



# Social Returns on Investment for doctor of philosophy program in educational measurement and evaluation

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## Abstract

This study aimed to: (1) investigate and develop impact mapping, indicators, financial proxies, and tool used in the measurement of Social Returns on Investment (SROI) and (2) evaluate SROI for Doctor of Philosophy Program in Educational Measurement and Evaluation. Methods: Evaluation research with mixed methods design was conducted. Applying SROI principles, in-depth interview was conducted with the stakeholders in the production of Ph.D. graduates based on theory of change. Indicators of impact were developed, and the financial proxies – the qualitative values created by the program, were assigned to the impact. These values were subsequently calculated to compare with a monetary value of resources invested in undertaking the program's activities to assess the social returns achieved in every baht invested in the production of Ph.D. graduates. SROI analysis was operated using impact values, discount rate and SROI ratio. The data were collected from 102 Ph.D. graduates of Educational Measurement and Evaluation Program, Chulalongkorn University. Findings: (1) Impact Mapping. It was found that the inputs consisted of personal investment and social cost. The activities, output, outcomes, impacts were comprised of 6, 4, 16 and 10 components respectively. There were 27 indicators of impacts, which could be used in developing the financial proxies. The measurement and evaluation tool of SROI for the production of Ph.D. graduates was a questionnaire, which had the appropriate quality. and (2) The SROI was 23.04 which provided an entailing return of 12.07 to their organizations, 3.65 to the government and 7.31 to themselves and their families.

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## Introduction

Curriculum development must aim to produce graduates with academic competence to mobilize the Thai educational system. The Doctor of Philosophy Program in Educational Measurement and Evaluation is important for national development. The program serves well the demand stated in the 12th Higher Education Development Plan, especially in the dimension of

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educational measurement and evaluation, that involves both the formative and summative assessments such as a selection test, to produce trained citizens based on their own aptitude and competence to propel knowledge-based economy afterwards. The program has a part in producing experts in measurement and evaluation theory and practice—those who are skilled manpower needed for the development of national education. In addition, research and academic works in educational measurement and evaluation are produced to steer policy decisions and implementations related to national education in the right directions. Accordingly, breakthrough improvement in Thai higher education is essential so it can be a source of knowledge needed in overcoming challenges and in guiding sustainable development of the country and its localities. Such can be done through focusing on the development of human resources. This is to produce individuals with the following characteristics: capable of working to benefit themselves and society, having integrity and sense of responsibility, and achieving physical and psychological well-being. It also includes facilitating higher education lecturers to be professional lecturers and experts as well as enhancing the teaching profession to be a high-prestige job that involves implementation of knowledge, technology and innovation, and creativity (Sitthisopasakul, 2018).

Perceived educational impact can be categorized into tangible and intangible outcomes. For example, perceived tangible outcomes include higher income, improved educational systems, and higher achievement of children. Perceived intangible outcomes include family happiness, social acceptance, self-esteem, and better well-being. Also, being able to contribute to society is another intangible outcome. These changes are noticeable; however, there is a lack of the measurement of the extent of the changes. Additionally, society lacks measurement of value generated by changes that have occurred. Social Return on Investment (SROI) concept allows the measurement of projects' social impacts possible through translating intangible outcomes into monetary value. It is an approach that enables value assigning to be more scientific and logical. The analysis incorporates economic, social, and environmental value; both monetary and non-monetary value. Assigning monetary value to social impacts in several dimensions – the qualitative variables created by an organization, reflects the tangible benefits obtained from an investment in social activities. Moreover, literature reveals that the development of an instrument and components of the measurement and evaluation of social returns is complicated. Also, the utilization of this type of measurement is insufficient in

the area of educational projects or activities. Thus, SROI concept should be applied in the field of education. Accordingly, the researcher was interested in investigating the measurement and evaluation of SROI for Doctor of Philosophy Program in Educational Measurement and Evaluation because this program has ample manpower and resources and has been taught since 1981 until present (38 years). The PhD program, in particular, has produced graduates who work in every region of the country, and this group of people play vital roles, notably in youth development and human resource development for the country.

## Literature Review

Social Return on Investment (SROI) derives from the concept of return on investment (ROI). ROI is used in financial analysis and provides the investor with an indication of the efficiency of an investment by comparing profits related to capital invested. The underpinning idea is that investments should not only look at what pecuniary value they produce as direct shareholder value, but they should also include a wider range of benefits. SROI is a concept to account for social value when evaluating investments. It goes beyond traditional evaluation tools, by considering value produced for multiple stakeholders in all three dimensions of development: economic, social and environmental. They can identify how effectively a company uses its capital and other resources to create value for the community. SROI is used more to evaluate the general progress of certain developments, showing both the financial and social impact the corporation can have. SROI can be estimated by comparison of the net present value of benefits to the net present value of the resources invested, but it aims to do so by accounting for the whole range of value generated, beyond the narrow microeconomic dimension. The latter is a framework for measuring and accounting for this much broader concept of value; it seeks to reduce inequality and environmental degradation and improve well-being by incorporating social, environmental and economic costs and benefits by focusing on the measurement and creation of financial value created by the organization and return to the community, called Blended Values, which must be valued in monetary values. (Millar & Hall, 2013; Moody, Littlepage, Marron, Paydar, & McCahill, 2013; Nicholls, Lawlor, Neitzert, & Goodspeed, 2012; Rotheroe & Richards, 2007). The New Economy Foundation (2009) adapted approach is designed to be as widely applicable as possible. (The Network SROI, 2014). It focuses on four areas: (1) Stakeholder engagement—Stakeholders'

objectives identified and central to the SROI process, mirroring sustainability reporting; (2) Materiality—Focusing the analysis on those areas determined as important by the stakeholders; (3) Impact map—Using a cause and effect chain from inputs through to outputs, outcomes and impacts, developing a pathway to understand how the organisation enacts change, thereby achieving its mission. Sometimes this relationship between inputs, outputs and outcomes is called a “theory of change” or a “logic model”; (4) Appreciation of deadweight—Calculating the proportion of outcomes that would have occurred regardless of the organisation’s inputs. The result of the SROI is a ratio of monetised social value.

SROI has continued to be used predominantly as a tool to account for social value for charities and the non-profit-making sector. In its present widely accepted understanding, SROI is characterized by a great emphasis placed on stakeholder engagement. Stakeholders are those who experience change, whether positive or negative, as a result of the investment being analysed. It has been pointed out that social investments “create value for different stakeholder groups. The investor might be among them but usually is not the main beneficiary. Thus, the SROI method not only looks for returns generated for the investor, but usually focuses on what social value has been created for other stakeholder groups, including society as a whole”. SROI is still being developed and refined in both the organizational and academic fields, and new guidelines are being issued by organizations and academic research centres. However, there is much more to the story. The technique is designed to present a framework for exploring the social impact of an organisation, combining both quantitative and qualitative approaches. It can therefore be used as the starting point in a debate on the creation of social value. SROI also includes other sphere of benefits such as social, environmental, and cultural values created for diverse stakeholders (Millar & Hall, 2013; Moody et al., 2013; Rotheroe & Richards, 2007; Sabina, Tracy, & Kathryn, 2010).

Therefore, SROI is the measurement that incorporates both monetary and non-monetary value of social impact. It is the approach that measures economic value of social benefits through translating social returns (i.e. qualitative variables created by an organization) into monetized value: discounted monetized measurement of the created social values was conducted; subsequently the values were calculated to compare with the monetary value of resources invested in undertaking activities of the organization to assess the social returns achieved in every

baht invested. (Achavanuntakul & Yamlaor, 2017; Kanjanawasee, 2016; Sitthisopasakul, 2018; The Thailand Development Research Institute, 2012).

## Methodology

This study conducted evaluation research with mixed methods design, applying SROI principles based on the theory of change. The study consisted of three interrelated phases: Phase 1 Qualitative research was conducted to develop impact mapping to do the following: to evaluate changes which resulted from undertaking Doctor of Philosophy Program in Educational Measurement and Evaluation and to develop indicators of impact created by the PhD graduates. Phase 2 Qualitative research was conducted to translate impact values to be measurable monetary value. Also, the measurement and evaluation instrument of SROI for the production of PhD graduates was developed. Phase 3 Quantitative research was conducted to analyze SROI for Doctor of Philosophy Program in Educational Measurement and Evaluation

## Participants

Phase 1 and 2: In-depth interview was conducted with the stakeholders in the production of PhD graduates; 5 PhD program administrators, 3 agencies/institutes where the graduates work/PhD graduate users, 7 PhD graduates and families, 2 representatives from The Office of the Higher Education Commission (OHEC), 1 representative from The Office for National Education Standard and Quality Assessment (ONESQA), and 7 economic experts.

Phase 3: The study population were 102 PhD graduates of Educational Measurement and Evaluation Program at Chulalongkorn University, who completed the degree between 1995–2016. Purposive sampling was conducted because this program has ample manpower and resources and has been taught since 1981 (38 years). These people work in every region of the country and play vital roles, notably in youth development and human resource development in Thailand.

## Data Collection

In-depth interview was conducted with the stakeholders in the production of PhD graduates, to gain information for the development of indicators of impact. Financial proxies – the qualitative values created by the program, were subsequently assigned to the impact. Causality and usefulness of the indicators of impact and financial proxies were validated by 25 experts. The

quantitative data were collected through mailing the questionnaires inquiring about SROI for PhD education.

### *Data Analysis*

The financial proxies, which are the program's impacts, were calculated by completing the following steps: (1) Total the value of benefits of the project by adding up the monetized indicators of impact relevant with the stakeholders. Deadweight, displacement, attribution, and drop-off must be deducted to derive the benefit value; (2) Total the investments by calculating the investment value or any investment made over the project period; subsequently add up all investments; (3) Calculate mean; percentage, impact value, deadweight, attribution and drop-off obtained from the stakeholders; (4) After compiling the data and determining the ratio of deadweight, attribution, and drop-off obtained from the stakeholders, the present value is calculated for SROI analysis based on Thailand annualized discount rate at 3 percent per year (The Thai Bond Market Association [Thai BMA], 2018); and (5) Analyze SROI for the Educational Measurement and Evaluation Program starting from getting a job following graduation until the retirement age at 60. The SROI formula used:  $SROI = \text{present value of the total benefits} / \text{present value of the total investments}$ .

### **Results**

The development of impact mapping and indicators using document analysis and in-depth interview with the stakeholders of the production of PhD graduates based on the theory of change as summarized in impact mapping path entailed: inputs, activities, outputs, outcomes, effects on economics, social, and environment. Inputs were resources invested in the production of PhD graduates, including personal investment and social cost. The activities or procedures of the program were comprised of six components. The output, the results of the program activities were comprised of four components. The outcomes, the benefits/changes undergone by the stakeholders of the project were comprised of 16 components. The impacts, the effects of the stakeholders on economic and environmental or the social impacts of the program were comprised of 10 components. There were 27 indicators for SROI of PhD graduate production from 10 dimensions of impacts (means of accuracy, causality, and usefulness ranged from 0.52–0.84, applying the following criteria: +1 (Agree), 0 (Uncertain), and -1 (Disagree). Results obtained were then used to analyze

index of congruence and validity, and the items with means of 0.50 and over were used for questionnaire development) as illustrated in Figure 1.

Financial proxies for Doctor of Philosophy Program in Educational Measurement and Evaluation: Out of 27 indicators for SROI of PhD graduate production, 26 indicators (means of accuracy, causality, and usefulness ranged from 0.52–0.84) could be used in developing the financial proxies. The results are shown in Table 1.

The development of an instrument is used in the measurement and evaluation of SROI for PhD graduate production to collect data about cost, ROI, and impact values of PhD graduates entering Doctor of Philosophy Program in Educational Measurement and Evaluation. The questionnaire which included both open- and closed-ended questions, consisted of four sections: Section 1-General information consisting of nine items. Section 2-Information about work experience consisting of 12 items involving: work experience, employment status, unemployment status, occupation, monthly income, and side income. Section 3-Information about costs consisting of 10 items involving costs of education such as education service fee, tuition fee, study equipment, expense on clothes, miscellaneous expense, and expense on recreation. Section 4-Information about SROI and questions about impacts other than the production of PhD graduates consisting of 22 items involving financial returns (e.g. monthly income and tax) and social returns that cannot be measured in terms of monetary value. This section involved quantitative questions with assigned financial proxies. The following reliability values were found: section 2 was 0.548; section 3 was 0.618; and section 4, SROI being inquired via quantitative questions with assigned financial proxies was 0.800.

The SROI was 23.04. In case of investment in the production of Ph.D. graduate in Measurement and Evaluation Program, Chulalongkorn University provided a social return of 15.72, entailing a return of 12.07 to their organizations and 3.65 to the government. Meanwhile, these graduates provided a private return of 7.31 to themselves and their families, as illustrated in Table 2.

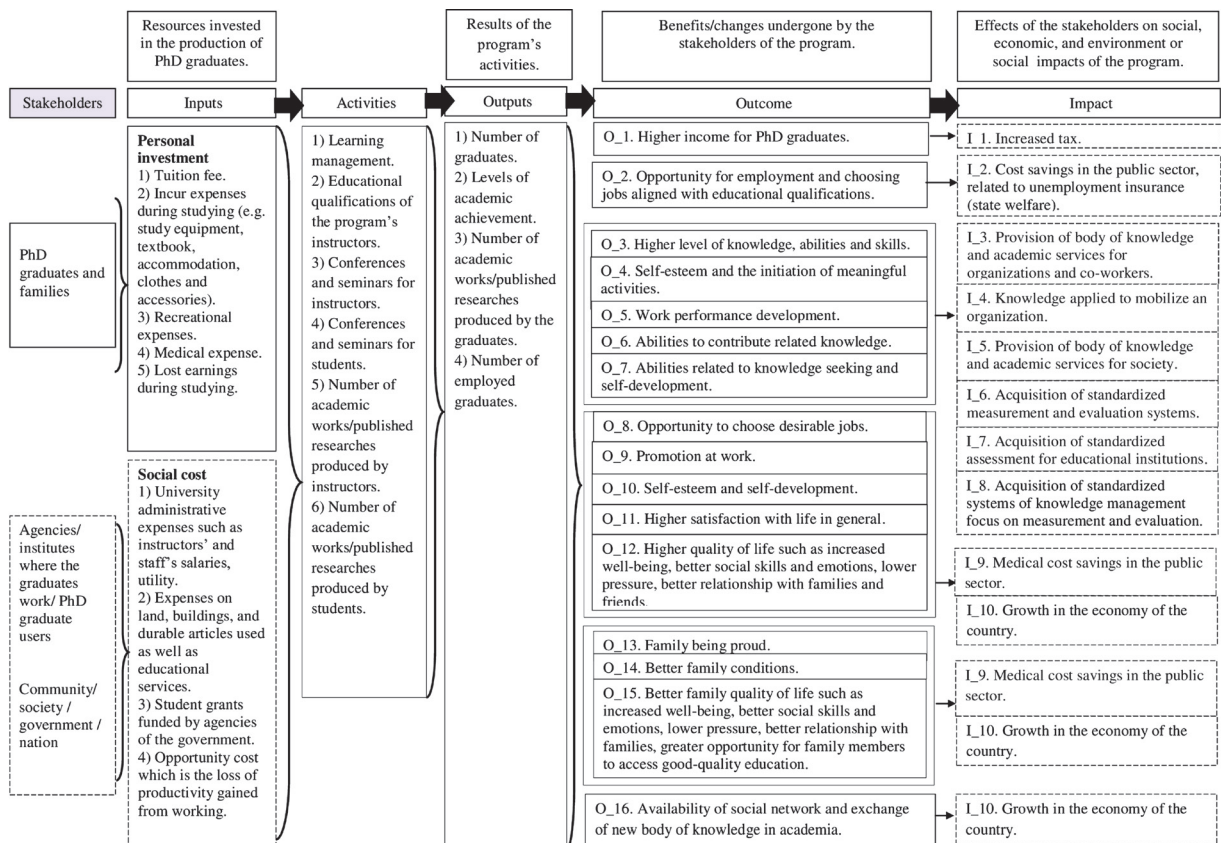
### **Conclusion and Discussion**

Results revealed that the program produces PhD graduates who create higher social returns than private returns for themselves and their families. It is inconsistent with the studies previously conducted in Thailand. This might due to the fact that in this study several domains of social impacts - the qualitative variables created by the program and its PhD graduates, were translated into



monetary value, which reflects the benefits of PhD graduate production in figures by creating tangible financial proxies. Meanwhile, previous studies showed that the investment in education generated higher private benefits whereby only financial benefits were accounted (Kongthong, 2007; Meefuengsart, 1998). Moreover, in Thailand, the study on social returns of education has been conducted continuously by comparing private returns (not including non-monetary benefit and other social returns) with total social cost invested in educational management. This approach obtained higher total costs and did not involve social benefits; thus, the rate of financial social returns was lower than the private returns. In addition, Assessment of Pathways to Education of Boston Consulting Group (2011) discovered that the returns derived from graduation was higher than a program's benefits. The private return on education has typically measured economic benefits in terms of increased income and has not included intangible benefits such as the joy of learning, social status, being able to take charge of one's own health, being good parents, and appreciation of cultural heritage (Punyasavatsut, 2008).

Several economists strongly emphasize non-monetary returns. This is consistent with Psacharopoulos and Patrinos (2002) stating that non-monetary benefit should be included in the calculation of social return to derive true value of social benefits. Also, if non-monetary benefits were included, social benefits may have been much higher than the private benefits. This is in line with the results of this study discovering that PhD graduates generated higher social benefits than the private benefits for themselves and their families. Considering the indicators, the obtained social benefits were similar to those found in Rauscher, Schober and Millner (2012). The measurement of economic impacts of the agencies providing fund for PhD study was conducted performing financial analysis. Results showed that those who graduated were capable of benefitting society in several areas such as health, education, poverty reduction, social and human security, and science and research. Besides, the indicators involved monitoring, social development, knowledge contribution, social capital, and research and innovation.



**Figure 1** Impact Mapping of SROI for Doctor of Philosophy Program in Educational Measurement and Evaluation

**Table 1** Impacts, Indicators, and Financial proxies

Impacts	Indicators	Financial Proxies
I_1) Increased tax	1. Tax.	Tax paid to the government.
I_2) Cost savings in the public sector, related to unemployment insurance (state welfare)	2.1 Percentage of employment as desired. 2.2 Cost savings related to unemployment insurance.	Cost savings related to unemployment insurance (state welfare).
I_3) Provision of body of knowledge and academic services for organizations and co-workers	3.1 Reduction of number of invitations requesting outside experts/lecturers. 3.2 Increase of number of knowledge contributions to people in an organization.	Cost savings related to an organization hiring outside experts. Cost savings related to an organization hiring outside experts.
I_4) Knowledge applied to mobilize an organization	4.1 Number of projects or tasks that reduce organizational costs. 4.2 Number of workloads.	Cost savings related to projects created by PhD graduates for an organization. Cost savings related to PhD graduates handling tasks other than their primary responsibilities.
I_5) Provision of body of knowledge and academic services for society	5.1 Number of invitations to serve as a lecturer for external agencies. 5.2. Number of published research works, academic articles that are practical. 5.3 Number of published textbooks, books.	Expenses, Reduction of travel expenses of attendees of lectures. Cost savings due to the implementation of research works. Expense or copyrights fees.
I_6) Acquisition of standardized measurement and evaluation systems	6.1 Reduction of issues related to national tests. 6.2 Reduction of issues related to employee recruitment in an organization. 6.3 Reduction of issues related to university admission systems. 6.4 Reduction of examination fraud 6.5 Number of projects or activities that reduce costs in test management or the production of exam papers: a decrease in expenses, time.	Cost savings. Cost savings. Cost savings. Cost savings Cost savings.
I_7) Acquisition of standardized assessment for educational institutions	7.1 Increase in the development of test bank management systems. 7.2 Reduction of issues related to school admission systems.	Cost savings related to the development of test bank management systems. Cost savings.
I_8) Acquisition of standardized systems of knowledge management focus on measurement and evaluation	8.1 Increase in a network of measurement and evaluation professionals. 8.2 Achievements in internal organization management (number of projects or tasks that reduce costs in measurement and evaluation procedure such as a decrease of expense, time, and manpower.	Cost savings related to the acquisition of supportive networks for an organization. Cost savings related to internal organization management.
I_9) Medical cost savings in the public sector	9. Reduction of hospital admission rate due to health issue.	Medical cost savings in the public sector.
I_10) Growth in the economy of the country	10.1 Increase in the frequency and time spent on recreation. 10.2 Reduction of debt. 10.3 Increase in savings. 10.4 Increase in small business investment. 10.5 Increase in the frequency of community services. 10.6 Increase in travelling rate to exchange knowledge. 10.7 Increase in the frequency of communication to exchange knowledge.	Expenses on entertainment such as cost of travel, exercise. Expenses on debt. Savings. Capital. Donation, charitable donation. Travel cost to attend a seminar. Communication expenses to exchange knowledge through all channels such as phone, internet, academic conference.

**Table 2** SROI analysis for Doctor of Philosophy Program in Educational Measurement and Evaluation

Stakeholders	Financial Proxy	Benefit (Baht)
Agencies/ institutes where the graduates work/ PhD graduate users	Cost savings related to an organization hiring outside experts	11,970,821.32
	Cost savings related to an organization hiring outside experts, creating knowledge and academic services by PhD graduates for an organization and colleagues	29,575,629.31
	Cost savings related to projects created by PhD graduates for an organization	2,047,361,040.62
	Cost savings related to PhD graduates handling tasks other than their primary responsibilities	72,259,938.77
	Cost savings related to the acquisition of supportive networks for an organization	295,512,401.55
	Cost savings related to projects or tasks that reduce costs in measurement and evaluation procedure such as a decrease of expense, time, and manpower	1,774,482,728.13
Community / society / government / nation	Tax paid to the government	41,586,180.82
	Travel cost to attend a seminar decreased	611,801,959.34
	Cost savings related to national tests	17,870,149.94
	Cost savings related to employee recruitment in an organization	8,503,542.12
	Cost savings related to projects or activities that reduce costs in test management or the production of exam papers: a decrease in expenses, time	540,796,518.84
	Cost savings related to the development of test bank management systems	16,979,875.08
	Cost savings related to school admission systems	24,136,402.45
	Medical cost savings in the public sector	282,487.87
	Expenses on entertainment such as cost of travel, exercise	14,062,049.89
	Expenses on debt	191,477,203.18
	Savings	54,147,106.90
	Capital	14,575,391.14
	Travel cost to attend a seminar.	122,817,908.35
	Communication expenses to exchange knowledge through all channels such as phone, internet, academic conference	18,616,046.98
PhD graduates and families	Returns to investment in education	2,896,074,122.03
Discount Rate		3%
Present value of the total investments		382,223,898.64
Present value of the total benefits in the production of Ph.D. graduate in Measurement and Evaluation Program		8,804,889,504.64
Social Return on Investment (SROI)		23.04

## Recommendations

The results obtained can be applied as guidelines to relevant agencies on making plans or policies of curriculum development offering tangible benefits to society. To further apply the concept of measurement and evaluation of social returns, an analysis of stakeholders (i.e. people affected or being affected by a project) included in an impact pathway should be conducted. This is because each activity or context differs in many aspects. The analysis will assist in identifying appropriate stakeholders and obtaining reliable information.

## Conflict of Interest

There is no conflict of interest.

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