



New evidence on financial well-being, digitalisation and financial literacy in Pacific Island countries

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ABSTRACT

Financial well-being (FWB) is an emerging multi-faceted construct that plays a central role in shaping individuals' overall well-being. This study examines the association between digitalisation, financial literacy, and financial well-being among individuals in Pacific Island countries (PICs) and further assesses how its subcomponents are associated with financial well-being. Using data from the recent United Nations Capital Development Fund's (UNCDF) Digital and Financial Literacy Survey across seven Pacific Island countries, we construct measures of digitalisation and financial literacy (DFL) and examine their relationship with FWB. The results indicate a positive and significant association between DFL and FWB. Subcomponent analysis further indicates that subjective financial literacy, digital access, digital usage, and online activities exert strong positive associations with FWB, and these associations remain robust after controlling for socio-economic and demographic factors. In contrast, objective financial literacy is negatively associated with FWB, suggesting a potential mismatch between assessed financial knowledge and individuals' financial realities or constraints.

1. Introduction

Financial well-being (FWB) has emerged as a key outcome in personal finance research, reflecting its relevance for financial security, quality of life, and inclusive development (OECD, 2023). Among the many factors shaping FWB, DFL arguably play a crucial role, particularly as the rapid expansion of digital financial services (DFS) has increased individuals' reliance on digital capabilities to manage their finances. Existing studies generally document a positive association between DFL and FWB across both advanced and emerging economies, including Korea, India, China, and Indonesia (Choung et al., 2023; Jhonson et al., 2023; Kamble et al., 2024; Luan et al., 2025). Nonetheless, evidence is mixed. Panos and Wilson (2020) argue that the growing complexity of digital financial services, when combined with limited digital and financial literacy skills, may encourage impulsive behaviour and increase exposure to fraud, potentially undermining FWB.

Persistently low levels of financial literacy and digital capability worldwide suggest that the relationship between DFL and FWB may depend critically on how individuals' access and use DFS (Lusardi and Messy, 2023; Lyons & Kass Hanna, 2021a; OECD, 2023). For instance, Bialowolski et al. (2025), Lyons & Kass-Hanna (2021a), and the OECD (2023) show that insufficient financial and digital

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literacy may constrain effective DFS use and weaken financial outcomes.

While research has been undertaken in various countries, including developed and some developing nations, no comparable studies have been conducted in the PICs. The PICs comprise a group of diverse small island economies spread across the vast Pacific Ocean, facing shared challenges—geographic isolation, small market size, vulnerability to external shocks, and high exposure to climate risks, but varying levels of economic development, institutional capacity, and financial market maturity. At the same time, PICs are of growing geopolitical significance and are experiencing rapid but uneven digital transformation, particularly in mobile connectivity and digital financial services. These unique characteristics make PICs an important and distinct context for examining the role of DFL in shaping financial outcomes.

A key reason for the absence of empirical research in this context is the lack of high-quality, nationally representative data on both digital and financial capabilities. To address this gap, this study uses newly collected UNCDF survey data (UNCDF, 2023), which provides one of the first comprehensive datasets on digital and financial behaviours in the Pacific region. Leveraging these data, we construct novel multidimensional indices of DFL and FWB—the first for the Pacific region—and provide the first empirical evidence on their association in PICs. The results reveal a positive association between DFL and FWB.

Nevertheless, it remains unclear whether the multidimensional DFL adequately captures the distinct roles of its underlying components—digitalisation (D) and financial literacy (FL)—and their respective subdimensions, including digital access, usage, online engagement, objective financial literacy (OFL) (what individuals know) and subjective financial literacy (SFL) (what individuals believe they know). This is particularly salient in PICs, where digitalisation remains at an early stage but is advancing rapidly and unevenly, creating a compelling context for investigation.

Furthermore, aggregating these dimensions into a composite DFL index may obscure important heterogeneity in how different capabilities are associated with FWB, particularly in structurally constrained settings such as PICs. In such contexts, certain dimensions may display opposing relationships with FWB. For example, higher OFL may increase awareness of financial risks, uncertainty, and constraints without necessarily translating into financial action, whereas greater perceived competence (SFL) may be more closely linked to financial confidence and behavioural responses. Similarly, increased online engagement may expose individuals not only to beneficial information but also to poor financial practices and heightened digital risks.

In the Pacific region, a critical gap remains in understanding these refined and potentially divergent relationships. Accordingly, a subcomponent analysis allows us to uncover distinct associations across DFL dimensions and subdimensions in relation to FWB, thereby offering a more refined and contextually relevant perspective. Such a disaggregated approach is particularly beneficial for PICs, where uneven digital infrastructure, limited financial inclusion, and varying capability development mean DFL dimensions are unlikely to operate uniformly. In these contexts, aggregating indicators may mask key trade-offs and asymmetries—for example, between knowledge and actionable capacity, or between digital access and effective usage—thereby obscuring the mechanisms linking DFL to FWB. Unpacking these relationships is essential for designing targeted, context-sensitive policy interventions.

We use recent UNCDF survey data conducted in 2022 across seven PICs to construct a multidimensional DFL score following Lyons and Kass Hanna (2021a) and an adapted multidimensional proxy for FWB based on the Consumer Financial Protection Bureau's conceptualisation of financial well-being (CFPB, 2017a). We then apply ordinary least squares (OLS) regression to examine the association between DFL and FWB in PICs and assess how DFL subcomponents are linked to FWB within the region's evolving digital landscape.

We find that DFL is positively and significantly associated with FWB in the PICs. When DFL is decomposed into its subcomponents, important differences emerge in their associations with FWB. While SFL, digital access, and active digital engagement exhibit significant positive associations with FWB, OFL remains negatively associated with FWB. The negative association between OFL and FWB is counterintuitive, suggesting a possible mismatch between assessed knowledge and individuals' financial realities or constraints. Readers should be cautious that our findings are limited by its cross-sectional design, which restricts causal inference. Although the sample spans seven countries, it may not fully capture country-specific differences in policy, technology, and socio-economic conditions. The remainder of this paper is organised as follows. Section 2 describes the data and methodology. Section 3 presents the empirical results, and Section 4 concludes with the key findings and implications of the study.

2. Data and methodology

2.1. Data

We use individual-level data from UNCDF's latest survey (UNCDF, 2023) conducted across seven PICs: Papua New Guinea, Solomon Islands, Samoa, Fiji, Vanuatu, Tonga, and Timor-Leste. The survey dataset contains comprehensive variables on digitalisation, financial literacy, demographics, and FWB, forming the foundation of our analysis. A total of 10,108 individuals aged 15–74 years were surveyed using face-to-face interviews (Computer-Assisted Personal Interview, CAPI) and telephone interviews (Computer-Assisted Telephone Interview, CATI). A quota-based sampling method, stratified by gender, age, and province of residence, was employed for the CATI sample, while a probability-based sampling approach was used for face-to-face interviews.

2.2. Measuring financial well-being

Financial well-being (FWB), the main dependent variable, is measured using an adapted proxy index informed by the CFPB conceptual framework of financial well-being, which captures individuals perceived financial control, capacity to absorb financial shocks, progress toward long-term financial goals, and financial freedom (CFPB, 2017a). Because the UNCDF survey did not include

the original CFPB Financial Well-Being Scale items, we mapped sixteen conceptually related survey questions to these dimensions and constructed a composite proxy measure of FWB. In the absence of a theoretically or empirically established weighting scheme for the selected UNCDF items, all sixteen indicators were assigned equal weights and aggregated into a single index. Equal weighting is widely used in the construction of multidimensional composite indicators when there is insufficient theoretical or empirical justification for differential weighting, and it provides a transparent and replicable approach (Nardo et al., 2008). Appendix A reports the items that make up the FWB Index.

To assess the reliability of this approach, we report the internal consistency of the index using Cronbach's alpha in Table 1 in Section 3. The FWB proxy index demonstrates acceptable internal consistency ($\alpha = 0.66$), which is reasonable given its multidimensional nature and the use of conceptually related items drawn from a secondary survey source. Nevertheless, because the original CFPB scale items were unavailable, this measure should be interpreted as a CFPB-informed proxy measure of financial well-being rather than a direct implementation of the CFPB Financial Well-Being Scale.

2.3. Measuring digital financial literacy

Following Lyons and Kass-Hanna (2021a), DFL, the main independent variable, is measured as a composite index of two dimensions: FL, and D. FL is measured as an index comprising of OFL and SFL. OFL is assessed using five financial literacy questions (Lusardi and Mitchell, 2014; OECD, 2020). The score for OFL index equals the total number of correct responses, ranging from 0 to 5. SFL is measured using two survey questions that capture respondents' self-reported experience in acquiring financial skills and

Table 1
Summary Statistics (N = 10,102).

Variable	Mean	SD	Min	Median	Max
Financial Well-Being Score ($\alpha = 0.66$)	7.69	2.92	0.00	8.00	16.00
Digitalisation and Financial Literacy Score ($\alpha = 0.65$)	7.65	3.75	0.00	7.00	23.00
Objective financial literacy ($\alpha = 0.63$)	1.55	1.31	0.00	1.00	5.00
Subjective financial literacy ($\alpha = 0.12$)	1.09	0.58	0.00	1.00	2.00
Digital access ($\alpha = 0.54$)	2.21	1.42	0.00	2.00	6.00
Digital usage ($\alpha = 0.73$)	1.98	1.56	0.00	2.00	5.00
Online activities ($\alpha = 0.53$)	0.83	1.14	0.00	0.00	5.00
Location					
Rural	58.80%				
Urban	41.20%				
Agegrp					
15 - 24	23.70%				
25 - 34	25.40%				
35 - 44	20.40%				
45 - 54	14.90%				
55 - 64	10.30%				
65 - 74	5.30%				
Income category					
No income	29.20%				
Low income	20.30%				
Middle income	29.90%				
High income	20.60%				
Employment category					
Employed	22.90%				
Unemployed	57.20%				
Self-employed	19.80%				
Education					
No formal education	4.40%				
Primary	35.00%				
Secondary	40.00%				
Tertiary	20.60%				
Gender					
Female	52.90%				
Male	47.10%				
Country					
Fiji	16.60%				
PNG	15.70%				
Samoa	12.00%				
Solomon Islands	15.20%				
Timor-Leste	16.10%				
Tonga	12.10%				
Vanuatu	12.20%				

Notes: Mean values for the socio-demographic variables are expressed as percentages of the total sample.

Cronbach's alpha values for the constructed indices (reported in the first seven rows) are reported in parentheses.

knowledge (Lyons et al., 2019; Kass-Hanna et al., 2021). The SFL index is constructed by summing affirmative responses, yielding a score from 0 to 2. Detailed descriptions of OFL and SFL are provided in Tables B1 and B2 of Appendix B, respectively.

The second DFL dimension, D, consist of sixteen items capturing digital access (D1), digital usage (D2), and online activity (D3). Digital access is assessed through six items indicating ownership of digital devices. Each item is coded as 1 for a Yes response and 0 otherwise, yielding a digital access score ranging from 0 to 6. Digital usage is measured using five items capturing respondents' ability to perform digital tasks, coded as binary items. Online activity is measured using five items related to tasks conducted online, coded as binary variables, generating an online activity score of 0 to 5. Details of the digitalisation (D) components are provided in Table B3 of Appendix B.

The composite DFL index is constructed by summing the FL index and the D subdimension scores, yielding an overall DFL score ranging from 0 to 23.

2.4. Empirical models

First, we examined the overall association between DFL and FWB by estimating linear regressions in the following model:

$$FWB_{i,c} = \beta_0 + \beta_1 DFL_{i,c} + \lambda' C_{ik,c} + \alpha_c + \varepsilon_{i,c} \quad (1)$$

where $FWB_{i,c}$ denotes the financial well-being of individual i in country c , $DFL_{i,c}$ represents the digitalisation and financial literacy score, and $C_{ik,c}$ is a vector of control variables. The term α_c captures country fixed effects to account for unobserved heterogeneity across the seven PICs, while $\varepsilon_{i,c}$ is the error term. Control variables include location, age, income, employment, education, gender, and country effects.

Table 2
Regression Results.

Variable	Dependent variable: Financial well-being					
	Model 1		Model 2		Model 3	
Digitalisation and financial literacy index	0.182***	(0.008)				
Digitalisation			0.304***	(0.009)		
Digital access index					0.263***	(0.023)
Digital usage index					0.233***	(0.021)
Online activities index					0.274***	(0.028)
Financial literacy			−0.278***	(0.020)		
Objective financial literacy index					−0.427***	(0.021)
Subjective financial literacy index					0.742***	(0.049)
Location (Base: Rural)	0.145**	(0.058)	0.036	(0.056)	0.020	(0.054)
Agegroup (Base: 15–24)						
25–34	0.374***	(0.078)	0.421***	(0.075)	0.373***	(0.073)
35–44	0.539***	(0.083)	0.635***	(0.086)	0.577***	(0.079)
45–54	0.514***	(0.093)	0.719***	(0.090)	0.640***	(0.088)
55–64	0.318***	(0.106)	0.554***	(0.102)	0.503***	(0.100)
65–74	0.126	(0.142)	0.350**	(0.138)	0.370***	(0.133)
Income (Base: No income)						
Low income	0.871***	(0.082)	0.831***	(0.079)	0.796***	(0.077)
Middle income	1.070***	(0.077)	1.031***	(0.076)	0.981***	(0.074)
High income	1.220***	(0.085)	1.121***	(0.084)	1.077***	(0.082)
Employment (Base: Employed)						
Unemployed	−0.312***	(0.071)	−0.286***	(0.072)	−0.169**	(0.070)
Self-employed	0.542***	(0.083)	0.620***	(0.080)	0.698***	(0.078)
Education (Base: No formal educ)						
Primary	0.594***	(0.147)	0.517***	(0.142)	0.373***	(0.137)
Secondary	0.682***	(0.152)	0.518***	(0.146)	0.332**	(0.140)
Tertiary	0.801***	(0.162)	0.508***	(0.157)	0.280*	(0.151)
Gender (Base: Female)	−0.050	(0.054)	−0.061	(0.052)	−0.056	(0.051)
Country (Base: Fiji)						
Vanuatu	0.630***	(0.097)	0.350***	(0.097)	0.745***	(0.098)
Timor Leste	−0.899***	(0.096)	−0.760***	(0.092)	−0.1480	(0.093)
Tonga	−1.234***	(0.111)	−1.100***	(0.102)	−0.629***	(0.102)
Samoa	0.206**	(0.105)	0.066	(0.102)	0.345***	(0.101)
Solomon Islands	−0.075	(0.090)	−0.213**	(0.089)	0.169*	(0.090)
PNG	0.176*	(0.095)	0.023	(0.092)	0.188**	(0.095)
Constant	5.093***	(0.208)	5.569***	(0.019)	4.783***	(0.190)
Observations	10,102		10,102		10,102	
R-squared	0.195		0.2498		0.286	

Notes: *, ** and *** mean respectively $p < 0.1$, $p < 0.05$ and $p < 0.01$. Robust standard errors in parentheses. Multicollinearity was assessed using Variance Inflation Factors (VIF). All VIF values ranged from 1 to 2, with the exception of education, which has VIF values of approximately 5–6, remaining well below the conservative threshold of 5 and 10 indicating that multicollinearity was not a concern in this model. Additionally, OFL and SFL are weakly and negatively correlated ($r = -0.089$), suggesting limited overlap between the two measures.

Second, to further investigate whether each *dimension* of DFL is independently associated with FWB, we extended Equation (1) by replacing the composite DFL measure with D and FL, as shown in Equation (2):

$$\text{FWB}_{i,c} = \beta_0 + \beta_1 \text{D}_{i,c} + \beta_2 \text{FL}_{i,c} + \lambda' C_{ik,c} + \alpha_c + \varepsilon_{i,c} \quad (2)$$

We then estimate the association between DFL *subdimensions* and FWB as shown in Equation (3):

$$\text{FWB}_{i,c} = \beta_0 + \beta_1 \text{D1}_{i,c} + \beta_2 \text{D2}_{i,c} + \beta_3 \text{D3}_{i,c} + \beta_4 \text{OFL}_{i,c} + \beta_5 \text{SFL}_{i,c} + \lambda' C_{ik,c} + \alpha_c + \varepsilon_{i,c} \quad (3)$$

This specification identifies associations between FWB and the DFL subcomponents, controlling for individual characteristics and country level fixed effects.

3. Results

Table 1 presents the descriptive statistics for key variables. The mean DFL score is 7.65 (SD= 3.75), with significant heterogeneity across the five DFL subcomponents. Respondents answered an average of only 1.55 out of five FL questions correctly and reported a mean SFL of 1.09. Digital access records higher average scores at 2.21 (SD=1.42) than digital usage at 1.98 (SD=1.56). In contrast, online activity scores are lowest (mean = 0.83, SD =1.14), indicating low engagement in online activities which are essential for mobile adoption.

Table 2 reports the regression results examining the associations between DFL, its components, and FWB. The models sequentially decompose DFL to address the study's research questions. The baseline model 1 showed that, holding other factors constant, a one-unit increase in the composite DFL score is associated with a statistically significant 0.182 unit increase in PICs FWB. This positive relationship remains statistically significant at the 1% level after adjusting for sociodemographic controls, suggesting a consistent and statistically significant association between DFL and FWB among PICs individuals. This result is consistent with prior evidence documenting a positive relationship between DFL and FWB (Chhillar et al., 2025; Choung et al., 2023; Jhonson et al., 2023; Kamble et al., 2024).

Contrary to expectations, the decomposition results reveal an important divergence between the DFL subcomponents. Model (2) shows that D is positively and significantly associated with FWB ($\beta = 0.304^{***}$), whereas FL is negatively and significantly associated with FWB ($\beta = -0.278^{***}$). Interestingly, model (3) which further disaggregates the DFL dimensions revealed substantial heterogeneity across both D and FL subcomponents. For the D subdimensions, digital access ($\beta = 0.263^{***}$), digital usage ($\beta = 0.233^{***}$), and online activities ($\beta = 0.274^{***}$) are positively and significantly associated with FWB. For the FL subdimensions, OFL is negatively and significantly associated with FWB ($\beta = -0.427^{***}$) whereas SFL is positively and significantly associated with FWB ($\beta = 0.742^{***}$). Taken together, these results suggest that the relationship between DFL and FWB is component-specific rather than uniformly positive in the PICs context across domains.

4. Discussion

This study examined the association of DFL and its subcomponents on the FWB among individuals in PICs. The baseline results indicate a positive association between the composite digitalisation and financial literacy (DFL) index and financial well-being (FWB), after accounting for demographic and country-level effects. When decomposed, digitalisation is positively associated with FWB, whereas financial literacy exhibits a negative association. Further decomposition shows that all three digitalisation dimensions, namely digital access, digital usage, and online activities, are positively associated with FWB. In contrast, within the financial literacy dimension, subjective financial literacy is positively associated with FWB, while objective financial literacy is negatively associated with FWB.

The negative association between objective financial literacy (OFL) and financial well-being (FWB) contrasts with conventional financial literacy theory, which generally predicts a positive relationship between financial literacy and FWB (Hwang and Park, 2022; Lee et al., 2020; Shim et al., 2009; Sajid et al., 2024). This finding suggests that the relationship between financial literacy and FWB may extend beyond financial knowledge alone. Rather, individuals may also need the confidence and capabilities necessary to translate financial knowledge into effective financial actions. The observed divergence between subjective financial literacy (SFL) and OFL in this sample challenges the adequacy of traditional financial literacy indicators and financial education programs that primarily emphasise the acquisition of financial concepts. Instead, the findings support an integrated framework in which subjective financial confidence and the ability to apply financial knowledge play a central role in shaping FWB. Furthermore, the results remain qualitatively unchanged across several additional robustness checks. The details are reported in Appendix C. Consistent with previous studies (Fan and Henager, 2021; Riitsalu and Murakas, 2019; Robb and Woodyard, 2011), SFL is positively associated with FWB. Overall, these findings suggest that the relationship between DFL and FWB is primarily evident through dimensions related to individuals' confidence in managing financial matters and their ability to effectively utilise digital technologies, rather than through objective financial knowledge alone.

The findings have several implications for PICs. First, the findings suggest that policy interventions should extend beyond basic financial literacy and digital access alone and instead prioritise digital inclusion capabilities that enable individuals to translate digital access into meaningful, and purposeful financial behaviours associated with FWB. Second, achieving purposeful digital access and usage requires reliable and affordable connectivity and expanded access to DFS for underserved populations. Finally, the negative association between OFL and FWB underscores the need for stronger consumer protection frameworks to mitigate risks in online

financial practises.

Our findings are limited by the cross-sectional nature of the data, which restricts causal inference. They may not be generalisable beyond the PICs context but can guide future research. Future research should use follow-up UNCDF survey data to evaluate the longer-term outcomes associated with DFL programs and compare these outcomes with those reported in this study. In conclusion, these findings suggest that DFL programs in PICs should extend beyond financial knowledge to encompass digital skills, financial confidence, and the ability to use DFS safely and effectively.

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CRedit authorship contribution statement

Louisa Koete Baragamu: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Jen-Je Su:** Writing – review & editing, Supervision, Methodology. **Athula Naranpanawa:** Writing – review & editing, Supervision, Methodology. **Sophia Bian:** Writing – review & editing, Supervision, Methodology.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Proxy FWB scale and corresponding survey items

Items that make up the Financial Well-Being Score

CFPB FWB Dimensions	UNCDF Survey questions	Responses	
Has control over day to day, month to month finances	I am managing my money better now than I was three months ago	Disagree=0	Agree=1
	Keep records of your self-employed earnings and expenditure	No=0	Yes=1
	Use (loyalty cards) to reduce the cost of your shopping or earn voucher, coupons/ cash back	No=0	
	Make a plan to manage income and expenses	No=0	Yes=1
Implies having financial security	Keep receipts or records of spending	No=0	Yes=1
	I am often worried that my money won't last	Disagree=1	Agree=0
	I borrow more money now than three months ago	Disagree=1	Agree=0
	I trust financial service providers more than I did three months ago	Disagree=0	Agree=1
Has the capacity to absorb a financial shock	I tend to live for today and let tomorrow take care of itself	Disagree=0	Agree=1
	Contribute to a (savings and loans) club	No=0	Yes=1
Is on track to meet his financial goals	Buy insurance as a protection from financial shocks	No=0	Yes=1
	If I have money left over, I prefer to save it than spend it	Disagree=0	Agree=1
	Save or invest for the longer-term	No=0	Yes=1
Has the financial freedom of choice	5 years from now I will be financially secure	Disagree=0	Agree=1
	I have some money to spend on myself from time to time	Disagree=0	Agree=1
	I am the kind of person who ignores the small print unless something goes wrong	Disagree=1	Agree=0

Source: CFPB, 2017; UNCDF, 2023

Appendix B. Financial literacy subdimensions

Tables B1, B2, B3

Table B1

Responses to financial literacy questions that make up the Objective Financial Literacy Score.

Dimension	UNCDF survey questions used to construct the FL index	Source
1. Inflation	> = 1 for correct responses to the question "When people talk about inflation, they mean that prices have gone up" Answer: True	Lyons and Kass-Hanna, 2021
2. Interest	> = 1 for correct responses to the question "banks pay more interest on savings than they charge on loans. Answer: False	Lusardi and Mitchell, 2014
3. Borrowing	> = 1 for correct responses to the question "If a shopkeeper borrows money to stock her shelves, she cannot make a profit" Answer: False	OECD, 2020
4. Profit	> = 1 for correct responses to the question "it is possible to earn the same income by selling many items at a low price or selling one at a high price" Answer: True	OECD, 2020
5. Risk diversification	> = 1 for correct responses to the question "if there's a chance to make a lot of money, it is likely that you could also lose a lot of money" Answer: True	OECD, 2020

Note: The financial literacy index is calculated as the number of correct responses (0–5).

Table B2

Responses to financial literacy questions that make up the Subjective Financial Literacy Score.

UNCDF survey questions used to construct the SFL Score	Responses
	No=0 Yes=1
I am comfortable doing sums in my head, such as calculating change	
Found it easier to manage your money without help from others	No=0 Yes=1

Source: Lyons et al. (2019); Kass-Hanna et al. (2021).

Table B3

Items related to digital skills.

Dimensions	UNCDF questions used to construct the indices
Access to digital devices (0–6)	> = 1 if the respondent answers "Yes" to the question "Do you have access to any of the following device": Smartphone mobile phone computer/laptop or tablet router or modem to connect devices to the internet smart watch or smart speaker smart TV for personal use, whether or not you currently use them.
Digital activities (0–5)	> = 1 if the respondent answers "Yes" to the question "Still thinking about technology, please can you say you have personally used a digital device or electronic gadget to do any of the following": Set up an alarm, reminder, or alert created, edited, or saved a document or image used Bluetooth or Airdrop to send a document or image to a nearby device used formulas in a spreadsheet to make a calculation; and written programming language or code in the last three months, whether for you or someone else
Online activities (0–5)	> = 1 if the respondent answers "Yes" to the question "I am now going to read out some more digital activities. Please could you tell me whether you have personally done any of these": Bought something online Learned something from an online video or course Bet or game online Searched for information or guidance online, and Completed a government form online in the last 3 months

Source: CFPB, 2017; UNCDF, 2023.

Appendix C. Robustness Checks

Several additional robustness checks were conducted. Table C1 reports regressions that separately examine the associations between objective and subjective financial literacy. Table C2 presents alternative decompositions of the online activities index. Table C3 reports results from a Poisson regression model. Fig. C1 presents the distribution of the dependent variable, financial well-being. Table C4 presents subgroup analyses by income and employment status categories. Note that, for space considerations, the estimated coefficients for the control variables are omitted. Overall, the results are qualitatively similar to the main findings reported in the paper, providing additional support for the robustness of the estimated relationships.

Table C1

Separate OFL and SFL Associations.

Variable	Model 4	Model 5
Digital access index	0.290*** (0.023)	0.259*** (0.023)
Digital usage index	0.270*** (0.021)	0.249*** (0.021)
Online activities index	0.314*** (0.028)	0.271*** (0.028)
Objective financial literacy index	−0.439*** (0.021)	
Subjective financial literacy index		0.788*** (0.050)
Constant	5.548*** (0.186)	4.081*** (0.191)
Observations	10,102	10,102
R-squared	0.2697	0.2521

Notes: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses. Models 4 and 5 assess the independent associations between OFL and SFL, respectively. The consistency of the estimates across both models supports the robustness of the main findings.

Table C2
Online Activities Decomposition.

Variable	Model 6		Model 7	
Digital access index	0.261***	(0.023)	0.262***	(0.023)
Digital usage index	0.237***	(0.021)	0.237***	(0.021)
Objective financial literacy index	−0.426***	(0.021)	−0.424***	(0.021)
Subjective financial literacy index	0.744***	(0.049)	0.744***	(0.048)
Online activities index decomposition				
Online act, exclude Bet/Game/Bought	0.214***	(0.035)		
Online act, include Bet/Game /Bought	0.413***	(0.063)		
Online act, exclude Bet/Game			0.221***	(0.030)
Online act, include Bet/Game			0.705***	(0.112)
Constant	4.771***	(0.190)	4.756***	(0.190)
Observations	10,102		10,102	
R-squared	0.2867		0.2874	

Notes: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses. The results remain qualitatively similar across alternative decompositions of the online activities index.

Table C3
Poisson Regression Results.

Variable	Dependent variable: Financial well-being	
	Model 8	
Digital access index	0.033***	(0.003)
Digital usage index	0.031***	(0.003)
Online activities index	0.031***	(0.004)
Objective financial literacy index	−0.060***	(0.003)
Subjective financial literacy index	0.098***	(0.007)
Constant	1.630***	(0.028)
Observations	10,102	

Notes: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses. The consistency of the Poisson estimates with the OLS results indicates that the main findings are robust to the choice of estimation method.

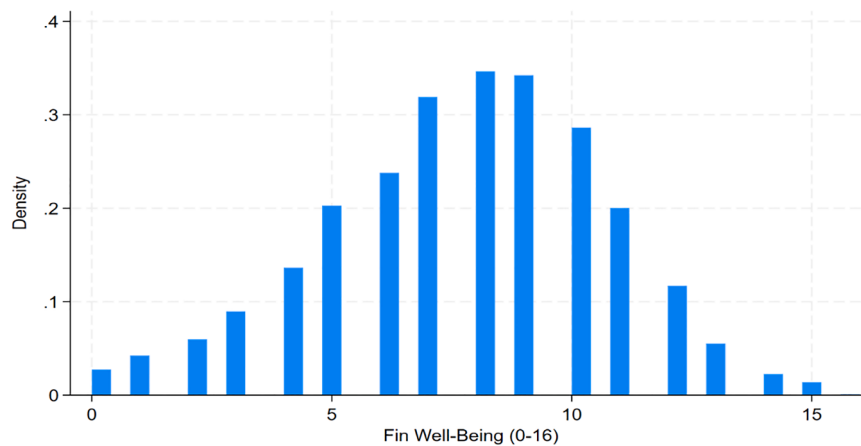


Fig. C1. Distribution of the FWB Index.

Table C4
Subgroup analyses by income and employment status.

Part A: Income subgroups								
Variable	Dependent variable: Financial well-being							
	No income		Low income		Middle income		High income	
	(1)		(2)		(3)		(4)	
Digital access index	0.175***	(0.047)	0.379***	(0.057)	0.304***	(0.039)	0.182***	(0.041)
Digital usage index	0.326***	(0.043)	0.184***	(0.046)	0.186***	(0.037)	0.245***	(0.041)
Online activities index	0.242***	(0.061)	0.338***	(0.073)	0.310***	(0.047)	0.191***	(0.047)
Objective financial literacy index	−0.503***	(0.037)	−0.425***	(0.046)	−0.415***	(0.038)	−0.255***	(0.043)
Subjective financial literacy index	0.608***	(0.095)	1.013***	(0.105)	0.702***	(0.089)	0.774***	(0.100)

(continued on next page)

Table C4 (continued)

Part A: Income subgroups							
Variable	Dependent variable: Financial well-being						
	No income		Low income		Middle income		High income
	(1)		(2)		(3)		(4)
Constant	5.908***	(0.364)	4.737***	(0.381)	5.347***	(0.420)	6.523*** (0.477)
Observations	2947		2050		3021		2084
R-squared	0.264		0.257		0.224		0.200

Notes: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses.

Part B: Employment subgroups						
Variable	Dependent variable: Financial well-being					
	Employed		Unemployed		Self-employed	
	(5)		(6)		Model 7	
Digital access index	0.204***	(0.041)	0.273***	(0.031)	0.262***	(0.054)
Digital usage index	0.207***	(0.040)	0.222***	(0.028)	0.341***	(0.048)
Online activities index	0.273***	(0.046)	0.262***	(0.041)	0.302***	(0.065)
Objective financial literacy index	−0.478***	(0.043)	−0.388***	(0.027)	−0.457***	(0.049)
Subjective financial literacy index	0.758***	(0.094)	0.751***	(0.067)	0.637***	(0.111)
Constant	6.127***	(0.544)	4.383***	(0.222)	5.895***	(0.396)
Observations	2317		5780		2005	
R-squared	0.239		0.256		0.263	

Notes: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors are reported in parentheses.

Data availability

The authors do not have permission to share data.

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