Journal of Ecohumanism
2024
Volume: 3, No: 7, pp. 878 – 893
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4256

Behavioral Biases and their Influence on Financial Decisions: An Analysis of Social Entrepreneurship in a Medium-Sized City

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Abstract

In recent years, entrepreneurship has been an alternative economic livelihood that independently seeks to generate employment and in turn the economic growth of countries. Social entrepreneurship is a topic of great importance in recent research, however, there is still not enough empirical evidence to analyze the rationality of decision making. Given the social factor they pursue, it is possible that they may be affected by behavioral distortions that influence their rationality, especially in three financial aspects: investment, savings and indebtedness. Therefore, the objective of this work is to determine the existing influence between behavioral biases and financial decision making of social enterprises in the canton of Cuenca. The study is a descriptive-correlational cross-sectional approach, using structural equations from Partial Least Squares (PLS). The sample obtained is 162 social enterprises. The results show a significant positive influence of overconfidence, procrastination, status quo, and negative influence of over optimism on investment decisions. Also, procrastination and status quo directly influence savings decisions, but the gambler's fallacy indirectly. On the other hand, the risk aversion, overconfidence, over optimism and status quo biases were significantly influenced on borrowing decisions.

Keywords: *Social Entrepreneurship, Rationality, Behavioral Biases, Financial Decisions, Structural Equations.*

Introduction

In recent years, entrepreneurship has been an alternative economic livelihood that seeks to generate employment and economic growth in countries through independent means. Ecuador is the country with the second highest level of entrepreneurship created in Latin America, with a rate of 14.7% (Lasio et al., 2020); however, despite the different public policy initiatives, the country does not meet all the requirements to generate a dynamic and sustainable ecosystem that favors it (Zamora-Boza, 2018).

Recently, efforts have been made to open space for ventures with a social purpose, which require tenacity and constancy to strengthen and consolidate in the market, generating in this way resources to cover their operability, in addition to growing and achieving profitability (Acosta et al., 2018). While social entrepreneurs are a critical element in achieving the much-needed social change, they also need a supportive infrastructure that provides access to financing and training (Hervieux and Voltan, 2018).

It is important to consider that the success and permanence of social enterprises is significantly related to their ability to be sustainable and financially self-sufficient (Rodriguez and Hernandez, 2019). Therefore, the decisions they make favor the creation of wealth and, in addition, promote social welfare (Moreira et al., 2018). However, social entrepreneurs, when acting under the premise of generating social value, tend to

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prioritize the fulfillment of social objectives over other aspects such as profitability, leaving aside the assumption of rationality (Toledano, 2011). When talking about rationality, the emphasis is placed on the ability that a person has to achieve the proposed goals through the appropriate means, in such a way that the results are the most profitable, despite the uncertainties that may exist (Ibarrondo, 2018). Nevertheless, there are inconsistencies in the rationality of individuals that cause them not to act on the basis of the traditional economic theory, but to make decisions based on psychological factors that are generally not identified, so that they do not obtain the planned results (Kahneman and Tversky, 1979). Thus, people make subjective choices based on feelings and desires that do not allow them to take the best advantage of the opportunities presented to them (Fernandez et al., 2017).

Currently, living in a globalized environment, the easy access to information makes it possible to make appropriate decisions (Moreno, 2022). According to Acevedo and Linares (2022), the decisions made by individuals largely depend on the scenario in which they find themselves, that is, in simple and concrete situations, the decisions to be made are more focused, but when the scenario is complex, other factors, such as emotional ones, are more involved.

Therefore, it is necessary to identify the factors that distort behavior and know how to control them, some of which may be overconfidence, regret, risk aversion, social or emotional bias, among others, known as behavioral biases (Yurttadur and Ozcelik, 2019). In addition, it should be noted that the impact of behavioral biases on decision makers is different given the perception of each of the entrepreneurs about the situations they may face, so the information processing stage is crucial to evaluate the possible outcomes (Graminha and Afonso, 2022).

For this reason, the objective of this research is to determine the relationship between behavioral biases and financial decision making in social enterprises in the Canton of Cuenca. To this end, we intend to answer the research question: Do behavioral biases influence the financial decisions of social entrepreneurs in the Canton of Cuenca? For this purpose, a descriptive and correlational analysis will be applied using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Theoretical Framework and Literature Review

For Vázquez (2018), social entrepreneurship consists in the creation of an innovative project that aims to solve or contribute to a social problem, such as poverty, unemployment, insecurity, among others, based on a business model of an inclusive nature. That is, in addition to contributing to the economic reactivation of a country, it also seeks to achieve a positive impact in generally excluded areas, achieving their social and economic development through the generation of employment and new job skills, thus reducing migration to other countries due to high levels of unemployment and poverty.

Social entrepreneurs tend to use available economic resources to explore new ways of creating value for their target communities (Dwivedi and Weerawardena, 2018). In turn, the implementation of joint actions between the different actors interacting in a market allows a social enterprise to have greater opportunities for individual and collective development, thus satisfying both current and future needs (Feijó-Cuenca et al., 2020).

On the other hand, decision making within a company, whatever its purpose, is not easy, given the existence of internal and external factors of organizations that force them to adapt or, in turn, anticipate the opportunities offered by the market, which is why they must be prepared to interpret these factors and make the right decisions that contribute to development and growth, so that they can survive in a dynamic environment (Nobre et al., 2022). In addition, the financial education that each individual possesses can influence financial decisions (Rivera and Bernal, 2018).

While, the rationality that individuals have when making decisions is biased by psychological factors that influence their behavior, which causes them to make poor decisions (Kapoor and Prosad, 2017). Although traditional finance assumes that investors behave rationally when selecting their assets and investing, behavioral finance presents a completely different picture, focusing on how certain factors influence

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individuals' decisions either consciously or unconsciously (Fernandez et al., 2017).

Over the years, different perspectives have emerged that mainly relate to people's investment decisions, referring to whether they are made rationally or guided by their emotions, which could be related to their perceptions or associated with certain biases (Fernandez et al., 2017). For Kartini and Nahda (2021), there are two types of investors depending on their decision-making process, the rational, who are the ones who base their decisions on logical thinking and information about the investment perspective, and the irrational, who decide based on their psychological aspect, which creates behavioral biases. In such a way that the behavior adopted by each investor in the decision making is not rational in its entirety, but rather is somewhat limited according to their preferences (Trejos-Salazar et al., 2021).

Zapata and Canet (2009) define behavioral biases as those mental filters that limit the rationality of the individual when processing information and, consequently, when making a choice. Biases are mostly based on overconfidence, heuristics and emotions (Tversky and Kahneman, 1974). Likewise, Torres (2019) mentions that these biases are presented unconsciously, i.e. they are predispositions that guide an individual in one direction or another when making decisions, making them difficult to recognize and, in turn, to eliminate.

In addition, it is very likely that behavioral biases are present when rules that are considered basic are used and applied frequently in certain situations, because it is the information that they process immediately and that can influence the final decision (Faveri and Knupp, 2018). Individuals usually find the results obtained from judgments based on basic rules satisfactory, but this leads to the constant presence of biases in their actions (Torga et al., 2023).

According to the literature, over time it has been possible to identify and determine different biases that affect rationality in decision making. Tafur and Burbano (2020) show some of these biases (Table 1):

Table 1. Definition of behavioral biases

Bias
Herd effect (EM)
Overoptimism (OO)
Overconfidence (OC)
Risk Aversion (RA)
Player Fallacy (PF)
Procrastination (PR)
Statu quo (SQ)

Source: Own elaboration

In this sense, Fajardo (2014) in his research on the influence of distortions in the decision making of managers of companies established in Bogota - Colombia, analyzes the influence of the distortion of overconfidence in investment decisions, for which he used a structured survey, and applied descriptive statistics, concluding that the distortion of overconfidence influences investment decisions. It was found that there was a negative correlation between these two variables, concluding that all participants in this study were affected by cognitive biases at the time of selection.

Similarly, Saurin et al. (2015) conducted a study with the aim of testing whether graduate students in economics, accounting, and management at the University of Porto (Portugal) and the Federal University of Santa Catarina (Brazil) present the status quo bias and how it relates to risk profile and quantitative ability in decision making, For this purpose, a survey of 307 students was conducted, which allowed to identify the presence of the status quo bias in the decisions of individuals and, in turn, through a regression analysis, it was determined that those people who are risk averse and neutral are the ones most affected by this bias.

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Santamaría and Oviedo (2016) elaborated a study in which the participants were business families from the city of Ambato - Ecuador with an age range between 25 and 78 years old, with the purpose of analyzing the impact of risk aversion on expansion strategies in market share, they used the application of a structured questionnaire with 9 questions, through which they showed that the participating family members are risk averse due to the fact that when they think about making improvements for their business, they fear that by going into debt they may fall into financial instability and lose profitability.

Qasim et al (2019) analyzed the relationship between decision making of 150 investors in Pakistan and herd effect and overconfidence bias by applying Ordinary Least Square (OLS) method, the results showed that these investors are significantly affected by such biases, explaining that individuals become more confident as their education and experience increases.

In the same line, Khan (2020) with the aim of examining the impact of behavioral biases on investment decisions in the Pakistani market, used a structured questionnaire adapted to 250 individuals and a correlation analysis that allowed measuring the impact on investment decisions, The study showed that there is no significant presence of some biases, for example, the herd effect with respect to investment decisions, which has a negative relationship, i.e., when investors follow others, the result is the opposite because most of them make inappropriate decisions.

Another study that seeks to explain the relationship of psychological aspects, both cognitive and emotional, is the one developed by Kartini and Nahda (2021) on the investment decisions of 165 individual investors in Yogyakarta - Indonesia using the t-student test, they conclude that the biases that have a significant effect on investment decisions are risk aversion, since investors beyond obtaining higher profits prefer to avoid losses; overconfidence and optimism due to the security of knowledge and information possessed, and herd behavior because people tend to rely more on the choices made by other individuals rather than their own decisions.

In turn, Carballo and Girbal (2021) conducted a systematic review of the literature in which one of the objectives was to analyze the behavioral biases that may influence people's savings decisions, and found that the status quo bias intervenes in savings decisions due to the fact that subjects usually have monetary constraints that do not allow them to give sufficient importance to savings, which means that they often have to postpone decisions that are likely to generate higher returns for their businesses in the long run.

Nobre et al. (2022), in order to understand the role played by behavioral biases in the investment decisions of entrepreneurs and managers in Brazil, developed qualitative research with the use of interviews and then a content analysis, in which the results found showed the presence of behavioral biases in the decisions of the participants, mainly overoptimism, overconfidence and risk aversion. Likewise, the authors found that the biases of overoptimism and overconfidence are present in the analysis of the market and in the acquisition of equipment, since they do not evaluate whether the investment to be made is really beneficial. On the other hand, risk aversion is manifested when they do not obtain the expected results, as they feel frustration due to the loss of capital, time, reputation that marks their trajectory, but despite having this bias they seek new opportunities (Nobre et al., 2022).

Also, Armenteros-Ruiz et al. (2023) in their research expose that classical financial theories assume that individuals make rational decisions, but the theory of behavioral finance shows the opposite, where it is considered that investment decisions are influenced by cognitive and emotional biases, it is concluded that overconfidence, the herd effect and the gambler's fallacy are biases that significantly influence the investment decisions of individuals operating in the stock market in Galicia. In addition, they mentioned that the higher the level of financial education possessed, the lower the degree of influence of these biases.

Most of the research developed on the influence of behavioral biases is oriented towards investment decisions, with managers, entrepreneurs or even students as the target population; however, there is not enough empirical evidence on the behavior of social entrepreneurs considering the approach of behavioral biases, and even less on savings or debt decisions. Therefore, this study is relevant to determine whether behavioral biases

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also influence the financial decisions of social entrepreneurs, as well as other individuals whose main objective is profitability.

The hypotheses proposed for this analysis are reflected in Table 2, where it is established that there is a significant relationship between each of the behavioral biases and their respective financial decisions.

Table 2. Research hypothesis

Behavioral biases	**Financial Decisions**		
	Investment	**Savings**	**Indebtedness**
Herd effect	H1a	H2a	H3a
Overoptimism	H1b	H2b	H3b
Overconfidence	H1c	H2c	H3c
Risk aversion	H1d	H2d	H3d
Player fallacy	H1e	H2e	H3e
Procrastination	H1f	H2f	H3f
Status quo	H1g	H2g	H3g

Note. H1a: There is a significant relationship between the herd effect and investment decisions.

Methodology

The research was developed using a cross-sectional quantitative approach. The scope of the study is descriptive and correlational, where a descriptive analysis of the variables was applied and consequently a structural equation model was used to perform the correlational analysis. The target population is the active social entrepreneurs in the Canton of Cuenca, registered in the databases of the Institute of Popular and Solidarity Economy (EPS), which totals 278.

Simple random sampling was used, taking into account the possibility that each individual in a given population has of being selected. We proceeded with a confidence level of 95% and a margin of error of 5%, so that a sample of 162 social enterprises was obtained, to which an information gathering instrument was applied.

The information was collected through the use of a duly validated structured survey. The survey was based on the research developed by Tafur and Burbano (2020), Tenjo and Mejía (2021) and Armenteros-Ruiz et al. (2023), adapting the questions both on behavioral biases and financial decisions.

The survey was divided into three sections. The first consists of socio-demographic variables such as age, gender, education level, region and time of operation. The next two sections allow the evaluation of the variables of behavioral biases and financial decisions using Likert scale questions. This allows us to measure the rational behavior of social entrepreneurs when making financial decisions. Table 3 shows the dependent and independent variables.

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Table 3. Operationalization of variables

Variables	Concept	Components	Ítems	Instrument
Dependents				
Financial decisions	Decision making is given from the degree of financial knowledge that the individual has, which will guarantee the venture a long prosperous, innovative and stable life in the market (Romero and Ramirez, 2018).	Investment	6	Survey
		Savings	7	
		Indebtedness	9	
Independent				
Behavioral biases	Mental filters that limit an individual's rationality during information processing and, consequently, at the time of choice (Madaan & Singh, 2019).	Herd effect	4	Survey
		Overoptimism	7	
		Overconfidence	8	
		Risk aversion	6	
		Player fallacy	3	
		Procrastination	3	
		Status quo	5	

Source: Author's preparation.

Partial Least Squares Structural Equation Modeling (PLS-SEM)

Structural equation modeling (SEM) is a statistical tool that facilitates the analysis of causal relationships between multiple variables (Medrano and Muñoz-Navarro, 2017). It is used to establish relationships between observed and unobserved variables based on the use of multivariate statistical tools (Manzano, 2018).

Partial least squares structural equation modeling (PLS-SEM) is oriented to the analysis of variance and represents a flexible technique, since it does not require certain statistical assumptions, such as the normal distribution of the data (Martínez and Fierro, 2018). Therefore, its approach is nonparametric and multivariate (Lapo-Maza et al., 2021). In addition, it allows working with complex models with different constructs and indicators, which makes it more attractive (Hair et al., 2019), that is, it allows modeling relationships between several independent and dependent variables (Mueller & Hancock, 2018).

The PLS-SEM method is used to estimate latent variable models when the main objective of the study is to predict a construct or identify relevant constructs (Ibarra-Sáiz & Rodríguez-Gómez, 2020). At the same time, it facilitates the testing of all the hypotheses raised simultaneously, which is convenient when working with multiple variables (Chin, 1998).

On the other hand, SPSS 26 was used for the descriptive part of the data analysis and SmartPLS 4 for the structural equation modeling.

Results

Table 4 presents some sociodemographic variables, in order to know important data on social entrepreneurs in the canton of Cuenca, such as their age range, gender, level of education, area in which they are located and time of operation.

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Table 4. Sociodemographic variables

Sociodemographic Variables	Alternate	Responses
Age	Average	48 years
	Minimum	24 years
	Maximum	84 years
Gender	Female	37,90%
	Male	62,10%
Education level	No education	1,90%
	Primary school	16,90%
	High school	34,40%
	Third level	36,90%
	Fourth level	10,00%
Zone	Urban	63,60%
	Rural	36,40%
Time of operation	Average	19 years

Source: Author's work based on the program SPSS.

The average age of social entrepreneurs in the Canton of Cuenca is 48 years old, with a greater presence of the male gender (62.10%) as representatives for decision making. However, this does not mean that only men are capable of creating and sustaining this type of entrepreneurship, since women also have sufficient skills to identify a social problem and provide a solution that satisfies needs and generates financial wealth. This is reflected, regardless of gender, in the length of time that social enterprises in the Canton of Cuenca have been able to maintain their operations, passing through the critical stages that generally occur in their beginnings.

Regarding their educational level, most of them have completed high school (34.40%) and third level (36.90%), while only 16.90% have completed primary school. This implies that most of the social entrepreneurs have maintained a continuous education to be at the head of their administration and thus achieve a good performance so that it lasts in time.

In addition, 63.60% of the social enterprises are located in the urban area and 36.4% in the rural part of the Canton of Cuenca. Despite the fact that in both areas it has been possible to establish social initiatives that benefit society, in the rural area it is necessary to strengthen them in order to seek the welfare of the most vulnerable communities.

Table 5 shows the results obtained for the study variables through the instrument used:

Table 5. Identify behavioral biases and financial decisions.

Variables	Mean	Standard deviation	Percentage	
Behavioral biases			**Present**	**Not present**
Herd effect (EM)	2,798	1,384	45,15%	54,85%
Overoptimism (OO)	3,933	0,898	7,49%	92,51%
Overconfidence (OC)	3,923	0,921	8,55%	91,45%
Risk aversion (RA)	3,715	1,091	57,47%	42,53%

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Player Fallacy (PF)	3,269	1,153	25,53%	74,47%
Procrastination (PR)	4,225	0,845	95,60%	4,40%
Status quo (SQ)	3,882	0,978	78,52%	21,48%
Financial decisions			**Inadequate**	**Adequate**
Savings (SD)	3,393	1,099	24,86%	75,14%
Investment (ID)	3,704	1,150	16,43%	83,57%
Indebtedness (INDD)	3,529	1,178	29,66%	70,34%

Source: Prepared by the authors based on the SPSS program.

In terms of behavioral biases, the results show a significant presence of OO, EC, PF and EM. This means that social entrepreneurs have full confidence in their abilities and always maintain a positive mentality, but this could have serious consequences when making wrong decisions, which can be increased by relying only on past events or on methods used by other people, which, although they were beneficial at a certain time, will not always produce the same results.

On the contrary, social entrepreneurs are not affected by PR, because they try to accomplish immediately any complex and important task that comes their way. Also, although they are satisfied with the current situation of their venture, they do not refuse the possibility of taking on new challenges if they can increase profits, therefore SQ does not appear in a large part of these entrepreneurs, which is supported by the AR bias, which, although in a smaller proportion, considers that they are willing to take great risks and react to unforeseen results.

Regarding financial decisions, it is evident that social entrepreneurs generally make appropriate decisions, considering that they try to make a good SD, because they prefer to save money for contingencies rather than spend it; regarding ID, they choose to diversify their investments to minimize the level of risk and verify the financial data of their venture before investing in a project; finally, in INDD they seek the most appropriate sources of financing, therefore they compare the cost of the different alternatives to choose the most appropriate one.

Model Validity and Reliability

In order to assess the validity and reliability of the models, first the values of Cronbach's Alpha and Composite Reliability of the constructs are obtained. For investment decisions and debt decisions, Cronbach's alpha is higher than 0.60, which validates the constructs (Hair et al., 1999). Likewise, in the composite reliability analysis, all the constructs have values higher than 0.70, as mentioned by Noreña (2020), so there is internal consistency among them. However, as for the DA model, Cronbanch's alpha (0.455) and composite reliability (0.531) were not considered viable. Therefore, the model was adjusted and consequently the most appropriate validity and reliability values were obtained for the three models.

Subsequently, the coefficient of determination (R2) and also the adjusted coefficient (Appendix C) for ID (0.568; 0.548), SD with the adjusted model (0.566; 0.547) and for INDD (0.547; 0. 526), which means that in all models the variance of the decision variables is explained in a percentage greater than 50%, which is a substantial range according to Hair et al. (2011), who distinguished values of 0.75, 0.50, and 0.25, representing substantial, moderate, and weak ranges, respectively.

The Heterotrait-Monotrail (HTMT) ratio is used to assess discriminant validity. The HTMT matrix reflects that the constructs are largely distinct from each other, as they have values below 0.90, which is considered acceptable according to Henseler et al. (2015). In turn, the Variance Inflation Factor (VIF) rules out multicollinearity among the variables, as each of the analyzed constructs has values below 3.3 (Diamantopoulos and Siguaw, 2006).

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Analysis of the structural model

To test the hypotheses, three structural models are developed, because they are three financial decisions that can be observed through Figure 1, Figure2 and Figure 3.

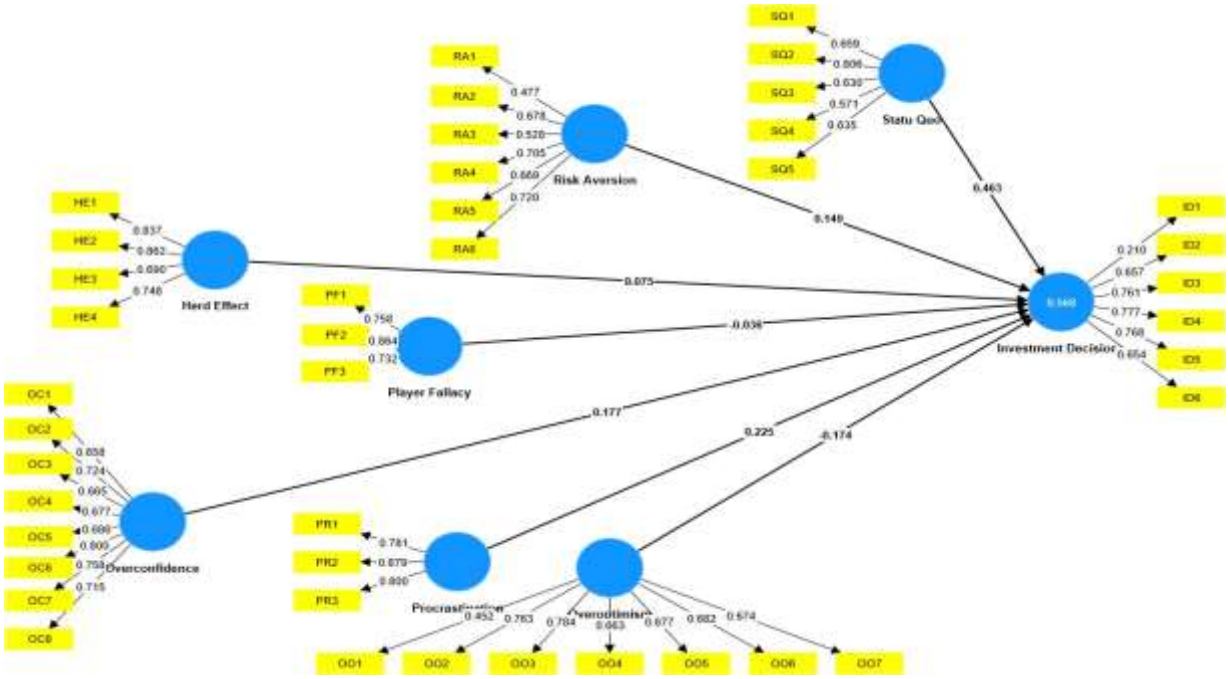

Figure 1. Model 1: Behavioral Biases and Investment Decisions

Figure 1 shows the construct of the dependent variable (ID) and how it is influenced by the independent variables that make up the behavioral biases (OC, OO, AR, PF, EM, SQ and PR). It can be seen that the SQ construct has a positive and superior relationship (0.463) compared to the others, while the OO construct has a negative relationship (-0.174) and explains 56.80% of the variance of the model.

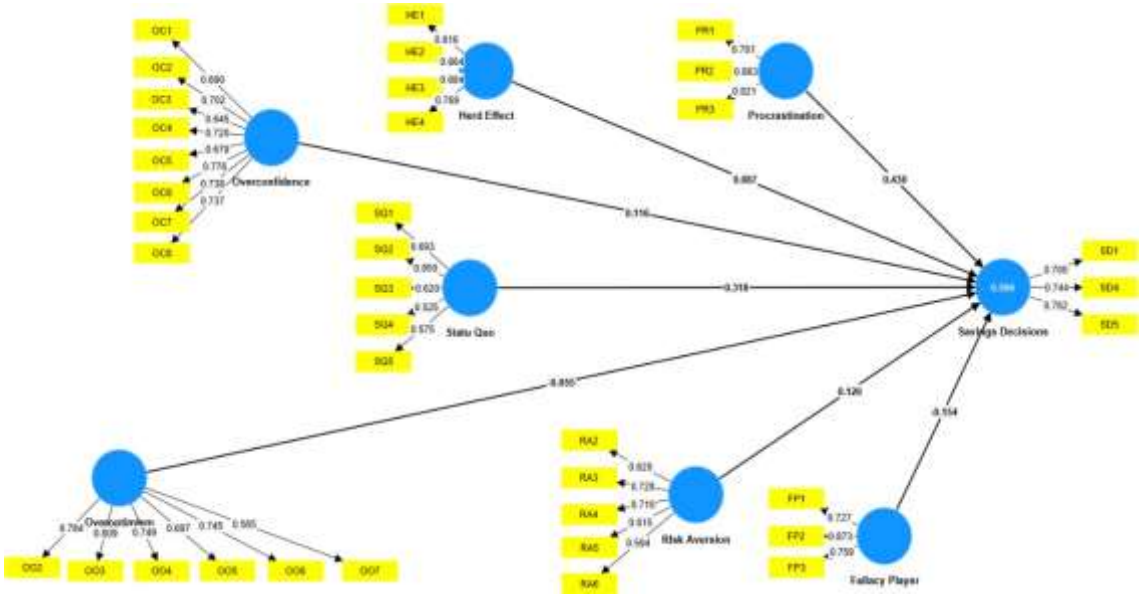

Figure 2. Model 2: Behavioral Biases and Savings Decisions

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Similarly, the previous figure (Figure 2) shows the construct of the dependent variable (SD) and how it is influenced by the independent variables, which are the behavioral biases (OC, OO, AR, PF, EM, SQ, and PR). This corresponds to an adjusted model, since it did not initially meet the validity and reliability requirements of the constructs, so that item 1 of the AR, items 2, 3, 6 and 7 of the SD and, finally, item 1 of the OO were eliminated. Consequently, it can be observed that the PR construct (0.430) is the one that has the highest direct relationship with the SD, the PF (-0.154) has an inverse relationship, and the adjusted variance of the model is 56.60%.

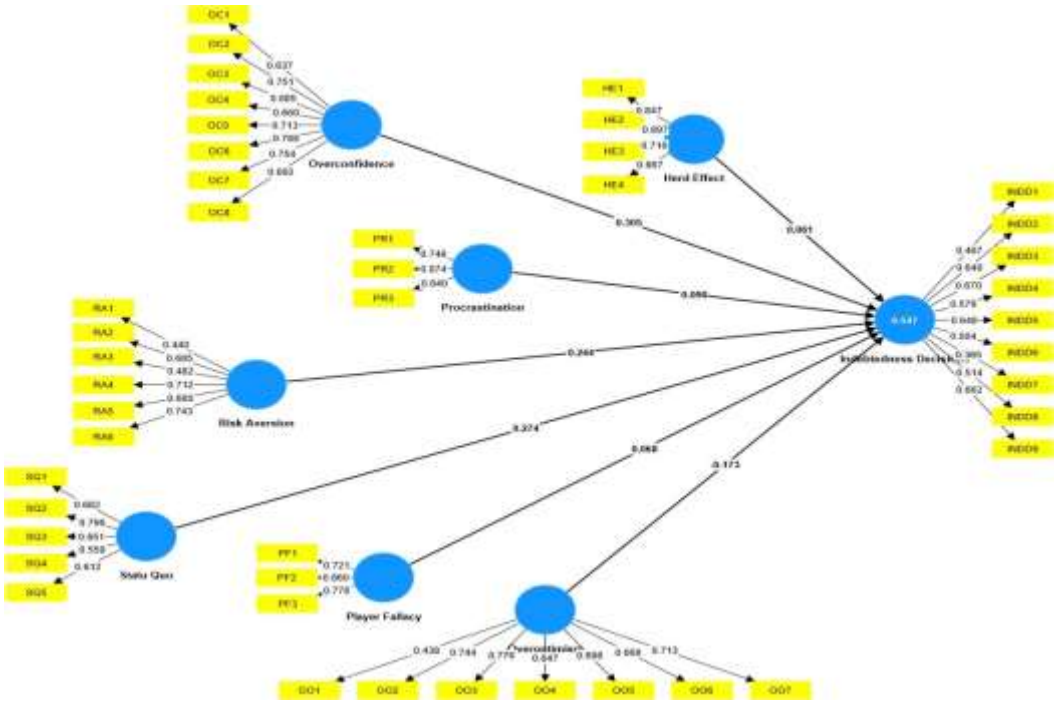

Figure 3. Model 3: Behavioral biases and debt decisions

Finally, figure 3 is made up of the construct of the dependent variable (INDD) and how it is affected by the independent variables of the behavioral biases (OC, OO, AR, FJ, EM, SQ and PR). It can be seen that the OC construct (0.305) has a direct relationship, the EO (-0.173) has an inverse relationship and the model is 54.70% explained.

Evaluation of the Structural Model

Next, Table 6 presents the p-values obtained that allow the acceptance or rejection of the hypotheses posed for the structural models (Table 2), as well as the path coefficients to identify the relationship between financial decisions and behavioral biases in social entrepreneurs in the Canton of Cuenca, since they measure the impact of a unit variation of the independent variable on the dependent variable (Arraes, 2015).

Table 6. Hypothesis testing

Hypothesis	Coeficientes Path	t-value	p-value	Decision
H1a: EM -> ID	0,075	0,989	0.161	Rejects
H1b: OO -> ID	-0,174	1,706	0.044	Accepts
H1c: OC -> ID	0,177	1,745	0.041	Accept
H1d: AR -> ID	0,149	1,641	0.050	Rejects
H1e: PF -> ID	-0,036	0,446	0.328	Rejects

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2024
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ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i7.4256

H1f: PR -> ID	0,225	2,186	0.014	Accept
H1g: SQ -> ID	0,463	4,700	0.000	Accept
H2a: EM -> SD	0,087	1,038	0,150	Rejects
H2b: OO -> SD	-0,055	0,546	0,293	Rejects
H2c: OC -> SD	0,116	1,228	0,110	Rejects
H2d: AR -> SD	0,120	1,617	0,053	Rejects
H2e: PF -> SD	-0,154	2,064	0,020	Accept
H2f: PR -> SD	0,430	5,175	0,000	Accept
H2g: SQ -> SD	0,318	3,470	0,000	Accept
H3a: EM -> INDD	0,061	0,766	0,222	Rejects
H3b: OO -> INDD	-0,173	1,697	0,045	Accept
H3c: OC -> INDD	0,305	2,767	0,003	Accept
H3d: AR -> INDD	0,244	2,597	0,005	Accept
H3e: PF -> INDD	0,068	0,685	0,247	Rejects
H3f: PR -> INDD	0,090	0,877	0,190	Rejects
H3g: SQ -> INDD	0,274	2,235	0,013	Accept

Source: Authors' elaboration.

Thus, it is observed that the biases of overoptimism, overconfidence, procrastination and status quo indicate that there is a significant relationship on investment decisions. The relationship is direct in the case of the overconfidence bias and investment decisions (0.177; $p<0.041$), as well as in the case of the procrastination and investment decisions relationship (0.225; $p<0.014$) and in the case of the status quo and investment bias (0.463; $p<0.000$), i.e. social entrepreneurs make better investment decisions when they are more confident in their abilities and seek or take advantage of more beneficial investment opportunities. In the case of the relationship between overoptimism and investment (-0.174; $p<0.044$), there is an inverse relationship, i.e. being very optimistic about the returns that a given investment can bring may lead them to make wrong decisions.

In addition, the entrepreneur's fallacy, procrastination and status quo bias show that there is a significant relationship between them and savings decisions. The results indicate that the relationship between procrastination and savings decisions (0.430; $p<0.000$), as well as the relationship between status quo and savings decisions (0.318; $p<0.000$) present a direct relationship, so that, savings decisions are more accurate by continuously reviewing their financial affairs and developing savings plans gradually. Regarding the relationship between the player fallacy and savings decisions (-0.154 $p<0.020$), the relationship is inverse, since social entrepreneurs can make wrong decisions by looking only at the results they have obtained in previous periods regarding their savings habits.

Regarding the biases of over optimism, overconfidence, risk aversion and status quo, a significant influence on the indebtedness decisions of social entrepreneurs is evident. Of which a direct relationship is presented in the case of overconfidence and indebtedness relationship (0.305; $p<0.003$), as well as in the case of risk aversion and indebtedness relationship (0.244; $p<0.005$) and in the case of status quo and indebtedness relationship (0.274; $p<0.013$), in this sense, social entrepreneurs make rational indebtedness decisions when seeking different financing alternatives, and are riskier as they fully trust in their capacity and experience. At the same time, there is an inverse relationship between over-optimism and indebtedness (-0.173; $p<0.045$), that is, being very optimistic and not carrying out a deep analysis that allows them to have a broader view of the different financing possibilities can lead them to make a mistake.

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Finally, the following table provides a summary of the behavioral biases that were significantly related to the various decisions analyzed:

Table 7. Influential behavioral biases

Behavioral Bias	**Relationship**	**Decisiin**
Overoptimism	Significant	Investment Decisions
Overconfidence	Significant	Investment Decisions
Procrastination	Significant	Investment Decisions
Status Quo	Significant	Investment Decisions
Player fallacy	Significant	Savings Decisions
Procrastination	Significant	Savings Decisions
Status Quo	Significant	Saving Decisions
Overoptimism	Significant	Indebtedness Decisions
Overconfidence	Significant	Indebtedness Decisions
Risk aversion	Significant	Indebtedness Decisions
Status Quo	Significant	Indebtedness Decisions

Source: In all the above cases the hypothesis was accepted and the relationship is significant

Discussion

Regarding the influence of behavioral biases on investment decisions, the study finds that overconfidence has a positive and significant impact on the investment decisions of social entrepreneurs in the Canton of Cuenca, a result that is consistent with several studies such as those of Armenteros-Ruiz et al. (2013), Qasim et al. (2019), Nobre et al. (2022). However, this result is contrary to that obtained by Fajardo (2014), who found a negative relationship between this bias and the decision. Qasim et al. (2019) mention that the positive effect of the overconfidence bias occurs because subjects become more confident as their education increases, which is reflected in the fact that 86.40% of social entrepreneurs reported that they constantly train themselves.

Similarly, a positive relationship of the status quo bias on investment decisions was found, which is related to the findings of Saurin et al. (2015), where it was proven that the status quo influences the decisions of individuals and is directly related to the risk profile.

On the other hand, according to the results, it was shown that excessive optimism negatively influences investment decisions, indicating that if the social entrepreneur has this bias, his investment decisions would be less profitable. This information is different from the results attributed by Kartini and Nahda (2021), where they found that excess optimism is positively associated due to the information available to individuals.

Another bias that significantly influences the investment decisions of social entrepreneurs is risk aversion, because they are willing to take higher levels of risk if it gives them the opportunity to obtain better profits, which contradicts the findings of Nobre et al. (2022) and Kartini and Nahda (2021), because in their research they argue that investors are risk averse because they prefer to avoid feelings of frustration when incurring losses.

Also, studies by Armenteros-Ruiz et al. (2023), Khan (2020), and Kartini and Nahda (2021) indicate that the herd effect bias significantly affects the decisions of investors, either positively or negatively, but in the case of social entrepreneurs, it was shown that the herd effect does not significantly affect their investment

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decisions, where 45.15% of social entrepreneurs prefer to make their own decisions rather than using the strategies of competitors.

In addition, a significant direct relationship was found between the status quo and savings decisions with 99% confidence. This is not consistent with the study of Carballo and Girbal (2021), where the status quo is present in savings decisions, which is why the subjects prefer present satisfaction rather than obtaining better future benefits.

Regarding debt decisions, it is clear that social entrepreneurs are riskier given their preparation and training, but Santamaría and Oviedo (2016) find that there is a greater fear of taking on debt to improve and expand the business, assuming that their profitability could be affected.

Conclusions

The research shows empirically that there is a significant relationship between some of the behavioral biases and financial decisions of social entrepreneurs in the Canton of Cuenca. The educational level of the different social entrepreneurs has been verified and most of them have completed high school and have a third level degree.

Prior to the structural analysis, the presence of some behavioral biases in social entrepreneurs was identified, such as excessive optimism (92.51%), overconfidence (91.45%), gambler's fallacy (74.47%) and, to a lesser extent, risk aversion (42.53%).

With respect to the set of hypotheses posed for investment decisions, behavioral biases such as overoptimism, overconfidence, procrastination, and status quo were found to have a significant influence at the 95% confidence level. The status quo had the highest correlation (0.463), meaning that social entrepreneurs prefer to look for new investment alternatives that allow them to obtain better profits, since it has even been observed that most of them are prone to risk, proposing and managing projects that become sustainable in the long term and not precisely in the initial stages, where they can generally fail (Saavedra et al., 2020), therefore they do not consider the option of always staying in the current field, but rather look for ways to generate social value.

It can also be seen that the gambler's fallacy, procrastination and status quo are the biases that are significantly related to the savings decisions of social entrepreneurs; consequently, it was found that through a negative relationship of the gambler's fallacy bias, the less individuals present this bias, the better their decision making, because the less they generate false expectations in the future, the more conscious their choices will be. In addition, it has been shown that they do not like to delay their savings plans or make unnecessary expenditures.

Similarly, in the debt decisions, it was found that there is a significant influence of risk aversion, overconfidence, over optimism and status quo biases. In this case, the subjects are confident in the skills and knowledge they possess, with which they assume that they have the necessary strategies to mitigate the risks in the face of a possible indebtedness, likewise they look for different financing alternatives to later compare the cost of each one and choose the most appropriate one.

Considering that social entrepreneurs differ from traditional entrepreneurs in their objectives. It was possible to identify that there are similarities, since some studies, such as the study developed by Zhang et al. (2020), concluded that there is a positive relationship between a certain number of behavioral biases and the behavior and decision making of traditional entrepreneurs, while the biases stimulate but do not limit entrepreneurial action. Similarly, the study shows some similarity with the research conducted by Nobre et al. (2022), because in both cases it was found that overconfidence and overoptimism biases particularly influence the investment decisions of traditional entrepreneurs, and the present research evidenced the same findings but for the case of social entrepreneurs.

The results are consistent with the literature reviewed, where behavioral biases should be identified through

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continuing education to strengthen the entrepreneur's knowledge and minimize their impact on their financial decisions. To this end, it is important to promote access to programs that enhance the financial education of social entrepreneurs, increasing their certainty in decision making and fostering greater awareness of the biases that may influence their decisions.

An important recommendation to improve the effectiveness of these educational initiatives is to tailor programs to the specific needs and realities of social entrepreneurs. These programs should be designed to address common behavioral biases that affect this group, such as overconfidence, procrastination, risk aversion, and others. In addition, the active participation of social entrepreneurs in these programs should be encouraged, as the practical application of the knowledge acquired can be key to internalizing the learning and changing behavior.

On the other hand, the main limitations found for this study are the time factor, in addition to the difficulty of approaching social entrepreneurs due to their professions and the distant location of some of them. For future research, it is recommended to apply this study in other cities or even countries, in order to obtain a broader picture of the rationality of financial decisions in social entrepreneurs, including other variables that may be significant.

Acknowledgment: This paper is the result of the project "Decisiones Financieras en Emprendedores Sociales. Un enfoque desde las Finanzas Conductuales" financed by Vicerrectorado de Investigación-Universidad de Cuenca."

Funding details: This paper was funded by Vicerrectorado de Investigación-Universidad de Cuenca.

Disclosure statement: The authors report there are no competing interests to declare.

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