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THE LANDSCAPE OF COMPETENCY-BASED EDUCATION

**ENROLLMENTS, DEMOGRAPHICS,
AND AFFORDABILITY**

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Executive Summary

Competency-based education (CBE), broadly defined as a form of higher education in which credit is provided on the basis of student learning rather than credit or clock hours, has begun to catch the attention of federal and state policymakers, foundations, and colleges. Among the model's promising features are its potential to lower college costs and serve adult students in need of flexibility.

Still, despite the model's visibility, few researchers have actually taken an in-depth look at the wide range of competency-based education providers. Many questions have emerged around the various ways students can earn credit, the number of providers that offer competency-based coursework or degree programs, and the number and types of students enrolled in these programs. Additionally, although the list prices of competency-based models appear very cost effective in relation to traditional higher education models, no one has comprehensively examined the true affordability of CBE programs and whether they actually deliver credentials to their students at a lower price.

In this paper—the first in a series of papers that will examine competency-based education from a number of perspectives—I explore the uncharted landscape of CBE providers providing insight on the definitions, scale, and finances of the enterprise. Some of my findings are as follows:

- There is still no consensus definition of CBE, even among the institutions that provide it.
- Students can earn credit in CBE programs through two distinct forms: prior learning assessments (PLA), which grant credit for content that a student has previously mastered, and newer competency-based coursework, in which students progress toward a degree as they demonstrate mastery of new academic content.
- Thirty-four total colleges have active CBE programs that offer credit for at least some types of PLA.
- It is difficult to identify the characteristics of students enrolled in many CBE programs since data sets typically aggregate CBE students with the traditional student population. Just nine standalone CBE institutions have demographic data available.
- Those nine colleges enroll roughly over 140,000 undergraduates and 57,000 graduate students. At eight of the nine schools, over 50 percent of students enroll as part-time, although that term has a different meaning in the CBE context.
- Students interested in enrolling in CBE programs are traditionally typecast as being older, place-bound, and vocationally minded, with significant prior work experience and some prior college experience. Of the nine CBE programs with available data, 1 in 10 undergraduates are younger than 25, fitting with conventional wisdom. CBE institutions also vary in the racial, ethnic, and gender diversity of their students.
- CBE programs are often touted as a far more affordable route to college credit and a degree. If the price per credit between traditional and competency-based models is similar, then CBE programs could save students money if they are able to progress through coursework more quickly, lowering the opportunity cost of being in school. Additionally, “all you can eat” pricing, in which students pay for a set period of time and can earn as many credits as they want during that period, may allow students to drive the price per credit down by taking more credits.

- It is not a foregone conclusion that CBE programs will save money for all students. Federal regulations do not allow students attending many of the most innovative programs to receive federal financial aid. For students with financial need, the net

price of a CBE program may be higher than that of a traditional program, accounting for financial aid discounts. Also, if a student progresses too slowly through a CBE program, the price of the program may exceed that of a regular program.

The Landscape of Competency-Based Education: Enrollments, Demographics, and Affordability

Robert Kelchen

This paper is the first in a series examining competency-based higher education from a number of perspectives.

Though the idea has percolated for decades, competency-based education (CBE) has finally reached the top of federal and state policy agendas. Broadly defined as a form of higher education in which credit is provided on the basis of student learning rather than the number of credit or clock hours spent in class, the model has caught the attention of policymakers, foundations, and colleges because of its potential to lower college costs and serve adult students in search of flexibility. In the summer of 2014, for example, the United States House of Representatives unanimously passed a bipartisan bill (HR 3136) that supports the development of CBE demonstration programs in up to 30 colleges and universities.¹ With the support of several prominent foundations, a set of coalitions of institutions has also emerged over the last two years to further develop CBE programs.²

Beyond the broad description in the previous paragraph, there is no consensus definition of CBE, even among those institutions that provide it. The House bill defines it as an “educational process or program that measures knowledge, skills, and experience in place of or in addition to the use of credit hours or clock hours.”³ This definition covers efforts at a variety of institutions, including high schools that offer prior learning assessments such as Advanced Placement tests, traditional institutions like Alverno College that integrate specific skills into the credit hour model, and institutions like Western Governors University that are fully competency-based and do not use credit hours to award degrees.

Despite the model’s visibility, too little is known about the landscape of competency-based education providers, including the various ways students can earn

credit, the number of providers that offer competency-based coursework or degree programs, and the number and types of students enrolled in these programs. Additionally, although the list price of CBE programs seems like a bargain compared to typical tuition and fees—much of the enthusiasm around the model springs from its potential to provide lower-cost credentials—this rosy hypothesis has not been explored in detail. Moreover, federal regulations do not allow students attending many of the most innovative programs to receive federal financial aid. This means that for students with financial need, the net price of a CBE program may be higher than for a traditional program after taking financial aid into account.

In this paper, I examine the following research questions about the definitions, scale, and finances of competency-based education programs:

1. What forms of competency-based coursework and degree programs currently exist?
2. Which institutions provide CBE degree programs?
3. What types of students enroll in CBE programs?
4. What are the costs of CBE programs? How do they compare to traditional programs, particularly after accounting for financial aid and opportunity costs?

I begin by laying out the various incarnations of CBE before moving on to look at what institutions employ the model and whom they serve with it. I then

explore what affordability looks like in competency-based programs, accounting for both financial aid and opportunity costs. I conclude with questions for future research.

What is CBE?

Competency-based education takes two primary forms:

1. Well-established prior learning assessments (PLA), which grant credits for content that a student has previously mastered; and
2. Newer competency-based coursework, where students progress toward a degree as they demonstrate mastery of new academic content.

Prior Learning Assessments. Most students and parents are familiar with some form of PLA, even if they do not recognize it as such. Standardized assessments like Advanced Placement (AP) and International Baccalaureate (IB) tests are the best known, but there are many others. The majority of PLA credits available are for lower-division courses—those typically taken in freshman or sophomore year. Options include

- **AP or IB tests**, available for high school students taking college-level coursework via AP or IB classes at their high school.
- **College-Level Examination Program (CLEP)**, available for students who wish to demonstrate mastery of a subject through independent study, prior coursework, or out-of-class experiences.
- **DSST**, originally developed by the US Department of Defense for military members and spouses and targeted toward nontraditional students.
- **Excelsior College Examination Program (UExcel) and Thomas Edison State College Examination Program (TECEP)**, examinations available to students regardless of whether they are enrolled at these two institutions.

These forms of PLA are commonly accepted for academic credit at colleges and universities. For example, more than 2,900 colleges accept CLEP credits, and most institutions accept AP or IB test results for credit.⁴ However, these credits may transfer as elective credits instead of fulfilling particular course requirements. An example of this is the University of Iowa, where most AP credits substitute for particular courses, but some common exams (like US History) can be used only for elective hours.⁵

Most students and parents are familiar with some form of prior learning assessments, even if they do not recognize it as such.

Other forms of PLA are designed to provide credits to students with significant professional experience. Military members can use the Defense Activity for Non-Traditional Education Support (DANTES) to obtain credit for their military experience. The American Council on Education (ACE) evaluates learning that occurs outside of traditional colleges and then produces credit recommendations to colleges and universities for recognized military, workforce, and labor union experience. Nearly 1,800 colleges are currently listed as being a part of the ACE Credit College and University Network, allowing students to gain credit for their prior military and employment experiences. However, many selective colleges (such as all Ivy League colleges, the University of Michigan, and the University of Virginia) do not participate in the program. The Council for Adult and Experiential Learning (CAEL) and Learning Counts are networks that provide credit for experiential learning, with hundreds of participating colleges. Finally, students can enroll in StraighterLine to gain college credits for individual courses using a monthly subscription; these credits are guaranteed to transfer to at least 70 (less-selective) colleges.

Portfolio assessments are another form of PLA in which students submit material documenting their knowledge gained through work experience, military

service, or other life experiences to receive college credit. Many colleges with portfolio assessment programs require students to take a class designed to help organize their prior learning experiences before submitting their portfolio. In addition to portfolios, prior learning can be assessed through direct examination of workplace competencies. An example of this is Lipscomb University's daylong PLA evaluation of workplace competencies in its College of Professional Studies.⁶ Students pay \$1,500 for a daylong assessment in which they are evaluated by faculty while completing a series of tasks; the number of credits awarded depends on a student's performance, and an outstanding rating can result in up to 30 credits.

Mastery of New Content. Most of the contemporary discussion of CBE has focused on programs designed to deliver new content and assess whether students have learned that content. These types of programs explicitly define the competencies students are expected to master, and students earn credit once they demonstrate that they have met the threshold associated with mastering those competencies. This kind of course or program can exist within the traditional higher education structure, in which students take traditional in-person classes with clearly defined competencies during a quarter or semester.

Alverno College in Wisconsin has used such a model for more than four decades.⁷ It is completely tied to the semester system, meaning that students do not move on to the next class until they have mastered the material and the semester has ended. But the learning outcomes are clearly based on a set of eight broad-based core competencies or abilities that must be mastered before graduation, which is why I included Alverno as a CBE institution.

But the most often-cited examples of CBE are the programs that are completely divorced from seat time, in which students can earn course credits as soon as they can master the competencies. These models allow students to move at their own pace, taking assessments when they feel they have mastered the material and, if they pass, moving on to the next set of competencies. This is the model of Western Governors University, Southern New Hampshire University's College for America, and a small but growing number of other colleges.

As I have discussed, defining competency-based education—which could include everything from pre-college, exam-based credit like AP to postsecondary programs like those at Western Governors University, where a student never has to set foot in a classroom—is a difficult endeavor. In this paper, my primary focus is on colleges and universities that offer programs not wedded to the traditional seat-time model, though I do explore programs that allow students to earn significant amounts of prior learning credit as well.

Who Provides CBE?

Compiling a list of colleges that offer CBE programs is difficult because of the rapidly changing landscape of providers and disagreements about what should be considered competency-based education. This section includes 52 colleges with CBE programs either in existence or announced as of spring 2014, with a full list in table 1. (This excludes colleges with CBE programs that do not have at least partial eligibility for federal financial aid, such as Patten College.) Eighteen colleges had not yet launched their CBE programs as of spring 2014, with the remaining 34 colleges enrolling students in various CBE programs.⁸

Defining competency-based education is a difficult endeavor.

All 34 colleges with active CBE programs offer credit for at least some types of prior learning assessment, including portfolio projects and credit by examination. While most baccalaureate colleges require at least 30 credits to be completed at the college, some colleges have lower requirements. Charter Oak State College requires students to take six credits in residency, while Excelsior requires only a three-credit capstone class.⁹

The next four columns of the table show whether each college participates in credit transfer programs for PLA: the ACE Credit College and University Network for military and workforce experience, CAEL and LearningCounts for portfolio assessment, and Straighter-Line for individual course transfers. All but 2 of the

TABLE 1
INVENTORY OF CBE INSTITUTIONS AND PARTICIPATION IN PLA PROGRAMS

Name	ACE Credit Network?	CAEL Member?	Learning-Counts?	Straighter-Line?
Operational as of Spring 2014				
Alverno College	X	X		
Bellevue College	X			
Broward College	X			
Capella University	X	X	X	X
Charter Oak State College	X	X		X
Colorado State University Global	X			X
Columbia Basin College	X			
Davenport University	X	X		
DePaul University		X		
Edmonds Community College	X			
Empire State College	X	X	X	X
Excelsior College	X	X	X	X
George Mason University	X			
Granite State College	X	X		X
Ivy Tech Community College	X	X	X	
John F. Kennedy University	X		X	
Kalamazoo Valley Community College	X			
Kentucky Community and Technical College System	X			
Lipscomb University		X		
Lone Star College System	X	X		
Marylhurst University	X	X		
Northern Arizona University (Personalized Learning)	X	X		
Rio Salado College	X	X	X	
Sinclair Community College	X	X		
SNHU's College for America	X	X	X	
Spokane Falls Community College	X	X		
Thomas Edison State College	X	X	X	X
University of Maine at Presque Isle	X			
University of Maryland University College	X	X	X	X
University of Toledo	X	X		
University of Wisconsin Flex Option	X	X		
Valencia College	X			
Western Governors University	X	X		X
Westminster College (UT)	X			

(continued on the next page)

TABLE 1 (CONTINUED)
INVENTORY OF CBE INSTITUTIONS AND PARTICIPATION IN PLA PROGRAMS

Name	ACE Credit Network?	CAEL Member?	Learning-Counts?	Straighter-Line?
Not Yet Operational				
Antioch University	X	X	X	
Argosy University	X	X	X	X
Austin Community College	X	X		
Brandman University	X	X		X
Central Wyoming College	X			
City University of Seattle	X	X		
Community College of Philadelphia	X			
Golden Gate University	X	X	X	
Indiana University–Purdue University Indianapolis	X	X		
LeTourneau University		X		
Los Angeles Trade-Technical College		X		
The New School	X			
Pace University	X			
Paul Smith's College		X		X
Salt Lake Community College	X			
Texas A&M University-Commerce and South Texas College	X	X	X	
University of New England	X			
Valdosta State University	X	X	X	

Sources: ACE Credit Network: www2.acenet.edu/CREDITCollegeNetwork/; CAEL members: www.cael.org/About-Us/Membership/CAEL-Members; LearningCounts: www.learningcounts.org/affiliated-universities/; StraighterLine: www.straighterline.com/colleges/partner-colleges/partner-colleges-home/#partners_a2z.

34 active CBE colleges are a part of the ACE network, with only DePaul and Lipscomb not participating. Twenty-two colleges grant credit through CAEL, nine are LearningCounts partner colleges, and nine are StraighterLine partner colleges. Five colleges—Capella, Empire State, Excelsior, Thomas Edison, and University of Maryland University College (UMUC)—accept all four forms of PLA.

Table 2 shows the extent to which the colleges with active CBE programs have moved toward fully adopting CBE as well as how closely they adhere to traditional measures of seat time in granting credits. Of the 34 colleges with active CBE offerings, 17 offer PLA and credit by examination, but any new content learned within a

degree program is assessed via traditional, seat time–based methods. In other words, these programs provide CBE credit for learning done elsewhere but revert to the traditional model for the delivery and assessment of new material. Of the remaining 17, 7 colleges had one degree program that is entirely CBE (prior learning and new content), 3 had several degree programs that are entirely CBE, and 7 (Alverno, Excelsior, Northern Arizona, SNHU's College for America, Thomas Edison, UW Flex Option, and Western Governors) either give students the option to complete nearly all remaining coursework via CBE or offer all degrees via CBE.

The 17 colleges with CBE programs designed to teach new skills and content vary in their reliance on

TABLE 2
MATRIX OF CBE-PROVIDING INSTITUTIONS

Number of CBE Programs (Beyond PLA/Credit by Exam)	Reliance on Seat Time in CBE		
	High	Medium	Low
All	Alverno	Excelsior, Thomas Edison	Northern Arizona, College for America (SNHU), UW Flex Option, WGU
Several	Kalamazoo Valley, Westminster		Capella
One	DePaul, George Mason	Sinclair	Bellevue, Broward, Edmonds, Lone Star

Note: These schools offer PLA/credit by exam only: Charter Oak, CSU Global, Columbia Basin, Davenport, Empire State, Granite State, Ivy Tech, John F. Kennedy, Kentucky Community & Technical College System, Lipscomb, Maine-Presque Isle, Marylhurst, Rio Salado, Spokane Falls, UMUC, Toledo, Valencia.

Source: Institutional websites.

seat time. Though the popular conception of CBE suggests it is entirely divorced from seat time, in reality there is a continuum of approaches, with some institutions building their programs into the existing academic calendar and others allowing students to move entirely at their own pace. Five colleges rely heavily on seat time in their CBE programs, including Alverno College and its ability-based curriculum.

Three colleges (Excelsior College, Sinclair Community College, and Thomas Edison State College) have a medium reliance on seat time, as they give students the option to take courses on and off the traditional semester system. An example of this is Sinclair's Accelerate IT program, offering six short-term certificates in information technology.¹⁰ Students here can set their own deadlines to complete the course before the end of the semester, or they can use the traditional semester guidelines. The remaining nine colleges have a low reliance on seat time for their CBE programs. An example of this is Northern Arizona University's Personalized Learning program, where students can complete courses entirely at their own pace and pay for six-month subscriptions.¹¹

What Types of Students Enroll in CBE Programs?

Students interested in enrolling in CBE programs are typically typecast as being older, place-bound, and vocationally minded, with significant prior work experience and some prior college experience. But it is difficult to identify the characteristics of students enrolled in many CBE programs because existing data sets aggregate these students with the rest of the student body at the college. For instance, existing federal data do not allow researchers to disaggregate the students enrolled in Northern Arizona University's CBE program from those students enrolled in the university's traditional, classroom-based degree programs. Given this difficulty, in this section I focus on nine colleges (Capella, Charter Oak, Colorado State University-Global, Empire State, Excelsior, Granite State, Thomas Edison, UMUC, and Western Governors) where many students are enrolled in some type of CBE program or typically enroll with significant amounts of prior credit. Details on student and institutional characteristics are in table 3.

According to data from the US Department of Education's Integrated Postsecondary Education Data System (IPEDS), these nine colleges had total enrollments

TABLE 3
INSTITUTIONAL CHARACTERISTICS OF STANDALONE CBE INSTITUTIONS

Variable	Capella	Charter Oak	CSU Global	Empire State	Excelsior	Granite State	Thomas Edison	UMUC	Western Governors	Average
Enrollment										
Undergraduate enrollment	8,087	1,644	3,854	11,118	37,707	1,724	19,406	28,273	31,353	143,166
Part-time (%)	86	83	60	61	100	50	99	78	0	68
Graduate enrollment	27,667	0	1,404	910	2,021	279	1,200	13,995	10,016	57,492
Part-time (%)	97	NA	59	90	100	56	100	98	0	79
First-time, full-time undergraduates (%)	0	0	0	6	0	13	0	2	0	1
Six-year BA graduation rate (%)	NA	NA	NA	17	NA	50	NA	4	27	17
Demographics (Undergraduates)										
Race/ethnicity (% , when known)										
White	51	67	78	71	62	94	67	48	77	64
Black	38	18	6	15	24	1	18	35	10	21
Hispanic	7	12	12	10	9	2	10	10	7	9
Asian	1	2	2	2	3	0	4	5	3	3
Female (%)	67	67	49	62	59	70	45	51	59	56
Age (% , when known)										
21 or younger	0	2	NA	5	2	12	3	5	2	3
22–24	3	6	NA	10	4	13	7	12	7	8
25–29	17	15	NA	18	15	16	21	24	21	19
30–34	22	16	NA	15	16	15	21	20	20	19
35–39	19	13	NA	13	16	11	16	14	17	16
40–49	27	29	NA	24	30	21	22	18	24	24
50–64	11	18	NA	14	14	12	9	6	9	11
65 or older	0	1	NA	1	0	0	0	0	0	0
Finance										
Receiving Pell Grants (%)	58	21	40	36	4	44	12	24	47	26
Average Pell, among recipients (\$)	2,913	2,648	2,747	3,210	1,923	3,411	2,255	2,643	4,087	3,285
Receiving federal student loans (%)	84	25	75	38	5	62	17	32	76	37
Average loan, among recipients (\$)	8,701	8,573	7,449	8,040	6,286	6,996	5,866	8,295	7,477	7,671

Notes: Enrollment data are from fall 2012, except for age (which is from fall 2011). Graduation rates are from 2012, and financial aid data are from the 2011–12 academic year. These are the most recent years of finalized data available in IPEDS as of July 2014. All numbers in the “average” column on the far right are enrollment-weighted with the exception of total enrollment.

Source: US Department of Education’s Integrated Postsecondary Education Data System.

of between 1,644 students (Charter Oak) and 42,268 students (UMUC) in the fall of 2012 (the most recent year of data available as of this writing). Excelsior College enrolled the most undergraduates (37,707), while Capella enrolled the most graduate students (27,667). Capella was the only college to enroll more graduate students than undergraduates, while Charter Oak was the only college solely for undergraduates.

The nine standalone CBE institutions combined to enroll 143,166 undergraduate students and 57,492 graduate students in the fall of 2012. At eight of the nine colleges, 50 percent or more of the students enrolled part-time, including 99 percent of Thomas Edison and 100 percent of Excelsior students.¹² All Western Governors students were reported as being enrolled full-time, an artifact of its pricing model, where tuition covers access to all desired classes within a six-month window. Students at the other eight colleges can pay on a per-credit basis if desired. When it comes to graduate students not enrolled in Western Governors, the overwhelming majority enroll part-time. Five of the seven colleges enrolling graduate students report that at least 90 percent of graduate students were enrolled part-time. For example, only 920 of the 27,667 graduate students at Capella were enrolled full-time.

CBE institutions vary in the racial, ethnic, and gender diversity of their students. Sixty-four percent of undergraduate students at the nine campuses are white, 21 percent are black, 9 percent are Hispanic, and 3 percent are Asian. This is slightly different from the nationwide enrollment by race, which is 60 percent white, 15 percent black, 15 percent Hispanic, and 6 percent Asian; black students are overrepresented at CBE institutions, while Hispanic and Asian students are underrepresented.¹³ But racial and ethnic diversity varies substantially across colleges. The proportion of white students varies from 48 percent at UMUC to 94 percent at Granite State College. More than one-third of the students at Capella and UMUC are African-American, while every college but Granite State has about 10 percent Hispanic students. On average, women make up 56 percent of the student body at the standalone CBE campuses, with the percentage ranging from 45 percent (Thomas Edison) to 70 percent (Granite State).

About 1 in 10 undergraduates at the nine CBE colleges was younger than 25, often considered the dividing

line between “traditional” and “nontraditional” students. This finding fits with the conventional wisdom about competency-based education being an attractive option for adult learners. This percentage ranged from 3 percent at Capella to 25 percent at Granite State. About 38 percent of students were between 25 and 34 years of age, 40 percent were between 35 and 49 years of age, and 11 percent were older than 50. Only 6 percent of Western Governors students were over age 50, compared to 19 percent at Charter Oak. Nationwide, about two-thirds of students are under 25, 19 percent are between 25 and 34, 11 percent between 35 and 49, and 3 percent over 50.¹⁴ Though the distribution of student ages might be different in the CBE programs that are housed within traditional institutions (and are therefore not included in these statistics), the overall pattern fits with the conventional wisdom.

Unlike with traditional credit-hour and seat time-based programs, the percentage of students receiving federal Pell Grants is not a strong proxy for low-income status because not all degree programs qualify for federal financial aid. According to IPEDS, 4 percent of Excelsior students and 12 percent of Thomas Edison students received Pell Grants, compared to 47 percent of Western Governors and 58 percent of Capella students. But these proportions are not a great measure of low-income enrollments at an institution like Excelsior, where the vast majority of students in their largest program (associate’s degree in nursing) are not currently eligible for federal financial aid because they receive credit via examination instead of coursework.¹⁵

Cost and Financial Aid Structures

CBE programs are often touted as a far more affordable route to college credit and a degree. In theory, CBE could be cheaper for a number of reasons. First, if the price per credit between traditional and competency-based models is similar, then CBE programs could save students money if they are able to progress through coursework more quickly, lowering the opportunity cost of being in school. Cost savings could also result from students’ ability to transfer more credits from other sources and to earn low-cost credits through prior learning assessments or portfolio examinations. Tuition

pricing models might also lower costs. “All you can eat” pricing, in which students pay for a set period of time and can earn as many credits as they want during that period, may allow students to drive the price per credit down by taking more credits. Finally, CBE courses might be less expensive for colleges to offer than traditional coursework, and the lower cost of delivery might be reflected in tuition prices.

It is not a foregone conclusion that CBE programs will save money for all students.

But it is not a foregone conclusion that CBE programs will save money for all students. First and foremost, many CBE programs that operate outside the traditional seat-time model are not eligible for federal financial aid, meaning low-income students would not get the same discount they would in aid-eligible traditional programs. Fees for prior learning and portfolio assessments are also typically not covered by federal aid. Additionally, if a student progresses too slowly through an “all you can eat” pricing model, the price of a CBE program might actually exceed that of a regular program. This outcome could result from the amount of time the student has to spend on coursework, his level of academic preparation (which affects how quickly he or she can master competencies), and his motivation to finish the degree quickly.

Despite its prominence, the argument that existing CBE programs are radically more affordable than traditional offerings has never been examined systematically. In this section, I examine the cost structures and pricing models of different types of CBE and work to identify whether and under what circumstances CBE might be more cost-effective than traditional academic programs.

In each case, I start by comparing the per-credit sticker price across CBE programs and traditional offerings at the same institution. In addition to the sticker price of tuition, though, eligibility for financial aid is a critical determinant of affordability. I focus in particular on students from low-income families who would be eligible to receive federal Pell Grants for traditional

programs but would not be at many CBE programs. A student who is eligible for the maximum Pell Grant can receive \$5,730 per year if he or she is enrolled full-time; that works out to \$238.75 per credit for a student taking 24 credits per year. In other words, CBE programs that are not eligible for federal financial aid must be that much cheaper (per credit) than traditional programs to make up for the lack of Pell eligibility.

Another complication is that students in ineligible CBE programs cannot access federal loans and must instead enter the private loan market, which often does not have terms as favorable as those of federal subsidized loans. I did not factor this into cost estimates, but it merits additional study.

Standardized Assessments. The cost of earning credits via standardized examinations is typically lower than the per-credit cost of tuition and fees. The most common examinations taken by adult students vary in how much they cost:

- CLEP: The College Board charges \$80 for each of the 33 CLEP exams, which are worth 3 to 12 credits. They waive this fee for active-duty military personnel.¹⁶ Test preparation books are available for as little as \$20 online.
- DSST: The 38 subject exams (most offer three credits) are free for military members and spouses to take (on the first attempt only) and \$80 for all other students or subsequent attempts. Peterson’s provides free test preparation for military families, and test preparation books are inexpensive online.¹⁷
- Excelsior’s UExcel exams: Fifty subject exams are available, with the majority costing \$95 and offering three credits. However, 10 exams (across a range of subjects) cost either \$325 or \$440. Practice exams cost from \$18 to \$75, and students must pay a \$50 or \$60 fee to a Pearson VUE testing center to cover the costs of administering and proctoring the exam. Course textbooks listed as “required” on the Excelsior website cost between \$41 and \$409 per class, with most between \$100 and \$250.¹⁸

- Thomas Edison's TECEP exams: The 33 subject exams available cost \$105 for a three-credit exam for New Jersey residents and \$111 for nonresidents.¹⁹ Thomas Edison offers free resources for students taking the exam but also recommends textbooks that students may purchase.

In addition to the examination fee, many colleges have additional fees for administering exams. For example, Granite State College charges a \$25 fee for administering the CLEP and \$30 for administering the DSST, and most fees run between \$10 and \$50 per exam across institutions.²⁰

Some colleges also offer a number of homegrown exams for credit in addition to the name-brand national assessments. Broward College's certificate and associate's degree programs in computer systems and information technology offer students the opportunity to pass a course challenge evaluation and a final examination for \$21 per course if they do not access the course content.²¹ This is a substantial savings compared to the standard tuition of \$226.20 per course. Rio Salado College offers challenge exams for selected courses for which CLEP and DSST exams are not available.²² These exams cost \$84 per credit hour, the same cost as in-district tuition; students taking online classes (whether in-district or not) can save \$131 per credit.

The cost savings of gaining credits through standardized examinations can be substantial. Compared to the average tuition at a four-year public college of approximately \$4,000 per semester (roughly \$300 per credit), the per-credit cost of credit via examination (between \$25 and \$150 per credit) is far lower.²³ But at most institutions, exams can be used to get credit for only lower-division courses. Other types of prior learning assessment give students the opportunity to earn additional credits.

Portfolio Assessments. Thirteen colleges offer portfolio assessment programs in which students can receive credit for compiling documentation of prior learning experiences. Portfolio assessment costs and the potential savings available to students vary considerably across colleges. Table 4 details the maximum number of credits students can earn via portfolio, traditional per-credit costs, portfolio assessment costs, and the potential cost savings from portfolio credits at colleges with

portfolio programs for which sufficient details are publicly available.²⁴

Among these schools, CSU-Global accepts 24 portfolio credits toward a bachelor's degree, while Lipscomb limits students to 30. On the more generous side, Charter Oak and Excelsior have no limit for the number of portfolio credits, and Empire State and Thomas Edison allow at least 90 credits to count. Among community colleges, Rio Salado allows 30 credits, Ivy Tech 45, and Valencia 45.

Eight of the 13 colleges with portfolio programs require students to take a workshop for credit before submitting a portfolio.²⁵ Marylhurst University requires students to take a one-credit portfolio workshop, which costs \$100, and a six-credit seminar before submitting a portfolio review.²⁶ Charter Oak, Excelsior, Rio Salado, Thomas Edison, UMUC, and Toledo require a three-credit portfolio review course, while CSU-Global requires a one-credit course.

Colleges structure their portfolio assessment fees in many different ways. Granite State College charges a \$275 assessment fee for the first year after admission for an unlimited number of credits, followed by a \$275 fee for each additional three credits earned after that first year.²⁷ Ivy Tech Community College charges a \$50 assessment fee per three credits.²⁸ Empire State College charges an initial fee of \$315 plus \$350 for the first eight credits requested and \$300 for each additional block of eight credits up to a maximum cost of \$1,550.²⁹ And the University of Toledo charges an assessment fee of \$30 per credit plus a transcription (credit-awarding fee) equal to 50 percent of in-state tuition (currently about \$168 per credit).³⁰

The potential cost savings of portfolio credits can be substantial, but they also vary across colleges. In this section, I compare the cost of a portfolio fee for three credits (when possible) with the cost of three standard credits, using in-state tuition for public colleges. The three associate's-level colleges (Ivy Tech, Rio Salado, and Valencia) charge in-district students between \$127 and \$328 less for three portfolio credits than for three standard credits. The savings are in part because of low assessment fees of between \$50 and \$125 per three credits. In Rio Salado's case, students must pay \$149 for a zero-credit do-it-yourself portfolio workshop or \$895 to LearningCounts for a three-credit instructor-led

TABLE 4
COST STRUCTURES OF PORTFOLIO AND PRIOR LEARNING ASSESSMENT PROGRAMS

Name	Maximum Portfolio/ PLA Credits	Per-Credit Cost (Traditional)	Portfolio Assessment Costs	Potential Savings from Portfolio/PLA (Excluding One-Time Fees)
Charter Oak State College	No limit	\$263 per credit (CT resident)	3-credit portfolio writing class plus \$320 assessment fee for 3 credits	\$569 for 3 credits (in-state)
Colorado State University-Global	24	\$350 per credit	1-credit portfolio writing class, \$150 assessment fee for 3 credits	\$900 for 3 credits
Empire State College	96	\$257 per credit (NY resident up to 11 credits)	\$315 initial fee plus \$350 for first 8 credits requested and \$300 for each additional 8 credits (up to \$1,550)	\$558.50 for 3 credits (in-state)
Excelsior College	No limit	\$465 per credit	3-credit portfolio writing class plus \$125 assessment fee for 3 credits	\$1,270 for 3 credits
Granite State College	60	\$285 per credit (NH resident)	\$275 for first year after admission, \$275 per 3 credits after that	\$580 for 3 credits (in-state)
Ivy Tech Community College	45	\$126.15 per credit (IN resident) \$154.50 per credit (online)	\$50 assessment fee for 3 credits	\$328.45 for 3 credits (in-state) \$413.50 for 3 credits (online)
Lipscomb University	30	\$499 per credit	\$1,500 assessment fee	\$1,503 for 6 credits max of \$13,470 for 30 credits
Marylhurst University	45	\$451 per credit	1-credit portfolio workshop (\$100), 6+ credit seminar, \$515 portfolio evaluation fee per semester	\$3,093 for 8 credits (minimum submission) \$6,250 for 15 credits (recommended max)
Rio Salado College	30	\$84 per credit (AZ resident) \$215 per credit (online)	3-credit instructor-led portfolio workshop (\$895 with 1 portfolio review) or 0-credit DIY workshop (\$149), \$125 assessment fee for 3 credits	\$127 for 3 credits (in-state) \$520 for 3 credits (online)
Thomas Edison State College (Enrolled Options Plan)	90	\$175 per credit plus \$1,691 annual fee (NJ resident)	3-credit portfolio writing classes, \$363 evaluation fee for first 12 credits, \$206 for each additional 6 credits	\$1,737 for first 12 credits and \$744 for next 6 credits (in-state)
Thomas Edison State College (Per Credit Tuition Plan)	90	\$407 per credit (NJ resident)	3-credit portfolio writing classes, \$363 evaluation fee for first 12 credits, \$206 for each additional 6 credits	\$4,521 for first 12 credits and \$2,236 for next 6 credits (in-state)
University of Maryland University College	30	\$266 per credit (MD residents) \$250 per credit (military)	3-credit portfolio workshop, \$250 for first portfolio evaluation, \$125 for subsequent evaluations, \$90 per credit portfolio award fee	For typical 15-credit submission: \$2,390 (in-state) \$2,150 (military)

(continued on the next page)

TABLE 4 (CONTINUED)
COST STRUCTURES OF PORTFOLIO AND PRIOR LEARNING ASSESSMENT PROGRAMS

Name	Maximum Portfolio/ PLA Credits	Per-Credit Cost (Traditional)	Portfolio Assessment Costs	Potential Savings from Portfolio/PLA (Excluding One-Time Fees)
University of Toledo	30	\$335.49 per credit (OH resident, up to 11 credits)	3-credit portfolio workshop, \$30 per credit assessment fee plus transcription fee equal to 50% of in-state tuition	\$473.24 for 3 credits (in-state)
Valencia College	45	\$103.06 per credit (FL resident)	\$30 per credit	\$219.18 for 3 credits (in-state)

Notes: Thomas Edison State College is listed twice because of its multiple tuition pricing options. For an expanded version of this table, see www.aei.org/wp-content/uploads/2015/01/Kelchen-Table4.pdf.

Source: Institutional websites.

workshop (\$250 more expensive than three online credits and \$643 more expensive than three in-person credits for in-district students).³¹ The other two community colleges do not require workshops.

The maximum cost savings at four-year colleges ranges from about \$473 per three credits at the University of Toledo (which charges a \$30 per credit fee plus half the per-credit tuition cost) to \$1,270 per three credits at Excelsior College. The potential cost savings at other colleges typically varies based on the number of credits earned. Marylhurst University charges a \$515 portfolio evaluation fee each semester, and the typical portfolio consists of between 8 and 15 credits. Savings on that range of credits can total between \$3,093 and \$6,250. Lipscomb University charges a \$1,500 assessment fee for its one-day prior learning assessment examination, with a maximum of 30 credits earned; a student who earns the maximum number of credits can save up to \$13,470 off the sticker price of tuition. UMUC charges \$250 for the first portfolio evaluation (typically 15 credits), \$125 for subsequent evaluations, and a \$90 per credit fee. For 15 credits, in-state students can expect to save \$2,390.

Caveats about Potential Cost Savings. The potential cost savings referenced here do not account for two important considerations. First, portfolio assessment fees typically do not qualify for any federal financial aid. A student with the greatest financial need who files the Free Application for Federal Student Aid will receive a

maximum Pell Grant of \$5,730 per year for full-time enrollment (or a prorated amount for part-time enrollment) and is eligible to receive a Pell Grant for up to 12 full-time equivalent semesters. Assuming that a student takes 24 credits per year, the Pell Grant covers \$716.25 per three-credit course. That is larger than the in-state cost savings per three credits at all but one of the public colleges and universities with portfolio assessment programs. (CSU-Global is the exception.) At private colleges, however, the cost savings are often larger than the maximum Pell Grant. At Marylhurst, for example, the cost savings for the minimum eight-credit submission is \$3,093, nearly double the Pell value for that number of credits.

On the one hand, for public four-year college students with the maximum Pell Grant, taking the courses while receiving financial aid may be a better deal than paying portfolio assessment fees out of pocket. On the other, for students receiving partial Pell Grants at four-year colleges, paying portfolio assessment fees up front in lieu of receiving financial aid is the better deal. A student receiving half of the maximum Pell would get about \$358 per three-credit course, making the portfolio savings larger than the Pell award at all but two public four-year colleges (Thomas Edison, under certain tuition plans, and UMUC). However, given the low tuition at two-year colleges, even a partial Pell Grant covers the additional cost of earning credit through a course rather than a portfolio assessment.

Second, sticker-price comparisons also fail to acknowledge opportunity costs. Students may choose

portfolio assessments over courses because they present an opportunity to earn credits faster, which would allow them to spend less time on their education. The potential time savings of portfolio assessments can be substantial; if a student can submit portfolios worth 12 credit hours, that likely saves one or two semesters of coursework. That time can then be spent working or pursuing further education. The challenge then becomes how to quantify the value of these savings, particularly when it comes to the amount of time spent preparing a portfolio and the value of a student's time on other endeavors.

Students are typically advised to spend two hours outside of class (preparing for class, studying, and working on assignments) for each hour of class. Although research suggests students may not actually study this much, it is probably a reasonable estimate of time spent on coursework if transportation time to and from class is also included.³² For a typical three-credit course in which class meets for three hours per week for 15 weeks, students can expect to spend about 135 hours in total. To estimate the lost earnings due to attending and preparing for class, I prorated the median weekly earnings for adults with an associate's degree or some college but no degree. At one-fortieth of \$757 per week, a student enrolled in a traditional course would be forgoing about \$19 per hour in earnings for each hour spent on coursework.³³

Accounting for opportunity costs, the savings from portfolio assessments can be more substantial if the time spent preparing a portfolio is less than the time spent taking a traditional class. Unfortunately, no systemic data exist on the amount of time students take to prepare a portfolio for consideration. But it is reasonable to assume that it is less than the amount of time spent in class. If that were not the case, students probably would not choose the portfolio option unless the cost differential was quite large. Even if a student took 60 hours to prepare a portfolio, this still frees up an additional 75 hours to work or engage in other activities. Valuing that additional time at \$19 per hour yields an opportunity cost savings of \$1,425. Although these opportunity cost savings can certainly vary substantially across individuals based on their professional experiences, earnings potential, and preferences toward additional work, portfolio assessments would likely result in even larger savings in both money and time than the price comparisons indicate.

“All You Can Eat” Pricing Models. Five colleges (Capella, Northern Arizona, Southern New Hampshire's College for America, University of Wisconsin Flex Option, and Western Governors) award some or all of their degrees via CBE and employ an “all you can eat” or “subscription-based” pricing model in which students pay for a set period of time and can earn as many credits as they want during that period. This section details the costs of these models for three of the five institutions (Capella, Northern Arizona, and Southern New Hampshire) and compares them to other online and distance education providers. (See table 5 for more details on Wisconsin and Western Governors.) The standard subscription rates (per six months) run from \$1,250 at College for America to \$4,000 at Capella University, which is similar to the \$4,000 average tuition for one semester at a public university.³⁴

At Capella, certain degrees within the business, information technology, and psychology programs give students the option of taking traditional courses or following a FlexPath model that is self-guided and self-paced.³⁵ The FlexPath model charges \$2,000 in tuition each quarter (three months), compared to either \$321 per credit (lower-level classes) or \$371 per credit (upper-level classes) in the standard model. Students can take up to three classes per quarter in the standard model and an unlimited number of courses in the FlexPath model, although FlexPath students are limited to taking a maximum of two courses at any time. Once a student finishes a FlexPath course within a quarter, he or she can start another course.³⁶

The FlexPath business programs at Capella are now eligible to receive federal financial aid, one of the first direct assessment efforts to be approved. Psychology and IT programs are not yet eligible for financial aid.³⁷ Capella advertises the potential savings of FlexPath as \$24,000 if students take two courses per quarter and enter with 45 credits toward a 180-credit bachelor's degree—a discount of nearly 50 percent from the listed tuition of nearly \$50,000 for 135 standard credits.³⁸ Students in the business program who take six or more credits (two classes) per quarter can save money by enrolling in the FlexPath program—assuming that it works with their learning style.

Students in the programs not eligible for federal financial aid have a more complicated decision to

TABLE 5
COSTS OF SUBSCRIPTION-BASED CBE PROGRAMS COMPARED TO OTHER ONLINE PROVIDERS

College	Program(s)	Subscription Price	Standard Tuition Rate	Potential Savings (No Aid)	Breakeven Credits ^a (No Aid)	Breakeven Credits ^a (Full Pell)	Title IV Eligible?
Capella University	Business, IT, psychology	\$2,000 per quarter ^b	\$963–\$1,113 for 3 credits	\$226 for 6 upper-level credits \$1,339 for 9 upper-level credits	6	12	Business only
Northern Arizona University	Business, liberal arts, IT	\$2,500 per 6 months	\$1,127 for 3 credits ^c	\$2,008 for 12 credits \$4,262 for 18 credits	9	9	Yes
Southern New Hampshire University's College for America	Nonclinical health care (AA), communications and health care management (BA)	\$2,500 per year	\$960 for 3 credits	\$1,340 for 12 credits \$5,180 for 24 credits	9	9 (AA), 27 (BA)	Associate's degree only
University of Wisconsin Flex Option	Arts and sciences (AA), biomedical sciences, nursing, IT (BS)	\$2,250 per 3 months	\$900 per competency set	\$450 for 3 sets \$1,350 for 4 sets	9	9	No—but institutional aid provided ^d
Western Governors University	Business, education, IT, nursing	\$3,250 per 6 months (nursing); \$2,890 per 6 months (others)	Subscription model only	NA	NA	NA	Yes ^e

Notes: ^aBreakeven credits reflect the number of credits a student would have to complete during a subscription period for the “all-you-can-eat” pricing model to be cheaper than the per-credit pricing model. ^bCan take only two classes simultaneously with subscription (three with standard classes). ^cStandard tuition rates per three credits vary slightly based on number of courses. ^dUW System provides need-based institutional aid to FAFSA filers. ^eEligible for state financial aid in six states.

Source: Institutional websites.

make, based on their financial need. A student who is eligible for the maximum Pell Grant of \$5,730 per year and is continuously enrolled throughout the year would receive \$1,432.50 per quarter in Pell funds, which is enough to nearly cover four credits at the standard rate. In this case, a student receiving the maximum Pell Grant would be better off taking three courses at the standard rate instead of taking an equivalent number of FlexPath courses. This calculation could change if a student can spend less time on a FlexPath course than a traditional course because of the opportunity cost of time.

At \$2,500 for six months, Northern Arizona University's Personalized Learning program has a lower flat fee per month than Capella's FlexPath program,

and students can take as many courses as they want over the course of that subscription.³⁹ Students can choose bachelor's degree programs in business, liberal arts, and information technology, all of which are eligible for federal financial aid. Alternatively, students can enroll in traditional credit-based courses online through the university in 43 different degree fields. The online programs cost approximately \$1,127 per three credits, with slight differences across each course because of varying fee levels.⁴⁰ A student needs to take at least three courses (nine credits) per six months to realize savings from the Personalized Learning program compared to online courses. Taking 12 credits in six months generates savings of approximately \$2,008, and taking 18 credits saves about \$4,262.

Southern New Hampshire University's College for America offers bachelor's degrees in communications and health care management and an associate's degree in nonclinical health care (for people not providing care to patients). College for America follows a subscription model, with a price of \$2,500 per year. The associate's degree program is eligible for federal financial aid, while the bachelor's degree programs are not.⁴¹ SNHU also offers a range of online associate's and bachelor's degrees through its online division, which follow the standard course-based model and cost \$960 per course with access to federal financial aid.⁴²

Competency-based education has the potential to streamline the path to a college degree for a significant number of students.

For students in the associate's degree program, taking three courses (nine credits) in a year makes College for America less expensive than the online degree program both with and without federal financial aid (because students qualify for aid in both settings). For the bachelor's degree program, a student without any financial aid would save \$5,180 over 24 credits by using the subscription model—smaller than the maximum Pell Grant award. Without taking opportunity costs into account, for a student receiving the maximum Pell Grant to be better off in College for America than SNHU's other online offerings, he or she would have to complete at least 27 credits in a 12-month period. But little is known about the course-taking patterns of students in CBE programs; more research must be conducted in this area.

CBE in Practice: A Program-Level Look at Excelsior College's Nursing Program

Here I will take a closer look at a large and established competency-based education program—the associate's degree in nursing at Excelsior College. This program requires students to complete 67 credits, broken down

into 24 credits in nursing theory, 4 credits in clinical competency assessments, an 8-credit clinical performance examination administered in a hospital setting, and 31 credits of elective coursework. Students can choose to take the eight nursing theory courses through Excelsior's credit by examination program described earlier in this paper, or via online courses in nursing theory that Excelsior introduced in January 2014. The online courses are eligible for federal financial aid, while aid is not available to cover the costs of examinations.

In the 2013–14 academic year, data provided by Excelsior College's institutional research office show that 5,056 students took examinations in at least one nursing theory course without actually enrolling in a course, while 719 students enrolled via the online course option and 216 students participated in both the credit by examination and online course options (table 6). Across the three enrollment categories, more than 8 in 10 students are women. About 7 percent of students taking courses by examination are current or former military members, compared to 16 percent of students taking online courses and 13 percent of students taking both online courses and examinations. This difference could be a result of online courses qualifying for financial aid, including veterans' benefits.

Excelsior's nursing program attracts a diverse group of students. Sixty-one percent of students taking examinations are white, compared to 53 percent of students taking online courses and just 47 percent of students taking both exams and online courses. The percentage of black students ranges from 25 percent of those taking examinations only to 41 percent of those taking exams and online courses. Although Excelsior is based in New York, just over 10 percent of students are New York residents, although nearly all students reside in the United States. The average age of students in the programs is 36, with nearly 40 percent of students being 40 years of age or older. Only about 5 percent of students are age 23 or younger upon enrollment.

The cost differential between the online courses and examinations in nursing theory is substantial, with each three-credit course costing \$1,275 and the examination costing \$325. A student who does not qualify for financial aid would save \$950 per course in tuition and fees or \$7,600 for all eight courses by taking the examinations, in addition to the time and opportunity cost

TABLE 6
CHARACTERISTICS OF STUDENTS IN EXCELSIOR COLLEGE'S ASSOCIATE DEGREE IN NURSING PROGRAM

Characteristic	Exam Only, No Course	Online Course Only	Exam and Online Course
Female (%)	80.5	84.1	83.8
Military status (%)			
Active military	1.4	6.3	5.1
Civilian	92.5	83.5	87.0
Veteran	6.1	10.3	7.9
Race/ethnicity (%)			
Asian	3.8	2.6	2.8
Black	24.7	34.9	40.7
Hispanic	7.2	6.7	5.6
White	61.0	52.7	47.2
New York resident (%)	9.9	12.7	13.4
Age (%)			
23 or younger	5.5	3.5	6.9
24–29	23.2	22.8	22.7
30–39	33.2	36.4	35.7
40–49	25.0	30.0	25.9
50–59	12.3	6.8	7.4
60 or older	0.7	0.4	1.4
Mean age	36.9	36.3	36.0
Number of students	719	5,056	216

Source: Excelsior College institutional research office.

savings previously discussed. But a student who qualifies for the maximum Pell Grant of \$716.25 per three-credit course (assuming 24 credits per year) would see a smaller—though still substantial—savings of \$233.75 per course, or \$1,870 for the eight-course sequence.

Conclusion

Competency-based education has the potential to streamline the path to a college degree for a significant number of students, both working adults who can apply their skills and experiences to earn credit for what they already know and other students who prefer self-paced learning over the traditional time-based model of earning credits. But little is known about who

is currently enrolled in CBE programs or the programs' pricing structures.

Currently, 34 colleges have CBE programs, with at least 18 more colleges working on developing programs. Nearly all of these colleges are less-selective institutions, and they are located across the country. Some colleges have online competency-based programs that students can enroll in from anywhere in the world. Data from colleges that are primarily or entirely competency-based show that the students who enroll in these institutions tend to be older than traditional undergraduate students, and the racial and ethnic diversity is broadly similar to national averages. However, not much data are available on the types of students who earn credits via prior learning assessments or portfolios at colleges operating under the traditional seat-time model.

Is CBE cheaper than traditional degree programs? The answer depends on the circumstances of the particular student and the institution that she or he plans to attend. But as a whole, the pricing structures of CBE tend to be less expensive than traditional programs. This is especially the case for students without financial need who can move through the program at a rapid pace or at programs that have been approved to offer federal financial aid to their students. But the savings may not be present for students who would receive Pell Grants in a traditional program, wish to attend a CBE program that has not been approved to receive federal financial aid dollars, and cannot complete courses at a faster pace than the traditional semester model.

Many unanswered questions about CBE still need to be explored in detail before this model expands to serve a large number of students.

1. Are the students in CBE programs the ones who would benefit the most from CBE? Some colleges have introductory assessments or modules that are designed to give students a taste of whether CBE programs are right for them. For example, Capella offers mini-courses on a regular basis, and Northern Arizona offers an “Is It Right for Me?” quiz.⁴³ Broward College requires students in its accelerated computer systems specialist program to fill out a supplemental application including information about prior online course experience to be considered for the program.⁴⁴ These efforts are commendable and should be continued.

Students with a range of skills and preferences toward competency-based education should enroll in these programs so their outcomes can be examined. Ideally, this would be done by randomly assigning students to competency-based courses, online courses, and traditional in-person courses to see what model works best and for whom. Collecting better demographic, learning, and outcomes data (such as completion rates and postcollege earnings) is essential to determining which types of students should be encouraged to enroll in CBE programs.

2. What degree programs are well-suited for competency-based assessments? Although Alverno College has shown that competencies can be interwoven into a traditional curriculum and then successfully assessed, the programs that are the farthest from

the typical credit hour tend to be either preprofessional associate’s or bachelor’s degree programs (business, nursing, IT, and education) or general associate’s degrees in the liberal arts. Much less has been done for upper-level coursework in the liberal arts and sciences, with the exception of credit by examination programs at institutions like Excelsior College. Colleges should continue to develop CBE programs in different disciplines and assess students’ outcomes.

3. How much does it cost to provide CBE compared to more traditional education models? And are the savings (if any) passed on to students? This paper examines the price that students pay to enroll in CBE programs but does not examine how much it actually costs to provide a quality education under CBE. Higher education is notoriously bad at parsing which costs belong to which programs, but this needs to improve as pressures for efficiency and accountability increase. Given a strong focus on using technology and innovative techniques to deliver an education to students, CBE is a natural place to start in exploring cost structures. Close attention should be paid to the fixed costs of providing CBE (course development costs, technological infrastructure, and the like) and the marginal costs of enrolling an additional student (such as an instructor’s grading time and student-specific IT services), as the marginal cost is more relevant to what an additional student would pay in tuition.

It is typically assumed that CBE is less expensive than traditional education models because it uses less time and fewer instructor resources, but this has yet to be rigorously examined. Regardless of whether CBE is less expensive than traditional education, it is worth examining whether the price students pay actually reflects the cost of education. Some CBE programs have public subsidies, but the majority of programs are designed to be revenue-neutral or revenue-generating. Colleges should consider whether students are getting an appropriate discount to pursue a less-expensive educational path.

4. What can be done to make CBE financially feasible for lower-income students who may face higher out-of-pocket costs? Although the federal government has slowly moved to allow more programs that are not based on seat time into federal financial aid programs,

many CBE programs still cannot accept Pell Grants and federal student loans. This paper shows that at some colleges, low-income students who do not plan to take large numbers of credits within a specific time period are financially better off enrolling in traditional programs than competency-based programs because of Pell Grant eligibility in traditional programs. The University of Wisconsin System has committed to providing need-based aid to students in the UW Flex Option program (which is not yet eligible for federal financial aid), making the program more affordable to students with financial need. Colleges with CBE programs and foundations should partner to assist needy students until the federal government allows these programs to receive federal financial aid dollars.

Notes

1. *Advancing Competency-Based Education Demonstration Project Act of 2014*, HR 3136, 113th Cong. (July 23, 2014), www.congress.gov/bill/113th-congress/house-bill/3136.

2. As the competency-based movement has grown, coalitions of educational organizations have emerged to help promote learning across the different providers. The Competency-Based Education Network, with support from Public Agenda and the Lumina Foundation, was announced in March 2014 and consists of 18 colleges that either had operational CBE programs at the time or sought to develop programs. Also, the Next-Generation Learning Challenges, managed by EDUCAUSE and funded by the Bill & Melinda Gates Foundation and other donors, counts nine active colleges or systems as its grantees and focuses on a mix of competency-based and online education models. Finally, the 2014 Next-Generation Learning Challenges incubator program, also funded by the Gates Foundation and managed by EDUCAUSE, includes nine colleges developing or expanding CBE programs.

3. *Advancing Competency-Based Education Demonstration Project Act of 2014*.

4. College Board, "CLEP," <http://clep.collegeboard.org/>.

5. See the University of Iowa Undergraduate Admissions, "Advanced Placement Program Credit Policies," <http://admissions.uiowa.edu/academics/ap>.

6. See Paul Fain, "Competencies Come to Campus," *Inside Higher Ed*, April 22, 2014, www.insidehighered.com/news/

2014/04/22/new-competency-based-programs-lipscomb-could-be-model-liberal-arts-colleges; and Paul Fain, "Watch and Learn," *Inside Higher Ed*, April 22, 2014, www.insidehighered.com/news/2014/04/22/lipscomb-universitys-assessment-centers-high-stakes-approach-competency-based.

7. Alverno College, "Unfolding Understandings: A History of the Alverno Learning Process," March 30, 2012, <http://depts.alverno.edu/archives/alphistory/>.

8. I consider a college's program not to be in operation if a larger program has been announced but not yet implemented. These colleges have prior learning assessments of some form but are not the focus of this paper since those are being supplanted.

9. For Charter Oak's transfer policy, see Charter Oak State College, "FAQ: How Many Charter Oak Credits Do I Need to Earn?," www.charteroak.edu/prospective/new/faq.cfm#13. For Excelsior's transfer policy, see Excelsior College, "Transfer More Credits with Excelsior College," www.excelsior.edu/transfer-more-credits.

10. For more information, see Sinclair Community College, "Accelerate Your Learning," www.sinclair.edu/online/accelerate/.

11. Northern Arizona University Extended Campuses, "Frequently Asked Questions," <http://pl.nau.edu/HowItWorks.aspx>.

12. Being a part-time student in a CBE program is different than being a part-time student in a traditional program, when by its very own nature a CBE program has no fixed time for degree completion. This presents a challenge for financial aid allocation, as most aid is tied to a student's enrollment intensity. Although I discuss enrollment intensity and financial aid eligibility in this paper, this topic merits further exploration.

13. National Center for Education Statistics, "Total Fall Enrollment in Degree-Granting Postsecondary Institutions, by Control and Level of Institution, Level of Enrollment, and Race/Ethnicity: 2012," November 2013, http://nces.ed.gov/programs/digest/d13/tables/dt13_306.50.asp.

14. National Center for Education Statistics, "Total Fall Enrollment in Degree-Granting Postsecondary Institutions, by Control and Level of Institution, Level of Enrollment, and Race/Ethnicity: 2011," November 2012, http://nces.ed.gov/programs/digest/d13/tables/dt13_303.50.asp.

15. Excelsior College, "Are All Programs of Study Eligible for Financial Aid?," July 21, 2014, <http://fasupport.excelsior.edu/link/portal/16074/16148/Article/918/Are-all-programs-of-study-eligible-for-financial-aid>.

16. College Board, "Get Started With CLEP," <http://clep.collegeboard.org/started>.
17. DSST, "About DSST," <http://getcollegedcredit.com/testprep>.
18. Excelsior College, "Choose Your Exam," www.excelsior.edu/exams/choose-your-exam.
19. Thomas Edison State College, "Credit By Exam," www.tesc.edu/degree-completion/Testing.cfm.
20. Granite State College, "Testing," <https://my.granite.edu/testing>.
21. Broward College, "FAQs—Accelerated Computer Systems Specialist," www.broward.edu/academics/programs/computer/acceleratedcomputersystemsspecialist/Pages/FAQs.aspx.
22. Rio Salado College, "Degree-Specific Exams," www.riosalado.edu/testing/degreespecific/Pages/default.aspx.
23. National Center for Education Statistics, "Average Undergraduate Tuition and Fees and Room and Board Rates for Full-Time Students in Degree-Granting Postsecondary Institutions, by Level and Control of Institution: 1963–64 through 2012–13," March 2014, http://nces.ed.gov/programs/digest/d13/tables/dt13_330.10.asp.
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25. Thomas Edison State College offers three different tuition plans to its students, based on students' preferred enrollment intensity student preferences. The standard Per Credit Tuition Plan charges New Jersey residents \$407 per credit. This plan is designed for students who are taking a small number of in-person or online courses to finish their degrees; it is not designed for students getting credit by examination. The Enrolled Options Tuition plan charges in-state students an annual fee of \$1,816, with additional tuition of \$175 per credit (and lower rates for credits by examination). Finally, the Comprehensive Tuition Plan allows New Jersey residents to pay \$5,871 per year and for up to 36 credits of any type. See Thomas Edison State College, "Tuition and Financial Aid," www.tesc.edu/tuition/.
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