

CODEBOOK

Supplementary Material

Manuscript Title: Enhancing Digital Financial Literacy and Digital Trust for Sustainable Online Loan Adoption among Micro-Entrepreneurs in Developing Economies

1. Dataset Overview

Property	Detail
File Name	Supplementary_Data.xlsx
Sample Size (N)	320
Total Variables	24 observed indicators
Latent Constructs	6
Data Type	Ordinal (Likert-scale responses)
Missing Values	0 (complete dataset)
Collection Method	Self-administered structured questionnaire
De-identification	All personally identifiable information removed

2. Measurement Scale

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

Value	Label
5	Strongly Agree
4	Agree
3	Neutral / Neither Agree nor Disagree
2	Disagree
1	Strongly Disagree

3. Construct Summary

Construct	Abbreviation	Items	Scale Range	Cronbach's α	McDonald's ω	AVE
Digital Financial Literacy	DFL	4	1–5	0.896	0.869	0.688
Perceived Usefulness	PU	4	1–5	0.906	0.887	0.730
Digital Trust	DT	4	1–5	0.891	0.892	0.728
Online Loan Adoption Intention	OLAI	3	1–5	0.826	0.753	0.648
Sustainable Online Loan Use	SOLU	4	1–5	0.819	0.798	0.604
Digital Financial Capability	DFC	5	1–5	0.915	—	—

4. Variable Definitions and Item Wordings

4.1 Digital Financial Literacy (DFL)

Definition: The knowledge and skills required to effectively manage digital financial tools, understand online transaction terms and conditions, identify digital financial risks, and securely manage online financial information.

Code	Item Wording	Mean	SD	Min	Max	Std. Loading
DFL1	I have adequate knowledge and skills to use digital financial tools effectively and efficiently.	4.072	1.113	1	5	0.946
DFL2	I understand the terms, conditions, and regulations governing online financial transactions.	4.116	1.165	1	5	0.945

Code	Item Wording	Mean	SD	Min	Max	Std. Loading
DFL3	I can identify financial risks and threats associated with digital financial transactions.	3.975	1.100	1	5	0.701
DFL4	I can manage and protect my online financial information securely and appropriately.	4.022	1.078	1	5	0.687

Note: A residual covariance between DFL3 and DFL4 ($r = 0.702$, $p < .001$) was specified in the structural model. Both items relate to the practical application of digital financial security knowledge (identifying risks and managing/protecting information), justifying this specification both theoretically and empirically ($MI = 47.96$).

4.2 Perceived Usefulness (PU)

Definition: The extent to which a micro-entrepreneur believes that using online loan services will enhance business efficiency, improve access to capital, achieve financial goals, and provide overall business benefits.

Code	Item Wording	Mean	SD	Min	Max	Std. Loading
PU1	Using online loan services will increase the operational efficiency of my business.	4.028	1.191	1	5	0.849
PU2	Online loan services will provide me with faster and more convenient access to capital sources.	4.041	1.186	1	5	0.925
PU3	Using online lending platforms will help me achieve my financial goals more effectively.	3.966	1.175	1	5	0.865
PU4	Overall, I believe that online loan services are beneficial for my business operations.	3.978	1.127	1	5	0.771

4.3 Digital Trust (DT)

Definition: The confidence and reliability a micro-entrepreneur has toward online lending platforms, including trust in security measures, institutional credibility, transaction transparency, and personal data protection.

Code	Item Wording	Mean	SD	Min	Max	Std. Loading
DT1	I trust in the security and confidentiality measures of online lending platforms.	3.991	1.135	1	5	0.835
DT2	I have confidence in the credibility and service quality of online financial institutions.	4.041	1.115	1	5	0.906
DT3	I believe that online lending platforms will conduct transactions accurately and transparently.	4.078	1.096	1	5	0.880
DT4	I am confident that my personal and financial information will be properly protected.	4.009	1.138	1	5	0.788

4.4 Online Loan Adoption Intention (OLAI)

Definition: The micro-entrepreneur's motivation and willingness to adopt and use online lending services for business capital needs, including intentions to apply and recommend services to others.

Code	Item Wording	Mean	SD	Min	Max	Std. Loading
OLAI1	I intend to use online loan services in the near future.	3.359	0.895	1	4	0.816
OLAI2	I plan to use online lending platforms to meet my business capital needs.	3.381	0.898	1	4	0.850
OLAI3	I am likely to recommend online loan services to other micro-entrepreneurs.	3.334	0.884	1	4	0.746

Note on item removal: The original construct contained 4 items. OLAI4 ("I am confident that I can use digital financial tools to increase business opportunities") was removed after confirmatory factor analysis due to cross-loading with the Digital Financial Capability (DFC) construct (standardized loading > 0.40 on both OLAI and DFC factors). The 3-item scale maintains adequate reliability ($\alpha = 0.826$) and convergent validity (AVE = 0.648).

4.5 Sustainable Online Loan Use (SOLU)

Definition: The micro-entrepreneur's commitment and ability to maintain ongoing, responsible use of online lending services, including consistent loan repayment and long-term engagement with digital lending platforms.

Code	Item Wording	Mean	SD	Min	Max	Std. Loading
SOLU1	I will continuously use online loan services to meet my ongoing business capital needs.	3.325	0.889	1	4	0.831
SOLU2	I am committed to repaying loans through online platforms according to agreed schedules.	3.428	0.846	1	4	0.751
SOLU3	I will rely on online lending as my primary source of capital in the long term.	3.291	0.842	1	4	0.781
SOLU4	I will establish and maintain a positive service history with online lending platforms.	3.409	0.829	1	4	0.742

4.6 Digital Financial Capability (DFC)

Definition: The micro-entrepreneur's practical ability and behavioral competence in applying digital financial knowledge to real-world financial decision-making, including evaluating financial products, managing transactions independently, and adapting to new technologies.

Note: This construct captures the behavioral dimension of financial competence beyond cognitive literacy (DFL). While DFL measures knowledge ("knowing"), DFC measures application ("doing"), consistent with the World Bank Digital Financial Capability Framework (World Bank, 2022).

Code	Item Wording	Mean	SD	Min	Max
DFC1	I can effectively compare and evaluate different online financial products and services before making decisions.	3.416	0.856	1	4
DFC2	I can manage my digital financial transactions and budgeting independently without external assistance.	3.381	0.866	1	4

Code	Item Wording	Mean	SD	Min	Max
DFC3	I can adapt to new digital financial tools and platforms as they become available.	3.341	0.830	1	4
DFC4	I can apply my financial knowledge to make sound borrowing decisions through online platforms.	3.416	0.845	1	4
DFC5	I can effectively use digital tools to monitor and control my loan repayment obligations.	3.394	0.861	1	4

Note: DFC was included in the survey but not in the structural model tested. It serves as a descriptive variable and potential control/covariate for future analysis.

5. Coding Information

5.1 General Coding Rules

- All items are positively worded — no reverse coding required
- Values are integer scores from 1 to 5
- No data transformations (log, square root, etc.) were applied
- Composite scores are calculated as the arithmetic mean of respective indicator items

5.2 Construct Score Computation

Construct	Formula
DFL_mean	$(DFL1 + DFL2 + DFL3 + DFL4) / 4$
PU_mean	$(PU1 + PU2 + PU3 + PU4) / 4$
DT_mean	$(DT1 + DT2 + DT3 + DT4) / 4$
OLAI_mean	$(OLAI1 + OLAI2 + OLAI3) / 3$
SOLU_mean	$(SOLU1 + SOLU2 + SOLU3 + SOLU4) / 4$
DFC_mean	$(DFC1 + DFC2 + DFC3 + DFC4 + DFC5) / 5$

6. Inter-Construct Correlation Matrix

	DFL	PU	DT	OLAI	SOLU	DFC
DFL	1.000					
PU	0.843	1.000				
DT	0.886	0.831	1.000			
OLAI	0.769	0.817	0.780	1.000		
SOLU	0.783	0.800	0.809	0.844	1.000	
DFC	0.800	0.828	0.780	0.848	0.894	1.000

7. Discriminant Validity: HTMT Ratio

	DFL	PU	DT	OLAI	SOLU
DFL	—				
PU	0.724	—			
DT	0.877	0.685	—		
OLAI	0.734	0.712	0.712	—	
SOLU	0.696	0.710	0.717	0.883	—

Note: All HTMT values < 0.90 (Gold et al., 2001), supporting discriminant validity.

8. File Structure (Column Order in Dataset)

Position	Code	Construct	Items in Model
1	DFL1	Digital Financial Literacy	Yes
2	DFL2	Digital Financial Literacy	Yes

Position	Code	Construct	Items in Model
3	DFL3	Digital Financial Literacy	Yes
4	DFL4	Digital Financial Literacy	Yes
5	PU1	Perceived Usefulness	Yes
6	PU2	Perceived Usefulness	Yes
7	PU3	Perceived Usefulness	Yes
8	PU4	Perceived Usefulness	Yes
9	DT1	Digital Trust	Yes
10	DT2	Digital Trust	Yes
11	DT3	Digital Trust	Yes
12	DT4	Digital Trust	Yes
13	OLAI1	Online Loan Adoption Intention	Yes
14	OLAI2	Online Loan Adoption Intention	Yes
15	OLAI3	Online Loan Adoption Intention	Yes
16	SOLU1	Sustainable Online Loan Use	Yes
17	SOLU2	Sustainable Online Loan Use	Yes
18	SOLU3	Sustainable Online Loan Use	Yes
19	SOLU4	Sustainable Online Loan Use	Yes
20	DFC1	Digital Financial Capability	Descriptive only
21	DFC2	Digital Financial Capability	Descriptive only

Position	Code	Construct	Items in Model
22	DFC3	Digital Financial Capability	Descriptive only
23	DFC4	Digital Financial Capability	Descriptive only
24	DFC5	Digital Financial Capability	Descriptive only

9. Notes for Reviewers

1. **De-identification:** This dataset contains no personally identifiable information. All responses are anonymous.
2. **OLAI4 Removal:** Item OLAI4 was removed after CFA due to cross-loading with DFC. The 3-item OLAI scale maintains good reliability ($\alpha = 0.826$) and adequate AVE ($0.648 > 0.50$).
3. **DFC Construct:** DFC was measured but not included in the structural model. It is provided for descriptive purposes and as a resource for future research replication.
4. **Observed Score Range:** OLAI, SOLU, and DFC items show an observed maximum of 4 (out of 5). This reflects respondent conservatism toward strong agreement on behavioral intention and capability items — a pattern consistent with developing economy contexts where digital financial adoption remains in early stages.
5. **Residual Covariance (DFL3 \sim DFL4):** Both items share conceptual overlap related to digital financial security practices. The specification is supported by modification index ($MI = 47.96$) and theoretical reasoning.