

A Cross-Country Analysis of Fintech Adoption and Cultural Dimensions Integrating Hofstede's and GLOBE Frameworks

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Abstract

This study examines how cultural traits influence fintech adoption, focusing on digital payment transactions, the largest segment of global fintech activity. Using Hofstede's and GLOBE cultural frameworks, it addresses a gap in the literature by examining how national cultural dimensions shape adoption patterns across countries, with particular attention to differences between developed and developing economies. Drawing on a global panel dataset for 91 countries, the study employs pooled Ordinary Least Squares regression for baseline full-sample estimations and interaction models with development status to capture heterogeneous cultural effects on fintech adoption. The findings indicate that cultural traits play a significant role in shaping fintech adoption. Long-term orientation is positively associated with adoption globally, with the effect being considerably stronger in developed economies. In contrast, power distance and individualism promoted fintech adoption in developing countries but exerted an insignificant negative influence on fintech adoption in developed economies. This study advances fintech adoption research by integrating Hofstede's and GLOBE cultural frameworks. This study explicitly captures cultural heterogeneity across economic contexts and moves beyond conventional analyses based on a single cultural framework or using culture only as a moderating factor. Policymakers and financial institutions should tailor fintech strategies to cultural profiles, emphasizing long-term benefits in developed economies and leveraging hierarchical and institutional trust in developing economies, while promoting inclusiveness in low-power-distance settings.

Keywords: Culture, Fintech, GLOBE study, Hofstede's cultural framework

JEL CODES: G20, O33, Z13, O57, F63

Introduction

The rapid advancement of information technology (IT) and telecommunications has transformed the global financial sector through the emergence of financial technology (fintech). Fintech integrates financial services with innovative technologies such as blockchain, artificial intelligence, and digital platforms, enhancing efficiency, transparency, and accessibility in financial transactions (Gupta, 2024). Consequently, fintech has become a key driver of financial inclusion, economic growth, and sustainable development by offering cost-effective alternatives to conventional financial services (Choudhary et al., 2024). The global fintech industry has experienced substantial growth recently. Total digital payment transaction value, which represents the largest segment of the fintech sector, is projected to grow at a compound annual growth rate (CAGR) of 7.63% during 2026 to 2030 (Statista, 2026), and the overall fintech industry is expected to expand at a 16.2% CAGR from 2025 to 2032 (Fortune Business Insights, 2023).

Despite the technological development within the financial sector, approximately 65% of adults in low-income economies still lack access to basic transaction accounts, while nearly half of adults in emerging market and developing economies are financially vulnerable to emergencies (World Bank, 2025). Additionally, significant gender disparities in financial inclusion persist, particularly in Sub-Saharan Africa and the Middle East, North Africa, Afghanistan, and Pakistan (World Bank, 2025). These disparities emphasize the continuing challenge of achieving an inclusive financial system worldwide.

Fintech services offer significant opportunities to bridge these gaps. Among the unbanked population, approximately 530 million use smartphones, suggesting considerable potential for expanding access to financial services (Riehl, 2025). Real-time digital payment systems, such as India's Unified Payments Interface (UPI) and M-Pesa in Kenya, further demonstrate how fintech can facilitate low-cost transactions, thereby promoting financial inclusion. However, while advanced ICT infrastructure and robust banking systems facilitate the diffusion of fintech, adoption patterns vary considerably across countries due to differences in regulatory environments, cultural values, and consumer behavior (Singla et al., 2025). This is more significant between advanced economies and emerging markets, due to user hesitancy and infrastructural challenges (Agarwal & Zhang, 2020; Frost, 2020). Additionally, the level of fintech adoption among older adults remains substantially low in relation to their accumulated wealth and the ownership of smart devices (Ko et al., 2023).

Among the factors influencing fintech adoption, national culture plays a particularly important role in shaping individuals' attitudes toward innovation, trust, and risk-taking (Hassan & Wood, 2019; Muk & Chung, 2015). Hofstede (2001) defines culture as "the collective programming of the mind," emphasizing its influence on values and behavioral patterns that may affect technology adoption. Prior studies have shown that cultural characteristics influence consumers' acceptance of digital technologies, including financial services (Barile et al., 2023; Urus et al., 2022).

Despite the growing scholarly interest in fintech adoption, existing research presents several limitations. First, most studies have primarily focused on technological infrastructure and individual-level determinants, with limited attention to the direct impact of national culture on fintech adoption (Fu & Mishra, 2020). Second, previous research often examines isolated cultural dimensions or specific fintech applications, such as mobile banking, e-commerce, or e-government services (Picoto & Pinto, 2020; Zhao et al., 2014), rather than the broader fintech ecosystem. Third, many studies investigate the moderating role of culture while overlooking its direct effects on adoption behavior (Rahmiati et al., 2024). Finally, the evidence is largely derived from single-country or bilateral comparisons, limiting the generalizability of findings across diverse economic contexts (Hassan & Wood, 2019; Gupta, 2024). Consequently, evidence on how national cultural traits shape broader fintech adoption across different stages of economic development remains scarce.

To address these gaps, this study examines the direct influence of national cultural dimensions on fintech adoption across diverse economies. Furthermore, recognizing that institutional and development contexts may shape cultural effects, the study seeks to address two research questions: (1) How do cultural traits shape the adoption of fintech? And (2) How do these effects differ between developing and developed countries? By providing cross-country evidence on the cultural determinants of fintech adoption, this study contributes to the growing literature on fintech diffusion.

This study contributes to the literature on fintech adoption in multiple ways, such as by extending existing knowledge through theoretical insights and robust empirical evidence. Theoretically, it addresses a critical gap by integrating Hofstede's cultural dimensions and the Global Leadership and Organizational Behavior Effectiveness (GLOBE) framework by House et al. (2004) within a unified analytical model, moving beyond studies that rely on a single cultural framework or treat culture solely as a moderating variable. More importantly, it explicitly theorizes and tests cultural heterogeneity across levels of economic development, demonstrating that the influence of cultural traits on fintech adoption is not uniform but varies systematically between developed and developing economies. This development-contingent cultural

perspective offers a more nuanced and context-sensitive understanding of fintech adoption that prior cross-country studies have largely overlooked.

Empirically, the study leverages an updated, large-scale panel dataset spanning 91 countries, substantially extending the geographic and temporal scope of existing literature. Further, this study uses the digital payment transaction value per user as a proxy for fintech adoption, with the primary fintech instrument accounting for the largest share of fintech transactions (Statista, 2024). It employs pooled ordinary least squares (OLS) regression alongside interaction models that capture differential cultural effects across economic contexts, thereby generating more robust and generalizable findings than those derived from single-country analyses or bilateral comparisons. Thus, this study addresses the need for comparative analysis as emphasized by Yoon & Steege (2013) and Zhao *et al.* (2014). Together, these contributions position this study as a meaningful advancement over conventional fintech adoption research, offering both scholarly insights and practical implications for policymakers and financial institutions operating across diverse cultural and economic environments.

The paper is structured as follows: Section 2 reviews the literature and develops hypotheses; Section 3 outlines the data sources and methodology; Section 4 presents empirical findings; Section 5 discusses the results; and Section 6 offers policy implications, acknowledges limitations, and suggests future research directions.

Literature Review

Theoretical Literature

Contingency theory suggests that organizational effectiveness depends on the alignment among factors such as structure, people, technology, and strategy (Zhao *et al.*, 2014). Consistent with this perspective, the present study examines cultural characteristics as contingency factors influencing fintech adoption and the successful implementation of technological innovations.

Furthermore, the diffusion of innovation theory explains how innovations spread across societies through different adopter categories over time (Rogers *et al.*, 2008). Prior studies suggest that cultural traits shape these adoption patterns (Straub *et al.*, 1997). Similarly, the Technology Acceptance Model asserts that user perceptions, such as performance expectancy, effort expectancy, and social influences, affect the adoption of technology-enabled services (Muk & Chung, 2015).

Additionally, institutional theory explains how cultural dynamics influence fintech adoption by emphasizing the role of social norms, cultural values, and regulatory frameworks in shaping the behavior and decision-making of individuals and

organizations. According to this theory, technology adoption extends beyond economic rationality and is embedded within institutional contexts comprising regulative, normative, and cultural-cognitive dimensions (Scott, 2008). Cultural values influence the normative and cognitive dimensions by defining appropriate and legitimate behaviors, thereby institutionalizing cultural attributes that guide and constrain the adoption of technological innovations such as fintech.

Empirical Literature

Fintech adoption involves integrating advanced financial technologies, and the digital payments sector is the dominant segment, representing the largest share of global fintech users (Statista, 2024). The shift towards fintech has been accelerated by increased convenience, digital familiarity, and behavioral shifts induced by the COVID-19 pandemic, which heightened demand for contactless services (Fu & Mishra, 2020).

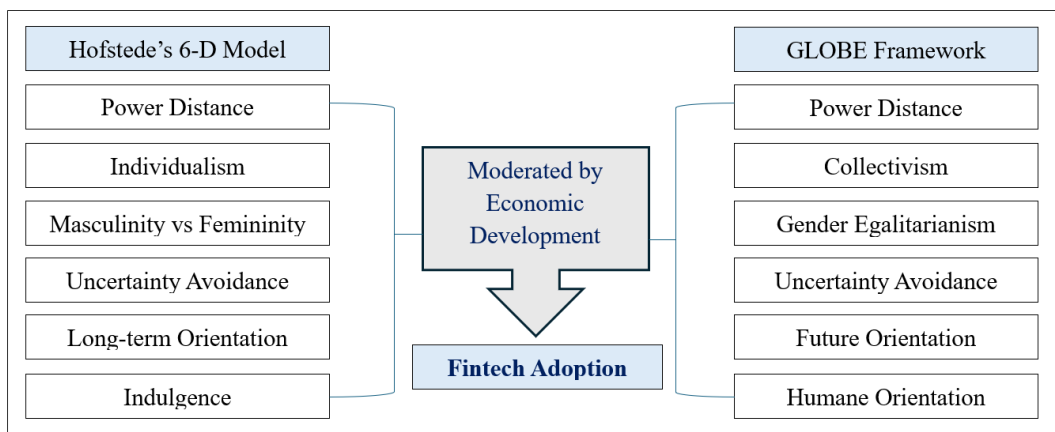
Despite the growing importance, empirical research on fintech adoption, especially in cross-country contexts, is limited. Many studies focus on enabling factors like telecommunication infrastructure, internet penetration, and ATM deployment (Sethi & Manocha, 2023), yet these measures rely on indirect proxies that may not fully capture the complexity and granularity of user engagement (Cevik, 2024). Behavioral models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) have been widely employed to examine individual-level determinants of fintech adoption (e.g., Baptista & Oliveira, 2015; Urus *et al.*, 2022) but often neglect socio-cultural and institutional influences.

The impact of national culture on fintech adoption is particularly underexplored, despite its potential influence on user attitudes and trust. Culture is a complex, multi-layered construct shared among members of society and shaped over time, making it relatively stable (Taras *et al.*, 2009). Various models, including Hofstede's cultural dimensions (2001) and the GLOBE framework (House *et al.*, 2004), have been developed to analyze cultural differences across nations.

Hofstede's 6-D Model identifies six dimensions of national culture: power distance, individualism vs. collectivism, masculinity vs. femininity, uncertainty avoidance, long-term vs. short-term orientation, and indulgence. Each dimension is measured on a scale from 0 to 100, indicating societal preferences. Recent updates on The Culture Factor website provide new scores for individualism and long-term orientation following a replication study by Minkov *et al.* (2017) across 56 countries. These updates, including revised scores for Arab states (Almutairi *et al.*, 2020), enhance Hofstede's model's accuracy and relevance in contemporary cross-cultural analysis (The Culture Factor, 2024).

The GLOBE study is an international research initiative examining the relationship between culture and leadership across 62 societies (House *et al.*, 2004). This study adopts GLOBE's societal cultural practice indicators, focusing on six dimensions relevant to fintech adoption: power distance, in-group collectivism, gender egalitarianism, uncertainty avoidance, future orientation, and humane orientation. In-group collectivism highlights loyalty within groups, while gender egalitarianism addresses gender role disparities, and the humane orientation reflects societal support for fairness and kindness (House *et al.*, 2004; Zhao *et al.*, 2014). By using both Hofstede's 6-D model and the GLOBE index, the study aims to offer a comprehensive understanding of how cultural factors influence fintech adoption across different national contexts. The conceptual framework is illustrated in Figure 1.

Figure 1: Conceptual Framework



Source: Author's Compilation

Power distance, as defined by Hofstede (2001), is the degree to which less powerful members of a society accept unequal power distributions within institutions. In high power distance cultures, hierarchical structures are prevalent, characterized by centralized authority and limited access to information (Carl *et al.*, 2004). Individuals in these societies often defer to authority, which can influence technology adoption behaviors. They tend to seek approval from authorities before embracing modern technologies, which may hinder individual initiative and trust in decentralized fintech solutions (Lai *et al.*, 2016). Takieddine & Sun (2015) further argue that the perceived necessity for technological advancement diminishes when authorities and superiors are viewed as the primary decision-makers, leading to lower engagement with fintech solutions.

While some studies suggest that high power distance can facilitate the adoption of centralized fintech applications like e-government services (Warkentin *et al.*, 2002),

hierarchical structures generally impede acceptance of decentralized technologies such as peer-to-peer lending (Barile *et al.*, 2023). Evidence shows that innovation thrives in societies with lower power distance where individuals are empowered to make decisions and engage with new technologies (Zhao *et al.*, 2014). Thus, the relationship between power distance and fintech adoption remains complex, leading to the following hypothesis:

H1. Power distance as a cultural dimension significantly influences fintech adoption.

Individualism versus collectivism reflects the extent to which societies prioritize personal autonomy over group cohesion. According to Hofstede (2016), individualistic societies emphasize individual responsibility and independence, whereas collectivist societies stress group loyalty, shared responsibilities, and interdependence. Prior studies suggest that individualistic cultures are generally more receptive to new technologies, as individuals are more likely to make independent decisions and embrace change (Erumban & de Jong, 2006; Yoon & Steege, 2013). In contrast, collectivist cultures often rely on group norms and consensus-based decision-making, which may hinder the adoption of emerging technologies (Picoto & Pinto, 2020). Consequently, countries characterized by greater individualism are expected to exhibit higher levels of fintech adoption, whereas collectivism, as conceptualized in the GLOBE framework, is expected to negatively influence fintech adoption. Accordingly, the following hypothesis is proposed:

H2. Individualism as a cultural dimension significantly influences fintech adoption.

Masculinity versus femininity, reframed as motivation toward achievement and success, reflects the extent to which societies prioritize assertiveness, competitiveness, and material success over cooperation and quality of life (Minkov & Hofstede, 2012). Masculine cultures emphasize performance and goal-oriented behavior, whereas feminine cultures place greater value on social welfare and relational harmony (Pehlivanlı, 2024). This distinction has important implications for entrepreneurship and technology adoption (Bernardino & Santos, 2022). Existing evidence suggests that masculinity can foster fintech adoption through performance-driven motivations, as perceived usefulness and efficiency are often stronger determinants of technology acceptance in masculine societies (Kaba & Osei-Bryson, 2013; Bagchi *et al.*, 2004). However, masculine cultures may also reinforce structural inequalities and hierarchical norms that limit participation in fintech systems and constrain broader adoption (Malaquias *et al.*, 2024). Overall, the literature suggests that masculinity may simultaneously promote innovation while hindering inclusive fintech diffusion. Accordingly, the following hypothesis is proposed:

H3. Masculinity as a cultural dimension significantly influences fintech adoption.

Uncertainty avoidance refers to the extent to which members of society feel threatened by ambiguity and uncertainty, leading them to seek stability through rules and structured environments (Hofstede, 2016). Accordingly, cultures with high uncertainty avoidance tend to favor established practices and minimize risk, whereas those with low uncertainty avoidance are generally more open to experimentation and innovation (Hofstede, 2001). Previous studies suggest that low uncertainty avoidance fosters the adoption of emerging technologies, including digital financial services, due to greater tolerance for change and risk (Png et al., 2001). Conversely, societies characterized by high uncertainty avoidance often prefer traditional financial systems perceived as more secure and exhibit lower acceptance of innovative technologies (Bagchi et al., 2004; Banász & Csepregi, 2022). Although structured environments may facilitate gradual digital inclusion, high uncertainty avoidance is generally expected to constrain fintech adoption. Accordingly, the following hypothesis is proposed:

H4. Uncertainty avoidance as a cultural dimension significantly influences fintech adoption.

Long-term versus short-term orientation reflects the extent to which societies prioritize future-oriented values such as perseverance and adaptability over tradition and immediate outcomes (Hofstede, 2016). Long-term oriented cultures emphasize pragmatism and sustained investment in areas such as education and innovation, whereas short-term oriented societies tend to prioritize stability, established norms, and resistance to change (Chen, 2013). The implications of this cultural dimension for fintech adoption are significant. Long-term oriented societies are more inclined to invest in digital literacy, financial education, and sustainable inclusion initiatives, which collectively enhance the capacity for fintech engagement (Pehlivanlı, 2024). Individuals in these environments are more receptive to technological advancements and demonstrate a greater willingness to adopt innovative solutions (Zhao *et al.*, 2014). This cultural tendency toward future planning and adaptability fosters an environment conducive to the integration of fintech instruments such as mobile banking, digital payments, and investment platforms (Leidner *et al.*, 2006). Given the emphasis on strategic foresight and innovation in long-term-oriented cultures, the following hypothesis is proposed:

H5. Long-term orientation as a cultural dimension significantly influences fintech adoption.

Indulgence versus restraint reflects the extent to which societies permit the gratification of natural human desires, leisure, and personal freedom (Hofstede, 2011). Indulgent cultures emphasize autonomy and freedom of expression, whereas restrained cultures adhere to stricter social norms and behavioral controls (Barile et al., 2023). In the context of fintech adoption, indulgent societies are generally more receptive to innovation and digital engagement, as greater personal freedom and consumer orientation encourage the use of emerging financial technologies (Pehlivanlı, 2024). Empirical evidence further indicates a positive association between indulgence and firm-level digitalization (Rubino et al., 2020). Thus, overall evidence suggests that they provide a favorable environment for fintech adoption. Accordingly, the following hypothesis is proposed:

H6. Indulgence as a cultural dimension significantly influences fintech adoption

Data and Methodology

This study examines the direct influence of national cultural dimensions on fintech adoption across a diverse sample of 91 countries, comprising 50 developing and 41 developed economies. Country classification follows the World Bank's income-based categorization (World Bank, 2024a), where high-income countries are designated as developed economies, and low-, lower-middle, and upper-middle-income countries are classified as developing economies. A detailed overview of the dataset is presented in Table 1.

Table 1: Definitions of Variables

Variables	Definitions	Source
<i>Dependent Variable</i>		
Fintech Adoption	Digital payment transaction value per user (Thousand USD)	Statista
<i>Independent Variables – Cultural Dimensions</i>		
Power Distance	Index	Cultural Factor/GLOBE
Individualism	Index	Cultural Factor/GLOBE
Masculinity	Index	Cultural Factor/GLOBE
Uncertainty Avoidance	Index	Cultural Factor/GLOBE

Long-term/Future orientation	Index	Cultural Factor/GLOBE
Indulgence	Index	Cultural Factor/GLOBE
In-group Collectivism	Index	GLOBE
Gender Egalitarianism	Index	GLOBE
Humane Orientation	Index	GLOBE
<i>Control Variables</i>		
Fixed Broadband Subscriptions	Fixed broadband subscriptions for 100 people (Log value)	WDI
Digital Skills	Log of digital Skills Score among the population	GFD
Domestic Credit	Domestic Credit to Private Sector by Banks (% of GDP)	GFD
Rule of Law	The estimated rule of law score ranges from about -2.5 to 2.5.	WGI
Corruption	Corruption Perception Index	WDI
Banks	Commercial bank branches (per 100,000 adults) – Log Value	WDI
COVID-19	Dummy variable (= 1 if $2020 \leq \text{Year} \leq 2022$; = 0 otherwise)	
Development Status	Dummy Variable (“1” if the country is categorized as a developed country, and “0” otherwise)	

Note: Statista denotes the Statista Website, Cultural Factor denotes the “The Culture Factor” website, GLOBE denotes the GLOBE study by House et al. (2004), WDI indicates World Development Indicators, GFD indicates Global Findex Database, and WGI indicates World Governance Index. Sample Period: 2017-2023.

Fintech adoption is proxied by digital payment transaction value per user (thousand USD), sourced from the Statista website. This measure is selected due to its representativeness, as digital payments constitute the largest segment of global fintech activity. Cultural dimensions are obtained from the Culture Factor website, which provides updated Hofstede 6-D scores incorporating recent replication studies and revisions (e.g., Minkov et al., 2017). To the best of our knowledge, this study is

the first to employ these updated cultural scores in a cross-country analysis of fintech adoption.

Several control variables are included to account for structural and institutional factors, including fixed broadband subscriptions, corruption perception index, number of commercial bank branches, digital skills score among the population, domestic credit to the private sector, and the rule of law index. Data for these variables are sourced from the World Development Indicators (World Bank, 2023), the Global Findex database (World Bank, 2021), and the World Governance Indicators (World Bank, 2024b). Additionally, a COVID-19 dummy variable is included, taking the value of 1 for the years 2020 to 2022 and 0 otherwise, to control for pandemic-related effects on digital financial services.

To examine the relationship between national cultural dimensions and fintech adoption, this study employs a static panel data analysis using the pooled OLS regression technique. The panel dataset spans the period from 2017 to 2023, encompassing 91 countries. The primary objective is to assess the direct impact of cultural traits on fintech adoption, diverging from prior studies that predominantly treat culture as a moderating variable.

The basic econometric specification is presented as follows:

$$Fintech_{it} = \beta_0 + \beta_1 Culture_{it} + \beta_2 X_{it} + n_i + \varepsilon_{it} \quad (1)$$

Where $Fintech_{it}$ denotes the digital payment transaction value per user (in thousands of USD) for country i and time t , serving as the proxy for fintech adoption. $Culture_{it}$ represents the cultural dimension score for each country, and X_{it} denotes the vector of control variables. The time-invariant region-specific impacts are captured by n_i , accounting for unobserved heterogeneity across geographical clusters, and ε_{it} is the idiosyncratic error term. To account for structural differences between developed and developing economies, we include a development status dummy in all full-sample estimations. Subsequently, interaction terms between development status are introduced to examine whether the cultural impact on fintech adoption varies systematically across country groups.

The choice of pooled OLS is supported by the Breusch-Pagan test, which confirms the appropriateness of this specification over random or fixed effect models. The use of pooled OLS is motivated by the nature of the key explanatory variables. Specifically, Hofstede's and GLOBE frameworks' cultural dimensions are country-specific and largely time-invariant over the sample period. Consequently, the application of the fixed effects model would absorb these time-invariant variables, preventing estimation of their direct effects on fintech adoption. Since the primary

objective of this study is to assess the direct influence of national culture rather than within-country changes over time, pooled OLS provides an appropriate empirical framework. To address potential heteroscedasticity and intra-cluster correlation, the study employs clustered robust standard errors. Furthermore, region fixed effects are incorporated to control for unobserved regional characteristics.

Due to the significant acceleration in fintech adoption during the COVID-19 pandemic, this study further extends its analysis to examine whether the pandemic period moderates the relationship between national culture and fintech adoption. Specifically, this study investigates how cultural dimensions influenced fintech adoption across non-pandemic years (2017-2019 and 2023). Thus, a subsample approach is adopted to facilitate clearer interpretation of temporal patterns by estimating the model separately for non-pandemic periods. This method offers intuitive insights into period-specific dynamics.

To ensure the robustness of empirical findings and mitigate potential endogeneity concerns, the study re-estimates the baseline model using first-order lagged explanatory variables. Employing lagged regressors helps reduce potential reverse causality and simultaneity bias. While cultural dimensions are largely time-invariant, lagging the time-varying control variables enables the analysis to capture the delayed effects of country-specific characteristics of fintech adoption. Additionally, the robustness of the baseline results is assessed through an extended specification incorporating additional control variables: lagged mobile subscriptions, urban population, and internet penetration, which have been widely recognized as key determinants of fintech adoption.

Together, these methodological approaches offer a comprehensive framework for evaluating the cultural determinants of fintech adoption across diverse national and economic contexts, assessing the temporal evolution of cultural influence on fintech adoption in response to global disruptions.

Empirical Results

Table 2 presents the descriptive statistics of the variables used in the empirical analysis. The average transaction value of digital payments per user is 11.57 thousand USD, with substantial variation across countries, indicating considerable heterogeneity in fintech adoption. The cultural variables also exhibit notable dispersion. Power distance and uncertainty avoidance record relatively high mean values (64.5 and 64.1, respectively), while individualism, masculinity, long-term orientation, and indulgence display moderate means with wide standard deviations, reflecting significant cross-country cultural diversity. Overall, the descriptive

statistics reveal substantial heterogeneity across cultural, financial, and institutional dimensions, supporting the empirical strategy that accounts for cross-country differences in examining the impact of national culture on fintech adoption.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Digital payment transactions value (per user)	637	11.15	11.57	0.28	81.54
Power Distance	637	64.54	21.57	11.00	100.00
Individualism	630	43.08	23.55	4.00	100.00
Masculinity	637	46.20	18.11	8.00	100.00
Uncertainty Avoidance	637	64.11	21.41	8.00	100.00
Long-term orientation	581	43.54	21.73	1.00	100.00
Indulgence	518	43.42	20.56	13.00	84.00
Fixed Broadband Subscriptions	637	17.21	15.20	0.00	49.40
Digital Skills Score	600	53.92	13.95	13.05	82.85
Domestic Credit to the Private Sector	637	59.85	44.55	0.01	264.43
Rule of LAW	637	0.10	0.96	-1.80	2.03
Corruption	637	0.70	0.10	-1.60	2.40
Number of Bank Branches	637	16.14	13.64	0.38	92.01
Gross Domestic Product (Billions)	637	685.88	2418.02	1.47	21776.30

Source: Author's Estimations

In the initial phase of the analysis, this study examines the relationship between national cultural dimensions, based on Hofstede's 6-D model, and fintech adoption. Table 3 presents the regression estimates derived from Equation (1). Column (1) reports the pooled OLS estimates for the full sample of countries without allowing for heterogeneity by development status. Among the cultural dimensions, long-term orientation exhibits a positive and statistically significant association with fintech adoption, reinforcing Hypothesis 5 and highlighting the importance of future-oriented cultural traits in driving digital financial engagement. The results indicate that a one-unit increase in long-term orientation score corresponds to a 0.316-unit ($p < 0.01$) rise in the transaction value of digital payments per user, *ceteris paribus*. Other cultural dimensions, power distance, individualism, masculinity, uncertainty avoidance, and indulgence do not show statistically significant effects in this specification.

Column (2) illustrates the results obtained after introducing interaction terms between cultural dimensions and development status, allowing the effects of culture to differ across economic contexts. Given that the development status variables take the value of zero for developing countries, the estimated coefficients on the main cultural variables reflect their impact in developing economies, while interaction terms (*Dev) capture the differential effects observed in developed economies.

Due to missing values in several cultural dimensions, particularly indulgence and long-term orientation, the effective sample varies across model specifications and declines to 316 observations in the fully specified models following listwise deletion. Missing data diagnostics indicated that the data are not missing completely at random (Little's MCAR test: $\chi^2 = 1029.18$, $df = 329$, $p < 0.01$). Logistic regressions further showed that missingness is associated with observable characteristics, including GDP per capita, corruption, development status, and region, suggesting that the data are more consistent with the Missing at Random (MAR) assumption. Therefore, although listwise deletion was employed in the baseline analysis, the results are unlikely to be driven by systematic missing data bias.

Table 3: Impact of culture on Fintech Adoption – Hofstede's Cultural Framework

Variables	(1) Fintech Adoption	(2) Fintech Adoption
Power Distance	-0.013 (0.095)	0.250** (0.100)
Individualism	0.058 (0.122)	0.221** (0.103)
Masculinity	0.109 (0.085)	0.104 (0.068)
Uncertainty Avoidance	0.095 (0.081)	0.072 (0.071)
Long-term Orientation	0.316*** (0.118)	0.058 (0.059)
Indulgence	0.040 (0.064)	-0.040 (0.058)
Power distance*Dev		-0.467** (0.185)
Individualism*Dev		-0.304* (0.178)
Masculinity*Dev		0.042 (0.096)
Uncertainty Avoidance*Dev		0.020 (0.109)
Long-term Orientation*Dev		0.420** (0.171)

Indulgence*Dev		0.028 (0.118)
Fixed Broadband Subscription	-1.210 (1.158)	-0.975 (0.918)
Digital Skills	-2.988 (3.296)	-4.255 (2.843)
Domestic Credit	0.036 (0.044)	0.065 (0.042)
Rule of Law	9.705* (5.152)	6.781 (5.067)
Corruption	-1.094 (4.082)	-1.579 (3.773)
Bank Branches	-0.511 (1.188)	-0.397 (1.022)
GDP	0.160 (0.653)	0.203 (0.622)
COVID-19	0.883** (0.431)	0.901** (0.416)
Development Status	1.310 (4.321)	25.604 (20.365)
Constant	-0.058 (15.080)	-10.517 (13.751)
Observations	316	316
R-squared	0.626	0.713

Note: The countries of the full sample have been classified as developing and developed economies based on the country classification of the World Bank (2024). Higher-income countries have been classified as developed countries. Low-, lower-middle, and upper-middle-income countries are classified as developing economies. Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$).

To complement the analysis based on Hofstede's cultural dimensions, this study further investigates the relationship between national culture and fintech adoption using the GLOBE cultural framework. The regression results from the full-sample analysis are presented in Table 4.

The findings illustrated in Column (1) indicate that collectivism exerts a statistically significant negative effect on fintech adoption. The GLOBE index reports the value for collectivism, which is conceptually the inverse of individualism as measured in Hofstede's framework. Therefore, for the results to be robust across cultural frameworks, the estimated effects using the GLOBE index are expected to exhibit the opposite sign to those obtained using Hofstede's individualism measure. Consistent with the expectation, individualism shows a positive but statistically insignificant effect on fintech adoption in Hofstede's cultural framework-based analysis, while collectivism exhibits a negative effect in the GLOBE-based analysis. Consistent with Column (1) of Table 3, the main effect of power distance remains negative and statistically insignificant at the global level, and long-term orientation continues to

exhibit the same directional relationship. Column (2) reports the results from the model that incorporates interaction terms between cultural dimensions and development status.

Table 4: Impact of Culture on Fintech Adoption – GLOBE Cultural Framework

Variables	(1) Fintech Adoption	(2) Fintech Adoption
Power Distance	-4.366 (7.028)	-7.037 (6.404)
Collectivism	-15.996*** (5.536)	-2.964 (3.638)
Gender Egalitarianism	-1.992 (4.121)	10.125 (7.348)
Uncertainty Avoidance	-6.714 (7.454)	7.098 (6.601)
Future Orientation	1.482 (4.983)	-17.519** (6.630)
Humane Orientation	-1.360 (8.296)	-8.762 (7.624)
Power distance*Dev		-6.975 (16.510)
Collectivism*Dev		-16.531* (9.719)
Gender Egalitarianism *Dev		-17.554 (11.455)
Uncertainty Avoidance*Dev		-21.596 (12.986)
Future Orientation*Dev		23.104** (10.560)
Humane Orientation*Dev		3.062 (11.739)
Fixed Broadband Subscription	-2.023 (1.472)	-1.967 (1.645)
Digital Skills	-7.900 (7.155)	-6.567 (5.849)
Domestic Credit	0.165*** (0.045)	0.139*** (0.051)
Rule of Law	6.236 (10.063)	5.741 (10.352)
Corruption	-4.520 (9.633)	-2.956 (11.026)
Bank Branches	-0.086 (4.488)	4.759 (5.237)
GDP	1.799 (1.710)	0.788 (1.611)
COVID-19	0.363 (0.865)	0.850 (0.817)

Development Status	7.720 (7.121)	136.512 (162.790)
Constant	152.861* (76.368)	121.111 (111.922)
Observations	192	192
R-squared	0.589	0.664

Note: The countries of the full sample have been classified as developing and developed economies based on the country classification of the World Bank (2024). Higher-income countries have been classified as developed countries. Low-, lower-middle, and upper-middle-income countries are classified as developing economies. Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$).

To facilitate the interpretation of the interaction effects, the marginal effects of cultural dimensions were estimated separately for developing and developed countries using both Hofstede's cultural dimensions and the GLOBE framework. The estimated marginal effects are illustrated in Table 5.

Table 5: Marginal effects of cultural dimensions based on Hofstede's framework

Variables	Hofstede's Framework		GLOBE Framework	
	Developing Countries	Developed Countries	Developing Countries	Developed Countries
	Marginal Effect	Marginal Effect	Marginal Effect	Marginal Effect
Power Distance	0.250** (0.100)	-0.217 (0.141)	-7.037 (6.404)	-14.011 (13.186)
Individualism/Collectivism	0.221** (0.103)	-0.083 (0.180)	-2.964 (3.638)	-19.495** (7.985)
Masculinity/Gender Egalitarianism	0.104 (0.068)	0.145 (0.099)	10.125 (7.348)	-7.429 (7.459)
Uncertainty Avoidance	0.072 (0.071)	0.093 (0.088)	7.098 (6.601)	-14.498 (13.441)
Long-Term/Future Orientation	0.058 (0.059)	0.478*** (0.155)	-17.519** (6.630)	5.585 (6.939)
Indulgence/Humane Orientation	-0.040 (0.058)	-0.012 (0.105)	-8.762 (7.624)	-5.699 (10.503)
Control Variables	Yes	Yes	Yes	Yes
Observations	316	316	192	192

Note: To facilitate the interpretation of interaction effects, average marginal effects of the cultural dimensions are reported. Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$).

The results related to Hofstede's framework (Columns 1 to 2) reveal substantial heterogeneity in the influence of culture on fintech adoption across levels of economic development. In developing countries, a one-unit increase in power distance and individualism increases fintech adoption by 0.25 units ($p < 0.05$) and 0.221 units ($p < 0.05$), respectively. Conversely, in developed countries, the effect is statistically insignificant. In developed countries, long-term orientation exerts a strong positive effect, demonstrating that a one-unit increase in long-term orientation score is associated with a 0.478 ($p < 0.01$) increase in digital payment transaction value per user.

In contrast, the estimations based on the GLOBE framework indicate that future orientation exerts a significant negative impact on fintech adoption in developing countries, whereas collectivism exhibits a substantial negative impact on fintech adoption in developed countries. However, the estimated effects of masculinity/gender egalitarianism, uncertainty avoidance, and indulgence/humane orientation remain statistically insignificant in both Hofstede's and GLOBE models, suggesting that these cultural dimensions do not exert systematic influences on fintech adoption in both categories.

Differences in the signs and significance of cultural dimensions across Hofstede's and GLOBE frameworks likely reflect conceptual and methodological differences between the two models. Although some dimensions share similar labels, they capture distinct aspects of culture and are measured using different approaches. Consequently, variations in estimated effects should be interpreted as evidence that cultural influences on fintech adoption are sensitive to the choice of cultural framework. Accordingly, the GLOBE framework is employed as a complementary analysis to provide a more comprehensive assessment of the cultural determinants of fintech adoption.

To examine robustness, the study also examines the relationship excluding the COVID-19 pandemic period. The results confirm that cultural influences on fintech adoption remain stable, reinforcing the argument that cultural traits exert a persistent effect beyond short-term external shocks. Furthermore, results obtained from the lagged specifications and extended models remain qualitatively consistent with the baseline estimates in terms of directional relationship and statistical significance. This consistency suggests that the main findings are robust to alternative model specifications and are unlikely to be driven by reverse causality and omitted variable bias. Tables 1 and 2 in the Appendix illustrate the results for the robustness check.

Discussion

The findings highlight the multifaceted role of national culture in shaping fintech adoption, with cultural dimensions producing both positive and negative effects. Among these, long-term orientation emerges as the most consistent predictor of fintech adoption, corroborating prior studies (Luu et al., 2022; Picoto & Pinto, 2020; Zhao et al., 2014). Consistent with innovation diffusion theory (Rogers, 2003), long-term-oriented societies are more likely to recognize the long-run benefits of fintech, invest in digital infrastructure, and promote financial literacy, thereby facilitating the diffusion of financial innovations (Pehlivanlı, 2024). Higher levels of digital competence and financial awareness in such societies further enhance fintech adoption (Hofstede & Bond, 1988).

The interaction analysis reveals substantial heterogeneity across levels of economic development, underscoring the relevance of institutional theory. The positive association between power distance and fintech adoption in developing economies suggests that institutional legitimacy and endorsement by trusted authorities can facilitate technology adoption (Rubino et al., 2020). In contrast, hierarchical structures may impede fintech diffusion in developed economies. Similarly, individualism positively influences fintech adoption in developing countries, supporting the view that autonomy and openness to innovation encourage technology uptake, particularly where traditional financial access remains limited (Takeddine & Sun, 2015; Juntiwassarakij & Sunkpho, 2018).

Long-term orientation positively affects fintech adoption only in developed economies, likely to reflect stronger digital infrastructure, institutional quality, and financial system maturity. In developing countries, structural barriers such as limited internet access, lower financial and digital literacy, and regulatory constraints may weaken the benefits of future-oriented cultural traits (Storchi et al., 2023; Menberu, 2024). The robustness analyses further confirm the stability of these findings, suggesting that cultural influences on fintech adoption persist beyond short-term shocks. Overall, the results demonstrate that cultural effects are context-dependent and vary across economic environments, highlighting the importance of incorporating cultural considerations into fintech policies and market strategies.

Conclusion and Policy Recommendations

This study contributes to the fintech literature by examining how national culture influences fintech adoption, using Hofstede's updated six-dimensional cultural framework and the GLOBE cultural framework, with digital payment transaction

values as proxies for fintech adoption. The findings reveal that long-term orientation is the strongest cultural determinant of fintech adoption, exerting a positive influence globally, particularly in advanced economies. In contrast, individualism and power distance promote fintech adoption in developing countries but constrain it in developed economies. These findings underscore the importance of designing fintech policies that are culturally and economically contextualized.

The findings carry several policy implications for governments, regulators, and fintech firms. First, given the positive role of long-term orientation, policymakers should prioritize long-term investments in digital public infrastructure, including high-speed internet access, digital identification systems, and interoperable payment platforms. Additionally, strengthening digital and financial literacy through school curricula and community-based programs can improve consumers' ability to adopt and effectively use fintech services.

Second, policy priorities should differ across economic contexts. In developing countries, where power distance positively influences fintech adoption, government-led initiatives can play a crucial role in promoting trust and adoption. Central banks and regulators may accelerate fintech diffusion through national digital payment strategies, public awareness campaigns, and partnerships with financial institutions. The success of systems such as India's UPI, Brazil's PIX, and Kenya's M-Pesa illustrates how strong institutional leadership can foster widespread adoption. Furthermore, expanding mobile connectivity and reducing the cost of digital transactions are particularly important in low-income economies where financial exclusion remains high.

Furthermore, the positive association between individualistic cultural traits and fintech adoption in developing countries highlights important insights. In such contexts, policymakers and fintech providers should design products that enhance personal financial autonomy and entrepreneurial activities. Digital wallets, peer-to-peer payment platforms, and personalized financial services can empower individuals to manage their finances independently and support small business development.

In developed countries, regulators should focus on creating competitive and consumer-centered fintech ecosystems. Policies that promote open banking frameworks, data portability, and interoperability can empower consumers and encourage innovation. Strengthening consumer protection, cybersecurity standards, and privacy regulations is equally important for building trust among users who may be more sensitive to risks associated with digital financial services.

While the study offers valuable insights, its scope is limited to the digital payment sector, excluding other fintech segments such as lending, insurtech, and capital markets. Future research could benefit from broader fintech indicators and alternative cultural models. Longitudinal studies on cultural shifts and their effects on fintech adoption are also recommended due to rapid technological changes.

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Appendix: Results of Robustness Check

Table 1: Impact of Culture on Fintech Adoption During Non-Pandemic Period – Hofstede's Cultural Framework

Variables	(1) Fintech Adoption Full Sample Analysis	(2) Fintech Adoption Comparative Analysis
Power Distance	-0.030 (0.104)	0.265** (0.112)
Individualism	0.033 (0.133)	0.176 (0.111)
Masculinity	0.108 (0.095)	0.126 (0.079)
Uncertainty Avoidance	0.107 (0.095)	0.112 (0.076)
Long-term Orientation	0.337** (0.131)	0.068 (0.063)
Indulgence	0.066 (0.066)	-0.036 (0.060)
Power distance*Dev		-0.511** (0.205)
Individualism*Dev		-0.236 (0.198)
Masculinity*Dev		0.030 (0.113)
Uncertainty Avoidance*Dev		-0.032 (0.141)
Long-term Orientation*Dev		0.420** (0.200)
Indulgence*Dev		0.030 (0.136)
Mobile Subscriptions		
Urban Population		
Internet Penetration		
Constant	-1.793 (19.259)	-8.478 (17.542)
Observations	134	134
R-squared	0.627	0.720
Control Variables	Yes	Yes

Note: Non-pandemic period (2017-2019 and 2023). All models include the full set of control variables; however, the coefficients of these variables are omitted for brevity and are available from the authors upon request. Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$).

Table 2: Impact of Culture on Fintech Adoption –Hofstede’s Cultural Framework (Lagged Model and Extended Model)

Variables	Lagged Model		Extended Model	
	(1)	(2)	(3)	(4)
	Fintech Adoption	Fintech Adoption	Fintech Adoption	Fintech Adoption
	Full Sample Analysis	Comparative Analysis	Full Sample Analysis	Comparative Analysis
Power Distance	-0.019 (0.095)	0.249** (0.104)	-0.026 (0.085)	0.297*** (0.109)
Individualism	0.047 (0.121)	0.208* (0.104)	0.051 (0.130)	0.313* (0.161)
Masculinity	0.108 (0.084)	0.103 (0.070)	0.110 (0.085)	0.125 (0.078)
Uncertainty Avoidance	0.084 (0.079)	0.062 (0.073)	0.078 (0.086)	0.113 (0.108)
Long-term Orientation	0.310*** (0.115)	0.062 (0.059)	0.296** (0.118)	0.036 (0.069)
Indulgence	0.035 (0.063)	-0.037 (0.057)	0.026 (0.067)	-0.009 (0.063)
Power distance*Dev		-0.473** (0.186)		-0.506*** (0.182)
Individualism*Dev		-0.286 (0.179)		-0.399* (0.220)
Masculinity*Dev		0.043 (0.096)		-0.000 (0.102)
Uncertainty Avoidance*Dev		0.019 (0.106)		-0.029 (0.126)
Long-term Orientation*Dev		0.402** (0.168)		0.427** (0.167)
Indulgence*Dev		0.006 (0.116)		0.025 (0.122)
Mobile Subscriptions			-1.463 (4.451)	0.999 (3.588)
Urban Population			-0.003 (0.130)	-0.126 (0.125)
Internet Penetration			-0.043 (0.101)	-0.016 (0.075)
Constant	2.237 (14.500)	-8.927 (13.210)	10.099 (24.438)	-14.299 (19.942)
Observations	312	312	292	292
R-squared	0.623	0.710	0.612	0.704
Control Variables	Yes	Yes	Yes	Yes

Note: Columns 1-2 report the results from the lagged model, while Columns 3-4 present the estimates from the extended model with additional control variables. All models include the full set of control variables; however, the coefficients of these variables are omitted for brevity and are available from the authors upon request. Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)