Estimating Social Return on Investment for a portfolio of programs with missing inputs: Challenges and Innovations

This paper will present an approach for estimating the social return on investment (SROI) for a large portfolio of non-profit education program investments, only a small proportion for which direct assessment of program impacts exist.

Since 2008, a large national foundation has invested over $500 million in more than 3000 education programs nationwide. With regard to those programs we propose strategies to address the question, **How can one develop credible SROI estimates for the entire portfolio based on limited data for a subset of social benefits and of the programs involved?**

Answering this question may be of concern for many funders: over 1,000 U.S. non-profit foundations were identified as providing education grants totaling over $4 billion in 2012 (Bellwether Education Partners, 2016). It is quite common for national foundations to fund a spectrum of programs, with minimal requirements for annual reporting and rigorous impact evaluation.

Recently, approaches to conducting benefit-cost calculations have received much attention in the education literature (Levin, et al., 2018). This work, appropriately, has focused on methods for linking cost collection to direct outcomes assessment. The SROI approach we develop here incorporates elements of cost-benefit analysis and important concepts from the Levin et al. frameworks and others (Krlev, Münscher & Mülbert, 2013) such as the use of *shadow pricing*. However we must employ more inference due to the scarcity of primary data necessary for calculations of long-term returns.

Data for Estimating SROI:

For each of the 3000+ education programs, the following is known about each program:

- the **number of participant**s,
- **their demographic characteristics**,
- the **intervention model and intended outcomes**,
- the **period the program was funded**, and
- the **amount of the funder's investment in dollars (but not total program cost)**.

Critical information however is missing to conduct a standard benefit-cost calculation, including:

- the **impact of the program (e.g. effect size);**
- the **total cost of the program**;
- and the **social/economic benefit per participant**.

This paper develops an approach for substituting for these missing data with secondary data, with a strategy for validating the secondary approach for estimating impacts using multiple methods.

Classification of Programs by Intended Outcome

Clearly, developing individual impact-benefit models for 3000+ programs is not feasible. To reduce the problem space, programs have been classified into three channels based on their primary intended outcomes: *High School Success* (focused on high-school graduation), *College Readiness, Access, and Retention* (focused on college preparation and post-secondary access and retention milestones), and *Workforce Development* (focused on workplace skills, internships and job acquisition). We then plan to apply the best evidence representative of programs in each of these channels.

Secondary Data Approaches:

The concept of using secondary data to substitute for missing cost information in the Levin et al. (2018) benefit-cost approach is termed *shadow pricing.* For example, if the local labor cost of teachers is unavailable, one might substitute a known cost from a similar school district, or the national median.

As we are attempting to estimate SROI in a context of missing impact and long-term benefit inputs, we must introduce parallel concepts of *shadow-impacts* and *shadow-benefits*. Shadow-impacts refers to the use of the best available impact estimates for similar programs and populations from the research literature, the best source of which might be derived from meta-analyses. Shadow-benefits refers to the use of best available value of long-term benefits, measured in dollars, for similar types of programs and populations.

As data are unavailable for both, we aim to develop a channel-average impact (from a review of meta-analyses) for a prototypical well-run programs seeking to achieve each outcome. For *shadow benefits and prices* we borrowed from models developed by the Washington State Institute for Public Policy (WSIPP, 2019) for a representative sample of programs placed in each of the three channels, as well as from other peer-reviewed sources.

Validation of Shadow Impacts through Multiple Methods

We review a proposed multi-method approach to using and validating secondary impact estimates. For a subset of programs for two years (2017-18 and 2018-19) three methods of estimating impacts are available: (1) quasi-experimental (QED) impacts directly measured, (2) self-estimated impacts on students made by program directors, and (3) literature-based (shadow) estimates. For a longer period of six years (2014-2019), QED and literature-based estimates are available.

Through a comparison of the QED and literature approaches for six years, we can test the validity of using literature-based impact estimates across all the funded years and possibly into

the future. This comparison may allow us to develop a literature adjustment ratio, to apply to literature-based estimates for future programs.

Recently, the use of self-reported impacts has been explored as an alternative to direct assessment of program impacts. This work however has surveyed program participants. In the current project, program directors were surveyed on their perceptions of their program's impacts on students. We present an approach to validating self-reported impacts against QED-derived impacts. Should self-reports have substantial validity, they may be able to serve as a proxy with adjustment. This study may provide a basis for developing a self-report adjustment ratio to apply to future self-reported impacts.

Self-reported impacts, QED impacts, and literature-based impacts will be compared and contrasted to determine under what conditions they may or may not agree.

Summary and Conclusion

This paper develops an approach to estimating and validating SROI for a portfolio of education intervention programs, in situations where substantial information required is not available through primary collection. Through the use of *shadow estimates of impact, benefits and cost*, we have developed an estimation and validation procedure that, while based on many assumptions, provides an initial SROI estimate more useful than having no estimate at all. A foundation might use this approach to develop their own SROI models for different types of programs and use the results to make different funding allocations across portfolios in the future.

References

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