The Influence of Emotion on Risk Preference in Consumer Decision-Making and the Moderating Role of Information Processing Pathways

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Abstract. This study aims to investigate the influence of emotion on consumer risk preference and to analyze the moderating role of information processing pathways in this relationship. Through experimental design, participants were first induced into positive or negative emotional states, and then engaged in risk decision-making tasks under different information processing conditions. The results indicate that positive emotions significantly enhance participants' risk preference, while negative emotions lead participants to favor risk avoidance. Additionally, information processing pathways play a crucial moderating role in the relationship between emotion and risk preference: central processing reduces the impact of emotion on risk decisions, whereas peripheral processing amplifies the emotional effect. The findings of this study offer new insights into the role of emotion in decision-making processes and have important practical implications for marketing strategies, public policy formulation, and consumer behavior management. The study also discusses its limitations and suggests directions for future research.

Keywords: Emotional state, decision-making behavior, risk selection, information processing modes, moderating effect.

1 Introduction

In modern society, consumer decision-making is influenced by a multitude of factors, with emotion being a significant psychological state that markedly affects an individual's risk preference in various decision contexts[1]. Extensive research has demonstrated that emotion is not merely an accompanying experience in the decision-making process[2]; it deeply engages in all aspects of information processing and decision-making mechanisms. Particularly in high-risk decision scenarios, emotion often acts as a moderator, influencing consumers' risk perception and coping strategies[3].

The theory of information processing pathways provides an effective framework for understanding the role of emotion in decision-making. This theory divides information processing into two pathways: the central pathway, which emphasizes rational and logical analysis, and the peripheral pathway, which relies on emotional and intuitive

Q. Wu et al. (eds.), *Proceedings of the 2024 3rd International Conference on Public Service, Economic Management and Sustainable Development (PESD 2024)*, Advances in Economics, Business and Management Research 309,
https://doi.org/10.2991/978-94-6463-598-0_31

responses. Emotion can lead to vastly different decision outcomes depending on the pathway[4], suggesting that information processing pathways may play a critical moderating role in the influence of emotion on risk preference.

This study aims to explore the impact of emotion on consumer risk preference and further analyze the moderating role of information processing pathways in this process. By constructing a theoretical model and conducting empirical analysis, this paper seeks to elucidate the complex relationships among emotion, information processing pathways, and risk preference, providing new insights into the mechanisms of consumer decision-making.

2 Literature Review

The influence of emotion on consumer decision-making has become a significant research topic in the field of behavioral sciences. Early studies indicated that emotion not only affects consumers' judgments and choices but also directly impacts their information processing styles. Positive emotions tend to broaden an individual's information processing, thereby increasing their preference for innovative and diverse choices[5]. In contrast, negative emotions such as anxiety and fear often lead individuals to adopt more conservative, risk-averse strategies. Numerous studies have confirmed that emotional states are critical factors influencing consumer decision-making[6].

Risk preference holds a central position in consumer behavior research. Prospect theory suggests that consumers exhibit asymmetric risk attitudes when faced with uncertainty. Consumers tend to avoid risks when potential gains are involved, but they are more likely to engage in risk-taking behavior when faced with potential losses[7]. Moreover, research shows that risk preference is influenced not only by emotion but also by personal characteristics, experience, and social environment. The complex interaction of these factors makes the study of risk preference particularly challenging[8].

The theory of information processing pathways is primarily used to explain how individuals make decisions during information processing. According to this theory, information processing pathways are divided into the central and peripheral routes. The central pathway relies on rational thinking and logical analysis, where individuals engage in deep processing of information, leading to stable and long-term attitude changes[9]. In contrast, the peripheral pathway depends on emotional reactions, intuition, and simple cues, resulting in more superficial information processing and less durable attitude changes. Research indicates that emotional states may influence the choice of information processing pathway, thereby affecting the final decision outcome[10].

Although research on emotion, risk preference, and information processing pathways is relatively mature individually, their interrelationships require further exploration. Studies suggest that emotion not only affects risk preference but also indirectly influences risk decision-making by modulating the information processing pathway[11]. For example, positive emotions may lead individuals to adopt the peripheral

pathway, increasing their risk-taking tendency, whereas negative emotions might steer individuals towards the central pathway, thereby enhancing risk-averse behavior. However, the mechanisms by which different types of emotions modulate information processing pathways are not yet fully understood, and further research is needed to reveal the full complexity of the consumer decision-making process.

3 Methodology

3.1 Research Design

This study employs an experimental design to explore the impact of emotion on consumer risk preference and the moderating role of information processing pathways in this relationship. The experimental design comprises four main components: emotion induction, risk decision tasks, operationalization of information processing pathways, and control group setup.

In the first phase of the experiment, participants were subjected to emotion induction through video stimuli. Specifically, participants were randomly assigned to watch a 5-minute video clip designed to elicit either positive emotions (e.g., happiness) or negative emotions (e.g., anxiety). The effectiveness of emotion induction was measured using the Positive and Negative Affect Schedule (PANAS) to ensure that participants in different groups achieved the desired emotional state. In the second phase, participants completed a series of risk decision tasks. These tasks involved choosing between high-risk and low-risk options, such as selecting an investment plan or purchasing insurance. By recording participants' choices in these tasks, the study assessed the impact of different emotional states on their risk preferences. To examine the moderating role of information processing pathways, the experiment was designed with two conditions: central pathway and peripheral pathway. In the central pathway condition, participants were required to read detailed background information about the decision and answer relevant logical questions, ensuring that decisions were made through rational analysis. In the peripheral pathway condition, participants only needed to quickly review brief decision prompts and make choices based on intuition. This design aimed to differentiate the moderating effects of different information processing pathways on the influence of emotion on risk preference.

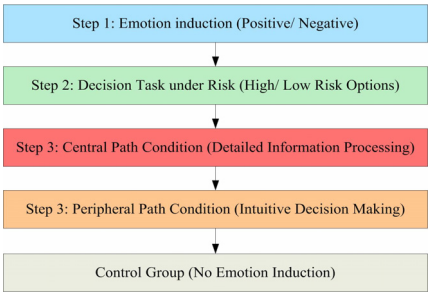

Fig. 1. Research Design.

Figure 1 illustrates the overall flow of the research design. After emotion induction, participants in each experimental group proceeded to the respective information processing pathway conditions and completed the corresponding risk decision tasks. In the control group, no emotion induction was performed, and participants directly participated in the decision tasks. This design ensures a systematic analysis of the relationships among emotion, information processing pathways, and risk preference, laying the foundation for subsequent data analysis and discussion. The experimental groups included: Positive Emotion Group (Central Pathway), Positive Emotion Group (Peripheral Pathway), Negative Emotion Group (Central Pathway), Negative Emotion Group (Peripheral Pathway), Control Group.

3.2 Emotion Induction

Data collection for this study was conducted in a controlled experimental environment. The participants, 150 university students randomly recruited, had an average age of 22 years and an equal gender distribution. The experiment was conducted in a laboratory setting, where each participant completed the experiment individually, with the entire process recorded on video to ensure the accuracy of data collection.

During the emotion induction phase, participants were successfully divided into positive and negative emotion groups by viewing pre-selected video clips. The effectiveness of emotion induction was assessed using the PANAS scale, administered before and after the video, to verify the induced emotional states. In the decision-making phase, participants were presented with multiple rounds of carefully designed risk decision scenarios, and their choices and response times were recorded. These data were automatically logged by a computer program and stored in a database for subsequent analysis.

Additionally, to ensure the validity of the experimental results, background information about the participants—such as age, gender, academic background, and prior decision-making experience—was also collected. These background variables were used as control variables in subsequent analyses to account for potential confounding factors.

3.3 Variables and Measurement

The core variables in this study include emotional state, risk preference, and information processing pathways. Each variable was quantified using specific measurement tools, as summarized in Table 1.

As shown in Table 1, emotional state was quantified using the PANAS scale, a widely used tool in emotion research with high reliability and validity. Risk preference was measured by recording the number of high-risk and low-risk choices participants made during the decision tasks. Information processing pathways were operationalized through the different conditions: central pathway representing rational analysis and peripheral pathway representing intuitive decision-making. Control variables included basic demographic information and decision-making experience, which were controlled for in the data analysis.

Table 1. Key Variables and Measurement Methods.

Variable	Measurement Tool	Description
Emotional State	PANAS Scale	Quantified by changes in scores before and after emotion induction
Risk Preference	Choices in Risk Decision Tasks	Recorded as the number of high-risk or low-risk options chosen
Information Processing	Central and Peripheral Pathway Conditions	Operationalized through different information processing conditions
Control Variables	Demographic and Background Information	Includes age, gender, academic background, and decision experience

3.4 Data Analysis Methods

This study employs a variety of data analysis methods to comprehensively explore the relationships among emotion, information processing pathways, and risk preference. First, descriptive statistics were used to summarize the basic characteristics of the sample, including participants' age, gender, emotional state, and performance in the decision tasks. Next, analysis of variance (ANOVA) was conducted to examine the effects of different emotional states and information processing pathways on risk preference, analyzing the differences between experimental groups.

To further investigate the moderating role of information processing pathways in the influence of emotion on risk preference, multiple regression analysis was employed. This method allows for the simultaneous consideration of multiple independent variables, making it suitable for examining complex interactions in this study. Additionally, to test the significance of moderating effects, the study utilized moderation analysis tools, such as the PROCESS macro, to quantify the moderating effect of information processing pathways on the relationship between emotion and risk preference. All statistical analyses were performed using SPSS statistical software to ensure the accuracy and reliability of the results.

4 Result and Discussion

4.1 Descriptive Statistics

A descriptive statistical analysis was conducted on the collected data to summarize the basic characteristics of the sample and the distribution of key variables. Table 2 presents the participants' age, gender distribution, emotion state scores, and overall performance in the risk decision tasks.

Table 2 shows that the average age of participants was 22.3 years, with males comprising 52% of the sample. After emotion induction, the average emotion score for the positive emotion group was 3.9, while the negative emotion group had an average score of 2.3. The participants' average number of high-risk choices in the decision tasks was 6.2, while the average number of low-risk choices was 4.8.

Table 2. Participant Characteristics and Descriptive Statistics.

Variable	Age (years)	Male Proportion (%)	Positive Emotion Score	Negative Emotion Score	High-Risk Choices	Low-Risk Choices
Mean	22.3	52	3.9	2.3	6.2	4.8
Standard Deviation	2.1	-	0.7	0.8	2.5	2.3
Minimum	19	-	2.5	1	2	1
Maximum	28	-	5	4	10	9

4.2 Hypothesis Testing

To test the impact of different emotional states on risk preference and the moderating role of information processing pathways, an analysis of variance (ANOVA) was conducted. Figure 2 illustrates the effect of different emotional states on the number of high-risk choices under central and peripheral pathway conditions.

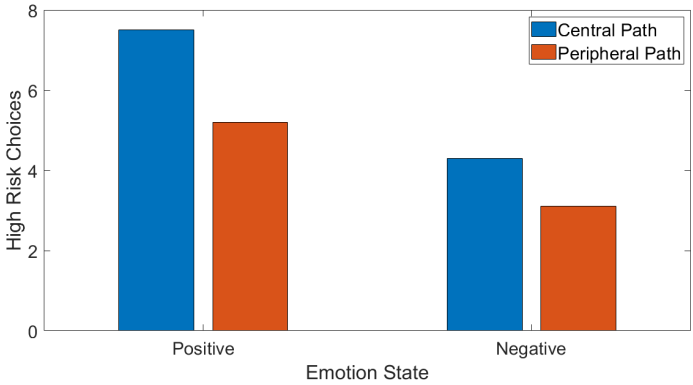

Fig. 2. Effect of Emotion State and Processing Path on High Risk Choices.

Figure 2 indicates that under positive emotional conditions, participants were more likely to choose high-risk options in the peripheral pathway condition (average of 7.5 times) than in the central pathway condition (average of 5.2 times). Conversely, under negative emotional conditions, participants made fewer high-risk choices, regardless of the pathway, with averages of 4.3 and 3.1 times for the central and peripheral pathways, respectively. These results support the hypothesis that emotional states significantly influence risk preference, with information processing pathways playing a moderating role.

4.3 Moderation Effect Analysis

To further examine the moderating effect of information processing pathways on the influence of emotion on risk preference, multiple regression analysis and moderation

effect testing tools were used. Figure 3 depicts the moderating effect of information processing pathways on high-risk choices under positive emotional conditions.

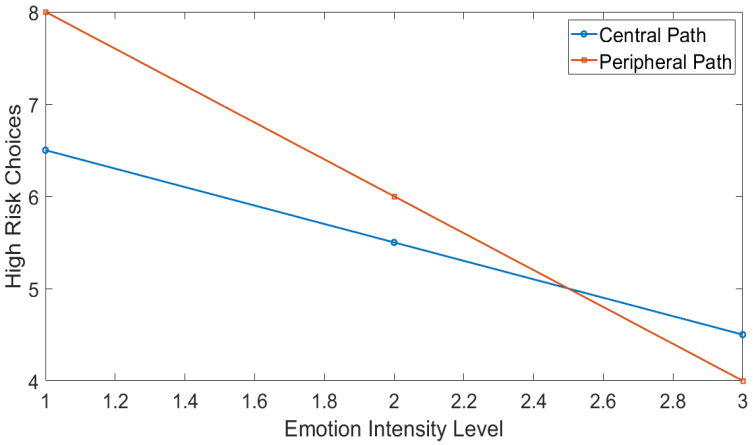

Fig. 3. Moderating Effect of Processing Path on Emotion and High Risk Choices.

Figure 3 shows that as the intensity of positive emotion increases, the number of high-risk choices significantly increases under the peripheral pathway condition, while the change is more gradual under the central pathway condition. This further confirms the moderating role of information processing pathways in the relationship between emotion and risk preference.

5 Conclusion

This study experimentally examined the impact of emotion on consumer risk preference and validated the moderating role of information processing pathways in this relationship. The results revealed that under positive emotional conditions, consumers are more inclined to choose high-risk options, whereas negative emotions lead consumers to prefer low-risk choices. Information processing pathways played a significant moderating role in this process: rational analysis under the central pathway reduced the influence of emotion on risk decisions, while the peripheral pathway amplified the emotional effect, particularly enhancing risk preference under positive emotional conditions.

These findings not only deepen the understanding of the mechanisms through which emotion influences decision-making but also provide practical guidance for marketing strategies, public policy formulation, and consumer behavior management. However, the limitations of the study's sample and the controlled experimental environment suggest that future research should expand the sample size and validate the findings in more realistic settings. Additionally, exploring other moderating variables, such as cognitive load, will further illuminate the complex effects of emotion on decision-making behavior.

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