A Social Utility Index: Developing a Method to Measure Noneconomic Occupational Returns for College Graduates

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In current higher education policy discussions, a great deal of attention is being paid to the employment outcomes of recent college graduates. Headlines ask “is college worth it?” The US Department of Education’s College Scorecard encourages users to compare colleges based on former students’ income. At many institutions, graduates’ earnings are used to inform decisions about which academic programs should remain open and which should be closed.

In each of these instances, the standard being applied is almost always economic: how many graduates are employed? How much money do they make? Certainly wage and employment rates are useful for planning and accountability, and provide important consumer information. There are, however, occupations that provide individual fulfillment or serve important community needs without being well-paid. Can these qualitative returns be measured at the college and program level?

This article focuses on a preliminary effort to quantitatively distinguish—among low-paying fields of study—those that have high levels of social value versus those that do not. Researchers at the Kentucky Community and Technical College System (KCTCS) recently developed a “Social Utility Index” that seems to be a promising start.

**Rating Degrees by Economic Outcomes**

The dramatic focus on employment and wage outcomes for graduates of particular postsecondary programs is a recent development. For decades, it was generally assumed that getting a college education—any college education—was the ticket to a better life. Statistics on earnings still bear this out: individuals with a college credential are less likely to be unemployed and earn higher wages than those without (Bureau of Labor Statistics, 2015). Since the Great Recession the nation and more than half of the states have set ambitious goals for college completion among working-aged adults based on the assumption that increased educational attainment would bolster national and state economies.

More recently the policy conversation has shifted from a call for “more credentials,” to a focus on the types of credentials that are being produced and their link to economic returns. Among the factors that have contributed to this shift are a mismatch between skills and job openings during the Great Recession, declining state resources for postsecondary education, and the increased availability of data regarding the employability and wage earnings of college graduates. Postsecondary policymakers and stakeholders are increasingly focused on college credentials that yield high levels of employment and high wages upon graduation.

While overall earnings increase with each level of education, there is significant variation by field of study (Owens & Sawhill, 2013). Certain academic programs and their associated occupations lead to substantially more income upon completion. Less lucrative fields can come under scrutiny for potential closure. The Gainful Employment regulations implemented by the federal government are perhaps the
most well-known example of this effect: certificate programs with insufficient debt-to-earnings ratios face ineligibility to offer federal financial aid. States, systems, and individual institutions are also using employment outcomes in academic program reviews and to make determinations about opening and closing programs.

In 2014, researchers at KCTCS developed a “Program Alignment Tool.” The tool:

- Tied academic programs to occupations.
- Used four types of labor market information (LMI) (traditional LMI from the Bureau of Labor Statistics, real-time LMI from Burning Glass (a service that provides information regarding online job postings), unemployment insurance data matches, and aggregated reports from Economic Modeling Specialists International.
- Scored each occupation on projected wages and growth, earnings of recent graduates, and frequency of job postings.
- Rated existing and potential new academic programs as “very strong,” “strong,” “moderate,” or “weak” in terms of labor market outcomes.

In a context of declining enrollment and constrained budgets, the program alignment tool was designed to assist college presidents and other decision-makers as they made difficult choices about resource allocation. Should a program with unfavorable employment outcomes for students remain open? Or would students and the public be better served if the college redirected human and financial resources to open or expand programs with more positive labor market returns?

Perhaps not surprisingly, the programs most likely to generate strong LMI scores were clustered in health and skilled trade fields. Examples of professions in these fields for which community colleges provide training are nurses, respiratory therapists, industrial mechanics and electronic technicians. As was pointed out in a recent Forbes article, demand for workers nationally in these fields and the concomitant upward pressure on wages is being “driven by the aging baby boomer population and the increasing automation of technology and manufacturing machinery” (Goudreau, 2015).

The fields associated with weak LMI scores present a more complicated picture. While there is significant regional variation, an example of weak scores from a single college includes the following programs:

- Cosmetology
- Drafting
- Child Care Provider
- Liberal Arts
- Criminal Justice
- Social Work
- Carpentry
- Electrician

There are diverse explanations for occupations’ appearance on this list. Electricians have high levels of self-employment and are less likely to be found in unemployment insurance matches; many carpenters work in construction where jobs are less likely to be posted online; and liberal arts programs at community colleges are geared toward transfer and not strongly associated with a particular occupation.

A comparison between two other programs on the list—cosmetology and childcare—demonstrates the need to include non-economic factors in analyses of employment outcomes. At KCTCS, these programs have similar, very low LMI scores, but the value they provide to communities, their social utility, is very different. One of the authors of this piece often uses the childcare versus cosmetology example during presentations as a way to introduce the concept. Typical audiences quickly reach a consensus that quality childcare programs are vital to communities and that childcare programs have more social utility than cosmetology programs. Although it could be argued that all occupations and all academic programs have social utility, what if there were a way to measure social utility, to measure noneconomic occupational returns to the individual and society?

Wage and employment outcomes are key metrics for college graduates, but they are not exhaustive. With so much attention being paid to college completion in particular fields of study, the postsecondary policy community sometimes fails to acknowledge that students make choices about their college major, and these choices may lead to professions that are perceived to have high levels of societal value but yield low earnings. Early childhood education, social work, and (in many states) primary and secondary teaching fall into this category. Our hope is that as state resources remain

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**Linking Programs and Social Utility**

There are, of course, fairly well established ways to measure the societal benefits of increased educational attainment. College-educated adults are more likely to vote, volunteer, and exercise. They are less likely to smoke, have lower rates of obesity, and are less likely to be incarcerated (Baum, et al, 2013; Wolfe, 2003). These are inarguably social goods, but the data used to measure these effects are population statistics. They cannot be used to assess the benefits that accrue to a community from a particular credential from a particular postsecondary institution or program.

It was a desire to tie these considerations to specific academic programs that led to the development of a social utility index. KCTCS’s existing metrics focused on high-wage and high-demand occupations, but did not identify occupations that provided value to the community not reflected in occupational wages. In the absence of a definitive list of “meaningful” occupations, KCTCS developed five indicators as components of the index.

First, we determined that the occupations that could be widely construed as having social utility or community value not captured by existing metrics fell into three broad areas: human service, public safety, and environmental occupations. To identify occupations which fell into these areas, we turned to the US Department of Labor’s Occupational Information Network (O*NET) program. O*NET uses the “knowledge, skills and abilities” required for occupations to categorize them into career pathways, groups of associated occupations. The following pathways were assigned points in the social utility model:

- Correction Services
- Counseling and Mental Health Services
- Diagnostic Services
- Early Childhood Development and Services
- Emergency and Fire Management Services
- Environmental Service Systems
- Family and Community Services
- Health Informatics
- Law Enforcement Services
- Security and Protective Services
- Therapeutic Services

These are, broadly construed, “caretaking” occupations, careers in which workers provide service to others or to their communities.

Second, in addition to community value we sought to recognize how much personal value incumbent workers assigned to the occupation. Payscale—a for-profit source of information on salary and benefits—publishes an annual list of “the most and least meaningful jobs.” In 2014, Payscale reported on how job meaning compared for 453 occupations by calculating the percentage of incumbents who answered “very much so” or “yes” to the question, “Does your work make the world a better place?” Occupations most likely to report high meaning were clergy, surgeons, and radiation therapists. Production occupations, installers, and sales workers were least likely to assign high meaning to their occupation (Payscale, 2014). To compute the social utility index, points were assigned on a sliding scale to occupations based on the percentage of respondents that indicated high meaning.

Third, we sought to recognize how important an occupation was to a given college region. The location quotient (LQ) is a valuable way of quantifying how concentrated a particular industry or occupation is in a region as compared to the nation. If an occupation has a LQ of 1, it has the same share of employment as the nation. Scores greater than 1 indicate a higher than average concentration of that occupation in the geographic region, suggesting that the occupation is of special value to the local community. High LQ occupations in Kentucky include occupations related to coal mining, distilling, and—perhaps surprisingly—refrigerator and freezer manufacturing (General Electric has a large manufacturing facility in Kentucky). Low LQ industries in the state include media agencies, commodity dealing, and apparel manufacturing. Occupations received a point if they had a LQ greater than or equal to 3.5, meaning the occupation was at least 3.5 times as concentrated in the local college area as the national average.

Fourth, because the Social Utility Index was intended to supplement a tool that would be used to make decisions about opening and closing programs, we sought to include safeguards that the tool would not operate at cross-purposes with another KCTCS strategic priority: maintaining a high level of diversity in the student body. Therefore minority-serving academic programs—those that enrolled a higher percentage of under-represented minority students than resided in the local geographic area—received two points. Examples of KCTCS programs with high minority repre-
sentation are criminal justice, radiologic technology, and computer network support. Programs with low minority representation include real estate, HVAC (heating, ventilation, and air conditioning) and electrical technicians. Another issue to consider here—one the current model does not address—is whether and for what reasons under-represented minority enrollment is concentrated in programs associated with low-income occupations.

Similarly, and fifth, the index awards two points to programs that have high levels of “non-traditional” gender enrollment. This factor mirrors a performance metric in the federal Perkins Act, an important source of funding for career and technical education programs. For Perkins accountability purposes, programs associated with occupations that have a high concentration of one gender are encouraged to enroll students of the opposite gender, i.e., women enrolled in welding or machinist programs or men training to become nurses or paralegals.

The Social Utility Index is calculated by scoring occupations on each of these five factors: career pathway, job meaning, location quotient, minority participation, and non-traditional participation. All 840 occupations categorized by the Bureau of Labor Statistics were scored in the initial iteration of the index. The table below indicates the maximum points possible and weight assigned to each metric. Career pathways and job meaning were assigned the most value because we felt that the caretaking aspect of an occupation and incumbent workers’ assessment of job worth were the best indicators of social utility as we understood it. Minority and non-traditional gender representation, because they reflect the academic pipeline as well as the associated occupation, are weighted less heavily than career pathways and job meaning. Location quotient was assigned the least weight because the metric can be a positive or a negative indicator; a highly-concentrated and growing industry is a boon to a local economy, a highly-concentrated but declining industry is an economic drag. Occupations that had a total weighted score of 1.3 out of a possible 2.9 weighted were determined to have social utility. In instances where more than one occupation is associated with an academic program, the highest ranking social utility index is assigned to the program.

The components of the index (career pathways, job meaning, location quotient and minority and gender representation) are readily available and could be easily replicated at other postsecondary institutions.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Maximum Points Possible</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Pathways</td>
<td>4</td>
<td>30%</td>
</tr>
<tr>
<td>Meaning</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Location Quotient</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Minority Representation</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Non-Traditional Representation</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Weighted Score</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

The resulting list of occupations ranked by social utility clearly identifies fields that are of high value to communities and individuals but not highly remunerated. Examples of low LMI/high social utility occupations include:

- Firefighters
- Medical Records Technicians
- Cardiovascular Technicians
- Childcare Workers
- Emergency Medical Technicians
- Home Health Aides

The social utility index has generated considerable attention:

- The index is now included in the KCTCS Program Alignment Tool, providing another important factor for colleges to consider as they evaluate current programs and contemplate opening new ones. Adding the social utility index to the information about earnings and job openings on the KCTCS intranet site allows for a more balanced assessment of programs.
- In August 2015, a synopsis of the social utility work was presented at the State Higher Education Executive Officers Association Higher Education Policy Conference and subsequently highlighted in articles posted on The Chronicle of Higher Education’s and the American Association of Community Colleges’ websites (Kelderman, 2015; Ullman, 2015).
- The level of discussion at the policy conference and spirited commentary in the Chronicle indicate that the concept of developing a more rounded means to measure employment outcomes is a timely one. (Of course not all reactions to the concept are positive. One commentator in the Chronicle deemed it “nonsense,” another called it an effort to “justify more funding [for] the humanities”).

The authors are cognizant that in its current iteration the primary value of the social utility index may be in spurring and deepening conversations about the non-monetary returns to higher education. Important considerations in furthering this work include:

- Assigning employment outcomes, societal or monetary,
to particular academic programs is more easily accomplished at two-year institutions, where programs are generally more closely tied to occupations, than at four-year institutions.

- The components of the index (career pathways, job meaning, location quotient and minority and gender representation) are readily available and could be easily replicated at other postsecondary institutions. These are not necessarily ideal elements; their inclusion in the model was informed in part by the types of information available at the institution and program level. More work should be done to identify other potential sources of information about social utility.
- Similarly, work needs to be done to validate the points and weights assigned to each component of the index.
- A full analysis of the return on investment for an academic program should include information about the cost of the program. Institutional decisions about opening and closing programs depend at least in part on whether the program generates revenue.

The conversation about social utility is timely. Although this work was not intended to address the outcomes of liberal arts programs in particular—as noted above, most liberal arts programs at community colleges are intended to prepare students for further education—it is worth noting that advocates for the liberal arts have begun to urge a more-nuanced view of employment outcomes by field of study. In 2014, the Association of American Colleges and Universities issued a report on employment outcomes for liberal arts students that stressed the importance of long-term rather than immediate employment outcomes (Humphreys & Kelly, 2014). In fall 2015, employment outcomes and field of study became an issue in the presidential race, as both psychology and philosophy programs were criticized by primary candidates for their perceived failure to “pay off” in the labor market (Langley, 2015; “In GOP Debate,” 2015).

The Social Utility Index is a concept that needs to be refined and expanded. We have the data and the will to do it. As stated above, there are clear reasons for postsecondary education policymakers and the public to scrutinize the employment opportunities and wages of college graduates by program of study. However, using the wages of completers as the ultimate test of all academic programs is far too limited and blunt. Some programs that produce graduates for poorly-paid occupations should be closed, while others should be preserved for the benefit of our society. Perhaps one day our society will find a way to reward them with the wages they deserve.

### Resources