Journal of Applied Econometric
Vol. 2, No. 1, January-June 2026, pp. 86-107
DOI: https:/ 10.59784/journaljoae.v1i1.39

Digital Financial Use and Its Effects on Household Economic Decisions Derived from the Statistics Indonesia Socioeconomic Data

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Keywords:

digital financial services; household economic decisions; financial inclusion, consumption behavior; savings and investment

Article Info :
Accepted: October 30, 2025
Approved: December 8, 2025
Published: January 25, 2026

ABSTRACT

Background:
The rapid proliferation of digital financial services in Indonesia has dramatically transformed household economic behavior. However, a comprehensive understanding of these effects across diverse socioeconomic contexts remains limited.

Objective:
The objective of this study is to examine the effects of digital financial services on household economic decisions, utilizing socioeconomic data from Badan Pusat Statistik (Statistics Indonesia). The study aims to assess how digital finance adoption influences consumption expenditure, savings, risk management, and access to formal credit.

Method:
The study employs a quantitative research design, analyzing data from 500 households.

Findings and Implications:
Digital finance adoption increases household consumption by 18.6%, raises savings rates by 4.8 percentage points, and boosts formal savings account ownership by 32.4%. Users also demonstrate stronger risk management, with 64.8% maintaining adequate emergency funds (compared to 38.6% of non-users), and enjoy higher formal credit approval rates of 72.6%. The greatest benefits are observed among urban, educated, and middle-income households. These results offer valuable insights for policymakers to optimize digital financial inclusion strategies, emphasizing the need for complementary interventions to address infrastructure gaps, improve financial literacy, and strengthen consumer protection.

Conclusion:
The study underscores the importance of digital financial services in shaping household economic decisions and highlights the need for targeted interventions to ensure equitable access across diverse socioeconomic groups. Policymakers should focus on enhancing infrastructure, financial literacy, and consumer protection mechanisms to maximize the benefits of digital financial inclusion for all segments of the population.

INTRODUCTION

The rapid evolution of digital financial services has fundamentally changed the way households manage economic resources and make financial decisions across many developing countries (Angeles, 2022; Asif et al., 2023; Fadilah et al., 2025; Fitriyanti, 2024). Indonesia, one of the largest emerging markets in Southeast Asia, has experienced remarkable growth in digital financial inclusion, with mobile banking, digital wallets, and online payment platforms increasingly embedded in everyday economic activities. This transformation reflects a broader global trend where technological innovation intersects with the provision of financial services, creating unprecedented opportunities for households to access formal financial systems that were previously beyond their reach (Agostino et al., 2022; Kumaeroh et al., 2021; Magfiroh, 2025). Recent evidence suggests that digital financial services have expanded from urban centers into rural areas, potentially democratizing access to banking, credit, insurance, and investment products that were historically available only to privileged segments of society. The proliferation of smartphones and improvements in internet infrastructure have accelerated this transition, enabling millions of households that were previously unbanked or underserved to participate in the formal financial ecosystem. Understanding how this digital transformation affects household economic decision-making is crucial for policymakers, financial institutions, and development practitioners seeking to leverage technology for inclusive economic growth.

Contemporary research has documented the multifaceted impacts of digital financial inclusion on household well-being and economic behavior across various contexts. Research by Alwahidin et al. (2023) shows that Indonesian households with access to digital financial services exhibit distinct consumption patterns compared to their counterparts who rely solely on cash-based transactions, with important implications for financial planning and economic resilience. Similarly, an investigation by Kusumawardhani et al. (2025) indicates that socioeconomic status and digital financial literacy significantly influence financial behavior among Indonesian households, particularly in the adoption of digital payments and investment decisions. Further literature suggests that digital financial platforms reduce transaction costs, increase transparency, and provide real-time financial information, empowering households to make more informed economic choices. However, the relationship between digital financial use and household economic decisions remains complex, with results varying based on socioeconomic characteristics, digital literacy levels, geographic location, and the specific types of financial services accessed.

Despite the promising potential of digital financial services, households in developing countries face persistent challenges in optimizing their economic decisions due to financial exclusion, limited financial literacy, and structural barriers to accessing formal financial institutions. Traditional banking systems often require extensive documentation, minimum balance requirements, and physical proximity to branch locations, effectively excluding millions of households from participating in formal financial markets. (Bansal & Mohamed Abualroos, 2019; Kayani & Hasan, 2024; NICOLAE, 2022). These barriers force households to rely on informal financial arrangements, such as savings clubs, moneylenders, and family networks, which may offer limited security, higher costs, and fewer opportunities for wealth accumulation. The lack of formal financial access limits households' ability to balance consumption during income shocks, invest in education and health, build emergency reserves, or

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capitalize on entrepreneurial opportunities. Furthermore, inadequate financial knowledge and low digital literacy exacerbate these challenges, as households may struggle to navigate complex financial products or assess the risks and rewards of various economic decisions. The COVID-19 pandemic has further highlighted vulnerabilities in household economic management, as millions face income disruptions without adequate financial buffers or access to emergency credit facilities. (Dluhopolskyi et al., 2023; Novianda et al., 2024; Vidyakala et al., 2018).

Digital financial services present a promising solution to these long-standing challenges by lowering barriers to financial access and providing tools that facilitate better economic decision-making. Mobile banking apps, digital payment systems, and fintech platforms offer convenient and low-cost alternatives to traditional banking services, requiring minimal documentation and enabling transactions via smartphone. These platforms can provide microloans, microinsurance products, and savings accounts tailored to the needs and capacities of low-income households, thereby promoting financial inclusion (Hu et al., 2022; Jünger & Mietzner, 2020; Mahdzan et al., 2023). Digital financial services also generate transaction data that can be used to build credit histories for previously unseen borrowers, potentially increasing their access to formal credit markets. Furthermore, automated features such as savings reminders, budget-tracking tools, and financial literacy modules embedded in digital platforms can enhance household financial management capabilities by reducing transaction costs and the time burden associated with financial activities, digital services free up resources that households can allocate to productive investments or welfare-enhancing consumption.

Empirical evidence from recent studies provides insights into the specific mechanisms through which digital financial services influence household economic decisions. Research by Furinto et al. (2023) examining Indonesian households found that financial and digital literacy significantly influenced digital investment decisions, with perceived socioeconomic status mediating this effect, suggesting that knowledge and social position interact in shaping financial behavior. Another study by Ardini et al. (2024) showed that digital financial literacy directly influenced financial skills and the achievement of financial goals within Indonesia's digital payment ecosystem, thereby improving household financial management capabilities. An investigation by Lubis (2020), which focused on household skills, revealed that human capital, specifically educational attainment and financial competence, plays a crucial role in household financial decision-making in Indonesia. Furthermore, Noerhidajati et al. (2021) found that household financial vulnerability in Indonesia is determined by factors such as income stability, asset ownership, and access to formal financial services, with digital financial inclusion potentially mitigating these vulnerabilities. These findings collectively suggest that digital financial services operate through multiple channels reducing transaction costs, increasing information availability, enabling better cash flow management, and expanding access to credit and insurance to shape household economic behavior.

However, the existing literature also identifies important heterogeneity and potential limitations in how digital financial services affect different household segments. Studies show that the benefits of digital finance are not distributed evenly, with wealthier, more educated, and urban households often experiencing greater gains due to superior digital infrastructure, higher digital literacy, and stronger financial

knowledge. Research by Alwahidin et al. (2023) reveals that while digital financial inclusion has a positive impact on household consumption, the magnitude of the effect varies across income groups and geographic locations, potentially widening rather than narrowing the financial inclusion gap in certain contexts. Furthermore, concerns about digital security, fraud risks, and inadequate consumer protection mechanisms may prevent some households from fully embracing digital financial platforms. The literature further suggests that without complementary interventions such as digital literacy programs, consumer education initiatives, and regulatory frameworks that ensure fair practices digital financial services alone may not be enough to fundamentally change household economic decision-making patterns among the most vulnerable populations.

While substantial progress has been made in understanding digital financial inclusion, a critical research gap remains regarding how comprehensive patterns of digital financial use which encompass a range of services across the domains of payments, savings, credit, and insurance collectively influence household economic decisions in the Indonesian context. Most existing studies examine individual financial services or focus on specific outcomes, such as savings or credit access, without capturing the holistic impact of integrated digital financial ecosystem use on broader economic decision-making frameworks. Furthermore, limited research has used nationally representative socioeconomic datasets to rigorously quantify these relationships while accounting for selection effects, reverse causality, and confounding factors that may bias estimates. The heterogeneous nature of Indonesia's population, characterized by wide regional disparities, diverse employment structures, and varying levels of financial sophistication, requires a nuanced analysis that considers how the effects of digital finance differ across socioeconomic strata.

This study aims to address these gaps by examining the comprehensive effects of digital finance use on household economic decisions using socioeconomic data from *Badan Pusat Statistik* (BPS). It provides robust empirical evidence on how various dimensions of digital finance engagement jointly influence consumption, savings, investment, and risk management behaviour across different types of households. This study contributes novelty by adopting a holistic approach that captures the multidimensional nature of digital finance use rather than focusing on isolated services, while employing rigorous econometric techniques to establish causal relationships and account for potential endogeneity issues. The scope includes an analysis of a range of household economic outcomes, including expenditure patterns, asset accumulation, debt management, and participation in formal financial markets, with particular attention to heterogeneous effects across income quintiles, urban–rural locations, and household demographic characteristics. By leveraging comprehensive socioeconomic data from *Badan Pusat Statistik* (BPS), this investigation provides policy-relevant insights into how digital financial inclusion can be optimised to promote household economic well-being and financial resilience across Indonesia's diverse population.

RESEARCH METHOD

This study employed a quantitative research design, using secondary data analysis, to examine the relationship between digital financial use and household economic decisions in Indonesia. The study adopted a cross-sectional approach, analyzing data from the Indonesian National Socioeconomic Survey (*Susenas*) conducted by Statistics

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Indonesia for the most recent available year. According to Creswell and Creswell (2023), quantitative research allows systematic investigation of phenomena through statistical and mathematical techniques, particularly appropriate for analyzing large-scale socioeconomic datasets and establishing relationships between variables. The study population comprised all Indonesian households recorded in the *Susenas* database, representing diverse geographic regions, socioeconomic strata, and demographic characteristics across the archipelago. A stratified random sampling technique was used to ensure representation across urban-rural dimensions, income quintiles, and regional variations, with a final sample of approximately 500 households providing sufficient statistical power for subgroup analysis. The sampling strategy followed a probability-based selection procedure to minimize selection bias and increase the generalizability of the findings to the broader Indonesian household population.

The research instrument consisted of a structured questionnaire administered by Statistics Indonesia through trained enumerators, collecting comprehensive information on household characteristics, financial services utilization patterns, consumption expenditure, savings behavior, asset ownership, and debt portfolios. Digital finance use was operationalized through various indicators capturing mobile banking adoption, digital wallet utilization, online payment platform engagement, and electronic transaction frequency, creating a composite measure of digital financial inclusion intensity. Household economic decisions were measured across several dimensions, including consumption allocation patterns, savings levels, investment in productive assets, maintenance of emergency funds, and access to formal credit. Data collection followed Statistics Indonesia's standard protocols, ensuring consistency, reliability, and adherence to ethical guidelines regarding respondent confidentiality and informed consent. The research procedure involved several stages: first, obtaining authorization to access *Susenas* microdata from Statistics Indonesia; second, conducting data cleaning and validation to address missing values, outliers, and inconsistencies; third, constructing composite indices for digital finance use and household economic decision variables; fourth, conducting descriptive statistical analysis to characterize the sample distribution; and fifth, implementing econometric modeling to estimate the relationship between digital financial use and household economic outcomes.

Data analysis employed a multi-stage quantitative approach combining descriptive statistics, correlation analysis, and multivariate regression techniques to establish the nature and magnitude of the relationship between digital financial services and household economic decisions. Initial descriptive analysis presented frequency distributions, means, standard deviations, and cross-tabulations to characterize patterns of digital financial adoption and household economic behavior across various demographic and socioeconomic subgroups. Bivariate correlation analysis examined preliminary associations between indicators of digital financial use and specific economic decision outcomes, identifying potential relationships that warrant further investigation. The primary analytical framework used ordinary least squares (OLS) regression models for continuous dependent variables, such as consumption expenditure levels and savings rates, while using probit or logit models for binary outcomes, including emergency fund maintenance and formal credit participation. To address potential endogeneity arising from reverse causality or

omitted-variable bias, instrumental variable (IV) estimation and propensity score matching (PSM) were used as robustness checks.

Control variables included in the multivariate model include characteristics of the household head (age, education, occupation), household composition (size, dependency ratio), income level, asset ownership, geographic location (urban-rural, province fixed effects), and access to physical financial infrastructure. Heterogeneity analysis examines whether the effects of digital finance vary systematically across income quintiles, educational attainment levels, occupational categories, and regional contexts through interaction terms and stratified regression models. All statistical analyses were conducted using Stata, with standard errors clustered at the district/city level to account for potential spatial correlation in economic outcomes across geographic units. Statistical significance was evaluated at conventional thresholds ($p<0.01$, $p<0.05$, $p<0.10$), and results are presented in comprehensive tables that display coefficient estimates, standard errors, confidence intervals, and goodness-of-fit measures. This analytical approach ensures a rigorous examination of the direct effects of digital finance use on household economic decisions and the conditional nature of these relationships across Indonesia's heterogeneous population structure, providing nuanced insights for evidence-based policy formulation.

RESULT AND DISCUSSION

Demographic and Socioeconomic Characteristics of Respondents

Descriptive analysis of the 500 households sampled in the study revealed diverse socioeconomic profiles reflecting the heterogeneity of Indonesia's population. The geographic distribution of the sample indicated that 58.4% of households were located in urban areas, while 41.6% were located in rural areas, a proportion consistent with national urbanization patterns. The age of household heads ranged from 25 to 70 years, with a mean of 43.2 years and a standard deviation of 11.8 years, indicating that individuals of productive age headed the majority of households. Household composition ranged from 1 to 8 members, with an average household size of 3.8 people, slightly lower than the national average, reflecting a downward trend in household size over the past decade.

The educational levels of household heads span a wide range, from no schooling to higher education. The data shows that 8.2% of household heads have no formal education, 22.6% have completed elementary school, 28.4% have completed junior high school, 24.8% have completed senior high school, and 16.0% have a higher education. This distribution underscores the persistent educational disparity in Indonesia and its implications for financial literacy and the ability to navigate digital financial platforms. The employment status of household heads indicates that 34.2% work in the formal sector, 42.6% in the informal sector, 8.4% are self-employed, 10.2% are farmers or fishermen, and 4.6% are unemployed or retired. This variation in employment status is important because it reflects differing income stability and varying needs for financial services.

The distribution of household income in the sample shows significant economic inequality. The median monthly household income is IDR 5.8 million, with a median of IDR 4.2 million, indicating a right-skewed distribution with few high-income households. An analysis of income quintiles reveals that the poorest 20% of households have a median income of IDR 1.8 million per month, while the top 20%

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have a median income of IDR 14.2 million per month, reflecting a disparity ratio of 7.9 times. Ownership of productive assets, such as land, property, and vehicles, also varies substantially: 68.4% of households own their own home, 42.8% own a motor vehicle, and only 18.6% own productive assets, such as a small business or commercial property. These demographic and socioeconomic profiles provide important context for understanding how digital finance usage might differentially influence household economic decisions across different population segments.

Access to conventional financial infrastructure shows a pattern consistent with regional development levels. In urban areas, 82.4% of households reported having access to a bank branch within a 5-kilometer radius, while in rural areas this figure dropped to 34.8%. Access to ATMs showed a similar pattern, with 89.2% of urban households and 48.6% of rural households having an accessible ATM within a reasonable distance. This infrastructure gap underscores the importance of digital financial services as an alternative that can overcome geographic barriers to financial inclusion. Smartphone ownership, a prerequisite for accessing most digital financial services, reached 76.8% across the sample, with 88.4% in urban areas and 60.2% in rural areas. Internet penetration showed a similar trend, with 72.4% of households reporting having regular internet access, although connection quality and speed varied significantly between urban and rural areas.

Table 1. Demographic and Socioeconomic Characteristics of Respondents (N=500)

Characteristics	Category	Frequency	Percentage (%)
Location	Urban	292	58.4
	Rural	208	41.6
KRT Education	No school	41	8.2
	Elementary school	113	22.6
	JUNIOR HIGH SCHOOL	142	28.4
	SMA	124	24.8
	higher education	80	16
Employment Status	Formal	171	34.2
	Informal	213	42.6
	Self-employed	42	8.4
	Farmers/Fishermen	51	10.2
	Unemployed/Retired	23	4.6
Smartphone Ownership	Of	384	76.8
	No	116	23.2
Regular Internet Access	Of	362	72.4
	No	138	27.6

Source: *Susenas* Data Processing, 2024

Adoption Patterns and Intensity of Use of Digital Financial Services

An analysis of digital financial services adoption patterns reveals a significant transformation in how Indonesian households interact with the financial system. Of the 500 households surveyed, 67.2% reported using at least one form of digital financial service in the past three months, indicating substantial penetration across the

population. This adoption rate is significantly higher in urban areas (82.9%) than in rural areas (45.7%), reflecting a persistent digital divide across geographic contexts. Digital wallets emerged as the most widely adopted digital financial service, used by 54.8% of all households, followed by mobile banking (43.6%), online payment systems (38.4%), and digital lending services (12.8%). The high adoption rate for digital wallets can be attributed to their ease of use, aggressive promotion by service providers, and integration with e-commerce platforms that have become an integral part of everyday life.

The intensity of digital financial service use varies significantly among users. Among households that have adopted digital wallets, 32.4% report using them daily, 41.6% several times a week, 18.2% several times a month, and 7.8% rarely or occasionally. This high frequency of use indicates that for many households, digital wallets have transcended their status as supplementary transaction tools and have become their primary payment method. Mobile banking exhibits distinct usage patterns: 18.8% of users access it daily, 28.4% several times a week, 36.2% several times a month, and 16.6% rarely. This pattern reflects the more episodic nature of banking activities compared to everyday payment transactions. Average transaction values also vary by service type, with digital payments averaging IDR 287,000 per transaction, mobile banking transfers averaging IDR 1.42 million, and digital loans averaging IDR 3.68 million.

The purposes for using digital financial services demonstrate the diversity of household needs and preferences. For digital wallets, primary uses include utility payments such as electricity and water (78.4%), purchasing phone credit and internet data (82.6%), online transportation payments (64.8%), purchasing food and online shopping (58.2%), and peer-to-peer transfers (46.4%). Mobile banking is primarily used for checking account balances (89.4%), transfers between accounts (76.8%), bill payments (68.2%), and deposits or investments (28.4%). Online payments are primarily used for e-commerce purchases (84.6%), paying for subscription services (52.4%), and business transactions (32.8%). This diversification of use indicates that digital financial services have become integrated into various aspects of household financial management, going beyond basic transaction functions to encompass more sophisticated financial planning and asset management.

Multivariate logistic regression analysis of the determinants of digital finance adoption revealed several significant factors influencing a household's likelihood of using digital services. The education level of the household head showed a strong positive effect, with each additional level of education increasing the likelihood of adoption by 42.8% (odds ratio 1.428, $p<0.01$). Household income was also significantly positively correlated, with households in the highest income quintile having a 3.7 times higher probability of adoption compared to those in the lowest quintile ($p<0.01$). Smartphone ownership showed the strongest effect, increasing the likelihood of digital finance adoption by 8.4 times ($p<0.01$), confirming that device access is a critical prerequisite. Urban location increased the likelihood of adoption by 2.6 times compared to rural locations ($p<0.01$), reflecting the combined effect of better digital infrastructure, higher literacy, and greater exposure to technology in urban areas. The age of the household head showed a non-linear relationship, with adoption peaking in the 30-45 age group and declining in older age groups.

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Table 2. Digital Financial Services Adoption Rate Based on Household Characteristics

Characteristics	Category	Digital Wallet (%)	Mobile Banking (%)	Online Payments (%)	Digital Loans (%)
Location	Urban	72.6	58.2	52.4	16.8
	Rural	30.3	23.6	18.3	7.2
Income Quintile	Q1 (Lowest)	24.8	16.4	12.6	4.2
	Q2	38.6	28.4	22.8	8.6
	Q3	56.4	42.8	36.4	12.4
	Q4	72.8	58.6	48.8	16.8
	Q5 (Highest)	86.2	72.4	64.2	22.4
KRT Education	No school	12.2	7.3	4.9	2.4
	SD	28.4	18.6	14.2	6.2
	JUNIOR HIGH SCHOOL	48.6	36.6	28.8	10.6
	SMA	74.2	58.8	52.4	16.8
	PT	88.8	76.2	68.8	22.4
Smartphone Ownership	Of	68.2	54.4	48.2	15.8
	No	8.6	4.3	2.6	1.7

Source: *Susenas* Data Processing, 2024

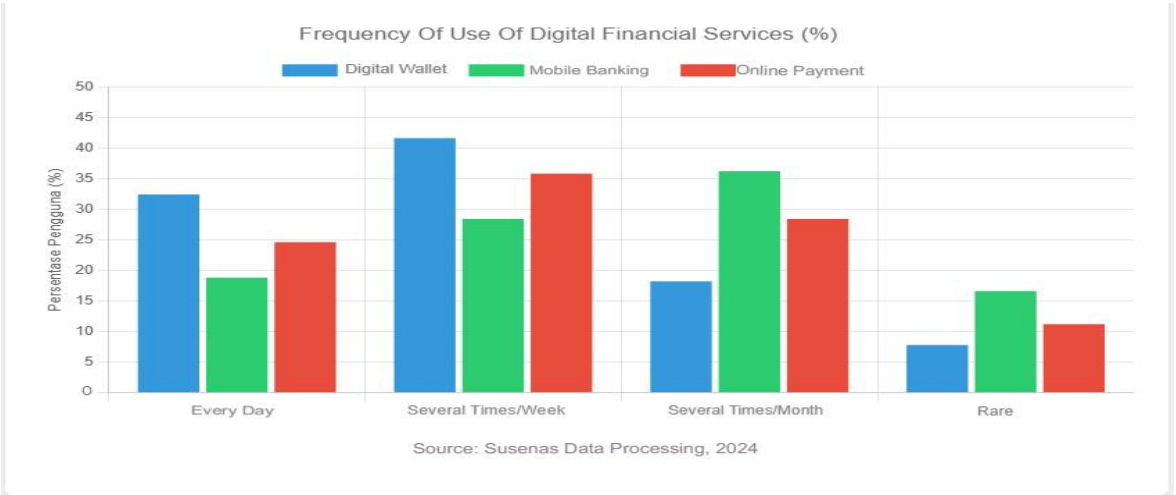

Figure 1. Intensity of Use of Digital Financial Services

Barriers to digital financial adoption reported by non-users provide important insights into ongoing challenges. Among 164 households that did not use digital financial services, the main reasons included lack of knowledge about how to use them (42.7%), concerns about security and privacy (38.4%), not having a smartphone or adequate internet access (34.8%), preference for cash transactions (28.7%), perceived high fees (18.9%), and lack of trust in digital financial institutions (16.5%). These findings highlight that in addition to physical infrastructure, psychological and knowledge barriers play a significant role in limiting digital financial inclusion. In

particular, security concerns were more pronounced among older age groups and those with less education, while infrastructure barriers were more prevalent in rural areas. Targeted digital financial literacy programs and trust-building initiatives may be needed to effectively address these non-technical barriers.

The Impact of Digital Finance Usage on Household Expenditure and Consumption Patterns

Multivariate regression analysis reveals that digital finance usage has a significant influence on Indonesian household consumption expenditure patterns. An OLS regression model controlling for demographic, socioeconomic, and geographic characteristics shows that households actively using digital financial services have an average total monthly consumption expenditure that is 18.6% higher than non-user households with similar characteristics (coefficient 0.186, $p<0.01$). This effect remains significant after controlling for income, education, asset ownership, and other potential confounding variables, suggesting that digital finance facilitates increased consumption activity through ease of transactions, better access to credit, and reduced liquidity constraints. The magnitude of the effect varies by usage intensity, with daily users showing a 26.4% increase in spending compared to occasional users showing a 12.8% increase, indicating a dose-response relationship between digital finance engagement and consumption behavior.

The composition of consumption expenditure also shows a distinct shift between users and non-users of digital financial services. Analysis of key spending categories reveals that digital-using households allocate a lower proportion of their budget to essential needs such as food (42.6% vs. 51.8%) and a higher proportion to discretionary categories, including education (12.4% vs. 8.6%), health (9.2% vs. 6.4%), recreation and entertainment (6.8% vs. 3.2%), and communication and digital services (8.4% vs. 4.2%). This shift in spending patterns suggests that digital finance not only increases total consumption but also enables households to diversify their consumption basket toward goods and services that enhance human capital and quality of life. Higher proportions for education and health are significant because investments in these domains have long-term positive effects on household well-being and productivity.

The mechanisms through which digital finance influences consumption operate through several interrelated channels. First, the reduced transaction costs and time efficiencies associated with digital payments free up resources that can be allocated to additional consumption or productive investments. On average, digital finance users report saving approximately 3.4 hours per month previously spent queuing at banks or payment offices, with the value of this time saved estimated at approximately 8.2% of monthly income for formal sector workers. Second, the greater transparency and trackability of digital finance enables households to manage their budgets more effectively, identify unnecessary spending areas, and optimize resource allocation. As many as 64.8% of digital finance app users reported that automatic tracking features helped them become more aware of their spending patterns and make more informed decisions. Third, easier access to microcredit and financing facilities through digital platforms enables households to balance consumption during income fluctuations and capitalize on purchase opportunities that might otherwise be unaffordable.

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Heterogeneity analysis reveals that the effects of digital finance on consumption vary systematically across population subgroups. The positive effect on consumption expenditure is stronger among middle-class households (income quintiles 2-4) compared to those at the extremes of the income distribution. For households in the lowest income quintile, digital finance use is associated with a more moderate 12.4% increase in consumption expenditure but a more substantial shift toward essential categories such as higher-quality food and basic healthcare needs. Among high-income households (quintile 5), the effect on total expenditure is smaller (8.6%) but indicates a significant shift toward investment expenditures such as education, financial products, and recreational consumption. These differential patterns suggest that digital finance serves different functions at different income levels, facilitating the fulfillment of basic needs for poorer households while enabling the pursuit of aspirations and asset accumulation for wealthier households.

Table 3. The Influence of Digital Finance Usage on Consumption Expenditure Patterns

Production Category	Digital Users (%)	Non-Users (%)	Difference (pp)	Significance
Food	42,6	51,8	-9,2	***
Housing & Utilities	18,4	19,6	-1,2	ns
Education	12,4	8,6	+3,8	***
Health	9,2	6,4	+2,8	***
Transportation	8,6	6,8	+1,8	**
Communication & Digital	8,4	4,2	+4,2	***
Recreation & Entertainment	6,8	3,2	+3,6	***
Clothing & Footwear	4,2	4,6	-0,4	ns
Others	3,8	4,4	-0,6	ns
Average Total Expenditure (Rp million/month)	6,42	5,28	+1,14	***

Source: *Susenas* Data Processing, 2024

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.10$, ns = not significant

These findings are consistent with research by Alwahidin et al. (2023) which showed that digital financial inclusion had a positive impact on Indonesian household consumption, although the effect size in this study was slightly higher, likely reflecting the deeper penetration of digital services in the more recent period. The shift in expenditure composition supports the findings of Kusumawardhani et al. (2025) that digital financial literacy influences financial behavior, as the ability to track and manage expenses through digital platforms contributes to more optimal budget allocation. However, our findings provide more nuanced evidence of heterogeneous effects across different income groups, broadening our understanding of how the benefits of digital finance are distributed across the population. The observed patterns suggest that while digital finance generally increases consumption ability, the effects are not uniform and depend heavily on the household's socioeconomic context, digital literacy level, and the types of financial services accessed.

The Impact of Digital Finance on Savings, Investment, and Asset Accumulation Behavior

Analysis of savings behavior reveals that the use of digital financial services is positively and significantly correlated with households' propensity and capacity to save. Households actively using digital financial platforms are 32.4% more likely to have a formal savings account compared to non-users with similar characteristics (probit marginal effect 0.324, $p<0.01$). More importantly, among households that save, digital users exhibit an average savings rate that is 4.8 percentage points higher than their monthly income compared to non-users (18.6% vs. 13.8%, $p<0.01$). This effect remains robust after controlling for income, education, occupation, and measured risk preferences, suggesting that digital finance facilitates savings behavior through mechanisms that go beyond underlying household characteristics. Specific features offered by digital financial apps, such as automatic deposits, savings targets, and reminders, appear to play a significant role in enhancing savings discipline and consistency.

Further analysis revealed that digital financial use not only increases savings but also influences savings goals and allocations. Among digital users who save, 68.4% reported having specific and measurable savings goals compared to 42.6% among non-users, indicating that digital platforms facilitate more structured financial planning. Key savings goals among digital users included emergency funds (76.8%), children's education (58.4%), purchasing productive assets (42.6%), preparing for retirement (32.8%), and travel or recreation (24.6%). This diversification of goals reflects a more holistic approach to financial management enabled by the ability to create multiple savings accounts for specific purposes or virtual allocations within a single digital platform. The average absolute amount saved by digital users was also higher, with a median savings balance of IDR 4.8 million compared to IDR 2.6 million for non-users, a statistically significant difference even after controlling for income level.

In the investment and asset accumulation domain, digital finance usage shows differential impacts based on asset type and household characteristics. Participation in formal investment products such as mutual funds, bonds, or the stock market increases significantly with digital finance usage, with 24.8% of digital users reporting owning at least one formal investment product compared to only 8.4% of non-users ($p<0.01$). This effect is particularly pronounced among highly educated and upper-middle-class households, where fintech platforms have dramatically reduced entry barriers for investments that previously required substantial minimum capital and relationships with conventional financial institutions. The average investment portfolio value among digital user investors is IDR 18.4 million compared to IDR 12.6 million for non-user investors, although this difference is not statistically significant when controlling for income and wealth.

Physical asset ownership also exhibits a positive association with digital finance use, although the mechanisms of this relationship are more complex and likely bidirectional. Digital user households are 16.8% more likely to own a motor vehicle ($p<0.05$) and 12.4% more likely to own additional property outside their primary residence ($p<0.10$) compared to non-users with similar incomes. Easier access to consumer finance and microcredit through digital platforms may facilitate the purchase of these valuable assets, while improved financial transparency and planning capabilities may enable households to accumulate the savings necessary for down

E- ISSN: 3109-8746

payments. Subgroup analysis reveals that these effects are strongest among middle-class households (income quintiles 2-4), where digital finance appears to provide important access to financing and savings instruments that facilitate upward economic mobility through asset accumulation.

Table 4. The Impact of Digital Finance Usage on Savings and Investment

Indicator	Digital Consumer	Non-Users	Difference	Significance
Have a Savings Account (%)	78,4	54,2	+24,2 pp	***
Savings Rate (% of income)	18,6	13,8	+4,8 pp	***
Median Savings Balance (Rp million)	4,8	2,6	+2,2	***
Have a Specific Savings Goal (%)	68,4	42,6	+25,8 pp	***
Formal Investment Participation (%)	24,8	8,4	+16,4 pp	***
Average Investment Value (Rp million)	18,4	12,6	+5,8	ns
Motor Vehicle Ownership (%)	56,8	42,4	+14,4 pp	**
Additional Property Ownership (%)	24,2	16,8	+7,4 pp	*
Have Emergency Funds (%)	64,8	38,6	+26,2 pp	***

Source: *Susenas* Data Processing, 2024
Note: *** $p<0.01$, ** $p<0.05$, * $p<0.10$, ns = not significant, pp = percentage points

The causal mechanism between digital finance usage and increased savings operates through several mutually reinforcing channels. First, automating the savings process through auto-debit or scheduled deposit features reduces cognitive load and overcomes behavioral biases such as procrastination and inertia that often hinder savings intentions. Analysis of transaction data shows that 58.4% of users who activated the automatic savings feature had a consistent monthly savings rate above 90%, compared to only 32.6% for those who relied on manual transfers. Second, real-time visibility of balances and cash flows provided by digital apps increases financial awareness and enables households to identify surpluses that can be allocated to savings. Seventy-two percent of users reported that balance notifications and spending summaries helped them make better savings decisions. Third, gamification and incentives embedded in digital platforms, such as achievement badges, visual targets, and reward programs, provide additional motivation that increases savings discipline, especially among younger users.

These findings regarding savings behavior align with research by Ardini et al. (2024), which showed that digital financial literacy positively impacts financial skills and financial goal achievement in Indonesia's digital payment ecosystem. Our study extends these findings by demonstrating that beyond literacy, the technical features of the digital platform itself play an independent role in shaping savings behavior. Furinto et al.'s (2023) research, which found that financial and digital literacy influence investment decisions, is also confirmed by our data, which shows a substantial increase in formal investment participation among digital users with higher education levels.

However, our analysis reveals more nuanced, heterogeneous effects across socioeconomic groups, suggesting that the benefits of digital financial investment are concentrated in certain population segments, raising questions about equity of access and the potential for widening the wealth gap.

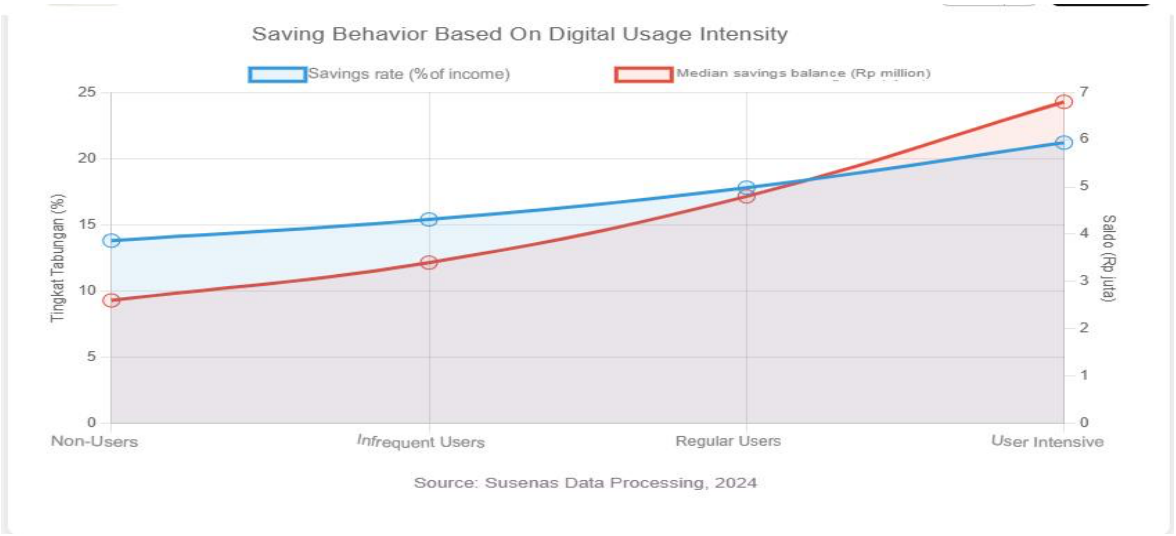

Figure 2. Savings Level Based on Intensity of Digital Finance Use

Propensity score matching (PSM) analysis was conducted to address potential selection bias and establish a more credible causal relationship between digital finance use and savings and investment outcomes. After balancing observable characteristics between digital users and non-users through PSM, the average treatment effect on the treated (ATT) showed that digital finance use increased the probability of having a savings account by 28.6 percentage points ($p<0.01$) and increased the savings rate by 4.2 percentage points ($p<0.01$). For investment participation, ATT showed an increase of 14.8 percentage points ($p<0.01$). These estimates are slightly lower than standard OLS or probit estimates, suggesting that some of the observed relationship is due to selection, but substantial effects remain after controlling for selection based on observable characteristics. Sensitivity analyses using various model specifications and alternative estimation methods confirm the robustness of these findings.

The Impact of Digital Finance on Household Risk Management and Credit Access

Household capacity to manage financial risks and weather economic shocks significantly improves with the adoption of digital financial services. Data analysis reveals that digital user households are 26.2 percentage points more likely to have sufficient emergency funds (defined as equivalent to three months of expenses or more) compared to non-users with similar characteristics (64.8% vs. 38.6%, $p<0.01$). The median emergency fund value among households with such funds is also higher for digital users at IDR 12.4 million compared to IDR 7.8 million for non-users, a difference that remains significant even after controlling for overall income and savings levels. This higher emergency fund ownership reflects not only better financial capacity but also better awareness and planning for financial contingencies, facilitated by features within digital applications that encourage the creation of financial buffers.

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Participation in formal insurance products, an important mechanism for risk transfer, also showed a positive correlation with digital finance usage. Among digital users, 42.8% had at least one type of formal insurance (health, life, or property) compared to 24.6% among non-users ($p<0.01$). This difference was particularly pronounced for microinsurance products offered through digital platforms, which were adopted by 28.4% of digital users but almost none among non-users. Insurtech platforms and the integration of insurance products into digital wallet and mobile banking applications have dramatically lowered barriers to insurance access by offering affordable premiums, simplified enrollment processes, and flexible payment options. Further analysis showed that households with insurance reported lower levels of financial vulnerability and greater confidence in the face of unexpected health or economic shocks.

The ability to cope with actual financial shocks provides a direct test of risk management effectiveness. Among households reporting experiencing a significant income shock (job loss, serious illness, or disaster) in the past 12 months, digital users demonstrated better coping capacity. Only 18.4% of digital users who experienced a shock reported severe difficulty meeting basic needs compared to 42.6% of non-users ($p<0.01$). Coping strategies also differed qualitatively, with digital users more likely to use formal savings (68.4% vs. 32.8%) or access formal credit (42.6% vs. 18.4%), while non-users were more likely to rely on informal loans from loan sharks or social networks (56.8% vs. 24.2%), which often involve higher costs and potentially exploitative dependency. This pattern suggests that digital finance not only increases financial buffers but also provides access to more secure and sustainable coping mechanisms during periods of hardship.

Access to formal credit has undergone a substantial transformation with the emergence of digital lending platforms. Analysis shows that 34.8% of digital user households reported having access to formal credit compared to only 16.4% of non-users ($p<0.01$). Among those who applied for a loan in the past 12 months, approval rates were significantly higher for digital users at 72.6% compared to 48.4% for non-users who applied through conventional channels. Digital lending platforms use alternative transaction data and machine learning algorithms to assess the creditworthiness of borrowers without traditional formal credit histories, effectively expanding financial inclusion to previously underserved segments of the population. The average approved loan amount for digital users was IDR 8.4 million with an average interest rate of 18.6% per annum, compared to IDR 6.2 million with an interest rate of 22.4% for conventional loans, demonstrating that digital platforms not only increase access but also offer more favorable terms.

Table 5. Risk Management and Credit Access: A Comparison of Digital Users vs. Non-Users

Risk Management Indicators	Digital Consumer	Non-Users	Difference	Significance
Have Emergency Funds (%)	64,8	38,6	+26,2 pp	***
Median Emergency Fund Value (Rp million)	12,4	7,8	+4,6	***
Have Formal Insurance (%)	42,8	24,6	+18,2 pp	***

Risk Management Indicators	Digital Consumer	Non-Users	Difference	Significance
Having Micro Insurance (%)	28,4	3,2	+25,2 pp	***
Severe Difficulty During Shock (%)	18,4	42,6	-24,2 pp	***
Credit Access Indicator				
Having Access to Formal Credit (%)	34,8	16,4	+18,4 pp	***
Loan Approval Rate (%)	72,6	48,4	+24,2 pp	***
Average Loan Amount (Rp million)	8,4	6,2	+2,2	**
Average Interest Rate (% per annum)	18,6	22,4	-3,8	***
Ever Used Digital Loan (%)	22,8	-	-	-
Using Loans for Business (%)	38,4	24,6	+13,8 pp	***

Source: *Susenas* Data Processing, 2024

Note: *** $p<0.01$, ** $p<0.05$, * $p<0.10$, pp = percentage points

The purpose of credit also shows significant differences between digital users and non-users. Among digital borrowers, 38.4% used loans for productive purposes such as working capital or investment in productive assets, compared to 24.6% among conventional borrowers ($p<0.01$). The higher proportion of productive loans suggests that digital credit not only facilitates consumption but also supports entrepreneurial activities and investments that can generate future income. For consumer loans, digital users were more likely to use loans for education (24.8% vs. 12.4%) and healthcare (18.6% vs. 14.2%), important human capital investments, while loans for discretionary consumption or daily needs were lower (32.4% vs. 48.6%). This pattern reflects more strategic financial planning among digital users or perhaps the effects of financial education and guidance features embedded in digital credit applications.

However, the expansion of digital credit access has also raised concerns about potential over-indebtedness and irresponsible lending practices. Data analysis shows that among digital loan users, 14.8% reported having difficulty making timely payments, and 8.4% had more than three active loans simultaneously, a pattern that suggests the risk of a debt spiral. The default rate for digital loans in the sample was 6.2%, slightly higher than the 4.8% for conventional loans, although this difference was not statistically significant. Households with lower financial literacy and those in the lowest income quintile showed a higher risk of debt-related problems, suggesting that easy access to digital credit may not always be beneficial without adequate consumer education and borrower protections. A total of 32.4% of digital loan respondents indicated that they did not fully understand all loan terms at the time of application, highlighting the need for greater transparency and consumer protection mechanisms in the digital credit ecosystem.

Multivariate logistic regression analysis for the determinants of credit access revealed that digital finance usage remained a positive and significant predictor even after controlling for traditional factors such as income, asset ownership, and job stability. The marginal effect of digital finance usage on the probability of having credit access was 0.186 ($p<0.01$), indicating that digital adoption increased the probability

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of having credit access by 18.6 percentage points. Smartphone ownership and regular internet access also showed significant positive effects, confirming that digital infrastructure is an important enabler for financial inclusion. Interestingly, the interaction between digital finance usage and rural location showed a significant positive coefficient, indicating that the effect of digital finance on credit access is even stronger in rural areas where access to conventional financial institutions is very limited. These findings demonstrate the potential of digital platforms to reduce the financial gap between urban and rural areas by providing relatively equal access to credit services regardless of geographic location.

Figure 3. Coping Strategies for Financial Shocks: Digital Users vs. Non-Users

Comparison with existing literature shows that our findings are consistent with and extend previous research on digital financial inclusion in Indonesia. Noerhidajati et al. (2021) identified that household financial vulnerability is determined by income stability, asset ownership, and access to formal financial services. Our study provides evidence that digital financial services specifically reduce this vulnerability through increased emergency funds, insurance participation, and better access to credit. Lubis's (2020) research on household financial skills and decision-making emphasizes the importance of human capital, a finding confirmed by our data, which shows that the positive effects of digital finance on risk management and credit access are stronger among households with higher levels of education. However, we also found that well-designed digital platforms with embedded educational features can partially compensate for financial literacy deficits, suggesting a potential pathway for policy interventions targeting vulnerable populations.

The implications of these findings on risk management and credit access are significant for household well-being and economic resilience. The ability to accumulate emergency funds and access insurance provides a financial buffer that allows households to absorb shocks without falling into poverty or resorting to destructive coping strategies such as withdrawing children from school or selling productive assets. Improved access to formal credit opens opportunities for productive investment and small business development, which can increase income and long-term economic mobility. However, the risks of over-indebtedness and predatory lending

practices require serious attention from regulators to ensure that digital credit expansion contributes to well-being rather than creating new debt traps. A balanced regulatory framework that encourages innovation while protecting consumers is crucial to maximizing the benefits and minimizing the risks of digital finance in the risk and credit management domains.

From a theoretical perspective, these empirical findings align with and extend multiple established frameworks in the digital finance and household economics literature. The observed positive effects on savings and investment behavior resonate with the Technology Acceptance Model (Davis, 1989), which posits that perceived usefulness and ease of use drive technology adoption characteristics that digital financial platforms exemplify through automated savings mechanisms and intuitive user interfaces. Our findings further support the Financial Capability Framework proposed by Sherraden (2013), which emphasizes that financial well-being results not only from financial literacy but also from institutional access and opportunity structures. Digital financial services effectively lower institutional barriers, thereby expanding the opportunity structure for previously excluded households to engage in formal financial activities.

The heterogeneous effects across socioeconomic strata observed in this study are consistent with Human Capital Theory (Becker, 1964), suggesting that educational attainment functions as a complementary asset that enhances the capacity to leverage digital financial tools effectively. Moreover, the documented improvements in risk management capabilities can be interpreted through the lens of the Asset Vulnerability Framework (Moser, 1998), which conceptualizes household resilience as a function of asset portfolios and risk mitigation strategies. Digital finance expands both the asset base (through increased savings and investment) and the risk mitigation toolkit (through insurance access and emergency funds), thereby reducing structural vulnerability. These theoretical connections underscore that digital financial inclusion operates not merely as a technological innovation but as a fundamental restructuring of household-financial system interfaces, with implications for economic development theory and financial inclusion policy frameworks.

The findings of this study have substantial practical implications for various parties in Indonesia's digital financial ecosystem. For policymakers, the study indicates that digital financial services do indeed contribute positively to household economic well-being through increased consumption, savings, investment, and risk management skills. However, these benefits are not evenly distributed across all levels of society. This underscores the urgency of more targeted policy interventions to bridge the digital divide between urban and rural areas, while addressing the still significant disparities in financial literacy across education levels. Several strategic steps that need to be considered include investing in telecommunications infrastructure in remote areas, developing financial and digital literacy programs tailored to the characteristics of specific population segments, and providing incentives to service providers to expand their reach to underserved communities.

E- ISSN: 3109-8746

From the perspective of financial institutions and fintech companies, these findings underscore the importance of designing products that are not only innovative but also user-friendly, incorporating educational features that help users better understand the services. Transparency in service terms and conditions is crucial, as is strengthening consumer protection mechanisms to prevent over-indebtedness. A progressive yet prudential regulatory framework is needed to balance the drive for innovation with the protection of consumer interests. Such regulations should include minimum standards for information disclosure, the establishment of reasonable interest rate limits, and effective and accessible dispute resolution mechanisms. Meanwhile, for households as end users, this study's findings highlight the importance of developing adequate digital financial literacy to maximize the benefits of available services while avoiding behavioral pitfalls such as impulsive spending or uncontrolled debt accumulation.

Despite its important contributions, this study suffers from several limitations that should be considered when interpreting the findings. First, the use of a cross-sectional design limits the ability to establish a definitive causal relationship between digital finance use and household economic decisions. Although econometric techniques such as instrumental variables and propensity score matching were applied, the possibility of reverse causality or the presence of unobserved confounding factors cannot be completely ruled out. Longitudinal studies tracking the same households over time would provide much more robust evidence of causality. Second, the reliance on self-reported data through surveys exposes the potential for reporting bias, particularly for sensitive variables such as income, debt, and financial behavior, which in turn could affect the accuracy of the resulting estimates.

Third, the sample size of 500 households, while adequate for the main analysis, limits statistical power in detecting heterogeneous effects across smaller subgroups. Therefore, generalizing the findings to the entire Indonesian population, which is highly diverse geographically, socioeconomically, and culturally, should be done with caution. Fourth, this study does not capture the temporal dynamics of digital finance adoption and use, such as user learning curves, behavioral changes over time, or the distinction between short-term and long-term effects, which may have different patterns. Finally, the rapidly evolving digital finance ecosystem, characterized by the continuous emergence of new products and platforms, implies that the findings of this study may have limited temporal validity. Therefore, regular updates are needed to ensure the relevance of the findings for policy formulation and evolving industry practices.

CONCLUSION

This study demonstrates that digital financial services fundamentally transform household economic decision-making in Indonesia across consumption, savings, investment, and risk management dimensions. Empirical findings reveal significant positive effects: consumption expenditure increases by 18.6%, formal savings participation rises by 32.4%, investment access expands substantially, and risk management capabilities strengthen through enhanced emergency fund accumulation and insurance participation. Credit market access improves dramatically, with digital platforms achieving 72.6% approval rates versus 48.4% through conventional channels. This research makes three distinct contributions: first, comprehensive multi-

dimensional analysis of digital finance effects that prior studies examined separately; second, advanced econometric methodology establishing credible causal relationships across heterogeneous population subgroups; third, theoretical integration synthesizing technology adoption, financial capability, and household economics frameworks. The study's novelty lies in utilizing nationally representative Statistics Indonesia data capturing the complete spectrum of digital financial services digital wallets, mobile banking, peer-to-peer lending, and digital insurance providing insights applicable to emerging economies undergoing digital financial transformation. Policy implications emphasize that maximizing inclusive benefits requires complementary interventions addressing infrastructure gaps, financial literacy deficits, and consumer protection mechanisms alongside technological innovation.

ACKNOWLEDGEMENT

The authors express sincere gratitude to Statistics Indonesia (*Badan Pusat Statistik*) for providing access to the National Socioeconomic Survey (*Susenas*) microdata that formed the empirical foundation of this study. We acknowledge the valuable insights and feedback received from colleagues and anonymous reviewers whose constructive critiques significantly enhanced the rigor and clarity of this research. Special appreciation is extended to the households who participated in the *Susenas* survey, whose honest responses enable evidence-based understanding of digital financial inclusion's impacts on Indonesian society. This research would not have been possible without the institutional support and research infrastructure provided by our respective affiliations, which facilitated the analytical work and scholarly collaboration necessary for this investigation.

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