

Theory of change – understanding the link between a program’s design and its goals

A theory of change can support the planning, communication and evaluation of financial literacy programs. This paper provides a practical guideline for building a theory of change. A theory of change explains, step by step, how a program is expected to work. It links program activities to their goals, shows underlying assumptions behind the program and identifies factors that can affect how the program works. It is an ongoing tool that can be reviewed and adapted as the program evolves.

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From resources to results

A theory of change shows the logical sequence of a program. It starts with resources used (inputs), followed by activities carried out, immediate results (outputs), changes achieved (outcomes) and long-term goals. It helps make the expected path to impact clear and easy to understand.



Making assumptions explicit

Assumptions include theories and beliefs about how a program is expected to work. Clearly stating assumptions and understanding the environment in which a program operates are key. A theory of change shows what needs to happen for a program to succeed and where risks or weak spots might lie.



A shared basis for diverse needs

A theory of change supports a common understanding among all stakeholders involved. It helps program teams stay aligned, enables evaluators to track progress and learn, guides decision-making and fosters transparency for those the program serves.

Opinions expressed by the authors of studies do not necessarily reflect the official viewpoint of the Oesterreichische Nationalbank or the Eurosystem.

Abstract

This paper explores the role and relevance of a theory of change in the context of designing, implementing and evaluating financial education interventions. Building on the broader framework of program theory, it examines how a theory of change outlines the logical sequence through which an intervention is expected to lead to desired outcomes. The paper provides a practical guide to developing a theory of change, including its key components – such as the initial situation, assumptions, external factors, inputs, activities, outputs, outcomes and impact. Special attention is given to causal pathways and the assumptions underlying each link in the chain. Furthermore, the paper highlights the importance of acknowledging the probabilistic nature of causality, the role of external influences and the distinction between *ex ante* planning and *ex post* verification. A well-developed theory of change helps clarify expectations, supports stakeholder alignment and enhances the rigor of impact evaluations by making the underlying logic and assumptions explicit.

The relevance of program theory for evaluation research has already been discussed in Mauser (2025). An essential element of program theory is the theory of change, which describes the mechanisms through which a program or intervention is intended to operate.¹ In this paper, we examine the definition and purpose of a theory of change, its development and key components as well as how causal pathways are hypothesized.²

1 What is a theory of change? What is its purpose?

“The link between a program’s design and its goals can be understood through the program’s theory of change. Every financial capability program should be based on an underlying theory of change – which simply refers to a logical, sequential argument for how and why an intervention will deliver the desired results, together with any assumptions necessary at each step of the way” (Yoong et al., 2013, p. 36).

A theory of change is a conceptual framework that outlines the structure of an intervention and its intended goal (Yoong et al., 2013; University of Wisconsin-Madison, 2023; Money & Pension Service, 2023): It provides a logical, sequential chain of reasoning, starting with the allocation of resources (inputs). These resources are used in specific activities, which in turn produce outputs. The outputs are expected to lead to desired outcomes, which ultimately contribute to the overarching goal (impact) of the intervention. A theory of change provides a structured overview of the intervention, enabling reflection on its individual components and fostering a better understanding of the relationships between them. Each component offers a clear point of reference for identifying underlying assumptions and potential risks, since it is crucial to embed the intervention within an appropriate context: (1) What is the initial problem or situation that the intervention aims to address? (2) What underlying assumptions inform the intervention? (3) What external factors could influence the intervention’s success and what risks must be considered? In essence, a theory of change answers the key questions: What? How? Why?

¹ The terms *program* and *intervention* are often used interchangeably in evaluation literature. In this paper, we follow a practical approach for clarity in writing: program will be used, for instance, when we refer to program theory, the program’s theory of change, program managers or program design, while intervention will be used otherwise.

² The literature offers a variety of names for the theory of change (e.g. logic model, results chain, outcome pathway, action theory, implementation theory, impact theory or even program theory). However, no general agreement on terms or definitions exists (Mayne, 2015; Rossi et al., 2019). In this paper, we use the term *theory of change* and refer to a specific element within the broader framework of program theory.

Having developed a thorough and explicit theory of change is beneficial at each stage of an intervention – design, implementation, monitoring and evaluation (Dhillon and Vaca, 2018). A theory of change helps strengthen the design of an intervention by ensuring internal coherence and connecting strategies and activities with expected outcomes. It enhances understanding among those involved, aligning their perspectives and clarifying key assumptions that need to be considered. Additionally, a theory of change provides insights into how the intervention is expected to function effectively. Beyond the organization, it also improves communication with external stakeholders by clarifying their roles and level of involvement. All these beneficial steps also contribute to the implementation of the intervention (Dhillon and Vaca, 2018).

Further, a theory of change illustrates where monitoring efforts can be implemented (Yoong et al., 2013). *Monitoring* refers to the process of collecting and analyzing information on an intervention regularly to assess its progress against the original plan and defined milestones. It is a descriptive process that covers indicators for inputs, activities, outputs and sometimes outcomes. A program's theory of change can help determine which elements can be quantified and which indicators should be used for monitoring³ (Yoong et al., 2013).

As part of the program theory, a theory of change serves as a critical foundation for evaluation planning (Yoong et al., 2013; Dhillon and Vaca, 2018): Before evaluating an intervention, it is crucial to have a clear understanding of how the intervention is expected to generate change within the target group. A theory of change provides a detailed description of an intervention's activities and their expected effects on recipients' knowledge, attitudes, behaviors and decision-making processes. In other words, it answers the question: What changes are intended to result from the intervention's activities? By breaking down the intervention into its components, a theory of change allows for the formulation of hypotheses regarding causal relationships and expected effects. Therefore, evaluators will not only be able to answer whether the intended outcomes and goals were achieved but also why or why not, which is an important part of impact evaluation.

Overall, the program's theory of change is important to:

- gain a deeper understanding of the goals and mechanisms of the intervention;
- ensure that all stakeholders involved in the design, implementation, monitoring and evaluation processes share a common understanding of the intervention;
- identify existing evidence that links the intervention's activities to its defined goals and determine what additional data collection and measurement tools are needed;
- identify intended outputs and outcomes that should be considered in the monitoring and evaluation processes;
- formulate hypotheses regarding the effectiveness of the intervention, which can then be tested through evaluation.

The benefits of a clear and well-formulated theory of change serve diverse needs and interests of different stakeholders (The Annie E. Casey Foundation, 2022): (1) As described above, for evaluators the theory of change offers a foundation for evaluation planning and continuous improvement through learning, also serving the research community. (2) For people involved in program operations (e.g. program planners and decision-makers, staff, administrators), the theory of change functions as a strategic plan and a road-map to maintain alignment with the set goals. Additionally, it is a documentation and communication tool. (3) For major decision-makers of program oversight (e.g. program funders, political decision-makers,

³ Monitoring provides regular data to program decision-makers and stakeholders, helping them make timely adjustments to the implementation of the intervention. Therefore, monitoring is closely related to process evaluation, often relying on the same infrastructure and data sources (Yoong et al., 2013). For details on monitoring, see chapter 4 in Yoong et al. (2013).

legislative committees and organizational leads), the theory of change provides a basis for external communication. It allows to clearly state what is expected to change when and how, and which priorities are set. (4) For people served or affected by the program (i.e. recipients and communities), a theory of change provides transparency, which helps build trust. Furthermore, communities can hold organizational leads accountable for the outcomes of interventions.

2 Developing a theory of change

In this section, we provide a stepwise practical guideline for a theory of change by describing the key components of a basic generic model (Yoong et al., 2013; University of Wisconsin-Madison, 2023; Money & Pension Service, 2023), as depicted in figure 1. Further, we discuss general considerations in the development of a theory of change.

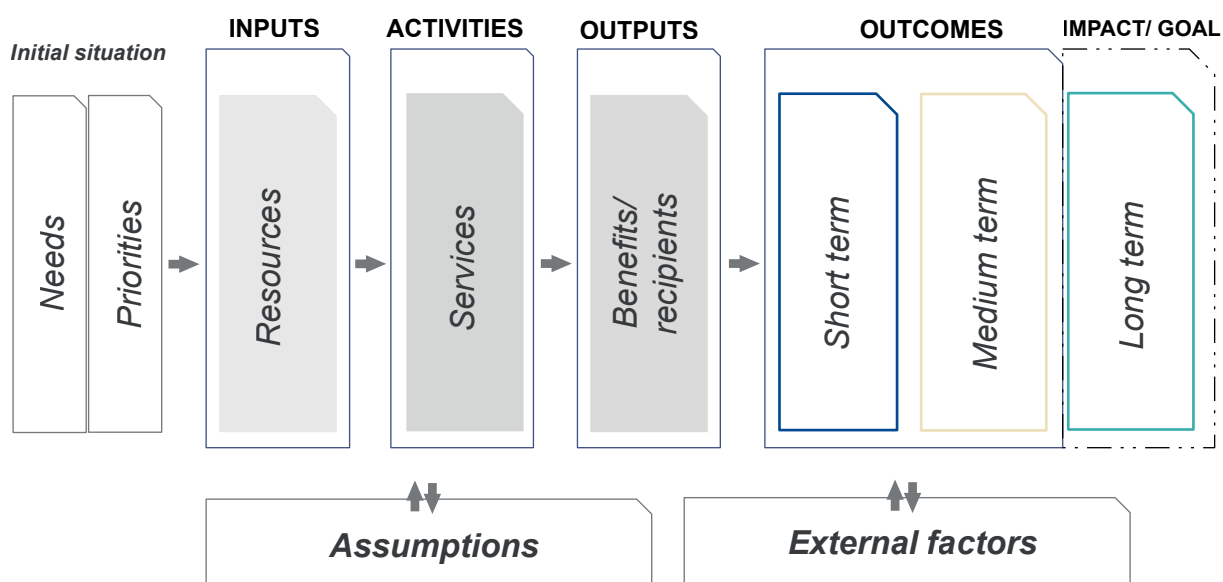
2.1 Practical guideline – key components of a theory of change

As a checklist, any theory of change – independent of the visualization or complexity of the used model – should address the following key questions:

- Who is the target audience of the intervention?
- What is the overarching goal of the intervention?
- What outcomes must be achieved to reach this goal?
- What activities (tasks, material development, etc.) will be carried out to generate the intended outputs?
- What intended outcomes can be achieved through the planned activities?
- What assumptions are made regarding how the intervention contributes to the desired outcomes?
(This is crucial for hypothesis formulation in the evaluation.)

Figure 1

Basic generic theory of change



Source: Author's compilation.

Initial situation

The initial situation (or problem statement) describes the underlying problem, i.e. the reason why action is needed, as well as the associated priorities that guide the intervention's implementation. The following questions should be addressed (box 1).

Box 1

Causes and symptoms

- Why does the problem exist, and what does it look like?

Demand and need

- Who is affected by the problem? (Individuals, households, groups, communities, society at large)
- Why is the intervention needed?

Stakeholder engagement

- Who is involved in addressing the problem?

Experiences and data

- Which insights does the implementing institution already have about the problem and the target group?

Priorities and vision

- What is the institutional vision/mission?
- What expertise, resources and experience are available to set priorities?
- What criteria determine the priorities, and who contributes to this process?

Assumptions

Assumptions are the underlying factors that shape the theory of change. They include theories, beliefs, experiences and research (e.g. secondary literature) that inform how the intervention is expected to work. Assumptions influence decision-making and intervention design, and they should address the following elements (box 2).

Box 2

- Problem itself
- Available resources
- Way the intervention operates
- Expected outcomes
- Existing knowledge base
- Internal and external environment
- Target group, including their learning behavior, motivation and response to the intervention

External factors (including risks)

Interventions do not exist in isolation. They are embedded in an environment involving various external factors, including potential risks. External factors may relate to cultural context, economic structures, living circumstances and demographic characteristics of the target group, political frameworks and media influence (e.g. social networks). Importantly, an intervention may also impact the external factors, creating a potential reciprocal effect. The following aspects should be considered (box 3).

Box 3

- Resource allocation
- Implementation and design of the intervention
- Target group
- Speed and effectiveness of achieving outcomes

Potential risks

- Limited accessibility of the target group
- Resource constraints

Inputs

Inputs are the material and immaterial resources allocated to the intervention. They are under the control of the implementing institution and are measurable as well as quantifiable. See box 4 for typical resources.

Box 4

- Personnel
- Time
- Budget
- Equipment
- Materials
- Technology
- Volunteers or partner organizations

Activities⁴

Activities are the concrete actions carried out within the intervention, i.e. the answer to the question: what does the institution do and offer? Activities are controlled by the implementing institution and are both observable and measurable. See box 5 for examples of activities.

Box 5

- Workshops
- Services
- Conferences
- Funding opportunities
- Advisory sessions
- E-learning programs

⁴ Not all theories of change distinguish between activities and outputs. Often, activities are considered part of the outputs, as the distinction is not always clear-cut. However, we have chosen to separate them, defining outputs as the tangible deliverables produced as a result of the activities.

Outputs

Outputs are the direct, immediate results of the activities. They are the tangible deliverables produced by the intervention, either related to the benefits or recipients of the intervention. Like inputs and activities, outputs are under the organization's control and are typically quantifiable and measurable. See box 6 for examples of outputs.

Box 6

- Number of workshops conducted
- Number of certificates issued
- Number and characteristics of recipients

Outcomes

Outcomes describe the actual changes (effects) the intervention aims to achieve. Unlike outputs, outcomes cannot be directly controlled by the implementing institution but can be influenced through the intervention's activities and outputs. Outcomes are categorized into short-term, medium-term and long-term. We discuss long-term outcomes separately in the next step. See box 7 for various outcomes, with specific examples of effects that financial education interventions may have on recipients.

Box 7

Short-term outcomes can be changes in

- knowledge (of basic financial concepts such as inflation or interest rates)
- awareness (of financial risks such as scams)
- attitudes (reduced anxiety related to managing personal finances)
- skills (learning how to create and manage a budget)
- opinions (changing perception of value of financial education in daily life)
- motivation (feeling encouraged to start investing)
- aspirations (setting financial goals such as building an emergency fund)

Medium-term outcomes can be changes in

- actions (opening a savings account with regular saving amounts)
- behaviors (comparing prices and avoiding impulsive purchases)
- applications (using mobile banking tools to manage finances)
- decision-making (choosing to save for retirement)
- strategies (developing a plan to reduce debt and build financial security)
- social interactions (discuss financial matters openly with family and friends)

Impact/Goal

Impact refers to the long-term overarching goal of the intervention. It describes not only changes of individual well-being but also the broader societal, economic or environmental changes that the intervention seeks to achieve. Box 8 includes some examples, specifically potential impacts of financial education interventions.

Social improvements

- increased financial well-being (reduced financial stress)
- enhanced financial inclusion

Economic advancements

- Reduced debt levels
- Increased entrepreneurship

Societal transformations

- Reduction in poverty
- Improved consumer protection

Environmental sustainability

- Reduced waste and overconsumption
- Ethical and green investing

2.2 General considerations for developing a theory of change

Developing a theory of change includes various general challenges and important considerations:

(1) **Terminology** (The Annie E. Casey Foundation, 2022): In any theory of change, language and terminology should be clear and consistent – especially when distinguishing between actions (things being done) and changes (the results of those actions). *Inputs* and *activities* refer to actions, while *outputs*, *outcomes*, *results*, *goals*, *impacts* and *indicators* describe changes. Some terms – such as *objectives*, *accomplishments*, *measures* and *metrics* – can refer to either actions or changes, depending on context. Therefore, it's important to clarify exactly what is meant.

(2) **Changes over time** (Mark, 2023): A common pitfall in working with theories of change is treating them as fixed blueprints. In reality, a theory of change should be understood as a living framework, subject to revision as circumstances change. Financial education interventions, like other social interventions, operate within dynamic environments, and both contextual factors and program implementation itself are likely to evolve over time. The challenge lies in the unpredictability of such changes – stakeholders cannot always anticipate what will change or when. Ongoing dialog with the stakeholders directly involved in the intervention can help identify significant shifts since the theory of change was first developed. Particular attention should be paid to changes that could influence the assumptions or causal pathways within the theory, as these may directly affect the program's effectiveness. In this way, regularly revisiting and updating the theory of change becomes essential to ensure its usability and relevance.

(3) **Heterogeneity** (Mark, 2023): The development of a theory of change often implies a single, unified pathway from actions to changes. However, such a perspective may overlook the diversity of experiences, contexts and responses among recipients of the intervention. Recognizing heterogeneity means acknowledging that outcomes may differ significantly across recipients and settings. These differences might stem from variations in how the intervention is implemented, the contextual environments in which it operates or how recipients engage with it. Failing to address this complexity can lead to overly simplistic models that neglect important nuances. By actively exploring heterogeneity, one can uncover multiple pathways to change, which can improve the explanatory power of a theory of change and also allows for more targeted and adaptive strategies in program design.

(4) **Theory knitting** (Mark, 2023): Program design often draws on a range of ideas and strategies to address complex problems, and this diversity should be reflected in the underlying theory of change. Rather than relying on a single theoretical perspective, the process of theory knitting involves weaving together concepts from multiple theories to build a more comprehensive framework. For instance, efforts to reach the target group might be informed by one theoretical approach, while behavior change strategies draw from another theory. This integrative process allows the theory of change to better capture the multifaceted nature of real-world interventions. By thoughtfully combining theories, one can construct a more robust and context-sensitive understanding of how and why change is expected to occur.

(5) **Validity** (Mark, 2023): Developing a theory of change is not only about articulating a logical sequence of events. It is also about ensuring that the conclusions drawn from that model are accurate and well-founded. Internal validity refers to the credibility of claims that the intervention caused observed changes. To protect against misleading conclusions, one must actively consider alternative explanations for observed outcomes and be open to evidence that challenges the initially proposed causal pathways. Doing so can help avoid *confirmation biases*, i.e. the tendency to favor information that supports existing beliefs. A well-developed theory of change should allow critical questions and promote ongoing inquiry into whether the intended pathways hold true under real-world conditions.

(6) **Frustration** (The Annie E. Casey Foundation, 2022): The development process itself can be time-consuming, complex and even frustrating for those involved. Especially when inclusive⁵, the process may involve divergent thinking, ambiguity and differing perspectives. This can create pressure to shortcut the process, which introduces risks of its own. For this reason, it is important to emphasize the value of a well-developed theory of change for all stakeholders, and to structure the development process in a clear, efficient and collaborative way.

(7) **Visualization** (The Annie E. Casey Foundation, 2022): Challenges in developing a theory of change also lead to limitations in its visualization. First, visualizing a theory of change can be misleading, as expected causal pathways may appear overly predictable. It is important to remember that a theory of change is not a predictive model of exact causal pathways; rather, it is based on underlying assumptions and influenced by external and risk factors. Ideally, the theory of change helps stakeholders identify critical questions for regularly measuring the progress of an intervention – and use those learnings to revise the theory as needed. Second, causal pathways are often depicted as straight lines, but in reality, change may follow a different or more complex path. Financial education interventions, like other social interventions, take place in dynamic social environments where progress can unfold in unexpected ways. Forward movement is not always linear – it may include setbacks, revisions or new directions. Capturing these nuances visually can be challenging. Therefore, it is essential to remember that a theory of change represents expectations about how positive outcomes might be achieved, not a definitive roadmap.

3 Causal changes

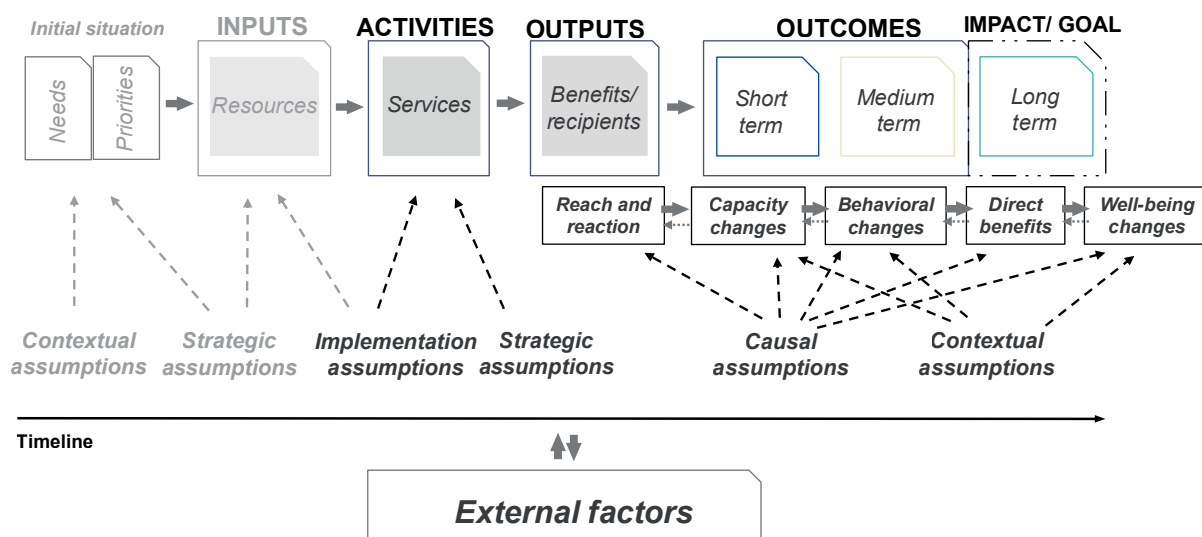
“To understand how and if an intervention is working, we need to understand how the activities of the intervention are expected to lead to the desired results – both (a) the causal pathway from activities to outputs to a sequence of outcomes to impacts and (b) the causal assumptions showing why and under what conditions

⁵ An *inclusive* theory of change promotes *equity* in the development process by encouraging the participation and influence of all the people directly affected by the intervention – especially those who are often excluded from contributing. The Annie E. Casey Foundation (2022, p. 8) describes equity as “*Conditions that ensure those who have historically been excluded or oppressed have clear roles and authority in seeking change that affects them. ‘Advancing equity’ can include changes related to access to resources, quality of services and public or organizational policies that result in fair treatment, opportunity and outcomes.*” Discussing inclusivity and equity within theory of change research and practice is beyond the scope of this paper. For readers interested in the topic, we recommend having a look at The Annie E. Casey Foundation (2022), Gates et al. (2024) and Lemire (2024).

the various links in the causal pathway are expected to work” (Mayne, 2015, p. 121). Figure 2 illustrates the causal pathway and its corresponding assumptions (causal and others), which are discussed in detail below.

Figure 2

Causal pathways and assumptions



Source: Author’s compilation.

In impact evaluation, the primary goal is to identify the actual changes that result from an intervention. However, evaluators may mistakenly assume changes have occurred when they have not, or attribute changes to the intervention when, in fact, the true causes lie elsewhere – or only partially within the intervention. Change is continually occurring, and it is crucial to recognize that some influencing factors may remain unknown or outside our awareness. Moreover, our understanding and assumptions of how change happens is inevitably shaped by our own perspectives and values. These limitations should be openly acknowledged and carefully considered when developing a theory of change (Dhillon and Vaca, 2018). Therefore, a thorough theory of change should not only depict the expected causal pathway but also make explicit the (causal) assumptions on which this pathway relies.

In general, *assumptions* are the often unspoken beliefs or expectations about how the world works and how change is expected to occur (van Es et al., 2015). In the context of a theory of change, they reflect our understanding of what needs to be in place for an intervention to lead to desired outcomes. These assumptions may stem from personal or collective belief systems, shaped by social, cultural or ideological backgrounds. Because they are so embedded in how we view the world, we may not always be aware of them – let alone question them. Yet, they influence how we interpret evidence, design strategies and judge the feasibility or relevance of interventions (van Es et al., 2015). For instance, we may assume that providing financial training will lead to improved financial knowledge and skills and that improved financial skills will translate into financial behavioral change. These are assumptions, not facts, and they require scrutiny. Making assumptions explicit is therefore a critical step in developing a theory of change, which helps us surface the underlying logic we take for granted.

Assumptions form the backbone of causal reasoning, i.e. *causal pathways*, in a theory of change (van Es et al., 2015; Mayne, 2015). They underpin the logic that connects activities to outcomes and ultimately to impact. If these assumptions do not hold true, even the most well-designed interventions may fail to produce the expected change. For example, if a strategy assumes that older people will participate in a

digital financial education intervention specifically designed for them, but they do not, the entire pathway may break down. Recognizing and articulating assumptions allows for critical reflection, facilitates evidence-based planning and highlights where further research, stakeholder engagement or monitoring might be needed. Moreover, some assumptions carry more weight than others. Identifying which ones are most critical helps prioritize risk analysis and adaptive planning (van Es et al., 2015). This is particularly important in complex or dynamic environments where change processes are influenced by many interacting factors.

In practice, assumptions in a theory of change can be categorized into several types, which can appear at different points along the causal pathway (van Es et al., 2015; Mayne, 2015):

- **Causal assumptions:** These are the assumptions that explain why and under what conditions each step in the pathway is expected to lead to the next. For example, if the intervention is a workshop on basic concepts of finance for low-income households, we may assume that recipients who gain knowledge about budgeting and saving will not only understand the concepts but will also have the confidence, opportunity and social support to apply them in their daily lives. This assumption could be broken down into several layers, namely (1) cognitive capacities (recipients understand and retain the financial concepts taught), (2) motivation (recipients feel motivated and confident enough to change their financial behavior), (3) social/cultural acceptance (saving money is not perceived negatively or mistrusted within the household) and also (4) contextual/structural assumptions, which are discussed in the next paragraph.
- **Contextual assumptions:** These relate to the broader environment in which the intervention takes place. They include assumptions about the political, social or economic context, the behavior and motivations of the target group (and stakeholders) or even the absence of disruptive events like natural disasters or regime changes. While some may seem obvious or outside our control, others are critical to success and warrant close attention. In the example of the workshop, we assume that the local economic environment is stable enough to allow recipients to act on the knowledge gained – meaning that they have at least some disposable income, regular sources of income and access to basic financial services, which enable them to budget and save. This type of assumption relates to external factors that shape whether the intervention has a realistic chance of success. The success of the intervention could fall short if, for instance, inflation is so high that saving is not feasible or financial services are unavailable in the recipients' region.
- **Implementation assumptions:** These relate to the operational aspects of the intervention – for instance, that staff will be trained, that activities will be implemented on time or that funding will be secured. While essential for project management, these assumptions are generally less central to the causal logic of change and are often made implicitly. However, if an impact evaluation fails to identify positive causal changes, it can be relevant to examine whether key implementation assumptions were not met.
- **Strategic assumptions:** These underpin the selection of particular approaches or strategies. For example, we might assume that public awareness campaigns are an effective tool for shifting attitudes or that participatory governance mechanisms can lead to greater accountability. These reflect our beliefs about what works and should be critically examined in light of existing evidence or stakeholder perspectives. For example, we assume that providing financial education through community-based workshops is an effective strategy to improve budgeting and saving among low-income households. This assumption reflects a belief about what kind of approach is likely to work best in the given context. It is not about a specific causal step but rather about the choice of intervention strategy itself. It could be based on prior experience, stakeholder input or theoretical reasoning – but it still needs to be questioned.

As described in section 2, a well-constructed theory of change outlines a sequence of changes, from activities to long-term outcomes (impact).⁶ Each link in this *causal pathway* represents a different type of change, each dependent on distinct assumptions (Mayne, 2015):

- **Activities:** These are the planned actions undertaken as part of the intervention (e.g. workshops). While they are under the direct control of implementers, assumptions still apply. For example, the assumptions are that the activities are designed based on sound evidence, are appropriate for the target group and are delivered with sufficient quality and consistency. These assumptions are often implicit but crucial, as poorly designed or executed activities can undermine the entire causal pathway.
- **Outputs** (related to benefits): These are the immediate change resulting from the activities of an intervention (e.g. number of workshops held or materials distributed). The assumption is that these outputs will reach the target group.
- **Reach and reaction** (outputs related to recipients): This refers to who receives and engages with the outputs. Key assumptions here include that the right target group is reached and that they view the outputs as relevant and valuable.
- **Capacity changes** (short-term): These involve shifts in knowledge, attitudes, skills or opportunities among the recipients. Assumptions here relate to whether the outputs (benefits) are comprehensible, culturally appropriate and aligned with prior experiences or values.
- **Behavioral changes**⁷ (medium-term): These are actual shifts in practices or decision-making. Crucial assumptions include social acceptability, access to resources and the perceived utility of adopting new behaviors.
- **Direct benefits** (long-term): These represent tangible improvements in people's lives – such as increased income – stemming from behavioral changes. Assumptions here often relate to whether new practices lead to real gains under current conditions.
- **Well-being changes** (long-term): These are the long-term impacts, such as improved quality of life or greater empowerment. They depend on a chain of prior changes holding true and often on broader structural or systemic factors remaining favorable.

⁶ Typically, the initial situation – defining needs and setting priorities – and the required inputs are not considered part of the causal pathway. However, assumptions still play a role at these early stages of a theory of change, as depicted in figure 2.

⁷ Behavioral changes are not easily achieved. Extensive research has explored the challenges and underlying theories. For readers interested in this topic, we recommend referring to Darnton (2008).

Table 1 summarizes the linkage between the pathway and corresponding assumptions.

Table 1

Causal pathway and corresponding assumptions

Causal pathway	Type of change	Assumptions
Initial situation	Problem definition, needs and priorities	<ul style="list-style-type: none"> Contextual assumptions (e.g. accurate understanding of needs, political/social context) Strategic assumptions (e.g. choosing the right focus area)
Inputs	Resources allocated (staff, funding, materials)	<ul style="list-style-type: none"> Implementation assumptions (e.g. sufficient and timely resources) Strategic assumptions (e.g. selecting suitable partners or tools)
Activities	Actions taken in the intervention	<ul style="list-style-type: none"> Implementation assumptions (e.g. staff trained, activities happen as planned) Strategic assumptions (e.g. chosen approach is effective)
Outputs	Services and goods delivered	(see reach and reaction)
Reach and reaction	People receiving/using the outputs and their reactions	<ul style="list-style-type: none"> Causal assumptions (e.g. outputs reach and engage the recipients)
Capacity changes	Changes in knowledge, attitudes, skills, opportunities	<ul style="list-style-type: none"> Causal assumptions (e.g. recipients have sufficient cognitive capacities and motivation) Contextual assumptions (e.g. relevance, cultural appropriateness of outputs)
Behavioral changes	Actual changes in practice or behavior	<ul style="list-style-type: none"> Causal assumptions (e.g. recipients recognize utility of adopting new behaviors) Contextual assumptions (e.g. social norms, access to resources)
Direct benefits	Tangible improvements in recipients' lives	<ul style="list-style-type: none"> Causal assumptions (e.g. behaviors actually result in direct benefits)
Well-being changes	Long-term cumulative impacts	<ul style="list-style-type: none"> Causal assumptions (e.g. direct benefits improving quality of life) Contextual assumptions (e.g. enabling environment remains stable over time)

Source: Author's compilation.

To close this section, we shortly discuss the probabilistic nature of causality and its implication for a theory of change (Mayne, 2015):

Understanding causality within a theory of change framework involves acknowledging that change rarely results from a single factor acting in isolation. Instead, causality is often probabilistic, meaning that an intervention increases the likelihood of a particular outcome occurring, but does not guarantee it. Therefore, a cause can be understood as something that raises the probability of an outcome, rather than something that invariably produces it. In this light, it becomes useful to think in terms of *probabilistically necessary* and *probabilistically sufficient* causes. A *likely necessary assumption* refers to a condition or factor that almost always needs to be in place for a specific change to occur – without it, the causal link is unlikely to hold. A *likely sufficient assumption* refers to a condition that, on its own or as part of a package, is often enough to produce the expected change. Within a theory of change, many causal assumptions fall into the category of likely necessary assumptions, because they describe conditions that are critical for each step of the causal pathway to function as intended.

It is also important to, once again, recall the role of *external factors* in shaping outcomes. A theory of change models the contribution of an intervention to an outcome, rather than claiming full causality – since in most real-world settings, other factors are also at play. These external factors can either enhance or undermine the intended effects and may account for part (or even all) of the observed outcome. Significant external risks that could affect outcomes are often also embedded in the causal assumptions, which highlights the need to account for them.

The distinction between *ex ante* and *ex post* thinking is also critical when working with theories of change. *Ex ante*, the theory of change serves as a prediction of effectiveness – a forward-looking hypothesis based on the assumption that, if the intervention is implemented as planned and the assumptions hold, it will contribute to the intended outcomes. It sets out a reasoned expectation of how change will unfold. *Ex post*, after implementation, the theory of change becomes a tool for causal testing. At this stage, evidence is used to verify whether the expected changes occurred and whether the key assumptions were realized. If no major external influences are identified and the results align with the expected causal pathway, it may be reasonable to conclude that the intervention was not only contributory but likely sufficient to explain the observed changes.

4 Summary and concluding remarks

A theory of change is a critical tool for understanding the link between a program's design and its intended goals. It outlines the pathway through which resources and activities are expected to bring about changes, offering a logical structure that supports both planning and evaluation of interventions. In this paper, we examined what constitutes a theory of change, its core components and how it can be developed and applied effectively – particularly in the field of financial education.

The development process begins with clearly articulating the initial situation, including the underlying problem, needs and institutional priorities. From there, assumptions, external factors (including risks) are identified to contextualize how the intervention is expected to work. Inputs and activities describe what the intervention does, while outputs, outcomes and impacts represent the changes resulting from the intervention. Throughout this pathway, assumptions – especially causal ones – are essential for explaining why one step is expected to lead to the next. These assumptions must be made explicit and continually revisited to ensure the logic holds in practice.

We further explored the complexity of causal change, emphasizing that interventions typically contribute to outcomes rather than cause them in isolation. Causality in a theory of change is often probabilistic, meaning that interventions raise the likelihood of certain outcomes under specific conditions. This reinforces the importance of identifying both likely necessary and likely sufficient assumptions. Additionally, recognizing the influence of external factors helps clarify the limits of attribution and the scope of program impact.

Finally, we highlighted the importance of distinguishing between *ex ante* and *ex post* perspectives. *Ex ante*, a theory of change serves as a prediction of how change is expected to occur, while *ex post*, it becomes a tool for testing that causal hypothesis. A robust theory of change not only strengthens internal alignment and transparency but also supports a more rigorous and meaningful evaluation process. As such, it is an indispensable element of evidence-based intervention design and continuous learning.

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