Tough Choices: Program Elimination Decisions in Higher Education

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Abstract

Financial and demographic factors and trends are coming together to create the perfect storm for institutions of higher education. This paper briefly discusses these two factors and then address program evaluation strategies and elimination decisions as a cost-control mechanism.
Key Words: Higher Education Finance, Program Closure, Program Elimination

Introduction

Higher education faces a troubling future. For example, Woodhouse (2015) projected that the number of small college closures would triple in the following three years. Two factors, financial and demographic, are coming together to create the perfect storm in higher education. This paper briefly discusses these two factors and then address program elimination decisions as a cost-control mechanism.

Financial Pressure

At least two financial factors have the potential to negatively affect institutions of higher education (HEI) over the next ten years. The first is a debt-induced liquidity crisis and the second is the effect of increased competition for students on revenue generation.

Bain (2012) identified a liquidity crisis in higher education. Colleges and universities have taken on more debt resulting in a deterioration of their equity ratios (equity as a percentage of assets) and an increase in the expense ratio (expenses as a percentage of revenue). Debt financing has been used by many institutions to pay for improvements in and additions to physical facilities in the hopes that more and better facilities would attract more students. This is a dangerous strategy because, as discussed below, the pool of incoming students is shrinking and will continue to decline for many years. This stresses revenue generation and flat or declining revenue may result in increased default risk in highly leveraged HEIs.

Debt creates financial risk and pressure because lenders expect that HEI will make the required periodic interest payments and that they will eventually have the financial resources need to liquidate the debt. Increased debt load and perceived decreased ability to generate revenue makes it more difficult for HEI to refinance existing debt at acceptable interest rates. Debt, as a percentage of the higher education cost base, increased by 11.7 percent and interest expense increased by 9.2 percent in the period from 2002 to 2008. Over the same time period, instructional costs only increased by 4.8 percent. From 1995 to 2010 administrative and support costs and student services costs increased as a percentage of total institutional expenditures per full-time equivalent (FTE) student while instructional costs decreased (Bain, 2012).

The second source of financial pressure on HEI is competition from other sectors of the economy for funding. Both public and private higher education rely on tuition for a significant part of their operating revenue, although to different degrees. Tuition made up about 21 percent

of total revenue for public higher education in 2014-15 while it accounted for 35 percent of total revenue in private non-profit institutions. Public institutions rely, to a greater extent than do private institutions, on government grants, contracts, and appropriations. Public HEIs received about 44 percent of total revenue compared to only 13 percent in private non-profit institutions (IES, 2016) on these external funding sources. However, public institutions must compete at the state level with Medicaid, corrections, public safety and K-12 compulsory education for funding. The increasing percentages of state budgets allocated to these programs have caused public higher education's share of state budgets to dwindle (Fethke & Policano, 2012).

Demographic Pressure

Forecasting higher education enrollment trends, at a macro level at least, is fairly easy. Nationally, the number of high school graduates increased by 20 percent over the eleven-year period between the 2001– 2002 and the 2012 – 2013 academic years and that corresponded, with a slight lag, in increased enrollments at higher education institutions (HEI). However, the number of high school graduates is only projected to increase by three percent over the fifteen-year period from 2012 – 2013 to 2026 – 2027 (Hussar & Bailey, 2018, p. 13). This trend is illustrated in Figure 1 below.

Figure 1
Actual and Projected Number of High School Graduates
Actual (1999-2000 to 2013-14) and Projected (20014-15 to 2026-2027)
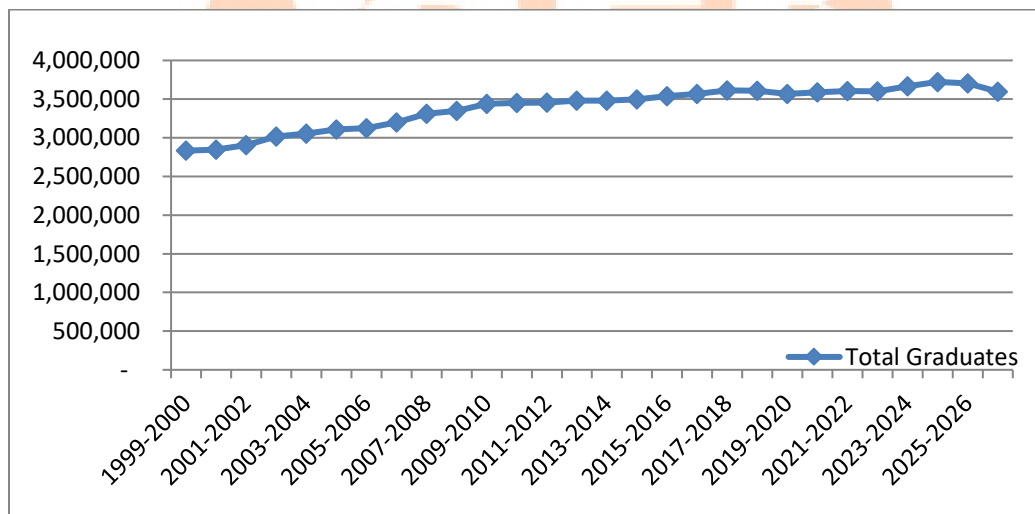
Data Source: Hussar & Bailey (2018), Table 9, p. 51.

As shown in Figure 1, the number of high school graduates reached a local maximum in the 2018-2019 academic year and is then projected to decrease below that number for the next five years. That is followed by a slight increase in high school graduates for the next two years followed by a steep decline in the year-to-year percentage change in the number of high school graduates in the 2026 – 2027 academic year. The year-to-year percentage changes in the number of high-school graduates are shown in Figure 2.
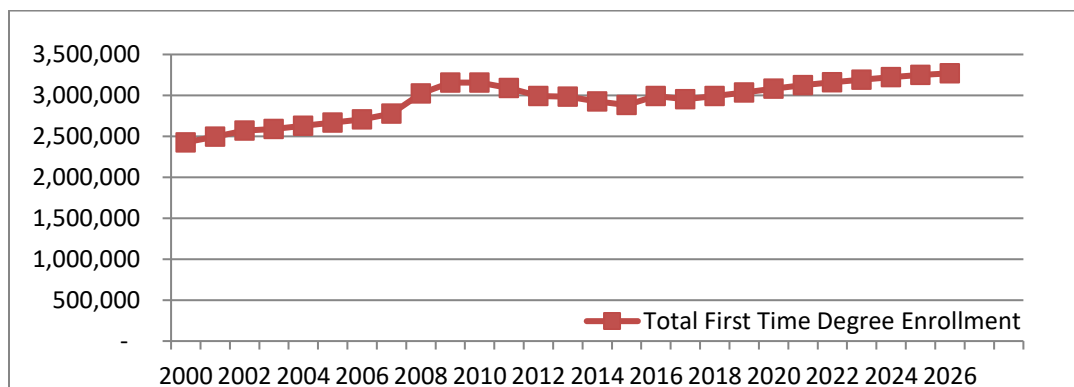
Figure 2
Year-to-Year Percent Change Number of High School Graduates
Actual (1999-2000 to 2013-14) and Projected (20014-15 to 2026-2027)
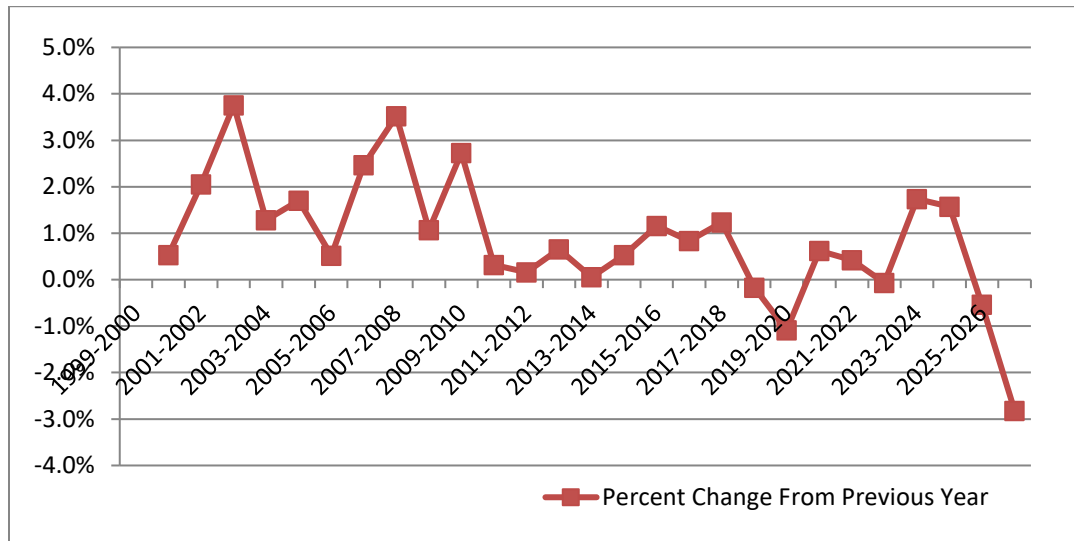
Data Source: Hussar & Bailey (2018), Table 9, p. 51.

Hussar & Bailey (2018) further noted that the number of bachelor's degrees awarded increased 47 percent from 2001 – 2002 to 2014 – 2015. However, that trend doesn't continue in the following years. The number is only projected to increase by ten percent between 2014 – 2015 and 2026 – 2027.   Both of these trends affect the total fall enrollment of first-time degree/certificate-seeking students in degree-granting postsecondary institutions. The trend in the number of first-time enrollments in all postsecondary institutions is shown in Figure 3.

Figure 3
Actual and Projected Number of First-Time Degree Students
(Fall Semester Enrollments)
Actual (2000 to 2013) and Projected (20014to 2026)

Data Source: Hussar & Bailey (2018)

Figure 4 shows the year-to-year percent change in the number of first-time degree-seeking students enrolled. The period from 2018 forward shows a positive, but declining growth rate.

Figure 4
Year-to-Year Percent Change in Actual and Projected Number of First-Time Degree Students
(Fall Semester Enrollments)
Actual (2000 to 2013) and Projected (20014to 2026)
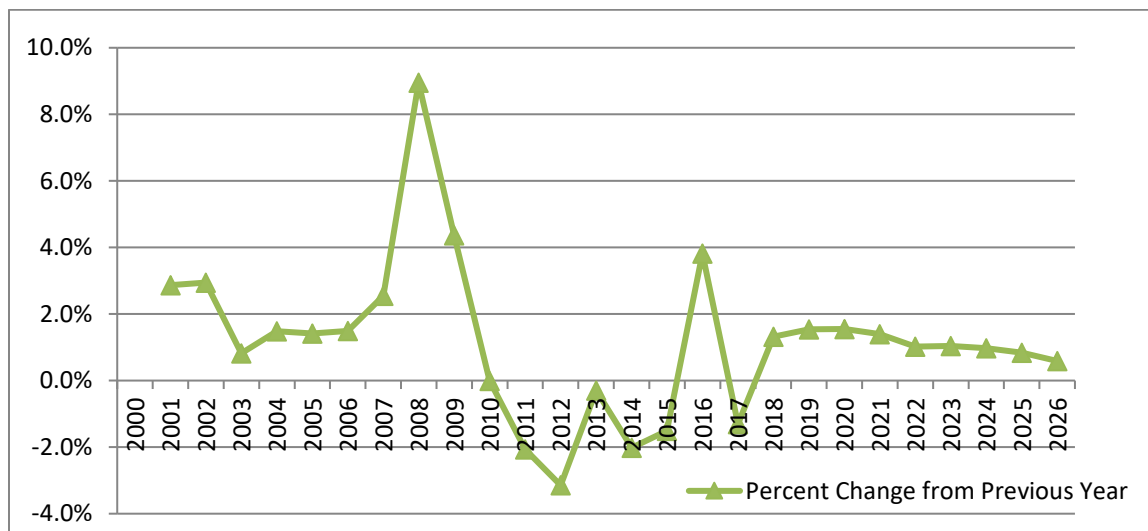
The average annual percent change in first-time enrollments for the period from the 2019 – 2020 academic year through the 2026 – 2027 period in only 1.1 percent. Thus, while the decline in the growth rate of high school graduates is projected to decline, colleges and universities can expect a slight increase in student enrollment. This is an improvement over the previous eight-year period from 2011 through 2018 where the annual average growth rates in the number of first-time enrollments in all postsecondary institutions was -0.6 percent, but it pales in comparison to the eight-year period from 2003 through 2010 where the average annual growth rate was a more robust 2.6 percent.

Hussar & Bailey (2018, p. 26) report that the number of full-time students in degree-granting postsecondary institutions increased 30 percent between 2001 and 2015 (9.4 million versus 12.3 million); and that the number full-time students is projected to increase 12 percent between 2015 and 2026, again, about 1.1 percent per year.

According to Hussar & Bailey (2018, p. 30) Public HEI are expected to fare better than private colleges and universities. Full-time-equivalent fall enrollment in public degree-granting postsecondary institutions is projected to increase 14 percent between 2015 and 2026 to 12.0 million. However, the full-time-equivalent fall enrollment in private degree-granting postsecondary institutions is projected to increase by ten percent between 2015 and 2026

Full-time-equivalent fall enrollment in public degree-granting postsecondary institutions increased 22 percent between 2001 and 2015 (8.6 million versus 10.6 million), and is projected to increase 14 percent between 2015 and 2026 to 12.0 million. Full-time-equivalent fall

enrollment in private degree-granting postsecondary institutions increased 44 percent between 2001 and 2015 (3.1 million versus 4.5 million); and is projected to increase 10 percent over the 12 year period from 2015 to 2026 to 5.0 million; an average of less than 1 percent per year.

The decreased growth rate in college enrollments means that there will be increased competition for those potential students. Colleges and universities who built facilities and added programs during the high annual average growth-rate years may find that they have to make some tough decisions. They most likely took on additional debt to finance infrastructure development and are now be faced with flat or declining student enrollment and the need to service the increased debt. These institutions may have to make decisions about what programs and activities to fund to maintain their competitive position and attract students, but also where to scale back and what to cut to maintain budget stability and service debt without invading endowment funds.

HEI have become accustomed to increased revenue from increased demand for higher education, caused by steady increases in the number of students in the pool of new high school graduates. They have also faced little price-based competition because in a seller's market all HEI were able to increase tuition and fees with minimal price-based competition. This has led HEI to adopt revenue-driven budget models with only lip service to cost control.

With essentially flat student enrollment projected at least through 2025 and increasing costs, HEI are more than ever under pressure to control costs. This may lead institutions to question the viability of maintaining a full catalog of traditional program offerings and to consider the need to identify and eliminate some programs and their associated costs. All activities and programs have associated costs, but not all programs and activities add value to the EHI. Competent administrators face the task of identifying and eliminating non-value adding programs and activities. Less competent administrators will probably ignore the issues as their institutions decline. The decision to eliminate an academic program is difficult and painful; however, it is also a corrective market mechanism.

Most HEI are required to present a balanced annual budget, one where expenditures do not exceed revenue. In periods of flat or declining student enrollment the institution is faced with three choices (1) increase revenue, (2) cut costs or (3) increase cash inflow by borrowing. In a period of increased competition and declining enrollment, the first strategy is hard to implement. Cost-cutting is painful, and so many financial administrators turn to the third option and either spend or borrow from endowment funds to cover current expenditures or increase long-term debt. This strategy, while viable over a short period of time, is not a good long-term strategy and may have an adverse effect on future advancement (fundraising) efforts or increases repayment risk on debt.

This paper develops a framework for difficult program analysis and elimination decisions associated with cost reduction. The following section discusses the reasons for the closure of academic programs. This is followed by a discussion of the consequences of program evaluation, program elimination, elimination strategies, and barriers to program elimination.

Program Closure

Foretell & Wernerfelt (1987) described market exit in a competitive market (which higher education has become) as an outcome when a firm fails to meet consumer expectations. Demand for a product (academic program) decreases when consumers (students and their families) withdraw or shift to other products (academic programs or HEI).

Program closure is a difficult and painful process for all involved, but especially for faculty members who may have devoted years to a program. Often program closure is equated with program failure. However, that failure is not always directly attributable to the affected faculty members. At least some of the factors which result in program closure may be outside the control of faculty members or the HEI. The following section briefly discusses the reasons for program closure.

Competition

As noted above, higher education has become a very competitive market. At the institutional level HEIs compete with each other for critical resources (funding, students, faculty, etc.). This inter-institutional competition takes many forms, and one is the development of unique programs designed to attract students away from other institutions. In addition, there is intra-institutional competition for majors.

Once the student body size is fixed in early Fall the competition for majors within an HEI becomes a zero-sum game. Programs within an institution establish their "market shares" based on their relative numbers of majors and SCH generation. Programs become targets for elimination when they have low market shares. The proliferation of new programs within an institution can be a zero-sum game if new programs only cannibalize students from existing programs and don't attract new students to the institution. This intra-institutional program proliferation can stress existing programs if the growth of new programs occurred through SCH cannibalization. Thus this program proliferation can place programs in the crosshairs for potential evaluation and elimination.

Academic programs, like all products, are often considered "failures" when student credit hours (SCH), and thus revenue generation expectations are not met. While program success can be measured in terms of SCH generation and the number of majors in a program, an additional measure should be the number of new students attracted to the institution because of the program. Such differentiation helps decompose program growth into actual growth from new students and program cannibalization from other programs.

Market Decline

Programs that were once viable may become targets for program evaluation and potential elimination when market forces outside the HEI, forces beyond the control of faculty and administration, change market dynamics. For example, in the early 1900s home economics was a viable academic program. However, in the 1980s home economics programs began to disappear. Due to changes in market demand, it was no longer a viable major, especially when high schools stopped teaching home economics. In some institutions it disappeared completely while in other institutions parts of the program were spun off. For example, food science and nutrition became a separate major, often in the health science domain. Child, consumer and family studies programs were absorbed into human development departments, and clothing and textiles became fashion design in design departments while fashion merchandising may have ended up as part of the marketing department in a college of business.

As in the case of home economics, changes in student interest, employment opportunities, psychographics or demographics can result in a market decline. When an academic program reaches the decline phase in its life cycle the number majors and SCHs it generates decline. A once viable program then becomes a target for elimination. An ongoing

environmental scan[1] should detect such changing circumstances so that necessary plans can be made long before environmental factors create a crisis.

Design Failure

Design failure can be another reason for program elimination. Programs without a clear career path or that compete poorly with programs that have a broader career path often suffer from low student enrollment. Programs that have failed to keep pace with technology changes and thus are preparing students for careers that no longer exist also suffer from design failure.

For example, a private college recently closed its fraud investigation major for two reasons. One was that accounting majors were able to compete for the same jobs as the fraud investigation majors, and for other jobs that were closed to the fraud investigation majors. Students naturally migrated to the accounting major where they had more career opportunities. The times when one could become educated just for the sake of being educated are unfortunately long gone. Higher education is view by most students and their families as a route to secure, long-term employment.

Program proliferation often results in poorly designed programs by late entrants into a market. Faculty or administrators see well-designed, high-demand programs at other institutions and decide to clone the program at their institution. If the cloned program is not well designed and implemented for an expanding market, one where there is excess demand for the program that is not currently being met by other institutions, then the cloned program may become a low-demand, non-competitive program targeted for elimination. Late entrants tend to flood into perceived lucrative markets only to find that they are operating at the point where marginal revenue is equal to marginal cost and the program breaks even at best.

Lack of Faculty Depth

A program may become a target for elimination when the success of the program depends on a single faculty member or a very small group of faculty members. The pending retirement or departure of a key faculty member may adversely affect the continued viability of a program.

This was the second reason for the closure of the fraud investigation major discussed above. The key courses in the program were all taught by one professor who had extensive experience in fraud investigation. However, his pending retirement and the lack of qualified applicants with appropriate credentials made it impossible to continue the program. The institutional lesson learned from this experience was to avoid developing new programs that rely exclusively on the expertise one faculty member, especially when there is not a ready supply of faculty replacements.

Strategic Fit

Sometimes programs are targeted for elimination simply because they no longer fit the strategic mission of the HEI. AN HEI with limited resources may make the decision to exit specific educational markets because it can achieve more synergy by focusing its resources in other directions. For example, an HEI may make the decision to focus resources on health sciences, or STEM, or international business. As more resources are directed toward programs that have been identified as strategic priorities, resources will be withdrawn from other areas resulting in their decline and potential elimination.

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[1] To be effective, environmental scans need to be performed continuously, and not as one part of a five-year or ten-year strategic planning cycle.

This section briefly discussed potential causes of program elimination, or the targeting of a program for analysis and potential elimination and provided an overview of program financial viability analysis. The next section discusses the consequences of program elimination.

Consequences of Program Elimination

The consequences of program elimination are not all negative, however to the individuals involved they are usually perceived as such. Program elimination affects students, alumni, faculty and staff, the institution as a whole, and the higher education market within which the institution operates.

Students

Institutions implement teach-out plans whenever a program is targeted for elimination. In theory, this action protects the students currently enrolled in the program and ensures that they will be able to graduate with their chosen major. However, students have at least three options. They can (1) continue in the program through the teach-out period, (2) change majors within the institution, or (3) leave the institution and transfer to another HEI with the same or similar, and more viable, program. The HEI will experience short-term adverse financial consequences to the extent that students chose the third option.

Alumni

Alumni from a program targeted for elimination may attempt to pressure an intuition to keep the program. This pressure has two sources, the degree of identification that alumni have with the institution and their major, and the degree to which they feel that the elimination of the program will affect their marketability.

 Faculty and Staff

Those most directly affected by the elimination of a program are faculty and staff members who must either be reassigned to other programs, or whose positions will be eliminated. Reassignment is often viewed as a less painful alternative. However, from a financial perspective reassignment should only be used if the reallocation of direct costs will result in a corresponding increase in program revenue in the departments or programs to which the faculty and staff members have been reassigned. Faculty and staff not directly affected by the elimination of a program will still experience indirect emotional and job-security effects. These feelings may result in increased distrust of institutional administrators or attrition.

Institutional Effects

The elimination of a struggling program should have a positive effect on institutional financial viability. However, the institution must ensure that the depth and breadth of institutional offerings are still sufficient to attract quality students and to meet accreditation standards.

Market Effects

Other HEIs, at least those in the cross-application pool of an HEI may experience increased demand for their programs if students and potential students feel that their programs are substitutes for the eliminated program. SCHs lost when a program is eliminated are not just the SCHs directly tied to the program but SCHs in supporting programs and in general education if the affected students leave the institution.

Program Evaluation

Financial Viability

No matter what the cause, programs ultimately become targets for elimination when they are no longer financially viable. When the direct costs of maintaining a program exceed the SCH-generated revenue and revenue from other sources that is directly assigned to a program then the program becomes a drain on HEI financial resources. Direct costs are those costs that ". . . can be identified specifically with a particular sponsored project, an instructional activity, or any institutional activity, or that can be directly assigned to such activities relatively easily with a high degree of accuracy." (OMB, 2004, Section D.1). The most obvious example of a direct cost is the salaries and benefits paid to faculty assigned to an academic program. Total program cost includes both program direct costs the program's share of indirect costs such as equipment, libraries, administrative and basic academic computing, and certain capital or locational costs. To a great extent, the indirect costs are fixed, at least in the short run, and so the elimination of an academic program will not eliminate the allocated indirect costs, they will just be reallocated to other programs and activities.

Table 1 below shows three possible cost allocation outcomes. In Panel 1 the institution is shown with three academic programs. Program A covers its direct costs and the indirect costs that have been allocated to it. Program B covers its direct costs but doesn't generate enough revenue to cover all of the allocated costs. Program C doesn't generate sufficient revenue to cover its direct and allocated indirect costs. Indirect costs total of $525,000 in all Panels were allocated based on relative revenue generation. For example, in Panel 1 Program A generated 57 percent of the total revenue and so it was allocated 57 percent of the indirect costs. Note that in all four panels the total allocated indirect costs were constant at $525,000; the total indirect costs were treated as fixed costs.

Obviously, in Panel 1, this institution has a problem. It is barely generating sufficient revenue to cover its costs. Possible courses of action are to eliminate either Program B or Program C, or both. Program B is eliminated in the second panel. When program B is eliminated total operating surplus decreased by $100,000 from a $25,000 surplus to a $75,000 operating loss. The loss resulted because Program B was generating sufficient revenue to cover its direct costs, and it contributed $100,000 towards covering institutional overhead. Without that $100,000 contribution, institutional performance declined from a $25,000 surplus to a $75,000 deficit, a $100,000 swing.

Table 1
Program Elimination Example

Panel 1

	Program A	Program B	Program C	Total
Revenue (SCH allocation)	$ 1,000,000	$ 500,000	$ 250,000	$ 1,750,000
Program Direct Costs	(500,000)	(400,000)	(300,000)	(1,200,000)
Program Contribution	500,000	100,000	(50,000)	550,000
Allocated Indirect Costs	(300,000)	(150,000)	(75,000)	(525,000)

			$	
Total Operating Surplus	$ 200,000	$ (50,000)	(125,000)	$ 25,000

Panel 2

	Program A	Program B	Program C	Total
Revenue (SCH allocation)	$ 1,000,000		$ 250,000	$ 1,250,000
Program Direct Costs	(500,000)		(300,000)	(800,000)
Program Contribution	500,000		(50,000)	450,000
Allocated Indirect Costs	(420,000)		(105,000)	(525,000)
Total Operating Surplus	$ 80,000		$ (155,000)	$ (75,000)

Panel 3

	Program A	Program B	Program C	Total
Revenue (SCH allocation)	$ 1,000,000	$ 500,000		$ 1,500,000
Program Direct Costs	(500,000)	(400,000)		(900,000)
Program Contribution	500,000	100,000		600,000
Allocated Indirect Costs	(350,000)	(175,000)		(525,000)
Total Operating Surplus	$ 150,000	$ (75,000)		$ 75,000

Panel 4

	Program A	Program B	Program C	Total
Revenue (SCH allocation)	$ 1,000,000	$ 500,000		$ 1,500,000
Program Direct Costs	(500,000)	(400,000)	$ (300,000)	(1,200,000)
Program Contribution	500,000	100,000	(300,000)	300,000
Allocated Indirect Costs	(350,000)	(175,000)		(525,000)
Total Operating Surplus	$ 150,000	$ (75,000)	$ (300,000)	$ (225,000)

The financial effect of eliminating Program C is shown in the third panel. In this case, the institution experienced an increase in operating surplus from $25,000 to $75,000. This $50,000 increase results from the elimination of the $50,000 negative contribution or operating loss made by Program C in the first panel. Before the elimination of Program C (see the first panel) Programs A and B had to subsidize or carry part of Program C because it wasn't generating enough revenue to cover its direct costs, as well as cover its allocated indirect costs. An institution suffers financially when one or more of its programs are not able to cover their direct costs.

The elimination of programs with a program deficit before allocation indirect costs will improve institutional viability if the associate direct costs are also eliminated. Program elimination without the elimination of the associated direct costs is extremely detrimental to the financial viability of an HEI. This is shown in Panel 4 where Program C has been eliminated. It is no longer generating SCHs and thus no revenue and no fixed cost allocation, but the program direct costs have not been eliminated.

The Revenue Question

The determination of the financial viability of an academic program is dependent primarily upon the accurate measurement of program revenue and direct costs. Equation (1) shows a common, but naïve, approach to estimating program revenue.

$$PR = TSCH(T) \qquad\qquad\qquad (1)$$

Where:

PR = Gross program revenue
TSCH = Total student credit hours generated by the program
T = Per-credit-hour tuition rate

One of the problems with this revenue estimation model is that it fails to take tuition discounts into account. Net program revenue can be better estimated using equation (2):

$$NPR = TSCH\ (T)(1\text{-}DR) \qquad\qquad (2)$$

Where:

NPR = Net program revenue
TSCH = Total student credit hours generated by the program
T = Per-credit-hour tuition rate
DR = Institutional average tuition discount rate

While equation (2) provides a more accurate picture of the net revenue generated by a program it still tends to overstate program revenue and thus overestimate program financial viability. Tuition remission and tuition waivers should also be taken into account. Individuals who receive tuition remission are enrolled in courses and thus generate SCHs; however, they don't pay tuition. Consequently, the inclusion of the SCHs that are generated by students with tuition remission causes program revenue to be overstated. This effect can be corrected as shown in equation (3) below.

$$RANPR = (TSCH - RSCH)(T)(1\text{-}DR) \qquad (3)$$

Where:

RANPR = Remission adjusted net program revenue

TSCH = Total student credit hours generated by the program

RSCH = Total student credit hours generated by students in the program who have received tuition remission

T = Per-credit-hour tuition rate

DR = Institutional average tuition discount rate

The final revenue issue is how to estimate program revenue when students receive tuition and fee as partial or full compensation for services that they render to the HEI. These students include graduate students who receive tuition and fee waivers in exchange for their service as instructors or assistant coaches. Often these students receive a compensation package that includes below-market compensation and a tuition and fee waiver.

The compensation paid should be recorded as a direct program expense to the program receiving the student's services. On the other hand, the SCHs and thus program revenue should be assigned to the same program. This is consistent with the matching principle, a key financial accounting principle, which requires that revenue and related expenses be recognized in the same accounting period and within the same accounting entity. The effect matching, in this case, is to increase both program revenue and program direct costs by the same amount in the program or department where the students is working. This ensures that the revenues and the direct costs offset each other so that the program contribution margin is unaffected by the tuition waiver.

This is shown below in Table 2 where a student receives a $20,000 tuition waiver. Note that when the revenue increase is offset by a corresponding increase in program direct costs the program contribution margins, without and with the tuition waiver, are constant.

Table 2
Program Contribution Margin Without and With a Tuition Waiver

	Program Without Tuition and Fee Waiver	*Program With Tuition and Fee Waiver*
Revenue (SCH allocation)	$ 1,000,000	$ 1,020,000
Program Direct Costs	(500,000)	(520,000)
Program Contribution	500,000	500,000

Program break-even analysis is another tool for assessing the financial viability of an academic program. The break-even point is the point where program revenue is equal to program direct costs. The number of SCH to break even can be computed as:

$BEP_{SCH} =$

$$\frac{Total\ Direct\ Fixed\ Costs}{Tuition\ Per\ Credit\ Hour - Variable\ Costs\ Per\ Credit\ Hour}$$
(4)

Program direct fixed costs are those costs that do not change, at least over the short-term, with changes in program SCH generation. Full-time faculty salaries are an example of a program direct fixed cost. Allocated fixed costs are fixed costs incurred outside the program and assigned to the program using a systemic and rational allocation rate. Program variable costs are those direct costs that increase directly and proportionally with changes in SCH generation. Copier usage costs are an easy-to-identify program variable cost. When the number of SCHs generated by a program increases faculty members make more copies for their classes and copier usage increases. Note that per-credit-hour tuition should be the tuition discounted per-credit-hour tuition rate as discussed above.

When a program is generating SCHs below its SCH break-even point it is not generating sufficient revenue to cover its direct fixed and variable costs. When this happens the program becomes a drain on institutional resources.

Program Demand

Several factors affect the demand for an academic program. Perceived student interest is the primary indicator of demand for an academic program. This interest is usually measured by the number of majors and minors in a program and enrollment trend over time. SCH generation caused by enrollment in general education courses is an artificial and misleading measure of program demand because students are required to take a certain number of general education courses and thus the demand is caused by institutional policy and not authentic demand. A low and declining number of majors is usually a red flag that interest in a program is waning. This decline may be caused by a number of factors including market size and market demand trend.

Market Demand – The demand for a program, at the local or regional level can be assessed through job placement data. A key measure is the percentage of program graduates employed in their field within a stated time period of gradation (at graduation, within three months of graduation, within 6 months of graduation). The placement trend over time will indicate whether external market demand for program graduates is increasing or declining.

Market Size – Market size statistics can be misleading and incomplete data are often presented by interested faculty members and administrators to justify the addition of a new major. For example, the demand for orthotistis and prosthetists is expected to grow at 22 percent between 2016 and 2026 (U.S. Department of Labor, 2018). Taken alone that demand increase is above the national average and should identify a market worth exploiting. However, in 2016 the U.S. Department of Labor estimated that only 7,800 individuals were employed in the field and thus the 22 percent, ten-year demand increase only translated into about 1,700 new jobs over a ten year period, or about 170 new jobs nationally per year. The National Commission on Orthotics and Prosthetics Education lists 13 accredited programs in the United States (NCOPE, 2018). Given the USDOE demand estimate, if each program graduates about 13 students per year the growth in demand will be covered. The insertion of another program into this small market is likely to reduce SCHs at all the graduate programs and may not attract enough students to make the new program viable. As a rule of thumb, it's better to capture a small percentage of a large, growing market than a large percentage of a small, stagnant or declining market.

Institutional Strategy and Priorities

Institutional priorities and strategies change over time. As the mission or strategy of an institution changes it must be able to modify its portfolio of academic offerings to maintain congruence between institutional offerings, and priorities and strategies. Higher education has been described by some as the one institution in the Western world that has successfully fought off change for over 500 years. In the biological world species that are not able to adapt to environmental changes go extinct. Clinging tenaciously to structures and programs that were successful in the past does not ensure institutional success in the future, in a future that is rapidly changing. For example, a forward-thinking HEI should be deeply involved in the analysis of the potential effects of autonomous technology and artificial intelligence on the intellectual and job skills that college graduates will need in both the near term and the long term. That should lead to an assessment of program and curriculum changes that need to be made to respond to the changing environment. As Albert Einstein is reported to have said, "Insanity is doing the same thing over and over again and expecting different results." HEI that persist in doing what they have always done simply because that is what they have always done are prime examples of Einstein's definition of insanity.

Program Elimination Strategies

The Change Process

The only thing that is certain in a changing world is that change is inevitable. It thus seems inevitable that most HEI will eventually face the issue of program evaluation and potential program elimination. When the issue arises, either due to planned change or as a response to a fiscal crisis the HEI will need to develop a response mechanism. One approach is to invent a process on the fly, an ad-hoc process. The other approach is to develop a formalized program evaluation and program continuation or elimination decision process with clearly defined processes and decision making authority.

A formalized process should define what objective and verifiable information will be used to evaluate the program. That information might include the following:

- Program revenue
- Program direct costs
- Program share of allocated costs
- Program contribution margin
- Current program demand
- Estimate of future program demand
- Market demand for graduates
- Market size and projected changes in market size
- The importance of the program to the institutional mission, priorities, and long-term strategic plan
    - The effect of program elimination on out-of-program SCH generation

Pre-planned Elimination

An ongoing and in-depth environmental scan should identify potential program issues long before crisis management is necessary. This should give an institution time to develop a

thoughtful and low-risk program elimination strategy when necessary. Unfortunately, this seldom happens because environmental scans are not sufficiently in-depth, or because program elimination is a difficult discussion, one best left alone until absolutely necessary.

Immediate Elimination

The immediate elimination of a program is only a graceful strategy when a program is not generating SCHs through majors or minors and ancillary SCH generation is not material or institutionally important. In this rare case, a program can be eliminated with minimal negative effects on the institution.

Teach-Out

Program teach-out is the traditional approach to program elimination. A teach-out ensures that students enrolled in the program have time to complete their studies and graduate. It also gives the institution sufficient time to reassign faculty and staff members if they can be productively used in other programs, and it also gives faculty members time to search for positions at other institutions. While painful, a program teach-out is at least graceful.

Harvesting

Program harvesting is the gradual elimination of a program through the elimination to faculty by means of attrition and retirement. This approach also requires that a program be closed so that new students don't continue to enroll in the program. This approach is often the least painful from an institutional perspective. However, the process can be slow if time-to-retirement for faculty members is distant. It also requires discipline and a long-range focus because when a faculty member leaves or retires there is usually an immediate effort by the affected department to replace the faculty member to maintain the budget line and thus keep the program afloat.

Barriers to Program Elimination

In a competitive market, the withdrawal of a product from the market should be swift when the return on investment on the product falls below expectations. In HEI this occurs when the direct costs of maintaining a program fall short of the revenue generated by the program. This means that the academic program is not self-supporting and must be subsidized by other programs that have higher student demand or more favorable revenue to direct cost ratios. The decision to carry programs with low or negative returns is economically viable only when the HEI has the financial resources to carry the under-performing program, and when it has no better ways to use the funds currently than by subsidizing the underperforming program.

In practice, however, rapid program elimination is the exception and not the rule in higher education. There are a number of reasons for this. First, there is a perception within most HEI that they need to offer a full catalog of academic programs. This is especially true in liberal arts colleges because the liberal arts form the historical foundation of higher education. However, this risks turning into a situation where faculty fight to maintain programs in areas where there is low or very limited student demand, in essence, they are fighting to maintain what is now a historical anachronism.

Internal dynamics in an HEI may impede program elimination decisions. Internal dynamics include institutional politics, job protection, and stakeholder relations (Resnick, 1998). Faculty members are often reluctant to eliminate a program when that elimination may

result in a colleague's loss of employment. In some HEI this tendency is so strong that, along with the perceived need to maintain a full catalog of academic offerings, a low or no demand program isn't eliminate when a faculty member retires. Rather faculty members argue because a faculty line exists in the budget a new faculty member must be hired.

Graduates of a once viable program often lobby HEI administration to maintain a low demand program simply because they graduated from that program in the past.

Another barrier to program elimination is the length of time that a program has been part of the program offerings of an HEI. The length of time that an HEI has offered an academic program is, from an economic standpoint, a sunk cost. Sunk costs are costs that were incurred in the past, and because they are past costs they can't be changed in the present and thus should be irrelevant in current decision making. While not representative of rational economic decision making, the inclusion of sunk costs in decision making is a normal human tendency. Administration and faculty look at the time, effort and money that has been spent on a program and think that those past expenditures have to pay off and that if the program is given a little more time then it will turn around. However, past performance is the best indicator of future performance and programs that are no longer viable and that haven't turned around in the past are not likely to turn around in the future.

Conclusion – Agile Administration

Institutions can take one of two postures when faced with changes that threaten their very existence. One is retrenchment; the other is rapid, agile change. Institutions that respond to threats with retrenchment usually add layers of bureaucracy while proliferating procedures, approvals, and forms. This is done under the guise of "improving" institutional governance while it really is symptomatic of a desire to protect the institution and its decision-makers in a difficult and challenging environment.

The other approach is for an institution to become more agile. This requires that decision process be streamlined and that decisions be made quickly. This, in turn, requires trust, competence, and an institutional willingness to be wrong once in a while. Biology has demonstrated that it's not the species who have resisted change but the ones that have adapted to environmental stress that survive and thrive. The same is true with HEIs.

Which organization is more likely to survive a storm? A small institution, one the size of a speed boat that is navigating stormy sea with the speed and agility of a cruise ship, or a cruise ship in the same stormy sea, that moves with the agility and control of a speed boat?

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