Academic Program Return on Investment

Tod Massa
Director, Policy Analytics

STATE COUNCIL OF HIGHER EDUCATION FOR VIRGINIA

Creating a ROI Metric for Productivity

- Most of the existing models we reviewed lack the same level of data that SCHEV has.
- These models make use of national sources like College Scorecard, which are limited in scope
- They also use minimalistic assumptions, such zero growth in wages

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Our Data

- Virginia graduates from 1992-93
- Student financial aid data from 1992-93
- Student course data from 1993-94
- Virginia quarterly wage data from 1998

Methodology

- Using the 2018-19 five-year graduate cohort which consists of graduates from that year and the four prior years (our standard for program-level reporting of outcomes)
- Inflation-adjusted wage data to 2023 equivalents (the most recent wages we have)
- Developed linear regression model of wage growth by CIP Family (2-digit CIP* code)

- *Classification of Instructional Programs, a federal taxonomy of college programs of study (majors)*

Methodology (continued)

- Developed a table of coefficients from the linear regression model
- Calculated the time-to-degree for each graduate
- Calculated the total budgeted Cost of Attendance for each year of enrollment and subtracted all gift aid (grants and scholarships)
- Total student loan debt had already been calculated
- Calculated 40-year sum of earnings for someone with only a HS diploma, using the same regression model on ACS earnings data.

Return on Investment Measure

(sum of college graduate's wages)
– (total net cost of attendance + student loans)
– (sum of high school graduate's wages: $ 1,741,340)
_____   x 100%

(total net cost of attendance)

Everything Following is **DRAFT**

- We are still refining the model
- I have identified one issue so far to be addressed
- Your feedback is important

The Coefficients

- Can be expressed as a percentage or the slope (change in dollars per year)
- The lowest values was CIP Family 29. Military Technologies and Applied Sciences: 1.00000 and $0
- The highest 36. Leisure and Recreational Activities 1.130141 and $2,626 per year
- Both are areas not offered at public institutions at the bachelor's level and benefit/suffer from small numbers

Results

- Contrary to my initial report to the Provosts, we found 71 of 584 (12%) programs to have a negative return on investment
- 46 programs are in studio arts, performing arts, and area studies
- 11 programs with a negative ROI and 40 with positive ROI, are too small to be published, or considered representative

Examples – Most Negative ROI

CIP Title	Grads (n)	% w/ Wages	ROI	Proj. Total Earnings	Wages 4-years post-completion
Drama and Dramatics/Theatre Arts, General (50.0501)	72	51%	-814%	$ 1,194,028	$ 25,846
Drama and Dramatics/Theatre Arts, General(50.0501)	100	38%	-771%	$ 1,094,400	$ 25,770
Visual and Performing Arts, General (50.0101)	86	35%	-515%	$ 1,144,175	$ 27,830
Drama and Dramatics/Theatre Arts, General(50.0501)	85	26%	-509%	$ 1,308,114	$ 30,959
Dance, General (50.0301)	80	21%	-489%	$ 1,300,570	$ 31,041

Examples – Most Positive ROI

CIP Title	Grads (n)	% w/ Wages	ROI	Proj. Total Earnings	Wages 4-years post-completion
Critical Infrastructure Protection (43.0303)	64	59%	4341%	$ 5,174,565	$ 140,393
Management Sciences and Quantitative Methods, Other (52.1399)	348	22%	4453%	$ 4,956,343	$ 123,910
Computer Science (11.0701)	49	53%	4509%	$ 3,269,097	$ 73,296
Computer Engineering, General (14.0901)	237	36%	4894%	$ 5,434,792	$ 133,693
Computer and Information Sciences, General (11.0101)	682	36%	5567%	$ 5,514,300	$ 137,945

Next Steps

- Continued review of the model to ensure it is counting all graduates possible and the measured variables are correct
- Evaluate its impact on productivity review – are small programs more at risk and does it add value?
- Explore the impact on graduate programs

Questions We Have so Far

- Is the model easily understandable and acceptable?
- Given the roles that location/cost-of-living play in wages, will programs needed in rural communities be disadvantaged?
- Is there tolerable variance between institutions more out-of-state students and those serving more Virginia students?