

| Research Article |

Islamic Banking Financing and Regional Economic Inequality in Indonesia: Provincial Panel Evidence and SDG 10 Implications

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Received: 2026-09-08 / Accepted: 2026-09-15 / Published: 2026-09-25

Abstract: This study examines the association between Islamic banking financing and inter-regional economic inequality in Indonesia and discusses its implications for Sustainable Development Goal (SDG) 10 (Reduced Inequalities). Using a balanced panel of 31 provinces over 2018–2024 (217 observations) compiled from the Financial Services Authority's Islamic Banking Statistics and Statistics Indonesia, the provincial Gini ratio is regressed on financing disbursed by Islamic commercial banks and Islamic business units, Islamic third-party funds per adult resident, and GRDP per capita. Fixed-effect panel models with province and year effects are estimated with standard errors robust to heteroskedasticity, serial correlation and cross-sectional dependence. Islamic banking financing is negatively associated with the Gini ratio within provinces (two-way fixed-effect coefficient -0.023 , significant at the 10% level and at the 5% level with wild-cluster bootstrap inference); a 10% increase in financing corresponds to a decline of about 0.002 Gini points. The association remains negative and of similar size after excluding DKI Jakarta and provinces affected by regional-bank conversions or the Aceh Qanun and with lagged regressors, but weakens when province-specific trends are added, whereas pooled and between estimates are positive owing to the concentration of bank head offices. Islamic deposits and GRDP per capita are not robustly significant. The study contributes within-province evidence that separates office-location bias from the financing–inequality relationship and maps the findings to SDG indicators 10.1, 10.2 and 8.10. The results are associational and support targeted, MSME-oriented expansion of Islamic financing rather than causal claims.

Keywords: Islamic banking; financing; regional inequality; Gini ratio; panel data; SDG 10



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Introduction

Economic inequality remains one of Indonesia's most persistent development problems. The national Gini ratio was 0.389 in March 2018 and still stood at 0.375 in March 2025 (Badan Pusat Statistik [BPS], 2025a), above the target of 0.370–0.374 set for 2024 in the 2020–2024 National Medium-Term Development Plan (Government of Indonesia, 2020). Inequality is also uneven across regions: across the 217 province-year observations analysed in this study, the Gini ratio ranges from 0.236 to 0.449, and in March 2024 it varied from 0.244 in the Bangka Belitung Islands to 0.435 in DI Yogyakarta, with four provinces above the national figure of 0.379 (BPS, 2025b). Because the benefits of growth and of financial services are spatially concentrated — most visibly in Java and in provinces hosting bank head offices—inter-regional inequality deserves attention in its own right, and the province is the level at which regional development and financial-sector policies interact.

Islamic banking is the largest and most widely distributed segment of Indonesia's Islamic financial industry and is therefore the main channel through which Islamic finance can reach households and firms across regions. Its intermediation model differs from conventional lending: financing is extended through sale-based (*murabahah*), partnership (*musyarakah*, *mudharabah*) and lease (*ijarah*) contracts, and the national Islamic economic agenda assigns Islamic banks a role in financing micro, small and medium enterprises (MSMEs) and the real sector (Bappenas, 2019; Otoritas Jasa Keuangan [OJK], 2023). Structural changes during the study period—the 2021 merger of three state-owned Islamic banks into Bank Syariah Indonesia (BSI), the conversion of several regional development banks into Islamic banks, and the implementation of Aceh's Qanun on Islamic Financial Institutions—have reshaped the provincial footprint of Islamic financing. Islamic fintech, including peer-to-peer (P2P) financing, has also grown since 2016 (Hiyanti et al., 2019; Alfian et al., 2025), but its provincial distribution is not published; it is therefore treated here only as context.

The finance–inequality literature offers competing predictions. Financial deepening can reduce inequality by relaxing the credit constraints faced by the poor (Galor & Zeira, 1993; Beck et al., 2007), but may initially widen it when access is limited to wealthier groups (Greenwood & Jovanovic, 1990). Evidence on financial inclusion generally points to inequality-reducing effects, both across developing countries (Omar & Inaba, 2020) and across Indonesian provinces (Khoirunurrofik & Fitriatinnisa, 2021). Evidence specific to Islamic banking, however, is scarce and mixed: Islamic deposit-based financial depth is associated with lower inequality across countries (Putriani & Prastowo, 2019); Islamic financing relative to GRDP is associated with higher inequality across Indonesian provinces, with spatial spillovers (Prastowo & Putriani, 2022); Islamic bank financing shows no significant effect in provincial data for 2010–2023 (Rama & Lutfiantono, 2026); and Islamic microfinance is associated with lower inequality in a 17-province sample (Nursilo et al., 2026).

Two gaps motivate this study. First, provincial studies rarely address the fact that the OJK records Islamic financing and deposits by the location of the bank office rather than the customer's domicile, which inflates values in head-office provinces (notably DKI Jakarta) and can bias cross-sectional and pooled estimates; nor do they test whether results survive common time shocks such as COVID-19 and the structural breaks of 2018–2024. Second, the link to the SDGs is usually asserted rather than mapped to specific indicators and magnitudes.

Accordingly, this study aims to: (1) estimate the within-province association between Islamic banking financing and the Gini ratio; (2) assess whether Islamic third-party funds per adult resident—the funding side of Islamic intermediation, entered as a second explanatory variable alongside financing—are independently associated with inequality; and (3) interpret the magnitude of the estimated association in terms of SDG indicators 10.1, 10.2 and 8.10. The research question is: is the expansion of Islamic banking financing within a province associated with lower economic inequality in that province, and is this association economically meaningful for SDG 10?

The study contributes in three ways. First, it provides within-province evidence for 2018–2024 that explicitly separates the financing–inequality relationship from office-location bias by contrasting pooled, between and fixed-effect estimators and by excluding DKI Jakarta. Second, it tests robustness to year fixed effects, cross-sectionally dependent errors, lagged regressors and the structural changes of the period—issues not jointly addressed in earlier provincial studies. Third, it translates the estimated coefficients into changes in Gini points and relates them to SDG targets, providing policy-relevant magnitudes for the OJK and the Ministry of National Development Planning (Bappenas).

Literature Review and Hypothesis Development

Finance and Income Distribution

Theories of finance and inequality emphasise credit-market imperfections. When borrowing requires collateral or a credit history, poor households and small firms under-invest in human and physical capital, so inequality persists across generations (Galor & Zeira, 1993). Financial development that lowers these frictions disproportionately benefits the poor (Clarke et al., 2006; Beck et al., 2007). Greenwood and Jovanovic (1990) instead predict an inverted-U pattern: at early stages only richer agents can afford access, widening inequality, before broader participation narrows it. Financial inclusion—access to and use of formal financial services—is therefore a central channel (Demirgüç-Kunt & Klapper, 2012; Sarma, 2012). Panel studies of developing countries and of Indonesian provinces find that greater inclusion is associated with lower inequality (Omar & Inaba, 2020; Khoirunurrofik & Fitriatinisa, 2021), although the effects depend on institutional and digital conditions (Odei-Appiah et al., 2022).

Transmission Channels of Islamic Banking Financing

Islamic banking financing may affect income distribution through three channels. The first is *access*: Islamic banks serve customers who avoid interest-based products for religious reasons, extending formal finance to segments that would otherwise be excluded (Aminah et al., 2020; Baber, 2020). The second is *allocation*: to the extent that financing is directed to MSMEs and productive sectors, it supports income generation and employment among lower- and middle-income groups (Putriani & Prastowo, 2019; Nursilo et al., 2026). The third is *contract structure*: profit-and-loss-sharing contracts (*mudharabah*, *musyarakah*) share risk with entrepreneurs instead of requiring fixed, collateralised repayment, which in principle favours the distributive justice (*al-'adl*) emphasised by *maqasid al-shariah* (Nafiah & Faih, 2019). In practice, partnership (*musyarakah*) and sale-based (*murabahah*) contracts together account for more than 90% of Islamic banking financing—about 47.9% and 43.9%, respectively, in February 2024 (OJK, 2024)—so pure profit-and-loss-sharing *mudharabah* plays only a minor role, and financing remains spatially concentrated, which may weaken distributive effects (Prastowo & Putriani, 2022; Rama & Lutfiantono, 2026). The net association is therefore an empirical question.

Hypotheses

Following the access and allocation channels and the evidence on financial inclusion, the first hypothesis is:

H1: Islamic banking financing is negatively associated with economic inequality (Gini ratio) within provinces.

On the funding side, deposit mobilisation brings households into the formal financial system, offers lower-income groups a safe store of value for consumption smoothing, and expands the resources Islamic banks can lend. Putriani and Prastowo (2019) find that Islamic deposits relative to GDP are negatively associated with income inequality across countries. Hence:

H2: Islamic third-party funds per adult resident are negatively associated with economic inequality within provinces.

GRDP per capita is included as a control for the level of regional development rather than as a hypothesis of interest. Because the Kuznets (1955) hypothesis predicts a non-linear development–inequality relationship, a squared term is tested as a robustness check.

Method

Data and Sample

The study uses an explanatory quantitative design with a balanced provincial panel for 2018–2024 ($N = 31$, $T = 7$; 217 observations). Papua and West Papua are excluded because the creation of new provinces changed the territorial coverage of GRDP (from 2023) and of the Gini ratio (from 2024) at different points in time. North Kalimantan is excluded because the OJK Islamic Banking Statistics do not report it

separately from East Kalimantan over 2018–2024. All data are official secondary data: financing and third-party funds of Islamic commercial banks and Islamic business units (BUS+UUS) by province, December position, from the OJK Islamic Banking Statistics, Table 24 (OJK, 2025); the provincial Gini ratio (March release) from BPS (2025b); GRDP per capita at 2010 constant prices (BPS, 2025c); and the population aged 15 and over from the August National Labour Force Survey (Sakernas) (BPS, 2025d).

A key data limitation should be noted. The OJK does not publish provincial data on Islamic P2P fintech financing, so Islamic fintech cannot be tested and the key variable is Islamic banking financing. In addition, financing and deposits are recorded by the location of the reporting bank office rather than the customer's domicile, which inflates values in provinces hosting head offices, especially DKI Jakarta. The estimation strategy below addresses this bias, and its remaining implications are discussed in the Limitations. The Islamic financial literacy index from the National Survey on Financial Literacy and Inclusion (SNLIK) is available only at the national level for survey years; it is perfectly collinear with year effects and is therefore reported descriptively only.

The operational definitions of the variables are presented in Table 1.

Table 1: Operational Definitions of Research Variables

Type	Variable	Notation	Measurement	Data source
Dependent	Economic inequality	GINI	Provincial Gini ratio, March release (index 0–1)	BPS
Independent	Islamic banking financing	IFIN	Natural log of BUS+UUS financing by province, December position (IDR billion, nominal)	OJK – Islamic Banking Statistics (Table 24)
Independent	Islamic third-party funds per adult	IKS	Natural log of BUS+UUS third-party funds divided by population aged 15+ (IDR thousand per person)	OJK – Islamic Banking Statistics; BPS – Sakernas
Control	GRDP per capita	GRDP	Natural log of GRDP per capita at 2010 constant prices (IDR thousand)	BPS
Descriptive only	Islamic financial literacy	LIT	National Islamic financial literacy index (%), survey years 2019, 2022, 2024	OJK – SNLIK

Model Specification

The baseline two-way fixed-effects model is:

$$GINI_{it} = \alpha_i + \lambda_t + \beta_1 \ln IFIN_{it} + \beta_2 \ln IKS_{it} + \beta_3 \ln GRDP_{it} + \varepsilon_{it} \quad (1)$$

where $i = 1, \dots, 31$ indexes provinces and $t = 2018, \dots, 2024$ indexes years; α_i are province fixed effects capturing time-invariant characteristics, including the time-

invariant component of office-location bias; λ_t are year fixed effects capturing shocks common to all provinces, such as the national trend in inequality, the COVID-19 shock of 2020–2021, the national price level and nationwide regulatory changes; and ε_{it} is the idiosyncratic error. IFIN, IKS and GRDP enter in natural logarithms. The log form is preferred because IFIN and IKS are highly correlated in levels ($r = 0.938$; $VIF = 8.27$), whereas in logs the correlation falls to 0.810 and all VIFs are below 4, and because the coefficients can be read as semi-elasticities: a 1% increase in IFIN changes the Gini ratio by $\beta_1/100$ points. The one-way specification (province effects only) is reported for comparison.

Financing is measured in absolute nominal terms because the objective is to capture the expansion of Islamic financing outreach within each province. With year fixed effects, the national price level—common to all provinces—is absorbed by λ_t , so deflating IFIN by a national deflator would leave β_1 unchanged, while time-invariant differences in provincial size are absorbed by α_i . Financing relative to GRDP is used in related studies (Prastowo & Putriani, 2022), whereas the present study focuses on outreach expansion within provinces.

Estimation Strategy and Diagnostics

Pooled OLS, random-effects (REM) and fixed-effects (FEM) estimators are compared. Province effects are tested with the F-test (Chow test), and the joint significance of year effects with a Wald test. The choice between FEM and REM uses the regression-based Hausman test of Mundlak (1978), in which province means of the regressors are added to the REM and their joint significance is tested with cluster-robust standard errors; unlike the standard Hausman test, this version remains valid under heteroskedasticity and serial correlation (Wooldridge, 2010). Residual diagnostics include the Wooldridge test for first-order serial correlation, the modified Wald test for groupwise heteroskedasticity, and the Pesaran (2004) CD test for cross-sectional dependence. Inference is based on standard errors clustered by province and, because provincial data are exposed to common shocks, on Driscoll and Kraay (1998) standard errors, which are robust to heteroskedasticity, serial correlation and cross-sectional dependence.

With $N = 31$ and $T = 7$ the panel is short. Fixed-effects estimates are consistent as N grows with T fixed, and because the model contains no lagged dependent variable, the dynamic-panel (Nickell) bias does not arise. However, cluster-robust standard errors may be downward-biased with only 31 clusters, and Driscoll–Kraay standard errors rely on large- T asymptotics; wild-cluster bootstrap p -values (Cameron et al., 2008) are therefore reported as an additional check. System GMM is not used because its instrument count would be large relative to $N = 31$ (Roodman, 2009).

Robustness Checks

Robustness is assessed by: (i) excluding DKI Jakarta, the main head-office province; (ii) excluding provinces with structural breaks unrelated to real changes in inclusion West Nusa Tenggara (conversion of Bank NTB into Bank NTB Syariah in 2018), Riau and the Riau Islands (conversion of Bank Riau Kepri into Bank Riau Kepri

Syariah in 2022) and Aceh (implementation of Qanun No. 11 of 2018 on Islamic Financial Institutions) and, alternatively, adding conversion event dummies; (iii) adding province-specific linear trends, since the 2021 BSI merger affected all provinces simultaneously (and is absorbed by year effects) but may have changed recording patterns differently across provinces; (iv) using one-year lagged regressors to mitigate simultaneity; and (v) adding $\ln(\text{GRDP})^2$ to test the Kuznets non-linearity.

Software and Data Availability

Estimations are performed in Python using the `linearmodels` and `statsmodels` packages. All data are publicly available from the OJK and BPS; the compiled dataset and estimation code are available from the corresponding author upon reasonable request.

Results and Discussion

Descriptive Statistics

Table 2 reports descriptive statistics in levels and in the logarithmic form used in estimation, together with the decomposition of the standard deviation into between-province and within-province components. The Gini ratio averages 0.347 and ranges from 0.236 (Bangka Belitung Islands, 2022) to 0.449 (DI Yogyakarta, 2023). Islamic financing is highly concentrated: its standard deviation (IDR 33,080.28 billion) is more than twice its mean (IDR 14,483.75 billion), and the maximum (IDR 236,675.93 billion) is recorded in DKI Jakarta in 2024, about 40 times the average of the median province. Excluding DKI Jakarta, mean financing falls to IDR 8,947.67 billion. This pattern is consistent with office-location bias, since DKI Jakarta hosts the head offices of most Islamic banks and its recorded financing includes funds channelled to other provinces. Over 2018–2024, the average provincial Gini ratio declined from 0.360 to 0.338, while average nominal financing rose by 95.1% in nominal terms (Figure 1). The within-province standard deviation of the Gini ratio (0.011) is much smaller than the between-province standard deviation (0.040): most variation is cross-sectional and absorbed by fixed effects, so the identifying within-province variation is comparatively modest.

Table 2: Descriptive Statistics of Research Variables (N = 217; 31 provinces; T = 7)

Variable	Mean	SD overall	SD between	SD within	Min	Max
GINI (ratio)	0.347	0.041	0.040	0.011	0.236	0.449
IFIN – BUS+UUS financing (IDR billion)	14,483.75	33,080.28	32,718.36	7,317.77	163.00	236,675.93
IKS – deposits per population 15+ (IDR thousand/person)	2,476.81	5,242.77	5,175.75	1,200.99	33.09	37,286.13

Variable	Mean	SD overall	SD between	SD within	Min	Max
GRDP per capita, 2010 constant prices (IDR thousand)	43,178.10	34,070.51	34,334.77	3,830.13	12,274.00	201,330.00
ln(IFIN)	8.380	1.576	1.566	0.316	5.094	12.374
ln(IKS)	7.030	1.167	1.151	0.271	3.499	10.526
ln(GRDP)	10.494	0.541	0.543	0.077	9.415	12.213

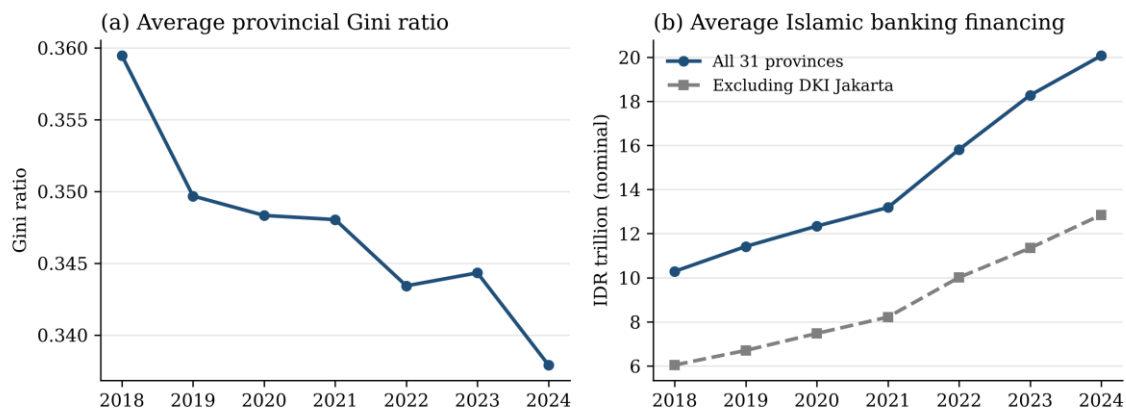


Figure 1: Average Provincial Gini Ratio and Islamic Banking Financing, 2018–2024

At the national level, the Islamic financial literacy index rose from 8.93% in 2019 to 9.14% in 2022 and 39.11% in 2024 (OJK, 2019, 2022; OJK & BPS, 2024). The jump in 2024 coincides with a change in the survey design: SNLIK 2024 was the first wave conducted jointly by the OJK and BPS, using stratified multistage cluster sampling of 10,800 respondents aged 15–79 in 120 districts/cities (OJK & BPS, 2024). The increase should therefore not be read solely as an improvement in literacy. Because the index does not vary across provinces, it is not included in the regressions.

Estimation Model Selection

Table 3 summarises the specification and diagnostic tests. The F-test rejects the null hypothesis of no province effects ($F(30, 183) = 105.38$; $p < 0.001$), favouring FEM over pooled OLS, and year effects are jointly significant ($F(6, 30) = 7.51$; $p < 0.001$), favouring the two-way specification. The standard Hausman test rejects REM ($\chi^2(3) = 100.23$; $p < 0.001$), and the robust Mundlak test confirms this result ($\chi^2(3) = 16.99$; $p < 0.001$). VIFs in the log specification are below 4. The diagnostic tests indicate serial correlation ($F(1, 30) = 36.03$), groupwise heteroskedasticity ($\chi^2(31) = 503.95$) and cross-sectional dependence ($CD = 4.67$), all with $p < 0.001$, supporting the use of cluster-robust and Driscoll–Kraay standard errors.

Table 3: Specification and Diagnostic Tests

Test	Statistic	Decision
F-test for province effects (Chow)	$F(30, 183) = 105.38$ ($p < 0.001$)	FEM preferred to pooled OLS
Joint significance of year effects	$F(6, 30) = 7.51$ ($p < 0.001$)	Two-way FEM preferred
Hausman test (standard)	$\chi^2(3) = 100.23$ ($p < 0.001$)	FEM preferred to REM
Robust Hausman test (Mundlak, cluster-robust)	$\chi^2(3) = 16.99$ ($p < 0.001$)	FEM preferred to REM
Wooldridge test for serial correlation	$F(1, 30) = 36.03$ ($p < 0.001$)	First-order serial correlation present
Modified Wald test for groupwise heteroskedasticity	$\chi^2(31) = 503.95$ ($p < 0.001$)	Groupwise heteroskedasticity present
Pesaran CD test for cross-sectional dependence	$CD = 4.67$ ($p < 0.001$)	Cross-sectional dependence present
VIF (log model)	$\ln(\text{IFIN}) = 2.90$; $\ln(\text{IKS}) = 3.51$; $\ln(\text{GRDP}) = 1.65$	No serious multicollinearity
Selected model	–	Two-way FEM; SEs clustered by province and Driscoll–Kraay SEs

Fixed-Effect Estimation Results

The estimation results are presented in Table 4. Column (1) reports the one-way FEM, column (2) adds year fixed effects, and column (3) reports the two-way FEM with Driscoll–Kraay standard errors. In the one-way model, $\ln(\text{IFIN})$ is negative and significant (-0.0257 ; $\text{SE} = 0.0089$; $p = 0.004$). After controlling for common year effects, the coefficient is almost unchanged in size (-0.0233 ; $\text{SE} = 0.0118$; $p = 0.051$; wild-cluster bootstrap $p = 0.049$), indicating that the association is not merely a reflection of the common downward trend in inequality or of the COVID-19 shock, although it is estimated less precisely. With Driscoll–Kraay standard errors the coefficient is highly significant ($p < 0.001$), but this result is interpreted cautiously because these errors rely on large- T asymptotics. $\ln(\text{GRDP})$ is not significant in any specification, and $\ln(\text{IKS})$ is not significant with clustered standard errors. Table 5 compares the estimators, and Table 6 reports the robustness checks.

Table 4: Panel Regression Results (Dependent Variable: GINI)

Variable	(1) One-way FE, clustered SE	(2) Two-way FE, clustered SE	(3) Two-way FE, Driscoll–Kraay SE
$\ln(\text{IFIN})$	-0.0257^{***} (0.0089)	-0.0233^* (0.0118)	-0.0233^{***} (0.0030)
$\ln(\text{IKS})$	0.0079 (0.0097)	0.0131 (0.0104)	0.0131^{***} (0.0036)
$\ln(\text{GRDP})$	0.0029 (0.0236)	0.0080 (0.0251)	0.0080 (0.0157)

Variable	(1) One-way FE, clustered SE	(2) Two-way FE, clustered SE	(3) Two-way FE, Driscoll-Kraay SE
Constant	0.4767** (0.2177)	0.3664 (0.2415)	0.3664** (0.1571)
Province fixed effects	Yes	Yes	Yes
Year fixed effects	No	Yes	Yes
R ² within	0.311	0.261	0.261
R ² between	0.098	0.116	0.116
R ² overall	0.072	0.091	0.091
F-statistic (robust)	10.11 (p < 0.001)	1.45 (p = 0.231)	35.64 (p < 0.001)
Observations / clusters	217 / 31	217 / 31	217 / 31
Wild-cluster bootstrap p, ln(IFIN)	–	0.049	–

Table 5: **Comparison of Estimators (Dependent Variable: GINI)**

Variable	Pooled OLS	REM	Between	FEM (one-way)
ln(IFIN)	0.0139* (0.0072)	–0.0121 (0.0074)	0.0146* (0.0077)	–0.0257*** (0.0089)
ln(IKS)	–0.0134 (0.0105)	–0.0028 (0.0089)	–0.0129 (0.0116)	0.0079 (0.0097)
ln(GRDP)	0.0009 (0.0139)	–0.0010 (0.0173)	0.0006 (0.0170)	0.0029 (0.0236)
Observations	217	217	31	217

Table 6: **Robustness Checks (Coefficient on the Financing Variable; Dependent Variable: GINI)**

Specification	Coefficient	Clustered SE	p-value	N
(a) Baseline two-way FE (Table 4, column 2)	–0.0233*	0.0118	0.051	217
(b) Excluding DKI Jakarta, one-way FE	–0.0240***	0.0089	0.007	210
(c) Excluding DKI Jakarta, two-way FE	–0.0185*	0.0108	0.089	210
(d) Excluding West Nusa Tenggara, Riau, Riau Islands and Aceh	–0.0331**	0.0148	0.026	189
(e) Adding bank-conversion and Aceh Qanun event dummies	–0.0275**	0.0133	0.041	217
(f) Adding province-specific linear trends	–0.0078	0.0116	0.501	217
(g) Regressors lagged one year	–0.0231*	0.0124	0.064	186
(h) Adding ln(GRDP) ²	–0.0184*	0.0102	0.073	217

Discussion

The central finding is that, within provinces, periods of faster expansion in Islamic banking financing coincide with lower inequality, supporting H1, although

the two-way estimate is significant only at the 10% level with clustered standard errors (5% with wild-cluster bootstrap inference). Given the observational design, this should be read as a conditional association rather than a causal effect. Its magnitude is modest but not negligible. With the one-way coefficient of -0.0257 , a 10% increase in financing is associated with a fall in the Gini ratio of about 0.0025 points ($-0.0257 \times \ln 1.10$); with the two-way coefficient, the figure is about 0.0022 points. This equals about one-fifth (20.5%) of the within-province standard deviation of the Gini ratio (0.011). Given average nominal growth in Islamic financing of about 15.2% per year in the sample, the implied annual change is about 0.003 Gini points, compared with the reduction of about 0.015 points needed to move the national Gini ratio from 0.389 in 2018 to the upper bound of the 2024 target (0.374). Islamic banking expansion can therefore complement, but not substitute for, fiscal and labour-market policies against inequality.

The sign reversal between pooled OLS ($+0.0139$) and FEM (-0.0257) is informative. Pooled and between estimators rely mainly on differences across provinces, and provinces with large recorded financing—DKI Jakarta in particular—are also richer and more unequal. The between estimator yields $+0.0146$ ($p = 0.069$), confirming that the positive pooled coefficient reflects cross-sectional composition, including office-location bias, rather than an estimation error. However, fixed effects remove this bias only insofar as it is constant over time. If recording patterns changed—for example, when branch portfolios were consolidated after the 2021 BSI merger or when regional development banks converted—the bias would not be fully absorbed. The robustness checks in Table 6 address this concern: excluding DKI Jakarta (-0.0240 , $p = 0.007$ in the one-way model; -0.0185 , $p = 0.089$ in the two-way model), excluding the conversion and Aceh Qanun provinces (-0.0331 , $p = 0.026$) and adding event dummies (-0.0275 , $p = 0.041$) leave the coefficient negative and of similar magnitude. When province-specific linear trends are added, however, the coefficient shrinks to -0.0078 and is no longer significant ($p = 0.501$). With only seven years per province, these 31 additional trend terms absorb most of the within-province variation in financing, which grows almost linearly; the result therefore cannot distinguish between the absence of an association and an association that operates through provinces' long-run trends, and it is an important caveat to the main finding.

Reverse causality is also possible: Islamic banks may expand in provinces whose economies are becoming more inclusive. With one-year lagged regressors, which cannot respond to current inequality shocks, the coefficient on $\ln(\text{IFIN})$ is -0.0231 ($p = 0.064$). This mitigates, but does not eliminate, simultaneity concerns, because persistent unobserved shocks could affect both lagged financing and current inequality. A causal design—for example, exploiting the staggered timing of regional bank conversions or the Aceh Qanun as quasi-natural experiments—is left for future research.

The negative within-province association is consistent with cross-country evidence that financial development and inclusion reduce inequality (Beck et al., 2007;

Omar & Inaba, 2020), with Indonesian provincial evidence on financial inclusion (Khoirunurrofik & Fitriatinisa, 2021) and with evidence on Islamic microfinance (Nursilo et al., 2026). It differs from Prastowo and Putriani (2022), who report a positive association between Islamic financing-to-GRDP and inequality, and from Rama and Lutfiantono (2026), who find no significant effect. Two factors may explain the difference. First, estimates that draw more on cross-provincial variation are affected by head-office concentration; the positive pooled coefficient obtained here mirrors the positive association in the earlier spatial evidence. Second, the 2018–2024 period covers the BSI merger, regional bank conversions and the Aceh Qanun, which extended Islamic financing to provinces with previously low penetration. The result is also compatible with Greenwood and Jovanovic (1990): as access broadens, the distributive benefits of financial deepening are expected to increase.

Islamic third-party funds per adult ($\ln$ IKS) are not significant in the FEM (0.0079; $p = 0.418$), so H2 is not supported, in contrast to the cross-country finding of Putriani and Prastowo (2019) and to the negative pooled coefficient (-0.0134), which is not significant once standard errors are clustered ($p = 0.203$). In the two-way model $\ln$ (IKS) is positive (0.0131) and significant only with Driscoll–Kraay standard errors, which are unreliable with $T = 7$. Two explanations are complementary. First, the correlation between $\ln$ (IFIN) and $\ln$ (IKS) ($r = 0.810$) makes it difficult to separate their within-province contributions, so part of the deposit channel is likely absorbed by financing. Second, deposits are also recorded by office location, so their within-province changes may reflect banks' network strategies more than changes in household inclusion. The distributive role of Islamic banking thus appears to operate through the asset (financing) side rather than the funding side.

$\ln$ (GRDP) is not significant in any specification (one-way FEM: 0.0029; $p = 0.902$). GRDP per capita varies mostly between provinces, and its within-province variation over seven years is limited. The Kuznets (1955) hypothesis predicts a non-linear relationship; adding $\ln$ (GRDP)² yields coefficients of -0.641 and 0.031 ($p = 0.253$ and 0.262), providing no evidence of an inverted-U pattern within the sample period. The level of regional development therefore does not explain short-run changes in inequality once province and year effects are controlled for.

The findings can be mapped to specific SDG indicators (United Nations, 2015, 2017). Target 10.1 concerns income growth of the bottom 40% (indicator 10.1.1), target 10.2 concerns economic inclusion (indicator 10.2.1, the proportion of people living below 50% of median income), and target 8.10 concerns access to financial services (indicator 8.10.1, bank branches and ATMs per 100,000 adults; indicator 8.10.2, the proportion of adults with an account). In Indonesia's SDG monitoring, the Gini ratio is the national indicator 10.1.1, which is treated as consistent with the global indicator (Bappenas, 2023). The estimates imply that a 10% increase in Islamic financing in a province is associated with a reduction of about 0.0025 Gini points, so the policy relevance lies less in aggregate volume than in where and how financing is allocated. Measurable targets could therefore link Islamic financing growth to SDG 8.10

indicators in low-penetration provinces (Islamic bank offices and accounts per 100,000 adults) and to the shares of MSME and profit-sharing financing, whose distributive role follows from the transmission channels discussed above. Islamic fintech remains a relevant complement (Trimulato et al., 2022), but its contribution cannot be assessed without provincial data.

Conclusion

This study finds that, across 31 Indonesian provinces in 2018–2024, the expansion of Islamic banking financing within a province is associated with lower economic inequality in that province. The association is robust in size to common year effects, to excluding DKI Jakarta and provinces with structural breaks and to lagged regressors, although its statistical precision is modest in the two-way model and it is not robust to province-specific trends. The positive association in pooled data reflects the concentration of bank head offices rather than a regressive role of Islamic financing. Islamic third-party funds per adult and GRDP per capita do not explain within-province changes in inequality. Because the association is modest in size, Islamic banking can contribute to SDG 10 as a complement to broader redistributive policies.

Three implications follow, framed cautiously given the associational design. First, the OJK and Islamic banks could, within the Islamic banking development roadmap (OJK, 2023), monitor the share of financing channelled to MSMEs and productive sectors in low-penetration provinces and track it against SDG 8.10 indicators; the present evidence supports such targeting as a policy hypothesis to be evaluated, not as a proven outcome. Second, the OJK should publish provincial Islamic financing and deposits by customer domicile, contract type and economic sector, as well as provincial Islamic P2P fintech data, so that distributive effects can be tested more precisely. Third, the OJK and BPS should keep the SNLIK methodology consistent across waves so that Islamic financial literacy can be compared validly over time.

The study has several limitations. First, it identifies within-province associations, not causal effects; despite two-way fixed effects and lagged regressors, endogeneity from time-varying omitted factors or reverse causality cannot be ruled out. Second, the panel is short ($T = 7$) and the number of clusters is small (31), which limits the precision of robust inference and makes dynamic estimators such as system GMM unsuitable. Third, financing and deposits are recorded by bank office location, and fixed effects remove only the time-invariant part of this bias. Fourth, Papua, West Papua and North Kalimantan are excluded, so the results may not generalise to these regions. Fifth, Islamic financial literacy and Islamic P2P fintech cannot be tested because provincial data are unavailable. Future research could exploit quasi-experimental variation from regional bank conversions or the Aceh Qanun, longer panels, and customer-level or district-level data.

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