A Note on Cost/Benefit Analysis of Academic Programs

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Developing, implementing, and managing academic programs is the most important activity any University engages in. The process involves three distinct but related types of decisions:

1. Strategic decisions. What programs should we offer, and what priority should programs have for resources? Strategy decisions require deciding
   1. What programs are most consistent with the University’s strategic vision, mission, and core values?
   2. What programs are most attractive to stakeholders, such as students, employers, state federal governments, and private donors?
   3. What programs are most consistent with our core competencies, resources, and capabilities?
   4. What programs do the best job of targeting attractive opportunities?
2. Quality decisions. What is the current status of a program and what can be done to continuously improve quality related processes and outcomes?
3. Investment decisions. Do the benefits of a program exceed its costs?

All of these are unique decisions, requiring unique evaluation methods and processes.

In any of these decisions someone has to decide what values will be used to conduct the analysis. As I pointed out in my earlier email, this is complicated by the fact that there is no universal definition of value. Value is defined by the specific stakeholders of a specific organization. Even if one assumes some general agreement on valued outcomes, most people would agree higher education has a dual mission – career preparation and preparation for a life of meaning and purpose as a competent, thoughtful citizen in a democracy that practices self-government. This is not a new dilemma. Thomas Jefferson, the founder of the University of Virginia, said

"The objects of... primary education [which] determine its character and limits [are]: To give to every citizen the information he needs for the transaction of his own business; to enable him to calculate for himself, and to express and preserve his ideas, his contracts and accounts in writing; to improve, by reading, his morals and faculties; to understand his duties to his neighbors and country, and to discharge with competence the functions confided to him by either; to know his rights; to exercise with order and justice those he retains, to choose with discretion the fiduciary of those he delegates; and to notice their conduct with diligence, with candor and judgment; and in general, to observe with intelligence and faithfulness all the social relations under which he shall be placed."—Thomas Jefferson: Report for University of Virginia, 1818.

Although he clearly understood the role of education in career preparation, he also clearly understood the importance of education in maintaining a citizenry capable of self-governance. In a 1786 letter to George Wythe he remarked that "the most important bill in our whole code, is that for the diffusion of knowledge among the people." He believed that "no other sure foundation can be devised for the preservation of freedom and happiness." Thomas Jefferson to George Wythe, 1786. ME 5:396. As he explained in his report to his Board of Visitors

"We fondly hope that the instruction which may flow from this institution, kindly cherished, by advancing the minds of our youth with the growing science of the times, and elevating the views of our citizens generally to the practice of the social duties and the functions of self-government, may ensure to our country the reputation, the safety and prosperity, and all the other blessings which experience proves to result from the cultivation and improvement of the general mind." Thomas Jefferson, Virginia Board of Visitors Minutes (1821), ME 19:407

He also cautioned about the perils of narrowly focused vocational education.

"I am not fully informed of the practices at Harvard, but there is one from which we shall certainly vary, although it has been copied, I believe, by nearly every college and academy in the United States. That is, the holding the students all to one prescribed course of reading, and disallowing exclusive application to those branches only which are to qualify them for the particular vocations to which they are destined. We shall, on the contrary, allow them uncontrolled choice in the lectures they shall choose to attend, and require elementary qualification only, and sufficient age."—Thomas Jefferson to George Ticknor, 1823. ME 15:455

This philosophy can still be seen at UVA today. For example, they do not have business majors, they just have a business degree. Students can choose from a wide variety of courses to form their own unofficial major.

A more recent example of how this dilemma continues to plague those who would evaluate Universities or academic programs is exemplified in the article I referenced in my email prior to the last board meeting, *How to Measure a College’s Value* - NYTimes.com (<http://mobile.nytimes.com/2015/09/13/opinion/sunday/frank-bruni-how-to-measure-a-colleges-value.html?mwrsm=Facebook&_r=1&referrer=>)

They identify several factors that have to be considered when measuring the value of a college or academic program. These are graduates’ professed engagement in their employment and, separately, their assessments of their own well-being, as determined by their reported satisfaction with five dimensions of life: their relationships, their physical health, their community, their economic situation and their sense of purpose.

Dunn and Sullins (Journal of Education Finance 8 (summer, 1982), 20-52) identify five problems that arise when cost-benefit analysis is applied to higher education. They are (1) selecting the productivity index to use with a cost-benefit analysis, (2) determining the discount rate to be used in the analysis, (3) identifying and measuring the costs of higher education, (4) identifying and measuring the benefits of higher education, and (5) defining the time horizon for investments. Identifying and measuring the benefits and identifying and measuring the costs are particularly problematic and important.

They point out a number of problems with measuring benefits. One problem arises because there are two types of benefits – returns to the individual and returns to society in general. For example, in many occupations, such as education, health care and social work, the individual financial returns (salary) are often very low while the returns to society are very high. There are also difficulties related to time, what is more important starting salaries or lifetime earnings? The ability to get a high paying entry level job or the flexibility to adapt to changing employment opportunities? It is also difficult to separate factors, such as a major, from other factors that influence outcomes such as social class.

There are similar issues on the costs side. It is easy to measure the direct individual costs, such as tuition and fees, it is much more difficult to measure the total costs. If you only consider direct costs, such as faculty salaries, but ignore asset costs you can reach very misleading conclusions. For example, what if two programs have the same revenues and direct costs but one only requires a minimum investment in assets while the other requires several million in assets? It is also difficult to decide how much if any, public or private funding should be included in the cost.

Value can be defined as the benefit relative to the cost. However, in education, when we look at the ratio of benefits to cost, should be look at public benefits relative to public costs, private benefits relative to private costs, or total benefits relative to total costs? The question of economic value vs social value, both to the individual and to society as a whole makes the use of simplistic measures not only difficult, but dangerous.