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Beyond the Ratio: The Role of Attribution in Strengthening Social Return on Investment (SROI) Measurement

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ABSTRACT

In recent decades, social investment has increasingly been recognized as a strategic approach to creating measurable social, economic, and environmental value. One of the most widely adopted approaches for evaluating such impacts is the Social Return on Investment (SROI) framework, which integrates the Theory of Change with monetary valuation to estimate the social value generated by an intervention. However, SROI applications often emphasize the resulting ratio while paying limited attention to attribution, a key component that recognizes the contribution of external actors to observed outcomes. Neglecting attribution may lead to overclaiming and undermine the validity of impact measurement. This study explores the application of SROI to a social investment project in the oil and gas sector, with particular emphasis on identifying and estimating attribution. The findings demonstrate that acknowledging attribution not only influences the resulting SROI ratio but also strengthens the credibility and validity of impact interpretation. These results suggest that the robustness of SROI lies not merely in the magnitude of its ratio, but in its ability to accurately represent the program's contribution to the observed changes.

1. Introduction

Interest in evaluating the impacts of development programs, including social investments, has grown alongside increasing demands from both government and private-sector funders for evidence of the success or failure of their social investments [1].

This growing interest is closely related to the nature of development programs, which are generally designed to generate specific changes, such as increasing income, improving learning outcomes, enhancing well-being, or reducing the negative impacts of development activities.

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Therefore, an intervention's success cannot be assessed solely by the resources allocated or activities implemented; it must also be evaluated by the changes it produces. In this context, impact measurement is important not only for assessing the outcomes achieved but also for providing a basis for accountability to stakeholders regarding the social, economic, and environmental benefits generated by an investment and how those benefits were produced [2].

The need to understand these changes has led to the development of various approaches and methodologies for measuring program and social investment impacts. However, the complexity of programs and their implementation contexts makes it difficult to explain impact simply by comparing conditions before and after an intervention. Changes experienced by beneficiaries may also be influenced by factors outside the program and therefore cannot automatically be attributed to the intervention. Impact evaluation must therefore go beyond describing what has changed to examine how the changes occurred and the extent to which they relate to the intervention [3]. This need has encouraged the development of evaluation approaches that consider not only outcomes but also the relationships between interventions, changes, and the factors that influence them.

One approach that has emerged in response is Social Return on Investment (SROI). The Roberts Enterprise Development Fund (REDF), a San Francisco-based philanthropic organization that invests in social welfare organizations, initially introduced the SROI approach. In Indonesia, Bassa and Parikesit explored SROI in academic research through their theses at Trisakti University [4,5].

SROI broadens the understanding of investment value by considering not only financial returns but also the social, economic, and environmental benefits generated by an intervention. This perspective matters because some benefits from organizational activities are not reflected in market mechanisms and therefore cannot be adequately captured through conventional financial measures. SROI seeks to assign value to the changes stakeholders experience as a result of an intervention and compare that value with the resources invested to generate those changes. In this way, SROI provides a framework for linking investment resources with the changes generated and broadening the understanding of investment returns.

However, when SROI is used to estimate the social value generated by an intervention, a fundamental question arises: to what extent can the identified changes be attributed to the intervention? Social value may be influenced by factors such as government policies, interventions by other organizations, economic conditions, household dynamics, and the broader environment. Therefore, change following an intervention is not, by itself, sufficient evidence that the intervention caused it. If all observed changes are claimed as program outcomes, the SROI value may overstate the program's actual impact.

Given this issue, this article examines how social investment impact is measured through the Social Return on Investment (SROI) approach, with particular attention to the position and role of attribution in establishing impact claims. This focus matters because SROI is expected not only to identify and assign value to observed changes, but also to ensure that the values attributed to the intervention reflect changes that can be reasonably and credibly accounted for as results of the intervention.

2. Methodology

This study uses a qualitative approach with a single instrumental case study design to explore measuring social investment impact through the Social Return on Investment (SROI) approach, with particular attention to the position and role of attribution in constructing impact claims. The design was selected to examine not only how the SROI ratio is calculated, but also how changes are

identified, how the relationship between interventions and observed changes is established, and how the contributions of different actors are considered before attributing changes to the program.

The case study approach was selected particularly for companies operating in the oil and gas sector, where social investment involves a complex stakeholder ecosystem. Social investment initiatives in this sector typically involve not only companies and beneficiary communities, but also local governments at different levels, civil society organizations, program implementers, and other actors interested in the outcomes generated by the intervention.

Data were collected through three main methods: in-depth interviews, document analysis, and field observations. Interviews were conducted with stakeholders directly or indirectly involved in program implementation, including company personnel, local government representatives, program implementers, community groups, and beneficiaries. The interviews focused not only on program implementation and observed changes, but also on stakeholders' perceptions of each actor's contribution to those changes. Document analysis examined relevant program documentation, while field observations provided additional evidence on the conditions and changes observed at the program site.

The analysis followed several sequential stages. First, the Theory of Change and impact pathway were reconstructed to identify the relationships between inputs, activities, outputs, outcomes, and the impacts claimed by the program. Second, the study identified the contributions of different actors, interventions, and external factors that could influence the observed outcomes. Third, the study conducted an attribution assessment by examining evidence of observed changes in relation to the contributions of different actors and relevant external factors. Attribution was therefore treated as an analytical process for determining the extent to which observed changes could reasonably be attributed to the intervention, rather than as an arbitrarily assigned percentage at the final stage of the SROI calculation.

The attribution assessment results were then incorporated into the SROI calculation. At this stage, the monetized outcome values were adjusted to account for the contributions of other actors and identified external factors. This process was intended to prevent the program from claiming the full value of the observed changes as its exclusive result. Accordingly, the SROI ratio was treated as the outcome of a sequential process of impact identification, validation, and attribution, rather than as the starting point of the analysis.

Through this design, the study positions attribution as an integral component of SROI measurement rather than merely as a corrective factor applied to the final ratio. The quality of SROI measurement is therefore assessed not only by the magnitude of the resulting ratio, but also by the strength of the supporting evidence, the transparency of the underlying assumptions, and the extent to which the analysis accurately represents the program's contribution to social change within a complex intervention ecosystem.

3. Literature Review

3.1 Impact Evaluation

Impact evaluation has received increasing attention in global development practice as the demand for evidence of program effectiveness continues to grow. Programs are no longer expected merely to show that planned activities have been implemented and outputs achieved; they are increasingly required to provide evidence of the changes resulting from those interventions. This has contributed to a shift from evaluations focused primarily on implementation and outputs toward approaches that examine whether an intervention has produced the intended outcomes. Unlike

general evaluations, impact evaluation focuses specifically on questions of causality, attribution, and the assumptions underlying the process of change.

Causality matters because changes observed among beneficiaries cannot automatically be considered the direct result of a program. External factors, other interventions, and broader social and economic dynamics may occur simultaneously and contribute to the observed outcomes. The central challenge of impact evaluation is therefore to distinguish changes that occur after an intervention from changes that can reasonably be attributed to the intervention itself. Parikesit [5] emphasizes that a key challenge in conducting an effective impact evaluation is identifying the causal relationship between a project, program, or policy and the outcomes being evaluated [5]. In this context, impact evaluation seeks to estimate the changes associated with an intervention and determine the extent to which the intervention contributes to improvements in beneficiaries' well-being.

These causal questions apply to different forms of social investment with varying objectives and intervention characteristics. For example, an evaluation may examine whether the BERBISIK program, implemented by PT Pertamina Patra Niaga Balongan Unit, has contributed to improving livelihood opportunities for young people with disabilities through skills development and participation in the food and beverage sector. Similarly, an evaluation of the Safety Man program may examine whether, beyond improving the skills of individuals living around the operational area, the program has strengthened community awareness and capacity to maintain safety around the refinery and its surrounding area. Such questions demonstrate that impact evaluation goes beyond determining whether a change has occurred; it seeks to establish whether the observed change can reasonably be attributed to the intervention.

The ability to establish stronger causal claims also makes the size and composition of the beneficiary sample important considerations in evaluation design. Where a sufficient number of beneficiaries is included, impact evaluation can be used not only to estimate overall effects but also to compare outcomes across different beneficiary subgroups. Such comparisons can show whether an intervention produces different effects across groups and help identify who benefits, under what conditions, and what factors may facilitate or constrain program effectiveness. In this way, impact evaluation can provide a more nuanced understanding of the mechanisms and contexts through which an intervention generates change.

However, impact evaluation does not follow a single universal design or methodology. The choice of design and methods depends on the intervention's characteristics, the implementation context, data availability, and the specific questions the evaluation seeks to answer. Evaluations may be conducted at particular stages of the program cycle and may incorporate external perspectives, including those of subject matter experts, to provide an independent assessment of program design, implementation, and outcomes. Consequently, the design, methodological approach, resource requirements, and costs of impact evaluation may vary considerably depending on the questions being addressed and the level of evidence required [6].

Impact evaluation is therefore not merely a mechanism for demonstrating program success. Rather, it is a process for examining and substantiating claims of change associated with an intervention. As the demand for credible evidence of impact increases, it becomes increasingly important to clarify the relationship between interventions and observed changes and to distinguish those changes from effects generated by other factors. Within this framework, causality and attribution are central to impact evaluation, providing the basis for more rigorous and accountable approaches to understanding and measuring impact.

3.2 Concepts in Impact Evaluation

The OECD-DAC defines attribution as the ascription of a causal link between observed (or expected to be observed) changes and a specific intervention [7-9]. This definition positions attribution as a fundamental element of impact evaluation because it enables evaluators not only to identify observed changes but also to determine the extent to which those changes can be causally linked to a specific intervention. Therefore, changes cannot automatically be claimed as program impacts simply because they occur after an intervention has been implemented. Rather, such claims require evidence demonstrating a causal relationship between the intervention and the observed changes. Rogers (2014) emphasizes that causal attribution involves understanding the role of a specific intervention in producing change. Accordingly, evaluation should trace causal relationships throughout the causal chain, from inputs and outputs to outcomes and impacts [3]. In this process, a Theory of Change provides a framework for explaining and testing the pathways through which change is expected to occur, including identifying evidence that supports or challenges the hypothesized causal relationships.

This perspective highlights that the relationship between an intervention and its impact is not necessarily linear, singular, or exclusive. Development interventions operate within complex environments in which programs may interact with other interventions, depend on specific enabling conditions, or contribute to impacts that may also be achieved through alternative pathways. Attribution therefore concerns not only whether an intervention contributes to change, but also how the change occurs and how the intervention's contribution can be distinguished from those of other actors, interventions, and contextual factors. Based on this perspective, Rogers (2014) identifies three forms of causal relationships relevant to impact evaluation: sole causal attribution, joint causal attribution, and alternative (or multiple) causal paths [3].

Sole causal attribution refers to a situation in which a program is considered both a necessary and sufficient condition for producing the observed impact, with relatively limited influence from other contextual factors or interventions. Under such conditions, the relationship between the intervention and the observed impact can be established relatively directly because the program is considered the primary cause of the change. However, this form of causal relationship is relatively uncommon in development evaluation, as interventions generally operate within contexts shaped by multiple factors and may coexist with other interventions or pathways that can also contribute to the same change [3].

Joint causal attribution, in contrast, occurs when an outcome results from the combined contributions of the program under evaluation, other interventions, policies, or enabling conditions. The program is therefore not considered the sole cause of change but rather one component within a broader causal configuration. Its effectiveness may depend on supporting factors such as complementary interventions, infrastructure, implementation capacity, or beneficiary characteristics. Where such conditions are absent or create barriers, the expected impact may not be achieved or may occur at a substantially lower level. This form of attribution is common in development settings, where social and economic changes often result from the interaction of multiple interventions and contextual conditions.

Meanwhile, alternative (or multiple) causal paths refer to situations in which different causal pathways may independently or jointly produce the same outcome. In this context, the intervention under evaluation represents one of several possible pathways toward achieving a particular outcome. For example, efforts to reduce stunting may involve multiple interventions, including providing nutritious food, food and health literacy, household livelihood strengthening, improved sanitation and access to clean water, and access to maternal and child health services. These

interventions may operate through different mechanisms while contributing to the same intended outcome. Consequently, evaluation must consider alternative pathways before attributing observed changes to the intervention under assessment.

These three forms of causal relationships demonstrate that attribution in impact evaluation cannot be reduced to a simple relationship between a single intervention and a single outcome. As intervention contexts become more complex, evaluations need to identify the contributions of different actors, interventions, and contextual factors that may simultaneously influence observed changes. This requires not only identifying evidence that is consistent with a causal relationship but also examining alternative explanations for the observed changes [3]. By ruling out alternative explanations, evaluators can systematically identify potential alternative causes and assess whether the available evidence is sufficient to rule them out. Accordingly, a change can reasonably be considered an impact of an intervention only when sufficient evidence links the change to the intervention and a sufficiently strong basis exists to conclude that other factors or interventions better explain it.

3.3 Theory of Change

In identifying and measuring impact, an important first step is to identify or revisit the pathways of change that explain how an intervention is expected to contribute to intended or observed changes. These pathways can be represented through a cause-and-effect chain or a program logic model comprising inputs, outputs, outcomes, and impacts. This process enables evaluators to trace the relationship between the intervention and expected changes while assessing whether empirical evidence supports the hypothesized pathways of change. These hypothesized pathways are generally articulated through a Theory of Change.

A Theory of Change explains how and why an intervention is expected to produce the intended changes or results. It therefore goes beyond describing the sequence of activities and expected results by articulating the causal logic linking the intervention to outcomes and impacts. It also helps evaluators identify the conditions, assumptions, and factors needed for the pathway of change to occur. In impact evaluation, a Theory of Change thus serves a broader purpose than a program planning tool, as it provides a basis for examining the causal relationships underlying impact claims by identifying evidence that supports or challenges the hypothesized relationships.

Ideally, stakeholders develop a Theory of Change during the early stages of program design. This process helps stakeholders develop a shared understanding of the program's objectives, the expected mechanisms of change, and the conditions needed to achieve those objectives. However, for ongoing programs, the Theory of Change can also be reconstructed or revisited based on evidence of how the intervention actually unfolds. Thus, the Theory of Change is not treated as an assumption to be accepted without further examination, but as a hypothesis about causal relationships that must be tested against empirical evidence.

Building on these pathways of change and the Theory of Change, Rogers (2014) identifies three main strategies for establishing causal attribution: (1) counterfactual approaches; (2) consistency of evidence with causal relationships; and (3) ruling out alternative explanations [3]. These strategies differ in their characteristics, strengths, limitations, and suitability depending on the program and the evaluation context. Combining several strategies may also strengthen conclusions regarding the causal relationships identified through an evaluation.

First, counterfactual approaches estimate what would likely have happened in the absence of the intervention and compare it with the changes observed after implementation. Impact is therefore understood as the difference between the observed condition and the counterfactual condition. This

approach generally requires a control or comparison group to estimate what would have happened without the intervention.

Second, consistency of evidence with causal relationships involves identifying patterns or evidence that are theoretically consistent with the causal relationships formulated in the Theory of Change. Evaluators then gather evidence that can either support or refute these relationships. In this approach, the Theory of Change provides an important basis for determining what evidence to look for if the intervention is operating as hypothesized. Evidence is therefore sought not only to support the program's claims but also to examine whether the hypothesized pathways of change are unfolding as expected.

Third, ruling out alternative explanations involves identifying other possible explanations for the observed changes and then collecting and analyzing evidence to assess whether these explanations can be ruled out. This strategy is particularly relevant when the available evidence may indicate a correlation but is insufficient to establish causation. In practice, it may involve key informant interviews, process tracing, examining possible technical explanations, or statistical modeling to identify and assess other factors that could explain the observed changes.

Together, these three strategies demonstrate that causal attribution cannot be established simply by observing changes after an intervention has been implemented. A change can reasonably be claimed as an effect of an intervention only when there is sufficient evidence linking the change to that intervention. Therefore, the attribution process should begin by understanding the pathways of change, formulating a Theory of Change that explains the underlying causal mechanisms, and selecting appropriate strategies and evidence to test the resulting impact claims.

3.4 Social Return on Investment

Social Return on Investment (SROI) is an approach for communicating the social, economic, and environmental value generated by an intervention. If mathematics and numbers are a universal language for representing the natural world, SROI can similarly be understood as a specific language for identifying and communicating the value a program creates to different stakeholders [10]. Through this approach, changes resulting from an intervention can be identified, assessed, and communicated systematically.

Although SROI is grounded in cost-benefit analysis, it has a broader scope because it is explicitly designed to support practical decision-making by corporate managers and investors seeking to optimize social and environmental impacts. SROI does not merely produce a single return figure; rather, it provides a framework for reporting value creation from the perspective of stakeholders. This involves identifying indicators of change, understanding the narratives behind those changes, and, where possible, assigning monetary values. SROI therefore represents a set of approaches and skills for measuring and communicating non-financial value. The numerical calculation of social return is only one component of the analysis; it also includes the contextual information needed to interpret the ratio accurately and additional social value that cannot be fully expressed in monetary terms.

Within this framework, SROI can be used by organizations to monitor and improve performance, guide resource allocation, and demonstrate the value they create; by those receiving social, economic, or environmental value to assess the extent to which such value is realized; by investors to evaluate performance and conduct due diligence; and by those seeking to influence policy by demonstrating the importance of recognizing social and environmental value. By combining quantitative estimates with qualitative information and narratives of change, SROI also functions as a communication tool for stakeholders with different perspectives and interests. SROI should

therefore not be understood solely as a ratio representing the magnitude of social return, but as a process for understanding, assessing, and communicating how social, economic, and environmental value is created.

In the context of impact measurement, this understanding has important implications for attribution. The validity of social return estimates depends on the ability to identify the changes generated by an intervention and to account for the contributions of other actors and factors to those changes. If changes influenced by external factors or other interventions are fully counted as program benefits, the estimated social return may be overstated. Conversely, if the program's contribution to observed changes is not adequately recognized, the resulting impact value may be underestimated [11-13]. Therefore, attribution should not be treated merely as a technical adjustment at the final stage of SROI calculation, but as an integral part of establishing credible claims about the value generated by an intervention from the point at which changes are first identified.

3.5 Causal Attribution

Causal attribution is a key element of impact evaluation because it concerns determining the extent to which observed changes in a population or group can be attributed to a specific intervention—such as a program, policy, or educational intervention—rather than to contextual, structural, or random factors [14-16]. Establishing clear cause-and-effect relationships supported by empirical evidence distinguishes impact evaluation from monitoring or assessment activities that primarily document changes. Thus, impact evaluation goes beyond determining whether a change occurred and seeks to understand why it occurred and to what extent the intervention contributed to it [17].

Conceptually, attribution is rooted in attribution theory in social psychology. Heider (1958) argued that individuals tend to explain events by attributing their causes either to internal factors, such as attitudes, abilities, and effort, or to external factors, such as environmental conditions, context, and chance [18]. This perspective is further developed through the covariation model, which suggests that individuals infer a causal relationship when an outcome consistently occurs with a particular factor and does not occur when that factor is absent [19]. From this perspective, attribution is the process of constructing explanations for why an event occurs by identifying the factors associated with its occurrence.

Over time, this intuitive understanding of cause and effect has become more systematic through advances in the social sciences, research methodology, and statistical techniques. While individuals may identify causal patterns based on observed associations, scientific evaluation requires empirical evidence to support these relationships rather than perception or correlation alone. Inferential statistics and causal approaches provide tools to develop and test models of cause-and-effect relationships based on empirical evidence and explicit assumptions [20,21]. These developments have reinforced the importance of the counterfactual concept, which involves comparing the conditions observed when an intervention is implemented with those that would have occurred had the intervention not been implemented [22].

In impact evaluation, the counterfactual framework is essential because the impact of an intervention cannot be directly observed as an independent condition. Evaluators must establish the difference between the actual conditions following an intervention and the conditions that would have existed in its absence. Impact evaluation therefore requires a comparative framework that links observed changes more convincingly to the intervention under assessment. This can involve control or comparison groups, baseline data, or other evaluation designs that compare actual conditions with counterfactual conditions [23,24].

Consequently, impact evaluations must also consider alternative explanations and establish a comparative framework to distinguish the intervention's contribution from other factors influencing the observed changes [25,26]. Causal attribution is therefore not simply a matter of identifying an association between an intervention and an outcome, but a methodological process for determining which changes can reasonably be attributed to the intervention and which may have resulted from other factors.

Ultimately, establishing a cause-and-effect relationship is one of the most critical aspects of impact evaluation because it determines whether observed changes can be interpreted as consequences of an intervention. Without causal attribution, evaluation risks being limited to measuring and describing outcomes without adequately explaining the intervention's contribution to those changes. The value of impact evaluation therefore lies in its ability to generate evidence-based knowledge about what works, for whom an intervention works, and under what conditions it is effective [27,28]. Thus, causal attribution is not only a methodological basis for establishing impact claims but also an important foundation for learning, improving intervention design, and supporting evidence-based decision-making.

4. Results

Social Return on Investment (SROI) analysis can be viewed as both a conservative and a revolutionary approach to restoring the balance between the economic benefits generated by business activities and the well-being of society and the environment. However, SROI's ability to assign value to these different forms of change does not, in itself, resolve the methodological challenges of impact measurement. The central challenge is that not all changes occurring after a program has been implemented can necessarily be considered the result of that program. In other words, the broader the scope of the changes being measured, the more important it becomes to determine which components of those changes can reasonably be attributed to the intervention. This issue links SROI to other approaches to economic evaluation, particularly Cost-Benefit Analysis (CBA) [29-31].

This connection matters because SROI is conceptually similar to CBA, but places greater emphasis on social dimensions and stakeholder perspectives. Whereas CBA generally compares the costs and benefits of an intervention, SROI applies a similar logic by extending the analysis to include the social, economic, and environmental benefits experienced by stakeholders. In this sense, SROI can be understood as a form of CBA applied in a social context that is more stakeholder-oriented and adopts a bottom-up approach [27,28]. Through this approach, stakeholders identify and assess changes, then use them to estimate the social value generated by an intervention. Thus, SROI goes beyond how much was invested by also asking how much social value that investment generated.

Despite this approach, SROI faces an important methodological challenge concerning attribution, particularly causal attribution. Causal attribution is necessary because impact evaluation is not only concerned with determining whether a change has occurred, but also with establishing whether a cause-and-effect relationship exists between the intervention and the observed change. Attribution therefore limits impact claims so observed changes are not automatically attributed to the program. A change can reasonably be claimed as a program impact only when sufficient evidence demonstrates a causal relationship between the change and the intervention.

The importance of causal attribution becomes even more evident when evaluation findings inform decision-making. If an evaluation fails to distinguish between changes caused by the program and those resulting from other factors, the findings may lead to over-attribution. This may cause organizations or funders to overestimate program effectiveness and make inappropriate decisions,

such as expanding a program that is actually ineffective or assuming that an intervention can be replicated in other contexts when its effectiveness depends on specific conditions. Therefore, the quality of impact measurement depends not only on the ability to identify and value changes, but also on the ability to determine the proportion of those changes that can reasonably be attributed to the intervention.

This issue becomes increasingly important when impact measurement is used to determine the final value of a social investment. Within the SROI approach, changes resulting from an intervention are assessed and monetized to estimate the social return. Consequently, the quality of the SROI ratio depends not only on the ability to identify and assign value to outcomes, but also on how accurately the proportion of those changes attributable to the intervention is determined. If changes that result from other interventions or external factors are fully claimed as program outcomes, the estimated impact may be over-attributed, resulting in an inflated social return. Conversely, if the program's contribution to the observed changes is not adequately recognized, the impact value may be underestimated. Attribution, therefore, is not merely a technical step in SROI calculation but a fundamental component of constructing credible impact claims.

In this study, the BERBISIK Program serves as the case of analysis. The program is a social empowerment initiative developed by PT Pertamina Patra Niaga Balongan Unit, focusing on environmental management, economic empowerment, disability inclusion, education, and strengthening inclusive governance. The name BERBISIK represents "Empowerment, Collaboration, Innovation, and Action." The program is designed not as a single intervention, but as an ecosystem of interventions that connects various community groups and institutions.

Conceptually, the program consists of three main pillars. First, Impact-Sociopreneur, which focuses on waste management and creating economic value through activities such as organic and plastic waste processing, black soldier fly (BSF) farming, integrated farming, plastic solidification, and developing products and businesses involving people with disabilities. Second, Inclusive Education, which focuses on improving access and capacity for people with disabilities through cafés, creative workshops, internships, vocational training, and school-based environmental education. Third, Inclusive Government, which focuses on strengthening the role of village and sub-district governments in developing more inclusive services, including the utilization of village land, the development of waste education centers, sign language training, and services for people with disabilities.

To calculate the SROI of the BERBISIK Program, this study developed two attribution scenarios as adjustment factors for the outcomes, to account for the contributions of other parties to the observed changes. This approach recognizes that social, economic, and environmental changes occurring within an intervention ecosystem cannot always be fully attributed to a single program. Attribution therefore estimates the proportion of change reasonably attributable to the BERBISIK Program after accounting for other actors, interventions, and factors that may also influence outcomes. This study developed two scenarios: a conservative scenario and a moderate scenario, each reflecting a different level of caution in attributing the program's contribution to the observed changes.

The results show that the conservative scenario produces a lower SROI ratio than the moderate scenario. This difference indicates that the magnitude of social return is sensitive to the attribution assumptions applied in the calculation. In the conservative scenario, the proportion of change attributed to the program is determined more cautiously by allowing for potentially greater contributions from actors or factors outside the intervention. In contrast, the moderate scenario attributes a larger proportion of the change to the program when sufficient evidence or justification supports its contribution. Thus, the difference between the two ratios does not merely reflect

differences in calculation results; it shows that methodological decisions about how contributions to change are determined shape the SROI value.

These differences matter most in identifying outcomes, selecting financial proxies, and formulating assumptions and justifications about pathways of change. In the conservative scenario, the identification process applies stricter evidence standards. Changes are not automatically considered program outcomes simply because they occur after the intervention has been implemented. Rather, they must be situated within the Theory of Change and traced through the relationships between activities, outputs, outcomes, and the expected impact.

These findings indicate that attribution is not merely a mathematical component applied at the final stage of SROI calculation, but part of an epistemic process for determining whether an impact claim is justified. The use of two scenarios shows that the SROI ratio is not a single figure independent of assumptions; rather, it depends on how the process of change is understood and on the evidence available to support claims about the program's contribution. In this sense, the lower ratio produced by the conservative scenario should not automatically be interpreted as an indication of lower program effectiveness. Rather, it may reflect greater methodological caution in avoiding overclaiming of impacts.

5. Conclusions

Social Return on Investment (SROI) can be understood as a "language" for communicating the social, economic, and environmental value generated by an intervention, particularly forms of value that cannot always be captured through conventional financial measures. The development of SROI in impact measurement reflects a growing need to understand outcomes and the value created for stakeholders. In this sense, SROI is not merely a tool for producing a ratio, but a framework for identifying changes, understanding stakeholder experiences, documenting value creation, and, where possible, translating such value into monetary terms.

However, SROI's ability to express value through a single ratio also presents methodological challenges. The SROI ratio is derived from a series of decisions concerning outcomes, indicators, monetary values, and the contributions of different actors to the observed changes. Its credibility therefore depends on how well the analysis explains how changes occurred and distinguishes the intervention's contribution from other interventions and external factors. Accordingly, attribution should not be treated merely as a technical adjustment at the final stage of calculation, but as an integral part of constructing a credible impact claim.

The empirical findings of this study demonstrate that attribution has direct implications for the reasonableness and credibility of SROI results. In measuring the social impact of the BERBISIK Program, attribution was incorporated into the calculation to ensure the outcomes considered were not entirely attributed to the program's intervention. Applying attribution produced a more proportionate SROI ratio that better reflects the program's contribution to the observed changes. At the same time, the attribution process provided an opportunity to revisit the pathways of change established through the Theory of Change.

The findings further indicate that attribution serves a dual function in SROI analysis: it strengthens the credibility of impact value estimates while also providing a basis for learning and improving program design. Identifying elements of the Theory of Change that require stronger evidence, as well as recognizing the influence of external factors and contributions from other actors, can inform the refinement of future interventions. From this perspective, SROI extends beyond calculating a social return ratio and becomes a mechanism for understanding how change occurs, assessing the

program's contribution, and strengthening the Theory of Change and the quality of future interventions.

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