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HOW FINANCIAL LITERACY INFLUENCES FINTECH USAGE IN RURAL UZBEKISTAN JEL G41

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A B S T R A C T

The study looks at how financial literacy affects Fintech use in Uzbekistan. It also identifies key socio-demographic factors. The findings show that financial literacy, education level, employment status, and savings rate boost Fintech usage, especially payment systems like “Click,” “Pay me,” and mobile banking.

Moreover, financial literacy helps connect education and employment to Fintech usage. This underscores the need for educational programs and job opportunities to promote financial inclusion through Fintech in Uzbekistan. About 18% of the population's openness to Fintech is explained by these factors. However, financial training does not seem to impact on Fintech usage among people.

K E Y W O R D S

Fintech, Payment systems, financial inclusion, financial literacy, financial training.

Introduction

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Introduction

The rapid growth of developing economies (Singh 2006; Diao et al. 2019), driven by Fintech (Ediagbonya & Tioluwani 2023; Song & Appiah-Otoo 2022) pushes nations with less developed economies to reconsider how quickly and widely they adopt Fintech (Adjasi et al. 2023).

Uzbekistan, a landlocked country in Central Asia with a population of 36 million (CPC 2023), is one of the initiators of adoption. It has a central location on the Great Silk Road network of roads (Spechler 2000; Jalolova et al. 2020). Over the last decade, formal financial accounts have doubled (World Bank Findex 2021). Improvements in cash access, better financial infrastructure, and a tenfold increase in ATMs and info kiosks in the past six years (Visa 2023) highlight recent progress.

This post-Soviet country has missed earlier chances to grow its financial market and infrastructure. Improving these areas could have enhanced the lives of its people, on whom about 80% of the country's economic development depended (Becker 1994). Now, Uzbekistan seeks to build a modern financial market that embraces the opportunities and risks of digital technologies.

Countries are actively adopting Fintech, which boosts economic growth and inclusivity. However, people's acceptance of Fintech varies widely from nation to nation (Buckley and Webster 2016). This raises questions about how individuals affect Fintech adoption in different countries. Recent studies have found many socio-demographic factors that influence people's choices (Grohmann et al. 2018), but the main reasons behind their usage remain unclear.

If Fintech is a financial innovation, then foreign examples show it needs user financial literacy and awareness (Koskelainen et al. 2023). Financial literacy can speed up the transformation process with less risk. It helps prevent people from taking unnecessary chances. History has shown that financial innovations with big socioeconomic goals have sometimes harmed societies due to financial illiteracy (Gerardi et al. 2010). Governments are fighting financial illiteracy and promoting education by funding training programs (Abdullaev and Fayzullaev 2021; Irmatova et al. 2024).

Studying how financial literacy impacts Fintech adoption is interesting. This is mainly due to the different financial literacy levels in digitally developed countries. These differences arise from the cross-sectional and interrelated nature of various factors (Ferilli et al. 2014, Lyons et al. 2022).

Financial literacy largely depends on education level (Jünger and Mietzner 2020) and access to financial education. Other predictors include financial behavior in the country (Atkinson and Messy 2012), income level (Huston 2010), age (Lusardi and Mitchell 2007), and gender (Lusardi and Mitchell 2008).

On the other hand, financial illiteracy can help market participants gain short-term benefits and engage in financial fraud (Wei et al. 2021). However, in the long run, financial illiteracy leads to personal financial stress, higher debt, an unclear future, and socioeconomic issues like poverty and abuse.

People's weaknesses for comfort make them easier to reach, offering businesses a chance to earn more. Financial awareness and analysis of past financial processes help people think carefully before accepting new, attractive products. They can assess their ability to pay for new comforts by comparing them to their price list, built from past experiences. With recent changes in finance and technology, individuals know how to evaluate their capabilities, how much to invest, and how to test new opportunities before relying on them.

As technology grows and becomes essential for economies, it's important to consider people's ability to accept and afford it, especially in a world with vast wealth gaps (Slussareff 2022). Financial literacy allows people to spot valuable products and make quick investment decisions, boosting the economy.

It helps people advance, especially in developing countries, with minimal social loss and greater economic gain.

This study contributes significantly to the understanding of financial literacy and Fintech in Uzbekistan. It also offers guidelines for future research. First, the study looks at how people's behavior affects Fintech use in Uzbekistan. Second, it considers the role of the objective quality of life in Fintech adoption. Third, it explores whether financial literacy helps people in transition economies use Fintech effectively. Fourth, it assesses how financial literacy training can reduce risks and support Fintech adoption. Finally, it identifies which socio-demographic factors influence financial literacy in Uzbekistan.

Literature review

In recent decades, many researchers have explored what drives financial technologies. However, financial literacy (Remund 2010; Lusardi 2019; Lyons and Kass-Hanna 2021; Ahunov and Van Hove 2020) and its effect on Fintech (Huarng and Yu 2022) still need more investigation due to the complex relationships involved. Below, we provide a table of previous research on this topic and their findings. Since Uzbekistan is a developing country, we focused mainly on the Fintech successes of other developing nations:

1 Earlier research on Fintech usage and financial literacy determinants

№	Author	Country	Data and method	Sample size	Hypotheses or the research gap
1	Azeez and Akhtar (2021)	India (Aligarh district)	Survey, telephone interviews with experts, participatory approaches among various stakeholders. OLS multiple regression model	500 rural respondents	Financial literacy rate predictors
2	Pertiwi and Purwanto (2021)	Indenesia	Snowball sampling, SEM analysis technique based on Variance, namely SEM-PLS	150 millennial respondents	Financial literacy, performance, business expectations, and education level's effects on the interest in adopting Fintech
3	Khan et al. (2023)	Malaysia	Non-probability convenience sampling survey, 15 FTL (Fintech literacy) questions; the statistical test of logistic regression	330 millennial respondents	If actual and perceived financial literacy and demography predict FTL?
4	Histori (2022)	Indonesia	Financial Services Authority 2019 survey, multi-stage random sampling, door-to-door, face-to-face interview	1200 15-year-old and above respondents	How does financial literacy and sociality affect Fintech usage?
5	Yoshino et al. (2020)	Japan	Bank of Japan's survey data, the financial literacy index was based on 25 questions related to financial decision-making skills and knowledge	25000 respondents aged 18 to 79	How do financial literacy and other factors affect the adoption of Fintech?
6	Liao and Chen (2020)	USA	The National Financial Capability Study survey from 2015 to 2018 state by state dataset; Answers to six questions about fundamental concepts of personal finances, including interest rates, inflation, bond price, mortgage, and diversification; iterated principal factor method; a composite financial literacy index derived from the Bartlett method;	500 respondents from each state, the total sample consisted of 21374 respondents	How does financial literacy affect Fintech usage?

7	Herdinata (2020)	Indonesia (East Java)	Partial least square (PLS) analysis	95 small and medium-sized businesses	Five hypotheses about Fintech adoption and the role of financial literacy, three of which were accepted
8	Morgan and Trinh (2019)	Lao	OECD/INFE questionnaire survey, multi-level stratification	1000 respondents from 100 communes in 29 districts of 8 provinces	The relationship between financial education and Fintech adoption
9	Servon and Kaestner (2008)	USA	quantitative analyses based on telephone surveys, qualitative analyses as interviews and focus groups	243 and 84 respondents	If financial and digital awareness, including Internet usage, helps urban people become more effective financial actors?
10	Siddik et al. (2023)	China	200 online and 50 offline questionnaires; the partial least squares (PLS) method	218 responses from 22 provinces	The gap between high Internet use and low financial technology service use, and the role of financial literacy rate in it
11	Andreou and Anyfantaki (2021)	Cypr	Survey via telephone calls through random digital dialing and the individuals were not remunerated	25 to 65 aged 600 respondents	The relationship between the level of financial knowledge and frequency of i-banking use
12	Riitsalu and Põder (2016)	Estonia	PISA 2012 data, the paper-and-pen test used a two-stage stratified sample design	15-year-old students among 29000 students in 18 countries. For Estonia 1088 students.	Is financial literacy explained by demographics and financial knowledge in all countries? The predictors of the financial literacy in Estonia when financial education is not provided.
13	Luksander et al., (2014)	Hungary	The data from the Financial Literacy Research Program coordinated by the State Audit Office; Regression models and variance analysis in addition to descriptive statistical methods.	The Budapest University of Applied Sciences and The University of Szeged, with a combined total of nearly 38,000 students	How do demographic and educational features of students in higher education affect their financial literacy?
14	Davoli and Hou (2021)		Panel Household Finances (PHF) household-level survey data collected by the Deutsche Bundesbank;		The heterogeneity of financial literacy in different parts of Germany (East and West) and the impact of the institutional framework

Azeez and Akhtar (2021) used the ordinary least squares (OLS) multiple regression model. They found that factors like education level, income, occupation, gender, landholding, and ration cards significantly affect digital financial literacy in rural areas. Efforts like demonetization and mobile communication did not help those facing financial issues. So, governments and policymakers should create policies to boost rural incomes and improve job opportunities.

Pertiwi and Purwanto (2021) found that millennials, as digital natives, adopt technology 2.5 times faster than other generations. Additionally, 24% of millennials believe that technology sets their generation apart. Higher financial literacy leads to greater interest in adopting Fintech services. However, the fourth hypothesis was rejected. Education level did not significantly affect interest in Fintech adoption and usage.

Khan et al. (2023) viewed Fintech literacy as essential for adopting and using Fintech. They noted that millennials are crucial to the growth of the Fintech industry. The authors discovered that education greatly impacts the understanding of Fintech concepts like machine learning, blockchain, P2P lending, and crowdfunding.

Histori (2022) finds that financial literacy boosts Fintech usage. The more people know about a product, the more they use it. Society also shapes choices through "social pressure." However, this effect is short-lived and mostly impacts women.

Liao and Chen (2020) found a negative link between financial literacy and mobile payment use. When financial literacy rises by one unit, the chance of respondents using mobile payment drops by 30.49%. Their findings align with those of Lusardi et al. (2018). However, younger, male, and self-employed respondents tend to use mobile payments more. There were no significant differences between married and single respondents. These results contrast with those of other scholars.

Yoshino et al. (2020) studied how financial literacy relates to two Fintech services: electronic money and mobile payments. They also looked at crypto asset holdings. The results showed that higher financial literacy is linked to more frequent use of Fintech services. However, it was negatively related to crypto asset usage.

Herdinata (2020) found that a better understanding of regulations and collaboration boosts financial literacy. This, in turn, helps small and medium businesses adopt financial technology.

Morgan and Trinh (2019) reported a strong link between financial education and Fintech awareness. However, they noted that more data is needed to confirm this relationship.

In Servon and Kaestner (2008), quantitative analyses from phone surveys showed a weak link. However, interviews and focus groups suggested a stronger connection between ICT and financial literacy. Urban individuals with low to moderate incomes need both technical and financial skills. Intensive support may help these groups.

Siddik et al. (2023) found that 20.5% of Internet users have tertiary degrees. In contrast, 79.3% of digital financial product users hold similar degrees. This suggests education impacts financial literacy. Improving financial literacy could help close the gap between high Internet use and low financial management in China. The study emphasized that basic financial skills are crucial for users to engage with Fintech products effectively.

Andreou and Anyfantaki (2021) found a positive link between financial knowledge and how often people use i-banking. Income and education also impacted financial literacy levels. Consumers with low financial literacy showed more distrust in e-banking compared to others. They needed more confidence in their financial and digital skills, which kept them from using this service. The results highlight how financial and digital awareness affect i-banking use. Cyprus ranks relatively low in financial literacy.

Riitsalu and Põder (2016) found that demographics and financial knowledge do not fully explain financial literacy across countries. Their study looks at factors affecting financial literacy without financial education. They noted that students in Estonia's similar education system showed different behaviors and literacy levels due to cultural and language differences. Family background was also key, alongside usual demographics like parental education and occupation. The authors highlighted several unexplained factors. These included cultural, developmental, and societal indicators that researchers often overlook in financial literacy studies. The only factor that explained the literacy gap between the two communities was the number of books at home. However, the study did not explore what the number of books might indicate, such as social status, cultural background, or problem-solving skills.

Luksander et al. (2014) showed that financial knowledge gained in higher education boosts financial literacy. In contrast, financial training does not have a significant impact. Short-term training may

motivate literacy temporarily, but true financial knowledge takes time to develop. Financial topics taught in secondary school mainly offer theoretical knowledge. Practical understanding often comes with sufficient income.

Davoli and Hou (2021) found that the educational system is a key factor in financial literacy. They noted different patterns in the western and eastern parts of the country. Results showed a lower literacy rate (12% to 21%) among those who experienced the past socialist educational system compared to those who did not.

Based on early research, we formed these hypotheses:

H1: Higher quality of life (income and education) boosts Fintech usage.

H2: Employment and social integration raise Fintech usage.

H3: Better financial literacy leads to more Fintech usage.

H4: Financial literacy partly mediates the link between controls and Fintech usage.

Our research shows a gap in understanding how socio-economic traits affect Fintech use. We also need to explore how financial literacy plays a role in this relationship, especially for Uzbekistan. This study aims to assess how financial literacy mediates the link between people's socio-demographic traits and their acceptance of Fintech. While many countries with high Fintech adoption have explored these connections, Uzbekistan needs this research urgently.

Methodology

A cross-sectional survey took place in the third quarter of 2024. We used simple random sampling to collect data. This study focused on residents aged 21 and older in three villages in the Karshi district of the Kashkadarya region, Uzbekistan. Respondents learned that participation was voluntary, and their answers would remain anonymous.

We gathered data through a questionnaire with 25 multiple-choice questions. These included dichotomous (yes/no), ordinal (Likert scale from strong to weak), and nominal categorical options. After processing, we had a sample of 502 participants from an initial 589. Based on the generated hypotheses, we estimated the following regression:

$$F_i=\beta_0+\beta_1*OFL_i+\beta_2*SFL_i+\beta_3*X_i+\varepsilon$$

The study looked at eight demographic and socio-economic traits of respondents. These included age, gender, household size, education level, financial training participation, employment type, income level, and savings. The savings rate was also considered alongside income level to reflect income adequacy. Employment served as a sign of social and technological integration. A bachelor's degree was viewed as a key educational factor. The study hypothesized that education and income levels were indicators of quality of life. Employed individuals included those working officially, unofficially, self-employed, and individual entrepreneurs. Unemployed respondents included retirees and disabled individuals.

The independent variable in the regression is the "Objective financial literacy rate" (OFL). This was created using the "Big Three" questions (Lusardi and Mitchell 2011) and two simple yes/no questions from the OECD questionnaire (Atkinson and Messy 2011) to measure risk and inflation awareness. We included these two questions to match the financial knowledge levels of respondents (Jennah 2019). The authors measured the "subjective financial literacy" (SFL) rate with three multiple-choice questions (Prabhakaran and Mynavathi 2023). This relied on respondents' views of their financial skills, using a Likert scale from 5 (strongly agree) to 1 (strongly disagree).

The dependent variable is the use of financial technologies by individuals. This mainly includes "payment" technologies like Click, Pay me, Uzum, online banking, and mobile banking, along with other internet payment methods. The authors gave equal weight to each tool. This section also contained two questions about how often respondents use digital services and if they have any digital debt.

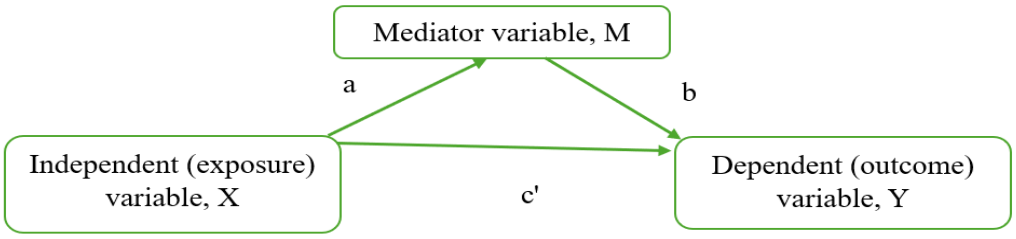
The authors examined direct and indirect factors affecting Fintech. They also looked at how financial literacy mediates Fintech adoption. Using causal step tests based on Kenny's method (Hayes 2009), they analyzed the impact of education level and employment status on Fintech usage through financial literacy. They created three regression models for this analysis.

$Y=i_1 + c*X+\varepsilon_1;$

$M=i_2 + a*X+\varepsilon_2;$

$Y=i_3 + c'*X+b*M+\varepsilon_3;$

where: Y-dependent variable, X-independent variable, and M-mediator.



1 Independent and Dependent variables' relationship through mediator

Results

1 Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Fintech	502	1.956175	0.7954911	0	3
Objective financial literacy (OFL)	502	1.838645	1.00292	0	4
Subjective financial literacy (SFL)	502	6.360558	3.206698	0	12
Age	502	3.749004	0.8736261	1	5
Gender	502	1.515936	0.5002445	1	2
Household size	502	2.262948	0.7194071	1	4
Financial training	502	0.1912351	0.393666	0	1
Income	502	2.015936	0.8638591	1	4
Savings	502	0.0956175	0.2943593	0	1
University degree	502	0.2549801	0.4362848	0	1
Employment status	502	0.749004	0.4340187	0	1

The table shows that the average Fintech usage score is about 1.95. The average age is around 3.75, indicating a younger sample. About 53% of respondents were millennials, aged 27-46, who likely handle financial decisions. The average household size ranges from 6 to 8 people. Around 20% of respondents attended financial training at least once.

Income levels were lower than expected. No respondents earned over 10 million UZS a month. Only about 5% earned between 5-10 million UZS monthly. The main income brackets were 1-3 million UZS (41%) and 3-5 million UZS (23%). Many people declined to answer questions about income, property, or savings. Still, about 10% reported having savings in bank accounts. It's unclear if these savings came after consumption or were part of income smoothing.

About 25% of respondents hold a bachelor's degree, and around 75% of the sample were employed.

Number of observations: 502
F (10, 491): 14.01
Prob > F: 0.0000
R-squared: 0.1892
Root MSE: 0.72354

3 Determinants of Fintech Usage (OLS Regression Results)

Variable	Coefficient	Std. Error	t	P>|t|	95% CI Lower	95% CI Upper
Objective financial literacy	0,1111043	0,0332875	3,34	0,001	0,0457008	0,1765078
Subjective financial literacy	0,0369044	0,0116191	3,18	0,002	0,0140751	0,0597337
Age	0,0411858	0,0439355	0,94	0,349	-0,0451389	0,1275105
Gender	0,0727346	0,0755903	0,96	0,336	-0,0757582	0,2215251
Household size	-0,0832944	0,0493296	-1,69	0,092	-0,1802174	0,0136287
Financial training	0,0427481	0,081095	0,53	0,598	-0,1165879	0,2020841
Income	0,0508632	0,0478261	1,06	0,29	-0,043106	0,1448323
Savings	0,3711893	0,0943515	3,93	0	0,1858068	0,5565718
University degree	0,1645215	0,0733301	2,24	0,026	0,0204421	0,3086001
Employment status	0,2082725	0,0970986	2,14	0,033	0,0174924	0,3990526
_cons	1,096835	0,2382506	4,6	0	0,6287185	1,564951

The table shows the model is statistically significant. The R-squared value is 0.1892. This means the model explains about 18% of the variation in Fintech usage. The Root Mean Squared Error (RMSE) is 0.7235. This indicates our model's predictions differ by almost 18% from the total range of the Fintech score.

Gender does not significantly impact Fintech usage. However, all four instrument usage responses lean more towards men. The survey's gender ratio is nearly balanced at 49/51%. Household size and training attendance do not significantly relate to Fintech adoption. About 50% of respondents live in 4-5 person households and use, on average, two Fintech instruments. Most financial training non-attendees (81%) used Fintech (2 instruments). Financial training does not affect Fintech use.

4 Cross-tabulation of Fintech Usage by University degree, Savings rate, and Employment Status

Fintech	University degree			Savings rate			Employment status		
	0	1	Total	0	1	Total	0	1	Total
0	23	1	24	24	0	24	18	6	24
1	85	13	98	95	3	98	33	65	98
2	194	62	256	236	20	256	57	199	256
3	72	52	124	99	25	124	18	106	124
Total	374	128	502	454	48	502	126	376	502

The table shows that higher education and savings predict Fintech usage. A one-unit increase in education leads to a 0.16-unit increase in Fintech use. In contrast, savings drive a 0.37-unit increase, more than double that of education. While most Fintech users lack university degrees, those with degrees tend to use more Fintech tools together. Non-users typically have no savings, suggesting a positive link between savings and Fintech engagement. This supports the first hypothesis: savings can indicate income adequacy, even if income itself does not.

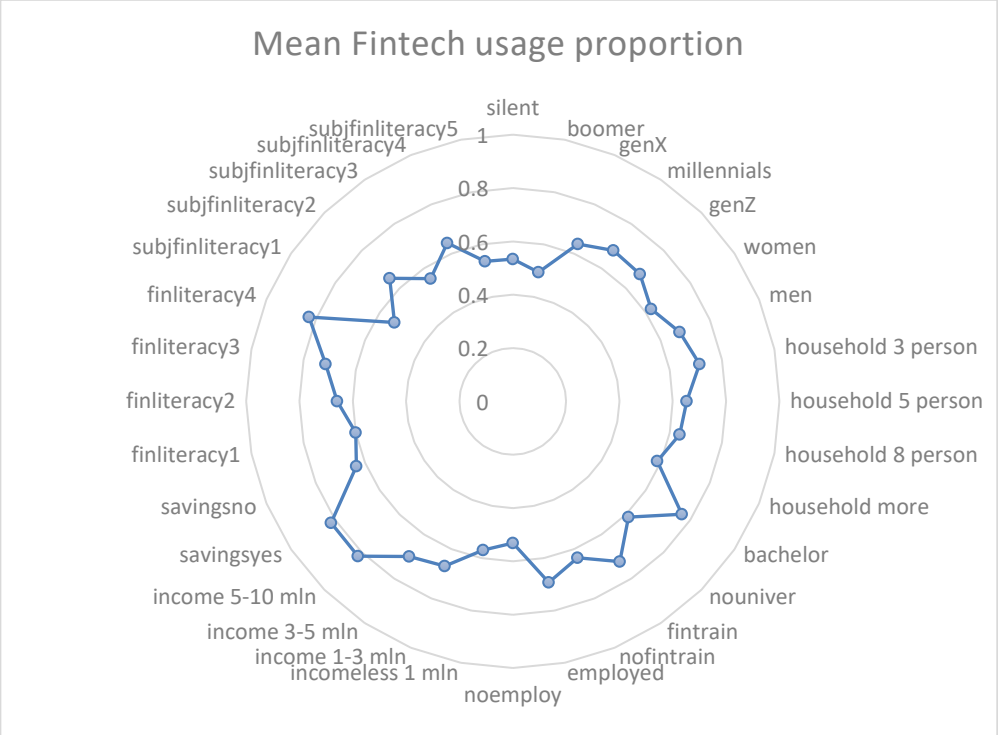
At a 95% confidence level, employed individuals prefer Fintech over the unemployed, retired, and disabled. The table indicates that as employment rises, the Fintech score also increases. Beyond income, technology and social integration may be key to Fintech usage. If true, this supports the second hypothesis.

Financial literacy scores were low, at 1.81. Of the 502 respondents, only about 5% answered four questions correctly. Around 38% answered two correctly, while 29% answered one. The standard deviation exceeds one, which may introduce risks in conclusions. However, objective financial literacy shows a strong positive link to Fintech usage, with a p-value and coefficient of 0.11, supporting the third hypothesis.

5 Cross-tabulation of Fintech Usage and Objective Financial Literacy (OFL)

Fintech	**OFL = 0**	**OFL =1**	**OFL =2**	**OFL =3**	**OFL =4**	**Total**
0	4	9	10	1	0	24
1	16	36	34	12	0	98
2	13	76	99	54	14	256
3	9	25	49	28	13	124
Total	42	146	192	95	27	502

A general trend shows that higher Fintech scores relate to better financial literacy. People with zero Fintech scores tend to have lower financial literacy. In contrast, those with three Fintech scores usually show higher financial literacy. However, this link isn't strictly linear. Many respondents with Fintech scores of one and two cluster around financial literacy scores of one and two. A significant number of respondents with two correct answers mainly used two Fintech instruments from the options given. This indicates that other factors, like income, education, employment, and financial inclusion, may also influence this concentration.



2 Radar Chart of Mean Fintech Usage Proportion Across Sociodemographic and Financial Literacy Categories

The radar chart shows how different groups use Fintech. Respondents were divided into social and demographic groups. Then, the "mean Fintech index in proportion" was calculated for each group. The chart highlights clear differences in Fintech use among educated and uneducated people, those who attended training versus those who did not, and employed versus unemployed individuals. It also shows that Millennials and Generation Z are more open to Fintech, and that higher financial literacy boosts Fintech engagement.

The subjective financial literacy rate matches the objective financial literacy rate. The objective financial literacy (OFL) rate seems to be at the start of the recovery stage on the Dunning-Kruger curve. Here, people's OFL rate is low, but they recognize it. As knowledge grows, confidence will likely increase. However, women's subjective financial literacy (SFL) rate negatively correlates with their OFL rate. This means women's OFL is lower than men's and needs improvement before making financial decisions.

The authors found that some controls strongly related to the independent variable. They observed that financial literacy partially mediated the link to Fintech use. By using causal step tests, the authors showed that education level and employment status impact Fintech use, partly due to financial literacy. All three regression models were statistically significant. The coefficients for education level and employment status decreased in the third model, showing the partial effect of the mediator.

1 Bivariate Regression (Fintech ~ University Degree)

Source	SS	df	MS
Model	19.0386557	1	19.0386557
Residual	297.997201	500	0.59599402
Total	317.035857	501	0.632806101

1 ANOVA table

Metric	Value
Number of obs	502
F (1, 500)	31.94
Prob > F	0.0000
R-squared	0.0601
Adj R-squared	0.0582
Root MSE	0.77201

2 Model Fit Statistics

Variable	Coefficient	Std. Error	t	P>|t|	95% CI Lower	95% CI Upper
University degree	0,446817	0,079056	5,65	0	0,291495	0,602138
_cons	1,842246	0,03992	46,15	0	1,763815	1,920677

3 Regression Output

2 Alternative Dependent Variable (AltDV ~ University Degree (specify AltDV))

Source	SS	df	MS
Model	21.8558721	1	21.8558721
Residual	482.074407	500	0.964148814
Total	503.930279	501	1.00584886

4 ANOVA table

Metric	Value
Number of obs	502
F(1, 500)	22.67
Prob > F	0.0000
R-squared	0.0434
Adj R-squared	0.0415
Root MSE	0.98191

5 Model Fit Statistics

Variable	Coefficient	Std. Error	t	P>|t|	95% CI Lower	95% CI Upper
University degree	0,478735	0,10055	4,76	0	0,281182	0,676288
_cons	1,716578	0,050773	33,81	0	1,616822	1,816333

6 Regression Output

3 Multivariate Regression (Fintech ~ OFL + University Degree)

Source	SS	Df	MS
Model	30.7230128	2	15.3615064
Residual	286.312844	499	0.573773234
Total	317.035857	501	0.632806101

1 ANOVA table

Metric	Value
Number of obs	502
F(2, 499)	26.77
Prob > F	0.0000
R-squared	0.0969
Adj R-squared	0.0933
Root MSE	0.75748

2 Model Fit Statistics

Variable	Coefficient	Std. Error	t	P>|t|	95% CI Lower	95% CI Upper
OFL	0,155685	0,0345	4,51	0	0,087902	0,223467
University degree	0,372285	0,079307	4,69	0	0,216469	0,528101
_cons	1,575001	0,071002	22,18	0	1,435502	1,714501

3 Regression Output

The coefficient of education in the first model shows its total effect on Fintech usage: c=0.4468. In the second model, the coefficient indicates education's impact on the mediator: a=0.4787. The third model reveals the direct effect of education on Fintech, while accounting for the mediator: c1=0.3723. The coefficient for financial literacy in this model shows the combined impact of education and the mediator on Fintech: b=0.1557. Thus, the indirect effect of education on Fintech, calculated as a*b, is 0.0745. To find the total effect, we use the formula: c=c1+ab=0.4468. The effect of education on Fintech through financial literacy is ab/c=0.1667. Therefore, 16.67% of education's effect on Fintech is due to financial literacy.

1 Bivariate Regression (Fintech ~ Employment status)

Source	SS	df	MS
Model	21.9154158	1	21.9154158
Residual	295.120441	500	0.590240881
Total	317.035857	501	0.632806101

1 ANOVA table

Metric	Value
Number of obs	502
F(1, 500)	37.13
Prob > F	0.0000
R-squared	0.0691
Adj R-squared	0.0673
Root MSE	0.76827

2 Model Fit Statistics

Variable	Coefficient	Std. Error	t	P>|t|	95% CI Lower	95% CI Upper
Employment status	0,48189	0,079084	6,09	0	0,326512	0,637267
_cons	1,595238	0,068443	23,31	0	1,460767	1,72971

3 Regression Output

2 Alternative Dependent Variable (AltDV ~ Employment status (specify AltDV))

Source	SS	df	MS
Model	13.4814018	1	13.4814018
Residual	490.448877	500	0.980897754
Total	503.930279	501	1.00584886

4 ANOVA table

Metric	Value
Number of obs	502
F(1, 500)	13.74
Prob > F	0.0002
R-squared	0.0268
Adj R-squared	0.0248
Root MSE	0.9904

5 Model Fit Statistics

Variable	Coefficient	Std. Error	t	P>|t|	95% CI Lower	95% CI Upper
Employment status	0,377955	0,101949	3,71	0	0,177653	0,578257
_cons	1,555556	0,088232	17,63	0	1,382204	1,728907

6 Regression Output

3 Multivariate Regression (Fintech ~ OFL + Employment status)

Source	SS	df	MS
Model	34.4037027	2	17.2018514
Residual	282.632154	499	0.566397102
Total	317.035857	501	0.632806101

7 ANOVA table

Metric	Value
Number of obs	502
F (2, 499)	30.37
Prob > F	0.0000
R-squared	0.1085
Adj R-squared	0.1049
Root MSE	0.75259

8 Model Fit Statistics

Variable	Coefficient	Std. Error	t	P>|t|	95% CI Lower	95% CI Upper
OFL	0,159571	0,033983	4,7	0	0,092804	0,226339
Employment status	0,421579	0,078528	5,37	0	0,267294	0,575864
_cons	1,347016	0,08538	15,78	0	1,179268	1,514764

9 Regression Output

The same analysis was conducted to identify the mediation of employment status and Fintech usage relationship. The first model shows the employment coefficient, which is the total effect of employment on Fintech usage: c=0.4819. The second model shows the coefficient of employment, that is, its impact on the mediator: a=0.3779. The direct effect of education on Fintech, while controlling for the mediator influence, came from the third model, the coefficient of employment, c1=0.4216. The coefficient of financial literacy, which is the impact of employment and mediator on Fintech, b=0.1596. Thus, the indirect effect of employment on Fintech (the composition of the effect of employment on the mediator and these two effects on Fintech) made up: a*b= 0.0603. Checking for the total effect, c=c1+ab=0.4819. Explained by financial literacy, the effect of employment on Fintech is ab/c=0.1251. So, 12.51% of the effect of employment on Fintech comes from financial literacy. Education and employment effects mediated by financial literacy, 16.67% and 12.51%, prove the fourth hypothesis.

Discussion

The study revealed that objective quality of life makes people use Fintech. The authors substantiate the weaker relationship between income level and Fintech usage, with insufficient income in rural areas. With low private property levels and lack of the market, high unemployment rates in rural places, urban and rural places inequality, and still developing financial infrastructure gives no incentive to adopt Fintech in rural places.

However, savings-owning people showed higher rates of Fintech usage. If savings result from disposable income, higher disposable income is linked to greater Fintech usage. However, the savings rate can come from trust in the financial system or financial knowledge. Therefore, because of trust and awareness, a few respondents might have used more Fintech. As universities, which have a great impact on Fintech adoption, provide more information, including financial information, to their students, it gives them more confidence in using new instruments. University-caused higher incomes and more exposure to technology may lead to higher Fintech engagement. Disposable income, education, and awareness provide Fintech tolerance.

As awareness of what is happening all around is crucial, the next source may be employment status, where people witness technological and social exposure to processes, including financial ones. In comparison with unemployed, retired and disabled people, employed people showed more inclination toward Fintech usage. Employment was a key control that may affect Fintech usage directly and implicitly. In addition to its impact on objective financial literacy, employment directly affects subjective financial literacy, and seemingly, people with high self-esteem are more open to Fintech. Employment has direct and indirect effects on Fintech usage and the objective and subjective financial

literacy rates of people in Uzbekistan. Financial training, which is crucial, does not influence Fintech usage in our sample. This might be due to two reasons: either the provided financial training was not so effective, or the constituent concepts of training did not yet match the Uzbek market.

Unfortunately, the average financial literacy rate is not so impressive, and people's subjective perception coincides with it exactly. Though the main Fintech users are among 2-correct-answer financially literate people, people with four correct answers used more Fintech instruments. As the most popular instrument "Click" is simple and can work offline, without smartphone, typical rural Fintech users are mostly limited there. However, more financial literacy makes people provide Internet connections, use more Fintech instruments, and propagate them. The key determinants of financial literacy are the availability of education, employment, and disposable income.

The study found that, when objective financial literacy predicts Fintech usage through the mediating effect of subjective self-perception, financial literacy itself partially mediates education and employment. Financial literacy increases Fintech usage, resulting from the 16,6% and 12,5% effect of education and employment respectively, that partially mediates their relationship.

Conclusion

The study found that Fintech adoption in Uzbekistan is primarily driven by people's demographic and socioeconomic characteristics, such as education, employment status, income, and financial literacy. The study revealed that only about 18% of Fintech adoption can be explained from the user's perspective. People generally use two out of the four suggested instruments. The results show that Fintech adoption in rural Uzbekistan is influenced by factors like education, employment status, income levels, financial literacy, and self-confidence in financial matters. The financial literacy rate was around 36% (1,8386/5). The study suggests that the level of awareness, self-confidence, and Fintech usage are closely linked to people's education and employment status, but financial training programs in Uzbekistan did not significantly impact the adoption of financial technologies.

The findings have practical implications for policymakers, Fintech companies and rural communities in Uzbekistan. First, people's income level should be increased by creating new job opportunities. Second, education in schools and universities should update programs to prevent people's cognitive backwardness in the developed world. Third, financial awareness should be encouraged so people can understand the full process of financing. Training costs should be redirected to enhancing educational programs in schools, where financial concepts are systematically and progressively explained. Lastly, financial infrastructure should be expanded to rural places, and government subsidies and incentives should be provided to financial institutions and Fintech companies.

The study had a limited sample. The sample was restricted to the rural population of the Kashkadarya region. Each region in Uzbekistan has unique socioeconomic and cultural traits. A more diverse sample from different regions would be needed to make broad conclusions. Additionally, the study only looked at "payment" systems as a measure of Fintech usage. The financial literacy measurement also had limitations. Developing more appropriate measurement tools with additional questions for the Uzbekistan context would be important.

Surveys are crucial in Uzbekistan today. They help authorities understand the desires of the people and make them feel more valued, which is necessary. During the surveys, some people thanked the surveyors for asking their opinions, while others feared the questioning. Investigating financial literacy

rates and Fintech tolerance in rural and urban areas is needed. Additionally, examining people's debt literacy is crucial as Fintech is expanding with growing debt-related products.

The problem's roots trace back to issues in the education system and insufficient information. Individuals with adequate knowledge and skills can confidently make effective decisions and converge with the developed world.

References

1. Slussareff, M. (2022). O'Neil, Cathy. 2016. Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy. Crown.
2. Buckley, R. P., & Webster, S. (2016). Fintech in developing countries: charting new customer journeys. Journal of Financial Transformation, 44.
3. Greta Benedetta Ferilli, Egidio Palmieri, Stefano Miani, Valeria Stefanelli. (2024) "The impact of Fintech innovation on digital financial literacy in Europe: Insights from the banking industry", Research in International Business and Finance, 69, 102218
4. Jalolova, M., Sangirova, U., Yakubov, I., Rahimov, H., & Kholmatova, N. (2022). Economic efficiency of the transport system and logistics in the Republic of Uzbekistan. Transportation Research Procedia, 63, 1061-1066.
5. Spechler, M. C. (2000). Uzbekistan: the silk road to nowhere? Contemporary Economic Policy, 18(3), 295-303.
6. Caspian Policy Center CPC (2023) Uzbekistan population growth (1991-2023). Retrieved from caspianpolicy.org: https://www. Caspianpolicy. org/research/energy-and-environment/uzbekistan-population-growth.
7. Abdullaev, F. O., & Fayzullaev, N. B. (2021). Approaches of Increasing Financial Literacy of the Population During the Economic Digitalization in Uzbekistan. Annals of the Romanian Society for Cell Biology, 25(2), 102-108.
8. World Bank Findex, 2021. Available at: https://microdata.worldbank.org/index.php/catalog/4726
9. Visa, 2023. Unlocking the benefits of digital payments: Insights from Uzbekistan. Report. Retrieved from: https://usa.visa.com/content/dam/VCOM/regional/na/us/about- visa/documents/insights-from-uzbekistan-en.pdf
10. Khan, M. T. I., Liew, T. W., & Lee, X. Y. (2023). Fintech literacy among millennials: The roles of financial literacy and education. Cogent Social Sciences, 9(2), 2281046.
11. Riitsalu, L., & Põder, K. (2016). A glimpse of the complexity of factors that influence financial literacy. International Journal of Consumer Studies, 40(6), 722-731.
12. Luksander, A., Beres, D., Huzdik, K., & Nemeth, E. (2014). Analysis of the factors that influence the financial literacy of young people studying in higher education. Public Finance Quarterly= Pénzügyi Szemle, 59(2), 220-241.
13. Davoli, M., & Hou, J. (2021). Financial literacy, institutions and education: Lessons from the German reunification. German Economic Review, 22(4), 447-488.
14. Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. Journal of consumer affairs, 44(2), 276-295.
15. Lusardi, A. (2019). Financial literacy and the need for financial education: evidence and implications. Swiss Journal of Economics and Statistics, 155(1), 1-8.

16. Lyons, A. C., & Kass-Hanna, J. (2021). A methodological overview to defining and measuring "digital" financial literacy. Financial Planning Review. 2021;4:e1113. https://doi.org/10.1002/cfp2.1113
17. Herdinata, C. (2020). The effect of regulation, collaboration, and financial literacy on financial technology adoption. Expert journal of business and management, 8(2), 131-138.
18. Andreou, P. C., & Anyfantaki, S. (2021). Financial literacy and its influence on internet banking behavior. European Management Journal, 39(5), 658-674.
19. Liao, C. F., & Chen, C. D. (2020). Financial literacy and mobile payment behaviors. Journal of Accounting and Finance, 20(7).
20. Oktafian Histori, S. (2022, October). Financial Literacy, Social Influence and The Use of Digital Payments: A Literature Review. In Proceeding of The International Conference on Economics and Business (Vol. 1, No. 2, pp. 206-220).
21. Yoshino, N., Morgan, P. J., & Long, T. Q. (2020). Financial literacy and Fintech adoption in Japan (No. 1095). ADBI Working Paper Series.
22. Morgan, P., & Trinh, L. Q. (2019). Fintech and financial literacy in the Lao PDR.
23. Servon, L. J., & Kaestner, R. (2008). Consumer financial literacy and the impact of online banking on the financial behavior of lower-income bank customers. Journal of consumer affairs, 42(2), 271-305.
24. Pertiwi, T. K., & Purwanto, E. (2021). Analysis of adopting millennial generation financial technology (Fintech) services. International Journal of Business Management and Economic Review, 4(03), 36-47.
25. Siddik, A. B., Rahman, M. N., & Yong, L. (2023). Do Fintech adoption and financial literacy improve corporate sustainability performance? The mediating role of access to finance. Journal of Cleaner Production, 421, 137658.
26. Azeez, N. A., & Akhtar, S. J. (2021). Digital financial literacy and its determinants: empirical evidence from rural India. South Asian Journal of Social Studies and Economics, 11(2), 8-22.
27. Jennah, H. U. X. L. E. Y. (2019). OECD/INFE toolkit for measuring financial literacy and financial inclusion.
28. Prabhakaran, S., & Mynavathi, L. (2023). Perception vs. reality: Analysing the nexus between financial literacy and Fintech adoption. Investment Management and Financial Innovations, 20(4), 13-25.
29. Andrew F. Hayes (2009) Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium, Communication Monographs, 76:4, 408-420, DOI: 10.1080/03637750903310360
30. Atkinson, A., & Messy, F. A. (2012). Measuring financial literacy. Journal of Consumer Affairs, 44(2), 296-316.
31. Huston, S. J. (2010). Measuring financial literacy. Journal of consumer affairs, 44(2), 296-316.
32. Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement planning: New evidence from the Rand American Life Panel (No. 2007/33). CFS working paper.
33. Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? American economic review, 98(2), 413-417.
34. Wei, L., Peng, M., & Wu, W. (2021). Financial literacy and fraud detection——Evidence from China. International Review of Economics & Finance, 76, 478-494.

35. Atkinson, A., & Messy, F. A. (2011). Assessing financial literacy in 12 countries: an OECD/INFE international pilot exercise. Journal of Pension Economics & Finance, 10(4), 657-665.
36. Adjasi, C., Hamilton, C., & Lensink, R. (2023). Fintech and financial inclusion in developing countries. In The Fintech disruption: How financial innovation is transforming the banking industry (pp. 297-328). Cham: Springer International Publishing.
37. Jünger, M., & Mietzner, M. (2020). Banking goes digital: The adoption of Fintech services by German households. Finance Research Letters, 34, 101260.
38. Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: an overview. Journal of pension economics & finance, 10(4), 497-508.
39. Koskelainen, T., Kalmi, P., Scornavacca, E., & Vartiainen, T. (2023). Financial literacy in the digital age—A research agenda. Journal of Consumer Affairs, 57(1), 507-528.
40. Singh, L. (2006). Innovations and economic growth in a fast-changing global economy: comparative experience of Asian countries.
41. Diao, X., McMillan, M., & Rodrik, D. (2019). The recent growth boom in developing economies: A structural-change perspective (pp. 281-334). Springer International Publishing.
42. Ediagbonya, V., & Tioluwani, C. (2023). The role of Fintech in driving financial inclusion in developing and emerging markets: issues, challenges and prospects. Technological Sustainability, 2(1), 100-119.
43. Song, N., & Appiah-Otoo, I. (2022). The impact of Fintech on economic growth: Evidence from China. Sustainability, 14(10), 6211.
44. Gerardi, K., Goette, L., & Meier, S. (2010). Financial Literacy and Subprime Mortgage Delinquency: Evidence from.
45. Grohmann, A., Klühs, T., & Menkhoff, L. (2018). Does financial literacy improve financial inclusion? Cross country evidence. World Development, 111, 84-96.
46. Ahunov, M., & Van Hove, L. (2020). National culture and financial literacy: international evidence. Applied Economics, 52(21), 2261-2279.
47. Irmatova A., & Bakiyeva I. (2024). The Influence of Digitalization and Artificial Intelligence On Human Resources Training. International Journal for Quality Research, 19(1), 1-12.
48. Huarng, K. H., & Yu, T. H. K. (2022). Causal complexity analysis for Fintech adoption at the country level. Journal of Business Research, 153, 228-234.
49. Becker, G. (1994). Human Capital and Poverty Alleviation, World Bank Conference, Dec. 16.