Financial literacy and business performance: evidence from rural female micro-entrepreneurs in Uzbekistan

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Financial literacy means having the knowledge and skills to manage your money effectively in daily life. It includes:

1.Budgeting

tracking income and expenses

avoiding overspending

planning weekly/monthly budgets

2.Saving and Investing

saving for future needs

understanding investment options (stocks, bonds, deposits)

knowing how to reduce risk (diversification)

3.Credit and Loans

how interest rates work

understanding loan terms

avoiding high-interest debt

4.Understanding Interest & Inflation

simple and compound interest

how inflation reduces purchasing power

comparing interest rates

5.Insurance

knowing why people buy insurance

protecting against serious financial risks

6.Financial Planning

planning for retirement

emergency savings

long-term financial goals

Why is Financial Literacy Important?

Research shows that people with **low financial literacy** often:

take expensive loans

struggle with debt

save less money

do not plan for retirement

make poor financial decisions

People with **high financial literacy**:

borrow wisely

save regularly

invest confidently

have better financial stability

Background

Financial literacy is essential for financial well-being and national stability.

High FL → better saving, investing, retirement planning, lower debt (Lusardi & Mitchell).

FL strongly linked with:

- Financial well-being
- Income inequality
- Environmental sustainability

Importance is amplified in rural areas due to limited access to finance and training.

Rural Women Entrepreneurs

Rural women increasingly engage in micro-entrepreneurship.

Despite contributions, women face:

✓ Poor access to credit

✓ Limited financial services

✓ Weak policy support

✓ Lack of business training

Financial literacy becomes a *transformative tool* for business success.

Uzbekistan's Reform Context

Since 2017, Uzbekistan has implemented major economic reforms aimed at liberalizing markets and supporting private enterprise.

The expansion of microbusiness opportunities makes financial literacy increasingly important for rural women operating in a rapidly changing economic environment.

Stable GDP growth of around **5.3%** positions the country among the leading reform-oriented economies.

Problem Statement

Rural female micro-entrepreneurs in Uzbekistan have:

➢ Limited access to formal finance

➢ Weak bookkeeping and forecasting skills

➢ Insufficient business advisory services

➢ Need for stronger financial capability to sustain enterprises

Research gap: Little empirical evidence from Uzbekistan, especially on which components of FL matter most.

Theoretical Foundations

1. Human Capital Theory

FL increases productivity, decision quality, efficiency.

2. Entrepreneurial Capability Theory

FL is part of entrepreneurial intelligence.

Enhances sensing, seizing, and reconfiguring opportunities.

3. Resource-Based View (RBV)

FL as a strategic intangible VRIN resource.

Especially important where women face structural constraints.

Objectives

1. Examine the relationship between financial literacy dimensions and business performance.

2. Identify which FL components have the strongest impact.

3. Study financial literacy as an internal capability compensating for external barriers.

4. Provide policy recommendations for women-led rural enterprise development.

Research Questions

1. Does financial literacy improve business performance among rural female micro-entrepreneurs?

2. Which dimensions (financial education, cash forecasting, bookkeeping) matter most?

3. Does financial self-efficacy play a role?

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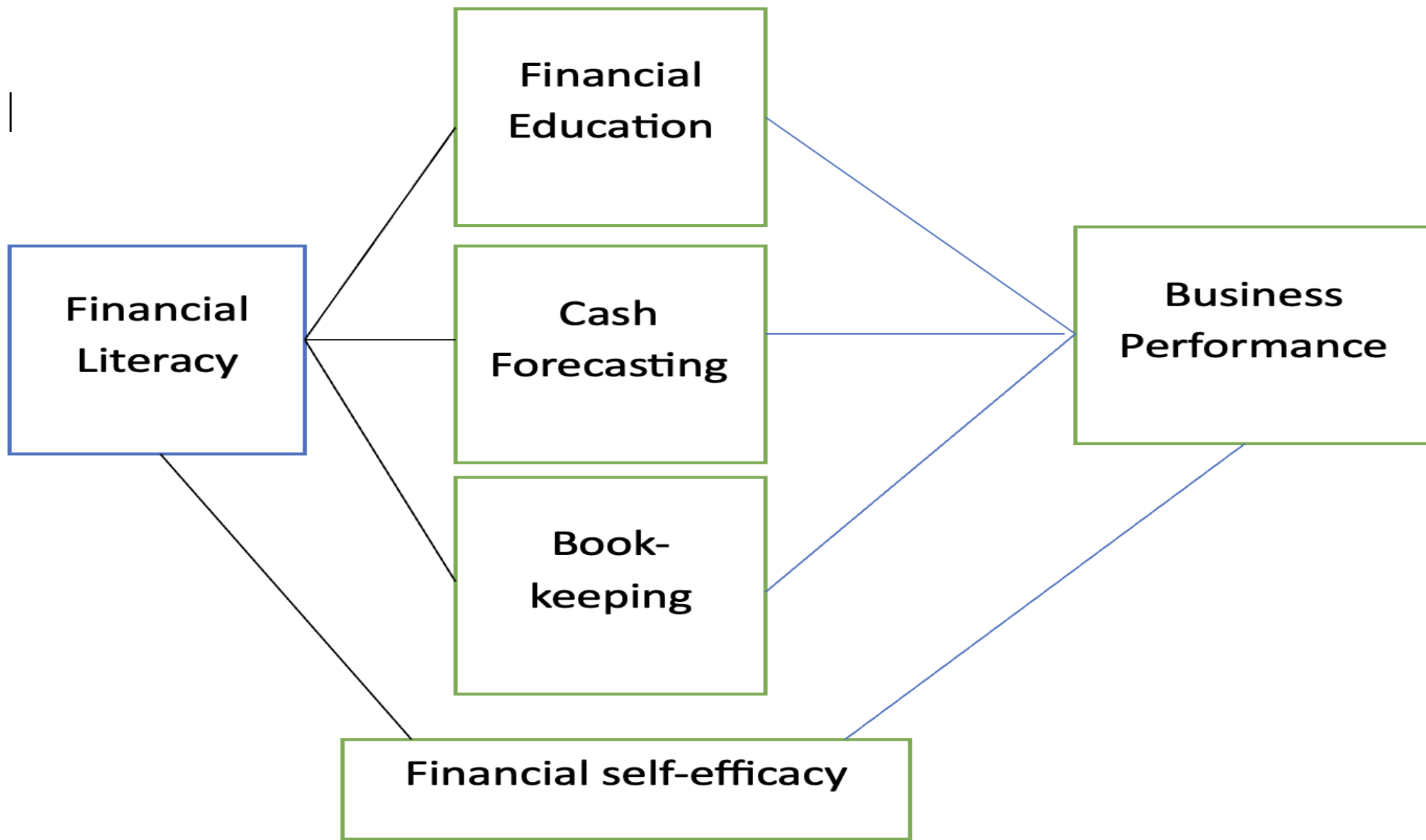International University in Tashkent

Research Hypothesis

H1: Financial education → positive effect on business performance

H2: Cash forecasting → positive effect

H3: Bookkeeping → positive effect

H4: Financial self-efficacy → positive effect

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Conceptual Framework

Independent Variables:

- Financial Education
- Cash Forecasting
- Bookkeeping
- Financial Self-Efficacy

Dependent Variable:

- Business Performance

Theory base: RBV + Entrepreneurial Capabilities + Human Capital.

Methodology

Region: Khorezm, rural Uzbekistan

Sample: 173 female micro-entrepreneurs

Method: Structured questionnaire

Analysis Tool: PLS-SEM (Partial Least Squares Structural Equation Modelling)

Model: Business Performance = β_0 + β_1 Financial Education + β_2 Cash Forecasting + β_3 Bookkeeping Practice + β_4 Financial Self-Efficiency $+e$

The demographic characteristics of the respondents

Variable	Item	Frequency	Percentage %
Marital Status	Married	143	82.66
	Single	30	17.34
	Total	173	100.00
Age	18-35	41	23.70
	36-52	107	61.85
	53 – Above	25	14.45
	Total	173	100.00
Years of work experience	0-5	61	35.26
	6-10	45	26.01
	11 Years and Above	67	38.73
	Total	173	100.00
Level of educational attainment	Completed high school	125	72.25
	Bachelors.	44	25.43
	Masters	4	2.31
	Total	173	100.00

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Questionnaire Design

❖The financial literacy questionnaire was developed based on Amatucci et al. (2011) and Tumba et al. (2022).

❖The instrument was structured into four main sections :

Section A: Personal Data

Section B: Financial Education, Cash Forecasting, Bookkeeping

Section C: Business Performance

Section D: Financial Self-Efficacy

❖Measurement Scale

All items were evaluated using a 5-point Likert scale:

1 = Strongly Disagree

5 = Strongly Agree

QUESTIONNAIRE

SECTION A. Personal Data:

Age: Marital status: Educational Qualification: Work Experience

Section B: Financial Education

1. I know the current interest rate on loans

2. I am aware of the inflation rate in the country

3. I am acquainted with the happenings in the financial market

Cash Forecasting

1 I am good at estimating the flow of cash coming in and out of my business

2 I have adequate knowledge of my cash needs

3 I always search for information on savings and investments

4 I often consult experts to know the trend in the money/financial market

Bookkeeping Practice

1 I do keep track of my spending

2 I am competent at evaluating investment alternatives

3 I keep a written record of my income as it comes in

4 I am able to make financial records

5 I understand the balance sheet, profit and loss statement and cash flow

QUESTIONNAIRE

Section C. PP Business Performance

1 Our total product cost has reduced over the past three years

2 The financial value of my business has increased within the last five years

3 My business revenue has increased in the past five years

4 My business is making more profit when compared to my competitors

5 Return per employee is well above industry average

6 Our company has maintained a steady assets growth

Section D: Financial Self-Efficacy

1. What skills do you have in financial management (income–expense planning, budgeting)?

2. How confident are you in your knowledge and experience in financial management?

3. How do you evaluate your ability to successfully manage the financial affairs of your business?

4. Have you ever heard the statement: "Women are not very strong in financial matters"?

5. If you have heard it, to what extent do you agree with this idea?

6. What was your attitude toward mathematics or subjects that require calculations?

Measurement model assessment
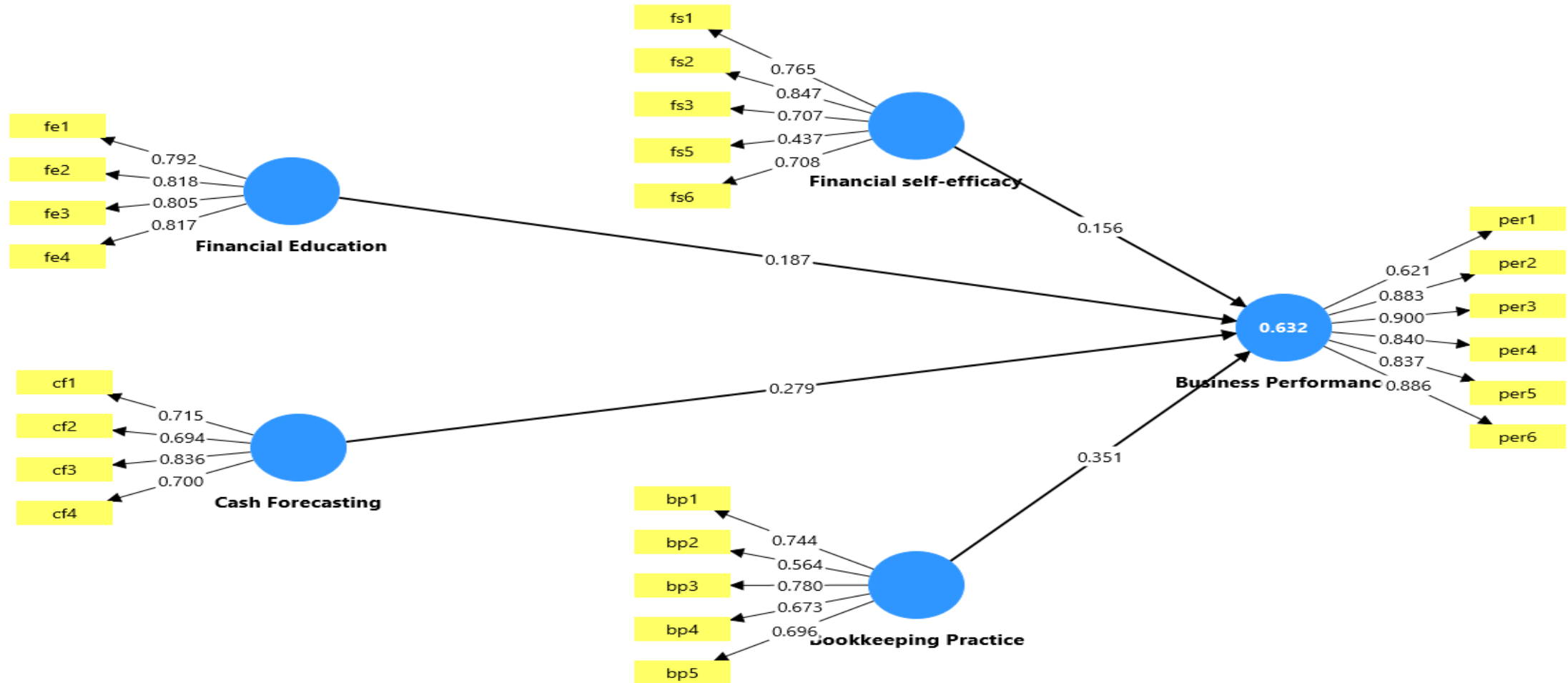
Construct validity and reliability

Constructs	Cronbach Alpha	Composite Reliability	AVE	R^2	R^2 Adjusted	Q^2
Financial Education	0.825	0.755	0.653			
Cash Forecasting	0.724	0.915	0.545			
Bookkeeping Practice	0.733	0.752	0.483	0.632	0.624	0.602
Self-Efficacy	0.751	0.838	0.499			
Business Performance	0.908	0.800	0.694			

Discriminant validity – Heterotrait – Monotrait (HTMT) criterion

	BK	BP	CF	FE	SE
BK					
BP	0.857				
CF	1.007	0.856			
FE	0.694	0.685	0.801		
SE	0.451	0.473	0.439	0.301	

Hypothesis testing results

Hypotheses	Path coefficient	Standard error	T-value	P-value	Decision
FE →BP	0.187	0.063	2.988	0.003	Supported
CF →BP	0.279	0.076	3.654	0.001	Supported
BK →BP	0.351	0.076	4.643	0.001	Supported
SE →BP	0.156	0.054	2.896	0.004	Supported

Effect sizes (f^2)

Paths	f^2	Effect Size
FE →BP	0.053	small
CF →BP	0.082	small
BK →BP	0.145	small
SE →BP	0.057	small

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Multi-group Analysis

	Single		Married		Difference		
	Beta	p-value	Beta	p-value	Beta	p-value	Decision
BK → BP	0.159	0.527	0.338	0.000	0.179	0.408	No Difference
CF → BP	0.743	0.004	0.233	0.006	-0.510	0.020	Sig.Difference
FE → BP	0.075	0.777	0.277	0.001	0.152	0.410	No Difference
SE → BP	-0.042	0.822	0.228	0.000	0.270	0.071	No Difference

Multi-group Analysis

	High School		University		Difference		
	Beta	p-value	Beta	p-value	Beta	p-value	Decision
BK → BP	0.431	0.000	0.320	0.033	0.111	0.530	No Difference
CF → BP	0.186	0.050	0.453	0.001	-0.268	0.122	No Difference
FE → BP	0.257	0.000	-0.018	0.893	0.275	0.043	Sig.Difference
SE → BP	0.093	0.155	0.261	0.003	-0.168	0.158	No Difference

Novelties

1. First study on rural female micro-entrepreneurs in Uzbekistan using FL dimensions.

2. Financial literacy is divided into four skills: education, forecasting, bookkeeping, and self-efficacy.

3. Bookkeeping is identified as the strongest driver of performance.

4. Novel moderating effect of marital status on cash forecasting and self-efficacy.

5. Significant moderating effect of education level on financial education $\rightarrow$ performance.

6. New evidence that FL benefits low-education entrepreneurs more than high-education ones.

7. First PLS-SEM MGA application in this context and population.

Policy Recommendations

✓ Integrate financial education into women's entrepreneurship programs.

✓ Establish community-based financial training hubs in rural areas.

✓ Promote digital financial literacy: mobile banking, e-wallets, online bookkeeping tools.

✓ Strengthen partnerships between universities, NGOs, and local governments.

Limitations

➢ Cross-sectional design limits causal inference.

➢ Data from a single region (Khorezm) may reduce generalizability.

➢ Self-reported measures may involve bias.

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Future Research

➢ Compare gender differences or sectoral variations.

➢ Examine the mediating role of technology adoption, social capital, and behavioral factors.

➢ Explore links between financial literacy, environmental sustainability, and digital entrepreneurship.

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Thank you