

Effect of Cognitive Biases, Self-Efficacy and Risk-Propensity on Decision-Making among Entrepreneurs

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Abstract

The main aim of the study is to examine the overconfidence bias, self-efficacy, underdog bias and risk-propensity and their impact on the decision-making. In total 400 entrepreneurs from different organizations of Faisalabad was recruited. Correlation result demonstrated that risk propensity, self-efficacy and underdog bias has positive relationship with entrepreneurial decision making. Whereas overconfidence bias has negative relationship among workers. The result of step wise regression indicated 16 percent of variance found among study variable and decision making. The results of t-test indicated that male workers are more over-confident, underdog bias and risk propensity than women. On the other hand, women are high on self-efficacy and low on risk propensity in making entrepreneurial decision. The conclusion is supportive for the entrepreneur's worker who want to start-up their new venture while taking a decision of doing so.

Keywords: Overconfidence bias, Self-Efficacy, Underdog bias, Risk-Propensity, Entrepreneurial decision-making.

Introduction

Entrepreneur is a French term, a person who commits to himself and embark an enterprise with venturesome individuals to invigorate the economic progress through finding out innovative ways to do their work. In this research, the focus is on investigating the impact of self-efficacy, overconfidence bias, underdog bias and risk propensity on the entrepreneurial decision-making.

The research study under consideration intends to thoroughly explore the various cognitive biases and their impact on the decisions made by the entrepreneurs. The current study would also examine the relation between the variables either they have any relationship or not. The research study intends to explain the effect of underdog bias, overconfidence bias, self-efficacy and risk propensity on the decisions taken by the entrepreneurs when starting-up a new enterprise with an innovative idea in Faisalabad. Entrepreneur is characterized by

(Drucker, 1954), as the one who searches for an innovative idea or change, responds to that change, and then exploit that change as an opportunity. Underdog bias is described as a sense of a person, he believes that he had come across more salient barriers than the enabler's person afflicted by the underdog bias, recalls the difficulties that he came across throughout his life more intensely than the positive events that took place in his life to overcome those hardships (Davidai & Gilovich, 2016). Overconfidence bias could be defined as the perception of an individual regarding average performance to be better than average (Guenther & Alicke, 2010; Mohsin et al. 2024; Azam et al., 2023).

It has been found by Graves & Ringuest (2018), that overconfidence bias is when one makes prediction of future, for instance, when one's accuracy of knowledge is being over rated by himself and strongly believes that instead of others his tendency of future anticipation is much better. Various researches, one of which is explained by, Novemsky & Kahneman (2005), gives an evidence to prove that an individual's personal preference depends on the reference point, is actually based on risk propensity.

It has been found out that an entrepreneur must be a risk taker as to succeed in the new venture because he is not aware that either the venture will succeed or fail (Mushtaq, Mahmood, & Iqbal, 2019). Self-efficacy is defined in the Social Learning Theory, proposed by Bandura (2000), as a motivational construct in which people believe on capabilities of their own for the mobilization of motivation, resources required for cognition, and the required actions action needed to have a greater control over events happening in the lives of these individuals (Wood & Bandura, 1989; Mohsin et al., 2022; Mohsin et al., 2021).

Research Objectives

To study the impact of underdog bias, overconfidence bias, risk propensity and self-efficacy on decision-making among entrepreneurial of Faisalabad.

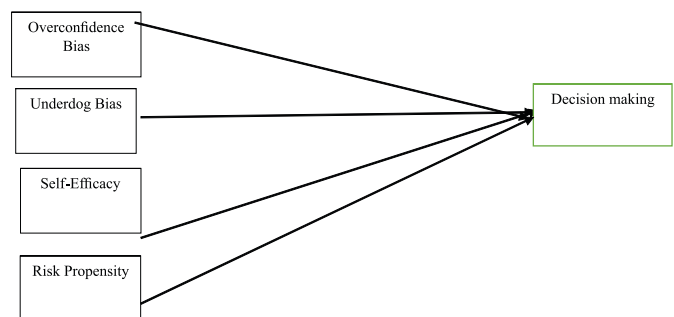
- To examine the relationship among underdog bias, overconfidence bias, self-efficacy and risk propensity on decision making among entrepreneurial.
- To investigate the gender difference on study variables

in relation with decision-making among entrepreneurial.

- To investigate the association between study variables and decision making among entrepreneurial.

Conceptualized Model

Figure 1 demonstrate the study variables and its relationship between decision making among entrepreneurs of Faisalabad city.



Hypothesis

H1: There will be a significant relationship between study variables and decision making among entrepreneurs.

H2: study variables will predict decision making among entrepreneurs.

H3: There is a significant gender difference among study variables and decision making

Research Methodology

Sample:

The sample of the current study consisted of N=400 Entrepreneurs of Faisalabad without any age restrictions. The participants were taken from the province of Punjab (Faisalabad, Samundri and Chiniot), both from rural and urban areas. Purposive sampling technique was used for selecting the participants.

Instruments:

BIA scale (Watts et al., 2020)

The Biased Attitudes Scale (BiAS) is a questionnaire with 32 items that helps measure how people differ in three types of biases that affect ethical decision-making: simplification, verification, and regulation. Participants

rate their agreement with each statement on a scale from 1 (Strongly Disagree) to 4 (Strongly Agree). The scale is reliable, with a consistency score (Cronbach's alpha) of 0.80.

General Self-efficacy Scale (Schwarzer & Jerusalem, 1995)

This is a self-report questionnaire with 10 items, where participants rate themselves on a 4-point scale: 1 = Not at all true, 2 = Hardly true, 3 = Moderately true, and 4 = Exactly true. The scale is reliable, with a Cronbach's alpha of 0.89. To calculate the total score, all item scores are added together. The total score ranges from 10 to 40, with higher scores showing greater self-efficacy.

General Risk Propensity Scale (Zhang et al., 2019)

This is a simple self-report questionnaire that measures how likely people are to take risks in general. It has 8 items and uses a 4-point scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly Agree. The scale is reliable, with a Cronbach's alpha of 0.86.

Decision making style scale (French et al., 1993)

This scale has 21 items divided into seven separate,

consistent dimensions. It uses a 6-point Likert scale: 1 = Very Infrequently or Never, 2 = Infrequently, 3 = Quite Infrequently, 4 = Quite Frequently, 5 = Frequently, and 6 = Very Frequently or Always. The scale is reliable, with a Cronbach's alpha of 0.79.

Procedure:

An online questionnaire has been designed to collect the data from the entrepreneurs of the Small and Medium Enterprises. This means in other words, the study under consideration will be using the primary method to collect the data. For the data analysis, PLSMART 3.0 is used to find the relationship between the variables along with that to ensure the reliability and validity of variables has also been illustrated. Along with that SPSS software has also been used for the analysis of the demographics.

Results

Correlation

Pearson's product-moment correlation was used to examine the relationships between the study variables.

Table 1- Pearson's Product Moment Coefficient of Correlations between the Study Variables (N=400)

	1	2	3	4	5
1. Undoing Bias	1				
2. Confidence Bias	.67**	1			
3. Risk-Propensity	.45**	.36**	1		
4. Self-Efficacy	.34**	.45**	.73**	1	
5. Decision Making	.45**	.12	.80**	.39**	1

Note. p**<.01, p*<.05.

Table 1 shows the Pearson's product-moment coefficient of correlation between the study variables. Where, there was significant statistical relationship between study variables and Decision making. Results indicate that confidence bias has significant no relationship between decision making styles.

It shows significant correlations between undoing bias, risk propensity, self-efficacy, and decision-making, supporting the assertion that these cognitive factors play a critical role

in entrepreneurial behavior. Undoing bias emerged as a strong predictor of decision-making, aligning with Yazdan, et al., (2024), who suggest that individuals with a heightened awareness of past struggles are more motivated to pursue ambitious goals. Similarly, risk propensity demonstrated a robust relationship with decision-making, as shown by Farrell, (2024) who argue that entrepreneurs' willingness to take calculated risks is pivotal in navigating uncertain business environments. Self-efficacy also

showed a significant predictive strength, consistent with Sörensson (2024) and Kuckertz (2021), emphasizing the importance of confidence in one's abilities for entrepreneurial success.

Interestingly, overconfidence bias displayed no significant relationship with decision-making, suggesting that while it may boost motivation, it does not necessarily enhance sound decision-making. This finding is supported by Mustafa (2022), who note that overconfidence often leads to overestimations of one's knowledge and abilities, potentially hindering objective evaluation of risks. The gender-based analysis revealed that males score higher on

undoing bias, risk propensity, and confidence bias, while females exhibit higher self-efficacy. This aligns with prior research by Azam, Muhammad, & Chaudhar (2024), who observed gendered differences in entrepreneurial tendencies, with men often taking more risks and women leveraging their strong belief in personal capability. Furthermore, income also showed a significant correlation with decision-making variables, corroborating findings by Arif (2023) that economic stability enables better resource allocation and decision-making.

Table 2- Pearson's Product Moment Coefficient of Correlation between the Demographic and Study Variables (N=400)

Demographics	Study Variables				
	Undoing	Confi	Risk	Self	Decision
1. Gender	.38**	.22**	.83**	.84**	.63**
2. Education	-.03	-.03	.09*	.03	-.06
3. Income	.20**	.15**	.52**	.52**	.18**

Note. ** $p < .01$, * $p < .05$.

Table 2 shows, correlation between demographics (gender, income, education) and study variables. Results indicate that gender and Income play significant role among study variables.

Stepwise Multiple Regression Analysis

Table 3- Stepwise Multiple Regression Analysis for Predicting Decision Making (N=400)

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Step 1					
Undoing Bias	-4.25	.42	-.38	-10.0	.000
Step 2					
Undoing Bias	-4.01	.43	-.35	-9.27	.000
Risk Propensity	-.04	.02	-.10	-2.56	.000
Step 3					
Undoing Bias	-2.47	.78	-.22	-3.15	.000
Risk Propensity	-.04	.02	-.11	-2.67	.000
Self-efficacy	.10	.04	.16	2.33	.000
R ²	.16***				
ΔR^2	.16***				

Note. *** $p < .001$; Step 1 = $R^2 = .14$, $\Delta R^2 = .14$; Step 2 = $R^2 = .15$, $\Delta R^2 = .15$; Step 3 = $R^2 = .16$, $\Delta R^2 = .15$

Table 3 presents the results of a stepwise regression analysis. Variables significantly related to decision-making among entrepreneurs, such as undoing bias, confidence bias, risk propensity, and self-efficacy, were included to identify their predictive strength.

The results show that undoing bias, risk propensity, and self-efficacy predict decision-making in entrepreneurs. In Step 1, undoing bias was the strongest predictor, explaining 14% of the variance ($R^2 = .14$, $F(1, 598) = 100.83$, $p < .001$). In Step 2, risk propensity emerged as the second significant predictor, adding 1% more variance, bringing the total to 15% ($R^2 = .15$, $F(2, 597) = 54.18$, $p < .001$). Finally, in Step 3, self-efficacy was the third significant predictor, contributing an additional 1% and increasing the total variance explained to 16% ($R^2 = .16$, $F(3, 596) = 38.21$, $p < .001$).

The stepwise regression analysis further underscored undoing bias as the most influential predictor, followed by risk propensity and self-efficacy. These results resonate with findings by Bärnreuther (2023), who highlight the interplay of personal reflection, risk assessment, and confidence in shaping entrepreneurial decisions. The limited variance explained by the model (16%) suggests that other unexamined factors, such as market conditions and social networks, may also contribute significantly, as noted by Bate (2024) and Mourao (2014). Gender differences, particularly the higher self-efficacy among females, could reflect societal expectations and adaptive strategies, echoing findings by ongxian (2024) and Reddy (2024). Overall, the model explains 16% of the variance in decision-making.

Table 4 - Independent sample t-test of gender difference on study variables (N=400)

	Male (n=200)	Female (n=200)	<i>T</i>	<i>p</i>
	<u>M(SD)</u>	<u>M(SD)</u>		
Undoing Bias	2.7(1.1)	.76(1.1)	19.62	.000
Risk Propensity	2.6(.59)	2.4(.57)	3.69	.000
Confident bias	3.6(1.3)	3.7(1.2)	-1.56	.118
Self-efficacy	1.1(1.1)	3.4(1.6)	8.92	.000
Decision making	1.4(.49)	1.4(.50)	-.187	.85

Result indicated that males are high on all study variables except self-efficacy. Females are high on self-efficacy. Both entrepreneurial are equal on decision making.

Discussion

Entrepreneurs are individuals who commit to starting and managing enterprises, often working with adventurous teams to drive economic progress through innovative approaches (Iqbal, Anwar, Khan, & Sardar, 2018). This study focuses on examining how biases like underdog bias, overconfidence bias, self-efficacy, and risk propensity influence entrepreneurial decision-making, with a specific look at gender differences. The textile industry in Pakistan was chosen for this research because many entrepreneurs in this sector are unaware of these biases, which can affect their ability to make sound decisions when launching new

ventures. By understanding these biases, entrepreneurs can improve their decision-making processes, fostering innovation and success in their businesses.

The study explores the relationships between cognitive biases and decision-making in entrepreneurship. It also investigates the influence of these biases on male and female entrepreneurs, addressing a gap in the literature, particularly in Pakistan's textile sector. A systematic literature review was conducted to define the variables and understand their effects on entrepreneurial decisions. Google Scholar and the HEC Digital Library were used to collect relevant research articles. The study aims to bridge the gap in existing research by focusing on the gendered impact of biases in entrepreneurial settings.

Small and Medium Enterprises (SMEs) in Pakistan's textile sector were the target population. The study used structural

equation modeling, employing tools such as the PLS algorithm, PLS blindfolding, and PLS bootstrapping through Smart-PLS 3.0 to test its hypotheses.

Conclusion

This research examined how underdog bias, overconfidence bias, risk propensity, and self-efficacy, shape entrepreneurial behaviors. The findings underscore the need for tailored strategies to address these biases, fostering better decision-making and enhancing entrepreneurial outcomes. Understanding the gender-specific effects of these variables further enables policymakers and stakeholders to design interventions that support both male and female entrepreneurs in achieving sustainable business success. Using bootstrapping tests in Smart-PLS 3.0, the study revealed positive relationships between risk propensity and the other three biases. It also highlighted gender differences, showing that male entrepreneurs exhibit higher levels of overconfidence, self-efficacy, risk propensity, and underdog bias compared to female entrepreneurs.

Implications

These results have significant implications for entrepreneurial training and support programs. Emphasizing the development of self-efficacy and effective risk management skills could enhance decision-making capabilities, especially for female entrepreneurs. Moreover, addressing overconfidence bias through structured feedback and reflective practices could mitigate its potential drawbacks. Future research should explore additional factors, such as emotional intelligence and social capital, to provide a more comprehensive understanding of decision-making in entrepreneurial contexts.

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