



How Financially Literate Is Generation Z? A Cross-Country Study

¿Qué nivel de alfabetización financiera tiene la Generación Z? Un estudio comparativo entre países

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ARTICLE INFO

Received 07 July 2025,
Accepted 12 May 2026

Available online 29 July 2026

DOI: 10.5295/cdg.252432jl

JEL: G53; J16

ABSTRACT

This study investigates the determinants of financial literacy among Generation Z, the first financially educated and highly digitalised generation, in Spain and Ecuador, two countries characterised by different levels of financial inclusion, institutional development, and financial education policies. Particular attention is given to gender disparities and the role of structural, educational, sociocultural, and technological factors in shaping financial literacy outcomes. Using primary microdata collected from 1,653 university students, the study applies multivariate regression models and Blinder–Oaxaca decomposition techniques to examine both the determinants of financial literacy and the sources of gender gaps. Our findings indicate that academic background and technological exposure are the most robust positive correlates of financial literacy across both contexts. However, significant gender disparities persist, especially in Spain, where the gender gap is considerably larger and mainly explained by structural and behavioural factors rather than observable characteristics. Our results also reveal important cross-country differences in the composition of financial knowledge, particularly between traditional financial concepts and digital financial domains associated with informal learning environments. Overall, the study highlights the multidimensional and context-dependent nature of financial literacy and emphasises the need for tailored public policy interventions, particularly those aimed at strengthening the financial capabilities of girls and women.

Keywords: Financial literacy, Gender disparities, Generation Z, Higher education, Technological exposure.

RESUMEN

Este estudio analiza los factores determinantes de la alfabetización financiera entre la Generación Z —la primera generación con formación financiera y altamente digitalizada— en España y Ecuador, dos países que se caracterizan por niveles distintos de inclusión financiera, desarrollo institucional y políticas de educación financiera. Se presta especial atención a las disparidades de género y al papel de los factores estructurales, educativos, socioculturales y tecnológicos en la configuración de los resultados de la alfabetización financiera. Utilizando microdatos primarios de 1.653 estudiantes universitarios, el estudio aplica modelos de regresión multivariante y técnicas de descomposición de Blinder–Oaxaca para examinar tanto los determinantes de la alfabetización financiera como las fuentes de las brechas de género. Nuestros resultados indican que la formación académica y la exposición a la tecnología son los correlatos positivos más sólidos de la alfabetización financiera en ambos contextos. Sin embargo, persisten importantes disparidades de género, especialmente en España, donde la brecha de género es considerablemente mayor y se explica principalmente por factores estructurales y de comportamiento, más que por características observables. Los resultados también revelan importantes diferencias entre países en la composición de los conocimientos financieros, en particular entre los conceptos financieros tradicionales y los ámbitos financieros digitales asociados a entornos de aprendizaje informales. En general, el estudio pone de relieve la naturaleza multidimensional y dependiente del contexto de la alfabetización financiera y subraya la necesidad de intervenciones de política pública adaptadas a cada caso, en particular aquellas destinadas a reforzar las capacidades financieras de las niñas y las mujeres.

Palabras clave: Alfabetización financiera, Disparidades de género, Generación Z, Educación superior, Exposición tecnológica.

1. INTRODUCTION

Financial literacy has become a fundamental component of individual economic well-being and financial stability in increasingly complex and digitalised financial environments. Globalised markets, fintech environments, crypto assets, stagflation, among others, have become part of our every-day economic and financial challenges; new generations will be entering adulthood in a context characterised by rapid financial innovation, increasing individual responsibility for financial decision-making, and growing reliance on digital financial services.

Traditionally, former generations faced their financial projects without much support from public administrations or even from the education system. This situation has improved in last decades being Generation Z, the first one that has received specific financial training since secondary school, under the assumption that financial habits are formed early in life and tend to persist throughout the life cycle, the early acquisition of financial knowledge is essential for promoting sound financial behaviour (Whitebread & Bingham, 2013).

However, previous literature clearly detects a life-cycle pattern in the financial literacy function, indicating that younger individuals often lack the market experience necessary to translate structural economic advantages into effective financial behaviour (Lusardi *et al.*, 2010). This situation may persist since, despite the expansion of formal financial education programmes and the rapid digitalisation of financial services, financial literacy levels among young individuals remain persistently low. Empirical evidence consistently documents limited financial knowledge among younger cohorts, increasing their vulnerability to over-indebtedness, inadequate financial planning, and restricted participation in financial markets (Mudzingiri *et al.*, 2018; Yew *et al.*, 2017). From a life-cycle perspective, financial literacy typically follows an inverted U-shaped pattern, with lower levels observed among younger individuals, peaking during middle adulthood, and declining again in older age groups (Lusardi & Mitchell, 2014; OECD, 2020a; Preston & Wright, 2024). This pattern suggests that the transition into adulthood constitutes a structurally vulnerable phase in the accumulation of financial capabilities. Evidence from Spain confirms this profile, with correct response rates increasing from 52% among individuals under 34 years old to 56% among those aged 45-64, before declining again in older age groups (Banco de España, 2021). Similar patterns are observed in the United States, where a substantial proportion of Generation Z enters adulthood with limited financial knowledge, despite heightened interest in financial literacy following the COVID-19 pandemic (Yakoboski *et al.*, 2021).

In this context, Generation Z represents a structurally distinctive cohort. Evidence indicates that participation in financial education programmes is significantly higher among this generation than in previous cohorts, reflecting the progressive institutionalisation of financial education within secondary and higher education systems (Yakoboski *et al.*, 2021). At the same time, it is the first cohort to reach adulthood in a fully digitalised financial ecosystem characterised by widespread use of fintech platforms, neobanks, and mobile-based financial management tools (World Economic Forum, 2023). In such an environment, mobile devices function as the primary gateway to financial ser-

vices, reinforcing the centrality of digital competencies in contemporary financial engagement (OECD, 2023). The coexistence of expanded formal education and intensified digital exposure (informal education) makes Generation Z a particularly informative group for analysing how financial capabilities are formed under new institutional and technological conditions.

Over recent decades, international organisations such as the Organisation for Economic Co-operation and Development (OECD) have promoted financial education as a strategic tool to enhance individual well-being and support inclusive economic growth (OECD, 2005, 2020b). As a result, many countries have progressively incorporated financial education into national policy frameworks. Yet these institutional transformations have not occurred uniformly across countries. Spain and Ecuador provide a particularly informative comparative setting, as both countries have integrated financial education into public policy agendas and linked it to broader development goals, including the Sustainable Development Goals (SDG 4 and SDG 8) (United Nations Development Programme, 2015). However, important differences persist in their institutional maturity, financial inclusion levels, and digital financial ecosystem development. Spain, as a high-income economy, exhibits near-universal access to banking services, whereas Ecuador, classified as an upper-middle-income economy, displays significantly lower levels of financial inclusion (World Bank Group, 2021, 2023). Moreover, their approaches to financial education differ markedly: Spain implemented its Financial Education Plan (PEF) in 2008 (Comisión Nacional del Mercado de Valores & Banco de España, 2008), while Ecuador incorporated financial education into its national curriculum only in 2023 (Junta de Política y Regulación Financiera, 2023).

A substantial body of literature identifies several individual-level determinants of financial literacy, including gender, educational background, family environment, and socio-economic characteristics (Ergün, 2018; Philippas & Avdoulas, 2019). More recent research highlights the role of sociocultural norms, gender stereotypes, and digital exposure in shaping financial knowledge acquisition (Bottazzi & Lusardi, 2021; Ceyla *et al.*, 2024; Evans, 2018; Tinghög *et al.*, 2021). However, three key gaps remain. First, comparative evidence across structurally different institutional and socio-economic contexts remains limited, particularly outside advanced economies. Second, most studies treat financial literacy as a unidimensional construct, overlooking differences in the composition of financial knowledge across traditional and digital domains. Third, although gender gaps in financial literacy are well documented, the relative contribution of observable characteristics versus structural or behavioural mechanisms remains insufficiently explored in cross-country settings.

This paper contributes in three ways to the existing literature. First, it provides new cross-country evidence on financial literacy determinants among Generation Z using primary microdata from two structurally different economies. Second, it conceptualises financial literacy as a multidimensional construct by distinguishing between traditional and digital financial knowledge domains (formal versus informal education). Third, it combines multivariate regression analysis with Blinder–Oaxaca decomposition to disentangle the relative role of observable characteristics and unexplained factors in shaping gender disparities in financial

literacy. Accordingly, this study addresses two research questions: (1) Which individual-level factors are associated with financial literacy among Generation Z university students? and (2) Do these associations differ across countries and gender groups?

The remainder of the article is organised as follows. Section 2 reviews the literature. Section 3 presents the methodology and the Blinder–Oaxaca framework. Section 4 reports the empirical results. Section 5 discusses the findings in relation to previous research. Section 6 concludes and outlines policy implications.

2. LITERATURE REVIEW

2.1. Conceptualisation of financial literacy

Financial literacy is defined as the ability to make informed judgements and effective decisions in managing money. Over time, its scope has broadened to include financial awareness, skills, attitudes and behaviours necessary for economic well-being (OECD, 2020b). Lusardi and Mitchell (2014) emphasise its relationship to financial planning, wealth accumulation, borrowing and pensions, while Remund (2010) links it to understanding key concepts and confidence in managing personal finances in the short and long run. Recent research integrates behavioural and psychological dimensions into its definition. Warmath and Zimmerman (2019) highlight self-efficacy in financial decision-making, and Kamiya (2017) highlights the interaction between financial knowledge, consumer behaviour and cognitive biases. Aydin and Akben Selcuk (2019) identify the impact of attitudes towards money and time preferences, while Potrich *et al.* (2016) evidence the interrelationship between behaviour, knowledge and financial attitude, with the latter being the most important determinant. In sum, financial literacy is a dynamic and interdisciplinary construct that integrates cognitive abilities, practical skills and behavioural factors, transcending the mere acquisition of financial knowledge.

2.2. Importance of financial literacy for Generation Z

Financial education is crucial for young people's economic well-being, enabling them to make informed decisions and face economic challenges (Philippas & Avdoulas, 2019; Stepnova *et al.*, 2024). Students with low financial literacy tend to be more impulsive, take high risks and exhibit inappropriate financial behaviours, contributing to economic crises (Mudzingiri *et al.*, 2018). This lack of knowledge underscores the need to strengthen financial education (Yew *et al.*, 2017). The impact of financial education spans several areas, improving savings decisions (Pangestu & Karnadi, 2020), promoting entrepreneurship (Alshebami & Seraj, 2021) and facilitating more efficient money management, reducing unnecessary indebtedness (Zulfaris *et al.*, 2020). In addition, it fosters risk tolerance and security in economic decisions, especially in volatile contexts (Suherman *et al.*, 2023).

Financial education also promotes the use of financial technologies (Bermeo-Giraldo *et al.*, 2023) and improves understanding of investment risks, such as those associated with cryptocurrencies (Cascavilla, 2024). Access to financial education from an early age is vital to ensure economic stability and better opportunities in adulthood (Nguyen, 2025). In the post-COV-

ID-19 context, financial literacy has become an essential skill to adapt to new market trends and generate income, which justifies its inclusion in university curricula (Kang *et al.*, 2024). Underpinned by human capital theory, financial literacy improves economic decision-making and individual and collective financial progress (Loza *et al.*, 2024). Given its relevance to personal financial management and economic stability, several studies suggest implementing national financial literacy policies to prepare university students for an increasingly complex financial environment (Elrayah & Tufail, 2024; Mireku, 2024).

2.3. Determinants of financial literacy and hypothesis development

A substantial body of empirical research has documented the existence of systematic gender differences in financial literacy, with men consistently outperforming women on standard measures of financial knowledge and women exhibiting higher levels of financial vulnerability and lower confidence in their responses (Agnew & Harrison, 2015; Bucher-Koenen *et al.*, 2017; Espinoza-Delgado & Silber, 2024; Potrich *et al.*, 2018). Paradoxically, several studies report that gender gaps in financial literacy tend to be more pronounced in developed economies, despite women's greater access to higher education and increased participation in the financial sector, pointing to the role of institutional and cultural mechanisms (von Hippel *et al.*, 2015). At the same time, cross-country evidence shows that the magnitude of the gender gap varies across socio-economic and cultural contexts, indicating that gender operates as a conditioning factor rather than a universal determinant (Cupák *et al.*, 2018; Duarte *et al.*, 2022; Tan *et al.*, 2024). In line with this literature, the following hypothesis is proposed:

H1. Gender is significantly associated with financial literacy.

Beyond gender, age has been widely analysed within a life-cycle framework as a determinant of financial literacy. Seminal contributions show that financial knowledge follows a non-linear, inverted U-shaped pattern, with lower levels among younger individuals, a peak during middle adulthood, and a subsequent decline at older ages (Lusardi & Mitchell, 2011, 2014). This pattern has been replicated in international surveys, including recent evidence for Europe (Banco de España, 2021; Preston & Wright, 2024). Although age-related differences are naturally compressed within university samples, age may still proxy accumulated experience, exposure to financial decision-making, and learning-by-doing processes. Nevertheless, evidence from digitally intensive contexts suggests that age alone may not be a robust predictor of financial literacy when financial interactions increasingly occur through digital platforms (Adnan *et al.*, 2023; Lantara & Kartini, 2015). Based on this reasoning, the following hypothesis is formulated:

H2. Age is positively associated with financial literacy within Generation Z.

Contextual factors related to the place of residence may further shape financial literacy outcomes. Living in urban areas is generally associated with higher levels of financial knowledge, reflecting better access to educational institutions, financial services, and information technologies, as well as greater exposure to complex financial environments (Ceyla *et al.*, 2024; González-Núñez *et al.*, 2024; Lotto, 2023). However, empirical findings remain mixed, with

several studies reporting weak or statistically insignificant differences between urban and rural residents, particularly in settings characterised by widespread digital access (Horobet *et al.*, 2020; Kaur, 2023). Given these contrasting results, the relationship between residential context and financial literacy warrants empirical testing:

H3. Students residing in urban areas exhibit higher financial literacy than those in rural areas.

Educational specialisation constitutes another important source of heterogeneity in financial literacy. Students enrolled in business, economics, and finance programmes consistently demonstrate higher levels of financial knowledge, largely due to sustained exposure to financial concepts through formal curricula and greater familiarity with economic reasoning (Chen & Volpe, 1998; Ergün, 2018; Horobet *et al.*, 2020). More recent evidence also points to relatively strong performance among students in science and engineering fields, possibly reflecting higher quantitative skills (Tan *et al.*, 2024). In contrast, students from disciplines outside the economic and business domain tend to display significantly lower levels of financial literacy (Alkan *et al.*, 2020; Douissa, 2020; Jacobsen & Correia, 2019). Accordingly, the following hypothesis is proposed:

H4. Students enrolled in business and economics programmes exhibit higher financial literacy.

The intergenerational transmission of human capital, particularly through parental education, has also been examined as a determinant of financial literacy. Some studies find that higher parental educational attainment is associated with better financial knowledge among young adults, emphasising early socialisation and the transmission of cognitive skills (Duarte *et al.*, 2022; Philippas & Avdoulas, 2019). Other contributions, however, report weak or insignificant effects, arguing that parental influence has diminished in the presence of expanding digital learning environments, peer effects, and broader social influences (Ergün, 2018; Mahapatra *et al.*, 2024). Moreover, while parental influence appears relevant for shaping financial attitudes, its impact on objective financial knowledge is often limited (Jorgensen & Savla, 2010). Despite these mixed findings, a positive association remains theoretically plausible:

H5. Parental education level is positively associated with students' financial literacy.

Beyond observable demographic and educational characteristics, recent research has increasingly highlighted the role of sociocultural mechanisms, particularly gender stereotypes and social norms, in shaping financial literacy outcomes. Social contexts play a central role in shaping gender-related attitudes, beliefs, and behaviours by establishing normative frameworks that define what is socially expected and legitimate (Cislaghi *et al.*, 2018; Cislaghi & Heise, 2020). From this perspective, individuals can be understood as enculturated agents whose beliefs are not formed in isolation, but rather emerge from socialisation processes that interact with specific social, cultural and institutional structures (United Nations Development Programme, 2022). Gender norms and stereotypes are internalised from an early age, especially through the family environment and parenting practices, and are subsequently reinforced by school, the workplace, institutions and the media (Marcus & Harper, 2014; Overseas

Development Institute, 2015; Tenenbaum & Leaper, 2002). This socialisation process contributes to reproducing traditional gender roles and consolidating differentiated expectations regarding the capabilities and spheres of action of men and women.

In the financial sphere, the literature consistently shows that these social and cultural dynamics influence the gender gap in financial literacy. Various studies, framed within the theory of family financial socialisation and sociocultural approaches, argue that gender differences in financial knowledge are shaped by gender roles, cultural norms and early socialisation processes (Agnew & Cameron-Agnew, 2015; Aguiar-Díaz & Zagalaz-Jiménez, 2022; Bottazzi & Lusardi, 2021; Driva *et al.*, 2016). In particular, it has been documented that gender stereotypes and early financial conversations at home play a significant role in the development of economic and financial skills.

Empirical evidence shows that women have, on average, lower levels of financial literacy, not so much because of differences in mathematical skills, but because of factors associated with social norms, family background and lower perceived self-efficacy (Al-Bahrani *et al.*, 2020; Bottazzi & Lusardi, 2021; Tinghög *et al.*, 2021). Despite the increase in female participation in the financial sector (von Hippel *et al.*, 2015), finance continues to be perceived as a predominantly male domain, and gender stereotypes manifest themselves from childhood, contributing to the persistence of the gender gap in financial literacy (Driva *et al.*, 2016). From a broader cultural perspective, the model of cultural dimensions of Hofstede's (1984) suggests that societies with a stronger orientation towards masculinity tend to reinforce traditional gender roles, which could amplify gender differences in the financial sphere. In line with this approach, Filipiak and Walle (2015) show that in matrilineal societies there is no significant gender gap in financial literacy, whereas in patriarchal contexts marked differences do emerge, reinforcing the importance of social and cultural structures in explaining these inequalities. Taken together, this literature suggests that gender stereotypes and social norms internalised through socialisation processes are a key mechanism in the generation and persistence of the gender gap in financial literacy. This leads to the following hypothesis:

H6. Gender stereotypes are significantly associated with financial literacy outcomes.

Technological exposure has emerged as a central determinant of financial literacy in increasingly digitalised societies. Access to digital technologies lowers information costs, facilitates learning, and expands opportunities for engagement with financial content across cultural contexts (French *et al.*, 2020; Van Nguyen *et al.*, 2022). The use of social media and online platforms to follow economic news and financial content has been shown to enhance advanced financial literacy, particularly among younger cohorts (Adnan *et al.*, 2023; Karaa & Kuğu, 2016), while digital media exposure also plays a key role in shaping financial attitudes and motivation (Kharel *et al.*, 2024). These dynamics were further reinforced during the COVID-19 pandemic, when increased reliance on digital platforms heightened interest in financial knowledge among university students (Stepnova *et al.*, 2024). Accordingly, the following hypothesis is formulated:

H7. Technology exposure is positively associated with financial literacy.

Finally, differences in financial literacy may also reflect broader national contexts shaped by institutional development, educational systems, and sociocultural norms. Comparing Spain and Ecuador provides a meaningful framework to assess how these structural factors influence financial literacy outcomes and whether gender gaps persist across different socio-economic settings. Cross-country benchmarking is therefore essential for identifying systematic differences and informing context-specific policy interventions. In this regard, Spain and Ecuador offer a meaningful comparative setting, as they differ in their levels of economic development, institutional maturity, and gender equality. According to the [World Economic Forum \(2024\)](#), Spain exhibits a smaller gender gap, with a score of 0.797 and a global ranking of 10th, while Ecuador scores 0.788 and ranks 16th, indicating that, despite progress in both countries, notable structural differences persist. By jointly analysing a developed and an emerging economy within a unified empirical framework, this study contributes to the literature by assessing whether well-documented determinants of financial literacy operate similarly across distinct institutional and socio-cultural settings. Based on this perspective, two additional hypotheses are proposed:

H8. There are significant cross-country differences in financial literacy between Spain and Ecuador.

H9. Gender differences in financial literacy persist within both countries.

3. METHODOLOGY

3.1. Data and sample

Data were collected through a self-administered online survey, implemented through the Qualtrics Research Suite platform and distributed through official university channels between February and June 2024. Informed consent was obtained, and anonymity was ensured through the use of unique alphanumeric identifiers.

The study focuses on university students in Ecuador and Spain belonging to Generation Z. The target population consisted of individuals born between 1994 and 2006 and aged between 18 and 30 at the time of the survey, consistent with previous research on financial literacy among young people ([Philippas & Avdoulas, 2019](#); [Vinkóczy et al., 2024](#)).

The minimum required size per country was estimated using [Cochran's \(1963\)](#) formula, with 95% confidence and a 5% margin of error, yielding 384 cases per country. The final sample exceeded these minimums, with 849 participants in Ecuador and 804 in Spain, which increased statistical precision ([Hair et al., 2019](#)).

3.2. Measurement of variables

DEPENDENT VARIABLE

Financial literacy (FLI) is constructed as an additive index based on eight items capturing both traditional and digital financial knowledge dimensions, adapted from [Lusardi and Mitchell \(2011\)](#), [Mack and Kissell \(2018\)](#), [Bannier et al. \(2019\)](#) and [Islam Khan et al. \(2023\)](#). Each item is coded as a binary indicator (1 = correct

response; 0 = incorrect response). The index corresponds to the unweighted sum of correct answers, yielding a total score ranging from 0 to 8. Higher values indicate greater levels of financial literacy.

INDEPENDENT VARIABLES

The empirical model includes a set of individual-level characteristics commonly identified in the financial literacy literature. Gender (GEN) is introduced as a binary variable (1 = female) to account for persistent gender disparities documented in previous research ([Espinoza-Delgado & Silber, 2024](#); [Potrich et al., 2018](#)). Age (AGE) is included as an ordinal measure, given its well-established association with financial knowledge over the life cycle ([González-Núñez et al., 2024](#); [Lusardi & Mitchell, 2011](#)). Residential setting (URB) captures potential urban–rural differences in access to financial services and information. Academic major (EDU) distinguishes students enrolled in Business or Economics programmes from those in other fields, reflecting differences in formal exposure to financial concepts. Parental education level (PARENTS) captures the highest level of education attained by either parent and is specified as an ordinal variable reflecting family educational background.

In addition, the model incorporates two indices capturing sociocultural and technological dimensions. The Gender Stereotypes Index (GSI) is a four-item Likert-scale measure adapted from [Bottazzi and Lusardi \(2021\)](#), with higher values indicating stronger adherence to traditional gender norms. The Technology Exposure Index (TECH), ranging from 0 to 5, reflects respondents' access to and use of digital tools, following [Bannier et al. \(2019\)](#).

3.3. Statistical analysis

To examine the determinants of financial literacy, we estimate a multivariate regression model in which financial literacy is modelled as a function of demographic, educational, sociocultural and technological characteristics at the individual level. All explanatory variables are included simultaneously in the baseline specification, allowing us to assess their partial associations with financial literacy conditional on the full set of covariates. The estimated coefficients should therefore be interpreted as conditional associations rather than causal effects.

The baseline empirical specification is given by:

$$FLI_i = \alpha + \beta_1 GEN_i + \beta_2 AGE_i + \beta_3 URB_i + \beta_4 EDU_i + \beta_5 PARENTS_i - \beta_6 GSI_i + \beta_7 TECH_i + \varepsilon \quad (1)$$

We assessed multicollinearity and heteroscedasticity; robust standard errors were used to ensure valid inference. For H8 and H9 testing, the decomposition method of [Blinder \(1973\)](#) and [Oaxaca \(1973\)](#) was applied to estimate the financial knowledge gap by gender and country. This technique distinguishes between the portion of the gap attributable to observable characteristics and the portion due to unexplained differences in coefficients. This approach has been widely adopted in the analysis of gender and cross-country disparities in financial literacy ([Cupák et al., 2018](#); [Espinoza-Delgado & Silber, 2024](#); [Fonseca et al., 2012](#)).

Figure 1 illustrates the aspects considered in relation to the determinants of financial literacy, the development of the hypotheses, and the types of statistical analysis carried out.

Table 1
Descriptive statistics and sample characteristics by country

Variable	Alternative	Ecuador		Spain		Mean	Std. Dev.
		Frequency	Percentage	Frequency	Percentage		
GEN	Woman	569	67.00	493	61.30	0.64	0.48
	Man	280	33.00	311	38.70		
AGE	18 - 21	465	54.80	557	69.30	1.52	0.73
	22 - 25	226	26.60	177	22.00		
	26 - 30	158	18.60	70	8.70		
URB	Urban	585	68.90	627	78.00	0.73	0.44
	Rural	264	31.10	177	22.00		
EDU	Business/Economics	387	45.60	76	9.50	0.28	0.45
	Other	462	54.40	728	90.50		
PARENTS	Incomplete education	314	37.00	134	16.70	1.20	0.84
	High school	301	35.50	120	14.90		
	University degree	234	27.60	550	68.40		
GSI	Minimum	61	7.20	8	1.00	3.26	0.83
	Under	163	19.20	42	5.20		
	Moderate	418	49.20	192	23.90		
	High	207	24.40	562	69.90		
	Very high	0	0.00	0	0.00		
TECH	Minimum	11	1.30	2	0.20	4.71	0.67
	Basic	19	2.20	0	0.00		
	Moderate	55	6.50	9	1.10		
	High	161	19.00	77	9.60		
	Very high	603	71.00	716	89.10		
Total observations		849	100.00	804	100.00		

Source: Own elaboration.

Table 2 reports the correlation matrix, the pairwise correlations among the dependent variable and the explanatory variables are generally low, indicating the absence of strong linear

associations. Consistent with this, the correlation structure does not suggest multicollinearity concerns among the variables included in the analysis.

Table 2
Correlation matrix

	FLI	GEN	AGE	URB	EDU	PARENTS	GSI	TECH
FLI	1.000							
GEN	-0.269***	1.000						
AGE	0.085***	-0.066***	1.000					
URB	0.091***	-0.053**	0.014	1.000				
EDU	0.182***	0.007	0.060**	-0.014	1.000			
PARENTS	0.073***	-0.027	-0.163***	0.195**	-0.173***	1.000		
GSI	-0.056**	0.197***	-0.090***	0.064***	-0.269***	0.225***	1.000	
TECH	0.209***	-0.092***	0.052**	0.186***	0.065***	0.179***	0.161***	1.000

Note: Statistical significance levels are denoted as follows: ***p < 0.01, **p < 0.05 and *p < 0.10.

Source: Own elaboration.

4.2. Financial literacy levels: descriptive evidence

Table 3 presents the percentage of correct answers by financial concept, disaggregated by country and gender. Spanish students consistently outperform Ecuadorian students in core financial concepts such as interest rates, inflation, and risk diversification. For instance, correct responses to the inflation item reach 94.21% among Spanish men and 80.12% among Spanish women, compared to 57.86% and 32.69% in Ecuador, respec-

tively. A similar pattern is observed for interest rates and risk diversification.

By contrast, knowledge of digital finance-related concepts is generally low in both countries. Blockchain, cryptocurrencies, fintech, and crowdfunding display correct response rates below 30% in most groups, with particularly low levels among women. Bitcoin is comparatively better understood, especially among Spanish men (83.3%).

Table 3
Percentage of correct answers by financial concept, country and gender

Financial concept	Ecuador (Men)		Ecuador (Women)		Spain (Men)		Spain (Women)	
	Percentage	Std. Dev.	Percentage	Std. Dev.	Percentage	Std. Dev.	Percentage	Std. Dev.
Interest rate	66.43	0.473	52.90	0.500	80.06	0.400	54.97	0.498
Inflation	57.86	0.495	32.69	0.469	94.21	0.234	80.12	0.399
Risk diversification	62.50	0.485	55.89	0.497	82.96	0.377	70.18	0.458
Cryptocurrency	40.71	0.492	41.30	0.493	30.55	0.461	18.86	0.392
Blockchain	40.71	0.492	30.23	0.460	43.73	0.497	18.46	0.388
Bitcoin	62.86	0.484	49.38	0.500	83.28	0.374	50.91	0.500
Crowdfunding	11.79	0.323	11.25	0.316	36.98	0.484	23.12	0.422
Definition of fintech	26.43	0.442	27.77	0.448	22.51	0.418	12.17	0.327

Source: Own elaboration.

Table 4 reports the Global Financial Literacy Index by country and gender. On average, students in Spain display higher levels of financial literacy than those in Ecuador (3.85 vs. 3.24), suggesting a stronger overall financial knowledge base in the Spanish sample. This difference may reflect broader institutional and socio-economic factors, including higher levels of financial inclusion, greater exposure to formal financial systems, and a longer institutional trajectory of financial education initiatives in Spain.

In both countries, men outperform women, indicating the presence of a persistent gender gap in financial literacy. However, the magnitude of this gap differs substantially across contexts. In Spain, the difference between men and women reaches 1.45 points, whereas in Ecuador the gap is notably smaller (0.68 points). This pattern reminds us of those situations where the lower the degree of development, the lower the gender gap (as it occurs with the gender wage gap). Gender gaps may then persist in contexts with stronger financial systems and broader access to financial education. These descriptive patterns provide an initial indication of cross-country differences that are further examined in the multivariate analysis.

Table 4
Global Financial Literacy Index by country and gender

Country and gender		Observations	Mean	Std. Dev.
Ecuador	Men	280	3.693	2.014
	Women	569	3.014	2.137
Spain	Men	311	4.743	1.653
	Women	493	3.288	1.766
Total	Ecuador	849	3.238	2.120
	Spain	804	3.851	1.863

Source: Own elaboration.

4.3. Mean comparison tests (t-tests) by country and gender

Table 5 reports the results of independent-sample t-tests comparing Ecuador and Spain separately for men and women. For men, Spanish students perform significantly better in interest rates, inflation, risk diversification, Bitcoin, and crowdfunding, whereas Ecuadorian men only outperform their Spanish counterparts in the cryptocurrency irreversibility item. No significant differences are observed for blockchain and fintech.

For women, Spanish students outperform Ecuadorian women in inflation, risk diversification, and crowdfunding, while Ecuadorian women show significantly higher performance in cryptocurrency, blockchain, and fintech. No statistically significant differences are found for interest rates and Bitcoin, whereas the opposite holds for traditional financial concepts such as inflation, risk diversification and crowdfunding. This indicates that the cross-country difference among women is not a matter of overall financial knowledge, but rather of the composition of that knowledge across domains.

In other words, the evidence points to differentiated profiles of financial literacy: Spanish women exhibit stronger performance in conventional financial concepts, while Ecuadorian women display relatively greater familiarity with digital and alternative financial instruments. Overall, these results indicate that cross-country differences are not uniform across financial domains and suggest heterogeneous profiles of financial knowledge, particularly in digital finance.

Table 5
Mean comparison tests of financial literacy components by country and gender (t-tests)

Financial concept	Male-Female gap (Ecuador)	Male-Female gap (Spain)	Country diff. Ecuador-Spain (Men)	Country diff. Ecuador-Spain (Women)
Interest rate	13.53%	25.09%	-0.1364***	-0.02070
Inflation	25.17%	14.09%	-0.3636***	-0.47433***
Risk diversification	6.61%	12.78%	-0.2046***	-0.14295***
Cryptocurrency	-0.59%	11.68%	0.1017***	0.22436***
Blockchain	10.49%	25.27%	-0.0302	0.11770***
Bitcoin	13.47%	32.37%	-0.2042***	-0.01528
Crowdfunding	0.54%	13.85%	-0.2519***	-0.11876***
Definition of fintech	-1.34%	10.34%	0.0392	0.15598***

Note: Statistical significance levels are denoted as follows: *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.10$.

Source: Own elaboration.

4.4. Multivariate analysis: determinants of financial literacy

Table 6 reports the regression estimates for Ecuador and Spain. Three main results emerge. First, gender differences are large, systematic and persistent across contexts. Being female is associated with significantly lower financial literacy in both Ecuador ($\beta = -0.569$, $p < 0.01$) and Spain ($\beta = -1.284$, $p < 0.01$), conditional on demographic, educational, sociocultural and technological characteristics. The substantially larger coefficient in Spain indicates that higher levels of economic development and digitalisation do not attenuate gender gaps in financial literacy; rather, such gaps appear more pronounced in more complex financial environments.

Second, formal education and digital exposure constitute the most robust positive correlates of financial literacy. Enrolment in business or economics programmes is strongly and positively associated with financial literacy in both Ecuador ($\beta = 1.233$, $p < 0.01$) and Spain ($\beta = 0.870$, $p < 0.01$), confirming the central role of curricular exposure to financial content. Similarly, technology exposure exhibits a positive and highly significant association in both countries, with a larger magnitude in Spain ($\beta = 0.472$, $p < 0.01$) than in Ecuador ($\beta = 0.365$, $p < 0.01$), suggesting that digital engagement operates as a key channel for financial knowledge acquisition, particularly in more technologically advanced settings.

Third, the relevance of demographic and sociocultural factors varies across contexts. Age and urban residence are positively associated with financial literacy in Spain, but not in Ecuador, indicating steeper within-cohort gradients and stronger spatial disparities in the Spanish context. Gender stereotypes are negatively and significantly related to financial literacy in Ecuador ($\beta = -0.174$, $p < 0.05$), whereas no statistically significant association is observed in Spain. This pattern suggests that, in emerging economies, normative constraints remain a salient barrier to financial knowledge accumulation, while in more developed contexts gender disparities are less directly mediated by observable attitudes and more likely driven by structural or behavioural mechanisms.

Overall, the model explains a larger share of the variation in financial literacy in Spain ($R^2 = 0.203$) than in Ecuador

($R^2 = 0.155$). Diagnostic tests indicate no multicollinearity concerns and confirm the robustness of the estimates. Taken together, the results point to a common structure of financial literacy determinants centred on gender, education and technology, while highlighting meaningful cross-country heterogeneity in the role of demographic and sociocultural factors.

Table 6
Regression results for financial literacy by country

Variable	Ecuador	Spain
GEN	-0.569*** (0.148)	-1.284*** (0.128)
AGE	0.092 (0.087)	0.428*** (0.095)
URB	0.084 (0.152)	0.253* (0.144)
EDU	1.233*** (0.139)	0.870*** (0.208)
PARENTS	0.036 (0.088)	0.073 (0.079)
GSI	-0.174** (0.082)	-0.156 (0.100)
TECH	0.365*** (0.088)	0.472*** (0.148)
Constant	1.656 (0.465)	1.916 (0.775)
Observations	849	804
R squared	0.155	0.203
Change in F	25.917	7.736
Sig. change in F	0.000	0.000
Average VIF	1.081	1.073
Breusch-Pagan	0.523	0.482

Note: Robust standard errors in parentheses. Statistical significance levels are denoted as follows: *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.10$.

Source: Own elaboration.

4.5. Gender-specific regressions

To explore heterogeneity in the determinants of financial literacy, the regression models are estimated separately by country and gender. This specification allows assessing whether the effects of these factors differ across institutional contexts and between male and female students, thereby providing additional insight into the mechanisms underlying the baseline estimates. The results are reported in Table 7 and reveal two main patterns. First, the role of gender stereotypes differs markedly by

gender and country. In Spain, gender stereotypes are negatively and significantly associated with financial literacy among men ($\beta = -0.303$, $p < 0.05$), while no significant association is observed among women. This asymmetric pattern suggests that adherence to traditional gender norms constrains financial knowledge primarily among male students, whereas women's financial literacy appears to be shaped more strongly by formal educational pathways and digital engagement. This heterogeneity helps explain the lack of statistical significance of the GSI coefficient in the baseline Spanish models reported in Table 6.

Table 7
Gender-specific regression results by country

Variable	Ecuador		Spain	
	Men	Women	Men	Women
AGE	0.110 (0.145)	0.093 (0.110)	0.304** (0.138)	0.512*** (0.129)
URB	0.450* (0.270)	-0.073 (0.184)	0.143 (0.226)	0.314* (0.187)
EDU	1.134*** (0.235)	1.263*** (0.174)	0.758*** (0.276)	0.994*** (0.309)
PARENTS	-0.032 (0.151)	0.055 (0.109)	-0.001 (0.120)	0.100 (0.106)
GSI	-0.208 (0.131)	-0.158 (0.105)	-0.303** (0.127)	0.035 (0.159)
TECH	0.535*** (0.184)	0.319*** (0.102)	0.547** (0.231)	0.433** (0.193)
Constant	0.761 (0.869)	1.321 (0.550)	2.436 (1.152)	-0.109 (1.068)
Observations	280	569	311	493
R squared	0.166	0.129	0.079	0.070
F	9.052	13.849	4.327	6.097

Note: Robust standard errors in parentheses. Statistical significance levels are denoted as follows: *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.10$.

Source: Own elaboration.

Second, formal education and technological exposure remain the most stable and robust predictors across subsamples. Enrolment in business or economics programmes is positively and highly significantly associated with financial literacy for both men and women in Ecuador and Spain, confirming the central role of curricular exposure to financial content irrespective of gender. Similarly, technology exposure exhibits a strong positive association across all subsamples, although the magnitude of the coefficient is generally larger for men, particularly in Spain, suggesting gender differences in the returns to digital engagement.

By contrast, demographic and contextual variables display more heterogeneous effects. Urban residence is positively associated with financial literacy among Ecuadorian men and Spanish women, but not in the remaining subsamples, indicating context- and gender-specific spatial gradients. Age is only statistically significant among Spanish students, with larger effects

observed for women, pointing to steeper within-cohort accumulation of financial knowledge in the Spanish context. Overall, the gender-specific estimates highlight substantial heterogeneity in the determinants of financial literacy across both gender and country. While education and technology emerge as universal correlates, the influence of sociocultural norms and demographic characteristics is highly context-dependent, reinforcing the need to move beyond baseline estimates when analysing gender gaps in financial literacy.

4.6. Decomposing the gender gap: Blinder–Oaxaca results

While the regression results confirm the presence of gender differences in financial literacy, they do not reveal the extent to which these disparities are explained by observable characteristics. To further examine this issue, we implement a Blinder–Oaxaca decomposition, which allows separating

the gender gap into an explained component—associated with differences in observable characteristics—and an unexplained component capturing structural or behavioural factors. The results, reported in Table 8, indicate substantial and statistically significant gender gaps in both Ecuador and Spain, although their magnitude and composition differ across contexts.

Table 8
Blinder–Oaxaca decomposition of the gender gap in financial literacy by country

Financial literacy	Ecuador		Spain	
	Coefficient	Robust std. err.	Coefficient	Robust std. err.
Overall				
Mean (men)	3.693***	0.120	4.743***	0.094
Mean (women)	3.014***	0.090	3.288***	0.080
Difference	0.679***	0.150	1.455***	0.123
Difference %	18.39%		30.68%	
Explained	0.110	0.066	0.171***	0.052
Unexplained	0.569***	0.145	1.284***	0.128

Note: Statistical significance levels are denoted as follows: *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.10$.

Source: Own elaboration.

In Ecuador, the average financial literacy gap between men and women amounts to 0.679 points, corresponding to an 18.39% difference relative to men's mean score. In Spain, the gap is substantially larger, reaching 1.455 points, or 30.68% of the male mean. These figures indicate that gender disparities in financial literacy are not only persistent across contexts, but also considerably more pronounced in the more economically developed setting. The decomposition results show that only a limited share of the gender gap can be attributed to differences in observable characteristics. The explained component accounts for 0.110 points in Ecuador and 0.171 points in Spain, representing a small fraction of the total gap. By contrast, the behavioural component dominates in both countries, accounting for 83.8% of the gap in Ecuador and 88.3% in Spain. This component largely mirrors the magnitude of the gender coefficient estimated in the baseline regressions.

The predominance of the unexplained component suggests that structural, behavioural or institutional factors—rather than differences in endowments—are the primary drivers of gender gaps in financial literacy. Moreover, the larger behavioural share observed in Spain indicates that higher levels of development, education and digitalisation are not translated into more gender-equal financial knowledge outcomes, but may instead amplify the role of behavioural mechanisms. Overall, the Blinder–Oaxaca results reinforce the regression findings by showing that gender differences in financial literacy are largely structural in nature and persist even after accounting for a broad set of individual characteristics. This provides strong empirical support for analysing gender gaps beyond observable endowments and motivates the discussion of deeper normative and behavioural mechanisms.

4.7. Robustness checks

Table 9 reports logistic regression estimates using a binary indicator of financial literacy equal to one for individuals scoring above the sample median. The results closely mirror the baseline OLS estimates, indicating that the main findings are not sensitive to the functional form of the dependent variable.

Table 9
Robustness check: Logistic regression estimates

Variable	Ecuador	Spain
GEN	−0,347** (0,044)	−1,403*** (0,000)
AGE	0,062 (0,547)	0,462*** (0,000)
URB	0,056 (0,761)	0,109 (0,590)
EDU	1,183*** (0,000)	0,689** (0,011)
PARENTS	0,092 (0,381)	−0,028 (0,791)
GSI	−0,249*** (0,010)	−0,198 (0,135)
TECH	0,444*** (0,002)	0,573** (0,018)
Constant	−2,873 (0,000)	−2,719 (0,028)
Observations	849	804

Note: Coefficients are log-odds estimates. Robust standard errors in parentheses. Statistical significance levels are denoted as follows: *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.10$.

Source: Own elaboration.

Gender remains a strong and statistically significant predictor in both countries, with women exhibiting a lower probability of attaining high levels of financial literacy, particularly in Spain. Formal education and technology exposure continue to emerge as the most robust positive correlates across contexts, while parental education remains insignificant. The effects of age, residence and gender stereotypes display the same context-dependent patterns observed in the baseline models. Overall, these results confirm the stability and robustness of the baseline findings.

Taken together, the empirical evidence indicates that gender, academic background and technology exposure constitute the most robust correlates of financial literacy among Generation Z. Gender gaps are large and persistent across both countries and are largely explained by behavioural characteristics. By contrast, age, residential setting and gender stereotypes exhibit context- and subgroup-specific effects, while parental education does not display an independent association once individual characteristics are accounted for. These findings highlight substantial cross-country heterogeneity and motivate the discussion of structural mechanisms in the next section.

5. DISCUSSION

To further contextualise the empirical findings, it is useful to briefly consider selected institutional, educational and gender-related characteristics of Spain and Ecuador. Spain exhibits a substantially higher level of human development (HDI) and higher average years of schooling among the adult population, reflecting a more consolidated educational environment. At the same time, gender inequality as measured by the Gender Inequality Index is markedly lower in Spain, while the Gender Development Index indicates broadly similar average development levels between women and men in both countries. Despite these favourable aggregate indicators, gender-based disparities in financial literacy persist, consistent with the structural nature of the observed gaps.

Beyond formal development and education, gender norms constitute an additional layer of context. According to the UNDP Gender Social Norms Index, gender-biased attitudes remain substantially more widespread in Ecuador than in Spain, particularly in the economic dimension. Moreover, the share of the population reporting no gender bias is considerably lower in Ecuador, indicating a more pervasive normative environment. While these indicators are not part of the empirical models, they provide relevant background for interpreting the cross-country heterogeneity observed in the role of gender stereotypes—being robustly associated with financial literacy in Ecuador, but not in baseline models for Spain, where effects emerge only in subgroup estimates.

Differences in financial and institutional settings further shape this landscape. Spain has near-universal access to formal banking services, with over 90% of young adults aged 15–24 holding an account with a financial institution or mobile money service provider. It has also implemented a coordinated national financial education strategy for over a decade, supported by institutions aligned with OECD standards. By contrast, Ecuador exhibits lower levels of formal financial inclusion and has introduced national financial education initiatives more recently. These institutional differences provide relevant background for interpreting the cross-country patterns observed in this study, including Spain's stronger performance in traditional financial concepts and the differentiated profile of digital financial knowledge observed in Ecuador. Importantly, these contextual indicators frame—but do not determine—the empirical results, which are based on individual-level data.¹

Against this background, the study provides novel comparative evidence on the level, structure and determinants of financial literacy among Generation Z in two markedly different socio-economic contexts. Beyond confirming well-documented disparities in aggregate financial literacy, the results reveal three substantive insights that move the discussion beyond a purely confirmatory framework. First, the gender gap in financial literacy persists in both countries and is substantially larger in Spain, despite its higher level of economic development and financial inclusion. Second, financial literacy emerges as a multidimen-

sional construct, with cross-country differences not only in levels but also in the composition of financial knowledge, particularly between traditional and digital financial domains. Third, education and technological exposure operate as the most robust and systematic correlates of financial literacy across contexts, while the role of gender stereotypes differs markedly between countries.

Across all empirical strategies, gender remains one of the strongest predictors of financial literacy. Women exhibit significantly lower levels of financial knowledge than men in both Spain and Ecuador, a finding consistent with a large body of international evidence (Lusardi & Mitchell, 2014; Potrich *et al.*, 2018; Tinghög *et al.*, 2021). Importantly, the Blinder–Oaxaca decomposition reveals that the majority of this gap is explained by behavioural characteristics, particularly in Spain, where nearly 90% of the difference cannot be attributed to education, age, parental background or technological exposure. This result is central to the contribution of the paper. It suggests that gender disparities in financial literacy are not merely the outcome of unequal endowments, but rather reflect deeper structural and behavioural mechanisms. Prior research associates this behavioural component with differences in self-efficacy, confidence, stereotype threat and risk attitudes, which systematically affect learning processes and engagement with financial content (Alessie *et al.*, 2011; Bucher-Koenen *et al.*, 2017; Fonseca *et al.*, 2012). Evidence from the STEM education literature further suggests that implicit bias and stereotype internalisation shape performance and participation in quantitatively intensive domains, reinforcing gendered patterns of skill formation even in contexts with formal gender equality (Lindström Månefjord *et al.*, 2025). These mechanisms may plausibly extend to financial literacy, which similarly relies on numeracy, analytical reasoning and confidence in decision-making under uncertainty. In this sense, the findings reinforce the view that policies focused exclusively on expanding access to education may be insufficient to close gender gaps in financial capabilities.

One of the most striking results of this study is that the gender gap in financial literacy is substantially larger in Spain than in Ecuador. This apparent paradox aligns with emerging cross-country evidence showing that gender gaps in financial literacy and financial participation are often more pronounced in advanced economies (Bottazzi & Lusardi, 2021; Bucher-Koenen *et al.*, 2021), as it occurs for the gender wage gap. Several complementary mechanisms may explain this pattern. First, more developed financial systems are characterised by greater product complexity and higher informational requirements. These features raise cognitive and behavioural barriers to entry, which may disproportionately penalise individuals with lower confidence or higher risk aversion, even when formal access to education is similar. Second, persistent horizontal segregation in education and labour markets, particularly in finance- and STEM-related domains, limits women's exposure to financial decision-making environments, thereby constraining learning opportunities. Third, sociocultural research emphasises that formal gender equality does not eliminate implicit biases or internalised norms that shape preferences, expectations and self-perceived competence, especially in quantitative and financial domains (Cislaghi & Heise, 2020; Driva *et al.*, 2016). Taken together, these mechanisms help explain why higher

¹ Institutional indicators are drawn from the United Nations Development Programme (HDI, GDI, GII, GSNI), the World Bank Group (World Development Indicators), and official national financial education strategies.

levels of development and financial inclusion do not automatically translate into smaller gender gaps in financial literacy.

The analysis also reveals a nuanced and context-dependent role of gender stereotypes. In Ecuador, adherence to traditional gender norms is directly and negatively associated with financial literacy, even after controlling for education, technology and socio-demographic factors. This suggests that cultural and normative constraints continue to operate as a structural barrier to financial capability formation in this context. In Spain, by contrast, gender stereotypes are not significant in baseline regressions, yet gender-specific estimations show that their effect is concentrated among men. This asymmetric pattern indicates that social norms do not operate uniformly across groups. Rather, they may affect behaviour, motivation and learning incentives in gender-specific ways, remaining invisible in aggregate estimates. Recent behavioural models suggest that rigid gender norms can also constrain men by reinforcing overconfidence, discouraging learning, or penalising deviation from expected roles (Bordalo *et al.*, 2019). This heterogeneity helps reconcile the absence of a pooled stereotype effect in Spain with the persistence of a large gender gap.

Alongside gender-related mechanisms, education and technological exposure emerge as the most robust and systematic correlates of financial literacy across countries and genders. This confirms the central role of both formal human capital accumulation and digital exposure in shaping financial capabilities (Bannier *et al.*, 2019; Lusardi *et al.*, 2010; Van Nguyen *et al.*, 2022). Notably, the coefficient of academic background is systematically larger for women than for men, suggesting that formal education acts as a particularly strong equalising mechanism for female students. This finding is in line with human capital theory and with recent evidence showing that targeted educational interventions have larger marginal returns for groups that are initially more constrained by social or behavioural barriers (Boolaky *et al.*, 2021; Bucher-Koenen *et al.*, 2021). The strong and robust effect of technological exposure also supports the growing literature on the role of digitalisation and fintech in reshaping financial learning channels, especially among younger cohorts (Adnan *et al.*, 2023; Karaa & Kuğu, 2016; Kharel *et al.*, 2024). Technology thus appears not only as a complementary input to education, but also as a potential lever for reducing information asymmetries and access barriers.

A further contribution of this study lies on documenting compositional differences in financial knowledge across countries. While Spanish students display higher proficiency in traditional financial concepts such as inflation, interest rates and risk diversification (formal education), Ecuadorian women exhibit relatively higher knowledge in digital and alternative financial domains, including cryptocurrencies, blockchain and fintech (informal education). This pattern is consistent with research on financial inclusion in emerging economies, which shows that digital financial tools often substitute for traditional banking services in contexts characterised by lower institutional trust or limited access to formal finance (Chen *et al.*, 2023; Morsy, 2020). In such settings, fintech adoption is frequently necessity-driven rather than speculative, particularly among younger and more digitally native cohorts. In contrast, in mature financial systems like Spain, digital financial innovations tend to be adopted first

by more specialised users, a group that remains predominantly male, reinforcing gender gaps in emerging financial domains.

Taken together, these findings underscore that financial literacy is a multidimensional and context-dependent form of human capital. Aggregate indices alone mask important differences in the structure of financial knowledge and the mechanisms through which inequalities emerge. From a policy perspective, the results suggest that uniform financial education strategies are unlikely to be effective. In advanced economies, interventions should explicitly address behavioural barriers, confidence gaps and gendered participation in complex financial domains. In emerging economies, by contrast, strengthening digital inclusion and leveraging fintech ecosystems may be particularly effective in accelerating financial capability formation, especially among women. From a research perspective, the large unexplained component of the gender gap highlights the need to integrate insights from behavioural economics, psychology and the STEM literature, including constructs such as self-efficacy, anxiety and stereotype threat, to better understand the mechanisms underlying persistent inequalities.

6. CONCLUSION

This study provides new comparative evidence on the level, structure and determinants of financial literacy among Generation Z (the first officially financially educated generation) in two markedly different institutional and economic contexts: Spain and Ecuador. By jointly analysing socio-educational characteristics, technological exposure, and sociocultural factors, and by combining multivariate regression analysis with Blinder–Oaxaca decomposition, the paper offers a comprehensive assessment of both individual-level correlates and structural components of financial literacy gaps.

Three main conclusions emerge. First, financial literacy among Generation Z remains structurally unequal by gender in both countries. The gender gap is not only statistically significant, but also largely unexplained by observable characteristics, especially in Spain, where almost ninety percent of the difference cannot be attributed to education, age, family background or technological access. This result provides strong evidence that gender disparities in financial literacy are not merely the by-product of unequal endowments, but reflect deeper and more persistent structural and behavioural mechanisms. In this sense, the findings reinforce the view that improving formal access to education, while necessary, is not sufficient to eliminate gender inequalities in financial capabilities.

Second, the paper shows that financial literacy is not a unidimensional construct. While Spain exhibits higher average levels of knowledge in traditional financial concepts, Ecuador—particularly Ecuadorian women—displays a relative advantage in digital and alternative financial domains such as cryptocurrencies, blockchain and fintech. This compositional difference reveals that cross-country comparisons based solely on aggregate indices can be misleading and that the structure of financial knowledge matters as much as its overall level. This insight constitutes one of the main conceptual contributions of the study.

Third, education and technological exposure emerge as the two most robust and systematic direct association of financial literacy across countries and genders. Academic background is the single strongest predictor in all models, with particularly large returns for women, confirming the central role of formal education as an equalising force. At the same time, technological exposure shows a strong and independent association with financial literacy in both countries, highlighting the growing importance of digital environments as a complementary channel for financial knowledge acquisition, especially among younger cohorts.

Taken together, these findings have important implications for both research and policy. From a scientific perspective, the results underscore the need to move beyond purely aggregate or gender-blind approaches to financial literacy and to adopt multidimensional and context-sensitive frameworks. From a policy perspective, they suggest that effective financial education strategies must be differentiated. In advanced economies, interventions should place greater emphasis on behavioural barriers, confidence gaps and participation in complex financial domains. In emerging economies, by contrast, strengthening digital inclusion and leveraging fintech ecosystems may be a particularly effective way to accelerate financial capability building, especially among young people and women. In both Spain and Ecuador, treating women's financial education as a core dimension of gender equality, rather than as a residual policy objective, is essential for fostering substantive economic autonomy among young women.

This study is not without limitations. The cross-sectional nature of the data prevents causal inference, and the analysis is restricted to two countries. Future research should extend this framework to a broader set of institutional contexts and explore dynamic trajectories of financial knowledge accumulation over the life cycle. Nevertheless, by providing the first systematic comparison of Generation Z financial literacy between Spain and Ecuador and by uncovering novel patterns in the digital domain, this paper contributes to a deeper understanding of how financial capabilities are formed in an increasingly complex and unequal economic environment.

In a context of rapid financial innovation and growing individual responsibility for economic decision-making, understanding not only how much people know about finance, but also what kind of financial knowledge they acquire and under which conditions, is likely to become a central issue for both scholars and policymakers. This study represents a step in that direction.

7. AUTHORSHIP

Jorge Luis Lopez-Lapo: Conceptualization; Methodology; Formal analysis and investigation; Writing - original draft preparation; Writing - review and editing. Esther Del Brio: Conceptualisation; Writing - original draft preparation; Writing - review and editing; Supervision.

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