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BEHAVIORAL BIASES, RISK PERCEPTION AND ENTREPRENEURIAL DECISION-MAKING: EVIDENCE FROM SMALL BUSINESS DEVELOPMENT IN UZBEKISTAN

Hikmatullaev Ahmadjon Habibulla ugli
Independent Researcher, Tashkent, Uzbekistan
E-mail: liyamisaferonn@gmail.com

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Abstract: Entrepreneurial decision-making is traditionally explained through expected profitability, access to capital, market competition, and the evaluation of investment risks. However, behavioral economics suggests that entrepreneurs' decisions are also influenced by psychological factors, including loss aversion, overconfidence, status quo bias, ambiguity aversion, and reference-dependent preferences. This article investigates the theoretical relevance of these factors to entrepreneurship and analyzes structural changes in small business development in Uzbekistan. Using official statistics from the National Statistics Committee, the study applies comparative analysis, percentage-point calculations, growth-rate analysis, regional comparisons, and scenario modeling. The results show that the share of small business and private entrepreneurship in gross value added declined from 56.7% in 2020 to 52.2% in 2025, a reduction of 4.5 percentage points. Furthermore, the number of operating small businesses declined from 523,556 in the 2023 reference year to 358,116 in 2025, followed by an increase to 403,767 in 2026. These changes require careful interpretation because business statistics may be influenced by administrative and structural factors. The study develops a conceptual behavioral model of entrepreneurial decisions and proposes institutional interventions involving risk communication, business mentoring, decision-support systems, and entrepreneurial education. The findings suggest that combining behavioral insights with traditional entrepreneurship policies may improve decision quality, although causal behavioral effects remain to be empirically established.

Keywords: Behavioral economics, entrepreneurship, entrepreneurial risk, loss aversion, overconfidence, decision-making, small business, economic uncertainty, Uzbekistan.

Introduction

Entrepreneurship is an essential component of economic development, employment generation, competition, innovation, and structural transformation. Entrepreneurs mobilize financial resources, introduce products and services, create employment opportunities, and respond to changes in consumer demand.

Traditional economic approaches generally consider entrepreneurial decisions to be the outcome of rational evaluations of expected profit, investment costs, financing conditions, and market uncertainty.

However, entrepreneurs frequently operate under incomplete information, limited experience, and unpredictable market conditions. In these circumstances, decisions may be influenced by cognitive and emotional factors.

An entrepreneur may postpone an economically attractive investment because of fear of losses. Another may expand production too rapidly because of excessive confidence in future demand. Similarly, some business owners may continue operating inefficient projects because they have already invested considerable resources.

These behavioral patterns illustrate the relevance of behavioral economics.

In Uzbekistan, small business and private entrepreneurship constitute a significant part of economic activity. However, the scale and structure of their contribution have changed over time.

According to the National Statistics Committee, the share of small business and private entrepreneurship in the country's gross value added was 56.7% in 2020 and 52.2% in 2025.

The objective of this article is to examine behavioral factors affecting entrepreneurial decisions and identify potential institutional measures for improving entrepreneurial decision-making.

- The research has four main objectives:
- To identify the behavioral biases relevant to entrepreneurial activity.
- To analyze official statistics on small business development in Uzbekistan.
- To develop a conceptual model connecting psychological factors with entrepreneurial decisions.
- To propose behavioral interventions aimed at improving risk assessment and business sustainability.

LITERATURE REVIEW

Behavioral economics challenges the assumption that individuals consistently make optimal decisions under uncertainty.

Simon (1955) introduced the concept of bounded rationality, emphasizing that decision-makers operate with limited information and cognitive capabilities.

Kahneman and Tversky (1979) developed prospect theory, explaining how individuals evaluate potential gains and losses relative to reference points.

Their framework provides an explanation for entrepreneurs who attach greater psychological importance to potential losses than to comparable gains.

Tversky and Kahneman (1974) examined the role of heuristics in judgments under uncertainty, including representativeness, availability, and anchoring.

These concepts help explain why business owners may rely on limited past experience or highly visible market information when assessing investment opportunities.

Camerer and Lovallo (1999) investigated overconfidence and excess entry into competitive markets. Their research demonstrated how biased assessments of personal abilities can influence entry decisions.

Cooper, Woo, and Dunkelberg (1988) examined entrepreneurs' perceptions of their prospects for success and highlighted the importance of optimistic expectations.

The literature suggests that entrepreneurship policies should address not only financial and regulatory constraints but also the cognitive processes through which entrepreneurs evaluate opportunities.

DATA AND RESEARCH METHODOLOGY

The study uses secondary statistical information from the National Statistics Committee of the Republic of Uzbekistan.

Two official indicators are analyzed:

The share of small business and private entrepreneurship in gross value added.

The number of operating small businesses.

The analytical methods include descriptive statistics, comparative assessment, relative change calculations, and regional analysis.

The absolute change in an indicator is calculated as:

$$\Delta X = X - X_0$$

The relative change is:

$$RC = [(X - X_0) / X_0] \times 100$$

For percentage indicators, the difference is also expressed in percentage points.

An analytical distinction is made between statistical findings and behavioral hypotheses.

The official statistics describe entrepreneurial activity but do not directly measure entrepreneurs' psychological characteristics. Consequently, causal conclusions about loss aversion, overconfidence, or other biases cannot be drawn from aggregate data alone.

RESULTS AND DISCUSSION

Table 1. Share of Small Business and Private Entrepreneurship in Uzbekistan, 2020–2025

Year	Share in gross value added, %	Annual change, percentage points
2020	56.7	-
2021	56.3	-0.4
2022	54.3	-2.0
2023	53.8	-0.5
2024	53.5	-0.3
2025	52.2	-1.3

Source: National Statistics Committee, SIAT, indicator 1.01.01.0055. Annual changes calculated by the author.

The absolute change between 2020 and 2025 was:

$$\Delta S = 52.2 - 56.7 = -4.5 \text{ percentage points}$$

The relative change was:

$$RC = (52.2 - 56.7) / 56.7 \times 100 = -7.94\%$$

Thus, the small business share declined by approximately 7.94% relative to its 2020 level.

The average annual percentage-point change over five intervals was:

$$\text{Average change} = -4.5 / 5 = -0.90 \text{ percentage points}$$

This finding does not necessarily indicate that small business output declined in absolute terms.

The share can decrease when larger enterprises or other economic sectors expand more rapidly.

The observed pattern should therefore be interpreted as a change in economic composition rather than direct evidence of deteriorating entrepreneurial performance.

Official statistics indicate notable fluctuations in the number of operating small businesses.

Table 2. Operating Small Businesses in Uzbekistan

Reference year	Number of enterprises	Change from previous

		observation
2022	462,834	—
2023	523,556	+60,722
2024	417,080	−106,476
2025	358,116	−58,964
2026	403,767	+45,651

Source: National Statistics Committee, SIAT, indicator 1.09.01.0054. The figures are annual reference observations, not cumulative enterprise registrations.

The increase between 2022 and 2023 was:

Growth = (523,556 − 462,834) / 462,834 × 100 = 13.12%

The subsequent decline between 2023 and 2024 was:

Change = (417,080 − 523,556) / 523,556 × 100 = −20.34%

Between 2024 and 2025:

Change = (358,116 − 417,080) / 417,080 × 100 = −14.14%

The increase between 2025 and 2026 was:

Growth = (403,767 − 358,116) / 358,116 × 100 = 12.75%

The observed decrease from 2023 to 2025 amounted to 165,440 enterprises, or approximately 31.60%.

The subsequent recovery in the 2026 reference observation indicates that the number of operating enterprises increased again.

However, changes in enterprise registries, classification procedures, business consolidation, closures, and reactivation may influence these statistics. Therefore, these data should not be used as a direct measure of entrepreneurial failure or psychological risk aversion. Regional variation provides additional insight into the structural importance of entrepreneurship.

Table 3. Small Business Share in Selected Regions, 2025

Region	Share, %
Surkhandarya	76.4
Namangan	73.6
Fergana	73.0
Khorezm	71.6
Bukhara	71.0
Tashkent region	55.0
Tashkent city	51.7
Navoi	21.1

Source: National Statistics Committee, SIAT, indicator 1.01.01.0055.

The difference between Surkhandarya and Navoi is:

76.4 − 21.1 = 55.3 percentage points

The ratio of their shares is:

76.4 / 21.1 = 3.62

Therefore, the reported small business share in Surkhandarya was approximately 3.62 times that in Navoi.

The regional difference may reflect variations in industrial specialization, the presence of large enterprises, agricultural activity, investment structure, and business organization.

Behavioral characteristics may also differ across communities, but no direct statistical evidence is available here to establish their contribution.

Several behavioral mechanisms can theoretically influence investment and business management.

Loss aversion. Entrepreneurs may assign disproportionate importance to potential financial losses, discouraging investment in unfamiliar markets.

Overconfidence. Entrepreneurs may overestimate their business capabilities or underestimate competition and operating costs.

Status quo bias. Business owners may prefer existing technologies and management practices even when alternatives offer potential benefits.

Anchoring. Initial price quotations, past profits, or earlier demand expectations may influence future business decisions.

Sunk-cost effects. Entrepreneurs may continue unprofitable projects because of money and effort already invested.

Ambiguity aversion. Entrepreneurs may avoid opportunities when available information is incomplete or difficult to interpret.

These behavioral mechanisms are especially relevant when entrepreneurs operate without reliable forecasting systems or access to professional advisory services.

Table 4. Entrepreneurial Behavioral Barriers and Possible Solutions

Behavioral factor	Potential consequence	Proposed intervention
Loss aversion	Excessive reluctance to invest	Scenario-based risk assessment
Overconfidence	Underestimation of competition	Independent business-plan evaluation
Anchoring	Inflexible pricing decisions	Updated market information
Status quo bias	Delayed modernization	Demonstration and training programs
Sunk-cost effects	Continuation of inefficient projects	Periodic project reviews
Ambiguity aversion	Avoidance of unfamiliar opportunities	Transparent business information services

Source: Author's conceptual classification.

These interventions should complement access to finance, infrastructure, contract enforcement, and a predictable regulatory environment.

Consider a simplified investment project with the following assumed outcomes:

- Initial investment: UZS 100 million.
- Probability of a favorable outcome: 60%.
- Net profit under the favorable outcome: UZS 50 million.
- Probability of an unfavorable outcome: 40%.
- Net loss under the unfavorable outcome: UZS 30 million.
- Expected net monetary return:

E(R) = 0.60 × 50 − 0.40 × 30

E(R) = 30 − 12 = UZS 18 million

The expected return relative to the initial investment is:

Expected ROI = 18 / 100 × 100 = 18%

A risk-neutral entrepreneur evaluating only this expected monetary payoff could regard the investment as attractive.

However, an entrepreneur with strong loss aversion may evaluate the uncertain loss more negatively.

For illustrative purposes, consider the behavioral score:

BS = pG × G − λpL × L

Where λ is a hypothetical loss-aversion weight.

If λ = 2:

BS = 0.60 × 50 − 2 × 0.40 × 30

BS = 30 − 24 = UZS 6 million in weighted score units

If λ = 3:

BS = 30 − 36 = −6 million in weighted score units

These are simplified hypothetical scores, not monetary expected returns or an estimation of the original prospect theory value function.

The example demonstrates how the evaluation of the same economic opportunity can vary with assumptions about loss sensitivity.

4.7. Proposed Behavioral-Institutional Model

The proposed conceptual model is:

$$ED_i = \beta_0 + \beta_1 RA_i + \beta_2 LA_i + \beta_3 OC_i + \beta_4 MI_i + \beta_5 FA_i + \beta_6 EX_i + \varepsilon_i$$

Where:

ED — entrepreneurial decision or investment participation;

RA — risk assessment capability;

LA — loss aversion;

OC — overconfidence;

MI — access to market information;

FA — access to finance;

EX — entrepreneurial experience.

The model can be estimated using entrepreneur-level survey data, provided that the dependent variable and behavioral characteristics are measured consistently.

For a binary investment decision, logistic regression may be appropriate.

Possible hypotheses include:

H1: Better risk assessment capabilities are positively associated with informed investment decisions.

H2: Stronger loss aversion is associated with a lower probability of undertaking uncertain investments, controlling for expected returns.

H3: Excessive overconfidence is associated with weaker financial forecasting accuracy.

H4: Access to reliable market information reduces decision uncertainty.

The model is proposed for subsequent empirical testing and has not been estimated in this study.

POLICY RECOMMENDATIONS

Based on the theoretical analysis and official statistical trends, several policy directions are recommended.

First, entrepreneurship support programs should combine financial assistance with decision-making education.

Second, business incubators and university entrepreneurship centers should introduce training on risk assessment, cognitive biases, and business forecasting.

Third, entrepreneurs should receive accessible information about market demand, financing conditions, and business operating risks.

Fourth, institutional support programs could introduce voluntary independent reviews of business plans before major investment decisions.

Fifth, digital business-support platforms should provide transparent comparisons of financing costs, potential profitability, and downside risks.

Finally, behavioral interventions should be tested using pilot programs before nationwide implementation.

CONCLUSION

The development of entrepreneurship depends not only on economic resources and institutional conditions but also on how entrepreneurs perceive risks and evaluate alternatives.

Official statistics show that the share of small business and private entrepreneurship in Uzbekistan's gross value added declined from 56.7% in 2020 to 52.2% in 2025.

The number of operating small businesses also experienced substantial fluctuations during the observed period.

These trends emphasize the importance of analyzing entrepreneurship through multiple economic and institutional dimensions.

Behavioral economics provides a complementary theoretical explanation for entrepreneurial decisions involving uncertainty, investment, innovation, and business continuity.

The proposed behavioral-institutional framework combines risk assessment, access to market information, financial conditions, and psychological characteristics.

The study concludes that behaviorally informed entrepreneurship support may improve the quality of business decisions, but its effectiveness must be established through entrepreneur-level empirical research.

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