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Financial literacy in Indonesia's remote provinces: Evidence from a two-wave panel of 11 provinces in 2016-2022

Rifqi Aqil Asyrof

Faculty of Economics and Business, Universitas Brawijaya, Jl. MT. Haryono No.165, Ketawanggede, Kec. Lowokwaru, Kota Malang, Jawa Timur 65300, Indonesia
email: rifqiaqilasyrof@student.ub.ac.id

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ABSTRACT

Financial literacy is increasingly treated as a developmental capability; however, its subnational distribution remains uneven in large archipelagic countries. This study examines financial literacy in Indonesia's remote and outer-island contexts using a balanced two-wave panel of 11 provinces observed in 2016 and 2022. The study focuses on provinces with substantial remote-area, archipelagic, frontier, and/or underdeveloped-district characteristics: Nusa Tenggara Barat, Nusa Tenggara Timur, Kalimantan Barat, Kalimantan Tengah, Kalimantan Utara, Sulawesi Tenggara, Sulawesi Barat, Maluku, Maluku Utara, Papua Barat, and Papua. Publicly reported provincial indicators from the Otoritas Jasa Keuangan (OJK) National Survey of Financial Literacy and Inclusion are used to construct province-year measures of financial literacy, financial inclusion, and the inclusion-literacy gap. The results show that the mean financial literacy index increased from 25.55% in 2016 to 48.08% in 2022, while the mean financial inclusion index rose from 63.01% to 81.61%. The average inclusion-literacy gap narrowed from 37.45 to 33.53 pp, but the aggregate trend masked sharp heterogeneity. Nusa Tenggara Barat, Papua Barat, and Kalimantan Utara recorded large literacy catch-up, whereas Sulawesi Tenggara and Kalimantan Tengah displayed widening gaps, suggesting that formal access may have expanded faster than user capability. Panel regressions indicate a strong positive level association between inclusion and literacy, but first-difference estimates are not statistically significant, underscoring the need for caution in the causal interpretation. The study concludes that remote-area financial-literacy policy should move beyond access expansion toward capability, trust, digital safety, local-language delivery, and province-specific segmentation.

Keywords: financial literacy; financial inclusion; Indonesia; remote areas; panel data; Otoritas Jasa Keuangan; SNLIK

1. INTRODUCTION

Financial literacy has moved from a narrow consumer education topic to a central concern for inclusive development, household resilience, and responsible financial market participation. In the contemporary financial system, households are expected to make decisions about savings, credit, insurance, digital payments, retirement, and risk protection while facing increasingly complex and digitally mediated products. A person may hold a bank account or mobile wallet and still lack the knowledge, confidence, and behavioral discipline required to choose products, avoid fraud, calculate costs, or use formal finance to improve welfare. This distinction matters for Indonesia, where the policy agenda has successfully expanded formal access but continues to face uneven capabilities across space, income, education, gender, and digital connectivity. In this study, financial literacy is understood not merely as financial information but as a multidimensional capability that combines knowledge, skills, confidence, attitudes, and behaviors needed for sound financial decisions and financial well-being (Atkinson & Messy, 2012; Huston, 2010; Lusardi & Mitchell, 2014; Organisation for Economic Co-operation and Development, 2023).

Indonesia offers a particularly important setting for studying financial literacy geography. It is the world's largest archipelagic state, with financial service delivery shaped by islands, mountains, coastlines, border areas, population dispersion, and uneven infrastructure. Therefore, national aggregates can conceal the specific constraints experienced by households in remote districts and outer islands. The policy category of disadvantaged regions in Presidential Regulation No. 63 of 2020 is based on criteria such as community economy, human resources, facilities and infrastructure, local fiscal capacity, accessibility, and regional characteristics (Repulik Indonesia, 2020). These criteria point to the mechanisms through which remoteness can weaken financial capability: schools and training providers are harder to reach, bank branches and agents may be thinly distributed, internet reliability may be uneven, and households may rely heavily on informal financial arrangements in remote areas. Therefore, a remote-area lens is not a geographic footnote; it is a central condition shaping how financial knowledge is acquired, trusted, and translated into behavior.

The Indonesian government and financial regulators have placed financial literacy and inclusion on the national policy agenda for more than a decade. The Otoritas Jasa Keuangan (OJK) conducts the National Survey of Financial Literacy and Inclusion (SNLIK) and has documented substantial improvements in national financial literacy and inclusion over successive waves. The 2016 SNLIK indicated that national financial literacy was still below one-third of the adult population, while later waves recorded significant gains (Otoritas Jasa Keuangan, 2017; Otoritas Jasa Keuangan, 2020; Otoritas Jasa Keuangan, 2022). The 2022 booklet reports a national financial literacy of 49.68% and financial inclusion of 85.10%, a large increase relative to the 2016 wave (Otoritas Jasa Keuangan, 2022). These figures signal progress, but they also show a persistent gap between access and capability. Formal usage can spread faster than consumer understanding, especially when digital channels reduce transaction costs while exposing new users to fees, scams, impulsive borrowing, privacy risks, and misleading offers.

The existing literature suggests that financial literacy is associated with consequential economic outcomes. Studies on household finance link literacy to retirement planning, stock market participation, debt decisions, and resilience during shocks (Klapper et al., 2013; Lusardi & Mitchell, 2014; van Rooij et al., 2011). Development-oriented studies show that access to formal finance can support poverty reduction and risk management, but that its usage depends on affordability, trust, product design, and financial capability (Allen et al., 2016; Beck et al., 2007; Cole et al., 2011; Demirgüç-Kunt et al., 2022). Evidence from financial-education experiments and meta-analyses further indicates that well-designed interventions can improve financial knowledge and some downstream behaviors, although the effect sizes depend on delivery, timing, intensity, and target population (Carpena et al., 2019; Fernandes et al., 2014; Kaiser & Menkhoff, 2017; Kaiser et al., 2022). This implies that financial literacy in remote areas should not be limited to one-off seminars or ceremonial campaigns. It requires a delivery architecture capable of reaching people repeatedly in a locally meaningful language near the moment of financial decision.

Despite national progress and a growing body of literature, three research gaps remain. First, Indonesian financial literacy debates are often framed through national averages, urban-rural contrasts, or general inclusion targets. Less attention has been given to how literacy and inclusion co-evolve across remote and outer-island provinces. Second, inclusion and literacy are frequently discussed together, but the gap between them is underutilized as a diagnostic indicator. A province can show high account ownership and usage while still recording low capability, which raises consumer protection concerns. Third, much of the evidence available to policymakers is cross-sectional data. A simple panel, even with limited waves, can help identify whether provinces are converging, diverging, or following qualitatively different pathways in their economic growth.

This study addresses these gaps by constructing a balanced province-year panel from publicly available OJK SNLIK indicators for 11 Indonesian provinces with substantial remote-area, archipelagic, frontier, and/or underdeveloped district characteristics. The panel covers 2016 and 2022 and includes three key variables: the financial literacy index, financial inclusion index, and inclusion-literacy gap. This study addresses three research questions. First, how did financial literacy and financial inclusion change between 2016 and 2022 in the selected provinces? Second, how large and heterogeneous is the gap between inclusion and digital literacy? Third, is the province-year association between inclusion and literacy consistent with the idea that access and capability rise together, or does the evidence suggest a more uneven relationship?

This study makes three contributions. Empirically, it provides a transparent province-level panel focused on remote and outer-island provinces rather than the national average. Methodologically, it treats the inclusion-literacy gap as an interpretable policy signal rather than a residual statistic. Practically, it develops province segmentation that can help regulators, banks, fintech firms, schools, cooperatives, and local governments tailor interventions to different trajectories. This study does not claim to estimate individual-level causal effects, nor does it imply that all districts in each selected province are officially remote or disadvantaged. Instead, it uses provincial public data to illuminate subnational patterns relevant to remote-area policy design.

2. CONCEPTUAL ORIENTATION AND RESEARCH EXPECTATIONS

A useful conceptual starting point is to separate financial access, capability, and well-being. Access refers to the availability and use of formal products and their delivery channels. Capability refers to a user's ability to understand, evaluate, and act on financial information. Well-being refers to a household's capacity to meet obligations, absorb shocks, pursue opportunities, and avoid harmful financial stress. These dimensions are connected but not identical. A household may be included through a government transfer account but remains unable to compare credit offers. Another household may understand basic saving and budgeting but remain excluded because distance, documentation, fees, or distrust prevents formal use. For remote areas, this separation is especially important because infrastructure and capability constraints often interact with each other.

From a human capital perspective, financial literacy can be understood as an investment that improves the quality of household financial decisions (Lusardi & Mitchell, 2014). From a market-participation perspective, literacy helps consumers interpret prices, risks, contracts, and obligations, increasing the likelihood that formal finance is used productively rather than passively. From a consumer protection perspective, literacy is a defense against unsuitable products, deceptive marketing, fraud, and over-indebtedness. These perspectives converge on a practical point: policy should not treat financial literacy as a soft complement to inclusion but as part of the infrastructure for inclusive finance. Without sufficient capability, expanded access can create new vulnerabilities in the system.

The inclusion-literacy gap used in this study translates this conceptual distinction into a measurable indicator. A high positive gap indicates that the measured use of financial services exceeds the measured capability. The gap is not inherently bad; early access can create learning opportunities and may be necessary before households can develop their experience. However, a large and persistent gap is a warning sign of a potential problem. This suggests that product diffusion, channel expansion, or administrative

inclusion may be moving faster than consumers' ability to understand costs, rights, and risks. In remote areas, this warning is amplified because consumers may have fewer alternatives, less access to advice, and a weaker ability to resolve disputes.

The Indonesian policy environment also makes this gap relevant to the study. The national financial literacy strategy emphasizes collaboration among regulators, financial institutions, ministries, regional governments, education providers, and community organizations (Otoritas Jasa Keuangan, 2021). Such collaboration is necessary because financial literacy is not produced by a single institution. Schools can teach foundational numeracy and planning, banks can support product understanding, fintech firms can design safer user interfaces, local governments can coordinate village-level outreach, universities can evaluate interventions, and regulators can enforce transparency and market conduct. The remote-area challenge is to align these actors around local needs rather than deliver standardized messages that may be designed for urban consumers.

Therefore, this study begins with three research expectations. First, financial literacy and inclusion are expected to have increased between 2016 and 2022 because the national trend shows broad progress and digital and branchless channels have expanded across Indonesia. Second, the inclusion-literacy gap is expected to vary across provinces because remote-area constraints differ by island geography, urban concentration, local institutions, and economic structure. Third, the association between inclusion and literacy is expected to be positive in terms of levels but weaker in terms of changes because the drivers of access expansion are not identical to the drivers of capability building. These expectations guide the descriptive and panel analyses that follow.

3. METHOD

This study uses a quantitative descriptive and associational design based on a balanced two-wave provincial panel survey. The unit of analysis is province-year. The panel contains 22 observations: 11 provinces were observed in 2016 and 2022. The design is intentionally transparent and replicable because it uses publicly reported provincial SNLIK indicators rather than confidential microdata. The panel is suitable for documenting changes, comparing trajectories, and estimating simple associations. It is not suitable for strong causal inference because the number of provinces is small, the number of waves is limited, and many potential covariates, such as household income, school attainment, branch density, agent coverage, Internet quality, gender composition, occupation structure, and local financial-education intensity, are not observed at the same public province-year level.

The study setting is Indonesia's remote and outer-island financial literacy landscape. The sample includes Nusa Tenggara Barat, Nusa Tenggara Timur, Kalimantan Barat, Kalimantan Tengah, Kalimantan Utara, Sulawesi Tenggara, Sulawesi Barat, Maluku, Maluku Utara, Papua Barat, and Papua. These provinces were selected because they represent substantial remote areas, islands, frontiers, or disadvantaged-district challenges in the Indonesian development context. Several include districts identified in the national disadvantaged-region policy, while others include border, island, or low-density characteristics that affect service delivery. Therefore, the selection was purposive and policy-oriented rather than statistically random. The term remote provinces in this study should be read as a shorthand for provinces with significant remote-area characteristics, not as a legal claim that every district in the province is remote or disadvantaged.

The core data source is the OJK National Survey on Financial Literacy and Inclusion. The 2016 provincial literacy and inclusion indicators are taken from the OJK 2016 SNLIK press-conference presentation, and the 2022 provincial indicators are taken from the OJK 2022 SNLIK booklet (Otoritas Jasa Keuangan, 2017; Otoritas Jasa Keuangan, 2022). The 2019 SNLIK is used only in the national context because the manuscript's balanced panel is based on the publicly available 2016 and 2022 provincial values used here. The OJK reports that SNLIK measures financial literacy using elements of knowledge, skills, confidence, attitudes, and behaviors, while financial inclusion reflects the use of financial products and services. The 2022 SNLIK covered respondents across 34 provinces and used a direct interview method, providing a national and provincial map of literacy and inclusion (Otoritas Jasa Keuangan, 2022). OJK's

annual report also describes the 2022 survey as covering 34 provinces and using a methodology comparable to prior survey waves (Otoritas Jasa Keuangan, 2023).

Table 1 defines the variables and their operational use in this study. The dependent variable in the regression models is the provincial financial literacy index, which is expressed as a percentage. The central explanatory variable is the financial inclusion index, which is also expressed as a percentage. The inclusion-literacy gap is calculated as the financial inclusion index minus the financial literacy index. A positive gap means that formal access or use is higher than the measured capability. The gap is interpreted as a diagnostic indicator: a large gap does not mean that access is undesirable, but it does suggest that consumer capability, product understanding, and responsible-use support may lag behind formal inclusion.

Table 1. Study Constructs, Operational Definitions, and Data Sources

Construct	Operational measure	Use in analysis	Source
Financial literacy	OJK provincial financial literacy index (%)	Outcome variable and main indicator of financial capability	SNLIK 2016 and SNLIK 2022
Financial inclusion	OJK provincial financial inclusion index (%)	Central explanatory indicator and access/use measure	SNLIK 2016 and SNLIK 2022
Inclusion-literacy gap	Financial inclusion index minus financial literacy index	Diagnostic indicator of whether access/use exceeds measured capability	Calculated by author from OJK indices
Remote-area provincial sample	11 provinces with substantial remote-area, archipelagic, frontier, and/or disadvantaged-district characteristics	Policy-oriented sample for subnational analysis	Republik Indonesia (2020) and study scope
Panel structure	Province-year observations for 2016 and 2022	Balanced two-wave panel, N = 22	Constructed from public OJK provincial values

Note:
SNLIK = Survei Nasional Literasi dan Inklusi Keuangan. The remote-area sample is purposive and province-level; it does not imply that every district in each province is officially classified as being disadvantaged or remote.

The empirical analysis was conducted in four steps. First, the panel dataset is presented in full to allow the auditability of all province-year values. Second, descriptive statistics were calculated by year and overall to show the magnitude of change. Third, provincial changes were decomposed into literacy, inclusion, and gap changes. Fourth, simple panel regressions estimate the relationship between financial inclusion and literacy. The models are deliberately parsimonious because a heavily parameterized model would not be credible with only 22 observations.

The baseline pooled model is presented in Equation 1.

$$\text{Literacy\_it} = \alpha + \beta\ \text{Inclusion\_it} + \text{error\_it}.$$

In Equation 1, Literacy_it is the OJK financial literacy index for province i in year t, and Inclusion_it is the OJK financial inclusion index. The second pooled model adds a 2022 dummy variable to account for common time-period effects:

$$\text{Literacy\_it} = \alpha + \beta\ \text{Inclusion\_it} + \gamma\ \text{Post2022\_t} + \text{error\_it}.$$

The third specification uses province fixed effects by demeaning literacy and inclusion within the province. This model asks whether within-province deviations in inclusion are associated with within-province deviations in the literacy rate. With only two waves, this specification is closely related to first-

difference logic, but it is reported because it is a familiar panel data representation. The final specification is an explicit first-difference model.

$$\text{Delta Literacy}_i = \alpha + \beta \text{ Delta Inclusion}_i + \text{error}_i.$$

All regression models used heteroskedasticity-robust HC3 standard errors. HC3 is used because small samples are vulnerable to such influential observations. The reported results should be interpreted as exploratory evidence of association and change, not as causal estimates. Endogeneity is plausible: provinces with stronger schools, digital infrastructure, government capacity, social trust, or local economic opportunities may improve both inclusion and digital literacy. Conversely, higher literacy levels may encourage formal product use. Without exogenous variation or micro-level controls, the models cannot isolate the direction of causality.

This study follows a secondary data research design. It uses aggregate public indicators and does not involve personal data, respondent identifiers, or human subject data collection. The main limitation of reproducibility is that OJK public materials report aggregate indices rather than full microdata. To reduce ambiguity, the fully reconstructed panel is displayed in the body of the paper, and all derived variables are calculated from the displayed values.

The decision to use 2016 and 2022 rather than forcing a three-wave panel requires an explanation. A high-quality panel should prioritize comparability and transparency over artificial completeness of the data. The OJK has reported national results for 2019, which are important for understanding the national trajectory. However, the present study used publicly available provincial values from the 2016 and 2022 materials that could be consistently reconstructed for the 11 selected provinces. Adding a wave without the same transparent provincial reconstruction creates a false appearance of precision. Therefore, the two-wave design is a conservative choice. It sacrifices temporal density but preserves the ability of readers to verify every province-year observation, as shown in Table 2.

The selected provinces also require methodological caution to be exercised. Province boundaries are large administrative units, and many provinces contain both relatively urbanized centers and highly remote districts within them. Therefore, a provincial literacy index is an average across heterogeneous localities. For example, an island province may contain a provincial capital with banks, schools, and internet connectivity, alongside villages that are reachable only by boat. A Papua-region province may include urban centers and remote highland communities with very different access conditions to healthcare. Consequently, the empirical claims in this study are province-level claims. They should motivate more granular district- and household-level research rather than substitute for it.

The analysis treats the inclusion literacy gap as a practical policy metric rather than a theoretical causal variable. It was calculated because policymakers need a simple way to identify where access expansion may require stronger consumer capability support. In a province with high inclusion and low literacy, the priority may be digital safety, product disclosure, fraud prevention, and knowledge of complaints. In a province with improving literacy but limited inclusion, the priority may be agent distribution, product fit, documentation, and affordability. In provinces where both literacy and inclusion are low, foundational education and basic access may need to be developed together. This diagnostic use is consistent with the aim of applied business and public policy research: to organize imperfect data into decision-relevant categories without overstating statistical certainty.

4. RESULTS AND DISCUSSION

4.1. Results

Table 2 presents the balanced panel dataset used in this study. Two features were immediately visible. First, financial literacy was low across all selected provinces in 2016, ranging from 19.27% in Papua Barat to 30.55% in Kalimantan Barat. Second, financial inclusion was already much higher than literacy in 2016, ranging from 58.55% in Papua Barat to 66.91% in Sulawesi. This initial condition is important because it shows that the access capability gap was already present before the major expansion observed by 2022.

Table 2. Balanced Panel Dataset for 11 Remote and Outer-Island Provinces

Province	Year	Financial literacy index (%)	Financial inclusion index (%)	Inclusion-literacy gap
Nusa Tenggara Barat	2016	21.45	63.27	41.82
Nusa Tenggara Barat	2022	65.45	82.34	16.89
Nusa Tenggara Timur	2016	28.00	62.18	34.18
Nusa Tenggara Timur	2022	51.95	85.97	34.02
Kalimantan Barat	2016	30.55	65.45	34.90
Kalimantan Barat	2022	51.95	84.16	32.21
Kalimantan Tengah	2016	26.18	60.36	34.18
Kalimantan Tengah	2022	32.73	81.30	48.57
Kalimantan Utara	2016	26.55	61.45	34.90
Kalimantan Utara	2022	58.70	91.69	32.99
Sulawesi Tenggara	2016	26.55	66.91	40.36
Sulawesi Tenggara	2022	31.95	84.42	52.47
Sulawesi Barat	2016	26.91	65.45	38.54
Sulawesi Barat	2022	46.49	70.39	23.90
Maluku	2016	26.18	64.00	37.82
Maluku	2022	40.78	78.70	37.92
Maluku Utara	2016	27.27	64.00	36.73
Maluku Utara	2022	49.35	81.04	31.69
Papua Barat	2016	19.27	58.55	39.28
Papua Barat	2022	54.29	81.30	27.01
Papua	2016	22.18	61.45	39.27
Papua	2022	45.19	76.36	31.17

Note:
Values are percentages. The gap is calculated as financial inclusion minus financial literacy (FI-FL). Provincial values were reconstructed from public OJK SNLIK 2016 and 2022 data.

Table 3 summarizes the distributions of the key variables. The average financial literacy across the 11 provinces rose from 25.55% in 2016 to 48.08% in 2022, an increase of 22.53 pp in six years. The average inclusion increased from 63.01% to 81.61%, an increase of 18.60 pp. The The average inclusion-literacy gap narrowed from 37.45 to 33.53 pp. However, the standard deviation of the gap increased from 2.65 to 10.14, meaning that provinces became more differentiated in the relationship between access and capability. In 2016, the gap was broadly similar across the selected provinces. By 2022, some provinces had substantially narrowed the gap, while others had seen formal inclusion move far ahead of formal literacy.

Table 3. Descriptive Statistics for Financial Literacy, Financial Inclusion, and the Gap

Year	Measure	Mean	SD	Minimum	Maximum
2016	Financial literacy index	25.55	3.26	19.27	30.55
2016	Financial inclusion index	63.01	2.54	58.55	66.91
2016	Inclusion-literacy gap	37.45	2.65	34.18	41.82
2022	Financial literacy index	48.08	10.22	31.95	65.45
2022	Financial inclusion index	81.61	5.45	70.39	91.69
2022	Inclusion-literacy gap	33.53	10.14	16.89	52.47
Overall	Financial literacy index	36.81	13.70	19.27	65.45
Overall	Financial inclusion index	72.31	10.38	58.55	91.69
Overall	Inclusion-literacy gap	35.49	7.50	16.89	52.47

Note:
N = 11 Provinces for each year
N = 22 Province-year observations overall

SD = Sample standard deviation

Table 4 decomposes the changes by province and year. Nusa Tenggara Barat recorded the largest literacy gain, rising by 44.00 percentage points from 21.45% to 65.45%. Papua Barat increased by 35.02 percentage points, and Kalimantan Utara by 32.15 points. These cases indicate that rapid literacy catch-up is possible in remote provinces. At the other end of the distribution, Sulawesi Tenggara increased by only 5.40 points, and Kalimantan Tengah increased by 6.55 points. These provinces also recorded large increases in inclusion, producing a pattern in which formal access expanded faster than the capability.

The inclusion results also showed important variations. Kalimantan Utara recorded the largest inclusion gain, increasing by 30.24 pp to 91.69%. Nusa Tenggara Timur increased by 23.79 points and Papua Barat by 22.75 points. Sulawesi Barat is the most distinctive case: financial literacy rose by 19.58 points, but inclusion increased by only 4.94 points. This pattern may indicate that improvements in awareness and capability are not automatically sufficient to produce formal usage when supply side constraints, product suitability, distance, trust, or income limitations remain binding factors.

Table 4. Provincial Changes in Financial Literacy and Financial Inclusion, 2016-2022

Province	Literacy 2016	Literacy 2022	Delta literacy	Inclusion 2016	Inclusion 2022	Delta inclusion
Nusa Tenggara Barat	21.45	65.45	44.00	63.27	82.34	19.07
Nusa Tenggara Timur	28.00	51.95	23.95	62.18	85.97	23.79
Kalimantan Barat	30.55	51.95	21.40	65.45	84.16	18.71
Kalimantan Tengah	26.18	32.73	6.55	60.36	81.30	20.94
Kalimantan Utara	26.55	58.70	32.15	61.45	91.69	30.24
Sulawesi Tenggara	26.55	31.95	5.40	66.91	84.42	17.51
Sulawesi Barat	26.91	46.49	19.58	65.45	70.39	4.94
Maluku	26.18	40.78	14.60	64.00	78.70	14.70
Maluku Utara	27.27	49.35	22.08	64.00	81.04	17.04
Papua Barat	19.27	54.29	35.02	58.55	81.30	22.75
Papua	22.18	45.19	23.01	61.45	76.36	14.91

Note:
Delta values are 2022 minus 2016 in percentage points.

Table 5 focuses on the inclusion literacy gap. The most favorable gap movement occurred in Nusa Tenggara Barat, where the gap fell from 41.82 pp. to 16.89 pp. Papua Barat and Sulawesi Barat also narrowed the gap substantially. In contrast, Sulawesi Tenggara's gap widened from 40.36 to 52.47 points, and Kalimantan Tengah's widened from 34.18 to 48.57 points. These two provinces illustrate why financial inclusion cannot be interpreted as a complete proxy for financial capabilities. A province can achieve high inclusion while still showing low literacy, creating a potential risk of inappropriate borrowing, weak insurance understanding, susceptibility to fraud, and low ability to compare products.

Table 5. Change in the Inclusion-Literacy Gap by Province

Province	Gap 2016	Gap 2022	Delta gap
Nusa Tenggara Barat	41.82	16.89	-24.93
Nusa Tenggara Timur	34.18	34.02	-0.16
Kalimantan Barat	34.90	32.21	-2.69
Kalimantan Tengah	34.18	48.57	14.39
Kalimantan Utara	34.90	32.99	-1.91
Sulawesi Tenggara	40.36	52.47	12.11
Sulawesi Barat	38.54	23.90	-14.64

Maluku	37.82	37.92	0.10
Maluku Utara	36.73	31.69	-5.04
Papua Barat	39.28	27.01	-12.27
Papua	39.27	31.17	-8.10

Note:
The gap is calculated as financial inclusion minus financial literacy (FI-FL). Negative delta gap values indicate that the gap narrowed between 2016 and 2022.

Table 6 reports the panel regression results. Model 1 shows a strong positive association between inclusion and literacy. A one-percentage-point higher inclusion index is associated with a 1.110-point higher literacy index, and the coefficient is significant at the 1% level. The model explained approximately 70.7% of the observed variation. Model 2 adds a dummy variable for 2022. The inclusion coefficient remains positive but is smaller and not statistically significant, while the 2022 dummy is positive but also not statistically significant at conventional levels. This is expected in a two-wave panel in which many provinces experienced common upward movements over time.

Model 3 uses province fixed effects through within-province demeaning. The within coefficient is 1.150 and statistically significant, suggesting that provinces with larger within-period increases in inclusion also tended to have larger within-period increases in literacy when the model is expressed in the demeaned form. Model 4 is the most conservative check because it directly regresses the change in literacy on the change in inclusion across the 11 provinces. The coefficient remains positive at 0.575 but is not statistically significant. This weaker first-difference result is important. This indicates that the strong level relationship partly reflects common upward trends and cross-province differences, while the province-specific change in literacy cannot be explained by inclusion change alone.

Table 6. Panel Regression Results Predicting the Financial Literacy Index

Predictor or statistic	Model 1: Pooled OLS	Model 2: Pooled OLS with year	Model 3: Province fixed effects	Model 4: First difference
Financial inclusion index	1.110*** (0.162)	0.573 (0.393)	1.150*** (0.118)	0.575 (0.441)
Post-2022 dummy	--	11.857 (7.409)	--	--
Constant	-43.411*** (10.485)	-10.574 (24.800)	Omitted	11.825 (9.053)
Province fixed effects	No	No	Yes	First difference
Observations	22	22	22	11
R-squared	.707	.738	.805	.100

Note:
Robust HC3 standard errors are presented in parentheses. Model 3 is estimated using within-province demeaning. Model 4 uses province-level changes between 2016 and 2022. * p < .10. ** p < .05. *** p < .01.

Therefore, the regression results support a balanced interpretation. Inclusion and literacy are positively related in the selected provinces, but the relationship is not mechanically one-to-one and should not be interpreted as causal. Some provinces achieved large literacy gains without equally large inclusion gains, while others achieved large inclusion gains with modest literacy gains. For remote-area policy, the practical message is that access expansion and capability building must be planned together but monitored separately.

A closer reading of the regression and descriptive results suggests that the selected provinces followed at least three such trajectories. The first trajectory is capability catch-up, where literacy rose faster

than inclusion, and the gap narrowed. Nusa Tenggara Barat is the clearest case, but Papua Barat and Papua also moved in this direction. The second trajectory is access-led expansion, where inclusion increased strongly, but literacy did not increase to the same extent. Sulawesi Tenggara and Kalimantan Tengah are the strongest examples. The third trajectory is parallel improvement, where both literacy and inclusion increased without a dramatic change in the gaps. Nusa Tenggara Timur, Kalimantan Barat, Maluku, and Maluku Utara broadly fit this pattern.

These trajectories are important because they imply different policy mechanisms. Capability catch-up may reflect successful education delivery, changing local aspirations, digital exposure, school effects, community campaigns, or a rising perceived value of formal financing. Access-led expansion may reflect administrative account opening, product penetration, payment digitization, or agent growth that reaches people before deeper learning occurs. Parallel improvement may indicate a more synchronized development of channels and capabilities, but can still leave a sizeable residual gap. The same national policy can therefore generate different provincial outcomes because local infrastructure, social networks, institutions, and product ecosystems mediate its implementation.

The results also show why a single league table of literacy is incomplete. In 2022, Kalimantan Utara had the highest inclusion index in the sample and a relatively high literacy index, suggesting strong overall momentum. Nusa Tenggara Barat had the highest literacy index and the narrowest gap, suggesting a more mature capability-access balance. Sulawesi Barat had a narrowed gap, but partly because inclusion growth was limited, which is a different policy issue. Sulawesi Tenggara had high inclusion but the lowest 2022 literacy, which makes consumer capability the urgent concern. A good policy dashboard would therefore track at least four indicators: current literacy, current inclusion, literacy change, and the inclusion-literacy gap.

The first-difference results further support this dashboard logic. If inclusion change fully explained literacy change, provinces with the largest increases in inclusion would also have the largest literacy gains. The data do not show a simple ranking. Kalimantan Utara recorded the largest inclusion and literacy increases, but Nusa Tenggara Barat recorded the largest literacy increase with a more moderate inclusion increase. Sulawesi Tenggara recorded a sizeable inclusion increase with only a small literacy increase. These contrasts suggest that policy evaluation should investigate not only whether financial services are present but also whether users receive repeated explanations, whether products are simple enough to understand, whether schools and local organizations reinforce learning, and whether households have incentives to use formal finance beyond one-off transactions.

4.2. Discussion

The findings show substantial progress in financial literacy across Indonesia's selected remote and outer-island provinces from 2016 to 2022. Average literacy nearly doubled, and several provinces recorded a large catch-up from low initial levels. This is consistent with the broader national trajectory reported by the OJK and the increasing prominence of financial education in Indonesian policy. The results are encouraging because remote-area conditions often make capability building difficult. Geographical dispersion, transport costs, local language diversity, limited financial service density, and intermittent connectivity can weaken the reach of conventional training models. The observed gains suggest that policy efforts, digital diffusion, school and community channels, and institutional expansion can produce measurable improvements even in challenging settings.

Simultaneously, this study highlights the persistence of an access capability gap. In 2016 and 2022, financial inclusion was substantially higher than financial literacy. This pattern is not unique to Indonesia; global evidence shows that account ownership and digital payment use can rise quickly when technology and policy reduce access barriers (Demirgüç-Kunt et al., 2022). However, access is not equivalent to informed, confident, or welfare-improving use. For households, especially those with irregular income, low education, or limited recourse to consumer protection, a formal product can be either empowering or risky, depending on understanding, trust, affordability, and behavior. Therefore, the inclusion-literacy gap deserves attention as a consumer protection and quality-of-inclusion indicator.

The widening gaps in Sulawesi Tenggara and Kalimantan Tengah are particularly noteworthy. These provinces did not show low inclusion in 2022; in fact, inclusion was above 80%. The challenge is that literacy remains low, relative to access. This pattern may arise when accounts, cards, mobile wallets, or credit products spread through government transfers, payroll systems, agent banking, fintech marketing, or merchant ecosystems faster than households acquire the skills to compare costs and evaluate the risks. In such contexts, literacy interventions should be connected to actual products and transactions. Account-opening moments, social assistance disbursements, school-to-work transitions, migrant-worker preparation, agricultural credit cycles, and small-business loan applications are teachable moments. Training delivered far from the decision point may raise awareness but fail to change the behavior.

The sharp gap reduction in Nusa Tenggara Barat suggests a different pathway. Literacy increased more rapidly than inclusion, producing the lowest gap in 2022 in the sample. This does not prove that the policy in the province caused the change, but it does show that a remote-area province can move toward a more balanced relationship between access and capability. Such cases warrant closer qualitative investigation for policy learning. Researchers should examine local financial education coalitions, school programs, religious and community organizations, digital payment adoption, cooperative networks, microenterprise support, and district-level implementation differences. Aggregate provincial data identify the pattern, but fieldwork is needed to explain the mechanism.

Papua and Papua Barat also deserve careful interpretation. Both provinces improved their literacy, with Papua Barat recording one of the largest gains in the sample. However, the remote-area context in Papua is complex: settlement patterns, road access, linguistic diversity, market integration, and trust in formal institutions vary sharply across districts. A provincial average may conceal a large gap between urban centers and highland or interior areas of the country. Therefore, policy should avoid using province-level improvement as evidence that the hardest-to-reach communities are fully served. Instead, provincial gains should be treated as a platform for deeper district-level targeting. In provinces with high internal heterogeneity, financial literacy programming should be adapted to local livelihood systems, including agriculture, fisheries, informal trade, public-sector payroll, remittances, and social protection.

The results also contribute to the broader debate in the financial literacy literature. One critique of financial education is that knowledge gains can decay and may not always translate into behavior (Fernandes et al., 2014). Another body of evidence argues that well-designed financial education can improve knowledge and downstream behavior, especially when interventions are targeted, repeated, and connected to choices (Kaiser & Menkhoff, 2017; Kaiser et al., 2022). The Indonesian remote area context suggests that both views are useful. Generic literacy campaigns are unlikely to be sufficient; however, locally embedded and transaction-linked education can be valuable. The policy issue is not whether financial education matters in general, but which design works for whom, through which channel, and at what point in the financial decision-making process.

Digital finance intensifies this challenge. Digital payments, mobile banking, and fintech credit can reduce distance barriers, which is particularly valuable in remote provinces where branch networks are expensive. However, digital channels also introduce new risks, such as phishing, social engineering, data misuse, hidden fees, impulsive borrowing, and overconfidence in unfamiliar interfaces. Remote users may be new to formal and digital finance simultaneously, creating a double learning curve. Therefore, the financial literacy agenda should include digital financial literacy, cyber hygiene, privacy awareness, complaint channels, and the ability to recognize predatory offers. For regulators, the relevant outcome is not merely whether people have accounts or apps but whether they can use them safely and effectively.

Trust is another central issue in this regard. In remote communities, financial decisions are intertwined with social relationships. Informal lending, rotating savings groups, family obligations, religious norms, and customary institutions often coexist with banks and Fintech providers. Formal financial literacy that ignores these institutions may appear irrelevant or even suspicious to the poor. Programs are more likely to be effective when delivered through trusted intermediaries such as teachers, village officials, cooperatives, women's groups, religious leaders, agricultural extension workers, health workers, or local entrepreneurs. Trust also requires the establishment of grievance mechanisms. People

who experience fraud, unexpected fees, or failed transactions need a credible pathway to resolution; otherwise, negative experiences may reduce their long-term engagement with formal finance.

The supply side is also important. The low inclusion gain in Sulawesi Barat, despite literacy improvement, suggests that knowledge alone may not overcome access barriers. If agents are too distant, networks are unreliable, documentation is difficult, products are poorly matched to income cycles, or fees are too high relative to transaction size, households may remain outside formal usage even when they understand the benefits. Therefore, financial literacy policies should be linked to market conduct supervision and inclusive product design. Remote-area households often need small-value, flexible, low-fee products, transparent microinsurance, safe remittance channels, and credit products aligned with seasonal income. Without appropriate products, education can raise expectations that institutions cannot meet.

The panel results reinforce the need to distinguish between correlation and causation. The pooled and fixed-effect estimates show a positive association between inclusion and literacy, but the first-difference model is not significant. This means that provinces moving up in inclusion do not automatically move up in literacy by a proportional amount or vice versa. Therefore, a simple policy narrative that expands access and literacy is incomplete. The reverse narrative–teaching literacy first and inclusion will follow - is also incomplete. The evidence points to complementarity with heterogeneity: access can create opportunities for learning by doing, and literacy can increase the willingness to use formal products, but both depend on infrastructure, trust, income, education, product relevance, and delivery quality.

Table 7 translates the empirical findings into policy segmentation. The table is not a ranking of provinces but a diagnostic tool. Provinces with widening gaps require a different intervention mix than those with strong literacy catch-up. Provinces with low inclusion improvement despite literacy gains require a supply side diagnosis. Provinces with moderate progress and persistent gaps require combined access-quality and learning support. This segmentation approach is consistent with high-quality policy evaluation because it avoids the assumption that a national program will work uniformly across heterogeneous provinces.

Table 7. Province Segmentation for Remote-Area Financial-Literacy Policy

Segment	Provinces	Evidence from the panel	Policy emphasis
Access outpaces literacy	Sulawesi Tenggara; Kalimantan Tengah	2022 gaps above 48 percentage points and widening since 2016	Prioritize capability building at account opening, agent-assisted financial education, fee transparency, and complaint literacy.
Strong literacy catch-up	Nusa Tenggara Barat; Papua Barat; Kalimantan Utara	Literacy gains above 32 percentage points	Consolidate gains through product comparison tools, digital safety modules, and microenterprise financial management coaching.
Balanced progress but still below high-readiness threshold	Nusa Tenggara Timur; Kalimantan Barat; Maluku Utara; Papua	Literacy and inclusion both improved, but 2022 literacy remains below 60% except in selected provinces	Combining school, community, and cooperative channels with simplified savings, insurance, and credit decision content.
Low inclusion improvement but better literacy	Sulawesi Barat	Literacy improved by 19.58 points while inclusion improved by only 4.94 points	Diagnose supply side frictions, agent coverage, distance costs, and product relevance for farmers, fishermen, and informal workers.
Moderate progress with persistent gap	Maluku	Gap remained essentially unchanged, from 37.82 to 37.92 points	Archipelagic delivery models, local-language modules, and village-based monitoring of actual product use were used.

Note:
Segmentation is diagnostic and based on the observed 2016-2022 panel trajectories. It should be complemented with district- and household-level evidence before program budgeting.

The findings have managerial implications for financial service providers and regulators. Banks, rural banks, cooperatives, insurers, pawnshops, and fintech platforms operating in remote provinces should not assume that product availability creates an effective demand. Evidence shows that inclusion and literacy can move at different speeds. Therefore, providers need customer education strategies embedded in product journeys. For example, a digital wallet interface can include simple fee explanations and fraud warnings before the first transaction. Microcredit products can include repayment simulations using seasonal income examples. Insurance products can provide local-language explanations of exclusions and claims. These are not merely corporate social responsibility activities; they reduce default risk, complaints, dormancy, reputational damage and regulatory exposure.

For fintech firms, remote-area opportunities are large but sensitive. Digital delivery can reduce distance costs, but it can also quickly scale misunderstandings. A user who has never compared loan interest rates may interpret fast approval as an endorsement rather than an obligation. Households unfamiliar with data privacy may share one-time passwords or identity information. Merchants may accept digital payments without understanding settlement timing or dispute procedures. Therefore, a responsible fintech strategy in remote provinces should combine growth metrics with financial capability metrics. Active accounts, transaction volumes, and loan disbursements should be complemented by measures of comprehension, complaint resolution, repeat informed use, and avoidance of harmful rollover behavior.

For universities and business schools, the results suggest a research and service agenda for the future. Lecturers and students can support community-based financial-literacy laboratories, evaluate local interventions, and develop teaching materials that reflect specific livelihoods, such as fisheries, agriculture, informal trade, tourism, mining-service work, or migrant remittances. The academic contribution is not only to publish studies but also to improve the measurement. Local universities can help collect district-level data, test behavioral interventions, and translate national financial literacy concepts into locally valid instruments. This is particularly important because remote provinces often have knowledge held by local practitioners that is not visible in national datasets.

For local governments, the segmentation table can support their planning and coordination. Provinces with widening gaps need to determine whether financial inclusion programs are producing informed use. Provinces with literacy gains but weak inclusion must identify supply side bottlenecks. Provincial and district governments can convene banks, cooperatives, fintech providers, schools, village officials, and civil society organizations to align messages and monitor outcomes. Financial literacy should also be linked to poverty reduction, microenterprise development, disaster resilience and social protection. Remote households face overlapping risks; financial capability is most useful when it helps them manage real shocks and opportunities rather than memorizing abstract terms.

Five principles follow from the evidence for remote-area implementation. First, financial literacy should be embedded in the existing service systems. Schools, village meetings, social assistance delivery, agricultural extension, cooperative meetings, and local enterprise programs provide repeated contact points. Second, the content should be practical and decision-linked. Households need to calculate loan costs, compare savings options, identify fraud, understand insurance exclusions, and use complaint mechanisms to protect themselves. Third, the delivery should be localized. Translation into local languages is only one part of localization; examples should reflect actual livelihoods, income volatility, cultural obligations, and financial products available in the area. Fourth, programs should integrate digital safety measures. Remote financial inclusion will increasingly be digital, so literacy without cyberrisk awareness is incomplete. Fifth, monitoring should track quality, not just reach. Attendance numbers, account ownership, and app downloads are insufficient. Regulators and implementers should measure comprehension, confidence, product fit, complaint knowledge, and actual behaviors.

This study has some limitations that create opportunities for future research. The most important limitation was aggregation. Province-level indices cannot reveal individual behavior or district-level inequality. A person-level dataset would allow analysis by gender, age, education, occupation, income, digital access, and urban-rural location of the respondents. District-level data would allow for a stronger identification of remoteness and better alignment with official disadvantaged region classifications. Second, the two-wave design is a limitation. More waves would allow for dynamic models, convergence

tests, and stronger separation of common time effects from province-specific trajectories. Third, some variables may have been omitted. The models did not control for education, poverty, agent density, Internet coverage, financial-education budgets, or local institutional capacity. Fourth, the selected provinces were purposive. The results should be generalized analytically to remote-area policy challenges, not statistically to all Indonesian provinces.

Future research should combine aggregate panel analyses with mixed methods. Quantitative work could merge OJK indices with BPS indicators on poverty, education, internet use, road access, and district development status. Spatial analysis can identify whether literacy gains cluster around urban centers or spread to remote districts. Qualitative work could compare high-improvement and low-improvement provinces to identify the delivery mechanisms, local partnerships, and cultural barriers. Field experiments can test transaction-linked literacy modules at agent locations, schools, cooperatives, or social assistance payment points. Finally, ethically handled digital trace data with privacy safeguards could help distinguish nominal access from active, informed, and beneficial use.

5. CONCLUSION

This study examined financial literacy in Indonesia's remote and outer-island provinces using a balanced two-wave panel of 11 provinces from 2016 to 2022. The evidence shows strong progress but also persistent heterogeneity in the results. The average financial literacy increased from 25.55% to 48.08%, and the average inclusion increased from 63.01% to 81.61%. The average inclusion literacy gap narrowed modestly, but its dispersion increased substantially. Some provinces moved toward a more balanced relationship between access and capability, while others experienced widening gaps, in which inclusion expanded faster than literacy.

The main implication is that financial inclusion policies should not treat access as the final outcome. For remote areas, inclusion must be paired with capability, digital safety, product transparency, trusted delivery, and consumer protection that is relevant to the local context. A remote-area strategy should segment provinces based on their literacy-inclusion trajectory and design interventions accordingly. Where gaps are widening, capability building should be embedded directly into product-use channels. Where literacy is improving but inclusion is slow, supply side constraints and product fit require attention. Where progress is balanced but still incomplete, repeated community-based education can help consolidate gains.

The study's results are exploratory and should be interpreted with caution; however, they provide a clear message for policymakers and researchers: Indonesia's remote-area financial-literacy challenge is not simply a problem of awareness. Converting formal access into informed, confident, safe, and welfare-enhancing financial behavior across highly diverse local contexts is a problem.

Ethical Approval

Not Applicable

Informed Consent Statement

Not Applicable

Authors' Contributions

Not Applicable

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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Notes on Contributors

Rifqi Aqil Asyrof
https://orcid.org/0009-0001-2652-8319
Rifqi Aqil Asyrof is affiliated with the Faculty of Economics and Business, Universitas Brawijaya, Malang.

REFERENCES

Allen, F., Demirgüç-Kunt, A., Klapper, L., & Martínez Pería, M. S. (2016). The foundations of financial inclusion: Understanding ownership and use of formal accounts. *Journal of Financial Intermediation, 27*, 1–30. https://doi.org/10.1016/j.jfi.2015.12.003

Atkinson, A., & Messy, F.-A. (2012). *Measuring financial literacy: Results of the OECD/INFE pilot study* (OECD Working Papers on Finance, Insurance and Private Pensions No. 15). OECD Publishing. https://doi.org/10.1787/5k9csfs90fr4-en

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2007). Finance, inequality and the poor. *Journal of Economic Growth, 12*(1), 27–49. https://doi.org/10.1007/s10887-007-9010-6

Carpena, F., Cole, S., Shapiro, J., & Zia, B. (2019). The ABCs of financial education: Experimental evidence on attitudes, behavior, and cognitive biases. *Management Science, 65*(1), 346–369. https://doi.org/10.1287/mnsc.2017.2819

Cole, S., Sampson, T., & Zia, B. (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *The Journal of Finance, 66*(6), 1933–1967. https://doi.org/10.1111/j.1540-6261.2011.01696.x

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank. https://doi.org/10.1596/978-1-4648-1897-4

Fernandes, D., Lynch, J. G., Jr., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science, 60*(8), 1861–1883. https://doi.org/10.1287/mnsc.2013.1849

Huston, S. J. (2010). Measuring financial literacy. *Journal of Consumer Affairs, 44*(2), 296–316. https://doi.org/10.1111/j.1745-6606.2010.01170.x

Kaiser, T., & Menkhoff, L. (2017). Does financial education impact financial literacy and financial behavior, and if so, when? *The World Bank Economic Review, 31*(3), 611–630. https://doi.org/10.1093/wber/lhx018

Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. J. (2022). Financial education affects financial knowledge and downstream behaviors. *Journal of Financial Economics, 145*(2), 255–272. https://doi.org/10.1016/j.jfineco.2021.09.022

Klapper, L., Lusardi, A., & Panos, G. A. (2013). Financial literacy and its consequences: Evidence from Russia during the financial crisis. *Journal of Banking & Finance, 37*(10), 3904–3923. https://doi.org/10.1016/j.jbankfin.2013.07.014

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature, 52*(1), 5–44. https://doi.org/10.1257/jel.52.1.5

Organisation for Economic Co-operation and Development. (2023). *OECD/INFE 2023 international survey of adult financial literacy* (OECD Business and Finance Policy Papers No. 39). OECD Publishing. https://doi.org/10.1787/56003a32-en

Otoritas Jasa Keuangan. (2017). *Survei Nasional Literasi dan Inklusi Keuangan 2016 (National survey of financial literacy and financial inclusion 2016).* https://www.wip.ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Documents/Pages/Siaran-Pers-OJK-Indeks-Literasi-dan-Inklusi-Keuangan-Meningkat/buku%20statistik_172911.pdf

Otoritas Jasa Keuangan. (2020). *Booklet Survei Nasional Literasi dan Inklusi Keuangan 2019 (Booklet of the 2019 National Survey of Financial Literacy and Financial Inclusion).* https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Survei-Nasional-Literasi-dan-Inklusi-Keuangan-2019/BOOKLET%20Survei%20Nasional%20Literasi%20dan%20Inklusi%20Keuangan%202019.pdf

Otoritas Jasa Keuangan. (2021). *Strategi Nasional Literasi Keuangan Indonesia 2021–2025 (National Strategy on Indonesian Financial Literacy 2021–2025).* https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Documents/Pages/Strategi-Nasional-Literasi-Keuangan-Indonesia-2021-2025/STRATEGI%20NASIONAL%20LITERASI%20KEUANGAN%20INDONESIA%20%28SNLKI%29%202021%20-%202025.pdf

Otoritas Jasa Keuangan. (2022). *Booklet Survei Nasional Literasi dan Inklusi Keuangan 2022 (Booklet of the 2022 National Survey of Financial Literacy and Financial Inclusion).* https://ojk.go.id/id/berita-dan-kegiatan/publikasi/Pages/Booklet-Survei-Nasional-Literasi-dan-Inklusi-Keuangan-Tahun-2022.aspx

Otoritas Jasa Keuangan. (2023). *Laporan tahunan OJK 2022: Penguatan sektor jasa keuangan untuk mendukung percepatan pemulihan ekonomi nasional dan pertumbuhan ekonomi baru (OJK annual report 2022: Strengthening the financial services sector to support the acceleration of national economic recovery and new economic growth).* https://ojk.go.id/id/data-dan-statistik/laporan-tahunan/Pages/Laporan-Tahunan-OJK-2022.aspx

Republik Indonesia. (2020). *Peraturan Presiden Republik Indonesia Nomor 63 Tahun 2020 tentang Penetapan Daerah Tertinggal Tahun 2020–2024 (Presidential Regulation of the Republic of Indonesia Number 63 of 2020 concerning the Determination of Disadvantaged Regions for 2020–2024).* https://peraturan.bpk.go.id/Details/136563/perpres-no-63-tahun-2020

van Rooij, M., Lusardi, A., & Alessie, R. (2011). Financial literacy and stock market participation. *Journal of Financial Economics, 101*(2), 449–472. https://doi.org/10.1016/j.jfineco.2011.03.006