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Alfabetización financiera y su efecto en la conducta financiera de los hogares de Huancayo, Perú

Financial literacy and its effect on the financial behavior of households in Huancayo, Peru

Alfabetização financeira e seu efeito no comportamento financeiro das famílias em Huancayo, Peru

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Resumen

La alfabetización financiera en los hogares exige desarrollar habilidades y competencias que permitan comprender términos financieros para orientar la toma de decisiones en cuanto a la optimización de los recursos. Por eso, el objetivo de este estudio fue analizar la alfabetización financiera y su impacto en la conducta financiera de los hogares en Huancayo, Perú. Para eso, en primer lugar, se evaluó la fiabilidad de los instrumentos de investigación, la cual obtuvo una alta consistencia en las variables, con un coeficiente superior a 0.90. Por otra parte, para la recolección de datos se realizó un muestreo probabilístico con 702 jefes de hogar en Huancayo, Perú. Posteriormente, se llevó a cabo un análisis confirmatorio que reveló que el modelo propuesto se ajusta adecuadamente a los datos observados. En conclusión, se confirmó que existe un efecto significativo de la alfabetización financiera sobre la conducta financiera de los hogares en Huancayo, Perú, los cuales están encabezados principalmente (43.9%) por personas de 21 a 30 años.

Palabras clave: alfabetización financiera, conducta financiera, hogares, Perú.

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Abstract

Financial literacy in households includes developing skills and competencies that allow understanding financial terms and guide decision-making to achieve optimization of resources. The objective of this study was to analyze financial literacy and its effect on the financial behavior of household heads in Huancayo, Peru. The reliability of the research instruments was evaluated, obtaining an adequate reliability of the variables higher than 0.90. Also, a probabilistic sample of 702 heads of households in Huancayo, Peru was carried out for data collection. Subsequently, the confirmatory analysis was carried out, where it was determined that the proposed model fits well with the observed data, and from this, it was confirmed that there is a significant effect of financial literacy on the financial behavior of households in Huancayo, Peru, mainly represented by households made up of people between 21 and 30 years of age, which represents 43.9%.

Keywords: financial literacy, financial behavior, households, Peru.

Resumo

A literacia financeira dos agregados familiares inclui o desenvolvimento de aptidões e competências para compreender os termos financeiros e orientar a tomada de decisões para obter uma boa relação custo-benefício. O objetivo deste trabalho foi analisar a literacia financeira e o seu efeito no comportamento financeiro dos chefes de família em Huancayo, Peru. A fiabilidade dos instrumentos de investigação foi avaliada, obtendo-se uma fiabilidade adequada das variáveis, que foi superior a 0,90. Utilizou-se uma amostra probabilística de 702 chefes de família em Huancayo, Peru, para recolher os dados. Posteriormente, realizou-se a análise confirmatória, onde se determinou que o modelo proposto se ajusta bem aos dados observados e, a partir daí, confirmou-se que existe um efeito significativo da literacia financeira no comportamento financeiro dos agregados familiares em Huancayo, Peru, representado principalmente por agregados familiares constituídos por pessoas entre os 21 e os 30 anos de idade, o que representa 43,9%.

Palavras-chave: alfabetização financeira, comportamento financeiro, famílias, Peru.

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Introduction

The Covid-19 pandemic has significantly increased the level of indebtedness, liquidity needs, and constraints in developing countries. In fact, the limited response of international financial organizations and favorable lending conditions worldwide, resulting from the expansion of the balance sheets of central banks in advanced economies, have led the governments of these nations to rely, to a large extent, on private capital markets to cover their financing needs (Caldentey Pérez, 2023). This means that access to financial products and services and the optimal use of their benefits for the well-being of people and communities will only be possible if one of the main objectives is focused on the formation of financial capacity (Rosado *et al* ., 2009).

In this regard, Ankrah Twumasi *et al* . (2022) and Xu *et al* . (2020) argue that financial literacy is crucial to making sound decisions about the best time, place, reason, and way to make investments in order to generate wealth and raise household living standards. In other words, as financially literate people create wealth using their skills and knowledge, they become less vulnerable to food insecurity (Ankrah Twumasi *et al* ., 2023).

Kleimeier 's study *et al* . (2023) suggest that financial literacy training may be beneficial for individuals in addressing their objective financial fragility during a crisis, as it improves their ability to manage the household budget and modify their spending behavior.

In line with this, Molina-García *et al* . (2023) offer new insights into the association mechanism that explains the relationship between financial knowledge and risk-taking propensity. For their part, Sabri *et al* . (2021) investigate the factors that determine household financial vulnerability in Malaysia, while Allgood and Walstad (2016), in studying these constructs, employ a combined measure of financial literacy that includes both the score obtained on an actual financial literacy test and a self-assessment of general financial knowledge.

Likewise, Anderloni *et al* . (2012) study household financial distress and propose a financial vulnerability indicator to jointly analyze various characteristics of financial distress, considering their socio-demographic and economic determinants. Similarly, Singh and Malik (2022) examine the level of financial vulnerability of households in India and, as a result, proposed a financial vulnerability index (FVI) based on three parameters: the ability to make ends meet, the perception of an income shock and the perception of an expenditure shock.

In short, financial literacy is a central element in the development of countries. For this reason and given that households constitute a fundamental nucleus in society, this research work focused on financial literacy and its effect on the economic behavior of households in Huancayo, Peru.

Financial literacy

Financial literacy is defined as an individual's ability to assess their current financial situation, set clear financial goals, and develop a plan to achieve them, including debt management, investment, and retirement planning (Klapper & Lusardi, 2020). This skill reflects an understanding of basic financial concepts and is associated with better management of personal financial affairs (Lusardi & Mitchell, 2014).

Considered as a form of human capital, financial literacy includes the understanding of financial concepts and the knowledge needed to make important financial decisions (Yang *et al* ., 2023). In this line, the Organization for Economic Cooperation and Development (OECD) (2015) defines it as a combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual economic well-being.

This knowledge, furthermore, is a process through which consumers and investors improve their understanding of financial products and concepts, a process that allows them to develop the skills and confidence necessary to be more aware of risks and opportunities based on information, guidance, informed decision-making and other effective measures (Opletalová, 2015).

Financial literacy is comprised of the knowledge, skills, and attitudes needed to ensure personal and family financial well-being in today's society, as well as to participate in the market for financial products and services. A financially literate citizen masters issues related to money and prices and can manage his or her personal and/or family budget responsibly, including managing assets and liabilities taking into account changing life situations. In other words, financial literacy is a combination of awareness, knowledge, skills, attitudes and behaviors needed to make good financial decisions and ultimately achieve financial security (OECD, 2022).

In a digital context, it refers to the knowledge, skills, and capabilities needed to access digital financial services (Lyons and Kass -Hanna, 2021). Its dimensions include knowledge of digital financial services, the ability to use platforms, the ability to carry out digital financial transactions and make rational decisions without succumbing to fraudulent online practices (Kumar *et al* ., 2023).

Financial literacy, therefore, also reflects knowledge and skills in matters that promote proper asset management and the separation between personal wealth and capital or business profits (Desiyanti and Kassim , 2020).

Financial conduct

It can be noted that financial behavior involves making correct financial decisions, based on the financial knowledge and attitudes of individuals (Atkinson and Messy , 2012; Carpena *et al* ., 2011). In other words, cognitive skills significantly influence financial behavior through two channels: ability and self-efficacy (Tang, 2021).

Financial behavior is closely related to the level of financial literacy (Lusardi and Mitchell, 2016), as the latter contributes to financial success or failure in decision-making (Rai *et al* ., 2019; Sohn *et al* ., 2012). In this context, financial behavior encompasses all activities and actions related to planning, managing, using and controlling cash, using credit or debt, saving, investing, and insuring (Xiao and Dew , 2011).

Similarly, financial behavior is considered as the ability to understand the overall impacts of financial decisions in various circumstances (i.e., on the individual, family, community, and country) and to make correct decisions related to cash management, precautions, and opportunities for budget planning (Tezel , 2015). Broadly, it is divided into four aspects: budgeting, debt management, savings and investment, and insurance (Owusu , 2015). *et al* ., 2023).

Influence of financial literacy on household financial behavior

According to Dimmock *et al* . (2016), financial literacy is highly significantly positively associated with stock market participation. A higher level of financial literacy is likely to influence income, which would enable households to acquire the necessary funds and consequently help them achieve a steeper indifference curve (Ankrah Twumasi *et al* ., 2023).

Furthermore, the findings of Yang *et al* . (2023) confirm the critical role of financial literacy in improving access to online financial information, promoting digital trust, and reducing risk aversion, leading to increased use of digital finance.

Grimes ' longitudinal results *et al* . (2022) indicate that self-efficacy and financial behaviors improved from before training to two years after it. A logistic regression analysis revealed significant correlations between self-efficacy and financial behaviors with the search for a new or better job (Grimes *et al* ., 2022).

Meanwhile, Tan *et al* . (2022) investigated the effect of financial literacy on land transfers among peasant households using representative survey data from less-developed

rural regions in China. They found that financial literacy has a greater impact on land inflow than on land outflow and, additionally, advanced literacy is more beneficial for land transfers compared to basic literacy.

Consequently, it can be stated that financial literacy impacts household financial behavior, and cash usage is affected by several macroeconomic and demographic variables. To be precise, on average, people with a higher level of financial knowledge tend to have less cash on hand and store more cash elsewhere (Bilici and Çevik , 2023).

Similarly, Zhu and Xiao (2022) found that financial literacy is positively associated with household holdings of risky financial assets. Furthermore, Potrich *et al* . (2018) indicate that financial literacy facilitates sound financial decision-making, accelerated economic development, and better personal financial health.

Similarly, Gaudecker 's (2015) results suggest that financial education and greater availability of financial advice, whether from private or professional sources, could be key starting points for policies aimed at reducing welfare losses resulting from inappropriate investment strategies.

Having explained all the above, and based on the literature reviewed, the following hypothesis is proposed: financial literacy influences the financial behavior of households in Huancayo, Peru.

Materials and methods

This work adopted a quantitative, basic, non-experimental and cross-sectional approach. Specifically, data collection was used to contrast the hypotheses and find the causal relationship (Hernández-Sampieri and Mendoza-Torres, 2018).

Concerning the research design, it was non-experimental, meaning that the variables were not manipulated (Hernández-Sampieri and Mendoza-Torres, 2018). Likewise, the cross-sectional study examined the phenomenon of interest at the present time (Baas Chable *et al* ., 2012) and has an explanatory scope, since it seeks to investigate the causes or determining factors of one of the study variables (Muñoz Rocha, 2015). The research was developed under a structural equation model (SEM), a powerful tool for the study of causal relationships in non-experimental data, which allowed the selection of relevant causal hypotheses and the discarding of those not supported by empirical evidence.

For data analysis, the SPSS v. 26 program was used, and for data collection, surveys were applied to heads of households in Huancayo, Peru, using questions designed with a five-point Likert scale.

To build the research instrument, the following designs were used: for the variable "financial literacy", the one designed by Lone and Bhat (2022) was used, and for the variable "financial behavior", the one developed by Amagir was used. *et al* . (2020). In the first step, a double translation into Spanish was carried out by a certified translator. Subsequently, the instrument was adapted to the Peruvian context and validated by three experts in the discipline and a methodological expert through a focus group, which allowed adjustments to be made in the wording. In addition, the instrument reliability was determined by calculating Cronbach's alpha, which yielded the following indicators: financial literacy (α=0.956) and financial behavior (α=0.903). This indicates adequate internal consistency since preferential alpha values are between 0.80 and 0.90 (Streiner , 2003).

On the other hand, data collection was carried out in October 2023. The type of sampling used was non-probabilistic for convenience, which allows the selection of accessible cases that agree to be included (Otzen and Manterola, 2017). The population consisted of 702 heads of household. The inclusion criteria were men and women aged 18 years and older residing in Huancayo, Peru; that is to say, minors were excluded.

Participants

Table 1 presents the variables that characterize the sample. It can be observed that, of the 100% of the sample, 22.8% are between 21 and 25 years old, followed by 21.1% between 26 and 30 years old. In contrast, only 0.9% and 0.3% are between 51 and 55 years old, and between 56 and 60 years old, respectively. The table also reveals that 72.5% of the respondents are single and 32.6% have a high school education, followed by 26.6% who have technical studies. In addition, 35.3% of the respondents come from the business sciences area. Of these, 47.2% have not taken financial education courses.

Table 1*Characteristics* of the study sample

Variables	Levels/Categories	*F*	**%**
Age	18-20	131	18.70%
	21-25	160	22.80%
	26-30	148	21.10%
	31-35	104	14.80%
	36-40	73	10.40%
	41-45	55	7.80%
	46-50	23	3.30%
	51-55	6	0.90%
	56-60	2	0.30%
Marital status	Married	142	20.20%
	Divorced	10	1.40%
	Separate	19	2.70%
	Single	509	72.50%
	Free union	19	2.70%
	Widower	3	0.40%
Level of study	Bachelor	229	32.60%
	Doctorate	2	0.30%
	Specialty	49	7.00%
	Degree	105	15.00%
	Mastery	25	3.60%
	Postdoc	1	0.10%
	Primary	3	0.40%
	Secondary	101	14.40%
	Technical	187	26.60%
Area of knowledge or discipline	Arts (music, theatre, etc.)	52	7.40%
	Sciences (physics, biology, chemistry, geology, mathematics, statistics, etc.).	11	1.60%
	Computer science	55	7.80%
	Medical sciences (psychology, nursing, medical technology, pharmacology, medicine, etc.)	115	16.40%
	Business Sciences	248	35.30%
	Education	105	15.00%
	Humanities and social sciences (history, languages, etc.)	39	5.60%
	Engineering/technology	65	9.30%
	Business	12	1.70%

Have you taken financial education courses?	No	331	47.20%
	Yeah	371	52.80%
Level of financial education course you have taken	Advanced	30	4.30%
	Essential	169	24.10%
	Intermediate	164	23.40%
	None	331	47.20%
	Professional	8	1.10%

Source: Own elaboration

Results

The results reported below correspond to the quality control and data imputation stage. Missing data were replaced with the mode since the response item has five options. Table 2 presents the descriptive results of each of the items of the latent variables (endogenous and exogenous), as well as the reliability statistics, factor weights (λ), uniqueness, and accumulated variance. An average level of financial literacy of 3.72 was found, with a standard deviation of 1.04 and a Cronbach's alpha of 0.956. The corrected homogeneity index reveals that all items contribute to reliability with an index greater than 0.3 and with $\lambda>0.5$. Factor loadings that were below the threshold were excluded. Finally, it is reported that the accumulated variance for financial literacy is 69.1 % and 64.1% for financial behavior. This indicates that the items considered effectively explain the latent trait of financial literacy and financial behavior.

Table 2Reliability analysis and factor analysis

Variables	Items	Average	OF	IHC	If the item is discarded		λ	Uni	% of Accumulated Variance
					α	ω			
Financial literacy (M=3.72; SD=1.04; Alpha=0.956)	CF1	3.65	1.4	0.8	1	1	0.6	0.37	69.1
	CF2	3.62	1.4	0.8	1	1	0.6	0.3	
	CF3	4.03	1.2	0.6	1	1	0.7	0.43	
	CF4	3.93	1.3	0.7	1	1	0.8	0.29	
	CF5	3.71	1.3	0.8	1	1	0.7	0.2	
	CF6	3.57	1.4	0.8	1	1	0.6	0.23	
	EF7	4	1.1	0.7	1	1	0.7	0.38	
	EF8	3.79	1.3	0.8	1	1	0.6	0.35	
	EF9	3.48	1.5	0.8	1	1	0.7	0.25	
	EF10	3.04	1.6	0.8	1	1	0.8	0.25	
	EF11	4.02	1.1	0.7	1	1	0.6	0.45	
	HF12	3.99	1.1	0.7	1	1	0.6	0.35	
	HF13	3.43	1.5	0.8	1	1	0.7	0.27	
	HF14	3.72	1.4	0.7	1	1	0.6	0.24	
	HF15	3.78	1.2	0.8	1	1	0.7	0.27	
Financial behavior (M=3.79; SD=0.6; Alpha=0.903)	PP1	3.97	1.1	0.6	0.9	0.9	0.8	0.13	64.1
	PP2	3.74	1.2	0.6	0.9	0.9	0.6	0.33	
	PP3	3.25	1.3	0.5	0.9	0.9	-	-	
	PP4	2.89	1.3	0.4	0.9	0.9	-	-	
	PP5	3.34	1.3	0.6	0.9	0.9	0.8	0.29	
	PP6	3.23	1.3	0.6	0.9	0.9	0.8	0.27	
	PP7	3.34	1.4	0.6	0.9	0.9	0.7	0.37	
	PF8	4.35	0.9	0.6	0.9	0.9	0.7	0.38	
	PF9	4.43	0.8	0.6	0.9	0.9	0.8	0.32	
	PF10	4.49	0.8	0.6	0.9	0.9	0.8	0.35	
	PF11	4.39	0.9	0.6	0.9	0.9	0.7	0.4	
	PF12	4.46	0.8	0.6	0.9	0.9	0.8	0.25	
	PF13	4.54	0.8	0.5	0.9	0.9	0.8	0.32	
	PF14	4.48	0.8	0.5	0.9	0.9	0.7	0.37	
	PA15	4.39	0.8	0.5	0.9	0.9	0.6	0.38	
	PA16	4.33	0.9	0.5	0.9	0.9	0.6	0.38	
	PA17	4.18	1	0.5	0.9	0.9	0.6	0.47	
	PA18	4.21	0.9	0.5	0.9	0.9	0.7	0.4	
	CD19	3.81	1.2	0.5	0.9	0.9	0.5	0.69	
	CD20	3.3	1.3	0.5	0.9	0.9	-	-	
	CD21	2.65	1.1	0.4	0.9	0.9	-	-	
	CD22	2.75	1.1	0.3	0.9	0.9	-	-	
	CD23	2.69	1.2	0.3	0.9	0.9	-	-	

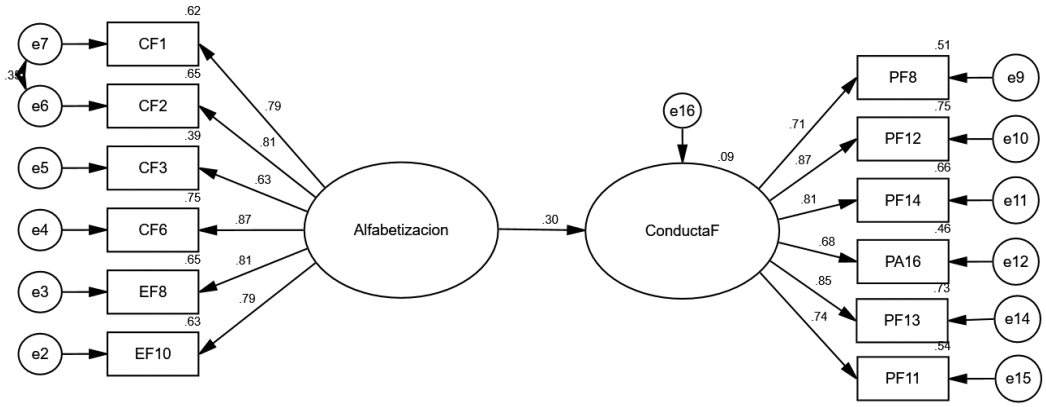
Note: The 'Maximum likelihood' extraction method was used in combination with a ' varimax ' rotation; M: Mean; IHC: corrected homogeneity index; α: Cronbach's α; ω: McDonald's ω; λ: factor weight (Landa) Uni : Uniqueness; -: Item deleted.

Source: Own elaboration

After exploring the previous analyses, the measurement model paths were graphed, eliminating several items that covaried to adjust the model. After obtaining robust results from the measurement model of each variable, the structural graph was created using the AMOS *software*. However, when configuring the model outputs, items that underestimated the structural model were identified, so more items were covaried and eliminated until the best fit was found.

After specifying three models and reviewing the goodness-of-fit indices, good results were achieved in a fourth model, which demonstrated scientifically that financial literacy influences financial behavior, as confirmed in Table 3. In this sense, a significant effect of the exogenous variable financial literacy on the endogenous variable financial behavior was set up (β=0.302; p=0.000). This significant result supports the hypothesis raised in the study.

Figure 1Financial literacy and behavior model



Source: Own elaboration

Table 3Effect of literacy on financial behavior

Effect			PRES	Regression weights				Hypothesis
			It is	It is	HE	CR	P	
Financial literacy	→	Financial conduct	0.3	0.17	0.02	7.09	***	Accept

Note: PRES= Standardized regression weights; Est =Estimate. SE =Standard Errors, CR=Critical Range, P=Significance.

Source: Own elaboration

The parameters used to fit the model were based on the CMIN, Baseline and Baseline indices. Comparisons like Parsimony-Adjusted Measures and RMSEA are detailed in Table 4, where the results of four models are reflected with their respective indexes.

In Model 1, the indices showed CMIN/DF>5, TLI, and CFI<0.9, with an RMSEA>0.08, indicating that these values were outside the acceptable parameters. Covariances were carried out as attempts to optimize the model indicators and it was achieved some improvements in TLI and CFI, but the other parameters didn't fit yet.

Additional adjustments were made, eliminating some items with high covariance indices. In model 3, the TLI and CFI values improved significantly, although the RMSEA and CMIN/DF were still above the desired parameters. Finally, items with high modification indices were eliminated, keeping only the covariance between items CF1 and CF2, resulting in a good fit for most of the expected indices, except for the CMIN/DF, which was 5.292, i.e., it was at the limit of the allowed range.

Table 4 Goodness-of-fit indices and models **obtained**

Indexes/Models		Model 1	Model 2	Model 3	Model 4
CMIN	NPAR	46	43	45	38
	CMIN	756,521	515.257	421.755	275.189
	DF	89	76	74	52
	P	0	0	0	0
	CMIN/DF	8.5	6.78	5.699	5.292
Baseline Comparisons	NFI	0.881	0.915	0.93	0.949
	RFI	0.859	0.898	0.914	0.935
	IFI	0.893	0.926	0.942	0.958
	TLI	0.874	0.911	0.928	0.946
	IFC	0.893	0.926	0.941	0.958
Parsimony-Adjusted Measures	PRATIO	0.848	0.835	0.813	0.788
	PNFI	0.747	0.764	0.756	0.747
	PCFI	0.757	0.773	0.766	0.755
RMSEA	RMSEA	0.103	0.091	0.082	0.078
	THE 90'S	0.097	0.083	0.074	0.069
	HI 90	0.11	0.098	0.09	0.087
	PCLOSE	0	0	0	0

Source: Own elaboration

Discussion

There is a significant effect of financial literacy on household financial behavior in Peru, this is also confirmed in a study conducted in Malaysia by Sabri *et al* . (2021), who showed that financial knowledge positively influences financial behavior. Likewise, Allgood and Walstad (2016) found that both actual and perceived financial knowledge affect financial behaviors and that perceived financial knowledge can be as important as actual financial knowledge.

According to Kumar *et al* . (2023), digital financial literacy provides people with the confidence and skills to use financial platforms and services efficiently, thereby removing mental barriers that limit access to such services. Furthermore, when other factors remain constant, a financially literate person can generate wealth to consume normal goods while ensuring food and nutritional security (Ankrah Twumasi *et al* ., 2023).

Similarly, people with a higher level of financial knowledge perform better in retirement planning, according to Lusardi and Mitchell (2014) and van Rooij *et al* . (2011). These individuals are less prone to over-indebtedness (Lusardi and Tufano , 2015)

and participate more frequently in financial markets (van Rooij , 2015). *et al* ., 2011), and, additionally, they maintain better diversified portfolios (Gaudecker, 2015).

Likewise, the results of the Ankrah study Twumasi *et al* . (2023) highlight that financial literacy improves food and nutritional security for both internet users and non-users, as well as adopting and non-adopting farming households.

Finally, findings from Yang *et al* . (2023) suggest that financial literacy (FL) increases access to online financial information as it helps people make informed decisions about using digital finance. Furthermore, households with high levels of financial literacy are likely to trust new technologies and have a higher tolerance for financial risks (Yang *et al* ., 2023).

Although no limitations were found in the study, a small gap is perceived between the study variables, so it would be interesting to develop this work with a third variable to analyze possible significant changes. Furthermore, it is worth noting that another construct linked to financial literacy is desirable financial behavior, independently of financial literacy (Farrell *et al* ., 2016). Therefore, it is suggested that future research analyze the interaction between these three variables.

Conclusions

Financial literacy in households involves developing skills and competencies that enable understanding financial terms and guide decision-making to optimize resources.

As a result of this study, a bivariate model that examines the impact of financial literacy on financial behavior is given, using the multivariate structural equation technique. The model demonstrates adequate goodness of fit. The items of the “financial literacy” variable that have the greatest influence on financial behavior include knowledge of the fundamentals of personal management, willingness to discuss financial issues, and keeping financial records. Likewise, the items with the highest values in the “financial behavior” variable are the importance of using money carefully, saving for the future, and saving for unexpected expenses.

Furthermore, the reliability of the constructs used to measure the variables of financial literacy and financial behavior in the context of Peruvian households was confirmed, with a Cronbach's alpha greater than $\alpha = 0.90$. In addition, the study demonstrated a significant effect of financial literacy on the financial behavior of households in Huancayo, Peru, which is mainly (43.9% of the sample) made up of people between 21 and 30 years old.

In short, it can be said that understanding financial concepts—that is, being financially literate—is essential for the proper use of personal resources and effective household management, which directly impacts the peace, stability, and progress of the households.

Future lines of research

This study contributes to the literature by closing gaps in the analysis of household financial management in Peru. However, due to its characteristics, it could be replicated in other South American countries, so expanding the sample and developing comparative studies at municipal, regional, and country levels is suggested. In addition, it is recommended to incorporate sociodemographic variables such as income levels and vulnerability characteristics. Finally, it would be beneficial to continue the research by adding additional variables, such as financial well-being, sustainability, and personal finances.

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