

How Economic Background Affects Decision-Making in Incubated Entrepreneurs: Focus on Affordable Loss.

Author: Juliana Bouic
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherlands

ABSTRACT,

This research investigates how the economic backgrounds of university-incubated entrepreneurs influence their decision-making styles. The research focuses on effectual and causal approaches and especially the role of the affordable loss principle. Using a qualitative methodology with semi-structured interviews with entrepreneurs from various university incubators in the Netherlands, the study reveals that incubator programs predominantly support a causal decision-making style through structured tools, mentorship, and strategic planning. On the other hand, they support effectual strategies by allowing entrepreneurs to pivot based on network and market feedback, creating a balance between structured planning and adaptability. Economic backgrounds seem to strongly influence decision-making styles, with young entrepreneurs gravitating towards effectual decision-making and the affordable loss principle. These entrepreneurs creatively leverage personal savings, part-time jobs, and minimal resources to pursue ventures. Additionally, while entrepreneurs from both lower and moderate financial resource backgrounds seem to make use of the affordable loss heuristic, those from lower financial backgrounds tend to use more extreme affordable loss measures, like early equity sales. In contrast, entrepreneurs with moderate financial backgrounds leverage their resources without selling shares, employing less extreme affordable loss measures.

Graduation Committee members:

Dr. Martin Stienstra
Dr. Igors Skute

Keywords

University incubator programs (UBI); Effectuation; Causation; Affordable loss; Economic background; Entrepreneurial decision making

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1. INTRODUCTION

Uncertainty plays a crucial role in entrepreneurial decision-making. Entrepreneurs often face decisions without calculable probabilities (Knightian uncertainty). The ability to operate within this uncertainty can lead to the success of ventures, while a lack of this ability can lead to failure. This necessitates that entrepreneurs make critical judgments about resource use (Foss & Klein, 2012).

In this context, the global environment today is marked by significant uncertainty due to factors like high inflation, restricted access to finance for young entrepreneurs, and geopolitical risks (OECD, 2023). Events such as the COVID-19 pandemic, technological disruptions, climate change, and geopolitical conflicts further exacerbate global economic and political uncertainty (Ahir, Bloom, & Furceri, 2022; World Economic Forum, 2024).

Moreover, High inflation has raised borrowing costs, with the median interest rate for SMEs (Small and Medium Enterprises) increasing by 1.1 percentage points, the highest in OECD history. This has led to tighter lending conditions, limiting finance flow and hindering investment, especially for new and small businesses (OECD, 2023). The Global Entrepreneurship Monitor Report highlights that economies with better access to entrepreneurial finance have higher rates of new business creation (GEM, 2023). These uncertainties complicate the decision-making processes for entrepreneurs, influencing how they allocate resources and strategize for their ventures.

But what does decision-making mean in the context of entrepreneurship? Decision-making is the process of making choices by identifying a decision, gathering information, and evaluating alternatives (University of Massachusetts Dartmouth, n.d.). In entrepreneurship, this begins with an individual's preferences and tastes, influencing the initial decision to become an entrepreneur. This choice involves assessing factors like the type of business, location, and market opportunities. Entrepreneurs must gather information to identify unmet demands and profit potentials, requiring alertness to whilst still having the ability to recognize opportunities (Kirzner, 1973).

The decision to become an entrepreneur is often a choice of self-employment, shaped by individual traits, labor market conditions, and the economic reward structure. Embarking on an entrepreneurial journey is complex, involving personal preferences, imperfect information, resource availability, risk tolerance, and a drive for personal fulfillment (Bonnet, Cussy, & Brau, 2011). Decision-making is, therefore, an inherent part of the entrepreneurial journey even before a venture starts.

This is where decision-making perspectives come into play. There are two main decision-making perspectives: planned and emergent. Planned strategies rely on structured methods like market research (Dew et al., 2009; Brinckmann et al., 2010), while emergent strategies emphasize flexibility and learning, forming patterns over

time without explicit planning (Mintzberg & Waters, 1985; Wiltbank et al., 2006).

The debate between planned and emergent strategies questions whether entrepreneurs should follow structured plans or adapt spontaneously (Brinckmann et al., 2010; Smolka et al., 2018). High uncertainty often makes traditional planning fail, making flexible, collaborative decision-making essential (Alvarez & Barney, 2005)

Sarasvathy (2001) provides further insight into this debate with her concepts of causation and effectuation, which explain how entrepreneurs approach decision-making under uncertainty. Causal decision-making involves following a predetermined plan, while effectual decision-making is more adaptive and based on available means and emerging opportunities. Research suggests that entrepreneurs often blend these approaches across different venture stages (Gabrielsson & Politis, 2011; Perry et al., 2012). Research also suggests that effectual and causal decision-making positively impact firm performance (Zhang, Li, Sha, & Yang, 2023).

Effectual decision-making consists of multiple elements, including the bird-in-hand principle (starting with available resources), the crazy-quilt principle (forming partnerships), the lemonade principle (embracing surprises), the pilot-in-the-plane principle (focusing on controllable aspects) and the affordable loss principle. Each of these elements plays a vital role in how entrepreneurs make decisions.

Among these, the Affordable Loss (AL) principle is particularly important. It has been seen as a Type II formative construct, independent of other effectuation principles (Read et al., 2009; Smolka et al., 2016). Research in behavioral economics, notably by Kahneman and Tversky (1979), explains how individuals evaluate potential gains and losses differently, leading to systematic biases in decision-making under uncertainty. According to Prospect Theory, people are generally loss-averse—they weigh losses more heavily than equivalent gains. This means that the pain of losing is psychologically more intense than the pleasure of gaining the same amount. As a result, individuals often overestimate the potential negative impact of losses, which can lead to overly cautious behavior and suboptimal decisions. The AL heuristic ensures that entrepreneurs only invest what they can afford to lose, thereby minimizing risk (Chandler et al., 2007; Chandler et al., 2011; Reymen et al., 2017).

This approach allows entrepreneurs to learn from their experiences, adapt their strategies, and maintain financial stability despite uncertainties. The Affordable Loss heuristic prioritizes the downside of investments within the entrepreneur's control (Dew et al., 2009).

The AL heuristic also plays a significant role in the plunge decision, the critical moment when an entrepreneur decides to fully commit to a new venture. This decision involves significant personal and financial investment (Dew et al., 2009). Factors influencing the plunge decision include risk and uncertainty management (Sarasvathy, 2001), mental accounting (Thaler, 1999), and emotional factors (Baron, 2008). Economic stability

allows for greater affordable losses, enabling entrepreneurs to commit more resources without jeopardizing financial security (Reddy, 2023). Households use mental accounting to determine if their resources can cover their minimum material living standard (MLS). If the household's income exceeds the minimum MLS requirements, surplus funds can be considered for investment (Reddy, 2023).

Despite the approach of affordable loss, most entrepreneurs face a common hurdle: resource scarcity. Many ventures fail due to insufficient financial backing rather than flawed ideas. Research highlights the critical role of financial support in the success or failure of start-ups. According to Wilbur Labs (Santoro, 2023), 47% of startup founders cited insufficient financial support as a key reason for failure. Similarly, Upmetrics (Agarwal, 2024) notes that lack of funding affects essential activities like building inventory, teams, and purchasing equipment. Proper financial planning and sufficient funding are crucial for startup success (Saini, 2022).

Due to resource scarcity, nascent entrepreneurs often turn to university incubator programs for support. These programs provide financial support, mentorship, and networking opportunities essential for start-up survival. Research shows that university incubator programs help mitigate initial financial constraints and foster entrepreneurial aspirations (Cohen et al., 2019; Solesvik, 2017; Dahms & Kingkaew, 2016). Jamin (2024) suggests that incubation programs promote a balanced use of effectual and causal strategies, helping entrepreneurs address challenges at different venture stages. University incubator programs typically require start-ups to give up a percentage of equity in exchange for resources and support, consistent with the principle of affordable loss (Kowalewski, 2023).

1.1 Problem Statement

Entrepreneurs inherently use decision-making approaches (even if they do not consciously label them as such) before joining incubators, driven by their need to manage uncertainty and allocate resources effectively. Many join incubators due to a lack of resources, both financial and business knowledge, entering environments where their decision-making may be influenced. However, there is a significant gap in the literature regarding how the availability of resources and the principle of affordable loss influence entrepreneurial decision-making at various stages of venture development.

The existing research does not explore the relationship between entrepreneurs' financial backgrounds and their decision-making processes, specifically the use of effectual or causal decision-making strategies. This research aims to fill this gap by investigating how economic circumstances shape decision-making among entrepreneurs and how university incubator programs can better cater to their needs. By exploring these dynamics, the research hopes to provide insights into the interplay between financial resources, decision-making approaches, and entrepreneurial success, ultimately enhancing support mechanisms for entrepreneurs.

1.2 Research Question

How does the economic background of entrepreneurs in university incubator programs affect their decision-making styles (choice between effectual and causal decision-making), and in particular, the affordable loss principle?

2. THEORETICAL BACKGROUND

2.1 Incubators

Incubators have evolved to support start-ups by providing essential services and resources. Initially the first generation business incubators (BIs) focused on cost reduction through shared services, and have evolved to the third generation, which focus on network access and legitimacy enhancement for start-ups (Bruneel et al., 2012).

2.1.1 Types of Business Incubators

Grimaldi and Grandi (2005) classify business incubators into several types, reflecting their diverse objectives and services. These include Business Innovation Centres (BICs) for regional economic development, University Business Incubators (UBIs) focusing on academic research, Independent Private Incubators (IPIs) for-profit, and Corporate Private Incubators (CPIs) for business innovation (Grimaldi & Grandi, 2005). The model below shows the typology of incubators and where they overlap.

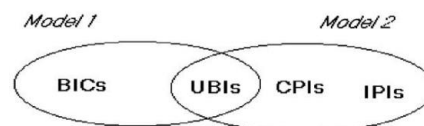


Figure 1: Typology of incubators (Grimaldi and Grandi, 2005)

2.1.2 The Impact of Incubators on Entrepreneurial Decision-Making

Research found that incubators can influence cognitive frameworks, based on the support and resources available. Those adopting an effectuation approach are more engaged in the incubator community, actively sharing ideas and valuing the networking opportunities provided. In contrast, causation-oriented entrepreneurs are more reserved and focus on predefined goals and models (Høvig et al., 2017).

Regional contexts also play an important role in decision-making styles, a study investigating the impact of population density on the use of causation and effectuation logic among entrepreneurs suggests that incubated entrepreneurs in sparsely populated areas may benefit from a hybrid solution, while those in densely populated areas should encourage entrepreneurial co-localization (Aarstad & Jakobsen, 2019).

Hubner et al. (2021) found that entrepreneurial ecosystems significantly impact opportunities in the face of uncertainty. The study demonstrates the importance of context in entrepreneurial decision-making by showing how the different narratives of Silicon Valley, Munich, and Singapore promote different strategic approaches. It emphasizes the need for entrepreneurs to be aware of their ecosystem's narratives and to adapt their strategies accordingly, whether they lean towards effectuation, causation, or a combination of the two. (Hubner et al., 2021).

2.2 Decision-Making Styles in Entrepreneurship

Sarasvathy (2001) introduced causation and effectuation processes to explain how entrepreneurs approach decision-making under uncertainty.

Causation is based on predictive logic. It involves the selection of means to achieve a predetermined end. Causation represents a logical, rational system consistent with predictive planning (Wiltbank et al., 2006). If decision-makers believe that the future is reasonably measurable and predictable, they are likely to invest time and effort in creating a venture (Sarasvathy, 2001). The model below illustrates the causal decision-making process in an entrepreneurial setting. It starts with recognizing and evaluating opportunities, which leads to setting goals and creating a plan to exploit those opportunities. Next, the entrepreneur gathers resources to develop and market a solution. This process involves creating a product or service to address the identified opportunity. The goal is to enter the marketplace, receive feedback, and make further refinements to improve the product or service.

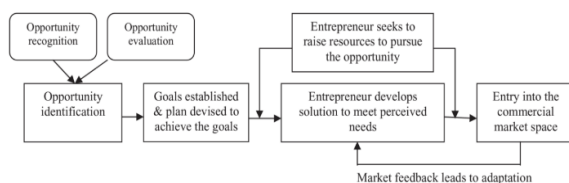


Figure 2: The causation process (Fisher, 2012)

Because entrepreneurial environments are often unpredictable and ambiguous, entrepreneurs do not always have sufficient information to recognize and evaluate opportunities before exploiting them. To address this challenge, Sarasvathy (2001, 2008) proposed the theory of effectuation, which explains how entrepreneurs operate under these uncertain conditions.

Effectuation is an adaptive approach that starts with the available means and explores potential outcomes, emphasizing the entrepreneur's active involvement in developing the startup. The model below represents the effectuation process in an entrepreneurial environment. It begins with the entrepreneur assessing their available means by asking, "Who am I?", "What do I know?", and "Whom do I know?" (Sarasvathy & Dew, 2005). By interacting with others and engaging with stakeholders, the entrepreneur discovers new resources and establishes new goals, leading to a re-evaluation of means and possible courses of action (Sarasvathy & Dew, 2005).

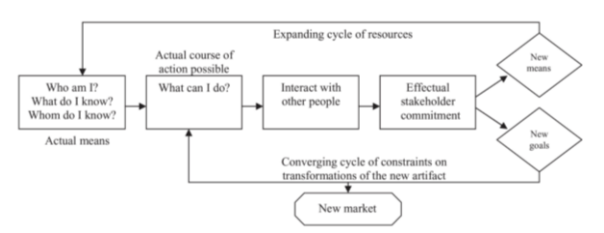


Figure 3: The effectuation process (Fisher, 2012)

Research suggests that entrepreneurs often blend effectual and causal decision-making across different venture stages. Reymen et al. (2015) show that entrepreneurs initially rely on effectual logic during the early stages of their ventures, allowing flexibility and responsiveness to unexpected changes. As ventures mature, there is a gradual shift towards causal logic, enabling more systematic and strategic planning. This helps entrepreneurs navigate early-stage uncertainties while leveraging later-stage stability and predictability.

Reymen et al. (2016) further investigate the factors influencing the choice between effectual and causal approaches. Their findings indicate that market volatility and competitive pressure significantly affect decision-making. In highly uncertain markets, entrepreneurs prefer effectual logic to stay adaptable. In more stable environments, causal logic becomes more prevalent, allowing for calculated decisions. This research underscores the importance of context in entrepreneurial decision-making and the need for agility.

Aarstad and Jakobsen (2019) found that combining effectual and causal decision-making improves venture performance. Entrepreneurs who use both approaches achieve better outcomes by leveraging the flexibility of effectual logic and the strategic planning of causal logic. This balance helps them manage risks, seize opportunities, and optimize resources, leading to greater success. Their research shows the importance of blending these decision-making styles to navigate the complexities of venture development.

Similarly, research confirms that both effectuation and causation positively impact firm performance. The choice between these styles is often influenced by external factors like industry type and market conditions (Zhang et al., 2023).

2.3 Economic Background and The Affordable Loss (AL) Heuristic

Financial backing is a cornerstone of entrepreneurial success. Research consistently shows that access to sufficient funds is critical for startups. According to Wilbur Labs (Santoro, 2023), 47% of surveyed startup founders cited insufficient financial support as a key reason for failure, highlighting the need for a strong business plan and adequate funding. Upmetrics (Agarwal, 2024) also notes that lack of funds affects essential activities like setting up inventory, building teams, and purchasing equipment. A study by Siam University (Siani.N, 2022) stresses the importance of proper financial planning and sufficient funding for startup success. Entrepreneurs operating under severe financial constraints often struggle to plan effectively and may face

difficulties in scaling their operations or navigating unforeseen challenges. Thus, understanding and managing one's economic background helps in developing more realistic business plans and strategies.

Sarasvathy's (2009) framework of effectuation outlined five core principles in her work "Effectuation: Elements of Entrepreneurial Expertise" provides a lens through which to view the role of economic background in entrepreneurial decision-making. The five core principles of effectuation offer insights into how entrepreneurs can leverage their economic context effectively:

Bird-in-Hand Principle: Entrepreneurs start with their existing resources, knowledge, and networks. Those with stronger economic backgrounds often have access to better networks and more resources, which can enhance their ability to implement and adapt their ideas. This principle emphasizes leveraging what is immediately available, which is deeply influenced by the entrepreneur's economic situation.

Crazy-Quilt Principle: Forming partnerships with stakeholders is easier when entrepreneurs have the financial resources to offer meaningful contributions. Those with limited funds may face challenges in attracting high-value partners, which can impact their ability to co-create value and access new opportunities.

Lemonade Principle: Leveraging surprises and adapting to unexpected events requires a financial cushion. Entrepreneurs with a solid economic foundation can better absorb shocks and capitalize on unforeseen opportunities, whereas those with limited resources may be forced into reactive rather than proactive positions.

Pilot-in-the-Plane Principle: This principle focuses on controlling what can be controlled and making decisions based on available resources. Entrepreneurs with substantial financial backing can exert more control over their ventures by investing in critical areas and mitigating risks, whereas those with limited resources may struggle to influence their outcomes effectively.

Affordable Loss Principle: The affordable loss principle highlights the importance of committing only what one can afford to lose. Entrepreneurs with a solid economic base can afford to take calculated risks and invest in innovation, whereas those with constrained resources must be more cautious and strategic about their investments. (Dew et al., 2009).

2.3.1 The Affordable Loss (AL) Heuristic

The affordable loss heuristic plays a crucial role in effectual decision-making. This approach emphasizes managing downside risk by committing only what one can afford to lose, rather than overinvesting based on speculative returns (Sarasvathy, 2001). Research in behavioural economics, notably by Kahneman and Tversky (1979), explains how individuals evaluate potential gains and losses differently, leading to systematic biases in decision-making under uncertainty. According to Prospect Theory, people are generally loss-averse—they weigh losses more heavily than equivalent gains. This means that the pain of losing is

psychologically more intense than the pleasure of gaining the same amount. As a result, individuals often overestimate the potential negative impact of losses, which can lead to overly cautious behaviour and suboptimal decisions.

In the context of the affordable loss heuristic, focusing on what is affordable to lose, entrepreneurs mitigate the impact of loss aversion. This strategy helps them make decisions that are more aligned with actual risk rather than being paralyzed by the fear of potential losses. It allows entrepreneurs to engage in iterative experimentation and learning, essential for navigating unpredictable environments, without being overwhelmed by the fear of failure (Dew et al., 2009). By concentrating resources within manageable limits, entrepreneurs can make informed decisions, prioritize critical tasks, and enhance their venture's resilience and flexibility (Sarasvathy, 2001; Dew et al., 2009).

2.3.2 Conceptualization of Affordable Loss:

The concept of affordable loss can be understood in several ways:

Reflective Construct: AL is intertwined with other effectuation principles, like the bird-in-hand and lemonade principles, suggesting that together they influence entrepreneurial outcomes (Perry et al., 2012; Garonne & Davidsson, 2010).

Formative Construct: AL can also be seen as a Type II formative construct, independent of other effectuation principles. Studies by Read et al. (2009) and Smolka et al. (2016) found no direct link between AL and new venture performance, highlighting its unique role in entrepreneurship.

Independent Construct: Another view sees AL as independent, with the pilot-in-the-plane principle as its precursor (Werhahn et al., 2015).

The Affordable Loss (AL) principle is also based on behavioural economics and economic psychology, especially prospect theory, which highlights loss aversion (Kahneman & Tversky, 1979). Entrepreneurs often work in resource-limited environments and therefore use mental accounting to categorize and allocate resources, helping them take calculated risks (Thaler, 1999; Martina, 2020).

To manage these constraints effectively, they use:

Bootstrapping: Acquiring and using resources without market-based transactions, allowing entrepreneurs to shape their environments and respond to constraints (Grichnik et al., 2014).

Bricolage: Creatively using available resources to tackle new challenges, promoting innovation and resilience in resource-limited settings (Baker & Nelson, 2005).

Emotions also significantly impact decision-making. Positive emotions encourage using the AL heuristic, while negative emotions lead to more analytical

reasoning (Baron, 2008). These emotional responses affect entrepreneurs' willingness to take risks.

2.3.3 Components of the Affordable Loss Heuristic

The AL heuristic consists of two primary components: the ability and the willingness of the entrepreneur to take risks (Dew et al., 2009)

Ability: This is the objective assessment of what entrepreneurs can risk. It involves mental accounting (Thaler, 1999). Entrepreneurs are more likely to risk resources categorized as windfall gains (Arkes et al., 1994), rather than essential funds like retirement savings.

Willingness: This reflects the subjective value entrepreneurs place on potential investments. It is linked to the specific opportunities they pursue and their perceived control over these uncertainties (Sarasvathy, 2001). Entrepreneurs using the AL principle actively shape their environments and opportunities, aligning their investments with their ability to bear losses.

In their 2009 paper, Dew, Sarasvathy, Read, and Wiltbank explore how entrepreneurs use the affordable loss heuristic to make the plunge decision. The plunge decision is the critical moment when an entrepreneur decides to fully commit to a new venture, involving significant personal and financial investment. This decision marks the transition from conceptualizing a business idea to actively pursuing it, often involving quitting a current job, investing personal savings, or acquiring external funding.

There are multiple factors influencing the plunge decision including: **Risk and uncertainty management** (Sarasvathy, 2001), **Mental accounting** (Thaler, 1999), **Emotional factors** (Baron, 2008), **economic well-being** (Reddy, 2023), **entrepreneurial identity and motivation:** Those with a strong entrepreneurial identity and a desire to create legitimacy among stakeholders are more likely to commit to the new venture (Navis & Glynn, 2010), **Opportunity Evaluation:** The AL heuristic strengthens opportunity evaluation, helping entrepreneurs to adapt and innovate, thereby making the decision to plunge more informed and calculated (Cai et al., 2017).

According to the model by Richard A. Martina (Martina, 2019) The process of making an affordable loss decision typically involves two stages:

Stage 1: Entrepreneurs identify which projects they can realistically pursue based on their abilities (often referred to as Initial Assessment (Dew et al., 2009)). This involves mental accounting, managing income and expense accounts for their new venture, and considering their anticipated future earnings (Chrisman & Patel, 2012).

Stage 2: Entrepreneurs decide whether a project is worth pursuing by evaluating how much of their resources they are willing to commit (often referred to as Commitment and Evaluation) This decision is based on their willingness to invest what they can afford to lose, rather than the total predicted investment for the venture (Sarasvathy, 2015). The shift from determining the ability

to pursue a project to committing resources is guided by the concept of affordable loss and its components (Martina, 2019).

Ultimately, the outcome of this process is an entrepreneurial investment or a project. Entrepreneurs using this model decide on specific projects they are willing to invest in at a defined level of affordable loss and proceed with that investment.

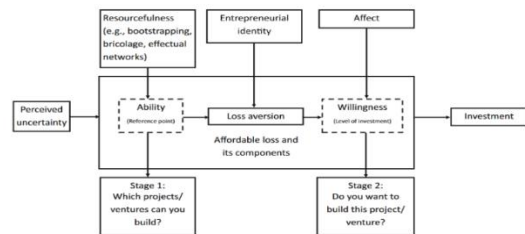


Figure 4: The process model of affordable loss (AL) (Martina, 2019)

Another study by He, Li, and Zhang (2023) shows that in uncertain situations, fear of loss typically inhibits entrepreneurial action, while the concept of affordable loss encourages risk-taking within safe financial limits. Their research found that affordable loss has a stronger effect than loss aversion, suggesting that strategies encouraging entrepreneurs to consider what they can afford to lose can effectively turn intentions into actions.

Colin David Reddy's study examines the affordable loss heuristic from the perspective of an entrepreneurial household's economic well-being. He finds that an entrepreneur's economic stability directly influences their plunge decision. Greater economic stability allows for higher affordable losses, enabling entrepreneurs to commit more resources to their ventures without risking their financial security (Reddy, 2023).

The following figure shows how households assess their ability to afford a loss (AL), which increases the likelihood of making a plunge decision. Households use mental accounting to check if their resources can cover their minimum material living standard (MLS), which is crucial for deciding whether to invest in a new venture. They use this minimum MLS as a benchmark for their decision-making process.

Mental accounting theory suggests that households may be hesitant to divert income needed for basic needs toward investment opportunities. Therefore, they first evaluate whether their income can meet their minimum MLS. If the household's income exceeds these requirements, any surplus funds can be considered for investment, increasing their ability to afford a loss and make an entrepreneurial plunge decision (Reddy, 2023).

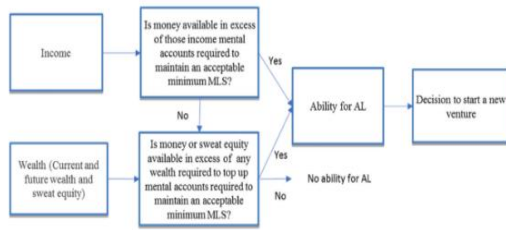


Figure 5: Conceptual framework of the affordable loss (AL) heuristic from an economic well-being perspective (Material living standard (MLS)) (Reddy, 2023)

2.4 Propositions

Having established the theoretical foundations of entrepreneurial decision-making under uncertainty, and the roles of effectuation and causation, it becomes clear that factors like resource availability and support from university incubator programs strongly influence these decision-making styles. The following propositions explore how university incubator programs and economic backgrounds, particularly the affordable loss principle, shape the decision-making approaches of entrepreneurs.

Proposition 1: Young entrepreneurs at the start of their ventures are more likely to adopt effectuation and the affordable loss principle due to their minimal resources.

Young entrepreneurs typically face significant resource constraints, making them favour effectual thinking and the affordable loss principle, which ensures they minimize risk by investing only what they can afford to lose. This approach helps them stay flexible and adapt without risking too much (Sarasvathy, 2001; Dew et al., 2009). Studies show that entrepreneurs with limited resources rely on effectual logic and affordable loss to make decisions (Gabrielsson & Politis, 2011; Perry et al., 2012).

Proposition 2: University incubator programs tend to encourage a causal approach among entrepreneurs due to their emphasis on structured planning tools and resources.

University incubators provide structured environments with planning tools, mentorship, and resources, aligning with causal decision-making, which involves setting specific goals and creating detailed business plans. This structured approach helps entrepreneurs develop clear strategies and detailed plans to achieve their goals but may also create cognitive dissonance as they need to change decision-making models (Bruneel et al., 2012; Reymen et al., 2015).

Proposition 3: If university incubators do not offer financial support after the startup phase, entrepreneurs are likely to revert to affordable loss and effectual decision-making, particularly in resource-constrained environments.

When incubators stop providing financial support after the startup phase, entrepreneurs may revert to effectual decision-making and the affordable loss principle. This

shift helps them manage limited resources carefully, focusing on what they can afford to lose to stay flexible and reduce risk (Perry et al., 2012; Dew et al., 2009; Reddy, 2023).

3. METHODOLOGY

This study builds on Jamin's (2024) qualitative approach, using semi-structured interviews to explore how university incubator programs influence the decision-making processes of entrepreneurs. A qualitative approach is useful for understanding complex issues because it provides deep insights into participants' experiences and the context in which they occur. Its flexibility allows researchers to adapt and explore new findings as they emerge, leading to a more nuanced and comprehensive understanding.

3.1 Data Collection

Entrepreneurs were randomly selected from various university incubator program websites across the Netherlands to ensure a representative sample. This selection method ensured an unbiased sample without specific information about participants' financial backgrounds. Eleven semi-structured interviews were conducted by the primary researcher and collaborating student researchers. Each interview lasted between 30 minutes and one hour and was conducted either online or in person, providing flexibility and depth in the responses. Semi-structured interviews allowed for in-depth exploration while maintaining consistency (Creswell, 2013). Researchers agreed on a common set of structured interview questions and transcription methods to ensure reliability and consistency.

3.2 Interview Structure

The interviews followed a framework similar to Jamin's (2024) study but included questions about the financial backgrounds of the entrepreneurs. The questions covered various phases of the start-up process: pre-startup, startup, and post-startup, as well as the role of the incubator (See **Appendix 1** for interview questions). This approach ensured all relevant aspects of the entrepreneurial journey were explored.

3.3 Transcription and Data Analysis

Transcriptions were conducted using automated tools like Teams transcription and manually verified for accuracy. In some cases, recordings were made and transcribed manually. Data security and confidentiality were maintained by securely storing transcripts on university storage systems, with informed consent obtained for both recording and transcription.

Data analysis followed the Gioia method (Magnani & Gioia, 2023), a systematic approach for qualitative data analysis that develops concepts from the data. MAXQDA software was used to assist in sorting and organizing the codes, allowing researchers to categorize and retrieve data segments efficiently.

Analysis Steps:

First-Order Initial Coding: Transcriptions were coded to identify expressions and sentiments directly related to the entrepreneur's answers, breaking down the data into meaningful pieces (Magnani & Gioia, 2023).

Second-Order Theme Development: Initial codes were refined into broader themes based on theoretical backgrounds, capturing the influence of incubator programs, decision-making processes, and economic factors on entrepreneurial behaviour.

Formation of Third-Order Aggregate Dimensions: From these second-order themes, aggregate dimensions were developed to provide new insights into how incubators influence entrepreneurs from different financial backgrounds in their decision-making.

See the table of analysed respondents in **Appendix 2**.

The following is an example of how the respondents were categorized while maintaining their anonymity:
Respondent: E1; Co-Founder; Startup Year 2021; Age :>20; Educational Background: Masters in Econometrics; Startup Phase; Economic Status at Start: Moderate with part-time jobs; Type of Incubator: UBI; Gender: Male, Data Collection: Online.

A data table was created to organize the analyzed data into first, second, and third-order dimensions. The results are presented under five main themes: Effectual Decision-Making, Causal Decision-Making, Incubators' Role, Economic Background, and Affordable Loss (see **Appendix 3** for the table of codes). Each theme is discussed in relation to the second-order codes. During the coding process, it became evident that some codes overlapped across different categories, highlighting the interconnected nature of entrepreneurial decision-making.

4. RESULTS

4.1 Effectual Decision-Making

Means-Driven Action: Entrepreneurs often relied on personal savings and part-time jobs to fund their ventures, showing a strong dependence on available resources. This allowed them to start their businesses without significant external funding. For instance, one entrepreneur mentioned, "*I was juggling a part-time job alongside the startup*" (E1). Another highlighted the creative use of resources: "*We sold shares for very little money to get through the early years*" (E10). These examples demonstrate how entrepreneurs leveraged their immediate resources to sustain their ventures, reflecting the principle of effectual decision-making: starting with what you have.

Leveraging Contingencies: Entrepreneurs adapted their business models based on available resources and market feedback, showing flexibility. One entrepreneur shared, "*We spent the first six months exploring different directions and eventually pivoted to focus solely on enterprise*" (E2). Another noted, "*Our initial goal was to make a profit and cover costs, but we adjusted our*

proposition to align with market demands" (E10). These statements illustrate how entrepreneurs remain open to new possibilities and adjust their paths based on real-time information and feedback.

Commitments and Self-Selected Partnerships: Forming strategic partnerships and engaging with mentors were common strategies that provided valuable support and resources. One entrepreneur emphasized, "*We selected an investor with a large network, which was crucial for our growth*" (E10). Another stated, "*Having good people around you helps you quickly recognize the right problems and make the right decisions*" (E11). These examples underscore the importance of building a supportive network and leveraging relationships to access resources and expertise.

High Perceived Environmental Uncertainty: Entrepreneurs often faced significant uncertainties during the early stages, requiring high adaptability. One entrepreneur described, "*Initially, when you start as a graduate, you don't know what you don't know*" (E11). Another mentioned, "*The startup process is a series of unexpected events, and you're never really prepared for anything*" (E6). These statements reflect the uncertain nature of the entrepreneurial environment, where managing uncertainty is crucial.

Personal Attitudes and Perspectives: Entrepreneurs' personal beliefs and attitudes significantly influenced their decision-making processes. Many emphasized perseverance, flexibility, and a curious mindset. One entrepreneur noted, "*You have to be very focused but also very flexible; that's the key*" (E11). Another reflected, "*I often avoid easy solutions and opt to develop things from scratch, which enhances my skills significantly*" (E3). These perspectives highlight the importance of personal resilience and adaptability in navigating the entrepreneurial journey.

Pilot in the Plane: Entrepreneurs often took control of their business direction, making strategic decisions based on personal validation and market testing. One entrepreneur explained, "*This phase included ensuring our product met client needs. We rebuilt and refined our initial academic model into a practical product*" (E1). Another highlighted, "*As an entrepreneur, you work 10 hours a day, and probably 6 to 7 days a week*" (E11). These examples illustrate how entrepreneurs actively shaped their ventures and engaged directly in business activities.

4.2 Causal Decision-Making

Goal Driven Action: Entrepreneurs using causal decision-making often set specific, long-term goals for their ventures. This involves detailed planning and a clear focus on achieving predetermined objectives. For example, one entrepreneur stated, "*We aimed to significantly increase profits within the next year*" (E10). Another emphasized, "*Establishing OKRs helped us continuously evaluate and adjust our plans*" (E2). This approach allowed entrepreneurs to maintain a clear direction and measure progress against their goals, demonstrating a key aspect of causal decision-making.

Market Research and Competitor Analysis: Conducting thorough market research and competitor analysis was common among entrepreneurs using causal decision-making. This research informed their strategic decisions and helped identify market opportunities. One entrepreneur shared, "We conducted extensive market and competitor analysis to refine our value proposition" (E2). Another mentioned, "You need a competitor analysis to set up your market and see its potential" (E8). This approach enabled entrepreneurs to make informed decisions and anticipate industry trends, essential in causal decision-making.

Expected Return: Entrepreneurs focused on expected returns emphasized financial sustainability and growth. This approach involved evaluating potential returns on investment and making decisions that maximize gains. One entrepreneur explained, "I had a very detailed plan and a strong vision from the beginning" (E9). Another noted, "I am about maximizing gains" (E4). By prioritizing expected returns, these entrepreneurs aimed to achieve significant profits and support their company's growth.

Stakeholder Pressure: Entrepreneurs often faced pressure from stakeholders, such as investors, advisors, and mentors, which influenced their decision-making processes. One entrepreneur mentioned, "Our strategy is now influenced by our investors' perspectives" (E1). Another shared, "Based on his experience, our mentor helped us prioritize what was possible in 100 days" (E8). This pressure to meet stakeholder expectations often led entrepreneurs to adopt more structured and goal-oriented approaches, characteristic of causal decision-making.

4.3 Incubators Role

Access to Network & Expertise: Entrepreneurs frequently emphasized the value of the networks and expertise provided by university incubators. These connections were essential for accessing resources and gaining insights. One entrepreneur mentioned, "The incubator provided access to extensive networking opportunities, which is why we joined" (E1). Another stated, "Being part of a community with the same mindset was really motivating" (E4). These networks helped entrepreneurs navigate early-stage challenges by providing valuable resources and guidance.

Incubator Program: The structured programs offered by incubators were crucial in guiding entrepreneurs through business development. These programs included workshops and mentorship in areas like finance, business modeling, and strategic planning. One entrepreneur shared, "The major help from the incubator was the business coach who helped us identify the importance of our solution" (E9). Another noted, "Another incubator offered a solid program, especially in finance and business modeling" (E1). These programs provided essential skills and knowledge, shaping entrepreneurs' strategies.

Lean Startup-Based Approach: Many entrepreneurs adopted the lean startup methodology taught by incubators, focusing on developing and refining their minimum viable products (MVPs) based on continuous feedback. One entrepreneur explained, "Our focus was on creating basic products that had a clear market need"

(E1). Another stated, "We learned to build the business step by step, starting with an easily acquirable small market" (E9).

Incubator Evaluation: Entrepreneurs evaluated their experiences with incubator programs, appreciating the support while identifying areas for improvement. One entrepreneur mentioned, "A shift in focus from giving knowledge to building character is needed; the initial support was too focused on lectures" (E3). Another shared, "I wish the initial support had been more structured; a strong start is crucial" (E1). Overall, the network and support provided were highly valued, but there is room for improving the structure and focus of these programs.

4.4 Economic Background

Low (Household) Financial Resource Position: Entrepreneurs with limited financial resources often relied on part-time jobs to fund their startups. This constraint significantly influenced their decision-making processes and timelines for achieving profitability. One entrepreneur mentioned, "I used my savings and took on part-time jobs to support the startup initially" (E1). Another explained, "We also used personal funds and relied on research subsidies, grants, and prize money to keep ourselves afloat" (E2). These entrepreneurs had to bootstrap their ventures, using minimal resources to maximize their chances of success.

Moderate (Household) Financial Resource Position: Entrepreneurs from moderately resourced households had some financial stability, often from previous job earnings or partial salary funding through university grants. This stability allowed them to focus more on strategic planning and long-term goals. One entrepreneur stated, "I do have some savings, but if I didn't have any, I would have started less quickly" (E4). Another entrepreneur avoided external financing to retain equity, saying, "We try to postpone external financing as much as possible to attract new investments later" (E6). These entrepreneurs leveraged their financial backgrounds to support more strategic and planned approaches to their ventures.

4.5 Affordable Loss

Resourcefulness (Bootstrapping, Bricolage): Entrepreneurs often exhibited high levels of resourcefulness, engaging in bootstrapping and bricolage to manage limited resources. One entrepreneur explained, "We had to write grants to fund our salaries and set up the company with minimal initial resources" (E1). Another shared, "Using personal funds and freelance income" (E3). These strategies allowed them to creatively utilize what they had, minimizing financial risks while progressing.

Ability to Make Investments: Initial investments were crucial for many entrepreneurs. One noted, "I worked different jobs to keep ourselves afloat" (E2). Another stated, "Financial stability from the startup was crucial during its early stages" (E1).

Willingness to Invest: Entrepreneurs' willingness to invest what they could afford to lose was a key aspect of their decision-making. This willingness often stemmed

from their perceptions of risk and personal financial responsibilities. One entrepreneur mentioned, *"Being young and having no real responsibilities allowed me to take financial risks that I might not have taken otherwise"* (E5). Another shared, *"I believe that to make money, you have to spend money. People afraid to do that can't be successful quickly"* (E4). This highlights the importance of personal circumstances in shaping their readiness to invest and risk their resources.

Affect (Positive/Negative): Emotional factors significantly influenced entrepreneurs' decision-making processes. Positive emotions, such as enjoying problem-solving and building products, were motivating factors. One entrepreneur expressed, *"Every day is unexpected, so you try to make the best of it and see it as an opportunity"* (E6). Another reflected, *"I have these 10 problems and I know how to solve 7, so that should work"* (E3).

The Plunge Decision: The decision to fully commit to their startups, often referred to as the "plunge decision," was a significant milestone. This commitment involved moving into a full-time role and dedicating themselves entirely to their business. One entrepreneur explained, *"I worked different jobs; after a while, we had enough money coming in that I didn't need to work elsewhere"* (E2). Another stated, *"I was juggling a part-time job alongside the startup, but as the project grew, they hired me to set up the company"* (E1).

4.6 Visualization of Research Outcome

The table below visualizes how economic background affects decision-making in incubated entrepreneurs, particularly focusing on the principle of affordable loss. It shows the transition from effectuation to causation in the entrepreneurial journey and highlights how these decisions evolve through the Pre-Startup, Startup, and Post-Startup phases.

Additionally, the table illustrates the impact of the incubator program on decision-making processes, showing how feedback from the network can lead entrepreneurs to either pivot or adopt more structured planning as they move through these phases. Entrepreneurs often pivot and continue with effectual decision-making if feedback from the incubator network suggests alternative options should be explored. However, they tend to shift towards more causal and structured planning when they acquire investment and influence from stakeholders.

Entrepreneurs from both low and moderate economic backgrounds initially rely on creative methods are resourceful and focus on manageable risk. Entrepreneurs with a moderate economic background typically have some savings from previous jobs and often use foresight to acquire grants, allowing them to avoid giving away equity. This enables them to focus on sustaining their ventures and making bold decisions earlier in the process. On the other hand, entrepreneurs from lower economic backgrounds often work jobs alongside their businesses. They are more likely to give away equity early on to finance their startup, leading to two potential outcomes: they may progress to a moderate financial status if they secure investment, or they may revert to bricolage and bootstrapping while

maintaining part-time jobs, delaying the decision to fully commit to their ventures. This, in turn, also affects the use of either effectual or causal decision-making, with those acquiring investor financing often transitioning to more causal decision-making in the post-startup phase.

Figure 6: Visualization of Research Outcome

| | <u>Pre-startup phase</u> | <u>Startup-phase</u> | <u>Post-startup</u> |
|-------------------------------------|--|--|--|
| <u>Decision-making logic</u> | Effectuation focused Effectuation: Means driven action (Part-time jobs personal savings). Seeking new opportunities, Problem solving, flexibility, and curious (personal attitudes). | Effectuation focused Effectuation: Means driven action and leveraged contingencies. Strategic partnerships. Problem-solving mindset (personal attitudes). Network utilization. Product refinement / pivoting. Pilot in the plane | Causation focused Causation: Financial sustainability focus. Long-term vision (goal-driven action). Evaluating expected return. Starting structured strategies. Causation: Expected Return. Forecasts. Long-term goal alignment. Structuring and strategies. |
| <u>Incubator's Role</u> | Access to network and expertise. Feedback. Lean Startup Approach. Incubator program. | Incubator program. MVP. Continuous feedback for pivoting. Network and mentor guidance. Access to investors. | Outcome of the incubator program. Professionalization. Structural improvements. Incubator evaluation. |
| <u>Economic Background</u> | Low Minimal resources. Seeking out income streams. Moderate Some resources. Strategic foresight to get access to financing. | Low Minimal resources. Creative funding strategies. Moderate financial stability. Access to grants. Confident investments. Higher | Low Minimal resources. Seeking out income streams. Reactive actions Moderate Focus on self-sustaining through sales. Expected return. |
| <u>Affordable Loss</u> | Bootstrapping Resourcefulness. Willing to risk small losses. Focus on manageable risks. Creativity in minimizing costs. Positive mindset towards opportunity and risk. | More equity sacrifice. Ability to invest. Preserve equity ownership. Leveraging personal circumstances. Plunge decisions. | Bootstrapping and bricolage. Focus on manageable risks. Creativity in minimizing costs. Ability and willingness to invest. Plunge decisions. Higher financial stability. Shift towards more significant investments. |

5. DISCUSSION

This study explored “*how the economic background of entrepreneurs in university incubator programs affects their decision-making styles, particularly focusing on the choice between effectual and causal decision-making and the role of the affordable loss principle.*” The following discussion aims to critically assess the accuracy of our propositions and explore any new insights that arise from our findings.

Proposition 1: Young entrepreneurs at the start of their ventures are more likely to adopt effectuation and the affordable loss principle due to their minimal resources.

The findings support this proposition. Most interviewed entrepreneurs in the pre-startup or early startup phases relied heavily on means-driven actions, personal savings, part-time jobs, and minimal resources. This aligns with Sarasvathy's (2001) emphasis on affordable loss, showing that young entrepreneurs lean towards effectual thinking and cautious financial commitments due to limited resources. Cai et al. (2017) found that the affordable loss principle helps with opportunity evaluation and innovation. However, this approach might limit the scope of their ventures, suggesting a balance between risk aversion and opportunity maximization.

In the pre-startup phase, entrepreneurs relied on personal savings and part-time jobs, but their strategic flexibility and adaptability were surprising. They not only used available resources but actively sought new opportunities within constraints. For example, one entrepreneur wrote multiple grants or looked for extra jobs. This proactive approach aligns with Fisher's (2012) findings on leveraging contingencies and challenges the view of effectual entrepreneurs as purely reactive. It shows that they also exhibit strategic foresight.

The principle of affordable loss was crucial, guiding decisions based on manageable risks. Entrepreneurs' willingness to take risks depended on personal circumstances, like being young and without significant responsibilities, highlighting the role of personal context in risk management. This aligns with Dew et al. (2009) but also suggests that financial decisions are closely linked to personal life stages and responsibilities. Additionally, economic background influenced the level of affordable loss. Entrepreneurs with lower household incomes were more willing to give away shares for financing, while those from stronger financial backgrounds avoided this to maintain future company value.

Proposition 2: University incubator programs tend to encourage a causal approach among entrepreneurs due to their emphasis on structured planning tools and resources.

The research shows that university incubator programs focus on detailed business planning and market research, promoting a causal approach. However, the networks and connections provided also foster flexibility and adaptability through feedback, key aspects of effectual thinking. Entrepreneurs mentioned that networking facilitated real-time feedback and opportunities for

pivoting. Thus, while incubators encourage structured planning, they also support effectual strategies by connecting entrepreneurs to dynamic networks, allowing for adaptive decision-making.

Entrepreneurs switched between effectual and causal logic depending on the context. Stakeholder pressure, such as mentor guidance and investor perspectives, influenced these decisions, highlighting the interaction between internal decision-making and external expectations. Psychological factors like resilience and problem-solving also played crucial roles. Further research is needed to understand how these traits influence entrepreneurial success in navigating different decision-making strategies.

During the analysis, it became clear that decision-making processes are not mutually exclusive. There is a significant interplay between effectual and causal approaches, indicating a hybrid use of decision-making models and suggesting complexity in entrepreneurial behaviour. Entrepreneurs often switch between these logics based on context, stakeholder pressure, and external feedback.

Research by Reymen et al. (2015) suggests that entrepreneurs adapt their decision-making processes as contexts evolve, starting with effectual logic for flexibility and later shifting to causal logic as ventures mature. Aarstad and Jakobsen (2019) found that integrating both approaches can lead to better outcomes by combining the flexibility of effectual logic with the strategic planning of causal logic.

These findings question whether decision-making processes can be studied separately. The evidence suggests that a more integrated approach may be necessary to fully understand entrepreneurial decision-making. Future research should explore whether a hybrid decision-making process better captures the complexities of entrepreneurial behaviour. This research should also consider contextual factors such as market, competitive pressure, age, and educational background, which play crucial roles in shaping decision-making strategies.

Adjusted Proposition 2: University incubator programs tend to encourage a causal approach through structured tools. If ideas are not validated, incubators encourage effectual decision-making to support pivoting.

Proposition 3: If university incubators do not offer financial support after the startup phase, entrepreneurs are likely to revert to affordable loss and effectual decision-making, particularly in resource-constrained environments.

The data partially supports this proposition. Entrepreneurs who secured financing shifted towards expected returns and causal decision-making. However, limited post-startup phase data means further research is needed, as only two interviewed entrepreneurs were in the post-startup phase.

Adjusted Proposition 3: If entrepreneurs secure financing after the startup phase, they seem to revert to expected returns and more causal decision-making.

Smolka et al. (2016) found that affordable loss does not correlate with higher venture performance in later stages, suggesting a potential shift in strategies as ventures mature. This raises questions about the long-term viability of affordable loss principles. Future research should explore how decision-making strategies evolve and impact performance in later stages, considering factors like market conditions and entrepreneurial maturity.

5.1 Managerial Implications

Based on these findings, the following strategies can improve the effectiveness of university incubator programs:

Educating on Decision-Making Styles: Understanding that there are distinct decision-making styles, each with its own advantages and disadvantages, is essential for entrepreneurs, as these styles are often embedded in a person. University incubators can prioritize educating entrepreneurs about these different decision-making approaches, including their respective pros and cons. By offering targeted training sessions on effectual and causal decision-making, incubators can help entrepreneurs recognize which strategies best suit their circumstances. This knowledge enables entrepreneurs to make more informed decisions and critically reflect on their own choices, improving their strategic planning and adaptability. Additionally, incubators can offer resources and tools to address any gaps in decision-making capabilities, supporting entrepreneurs in navigating both structured and adaptive strategies more effectively.

Customized Support: While incubators currently offer general support, the results often fall short due to a lack of personalization. To improve outcomes, incubators should focus on delivering customized mentorship that addresses the unique needs, stages, and economic backgrounds of each startup. Personalized support ensures that advice and resources align with the entrepreneur's current challenges and decision-making style. For example, entrepreneurs at different stages may require varying levels of structured planning versus flexibility to pivot which in turn will lead to better-informed decisions and improved entrepreneurial outcomes.

Financial Literacy and Affordable Loss Strategy

Workshops: Offer workshops on financial literacy, covering budgeting, investment evaluation, and managing financial risk. Training on the affordable loss principle can help entrepreneurs make informed decisions and understand their financial limits.

Emphasis on Networking: Strengthen networking support within incubators. Connect entrepreneurs with industry experts, potential investors, and mentors, both within and outside the incubator. This provides valuable feedback and resources to support both effectual and causal decision-making.

Character and Resilience Training: Include resilience training in the incubator curriculum to help entrepreneurs build the mental models needed to navigate setbacks and uncertainties. This training fosters a mindset that balances

structured planning with the flexibility to adapt to changing circumstances.

5.1.1 Limitations

While this study provides valuable insights, several limitations should be acknowledged. Addressing these in future research can help build a more comprehensive understanding of entrepreneurial decision-making processes.

Limited Generalizability: The study focused mainly on entrepreneurs in the early to mid-stages of their startups. This limits the applicability of the findings to later stages of entrepreneurial ventures. Future studies should include a broader range of startup phases to understand how decision-making evolves.

Subjective Bias: While the study aimed to mitigate the effects of subjective bias in self-reported data through various methodological rigor measures, it is important to acknowledge that some degree of bias may still persist. The study relied on self-reported data from entrepreneurs, which may not always accurately reflect their actual behaviour or outcomes. Self-reporting can be influenced by personal biases, memory recall issues, and the desire to present oneself favourably, potentially skewing the data.

Multiple Factors: While the study highlighted the influence of economic backgrounds, it did not explore other potential influencing factors such as age, educational background, and industry type. These variables could impact decision-making processes and should be included in future research.

5.1.2 Suggestions for Future Research

Longitudinal Studies: Conduct longitudinal studies to track the evolution of entrepreneurs' decision-making from the pre-startup through post-startup phases. This will provide a deeper understanding of how and when entrepreneurs switch between effectual and causal logic.

Comparison of Incubator Types: Compare different types of incubators (public, private, university, etc.) to assess their impacts on entrepreneurial decision-making. Such comparisons can reveal the strengths and weaknesses of different incubators.

Industry Variations: Investigate how different industry sectors influence the balance between effectual and causal decision-making.

Psychological Factors: Examine the role of psychological factors, such as resilience and problem-solving, in shaping entrepreneurial decision-making. Understanding these factors can provide insights into the personal attitudes that contribute to successful entrepreneurship.

Financial Literacy: Explore the impact of financial literacy on the adoption of effectual versus causal strategies. This research can identify how financial

education influences entrepreneurial behaviour and outcomes, building on existing studies that link financial knowledge to decision-making.

5.2 Conclusion

This study set out to examine how the economic backgrounds of entrepreneurs in university incubator programs influence their decision-making styles and the use of the affordable loss principle. By interviewing entrepreneurs in both pre-startup and startup phases, we examined how financial constraints and resources shape their decision-making approaches.

The economic backgrounds of entrepreneurs in university incubator programs play an important role in the decision-making style and use of affordable loss. Entrepreneurs with limited financial backgrounds tend towards effectual decision-making and drastic affordable loss measures, such as early equity sales. Conversely, those from moderate financial backgrounds use their resources more conservatively and apply the affordable loss principle less drastically.

University incubators predominantly encourage a causal decision-making style through structured tools and mentorship but also facilitate effectual strategies by allowing adaptation based on network and market feedback. This study suggests that decision-making processes are highly interconnected and may benefit from being studied as a hybrid model rather than as separate entities.

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Appendix

Appendix 1: Interview questions

Introduction of Entrepreneur and Company:

- Can you briefly describe your entrepreneurial background and the company you are currently working on within the incubator? (Age, education, work experience, industry/core business, founding year, current entrepreneurial phase, etc.
- When did you first come in contact with the incubator?

Idea & Pre-startup Phases:

- Was the initial goal clear from the start, or was it more like "see where this is going to end"?
- What role did the incubator play in the assessment of the opportunity?
- How did your financial background influence your initial resource planning when starting your business?
- Have you ever adjusted your business goals or objectives based on the resources available to you at the time? If so, how did you approach this decision-making process?

Startup & Post-startup Phases:

- What did the process of starting the company look like?
- What were you considering when you made business decisions?
- How do you make decisions when it comes to potential risks and returns?
- How much reliance did you place on predictive models (for example, market analysis, competitive analysis, and customer analysis)?
- How did partnerships influence your business or decision-making? For what purposes are they used? Do you have any specific examples?
- How did you deal with unexpected problems or events? Can you think of any examples?
- To what extent did you have a clear goal for the future? What did this look like?
- How did finances shape your approach to developing your business?
- How did your financial situation when you started influence your use of the incubator's resources?
- How has your age affected your decision-making process when starting your business, especially in terms of how you weigh risks and what decision-making strategies (effectuation/ causation) you have adopted?

Influence of the Incubator:

- To what extent did you use a planning process (business plan/model) throughout the development of the startup? Can you explain to me to what extent the incubator program imposed that on you.
- How do you evaluate the role of the incubator during the startup process?
- Can you cite specific instances where the incubator's guidance, resources, or mentorship influenced your decision-making.
- What was the most pivotal moment of influence by the incubator in your view?
- Can you reflect on how satisfied you are overall with your experience with the incubator? (on a scale of 1-10)
- Is there anything else you would like to add?

Finalization

- Thank the entrepreneur for cooperating.
- Tell him/her he will receive the transcript in a few days.
- Ask if the entrepreneur is interested in receiving a (digital) copy of the thesis once finished.

Appendix 2: Table of interviewed respondents

| Respondent | Position | Startup Year | Age | Educational Background | Startup Phase | Economic Status at Start | Type of Incubator | Gender | Data Collectio |
|------------|------------|-----------------------------|-----|---|-----------------------------|---|-------------------|--------|----------------|
| E1 | Co-Founder | 2021 | >20 | Masters, Econometrics | Startup Phase | Moderate, part-time jobs | UBI | Male | Online |
| E2 | Co-Founder | 2017-2021 (developing idea) | 33 | Master, Political Science | Startup Phase | Low, part-time jobs | UBI | Male | Online |
| E3 | Founder | 2021 | 24 | Interdisciplinary | Pre startup Phase | Moderate, personal funds and part-time jobs | UBI | Male | In-Person |
| E4 | Founder | 2022 | >20 | Masters, Industrial engineering | Pre startup phase | Moderate, Personal funds | UBI | Female | Online |
| E5 | Co-Founder | 2021 | >20 | Masters, Human movement sciences | Pre-Startup / Startup Phase | Low, | UBI | Female | Online |
| E6 | Founder | 2024 | 26 | PhD, Bio medical science | Pre-Startup / Startup Phase | Moderate, part-time job | UBI | Female | Online |
| E7 | Co-Founder | 2023 | 37 | Master, Social Economics system engineering | Pre-Startup Phase | Moderate, personal funds | UBI | Female | Online |
| E8 | Co-Founder | 2022 | 24 | Masters | Startup Phase | Moderate, personal funds | UBI | Female | Online |
| E9 | Co-Founder | 2023 | 34 | PhD | Startup phase | Moderate, early grants | UBI | Male | In-Person |
| E10 | Founder | 2013 | >30 | Software development | Post startup phase | Low, personal investment and financing | UBI | Female | Online |
| E11 | Founder | 2022 | >50 | Engineering | Post startup phase | High, investor | UBI | Male | Online |

Appendix 3 : Data Table of codes

| First-Order Codes | Second-Order Codes | Third-Order Codes |
|---|--|---------------------------|
| Using personal savings and part-time job, utilizing existing academic models, applying learned skills, using personal funds and savings, working freelance jobs to support the venture, selling initially to family and friends, working side jobs to support the venture, moving to a new country to pursue the startup, winning awards and using prize money for initial funding, working other jobs while starting the business, selling a lot of shares for very little money to get through early years, reinvesting profits back into the company, using savings and personal funds | Means Driven Action | Effectual Decision-Making |
| Adapting models for energy traders, refining models based on market feedback, adapting platform from election use to corporate use, changing value propositions and strategies based on validation, adapting the business idea based on market feedback, adjusting plans and strategies based on available resources, changing strategies based on market needs and feedback, adapting to feedback from mentors and market needs, pivoting the business case multiple times, changing the initial goal to make a profit and cover costs, learning about product-market fit on the fly, being flexible while remaining focused | Leveraging Contingencies | |
| Joining startup based on supervisor's invitation, collaborating with business-oriented individuals, collaborating with co-founders with complementary skills, receiving direct and confrontational feedback from advisors, working with friends and people from the incubator, evolving collaborations into formal partnerships, engaging in collaborative efforts with community members, engaging in partnerships with other companies and stakeholders, engaging with students and other startups for development, choosing an investor for their network, collaborating with partners and investors | Commitments and Self-Selected Partnerships | |
| Unclear specific applications or sectors initially, rapidly developing tech field, initial lack of clear goals and direction, navigating the challenging sector for entrepreneurs, exploring different business ideas and sectors, navigating the challenges of starting a business during a pandemic, navigating the challenges of product development, navigating the challenges of the market, navigating challenges related to external funding and investor requirements, navigating the financial struggle and finding financial stability, managing the slow initial phase of the startup process | High Perceived Environmental Uncertainty | |
| balancing academic and entrepreneurial activities, emphasizing the importance of continuous reflection and adaptability, emphasizing intuition and gut feeling in decision-making, reflecting on learning from failures and refining vision, balancing perfectionism with flexibility in business execution, balancing risk-taking with strategic decision-making, understanding the need for perseverance and flexibility | Personal Attitudes and Perspectives | |
| Taking control of business direction , choosing loan based on personal validation of investor, directly influencing business direction based on feedback, setting own terms for validation and strategy, taking direct control of coding and product development, direct involvement in developing and refining the business idea | Pilot in the Plane | Causal Decision-Making |
| Aiming to double revenue, setting specific annual targets, setting and pursuing specific targets like revenue goals, establishing OKRs (Objectives and Key Results), continuously evaluating and adjusting plans based on available resources, setting long-term goals/ visions, continuously adjusting business objectives based on structured planning processes | Goal Driven Action | |
| Conducting market and competitor analysis, using business model canvases to understand the market position, validating product fit through extensive user engagement, continuously adjusting value propositions based on feedback, using predictive models to inform strategic decisions, anticipating industry developments and adjusting strategies, adapting business strategies based on market and competitor insights, using market research to identify market gaps | Market Research and Competitor Analysis | |
| Focused on creating products with clear market need, aligning development efforts with market demands, focusing on financial sustainability and growth, using revenue targets as key performance indicators, evaluating potential return on investment for each venture, focusing on maximizing gains and high-risk, high-reward strategies, aiming for significant profits to support company growth | Expected Return | Incubators Role |
| Influence of investors' perspectives on strategy, influence from advisors and mentors on strategic direction, influence from community members on decision-making, | Stakeholder Pressure | |
| Meeting business-oriented individuals at networking events, access to legal resources and mentorship, gaining access to advisors and mentors through incubator, gaining access to a community of entrepreneurs and resources | Access to Network & Expertise | |
| Participation in various incubator programs, structured programs on finance and business modeling, benefiting from structured programs on problem-solution fit and financial modeling, receiving guidance and support from a coach, learning to deal with financial reports and accountability, getting support for administrative tasks and investor relations | Incubator Program | |
| Developing and refining products based on market feedback, focusing on pivoting to ensure basic product-market fit | Lean Startup-Based Approach | Economic Background |
| Appreciating structured programs, suggesting a shift in focus to character building and practical engagement, minimal influence beyond financial reports and accountability, appreciate the support from incubators in finding investors and initial setup | Incubator Evaluation | |
| Reliance on part-time jobs and grants for initial funding, reliance on freelance work, financial constraints influencing the timeline for startup, | Low (Household) Financial Resource Position | Affordable Loss |
| Receiving partial salary funding through university grants, co-founder's savings from previous jobs, receiving support from personal savings and previous job earnings, using prize money and grants for support, using research subsidies | Moderate (Household) Financial Resource Position | |
| Writing grants to fund salaries, setting up a company with minimal initial resources, using personal funds and freelance income to bootstrap the startup, relying on subsidies and grants to maintain operations, and developing solutions from scratch to enhance skills and handle failures productively. | Resourcefulness (Bootstrapping, Bricolage) | The Plunge Decision |
| securing initial funding through grants and subsidies , securing initial funding through personal savings and side hustles | Ability to Make Investments | |
| Willingness to join startup and move into full-time role, willingness to work freelance jobs to support the startup, willingness to take financial risks due to being young and having no real responsibilities. | Willingness to Invest | |
| Learning from incubator experiences, dealing with initial uncertainty and evolving confidence, reflecting on the learning process, enjoying the process of solving difficult problems and building products, Using failure as learning | Affect (Positive/Negative) | |
| Moving into a full-time role in the company, deciding to learn the necessary skills to advance the business. | The Plunge Decision | |