interviewee at Indiana State University noted a concern he has heard that these tools could lead institutions to avoid asking themselves “what are we going to do differently to help these students” so that the historical patterns revealed by the data can be changed. One official described his faculty’s “over our dead bodies” response to the suggestion that the college adopt a system of data analytics like those at the vanguard colleges. The faculty concern was about both directing students to easy courses and hurting enrollment, and therefore resources and faculty jobs. Opposition to the notion that students are getting advised (i.e., tracked) into or away from certain majors can extend beyond the academy to broader cultural and political forces, including parents and politicians.

Proponents of the emerging data analytics approaches counter that (1) in many cases the analytics accelerate what is the eventual outcome for students anyway—the selection of a better-fitting major—so it merely saves them time and money by identifying the major sooner; (2) the advisors direct the student to needed tutoring and other supports so that they have better chances for success in their chosen major; and (3) it is far more conscionable than previous approaches where students were left to “sink or swim.” One interviewee strongly objected to the very premise that there are “easy” and “hard” classes and said that the analytics help identify courses and majors for which students have some innate ability. Here again, showing data to the faculty and staff on student outcomes and student attitudes and opinions about such advising is a powerful strategy to help leaders work through any opposition. A student survey at Georgia State revealed high levels of student support for the advising system because the advisors can give students individualized, customized advice.

Use of data analytics brings additional costs. Institutions must contract with vendors for the service and ensure that they have the internal research capacity to provide the vendor with good data. There are various vendors and services, so costs will vary across institutions. Georgia State reports an annual cost of \$100,000 for the analytics vendor. In addition, it lowered its student/advisor ratio from about 1,000/1 to about 300/1 at a cost of about \$1.5 million annually, in addition to internal reallocations that required strong leadership to accomplish. It hired over 40 new advisors, choosing mostly new college graduates with no particular specialty required, finding that young graduates have a facility with the data analytics that has proven very effective. It should be noted that Georgia State, as a Tier 2 national research university, probably has a richer resource base than many public regional universities.

Data analytics has the potential to affect large portions of the student body because it can add value to students at the beginning, middle and end of their college careers. For starters, at least judging from the student response at Georgia State, it can greatly increase student contact with advisors. Then it can help students immediately choose courses in which they are likely to succeed, help them avoid lengthy sequences of prerequisites that are unlikely to help them gain admission to particular majors, help departments restructure their major admission and prerequisite requirements to save students time, and help students move through their majors more quickly once a good major match has been chosen. As an example of how data analytics has been used to affect

significant numbers of students, Georgia State retooled the admission requirements for nursing after discovering that the first prerequisite math course was a better predictor of success in the program than anatomy and physiology. Since 80 percent of students never gain admission to nursing, many after multiple enrollments in anatomy and physiology, and many of those enter majors where those courses are not required, the change of entry requirements for nursing has saved many students time, credits and money.

### **Degree Roadmaps**

Roadmaps are increasingly being recommended as a way to help students plan ahead and make good choices about what courses to take. Roadmaps are primarily of value to students who have declared a major. But we heard some disagreement from respondents as to their value. At one college, roadmaps were prepared for each concentration in each major but then were pulled back after complaints that students could not get into the classes that were on their roadmap in the semester they were supposed to take them. So they are only as effective as the class schedule allows them to be. San Francisco State University has the following caveat in its catalog section on degree roadmaps: “While SF State will make every effort to schedule classes in the semesters shown on the Roadmaps, the University cannot guarantee that courses will always be available in specific semesters. Shortage of budget and personnel is making it very difficult to offer as many classes as needed. Consult with your major department when planning your schedule.” In addition, there are different roadmaps published for each “catalog year,” reflecting program changes over time, making it confusing to students as well as difficult for departments to honor multiple and changing course requirements. Said one faculty interviewee: “I find maps are good, but they change every time there’s a program change, like a new course, and it can be hard to keep the requirements straight depending on when a student entered the program.”

Registration processes can serve as barriers to the effectiveness of roadmaps in two ways. First, colleges typically grant registration priority on the basis of units taken, an approach that can hinder timely progression, reward students who accumulate excess units, and prevent students from enrolling in a course they need most in order to graduate. To counter these misaligned incentives, Sacramento State is implementing a pilot project in fall 2014 under which registration priority would be granted to seniors on the basis of how close they are to completing the degree, rather than how many credits they have accumulated. Second, if registration systems are not designed to prevent students from registering for courses in the wrong order (e.g., before completing prerequisites), roadmaps are less effective in channeling student choices toward efficient course-taking.

Costs can be a significant barrier to effective roadmaps if departments have to increase course offerings to meet major backlogs and bottlenecks, especially if labs and specialized facilities need to be expanded to accommodate student demand. Additionally, since the courses with the large wait lists are likely to be entry-level, lower-division classes, the faculty may resist giving up more specialized courses. The governance culture of public colleges, in which department chairs have little actual power to compel specific teaching assignments, makes it very difficult for departments to reconfigure teaching assignments to ensure that roadmaps reflect actual course availability.

Degree roadmaps would seem to be primarily useful to students who have chosen their major (for the last time) and only when the department and the college have sufficient resources and leadership to make good on the course sequences laid out in them.

### ***Informational Campaigns***

The biggest obstacle to instilling a culture around a 15-unit, full-time load is the deeply engrained culture and belief system around the 12-unit load as being full-time. There are certainly no regulatory and few cost barriers to instituting an informational campaign to help students understand the course load necessary for timely progression and completion. It is, however, commonly reported that some advisors and other student service professionals resist efforts to get students to take high course loads. Advisors would seem more disposed to helping at-risk students choose which courses are a good fit for them than to encouraging them to take a five-course load. In addition, to be effective, this strategy would have to be well-coordinated with good financial aid strategies, including efforts to help students apply for grants and loans. It would also have to reverse some strongly held beliefs among low-income students that it is both necessary and appropriate to work one's way through college. There are also strongly held, and certainly politically expedient, beliefs among some institutional leaders that students cannot or do not want to attend college at more rapid paces—a politically expedient argument because it can deflect lawmakers' attention from low four-year graduation rates.

Students themselves may have strongly felt beliefs and intentions that would blunt the effect of such campaigns. As noted earlier, despite research evidence to the contrary, focus groups of UC Riverside students revealed that many believe a lower course load will increase their grade point average and make them more competitive in future pursuits.

While informational campaigns are relatively inexpensive and could affect students in all phases of their college careers, it seems potentially more effective for students outside the primary target population for this project—for those students who may be in a good position to enroll in and complete 15 credits a term but may simply have thought that 12 units was a reasonable load that enhanced grades and allowed for some discretionary income.

## **SUPPLY-SIDE STRATEGIES**

### ***Remedial Education Reform***

Momentum is clearly building for remedial education reform, driven by growing evidence of its ineffectiveness and lawmakers' increasing unwillingness to "pay twice" for precollege coursework. But there are also growing concerns that some of the more radical efforts—those that mainstream students who previously would have been directed to remedial courses—are going to hurt the most vulnerable students. Those voicing such concerns point out that the research cited for these reforms has been most conclusive with respect to students hovering just below cutoff scores. The concern is that students needing more help will do poorly in college-level courses and will see even greater rates of failure. There are also some concerns that faculty may have to reduce the level of rigor in college-level classes to accommodate underprepared students. Were that to occur in any systemic way, there would be a potential harm to all students in the attempt to better serve remedial students.

There are potentially large financial, faculty-workload and political barriers to large-scale remedial education reforms to the extent that they involve strategies such as contextualized instruction, team teaching, “wrap around” support services using a case management model, intensive individualized instruction, modularized curriculum or use of nonfaculty, contract employees with expertise in precollegiate basic skills instruction.

This strategy is not applicable in states that have prohibited four-year institutions from providing remedial instruction. For other states, it potentially affects the 30–50 percent of students estimated to need remediation upon entry. However, the subset of those students who are not nearly college-ready is not likely to be helped by some of the ongoing reforms. Some of the more tempered reforms, like alternative pathways to college-level math, are likely to be more effective for near-ready students, but the potential impact of these strategies is probably greater on retention and graduation than on time-to-degree, as the ultimately successful student would likely save just a handful of credits. According to one rigorous study, taking remedial coursework in a four-year college only slightly increases time to a bachelor’s degree by about two or three months.<sup>43</sup>

### ***Simplified Degree Requirements***

Efforts to reduce total degree requirements to, or close to, 120 semester units are pretty well entrenched across the country’s public universities (although some programs are prevented by external accreditation from reaching the 120-unit standard). But within the 120 units lies considerable complexity about how students are to meet the unit requirements. The complexity is rampant in general education programs, at least in part because of the fiscal incentive of enrollment-driven funding formulas that prevail at most colleges. Academic departments vie to get their courses into the general education program in order to attract enrollments. There are barriers as well to reducing and simplifying substantive coursework within majors, as it is difficult for faculty to agree on a minimum set of course requirements, especially when those requirements exclude something in their own area of interest and specialization. As one respondent noted, “convincing faculty that curricular changes are needed has been no easy task,” adding that the success of this strategy depends on strong leadership at the dean and associate dean levels as well as faculty and department chairs willing to lead the curriculum review process.

Further impeding the efforts to design clear curricular pathways are variable departmental policies on double-counting general education courses for the major or as major prerequisites, and in some cases, like Sacramento State University, graduation requirements that are separate from both general education and major requirements. While some departments allow students to double-count some general education courses for the major, others are reportedly reluctant for reasons that may include resource concerns as well as curricular integrity. Efforts by national organizations, including regional accreditors, to focus on learning outcomes and competencies and the widespread adoption of outcomes-based funding may help advance efforts to streamline curricula, but given the strength of faculty governance and the traditionally slow pace of these kinds of changes, it seems unwise to place great hope on this strategy being scaled up across the country anytime soon. College presidents can get a major assist in this work, however, from system or state mandates. In Wisconsin, a system-wide approach, led by the Regents’ concern about excess units, gave some cover to campus leaders to work through turf battles around general education. As another example, the Indiana legislature required each state institution to review every undergraduate degree program and provide justification to the higher education commission for programs that exceed 120 credit hours.

Resource constraints can impede progress toward curricular restructuring as it requires considerable faculty time. If the institution cannot provide formal reassigned time to faculty to lead this work, it is unlikely that the effort will move very quickly where not strictly mandated within a certain timeframe.

When and where institutions can succeed in crafting well-structured and coherent curricular pathways for students, this strategy can affect students throughout the institution at all stages of their college careers.

### *Improved Course Availability*

This strategy is closely related to the one above but involves more technical and operational components. The challenge is to optimize the offering and scheduling of course sections so that students can get the classes they need to make timely progress. There can be substantial financial and physical barriers if colleges do not have the faculty or facilities to meet student demand. High demand in laboratory courses can be especially difficult to meet because of hard class size limitations. We learned that at one institution some students have not been able to get into the introductory chemistry class for several years. This, among other schedule limitations, caused that campus to pull back its roadmaps because of too many complaints that students were unable to follow them.

There are also technological barriers, as course scheduling systems are complex to begin with, having to allocate courses to time slots and appropriate rooms. Those systems may not easily be able to incorporate information generated by other systems that are tracking student course-taking needs. Austin Peay State University has used its Degree Compass system to make sure that the courses students need will be offered. An interviewee from that institution said that the data generated by the analytics system empower deans and department chairs to prod faculty to arrange their teaching schedules to match student demand. Still, it seems more common for teaching schedules to start with faculty preferences and be adjusted at the margins and for those responsible for space management and room scheduling to work independently to adjust time and room assignments to accommodate student demand.

Other barriers to an efficient class schedule that we learned of in interviews include faculty preferences that major courses be taught only by tenure-track faculty, resistance to faculty teaching in other departments, faculty workload contracts and state funding policies that restrict summer term enrollments or other alternative scheduling. One respondent said that his university was starting to have conversations about incorporating more flexibility into faculty memoranda of understanding (MOUs) that would allow for joint appointments and teaching outside the home discipline. He acknowledged that this would introduce complications about faculty evaluation for promotion and tenure that could be addressed in a “thoughtful MOU.” Student preferences may contribute to the problem, as students tend to prefer schedules that have them coming to campus only a few days a week. Institutions may have limited success filling classes at times that students consider inconvenient.

One of students’ chief complaints is their inability to get the courses they need. Consequently, this strategy, if barriers to its implementation could be overcome, stands to benefit all students, probably more in their first few years when they are competing against most other students for entry into introductory and bottleneck courses.

### *Institutional Policies that Incentivize Timely Completion*

This strategy covers many different policies, but all of them constrain choices available to students—whether it involves majors, minors, course repeats or total units that can be taken—and can confront cultural and attitudinal barriers to implementation. For example, in some instances these policies face resistance from faculty and others who fundamentally oppose restricting students’ options. One respondent reported that faculty at his institution “run from any discussion of the four-year graduation rate” for reasons related to these deeply held beliefs about student choices and needs. At another institution we contacted, the academic senate has taken the position that students should be allowed to stay as long as they want, and that policies to limit their attendance are “anti-intellectual.”

We did not hear of any legal challenges or regulatory barriers that would prevent institutions from implementing these policies. However, the policies can reduce units taken, which can reduce revenues, so leaders in institutions without excess student demand or performance funding that rewards degree completion could find themselves weighing tradeoffs between cost considerations and accountability for student completion.

If implemented, these policies can potentially affect students across the college career spectrum. Lower-division students probably predominate among those who repeat courses to improve grades, and upper-division students are those more likely to change majors, seek to add majors or minors, or exceed limitations on total numbers of units.

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## 4. ASSESSMENT OF STRATEGIES AND RECOMMENDATIONS FOR COLLEGE LEADERS

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We have described eight sets of strategies (four demand-side and four supply-side), providing examples as well as implementation considerations. Leading institutions do not use a single strategy; rather, they recognize that effective efforts to improve timely graduation require the whole package: a coherent curriculum, widespread course availability, and effective academic advising and institutional messaging that guides informed student decisionmaking. Nevertheless, we offer a qualitative assessment of the individual strategies on seven criteria to help presidents, provosts and other leaders think about which may be worthwhile pursuing in their institutions. These qualitative assessments rate the strategies along dimensions that we believe are important to consider, but we do not attempt to set priorities among the criteria. Our seven criteria are defined as follows:

- 1) Portion of the student body potentially affected
  - How many students could be helped by the strategy to move more quickly toward graduation?
- 2) Potential impact on affected students
  - How large an impact would the proposed program have on students in influencing timely graduation?

**3) Ease of implementation**

- How large an administrative burden would an institution likely face while implementing this program?

**4) Financial feasibility**

- How high is the likely cost faced by an institution implementing this program?

**5) Prospects for scaling to other institutions**

- How easily could the strategy be transferred to other, similar institutions once it is successfully implemented at the first?

**6) Strength of evidence for broad-sector universities**

- How strong is the evidence that this strategy would influence timely graduation at public regional universities?

**7) Risk of negative impacts on education**

- How significant is the potential for unintended risk or harm to student or institutional outcomes if the intervention goes contrary to our present evidence?

We rated each strategy according to a three-part scale considering our review of the research, our interviews with leading administrators, and the evidence to date from implementation of the strategies. The following narrative explains our evaluation along each dimension and is summarized in Table 1.

**1. *Portion of the student body potentially affected***

The portion of the student body affected gives us an idea how widespread an impact the strategy can be expected to have on an institution that adopts it. Could this cause widespread changes or just affect a select group from the college? Interventions on both the demand side and the supply side scored well under this dimension.

On the demand side, we saw intrusive advising, data analytics and informational campaigns as having a potential impact on a large portion of the student body because they hit directly on one of the key components of our analysis: students' lack of information. These interventions identify and inform our target population, affecting a large portion of that target. We saw degree roadmaps affecting fewer students because they provide the most useful information only once students have arrived at their final degree path. Intrusive advising has the potential to affect all students in an institution, as it can help incoming students get oriented to college and learn strategies for success, help all students with choice of courses and majors, and help students be certain to complete all degree requirements.

On the supply side, degree requirements and course availability should affect all students as they plan their schedules on a semester-to-semester basis. Remedial education reform is limited in its impact to those students who take remedial courses, though this population constitutes a sizable portion of the target population. Institutional policies to encourage timely completion affect only those students who would otherwise make a choice that is no longer allowed. This varies on the degree of restriction but will generally not affect all students.

## **2. Potential impact on affected students**

Where the previous criterion looked at how many were affected, this criterion considers how much each affected student would be impacted.

On the demand side, we see a lot of variation along this dimension. Our evidence suggests that intrusive advising is a strong predictor for time-to-degree, suggesting that this dimension has a large impact on its target audience. Data analytics help to inform advisors and students by increasing the information available to them, but alone these data are only part of the information and advice that advisors can provide to students. Degree roadmaps and informational campaigns both put information in the hands of the students, but the more targeted and personalized information contained in degree roadmaps may have more direct impact on students than more general informational campaigns.

On the supply side, our analysis suggested that remedial education reform would unambiguously reduce time-to-degree for the students involved, but the units saved would amount to only a portion of excess credits that students accumulate for a variety of reasons. Simplifying degree requirements and adopting policies to constrain certain choices both prevent students from wasting time in their pursuit of a degree. The size of the impact depends on how many courses are removed from the path toward the degree, which in the case of degree switching depends on how far the student had progressed on his or her previous path. On the whole, we see each of these having a medium impact on students. In contrast, course availability has been identified widely as a large factor in time-to-degree, and the removal of bottlenecks could significantly accelerate student progress.

## **3. Ease of implementation**

This dimension looks generally at the difficulty that an institution would have putting these reforms in place.

Intrusive advising has several factors that make it difficult to put in place, including the need for a significant increase in qualified personnel to deliver the advising and the need to provide incentives or requirements to get students into advising. Data analytics requires design and development work that may not be straightforward and could face technical and cultural barriers. Degree roadmaps are fairly easy to put together, but delivering them to students at the critical time when they are making their educational decisions and honoring them in the face of financial and physical barriers present challenges. More general informational campaigns do not have this difficulty, as they may be communicated more widely to the population as a whole.

On the supply side, remedial education reform is tough to implement because it requires careful design to determine when students should be pushed faster through the process. In addition, it requires considerable

curriculum change and faculty development. Changing degree requirements and improving course availability involve delicate communication with departments that tend to be very territorial and tradition-bound. Our analysis and interviews both suggest that this can present difficult implementation challenges. Finally, restrictive policies may be easier to implement because they can be decided above the individual departmental level at the highest levels of the institution, making them more centralized and less political.

#### **4. Financial feasibility**

Although the principal concern of the paper is affordability for students, strategies must be affordable to institutions as well.

Advising is always fairly expensive where it involves hiring skilled professionals. Colleges already have some advisors on staff, but most public regional universities have far too high a student-to-advisor ratio to implement intrusive advising on any effective scale. In addition, existing advisors may need training about new intrusive advising techniques. Some impact can come from redeploying existing advisors, but significant costs are likely to be incurred. Information-based reforms generally have higher startup costs to design the format and structure of information delivery and more moderate ongoing costs to update information. Data analytics, though, also involves an ongoing cost of contracting with vendors and may involve major costs to configure existing data systems to articulate with a new data system. In contrast, degree roadmaps and informational campaigns are highly feasible financially.

Remedial education reform has competing elements to its financial feasibility. Reducing remedial class offerings lowers expenses, but increased costs would be incurred to redesign curriculum and provide extra, individualized support to students. Simplifying degree requirements would involve relatively minor costs in faculty time to meet and negotiate but, as with many reforms in this analysis, it will reduce enrollment-related revenues (state funding and tuition) where it reduces units taken. We reflect this as a cost in our “medium” rating. Improving course availability requires departments to be less flexible with teaching schedules and, potentially, to hire more faculty to teach potential bottleneck courses. Either way, it is likely to increase affordability for students at the cost of increased expense to institutions. Restrictive policies have somewhat lower costs in terms of forgone revenues associated with fewer enrolled units.

#### **5. Prospects for scaling to other institutions**

This factor considers whether a program can be easily applied to other institutions such that it could potentially reach a large segment of the overall target population. Factors here include the ability to transfer elements of the program and whether institutions face similar challenges so that the first institution may serve as a model for others.

Advising ought to be fairly standard across institutions, such that institutions should be able to learn from each other, but beyond the “on-paper” model of advising that could readily be shared, effective implementation depends on the less-transferable qualities of leadership and culture. Information, in contrast, is highly scalable, causing the rest of the demand-side strategies to excel in this area. For degree roadmaps and informational

campaigns, the actual information may be transferred, while for data analytics, the method of collection and use may be transferred to new institutions. As data analytics matures, there is likely to be convergence across vendors and thus more opportunity for scaling the benefits across the public regional sector.

Supply-side interventions generally require more institution-specific knowledge. Remedial education reform is somewhat scalable in that institutions may learn from the successes and failures of previous reforms, but there will also be unique aspects of each institutional program that must be addressed before scaling. As we discussed before, departmental culture and politics are key factors in reforms to degree requirements and course availability. Where individual negotiations must take place to encourage departments to change, there is less opportunity for scaling. The exception on the supply side is the imposition of restrictive policies that can be designed at vanguard institutions and transferred mostly intact to later institutions.

#### **6. Strength of evidence for broad-sector universities**

This factor is, in essence, a qualitative evaluation of the first section of this report, where we review the research and practical evidence about time-to-degree strategies.

On the demand side, intrusive advising is strongly supported by the evidence, with specific reference to the fact that the least-prepared students who are more common in public regional universities benefit the most from advising. Information-related strategies in general are supported strongly by research into student behavior under uncertainty and inadequate information, and the evidence points to strategies that might help the most to remedy informational deficits. Informational campaigns score highest because they are able to influence cost-and-benefit decisions directly. Degree roadmaps score less well because there is little evidence that students take longer to graduate because they are unaware how to plan out their major, though these interventions do follow common sense. Data analytics is supported by the evidence on the effectiveness of advising where the information is used to inform the advising function, though evidence specifically on analytics as a reform is lacking.

On the supply side, the evidence that remedial education influences time-to-degree is strong and specific, while the connection to public regional universities follows immediately. The benefit of simplifying degree requirements comes out strongly in interviews but has not been isolated in specific statistical evidence. Course availability is strongly indicated in survey and interview evidence, and although not linked by research to at-risk populations, it is logical that lower-resourced institutions have more difficulty offering an adequate class schedule. Institutional evidence shows that those students who switch majors late or often in their university education have significantly increased time-to-degree. However, that evidence does not show that restrictive interventions would cause these students to graduate earlier or that they would particularly benefit our target population. This econometric evidence is particularly vulnerable to confounding factors about the students that may make the transfer among majors a mere symptom of a more fundamental underlying cause that would not be solved by restrictions.

### **7. Risk of negative impacts on education**

This last dimension considers the downside risk of the various strategies. Here we are not summarizing any direct evidence of negative impact but are drawing inferences from our research and interviews. As a way to account for the uncertainty of acting without full information, this dimension considers what could go wrong with the strategy, even if the evidence does not indicate that it is likely.

On the demand side, where the major method of intervention is increased information, the risks to the student tend to be quite low. Where the information provided to the student will not help, he or she can simply ignore it in favor of other factors, although at-risk students might act on poor advice about course-taking, for example, and end up with credits that do not count or course loads that are too high or too low. Intrusive advising has the added element of potential influence, beyond information, that an advisor may exert on a student's decisionmaking, but this influence could just as likely benefit the student by helping him or her to make better decisions. However, there are areas where interests of students and institutions may diverge, and in these cases advising could potentially be used, consciously or unconsciously, to encourage the student to act in the best interest of the institution as a whole, rather than in his or her own interest.

On the supply side, the risks are more significant. While econometric evidence has suggested that remedial education does not improve graduation outcomes on the whole, there is a risk on the individual level that intervention will do a poor job identifying students who would succeed without remediation. Mainstreaming students has the potential to leave some unprepared and at increased risk of failure. Simplifying degree requirements is not a risk to graduation, but it could endanger the quality of the education, both for the student and for society as a whole. Although the evidence is strong that a university education is beneficial both economically and in improving citizenship, it is less clear what aspect of a university education makes a student more civically minded and less prone to crime and what aspects of the university education are critical in creating economic value. Without knowing the answers to these questions, we run the risk that in simplifying requirements we will eliminate some that provide significant value. Improving course availability shares none of the downside risk of other interventions. Making available courses that students desire may be expensive, but it cannot be seen as a negative risk. Restrictive institutional policies on majors raise concerns that these policies will trap a student in a major that no longer matches his or her interests. Considering the long-term impact that the choice of major can have, it is not a trivial concern that a restrictive policy could harm some students who may otherwise make a better individual choice.

**TABLE 1**

**SUMMARY QUALITATIVE RATINGS OF EIGHT STRATEGIES TO IMPROVE TIMELY GRADUATION  
(LAST COLUMN SHADED TO INDICATE REVERSE VALUE ORDER)**

INTERVENTION CATEGORIES	PORTION OF STUDENT BODY POTENTIALLY AFFECTED	POTENTIAL IMPACT ON AFFECTED STUDENTS	EASE OF IMPLEMENTATION	FINANCIAL FEASIBILITY	PROSPECTS FOR SCALING TO OTHER INSTITUTIONS	STRENGTH OF EVIDENCE FOR BROAD-SECTOR UNIVERSITIES	RISK OF NEGATIVE IMPACTS ON EDUCATION
<b>DEMAND-SIDE</b>							
Intrusive advising	Large	Large	Low	Medium	Medium	Strong	<b>Medium</b>
Data analysis	Large	Medium	Low	Medium	High	Medium	<b>Low</b>
Degree roadmaps	Small	Small	Medium	High	High	Weak	<b>Low</b>
Informational campaigns about full time	Large	Medium	High	High	High	Strong	<b>Low</b>
<b>SUPPLY-SIDE</b>							
Developmental education reform	Medium	Medium	Low	Medium	Medium	Strong	<b>High</b>
Simplified and reduced degree requirements	Large	Medium	Low	Medium	Low	Medium	<b>Medium</b>
Improved course availability	Large	Large	Low	Low	Low	Medium	<b>Low</b>
Institutional policies on majors, course repeats, etc.	Medium	Medium	High	High	High	Medium	<b>Medium</b>

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## RECOMMENDATIONS

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Based on all of the factors reviewed in this paper, and with particular reference to the summary in Table 1, we offer recommendations to presidents, provosts and other institutional leaders in public regional universities that serve significant populations of low-income students.

- 1) First and foremost, leaders of public regional universities need to be clear that improving *timely* graduation is a priority for their leadership tenure. The strategies outlined here are not just about improving retention and graduation but about addressing the time and efficiency elements of student completion. As our discussion of implementation factors demonstrates, leaders can be assured of facing challenges as they attempt to confront embedded cultures and attitudes and move money around in ways that will invariably threaten established orders. They will need to be steadfast spokespeople for the reforms, investing time to cultivate champions and answer critics. The research on universities with better-than-predicted student outcomes is absolutely clear that excellence requires a deep commitment that starts from the top and infuses the institution.<sup>44</sup> Unless the president is willing to publicly, strategically and operationally make timely graduation his or her major priority, it will not become an institution-wide effort and it will not succeed.
- 2) Before deciding on specific reforms, it is important that leaders assess their institutions along dimensions that are key to the success of some of the more promising strategies identified in this study. The assessment should address at least these questions:
  - What is the faculty culture around advising, curriculum restructuring and the class schedule?
  - What is the capacity of the institutional research staff to collect data and communicate it in meaningful ways to the faculty and staff?
  - How much money could be freed up for reforms in this area? What is the culture around reallocating resources? Can data be mobilized to aid leaders in reallocating resources?
  - Is there strong enrollment demand, so that the forgone tuition and state appropriations from students who take fewer units will not reduce overall enrollments and revenues?
  - Does the state funding formula reward completion or timely completion so that any negative financial impact of more efficient student course-taking is offset at least partially by increased state funds?
  - Are there any external factors that can be leveraged to bolster the efforts of institutional leaders, such as system-wide mandates or state policy directives?
  - If faculty or staff are unionized, how might that reduce the flexibility of leaders to implement any of the above strategies?
  - What are the state and system regulations regarding delivery of remedial instruction in four-year institutions?

- 3) Leaders must make sure that their institutions start reporting and disseminating metrics that are relevant to their efforts to improve timely graduation. They should be perfectly clear that retention is *not* a good predictor of timely graduation. Retention in the early years with limited credit accumulation is a bad sign. At a certain point, retention in the later years is bad news as well, as students can be retained for far too long, taking up valuable space. Rate of credit accumulation is a good metric, as are measures of when students complete key milestone courses, such as general education English and math, and key major or prerequisite courses. Disaggregating data by majors is important, as there will likely be huge variations by major in the efficiency of student progression that will help leaders target their efforts. Data on the timing of major declaration and the number of changes in major are also important to collect.
- 4) Leaders should develop an intrusive advising model that fits with their institution's culture and resources. This strategy has the potential to be highly effective if leaders are able to work through cultural issues.
- 5) Leaders should proactively communicate the message that full-time is in fact 15 semester credits per term. The culture of the presumed 12-unit full-time load is deeply entrenched, but an informational campaign to change this assumption can be highly effective at very low cost and without risk.
- 6) Leaders should start working on the tough but potentially rewarding strategies of simplifying degree requirements and improving course availability. These strategies may take longer to yield dividends, given the role that departmental faculty will need to play and the entrenched character of the curriculum—general education and majors—and class schedules. It is relatively inexpensive to support faculty time to work on these issues, and it is an investment well worth making, as it will lead to the buy-in necessary to seed culture change.
- 7) If their institution offers remedial instruction, leaders should designate faculty leaders to become involved in and informed about national trends in its reform. These faculty champions will be invaluable to leaders in helping set goals and timetables to implement reforms in a way that is sensitive to the complex politics surrounding remedial education.
- 8) Leaders of institutions with a well-developed institutional research function and sophisticated data systems should learn about the various data analytics tools and determine which one will best meet institutional needs. These are yet unproven tools but ones with an immense potential, if used well, to empower student choice and inform the advising function in ways that will improve timely graduation.
- 9) Lastly, leaders should remember that successful reform to increase timely graduation is as much about leadership and culture as it is about resources. They should never use the excuse that their institution serves challenging populations with inadequate resources. The job of leaders of public regional universities is to use the resources available as smartly as possible to do as much as they can for the students who have entrusted their futures to them.

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## (ENDNOTES)

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