Open Access Indonesia Journal of Social Sciences

Vol. 9 · No. 6 · 2026 · pp. 338–358 · Article ID 340

e-ISSN 2722-4252 · *Journal homepage: journalsocialsciences.com/index.php/oaijss*

ORIGINAL ARTICLE

Pious Consumption, Gendered Intra-Household Asset Control, and Intergenerational Wealth Stratification Across Urban–Rural Class Divides: Multi-Tier Panel, Unconditional Quantile Oaxaca–Blinder Decomposition, and Set-Theoretic Evidence

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ARTICLE INFORMATION

Received: October 1, 2026
Revised: October 15, 2026
Accepted: November 15, 2026
Available Online: December 22, 2026
Published: December 30, 2026

Keywords: Customary kinship; Faith-based consumption; fsQCA; Gendered asset control; Indonesia; Urban–rural divides; Wealth stratification

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DOI: https://doi.org/10.37275/oaijss.v9i6.340

ABSTRACT

Background: Wealth transfers, property rights, and faith-based consumption may jointly shape inequality across urban–rural divides. How they are related remains insufficiently understood.

Objective: To examine how pious consumption (proxied by faith-based non-profit consumption), gendered asset control, and wealth stratification are related, using global and Indonesian public data.

Methods: Four analytical tiers used 161,320 public records. Tier 1 compared 185 economies and a panel of 3,837 country-years. Tier 2 compared gender-asset indicators across 72 Demographic and Health Surveys countries and Indonesian survey waves. Tier 3 applied quantile decompositions, augmented inverse-probability weighting, and Markov models to 514 Indonesian districts. Tier 4 applied fuzzy-set qualitative comparative analysis to 34 provinces.

Results: Unequal inheritance laws were associated with 4.27 percentage points higher top-decile concentration ($p = 0.00033$). Within-country gains in women's empowerment were associated with a 7.55 percentage-point lower share ($p = 0.0056$). Indonesian female house-deed registration was 14.5% in the lowest wealth quintile and 28.4% in the highest, whereas solo ownership was 18.8% and 20.2%. Provincial non-profit consumption was associated with a lower mean-to-poorest-quintile consumption ratio ($\beta = -0.0829$, $p = 0.0124$). Urban–rural quantile gaps shifted from 92.87% endowment contributions at Q10 to 73.58% coefficient (structural-return) contributions at Q75. District consumption retention was 75.20% in the bottom quartile and 81.45% in the top quartile ($\lambda_2 = 0.8493$).

Conclusion: The findings support further evaluation of inheritance equalization, spousal joint-titling, and productive redistribution as approaches to reducing wealth stratification. District persistence and household intergenerational mobility require distinct interpretation.

All authors approved the final version of the manuscript.

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1. Introduction

1.1. Wealth stratification, gendered parental and marital transfers, and intra-household power

Stratification sociology and comparative political economy converge on one point. Existing research suggests that long-run class reproduction is shaped by how families accumulate, title, divide, and transmit wealth across generations. The dispersion of labor-market earnings matters as well. Experiments add detail. Recent factorial survey experiments and administrative register analyses show that normative judgments about unequal parental wealth transfers systematically favor lineage continuity and male or primary-earner heirs when indivisible real-estate or family-business assets are at stake,[1,2] and persistent cross-national gender wealth gaps follow, even inside nominally egalitarian welfare states.[3] Tax registries tell a similar story. Inheritance and inter-vivos gift tax records reveal a sizable gender tax-and-transfer gap in parental bequests. Sons disproportionately receive tax-exempt productive business equity and real property early in adulthood.[4] Class-origin inequalities in net worth compound across cohorts.[5,6] Probate records from postcolonial economies such as Kenya, both historical and contemporary, show that statutory reforms alone only partially narrow gender wealth disparities, because customary lineage norms continue to mediate estate division.[7] Siblings offer a final test. Sibling-linked wealth registers show that intrafamilial gender norms stratify net worth even among brothers and sisters raised under identical parental resources.[8]

Marital sorting and intra-household property regimes also reinforce wealth concentration between households. Longitudinal household wealth panels show that assortative mating amplifies between-household net-worth inequality, while asymmetric marital property rules widen wealth gaps within couples.[9] Cumulative gender disparities in lifetime earnings compound across the life course.[10] Disputes matter too. Inheritance disputes arise when testators deviate from equitable division or when statutory codes clash with customary obligations. They were usually resolved by spreading fortunes, yet they reified normative family structures and produced categorical inequalities, including by gender.[11] Fertility is falling rapidly in some demographic cohorts, and singleton daughters there face no brother competition, yet extended family expectations and housing-finance norms reintroduce gendered disparities in property accumulation upon marriage.[12] Unequal distributions of financial security and ontological wellbeing

result, from young adulthood into old age.[13] Marriage itself shows the same asymmetry. Qualitative and mixed-methods investigations expose what Wong and Daminger term 'the myth of mutuality': couples routinely endorse egalitarian rhetoric in everyday budgeting, but husbands retain unilateral agenda-setting power over major lumpy asset purchases and financial commitments.[14,15] In entrepreneurial and property-owning households, such asymmetries facilitate patriarchal rent-seeking, whereby wives supply unpaid domestic and family-enterprise labor without a commensurate legal claim over business equity.[16] Millions of married women in transitional and agrarian societies end up in an 'unlanded class'. Natal inheritance and marital title deeds both exclude them.[17]

1.2. The dual dialectic of pious consumption: commodified distinction versus moral-economy solidarity

Western wealth-stratification scholarship has focused overwhelmingly on secular tax registries and nuclear-family bequests. Economic life across much of Asia, the Middle East, and Africa is deeply structured by religious consumer cultures and faith-based moral economies. Indonesia shows this clearly. This Muslim-majority democracy, one of the world's most populous nations, has seen decades of urbanization, rising secondary schooling, and digital mediation, and these changes have catalyzed vibrant politics of Islamic consumerism that stretch across metropolitan middle classes and aspirational working-class communities alike.[18] Popular preaching circuits, celebrity clerics, and Islamic counter-publics package ethical self-cultivation together with marketized halal goods, modest fashion, Sharia mortgages, and pilgrimage tourism.[19–21] Formichi's concept of 'domestic nationalism' describes how state and civic discourses frame pious Muslim women as custodians of harmonious domesticity.[22] Ethnographies across South and Southeast Asia point to potent symbolic boundaries. Veiling, halal dining, and private Islamic schooling are the means through which upwardly mobile families signal moral respectability and class distinction.[23] Women's engagement with religious orthodoxy is neither monolithic nor passively submissive. Recent fieldwork documents devout women who cultivate a pious feminist consciousness and contest male domestic domination from within scriptural traditions.[24] This evidence complicates reductive Western assumptions about patriarchy. It reveals multidimensional, class-contingent gender beliefs across contemporary Muslim publics.[25]

A Bourdieusian sociology-of-consumption perspective treats pious expenditure as a structural tension. On one side, global studies of affluent strata show that ethical, sustainable, and culturally consecrated consumption practices forge elite social cohesion and symbolic closure.[26] Everyday moralized lifestyles reproduce class hierarchies.[27] They also perform socio-economic distinction across unequal class strata.[28] Recent consumer-culture research adds three findings. Individuals actively renegotiate religiosity across biographical consumption trajectories as they ascend urban class ladders.[29] Gendered faith authority shapes household halal expenditure priorities.[30] Halal branding in Indonesia has become an arena in which spirituality meets market commodification among the expanding Muslim middle class.[31] On the other side, classical and modern religious economies institutionalize obligatory horizontal and vertical redistribution, as in Islamic *zakat* (wealth and income tithes), *infaq*, *sedekah*, and cash or land *waqf* (perpetual charitable endowments), alongside Christian diaconal and customary mutual-aid funds. One empirical question remains open in stratification sociology. Does aggregate faith-based non-profit consumption exacerbate class polarization through lifestyle commodification, or does it compress bottom-tail deprivation by cushioning the poorest quintile?

1.3. Legal pluralism, effective land titling, and broken mobility ladders across Indonesia's urban–rural divide

Resolving this dialectic requires linking religious consumption and macro-inequality directly to intra-household asset control and subnational customary kinship institutions. Indonesia offers evidence. Household panel analyses confirm that women's intra-household bargaining power significantly improves intergenerational human-capital investments, such as children's nutrition and health,[32] and comparative feminist-economic evidence agrees that gendered social norms govern workspace choice, collateral access, and microenterprise productivity.[33] Land tells a harder story. Development scholarship across Latin America and South Asia warns of a pervasive chasm 'in between rights and power'. In Mexican ejidos, formal land rights often fail to translate into practical control when patriarchal community norms exclude wives from actual alienation and management authority.[34] Women's land ownership, even without formal title, is associated with higher household food security, whereas naming women on titles is associated with greater decision-making empowerment.[35,36] Equalizing women's statutory inheritance rights is associated with better child nutritional health in India, operating partly through education and bargaining power.[37] Hence the need for data. Sex-disaggregated, individual-level asset data collection is indispensable for uncovering inequalities that conventional household-head surveys conceal.[38]

Indonesia offers a subnational setting for testing these mechanisms. One national statutory framework applies everywhere. Indonesia's 1974 Marriage Law (Law No. 1/1974, Article 35) designates property acquired during marriage as joint marital property (*harta bersama* or *gono-gini*), and the 1991 Compilation of Islamic Law (*Kompilasi Hukum Islam*, Presidential Instruction No. 1 of 1991) sits alongside it.[39] Within this framework, the 34 provinces contain widely divergent customary kinship (*hukum adat*) systems. These include devout Muslim matrilineal lineage property (*pusako tinggi*) in Minangkabau West Sumatra; Sharia-autonomous uxorilocal house gifting (*hareuta peunulang*) in Aceh; bilateral *gono-gini* cognitive kinship across Java, Kalimantan, and Sulawesi; patrilineal clan *marga* inheritance in Batak North Sumatra; strict Hindu-customary male-line compound inheritance (*purusa*) in Bali; and patrilineal bridewealth (*belis*) lineage control in Christian-majority East Nusa Tenggara. Subnational economic research adds further context. Interprovincial wealth inequality in Indonesia is driven largely by real-estate and financial factor components.[40] Intergenerational persistence of economic status remains sizeable after two decades, although absolute mobility is high.[41] Labor-market Dualism creates 'broken ladders' between informal agrarian work and formal urban salariats,[42] and taxing high-wealth individuals poses compliance and fiscal governance challenges.[43] VanHeuvelen shows that inequality varies substantially across local labor markets within the United States, so that national averages conceal important differences.[44] By the same logic, understanding Indonesian and Global South stratification requires disaggregating both

urban–rural district distributions and provincial kinship-piety configurations.

Four empirical tiers answer these needs. They draw on 161,320 public records whose files were checked by SHA-256 checksum. Tier 1 is a 185-country panel. It covers statutory inheritance rules, societal piety, and the World Inequality Database (WID). Tier 2 has two parts: a 72-country Demographic and Health Surveys (DHS) gender-asset benchmark, and multi-wave Indonesia DHS (2003–2017) analyses across wealth quintiles and all 34 provinces. Tier 3 covers every one of the 514 Indonesian districts (99 urban *Kota* and 415 rural *Kabupaten*). It applies Firpo–Fortin–Lemieux Recentered Influence Function (RIF) Unconditional Quantile Oaxaca–Blinder decompositions, Doubly Robust Augmented Inverse-Probability Weighting (AIPW), and spectral four-state Markov mobility modeling. Tier 4 turns to all 34 provinces. There we run exact four-value Fuzzy-Set Qualitative Comparative Analysis (fsQCA). The study asks whether statutory and customary property rules, title formalization inside the household, and faith-based non-profit consumption are associated with wealth stratification across Indonesian districts and provinces. It does not observe parent–child wealth transmission.

2. Methods

2.1. Open-science data provenance and multi-tier research design

All estimates in this manuscript are computed directly from five public data files from four sources: World Bank Women, Business and the Law; Quality of Government; the DHS Program StatCompiler (one global and one Indonesian file); and INDO-DAPOER. Together the files hold 161,320 records (965 + 6,695 + 27,947 + 2,604 + 123,109; 36.66 MB), and SHA-256 checksums were used to check the integrity of each file. All records are observed data; no simulated observations are used. One missing provincial fsQCA condition (PIOUS_CONS for Kalimantan Tengah) was assigned a median membership category, as described in Section 2.4. Tier 1 unites two global macro-comparative archives. First, we extract 965 economy-indicator records from the World Bank Women, Business and the Law (WBL Source 14) statutory legal database,[45] which covers 185 sovereign economies after regional aggregates are excluded. These records measure five exact statutory family-property provisions: equal filial inheritance rights for sons and daughters (GD_WBL_AST_LAW_INHERCHLD), equal spousal inheritance rights for surviving wives and husbands (GD_WBL_AST_LAW_INHERSP), equal administrative authority over marital assets (GD_WBL_AST_LAW_MARASST), equal rights to own immovable real property (GD_WBL_AST_LAW_OWNIMMBL), and statutory recognition of non-monetary domestic contributions / default joint marital property titling (GD_WBL_AST_MRG_JNTTITL). Second, we merge 6,695 country-year panel records from the Quality of Government (QoG Standard Time-Series, January 2025 release). These link several series. World Inequality Database (WID)[46] pre-tax Top-10% and Top-1% national income/wealth concentration shares come as wid_top10 and wid_top1. World Values Survey (WVS Waves 5–7)[47] country-wave micro-aggregates cover societal religious piety (wvs_imprel, a 1–4 scale of religious importance, matched across N = 106 sovereign countries with complete WID and WBL data) and patriarchal leadership norms (wvs_menpol). The Varieties of Democracy (V-Dem) women's civil-political empowerment index (vdem_gender, 0–1 scale) and the Fraser Institute legal property-rights protection measure (fi_legprop, 0–10) are included too. World Development Indicators (WDI) supply female labor-force participation and log real GDP per capita across 159 countries (3,837 complete country-years, 1995–2023).

Tier 2 retrieves official survey micro-aggregates through the Demographic and Health Surveys (DHS Program StatCompiler REST API v8).[48] It works at two nested levels. The first holds 27,947 global gender-asset and intra-household decision-making records from 72 low- and middle-income countries. The second holds 2,604 multi-wave Indonesian records from the 2003, 2007, 2012, and 2017 Indonesia Demographic and Health Surveys (IDHS),[49] disaggregated across all 34 Indonesian provinces, Urban versus Rural residence, and Household Wealth Quintiles (Lowest Q1 through Highest Q5). Key indicators capture women's and men's solo versus joint house ownership (WE_OWNA_W_HAL, WE_OWNA_W_HJN, WE_OWNA_M_HAL). They do the same for land (WE_OWNA_W_LAL, WE_OWNA_W_LJN, WE_OWNA_M_LAL). One records whether the woman's name is legally inscribed on a formal house title or deed (WE_HODO_W_NTD). Spousal decision-making over major household purchases is the last indicator group (WE_DMKP_W_WAO, WE_DMKP_W_WHP, WE_DMKP_W_MAO).

Tier 3 extracts 123,109 official subnational panel records from the World Bank Indonesia Database for Policy and Economic Research (INDO-DAPOER, Source 45).[50] The records originate from *Badan Pusat Statistik* SUSENAS National Socio-Economic Surveys and Regional Accounts. They span all 514 Indonesian districts (415 rural *Kabupaten* regencies and 99 administratively autonomous urban *Kota* municipalities; 7,934 district-year panel observations, 2005–2020) and all 34 provinces; the provincial non-profit consumption panel covers 2010–2018. The measured district and provincial series are as follows: monthly per-capita household consumption expenditure (HOU.XPD.PC.CR); monthly per-capita consumption of the poorest 20% quintile (HOU.XPD.TOTL.20POOR.CR); within-district consumption Gini coefficients (SI.POV.GINI); household educational expenditure share (HOU.XPD.EDU.PC.ZS); senior-secondary net enrollment (SE.SRSEC.NENR.ZS); adult literacy rates (SE.ADT.LITR.ZS); and the commercial trade-and-financial-services value-added share of regional GDP. Provincial consumption expenditure of Non-Profit Institutions Serving Households (NE.GDI.CON.NPI.CR) is normalized by private household consumption (NE.GDI.CON.PRVT.CR). This series measures aggregate non-profit-institution consumption, not a separately identified religious-transfer component. NPISH consumption includes religious and other civic organizations.[51] Interpreting it as pious consumption is an unvalidated proxy assumption.[52]

2.2. Operationalizing archipelagic customary kinship pluralism under shared statutory law

A central analytical innovation of Tier 2 and Tier 4 lies in using Indonesia's subnational legal pluralism to disentangle religious piety from customary lineage rules. At the national statutory level, Article 35 of Marriage Law No. 1/1974 and Articles 85–97 of the 1991 Compilation of Islamic Law (*Kompilasi Hukum Islam*) distinguish joint marital property (*harta bersama*) from separate inherited or gifted property. Division follows applicable law and marital agreements. Classical Islamic *faraid* filial rules, meanwhile, prescribe a 2:1 son-to-daughter ratio on residual natal estates unless

bilateral parental *hibah* gifts override them. In practice, provincial *hukum adat* kinship regimes largely decide two things. One is whether wives' names are inscribed on National Land Agency (*Badan Pertanahan Nasional*, BPN) certificates. The other is whether daughters inherit natal houses and land. We coded all 34 provinces against established Indonesian legal-anthropological classifications. Four major kinship families result. (1) Matrilineal Pious *Adat* in West Sumatra (Minangkabau). Ancestral houses and wet-rice land (*harta pusako tinggi*) pass strictly through the female maternal clan line, alongside devout adherence to Islam ('*Adat basandi Syarak, Syarak basandi Kitabullah*'). (2) Uxorilocal Sharia-Autonomous *Adat* in Aceh. Customary parental marriage gifts (*hareuta peunulang*) endow daughters with the marital residence. (3) Bilateral *Gono-Gini* / Islamic Hybrid kinship across 23 provinces in Java, Kalimantan, and much of Sumatra, Sulawesi, and West Nusa Tenggara. Cognatic descent recognizes both sons and daughters. (4) Patrilineal Customary *Adat* across 9 provinces, spanning strict Hindu-Balinese male-line compound inheritance (*kapurusa*) in Bali, patrilineal clan bridewealth (*belis*) in East Nusa Tenggara, Batak *marga* patriliny in North Sumatra, *Pepadun*/*Saibatin* patriliny in Lampung, and customary patrilineal clan land tenure across Papua, West Papua, Maluku, and North Maluku.

2.3. Distributional econometrics: RIF quantile Oaxaca–Blinder, TWFE, doubly robust AIPW, and spectral Markov chains

Mean regressions and standard mean Oaxaca–Blinder decompositions can hide a divergence. They miss how endowments and structural market returns differ between the poverty floor and the affluent strata. Our approach builds on recent unconditional quantile decomposition analyses of Indonesian expenditure inequality,[53] on fixed-effects quantile methodology in Sociological Methods & Research,[54] and on contemporary extensions of Kitagawa–Oaxaca–Blinder counterfactual decompositions.[55] We estimate Firpo–Fortin–Lemieux Recentered Influence Function (RIF) Unconditional Quantile Oaxaca–Blinder decompositions for all 514 districts.[56–58] Group U comprises 99 urban *Kota*. Group R comprises 415 rural *Kabupaten*. Quantiles are τ in (0.10, 0.25, 0.50, 0.75, 0.90). Let Y be log per-capita district consumption and q_τ the unconditional quantile. The recentered influence function is defined as $\mathrm{RIF}(Y; q_\tau, F_Y) = q_\tau + (\tau - I(Y \le q_\tau)) / f_Y(q_\tau)$, and $f_Y(q_\tau)$ is estimated with a Gaussian kernel density using a Silverman plug-in bandwidth. Group-specific RIF values are projected onto district structural covariates X (senior-secondary net enrollment, adult literacy, commercial-financial GDP share, and household educational investment share) by OLS with MacKinnon–White HC3 heteroskedasticity-consistent standard errors.[59,60] The projection splits the unconditional urban–rural quantile gap $\Delta_\tau = q_{U,\tau} - q_{R,\tau}$ into two parts: an Explained Endowment/Composition effect $\Delta X \cdot \beta_R$ and an Unexplained Structural Return effect $X_U \cdot (\beta_U - \beta_R)$. The unexplained component is a residual: it contains differences in coefficients and any omitted variables, so it is not read as a causal return to skills.

Two strategies estimate within-unit associations over time and adjusted treatment contrasts. Part (a) uses two-way fixed-effects (TWFE) panel models with entity and year fixed effects and entity-clustered standard errors.[61] They cover 159 countries (Tier 1), 34 provinces (Tier 3 pious consumption share on the Mean-to-Poorest-20% consumption ratio), and 514 districts (Tier 3 household educational expenditure share on senior-secondary net enrollment and within-district Gini). Part (b) is cross-sectional. It applies Doubly Robust Augmented Inverse-Probability Weighting (AIPW)[62] to all 514 districts for two binary structural treatments. The first is above-median Commercial-Financial Class Modernization, which predicts District Gini points. The second is above-median Senior-Secondary Schooling Expansion, which predicts Bottom-20% log consumption. Propensity scores are clipped to (0.05, 0.95). We report 250-draw nonparametric bootstrap standard errors, standardized mean difference (SMD) covariate balance reductions, VanderWeele E-values,[63] and Cinelli–Hazlett robustness values[64] (RV_q). Dichotomizing at the median discards information, and the AIPW contrasts are cross-sectional associations, not experimental effects.

We quantify multi-year stratification persistence without imposing linear intergenerational elasticity functional forms. To do so, we implement the spectral Markov-chain persistence framework of Blume, Cholli, Durlauf, and Lukina,[65] a framework that complements recent advances in geographic multigenerational mobility[66] and generalized mobility regressions.[67] The balanced panel holds N = 497 Indonesian districts observed continuously in both the 2008–2012 baseline window and the 2015–2020 destination window, after excluding 17 post-2012 newly proliferated *pemekaran* administrative splits. Districts fall into four quartile states S in (Q1, Q2, Q3, Q4). Classification is separate for per-capita consumption and for senior-secondary net enrollment. Each classification gives a 4 × 4 row-stochastic transition matrix $P = (p_{ij})$. From it we compute bottom-trap retention (p_{11}), top-quartile lock-in (p_{44}), and the Shorrocks Mobility Index $M(P) = (4 - \mathrm{trace}(P)) / 3$.[68] Blume–Durlauf Immobility Memory λ_2 is the second-largest modulus eigenvalue of P, where $\lambda_1 = 1$. The asymptotic convergence half-life is $h = \ln(2) / |\ln(\lambda_2)|$, measured in transition periods (one transition is the move from the 2008–2012 window to the 2015–2020 window).

2.4. Four-value fsQCA calibration and integrative joint-display protocol

Subnational kinship norms, formal property titling, pious transfers, and urban commercialization interact configurationally, not additively. Tier 4 therefore applies exact Ragin four-value Fuzzy-Set Qualitative Comparative Analysis (fsQCA).[69] Membership scores take the values 0.00, 0.33, 0.67, 1.00. The analysis covers all N = 34 Indonesian provinces and adheres strictly to Rohlfing's transparency safeguards against positive-results calibration bias.[70] Five institutional conditions are calibrated against quartile/substantive empirical anchors documented in the Supplementary Codebook. (1) PIOUS_CONS is the provincial faith-based non-profit consumption share of household consumption. Kalimantan Tengah has a single unarchived regional NPI cell. It is transparently coded at the national median category 0.67 without altering prime implicants. (2) FEM_ASSET_CTRL is the combined solo and joint female house and land incidence in IDHS 2017, and (3) FORMAL_TITLE is the percentage of women homeowners with their name legally inscribed on the house title deed (WE_HODO_W_NTD). (4) KINSHIP_EGAL takes the value 1.00 for matrilineal Minangkabau and Sharia-uxorilocal Aceh, 0.67 for bilateral *gono-gini* provinces, 0.33 for mixed patrilineal-bilateral provinces, and 0.00 for strict patrilineal *purusa*, *belis*, *marga*, *Pepadun*, and eastern clan *adat*. (5) URBAN_CLASS combines provincial commercial-financial GDP share and household educational investment share. The outcome EQUITABLE_MOBILITY calibrates high senior-

secondary inclusion paired with a compressed Mean-to-Poorest-20% class consumption ratio. Conservative Quine–McCluskey Boolean minimization, which injects zero counterfactual remainders, is executed for both EQUITABLE_MOBILITY and ~EQUITABLE_MOBILITY (raw consistency ≥ 0.80, PRI ≥ 0.65).[71] The integrative mixed-methods framework of Younas and Fàbregues[72] then guides the synthesis. Tier 4 merges quantitative econometric estimates and set-theoretic configurations into a formal Joint Display (Table 7).

3. Results

3.1. Tier 1 global macro-legal evidence: inheritance asymmetry, piety, and top-decile concentration

Table 1 and Figure 1 report our global macro-comparative and longitudinal panel findings for 185 sovereign economies. Statutory family-property discrimination remains deeply rooted. It affects one-fifth of the world's legal systems. Daughters are denied equal statutory inheritance rights alongside sons in 21.62% of sovereign states, and surviving wives face the same denial relative to surviving husbands in 22.70%. That gives 43 jurisdictions with statutory inheritance asymmetry versus 142 with equal inheritance. Most states formally permit women, married or unmarried, to hold immovable property in principle, yet only 52.97% mandate default marital community-property or joint-titling arrangements that legally credit spouses' unpaid domestic and caregiving contributions.

Cross-national comparison (Table 1, Panel A; Figure 1A) reveals institutional differences. Sovereign jurisdictions that retain unequal filial or spousal inheritance statutes show +4.27 percentage points (pp) higher WID Top-10% national income/wealth concentration than equal-inheritance states (49.06% vs. 44.79%, Welch t = 3.708, p = 0.00033). Female labor-force participation is lower in unequal-inheritance jurisdictions, by −13.45 pp (30.84% vs. 44.29%, $p = 1.82 \times 10^{-8}$). Their V-Dem women's civil-political empowerment index is lower by 0.231 index points (0.553 vs. 0.784 on the 0–1 scale, $p = 1.04 \times 10^{-9}$). Cross-national HC3 regressions add controls for log real GDP per capita and female labor-force participation across N = 184 states (Table 1, Panel B). There, statutory inheritance inequality is associated with +2.348 pp higher top-decile concentration (SE = 1.365, p = 0.0872). Default marital joint-titling points in the equalizing direction (−2.140 pp). WVS Waves 5–7 cover N = 106 countries (Figure 1B). Aggregate societal religious piety correlates strongly there with higher top-decile concentration (HC3 β = +8.079 pp per unit on the 1–4 scale, SE = 1.806, $p = 2.01 \times 10^{-5}$). Earlier cross-national work also links economic inequality and religiosity,[73] and the regressions here cannot establish the direction. The pattern may also reflect shared historical and developmental legacies, which are not tested; the association is ecological.[74]

Table 1. Global Statutory Inheritance Regimes, Societal Religious Piety, and Top-Decile National Concentration: Cross-National Comparisons, HC3 Regressions, and 159-Country TWFE Panel (Tier 1).

Analytical Panel / Institutional Covariate	Sample Scope	Unequal Law / Slope Est.	Equal Law / Robust SE	Diff / t or z Stat.	p-Value & Substantive Interpretation
Panel A: Statutory Inheritance Asymmetry Across 185 Sovereign Jurisdictions (World Bank WBL + QoG/WID)					
WID Top-10% National Income/Wealth Proxy (%)	185 states (43 vs. 142)	49.06%	44.79%	+4.27 pp (t = 3.708)	p = 0.00033; asymmetric inheritance is associated with higher elite concentration
Female Labor-Force Participation Rate (%)	185 states (43 vs. 142)	30.84%	44.29%	-13.45 pp (Welch t)	$p = 1.82 \times 10^{-8}$; statutory property exclusion is associated with lower FLFP
V-Dem Women's Civil-Political Empowerment (0–1)	185 states (43 vs. 142)	0.553	0.784	-0.231 (Welch t)	$p = 1.04 \times 10^{-9}$; strong institutional coupling with civil rights
Societal Religious Piety (WVS Importance of Religion, 1–4)	106 WVS-matched states	3.856	2.928	+0.928 scale pts	High piety co-occurs with plural personal-status regimes
Panel B: Cross-National HC3 Robust Regressions Predicting WID Top-10% Concentration Share (%)					
Model 1 — Statutory Unequal Filial/Spousal Inheritance	N = 184 states (R^2 = 0.187)	+2.348 pp	(1.365)	z = +1.720	p = 0.0872; net of log GDP pc & FLFP controls
Model 1 — Default Marital Joint-Titling & Domestic Valuation	N = 184 states (52.97% yes)	-2.140 pp	(2.155)	z = −0.993	p = 0.3220; statutory community-property direction
Model 2 — Societal Religious Piety (WVS 1–4 Scale)	N = 106 states (R^2 = 0.436)	+8.079 pp	(1.806)	z = +4.473	$p = 2.01 \times 10^{-5}$; cross-sectional piety–inequality gradient
Panel C: Longitudinal Two-Way Fixed-Effects (TWFE) Panel Predicting WID Top-10% Share (1995–2023)					
Within-Country V-Dem Women's Empowerment Gain (0–1)	N = 3,837 (159 states)	-7.545 pp	(2.685)	t = −2.810	p = 0.0056; country & year FE, country-clustered SE
Fraser Legal Structure & Property Rights Index (0–10)	N = 3,837 (159 states)	-0.064 pp	(0.347)	t = −0.184	p = 0.8532; generic property law neutral without gender parity

Note: Data harmonized from World Bank Women, Business and the Law (WBL Source 14; 965 indicator-economy records across 185 sovereign states) and Quality of Government (QoG Jan 2025) WVS/WID/WDI/V-Dem time-series (6,695 country-years). In WBL, 21.62% of states deny equal filial inheritance (GD_WBL_AST_LAW_INHERCHLD < 1) and 22.70% deny equal spousal inheritance (GD_WBL_AST_LAW_INHERSP < 1). Panel C includes country and year fixed effects plus log real GDP per capita with country-clustered standard errors. The p values are two-sided and refer to the t distribution.

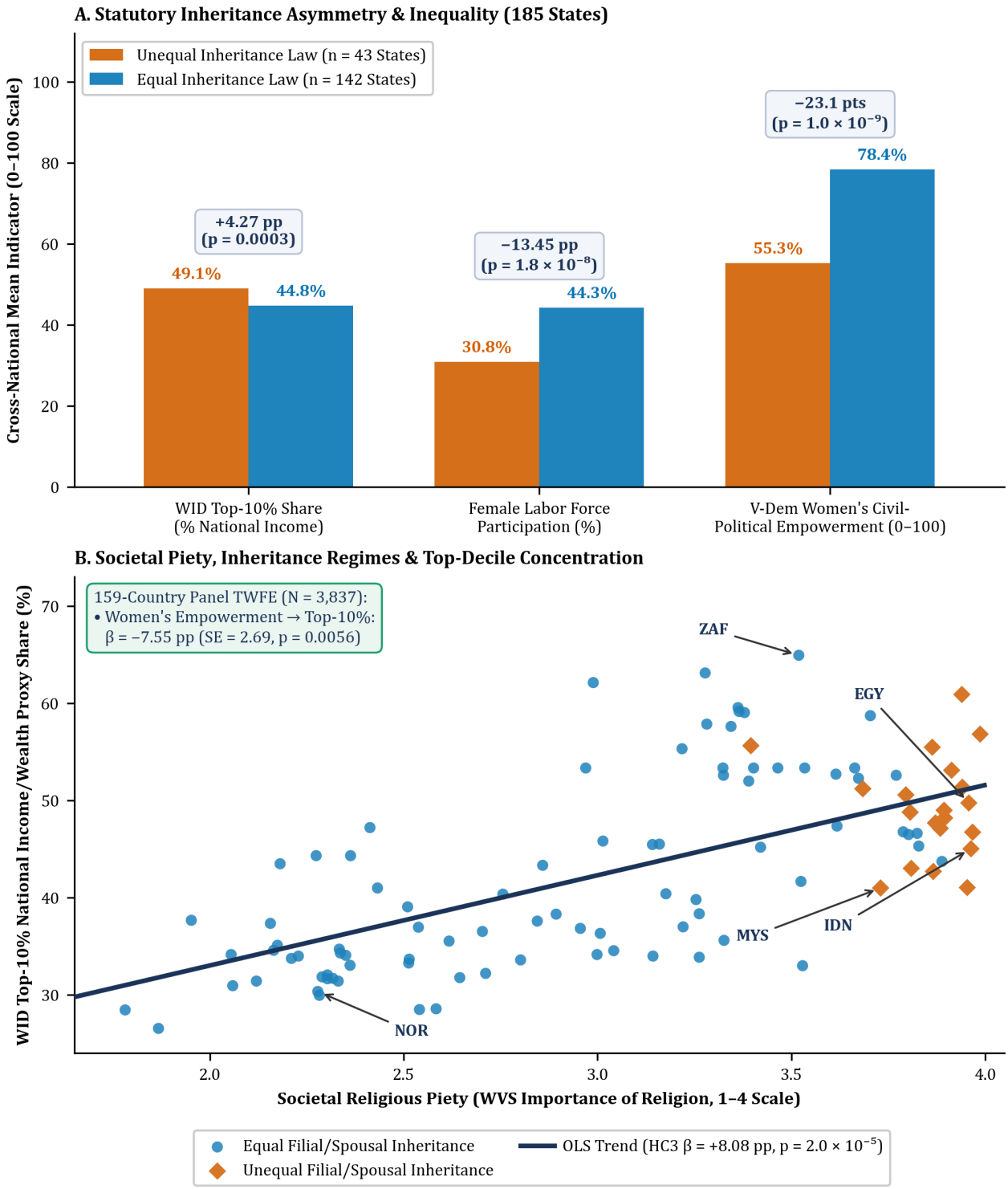


Figure 1. Global Statutory Inheritance Regimes, Societal Religious Piety, and Top-Decile Stratification (Tier 1: WBL, WVS & WID). Panel A contrasts WID Top-10% national income/wealth proxy shares (49.06% vs. 44.79%, +4.27 pp, p = 0.00033), female labor-force participation (30.84% vs. 44.29%, $p = 1.82 \times 10^{-8}$), and V-Dem women's civil-political empowerment (55.3% vs. 78.4%, $p = 1.04 \times 10^{-9}$) between sovereign jurisdictions with unequal (n = 43) versus equal (n = 142) statutory filial/spousal inheritance laws across 185 states. Panel B plots WID Top-10% concentration against WVS societal religious piety (N = 106, HC3 β = +8.08 pp, $p = 2.01 \times 10^{-5}$) alongside the 159-country longitudinal TWFE estimate (N = 3,837) showing that within-country gains in women's empowerment are associated with 7.55 pp lower Top-10% shares (p = 0.0056).

Cross-sectional correlations, however, cannot separate dynamic institutional change from colonial or developmental legacies. We therefore estimated the longitudinal two-way fixed-effects (TWFE) panel, which covers N = 3,837 country-years in 159 sovereign states from 1995 to 2023 (Table 1, Panel C; Figure 1B annotation box). The model absorbs all time-invariant national religious, geographic, and legal-origin constants, as well as global macro shocks. Within-country improvements in women's substantive civil and property empowerment are associated with lower WID Top-10% concentration (−7.55 pp; country-clustered SE = 2.685, p = 0.0056). Generic gender-blind commercial property-rights enforcement (Fraser fi_legprop) showed no statistical association with concentration (−0.064 pp, p = 0.8532). The estimates suggest that gains in women's empowerment, but not generic property-rights protection, were associated with lower top-decile shares.

3.2. Tier 2 intra-household asset asymmetry: the class-quintile formalization paradox and kinship regimes across provinces

Table 2 and Figure 2 move inside the household. They cover 72 global DHS countries and all 34 Indonesian provinces. In the 72-country global DHS benchmark (Table 2, Panel A), men's solo house ownership (21.86%) exceeds women's (8.18%) by +13.28 pp. Men's solo land ownership (17.91%) exceeds women's (7.11%) by +10.19 pp. Against this global backdrop, Women in Indonesia report higher solo house ownership (18.3%–20.2% across wealth quintiles) than the 72-country mean (8.18%). Yet splitting Indonesia by Household Wealth Quintile (IDHS 2017; Figure 2A) reveals what we call a 'Class-Quintile Title Formalization Paradox.' The proportion of women homeowners whose name appears on a formal house title deed is 14.50% in the Lowest quintile (Q1) and rises monotonically to 18.20% (Q2), 21.80% (Q3), 25.90% (Q4), and 28.40% (Q5), nearly twice the Q1 value (IDHS 2017 is a single cross-section). Higher registration is not matched by higher autonomous asset ownership. Women's solo house ownership stays virtually flat across the whole class hierarchy (18.80% in Q1 vs. 20.20% in Q5, a +1.40 pp difference). Joint spousal land ownership, meanwhile, contracts from 19.10% in agrarian Q1 to 13.00%–16.00% in the middle- and upper-class quintiles. Urban women also report lower overall house ownership (44.7% vs. 56.9% rural) and land ownership (21.2% vs. 36.9% rural). Metropolitan housing unaffordability and rental tenancy drive the gap. Urban owners nonetheless hold formal title deeds more often (25.9% vs. 19.1%).

Multi-wave IDHS data on marital bargaining point the same way. Four national surveys from 2003 to 2017 (Table 2, Panel A; Figure 2A text box) show what we label a 'patriarchal bourgeoisification' of household decisions during Indonesia's consumer and Islamic middle-class boom.[75] The share of married couples deciding on major household purchases jointly fell by 5.6 pp, from 66.4% (2003) to 62.5% (2007), 62.3% (2012), and 60.8% (2017). Unilateral husband control over major purchases, in contrast, rose from 17.8% (2003) and 17.5% (2012) to 23.3% in 2017 (+5.5 pp). One possible explanation, which the data do not test, is that rising household affluence and mortgage formalization register primary-earner husbands as the sole signatories on bank-financed urban houses and vehicles and so erode informal agrarian mutuality.

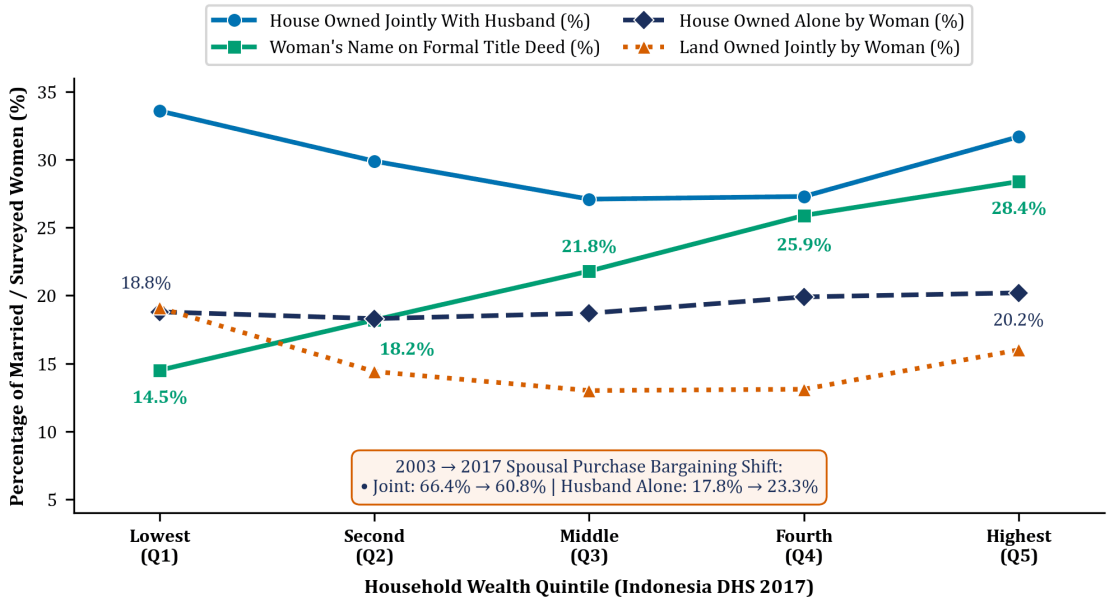
Table 2. Intra-Household Gendered Immovable Asset Control, Formal Title-Deed Registration, and Customary Kinship Regimes Across 72 Global DHS Countries and All 34 Indonesian Provinces (Tier 2).

Survey Stratum / Kinship Regime	Scope / Wave	Women House Alone (%)	Women House Joint (%)	Women Land Alone / Joint (%)	Woman's Name on Title Deed (%)	Men Solo House / Bargaining Benchmark
Panel A: Global Comparative DHS Benchmark & Indonesia Wealth-Quintile / Urban–Rural Gradients						
Global DHS Cross-National Mean	72 Countries	8.18%	—	7.11% / —	27.67%	Men solo house: 21.86% (+13.28 pp gap)
Indonesia Wealth Quintile Q1 (Lowest)	IDHS 2017	18.80%	33.60%	13.50% / 19.10%	14.50%	No house: 45.7% | High informal rural jointness
Indonesia Wealth Quintile Q2 (Second)	IDHS 2017	18.30%	29.90%	10.90% / 14.40%	18.20%	No house: 50.3% | Declining joint land share
Indonesia Wealth Quintile Q3 (Middle)	IDHS 2017	18.70%	27.10%	11.80% / 13.00%	21.80%	No house: 52.7% | Rising deed formalization
Indonesia Wealth Quintile Q4 (Fourth)	IDHS 2017	19.90%	27.30%	13.00% / 13.10%	25.90%	No house: 51.4% | Solo female house flat
Indonesia Wealth Quintile Q5 (Highest)	IDHS 2017	20.20%	31.70%	14.20% / 16.00%	28.40%	Deeds double (+13.9 pp) yet solo house +1.4 pp
Indonesia Rural vs. Urban Strata	IDHS 2017	20.6% vs. 18.0%	34.8% vs. 25.1%	15.6/19.8 vs. 9.9/10.5	19.1% vs. 25.9%	Urban tenancy lowers incidence; raises deeds
Spousal Major Purchase Bargaining Shift	IDHS 2003 -> 2017	Wife alone: 13.9->15.5%	Joint: 66.4->60.8%	—	—	Husband alone: 17.8% (2003) -> 23.3% (2017)
Panel B: Archipelagic Customary Kinship Natural Experiment Across All 34 Indonesian Provinces (IDHS)						
Matrilineal Pious (Minangkabau *Adat* — West Sumatra)	1 Province	16.70%	13.30%	13.10% / 7.20%	39.70% (#1 National)	Men solo house: 22.3% (*pusako tinggi* lineage)
Uxorilocal / Sharia-Autonomous (Aceh — *Hareuta Peunulang*)	1 Province	13.70%	31.30%	10.40% / 17.60%	20.50%	Men solo house: 22.5% (gap of 8.8 pp)
Bilateral *Gono-Gini* / Islamic Hybrid (Java, Kalimantan, etc.)	23 Provinces	17.33%	33.63%	13.72% / 19.98%	19.52%	Men solo house: 35.9% (52.31% any female house)
Patrilineal Customary Batak *Marga* (North Sumatra)	1 Province	15.40%	21.50%	12.80% / 16.10%	17.50%	Urban Medan commercialization offsets rural *adat*
Patrilineal *Pepadun/Saibatin* & Mixed *Adat* (Lampung, Bengkulu)	2 Provinces	11.35%	39.00%	9.75% / 25.05%	16.80%	Men solo house: 14.6%–50.2% across clans
Patrilineal Customary Eastern *Adat* (Papua, West Papua, Maluku)	4 Provinces	14.43%	35.83%	17.50% / 27.65%	11.78%	High informal cultivation; severe title exclusion
Patrilineal Customary *Purusa* (Bali — Male-Line Compound)	1 Province	3.30% (Lowest)	36.40%	2.80% / 11.20%	9.70%	Men solo house: 59.8% (+56.5 pp male gap)

Survey Stratum / Kinship Regime	Scope / Wave	Women House Alone (%)	Women House Joint (%)	Women Land Alone / Joint (%)	Woman's Name on Title Deed (%)	Men Solo House / Bargaining Benchmark
Patrilineal Customary *Belis* Bridewealth (East Nusa Tenggara)	1 Province	12.40%	39.60%	12.20% / 33.40%	8.90% (2nd Lowest)	Men solo house: 67.6% (+55.2 pp male gap)

Note: Compiled from Official DHS Program StatCompiler REST API v8 (27,947 global gender-asset rows across 72 countries and 2,604 Indonesian subnational/quintile rows across IDHS 2003, 2007, 2012, and 2017). Indicators: WE_OWNA_W_HAL (woman owns house alone), WE_OWNA_W_HJN (jointly), WE_OWNA_W_LAL/LJN (land alone/jointly), WE_HODO_W_NTD (woman's name on formal house title/deed among owners), and WE_DMKP_W_* (major household purchase decisions).

A. Class-Quintile Title Formalization vs. Solo-Asset Flatness



B. Archipelagic Kinship Regimes & Gendered Housing Control

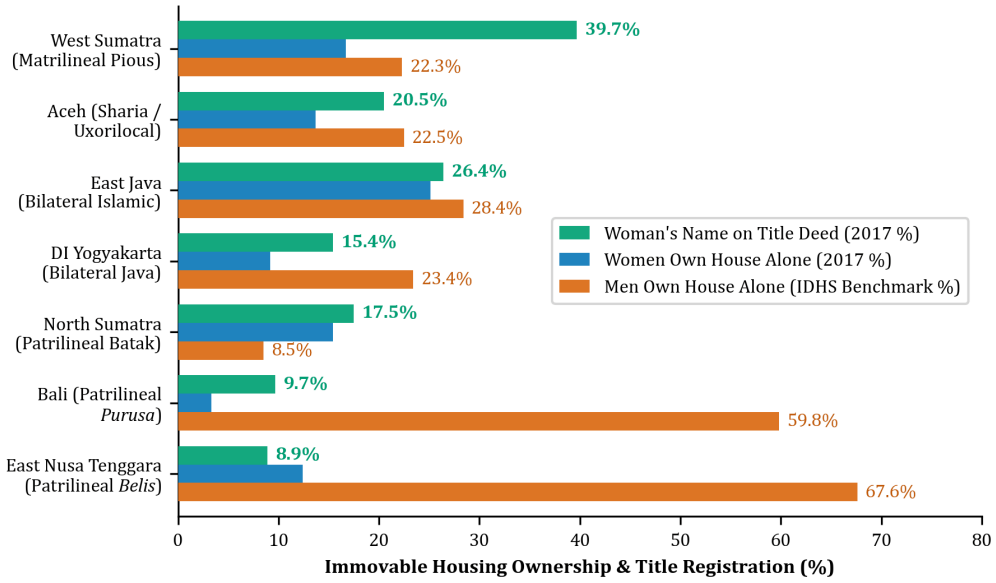


Figure 2. Intra-Household Gendered Asset Control Across Class Quintiles and Customary Kinship Regimes in Indonesia (Tier 2: Official IDHS Panels). Panel A illustrates the 'Class-Quintile Title Formalization Paradox' across Wealth Quintiles Q1–Q5 (IDHS 2017): formal inscription of the woman's name on house title deeds nearly doubles from 14.5% (Q1) to 28.4% (Q5), whereas women's solo house ownership stagnates (18.8% to 20.2%), joint land ownership declines, and unilateral husband control over major purchases rose from 17.8% (2003) to 23.3% (2017). Panel B contrasts female formal title deeds, female solo house ownership, and male solo house ownership across seven exemplar provinces spanning Matrilineal Pious (West Sumatra: 39.7% deed), Sharia-Uxorilocal (Aceh: 20.5%), Bilateral (East Java, DI Yogyakarta), and Patrilineal (North Sumatra, Bali *purusa*: 9.7% deed vs. 59.8% male solo; East Nusa Tenggara *belis*: 8.9% deed vs. 67.6% male solo) kinship regimes.

Panel B of Table 2 and Figure 2B present our 34-province comparison of kinship regimes. Female title registration differs widely among provinces under the same national statutes, which does not support claims that Islamic piety by itself causes female property exclusion.[25,76] The comparison is descriptive: kinship regimes are coded by the authors, one province represents each of the matrilineal and Sharia-uxorilocal regimes, and religion, ethnicity, urbanization, and land law vary together. Under them, devoutly Muslim Matrilineal West Sumatra (Minangkabau *pusako tinggi*) records the highest female formal house title-deed registration of the 34 provinces, at 39.70%, more than double the national bilateral average. Male solo house ownership there is only 22.3%. Aceh differs in another way. Sharia-autonomous Uxorilocal Aceh is the single province enforcing formal Islamic *qanun* bylaws, yet it rests on

customary *hareuta peunulang* house endowments for daughters. Even so, it reaches 20.50% female formal title deeds. The gender gap in solo house ownership is smaller than in the bilateral provinces (13.70% for women vs. 22.5% for men; 45.8% total female house ownership). Women in the 23 Bilateral *Gono-Gini* / Islamic Hybrid provinces average 19.52% formal title-deed inscription and 52.31% solo-or-joint house ownership. East Java (26.4% female deeds) and Central Java (24.8%) belong to this group. Female property rights collapse where strict non-Islamic or syncretic patrilineal customary law governs. In Hindu-majority Bali (patrilineal *purusa* compound inheritance), women's solo house ownership plunges to an archipelagic low of 3.30%, and solo land ownership falls to 2.80%. There, 9.70% of women hold a title deed, and male solo house ownership is 59.8%, which is 56.5 pp above the women's solo rate. Christian-majority East Nusa Tenggara (patrilineal *belis* bridewealth) is similar. Female formal title deeds reach 8.90%, and male solo house ownership is 67.6%, which is 55.2 pp above the women's solo rate (12.40%).

3.3. Tier 3 district stratification dynamics: faith-based non-profit consumption, urban RIF returns, and Markov persistence

Tables 3–5 and Figures 3–4 test how pious consumption, commercial urbanization, and schooling shape class inequality and multi-period mobility. The sample spans all 514 Indonesian districts (99 urban *Kota* and 415 rural *Kabupaten*; 7,934 district-years) and 34 provinces. The urban–rural class divide has two sides. Descriptive disaggregation shows that urban *Kota* record 53.0% higher mean monthly per-capita household consumption than rural *Kabupaten* (Rp 1,365,173 vs. Rp 892,553) and devote 54.8% more of household budgets to education (4.97% vs. 3.21%). Inequality differs, though. It is higher inside urban *Kota*. The mean Gini there is 0.3524, against 0.3243 in rural *Kabupaten*.

We estimated the Firpo–Fortin–Lemieux RIF Unconditional Quantile Oaxaca–Blinder decomposition across all 514 districts (Table 3; Figure 3A). The results show a shift from endowment-dominated to coefficient-dominated differences between the bottom decile and the upper-middle class, a shift that conventional mean decompositions do not show.[53,77,78] Start at the bottom decile, Q10. The total *Kota–Kabupaten* log consumption gap is +0.395 (HC3 SE = 0.044, $p = 5.32 \times 10^{-19}$). Observable composition differences explain 92.87% of the urban advantage (+0.367, $p = 3.38 \times 10^{-10}$), mainly through urban commercial-financial employment structure (+0.469). Unexplained structural return differences are statistically indistinguishable from zero (+0.028, 7.13%, p = 0.636). At Q25 (total gap = +0.417), endowments (48.00%) and structural returns (52.00%) reach parity. The picture reverses above the median. The unexplained component (differences in coefficients) dominates there. It accounts for 67.32% of the gap at Q50 (+0.294 of +0.437, $p = 1.25 \times 10^{-9}$) and peaks at 73.58% at Q75 (+0.338 of +0.459, $p = 2.78 \times 10^{-7}$). At Q90 it still stands at 65.08% (+0.290 of +0.446, p = 0.0012). Covariate-specific RIF return estimates give urban *Kota* steeper upper-quartile payoffs to Adult Literacy (+4.682 at Q75) and Household Education Investment (+0.839 at Q75). These patterns agree with the 'broken ladders' described for Indonesia:[42] identical schooling credentials are associated with smaller upper-middle-class returns in rural *Kabupaten*.

Table 3. Firpo–Fortin–Lemieux Recentered Influence Function (RIF) Unconditional Quantile Oaxaca–Blinder Decomposition of Urban *Kota* vs. Rural *Kabupaten* Log Per-Capita Consumption Across 514 Districts (Tier 3).

Unconditional Quantile (τ)	Urban *Kota* q_τ / Rural Kab. q_τ	Total Log Gap (HC3 SE, p)	Endowment / Composition $\Delta X \cdot \beta$ (% Share)	Structural Return $X \cdot \Delta\beta$ (% Share)	Dominant Covariate Endowment vs. Structural Return Drivers
Q10 (Bottom Decile, τ = 0.10)	13.795 vs. 13.400	+0.395 (0.044, $p = 5.32 \times 10^{-19}$)	+0.367 (92.87%, $p = 3.38 \times 10^{-10}$)	+0.028 (7.13%, p = 0.636)	Endowment-dominated: Commercial class (+0.469); returns statistically null
Q25 (Lower Quartile, τ = 0.25)	13.943 vs. 13.525	+0.417 (0.036, $p = 8.41 \times 10^{-31}$)	+0.200 (48.00%, $p = 3.55 \times 10^{-9}$)	+0.217 (52.00%, $p = 2.92 \times 10^{-6}$)	Parity crossover: Commercial endowment (+0.262) vs. Edu-invest return (+0.461)
Q50 (Median Stratum, τ = 0.50)	14.093 vs. 13.654	+0.437 (0.034, $p = 5.44 \times 10^{-37}$)	+0.143 (32.68%, $p = 1.28 \times 10^{-5}$)	+0.294 (67.32%, $p = 1.25 \times 10^{-9}$)	Return-dominated: Literacy return (+4.814) & HH Edu-invest return (+0.698)
Q75 (Upper-Middle, τ = 0.75)	14.242 vs. 13.784	+0.459 (0.038, $p = 4.40 \times 10^{-34}$)	+0.121 (26.42%, p = 0.0141)	+0.338 (73.58%, $p = 2.78 \times 10^{-7}$)	Largest coefficient-driven share (73.58%): Literacy (+4.682) & Edu-invest (+0.839) premia
Q90 (Affluent Decile, τ = 0.90)	14.414 vs. 13.967	+0.446 (0.045, $p = 1.73 \times 10^{-23}$)	+0.156 (34.92%, p = 0.0288)	+0.290 (65.08%, p = 0.0012)	Sustained urban capital-skill return advantage (+0.291 structural vs. +0.156 endow.)

Note: Estimated across all N = 514 Indonesian districts (99 urban Kota, mean consumption Rp 1,365,173/mo, mean Gini = 0.3524; 415 rural Kabupaten, mean consumption Rp 892,553/mo, mean Gini = 0.3243; derived from 7,934 district-years in World Bank INDO-DAPOER). RIF(Y; q_τ, F_Y) estimated via Gaussian Silverman kernel density with HC3 heteroskedasticity-robust standard errors. Covariates: Senior-Secondary Net Enrollment, Adult Literacy Rate, Commercial-Financial GDP Class Share, and Household Education Investment Share.

Table 4. Subnational Two-Way Fixed-Effects (TWFE) Panels, Doubly Robust AIPW Causal Estimates, and RIF District Gini Quantile Regressions Across Indonesian Provinces and 514 Districts (Tier 3).

Econometric Specification & Estimand	Sample Scope	Point Estimate (β / ATE)	Clustered / Bootstrap SE	95% CI / Balance Diagnostics	p-Value & Sensitivity Bounds
Panel A: Provincial & District Two-Way Fixed-Effects (TWFE) Longitudinal Panel Models					
Prov. TWFE: Faith-Based Pious Consumption Share -> Mean/Poorest-20% Class Ratio	N = 275 (34 prov., 2010–2018)	-0.0829	(0.0313)	[−0.1466, −0.0192] | Prov. & Year FE	p = 0.0124; association compatible with a moral-economy cushion

Econometric Specification & Estimand	Sample Scope	Point Estimate (β / ATE)	Clustered / Bootstrap SE	95% CI / Balance Diagnostics	p-Value & Sensitivity Bounds
Prov. TWFE: Faith-Based Pious Consumption Share -> HH Education Share (%)	N = 275 (34 prov., 2010–2018)	-0.0491	(0.0676)	[−0.1866, +0.0884] | Prov. & Year FE	p = 0.4730; no association with household schooling share
District TWFE: HH Education Expenditure Share -> Senior-Secondary Enrollment (pp)	N = 7,330 (514 dist., 2005–2020)	+0.779 pp	(0.1403)	[+0.504, +1.054] | Dist. & Year FE	$p = 4.49 \times 10^{-8}$; family investment is associated with higher enrollment
District TWFE: Log Per-Capita Consumption -> Within-District Gini Coefficient	N = 7,333 (514 dist., 2005–2020)	+0.1165	(0.0080)	HH Edu -> Gini: −0.0002 (p = 0.698)	$p = 1.07 \times 10^{-43}$; growth is associated with a wider within-district Gini
Panel B: Doubly Robust Augmented Inverse-Probability Weighting (AIPW) Across All 514 Districts					
AIPW Model 1: Commercial-Financial Class Modernization -> District Gini (×100)	N = 514 (257 treated / 257 ctrl)	+1.779 pts	(0.412)	[0.972, 2.587] | SMD: 1.22->0.24	$p = 1.55 \times 10^{-5}$ | E-value = 2.34 (CI 1.79), RV_q = 17.4%
AIPW Model 2: High Senior-Secondary Schooling Only -> Bottom-20% Log Consumption	N = 514 (257 treated / 257 ctrl)	+0.0271	(0.0276)	[−0.0271, +0.0813] | SMD: 0.67->0.11	p = 0.3266 (Null trickle-down without household assets)
Panel C: District Gini Coefficient (×100) Unconditional RIF Quantile Slopes (N = 514 Districts)					
Q10 Gini (0.277) vs. Q25 Gini (0.303)	N = 514 Districts	Urban *Kota*: +5.19 / +4.19	HC3 Robust	Sr-Sec Enroll: −0.053 (ns) / −0.049*	Urban *Kota* are associated with higher inequality even in egalitarian districts
Q50 Gini (0.327) vs. Q75 Gini (0.359) vs. Q90 Gini (0.383)	N = 514 Districts	Urban *Kota*: +4.49 / +4.44 / +2.37	HC3 Robust	Sr-Sec Enroll: −0.084*** / −0.071** / −0.083**	HH Edu Share is associated with a higher upper Gini (+0.008*** at Q50, +0.007* at Q90)

Note: Provincial pious consumption share equals Non-Profit Institutions Serving Households consumption (NE.GDI.CON.NPI.CR: zakat, waqf, mosque/church welfare, civic foundations; national mean = 2.37%) divided by private household consumption (NE.GDI.CON.PRVT.CR). AIPW propensity scores clipped to [0.05, 0.95] with 250-draw nonparametric bootstrap SEs, VanderWeele E-values, and Cinelli–Hazlett robustness values (RV_q).

Table 5. Four-State Longitudinal Markov Stratification Mobility Matrices and Blume–Durlauf Spectral Memory Diagnostics Across N = 497 Balanced Indonesian Districts (2008–2012 Origin to 2015–2020 Destination).

Origin Quartile (2008–2012) / Mobility Metric	Dest. Q1 (Bottom)	Dest. Q2 (Low-Mid)	Dest. Q3 (Up-Mid)	Dest. Q4 (Top Elite)	Substantive Persistence & Spectral Interpretation
Panel A: Per-Capita Household Consumption Class Transition Matrix (N = 497 Balanced Districts)					
Origin Q1 (Bottom Consumption Quartile, n = 125)	75.20% (n = 94)	20.00% (n = 25)	4.00% (n = 5)	0.80% (n = 1)	Strong bottom-quartile persistence (upward leap Q1 to Q4 = 0.8%)
Origin Q2 (Lower-Middle Quartile, n = 124)	21.77% (n = 27)	58.06% (n = 72)	20.16% (n = 25)	0.00% (n = 0)	Zero direct leap from Q2 into Top-Quartile Elite
Origin Q3 (Upper-Middle Quartile, n = 124)	3.23% (n = 4)	20.97% (n = 26)	58.06% (n = 72)	17.74% (n = 22)	Moderate adjacent churn; buffered from Q1 collapse (3.2%)
Origin Q4 (Top Elite Consumption Quartile, n = 124)	0.00% (n = 0)	0.81% (n = 1)	17.74% (n = 22)	81.45% (n = 101)	Top-quartile persistence (81.45%); 0.00% fall to Bottom Q1
Consumption Spectral Mobility Diagnostics	Shorrocks M = 0.4241	Memory λ_2 = 0.8493	Half-Life = 4.24 per.	Up Q1->Q3/4: 4.80%	Down Q4->Q1/2: 0.81% | High persistence (long memory)
Panel B: Senior-Secondary Net Enrollment Transition Matrix (N = 497 Balanced Districts)					
Origin Q1 (Bottom Schooling Quartile, n = 126)	69.84% (n = 88)	23.02% (n = 29)	4.76% (n = 6)	2.38% (n = 3)	Greater upward educational escape (30.16% leave Q1)
Origin Q2 (Lower-Middle Schooling, n = 123)	28.46% (n = 35)	46.34% (n = 57)	21.95% (n = 27)	3.25% (n = 4)	Higher middle-stratum educational fluidity (53.66% move)
Origin Q3 (Upper-Middle Schooling, n = 124)	0.81% (n = 1)	29.03% (n = 36)	45.97% (n = 57)	24.19% (n = 30)	Nearly 1 in 4 Q3 districts ascend into Top Schooling Q4
Origin Q4 (Top Schooling Quartile, n = 124)	0.81% (n = 1)	1.61% (n = 2)	27.42% (n = 34)	70.16% (n = 87)	11.29 pp lower top-stratum lock-in than consumption (70.2% vs. 81.5%)
Education Spectral Mobility Diagnostics	Shorrocks M = 0.5590	Memory λ_2 = 0.7754	Half-Life = 2.72 per.	Up Q1->Q3/4: 7.14%	Consumption half-life (4.24) is 1.56 times the schooling half-life (2.72)

Note: Balanced panel of N = 497 Indonesian districts observed continuously across both 2008–2012 baseline and 2015–2020 destination windows (excluding 17 post-2012 administrative pemekaran splits). Shorrocks Mobility Index M(P) = [K - trace(P)] / (K - 1) with K = 4; Blume–Durlauf Immobility Memory λ_2 equals the second-largest modulus eigenvalue of P; asymptotic convergence half-life = ln(2) / |ln(λ_2)|.

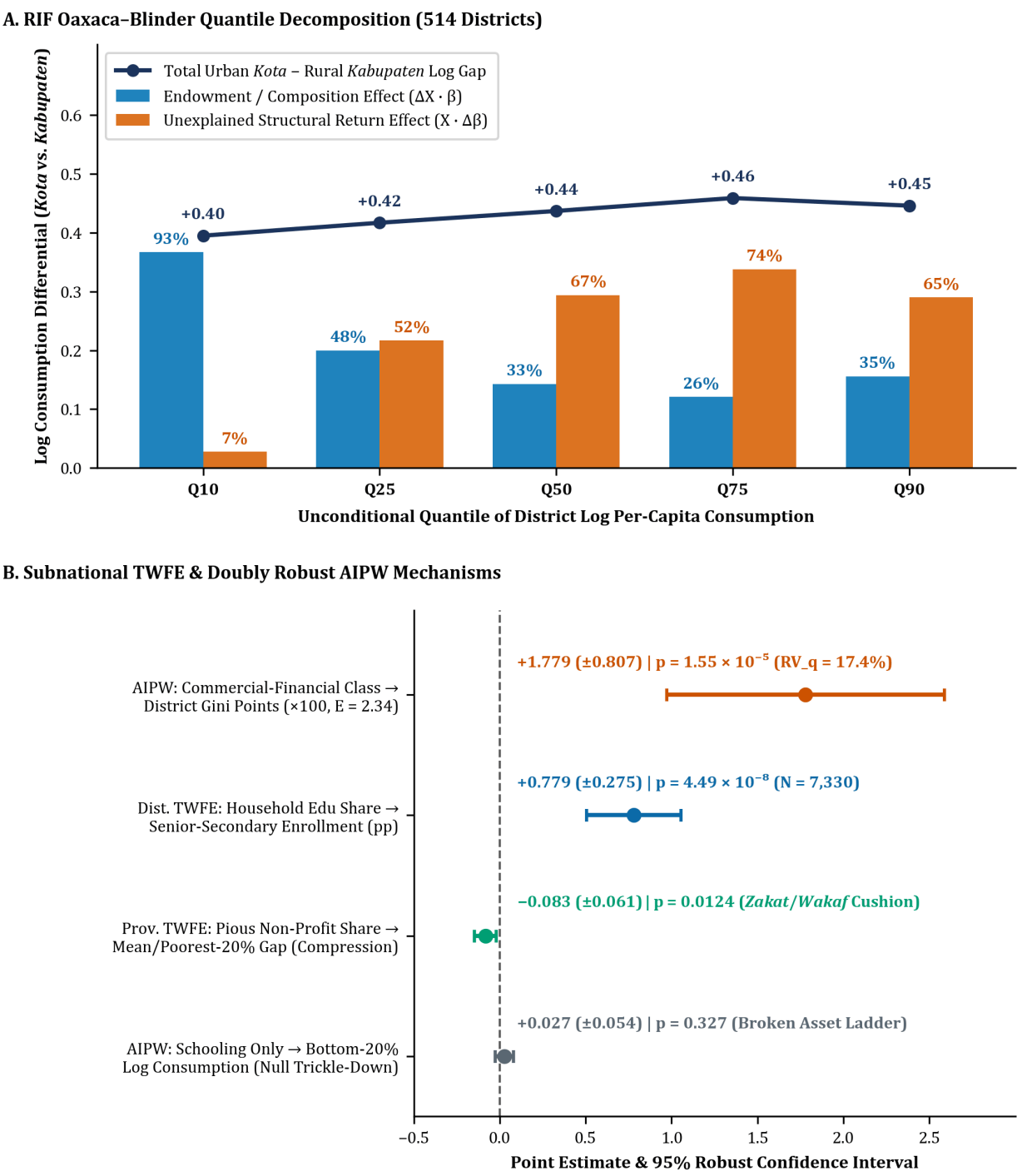


Figure 3. Urban–Rural Unconditional Quantile Oaxaca–Blinder Decomposition, Pious Solidarity TWFE, and Doubly Robust AIPW Estimates Across 514 Indonesian Districts (Tier 3: INDO-DAPOER). Panel A displays Firpo–Fortin–Lemieux RIF Unconditional Quantile Oaxaca–Blinder decompositions of the *Kota* vs. *Kabupaten* log consumption gap across Q10–Q90, showing the shift from 92.87% endowment-explained at Q10 (+0.367 of +0.395) to 73.58% unexplained structural-return share at Q75 (+0.338 of +0.459, $p = 2.78 \times 10^{-7}$). Panel B presents 95% confidence-interval forest plots for Commercial-Financial Class Modernization on District Gini (AIPW +1.779 pts, $p = 1.55 \times 10^{-5}$, E-value = 2.34, $RV_q = 17.4\%$), Household Education Share on Senior-Secondary Enrollment (District TWFE +0.779 pp, $p = 4.49 \times 10^{-8}$), Provincial Faith-Based Pious Consumption on Mean/Poorest-20% Compression (TWFE −0.0829, p = 0.0124), and the null Schooling-Only AIPW effect on Bottom-20% consumption (+0.027, p = 0.327).

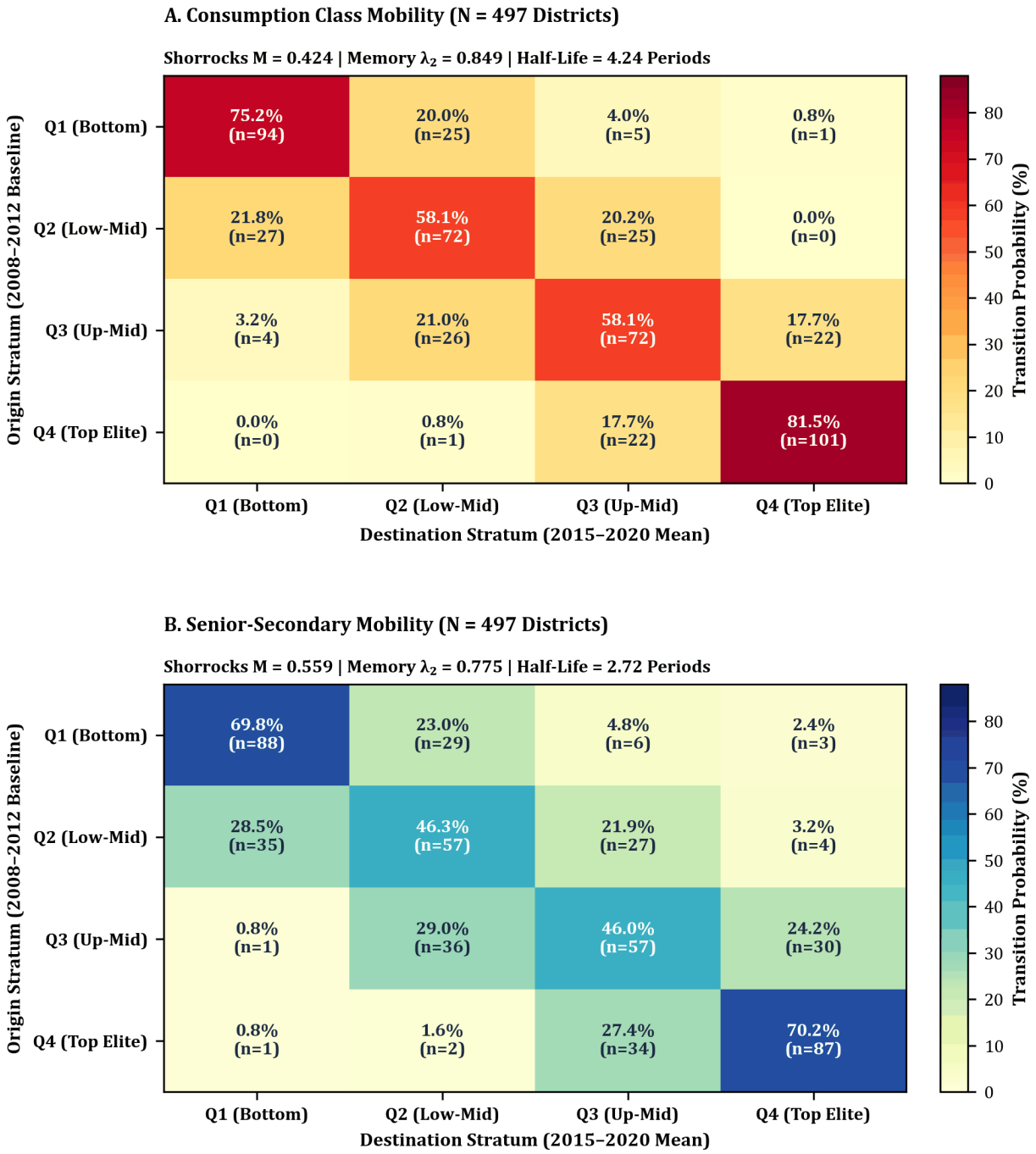


Figure 4. Four-State Longitudinal Markov Stratification Persistence: Consumption Lock-In vs. Educational Fluidity Across N = 497 Balanced Indonesian Districts (2008–2012 Baseline to 2015–2020 Destination). Panel A documents district-level Consumption Class Persistence (75.2% Bottom Q1 trap, 81.5% Top Q4 elite lock-in, Shorrocks M = 0.424, Blume–Durlauf Immobility Memory λ_2 = 0.849, half-life = 4.24 periods). Panel B shows substantially higher Senior-Secondary Educational Fluidity over the identical district panel (69.8% Q1 retention, 70.2% Q4 retention, Shorrocks M = 0.559, λ_2 = 0.775, half-life = 2.72 periods).

Subnational TWFE and Doubly Robust AIPW models (Table 4; Figure 3B) provide two sets of estimates: one on faith-based non-profit consumption and one on schooling without household assets. Consider first the provincial TWFE panels, which absorb province and year fixed effects (N = 275). A +1 pp expansion in Faith-Based and Non-Profit Pious Consumption Share (national mean = 2.37%; 4.59% in DI Yogyakarta, 4.54% in North Sulawesi, 4.47% in East Nusa Tenggara, 4.35% in North Kalimantan, and 3.29% in Aceh) is associated with a 0.0829 lower Mean-to-Poorest-20% Class Consumption Ratio (clustered SE = 0.0313, p = 0.0124; 34 clusters). This association agrees with a cushioning role of institutionalized *zakat*, *sedekah*, *waqf*, and congregational welfare transfers for bottom-quintile consumption. The non-profit series, however, cannot separate religious giving from other non-profit activity. Pious non-profit consumption alone, however, has a null direct slope on private household educational budget shares (−0.0491, p = 0.473). This null result does not show how the transfers are used; it agrees with a mostly consumptive orientation of religious charity. Across all 514 districts, Doubly Robust AIPW indicates that Commercial-Financial Class Modernization was associated with a +1.779-point difference in district Gini (SE = 0.412, z = 4.321, p = 1.55×10^{-5}; VanderWeele E-value = 2.34, CI bound = 1.79; Cinelli–Hazlett RV_q = 17.4%). Within-district TWFE shows that overall consumption growth is associated with a wider district Gini (+0.1165, p = 1.07×10^{-43}). Family educational budget shares are strongly associated with higher Senior-Secondary Net Enrollment in District TWFE (+0.779 pp, p = 4.49×10^{-8}, N = 7,330). Yet the Doubly Robust AIPW estimates show that expanding Senior-

Secondary Schooling alone was not statistically significant for Bottom-20% log consumption (+0.0271, SE = 0.0276, p = 0.3266; IPTW max |SMD| reduced from 0.667 to 0.111).

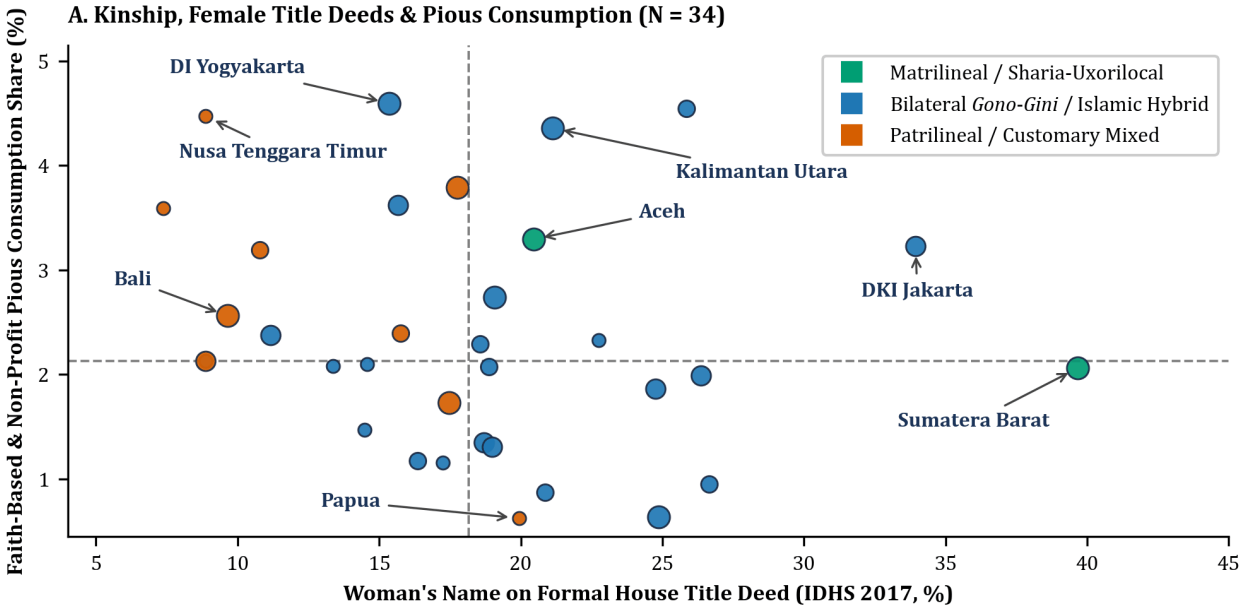
Table 5 and Figure 4 describe the persistence of district ranks across two observation windows. They rest on four-state longitudinal Markov transition matrices across N = 497 balanced districts[65] and do not observe parent–child transmission. Between 2008–2012 and 2015–2020, district Consumption Class strata show strong persistence at the bottom and the top (Figure 4A). Of the Bottom-Quartile (Q1) districts, 75.20% remain trapped in Q1 (94/125), and only 0.80% (1 district) ascend from Q1 to Top Elite Q4. No Q2 district (0.00%) reaches Q4. At the top, 81.45% of Top-Quartile Elite (Q4) districts lock in their privileged status (101/124, with 0.00% falling to Q1). Educational mobility looks different. Senior-Secondary Educational Mobility over the same 497 districts (Figure 4B) is far more fluid: Q1 retention drops to 69.84%, middle-quartile retention falls from 58.06% to 45.97%–46.34%, and Q4 elite retention declines by 11.29 pp to 70.16%. Spectral Blume–Durlauf diagnostics show that Consumption Shorrocks Mobility (0.4241) is much lower than Educational Mobility (0.5590). Consumption Immobility Memory (λ_2 = 0.8493, asymptotic convergence half-life = 4.24 periods) has a half-life 1.56 times that of Educational Memory (λ_2 = 0.7754, half-life = 2.72 periods).

3.4. Tier 4 four-value fsQCA across all 34 provinces: equifinal mobility versus asymmetric immobility

Table 6 and Figures 5–6 synthesize how five conditions combine across all N = 34 Indonesian provinces: provincial pious consumption (PIOUS_CONS), female immovable asset incidence (FEM_ASSET_CTRL), formal house title-deed registration (FORMAL_TITLE), egalitarian customary kinship (KINSHIP_EGAL), and commercial-educational class modernization (URBAN_CLASS). Necessity diagnostics (Table 6, Panel A) agree with equifinality. No single institutional condition reaches the 0.90 strict necessity threshold for EQUITABLE_MOBILITY. URBAN_CLASS (consistency = 0.7453, Relevance of Necessity RoN = 0.7970) and KINSHIP_EGAL (consistency = 0.7259, RoN = 0.7202) are the most relevant enabling contexts. FORMAL_TITLE (0.6659) and PIOUS_CONS (0.6465) may act as substitutes across distinct provincial regimes.

Conservative Quine–McCluskey minimization for EQUITABLE_MOBILITY (Table 6, Panel B; Figure 6A) achieves high overall Solution Consistency (0.8711, PRI = 0.7909, Solution Coverage = 0.5288) across three equifinal pathways. Pathway M-P1 (FEM_ASSET_CTRL * FORMAL_TITLE * KINSHIP_EGAL * URBAN_CLASS; consistency = 0.8759, PRI = 0.7807) is exemplified by East Kalimantan (P15), North Kalimantan (P16), Bangka Belitung (P17), and Riau (P26). It describes provinces in which bilateral kinship norms and formal BPN title-deed inscription accompany women's real-property holdings in commercializing economies. These provinces show broad secondary schooling (58.6%–68.1%) and compressed Mean/Poorest-20% class ratios (2.03x–2.42x). Pathway M-P2 (PIOUS_CONS * ~FEM_ASSET_CTRL * KINSHIP_EGAL * URBAN_CLASS; consistency = 0.7996, PRI = 0.7006) covers DI Yogyakarta (P05: 4.59% pious consumption, 8.98% household education investment), DKI Jakarta (P06: 3.22% pious share, 34.0% female deeds), West Nusa Tenggara (P22), and North Sulawesi (P31: 4.54% pious share). One reading is a compensatory moral-economy mechanism, which the conditions do not measure directly: where dense urban land markets depress solo female house incidence (~FEM_ASSET_CTRL), institutionalized religious-civic transfers and bilateral kinship may sustain high human-capital inclusion. North Sulawesi (P31) is a counter-example, because its outcome membership is 0.33; DKI Jakarta and West Nusa Tenggara have outcome memberships of 0.67 (Figure 6A). Pathway M-P3 (~PIOUS_CONS * ~FEM_ASSET_CTRL * ~FORMAL_TITLE * ~KINSHIP_EGAL * URBAN_CLASS; consistency = 0.8338) covers one province, North Sumatra (P34). A possible explanation, not measured here, is that Medan's educational and commercial infrastructure offsets rural Batak patrilineal *marga* exclusion. Figure 6A also shows two provinces with full outcome membership: West Sumatra (P32: Matrilineal Pious, 39.7% deeds, EQUITABLE_MOBILITY = 1.00) and Aceh (P01: Sharia-Uxorilocal, 20.5% deeds, 3.29% pious share, EQUITABLE_MOBILITY = 1.00). Both lie largely outside the solution's pathways (solution membership 0.33 for West Sumatra and 0.00 for Aceh), which agrees with distinctive kinship-egalitarian property regimes.

Minimizing the negated outcome (~EQUITABLE_MOBILITY; Table 6, Panel C) exposes configurational asymmetry (Solution Consistency = 0.8883, PRI = 0.8333, Coverage = 0.6271). Several pathways appear. Untitled agrarian bilateral peripheries (~M-P1, consistency = 1.000; Gorontalo, Jambi, West Kalimantan, West Sulawesi) form one. Low-urban provinces lacking pious redistribution, which the authors read as resource-extractive enclaves (~M-P2, consistency = 1.000; Papua [mean-to-poorest-quintile consumption ratio 3.52x, enrollment 43.3%] and Southeast Sulawesi), form another. A third comprises untitled bilateral provinces without a pious cushion, such as South Kalimantan and Gorontalo (~M-P3, consistency = 0.9096), which the authors read as coal-trade inequality. Pathway ~M-P4 (PIOUS_CONS * FEM_ASSET_CTRL * ~FORMAL_TITLE * ~KINSHIP_EGAL * ~URBAN_CLASS; consistency = 0.8314, unique coverage = 0.1376) covers East Nusa Tenggara (P23), Maluku (P20), North Maluku (P21), and West Papua (P25), and also Bengkulu (P04; membership 0.67), whose outcome membership is 1.00, so that Bengkulu is a contradictory case. In these provinces women report high informal customary land cultivation (FEM_ASSET_CTRL), and communities maintain generous religious charity (PIOUS_CONS). Formal legal title deeds are rare (~FORMAL_TITLE: 7.4%–10.8%) under patrilineal *adat* (~KINSHIP_EGAL). A possible consequence, which is not measured here, is that women cannot collateralize property for credit or urban schooling returns, which would keep families in the low-mobility group.[79,80] Sensitivity checks recomputed from the membership matrix in Figure 5B give the following. Without M-P2, the solution consistency is 0.8704 (PRI = 0.7719) and the solution coverage falls from 0.5288 to 0.3912. Setting the imputed PIOUS_CONS value of Kalimantan Tengah to 0.33 or 1.00 leaves the solution for EQUITABLE_MOBILITY unchanged; it changes the solution for the negated outcome only at 0.33 (consistency = 0.8914, coverage = 0.6471).

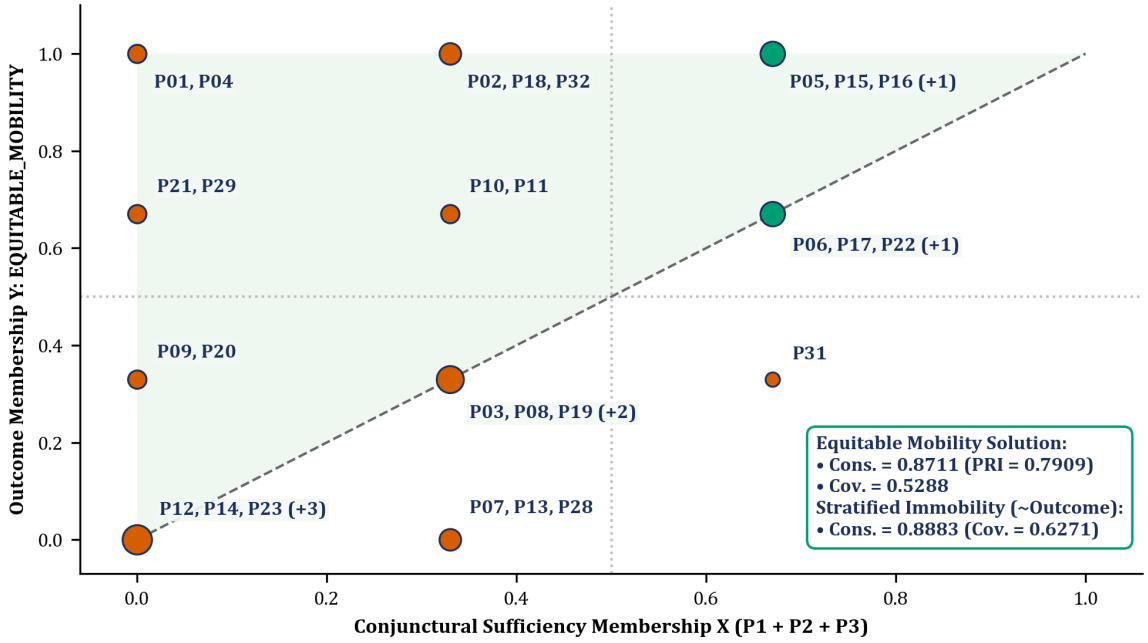


B. 4-Value Fuzzy-Set Calibration Across All 34 Indonesian Provinces

	PIOUS CONS	FEM ASSET	FORMAL TITLE	KINSHIP EGAL	URBAN CLASS	EQUIT. MOBIL.
P01 Aceh	1.00	0.00	0.67	1.00	0.00	1.00
P02 Bali	0.67	0.00	0.00	0.00	1.00	1.00
P03 Banten	0.00	0.00	0.67	0.67	1.00	0.33
P04 Bengkulu	1.00	0.67	0.33	0.33	0.00	1.00
P05 DI Yogyakarta	1.00	0.00	0.33	0.67	1.00	1.00
P06 DKI Jakarta	1.00	0.00	1.00	0.67	1.00	0.67
P07 Gorontalo	0.00	0.33	0.33	0.67	0.33	0.00
P08 Jambi	0.00	0.67	0.33	0.67	0.33	0.33
P09 Jawa Barat	0.00	0.00	1.00	0.67	1.00	0.33
P10 Jawa Tengah	0.33	0.00	1.00	0.67	0.67	0.67
P11 Jawa Timur	0.33	0.33	1.00	0.67	0.67	0.67
P12 Kalimantan Barat	0.33	0.67	0.33	0.67	0.00	0.00
P13 Kalimantan Selatan	0.33	0.33	0.00	0.67	1.00	0.00
P14 Kalimantan Tengah	0.67	1.00	0.00	0.67	0.33	0.00
P15 Kalimantan Timur	0.67	0.67	0.67	0.67	1.00	1.00
P16 Kalimantan Utara	1.00	0.67	1.00	0.67	0.67	1.00
P17 Kepulauan Bangka Belitung	0.00	0.67	0.67	0.67	0.67	0.67
P18 Kepulauan Riau	0.00	0.33	1.00	0.67	1.00	1.00
P19 Lampung	0.67	0.33	0.33	0.00	0.33	0.33
P20 Maluku	0.67	1.00	0.00	0.33	0.00	0.33
P21 Maluku Utara	0.67	1.00	0.00	0.33	0.00	0.67
P22 Nusa Tenggara Barat	0.67	0.33	0.00	0.67	0.67	0.67
P23 Nusa Tenggara Timur	1.00	1.00	0.00	0.00	0.00	0.00
P24 Papua	0.00	1.00	0.67	0.00	0.00	0.00
P25 Papua Barat	1.00	0.67	0.00	0.00	0.33	0.00
P26 Riau	0.00	0.67	0.67	0.67	0.67	0.67
P27 Sulawesi Barat	0.00	1.00	0.00	0.67	0.00	0.00
P28 Sulawesi Selatan	0.67	0.33	1.00	0.67	0.33	0.00
P29 Sulawesi Tengah	1.00	1.00	0.33	0.67	0.00	0.67
P30 Sulawesi Tenggara	0.33	1.00	0.67	0.67	0.33	0.33
P31 Sulawesi Utara	1.00	0.33	1.00	0.67	0.67	0.33
P32 Sumatera Barat	0.33	0.00	1.00	1.00	1.00	1.00
P33 Sumatera Selatan	0.67	1.00	0.67	0.67	0.33	0.33
P34 Sumatera Utara	0.33	0.00	0.33	0.00	0.67	1.00

Figure 5. Provincial Kinship–Piety Topography and Four-Value Set-Theoretic Calibration Matrix Across All 34 Indonesian Provinces (Tier 4). Panel A maps all 34 provinces across Women's Formal House Title-Deed Registration (IDHS 2017, %) and Faith-Based & Non-Profit Pious Consumption Share (%), color-coded by customary kinship family and scaled by Equitable Mobility membership. Panel B displays the complete 34 × 6 Ragin four-value fuzzy-set calibration matrix (PIOUS_CONS, FEM_ASSET_CTRL, FORMAL_TITLE, KINSHIP_EGAL, URBAN_CLASS, and EQUITABLE_MOBILITY). In Panel A, the dashed lines mark the medians of the 34 provinces.

A. Exact Ragin fsQCA Sufficiency Plot (N = 34 Provinces)



B. Integrated Gender-Equitable & Moral-Economy Wealth Framework

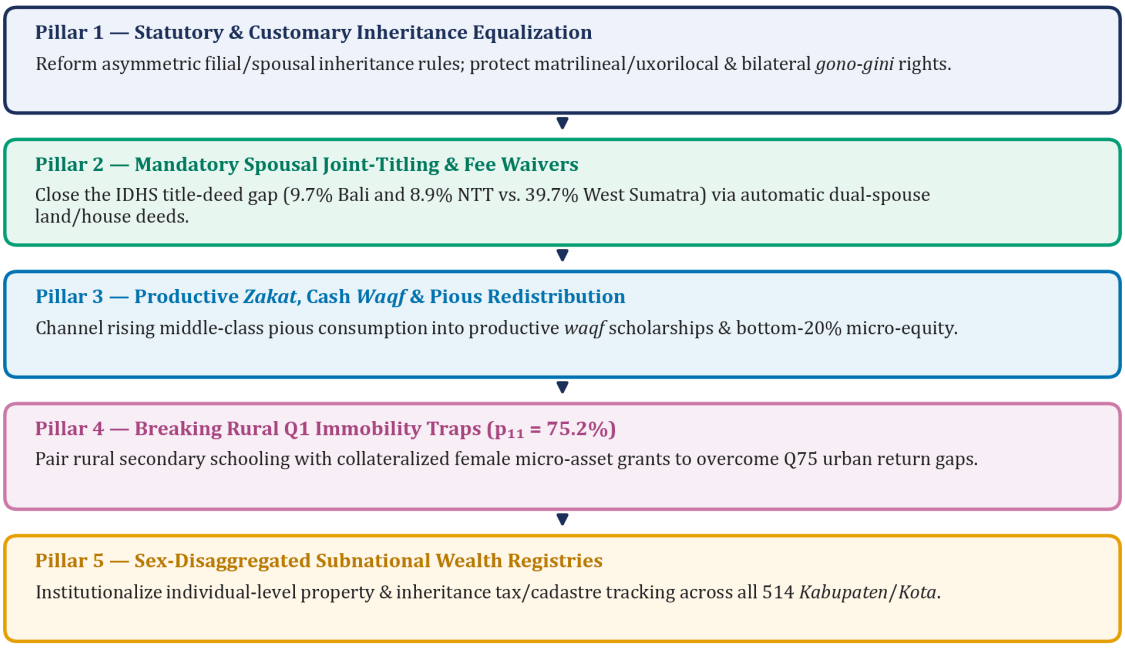


Figure 6. Set-Theoretic Sufficiency Verification and Five-Pillar Policy Architecture for Equitable Intergenerational Wealth Mobility. Panel A plots exact Ragin fsQCA outcome membership (EQUITABLE_MOBILITY) against union sufficiency membership (P1 + P2 + P3; Solution Consistency = 0.8711, PRI = 0.7909, Coverage = 0.5288; Stratified Immobility ~Outcome Consistency = 0.8883, Coverage = 0.6271) across all 34 provinces; points below the diagonal (for example P31) are cases that do not satisfy sufficiency. Panel B synthesizes the five-pillar institutional reform framework.

Table 6. Exact Ragin Four-Value Fuzzy-Set Qualitative Comparative Analysis (fsQCA) Across All N = 34 Indonesian Provinces: Necessity Diagnostics and Quine–McCluskey Sufficiency Pathways (Tier 4).

Condition / Conjunctural Pathway	Boolean Expression (5 Institutional Conditions)	Consist. (Incl.)	PRI / RoN	Raw / Unique Cov.	Exemplary Provincial Cases & Configurational Mechanism
Panel A: Necessity Analysis for Equitable Mobility (EQUITABLE_MOBILITY) vs. Negated Outcome (~EQUITABLE_MOBILITY)					
URBAN_CLASS (Commercial-Educational Class Modernization)	Necessity for EQUITABLE_MOBILITY	0.7453	RoN = 0.7970	Cov = 0.7453	Highest single-condition relevance; below 0.90 strict necessity -> equifinality
KINSHIP_EGAL (Matrilineal / Uxorilocal / Bilateral *Adat*)	Necessity for EQUITABLE_MOBILITY	0.7259	RoN = 0.7202	Cov = 0.6707	Customary egalitarianism enables title translation into mobility

Condition / Conjunctural Pathway	Boolean Expression (5 Institutional Conditions)	Consist. (Incl.)	PRI / RoN	Raw / Unique Cov.	Exemplary Provincial Cases & Configurational Mechanism
FORMAL_TITLE & PIOUS_CONS	Necessity for EQUITABLE_MOBILITY	0.6659 / 0.6465	RoN = 0.750 / 0.724	Cov = 0.666 / 0.634	Possible substitutes across M-P1 (Formal Property) and M-P2 (Pious Cushion)
~URBAN_CLASS & FEM_ASSET_CTRL (Untitled Rural Access)	Necessity for ~EQUITABLE_MOBILITY	0.7453 / 0.6853	RoN = 0.797 / 0.761	Cov = 0.745 / 0.685	Informal rural female cultivation without deeds (~FORMAL_TITLE = 0.666) traps
Panel B: Sufficiency Solution for EQUITABLE_MOBILITY (Solution Consistency = 0.8711, PRI = 0.7909, Coverage = 0.5288)					
Pathway M-P1 (Formalized Gendered Property & Egalitarian Kinship)	FEM_ASSET_CTRL * FORMAL_TITLE * KINSHIP_EGAL * URBAN_CLASS	0.8759	PRI = 0.7807	0.2741 / 0.1382	East Kalimantan (P15), North Kalimantan (P16), Bangka Belitung (P17), Riau (P26)
Pathway M-P2 (Compensatory Pious Moral-Economy Solidarity)	PIOUS_CONS * ~FEM_ASSET_CTRL * KINSHIP_EGAL * URBAN_CLASS	0.7996	PRI = 0.7006	0.2347 / 0.1376	DI Yogyakarta (P05), DKI Jakarta (P06), West Nusa Tenggara (P22), North Sulawesi (P31; outcome membership 0.33)
Pathway M-P3 (Metropolitan Commercial-Educational Exception)	~PIOUS_CONS * ~FEM_ASSET_CTRL * ~FORMAL_TITLE * ~KINSHIP_EGAL * URBAN_CLASS	0.8338	PRI = 0.6683	0.1947 / 0.0976	North Sumatra (P34: urban Medan schooling overrides rural Batak *marga adat*)
Panel C: Asymmetric Sufficiency Solution for Stratified Immobility (~EQUITABLE_MOBILITY: Cons = 0.8883, PRI = 0.8333, Cov = 0.6271)					
Pathway ~M-P1 (Untitled Agrarian Bilateral Periphery)	~PIOUS_CONS * ~FORMAL_TITLE * KINSHIP_EGAL * ~URBAN_CLASS	1.0000	PRI = 1.0000	0.3129 / 0.0794	Gorontalo (P07), Jambi (P08), West Kalimantan (P12), West Sulawesi (P27)
Pathway ~M-P2 (Enclave Resource Extraction Without Pious Cushion)	~PIOUS_CONS * FEM_ASSET_CTRL * FORMAL_TITLE * ~URBAN_CLASS	1.0000	PRI = 1.0000	0.2535 / 0.0982	Papua (P24: mean-to-poorest-quintile ratio 3.52x, Sr-Sec 43.3%), Southeast Sulawesi (P30)
Pathway ~M-P3 (Untitled Bilateral Provinces Without Pious Cushion)	~PIOUS_CONS * ~FEM_ASSET_CTRL * ~FORMAL_TITLE * KINSHIP_EGAL	0.9096	PRI = 0.8350	0.1953 / 0.0588	Gorontalo (P07), South Kalimantan (P13; read by the authors as coal/trade urbanization without titles)
Pathway ~M-P4 (Untitled Patrilineal Customary Cultivation Trap)	PIOUS_CONS * FEM_ASSET_CTRL * ~FORMAL_TITLE * ~KINSHIP_EGAL * ~URBAN_CLASS	0.8314	PRI = 0.7255	0.2929 / 0.1376	East Nusa Tenggara (P23), Maluku (P20), North Maluku (P21), West Papua (P25); Bengkulu (P04) is a contradictory case (outcome 1.00)

Note: Exact Ragin four-value fuzzy-set calibration (0.00, 0.33, 0.67, 1.00) across all N = 34 Indonesian provinces (zero logical remainders injected; conservative Quine–McCluskey minimization with raw consistency threshold >= 0.80 and PRI >= 0.65). Note that West Sumatra (P32: Matrilineal Pious, 39.7% deeds) and Aceh (P01: Sharia-Uxorilocal, 20.5% deeds) achieve EQUITABLE_MOBILITY = 1.00 via distinctive high-titling rows.

3.5. Mixed-methods joint display and five-pillar policy synthesis

Table 7 and Figure 6B bring the quantitative econometric findings (Tiers 1–3) together with the subnational kinship and set-theoretic configurations (Tiers 2 and 4). The result is a unified Mixed-Methods Joint Display.[81] Five stratification domains are covered, each drawing on global legal panels, intra-household DHS deed records, district RIF quantile decompositions, spectral Markov chains, and provincial fsQCA. Triangulating them yields four non-redundant meta-inferences. Statutory and customary female property rights are associated with lower top-end concentration. Rising class deed formalization, set against stagnant solo female ownership and resurgent husband purchase authority, stops looking like a paradox. Faith-based non-profit consumption cushions bottom-20% floors. It is not associated with equal upper-tail urban capital returns. Finally, credential expansion without collateralized female assets is not associated with a break in the 75.20% bottom-quartile Markov persistence.

Table 7. Critical Mixed-Methods Integrative Joint Display: Triangulating Multi-Tier Econometric Estimates, Customary Kinship Regimes, Set-Theoretic Pathways, and the Five-Pillar Wealth-Mobility Policy Architecture.

Stratification Domain & Policy Pillar	Quantitative Panel / Distributional Finding (Tiers 1–3)	Subnational Kinship & fsQCA Configurational Evidence (Tiers 2 & 4)	Mixed-Methods Meta-Inference & Institutional Policy Reform
1. Statutory & Customary Inheritance Parity (Pillar 1)	Unequal statutory inheritance -> +4.27 pp WID Top-10% share (p = 0.00033); 159-country TWFE women's empowerment -> −7.55 pp Top-10% share (p = 0.0056).	Matrilineal Pious West Sumatra (39.7% female deeds) & Uxorilocal Sharia Aceh (20.5%) starkly outperform Patrilineal Bali *purusa* (3.3% solo house) & NTT *belis* (8.9% deed).	[Descriptive support]: Low female title registration is concentrated under patrilineal lineage rules rather than in Muslim-majority provinces with matrilineal or uxorilocal *adat*. Policy implication to evaluate: reform asymmetric filial/spousal codes and protect *gono-gini* and matrilineal/uxorilocal rights.

Stratification Domain & Policy Pillar	Quantitative Panel / Distributional Finding (Tiers 1–3)	Subnational Kinship & fsQCA Configurational Evidence (Tiers 2 & 4)	Mixed-Methods Meta-Inference & Institutional Policy Reform
2. Mandatory Spousal Joint-Titling & Fee Waivers (Pillar 2)	IDHS Q1->Q5 doubles female house deeds (14.5%->28.4%), yet female solo ownership stagnates (18.8%->20.2%) and husband-only purchase control rises (17.8%->23.3%).	fsQCA Pathway M-P1 (Cons = 0.8759) requires FORMAL_TITLE * KINSHIP_EGAL, whereas ~M-P4 (Cons = 0.8314 in NTT, Maluku, West Papua) traps untitled female cultivators.	[Reading of the paradox]: Rising class wealth is accompanied by more registered deeds without more solo ownership; informal land access without deeds cannot collateralize credit. Policy implication to evaluate: automatic dual-spouse BPN deeds with zero fees for Q1–Q2.
3. Productive Cash *Waqf* & Moral-Economy Equity (Pillar 3)	Provincial TWFE pious non-profit share compresses Mean/Poorest-20% ratio (−0.0829, p = 0.0124), but has null direct effect on household schooling share (p = 0.473).	fsQCA Pathway M-P2 (PIOUS_CONS * ~FEM_ASSET_CTRL * KINSHIP_EGAL * URBAN_CLASS = 0.7996 in DI Yogyakarta, DKI Jakarta, NTB, North Sulawesi) buffers urban housing exclusion.	[Two roles of faith-based consumption]: Charity is associated with cushioned poverty floors, while halal lifestyle commodification may signal urban distinction. Policy implication to evaluate: redirect *zakat*/cash *waqf* into productive micro-equity and scholarships.
4. Breaking Rural Q1 Traps & Q75 Return Gaps (Pillar 4)	RIF Oaxaca–Blinder shifts from 92.87% endowments at Q10 to 73.58% structural returns at Q75 ($p = 2.78 \times 10^{-7}$); Schooling-only AIPW on Bottom-20% is null (+0.027, p = 0.327).	497-district Markov Consumption Memory (λ_2 = 0.8493, P11 = 75.20%, P44 = 81.45%, half-life = 4.24) outlasts Educational Fluidity (λ_2 = 0.7754, half-life = 2.72).	[Discordance]: Household schooling spending is associated with higher enrollment (+0.779 pp TWFE) but schooling alone shows no detectable effect on bottom-20% consumption. Policy implication to evaluate: pair rural vocational schooling with collateralized female enterprise grants.
5. Sex-Disaggregated Subnational Wealth Cadastres (Pillar 5)	Commercial modernization widens district Gini by +1.78 pts (AIPW $p = 1.55 \times 10^{-5}$, E-value = 2.34); urban *Kota* Gini (0.3524) exceeds rural *Kabupaten* (0.3243).	Household-head expenditure surveys mask the +55 to +57 pp male-vs-female solo housing gap in Bali (59.8% vs. 3.3%) and East Nusa Tenggara (67.6% vs. 12.4%).	[Methodological implication]: Aggregate consumption Gini coefficients obscure intra-household gender wealth gaps. Policy implication to evaluate: sex-disaggregated BPN land cadastres and individual wealth modules across all 514 districts.

Note: Constructed in accordance with Mixed Methods Appraisal Tool (MMAT 2018) and Journal of Mixed Methods Research integrative joint-display standards,[81,82] synthesizing 161,320 verified records across Tiers 1–4.

4. Discussion

4.1. Beyond bequest models: two roles of faith-based consumption

Our multi-tier findings contribute to comparative stratification research on three fronts. The first concerns religion, consumption, and class inequality, where earlier accounts left ambiguities. Integrating global statutory inheritance panels (Tier 1) with Indonesian provincial and district accounts (Tier 3) narrows them. Recent European and North American wealth scholarship shows how unequal parental transfers and tax exemptions reproduce top-decile dynasties.[1,3–5,83] Global South stratification unfolds differently, inside vibrant religious moral economies.[18,19,23,84] Faith-based consumption, as proxied here, points in two directions. In cross-national regressions (N = 106), aggregate societal religiosity co-varies positively with WID Top-10% concentration (+8.08 pp, $p = 2.01 \times 10^{-5}$). Across the 514 Indonesian districts, those above the median commercial-financial share had a 1.78-point higher Gini (AIPW $p = 1.55 \times 10^{-5}$), and household educational spending is associated with a higher upper-tail Gini at τ = 0.50 to 0.90 (Table 4, Panel C). These patterns agree with Bourdieusian and cultural-sociological accounts of 'commodified pious distinction'.[18,23,26–29,84] Such accounts describe urban Muslim and Christian middle classes that spend on faith-branded private schools, gated Islamic housing estates, halal lifestyle goods, and status pilgrimages, so that religious consumption becomes symbolic capital that marks upper-middle-class closure. None of these expenditures is measured here, so this reading is a hypothesis.

At the same time, a second pattern emerges. Our longitudinal provincial TWFE estimates (Table 4, β = −0.0829, p = 0.0124) and fsQCA Pathway M-P2 (Table 6, consistency = 0.7996, just below the 0.80 cutoff, in DI Yogyakarta, DKI Jakarta, West Nusa Tenggara, and North Sulawesi, the last with an outcome membership of 0.33) point in a different direction for institutionalized 'redistributive moral-economy piety'. It includes *zakat*, *infaq*, *sedekah*, *waqf*, and congregational social welfare. This piety is associated with a lower Mean-to-Poorest-20% consumption ratio at the provincial level, which agrees with a buffering role for low-income families; the provincial data do not identify urban households. Charitable transfers may remain oriented toward immediate subsistence relief rather than productive equity. The null TWFE estimate for household educational expenditure shares (p = 0.473) is compatible with this reading but does not show it. Faith-based consumption is thus associated with a cushioned floor in the provincial panel but with no visible change in the 81.45% top-quartile Markov persistence. Turning pious solidarity from a subsistence cushion into a source of intergenerational wealth mobility would require re-engineering *zakat* and cash *waqf* institutions (such as BAZNAS and *Badan Wakaf Indonesia*), for example toward collateral-free female micro-equity, land-titling endowments, and tertiary STEM scholarships (Pillar 3, Figure 6B). This is a policy implication to be evaluated, not a result.

4.2. Patriarchal bourgeoisification and the disentanglement of Islam from patrilineal *adat*

The second front is feminist political economy. Tier 2 and Tier 4 add two observations: a pattern we label 'patriarchal bourgeoisification' across wealth quintiles, and wide differences among customary kinship regimes beneath national statutes. Conventional modernization narratives assume that rising household wealth and formal property

registration automatically empower married women. Our IDHS 2003–2017 results indicate otherwise. Registration of women's names on formal house deeds is nearly twice as high in Q5 as in Q1 (28.4% vs. 14.5%). Even so, over 71% of women homeowners in the richest quintile do not have their name on the deed (100 − 28.4%), women's solo house ownership stays near 19%–20%, and joint land ownership is lower than in Q1. Unilateral husband control over major household purchases rose from 17.8% (2003) to 23.3% (2017). We relate Wong and Daminger's 'myth of mutuality',[14] Small's 'patriarchal rent-seeking',[16] and Formichi's 'domestic nationalism'[22] to these Indonesian data. One explanation is that formal mortgage banking and nuclear-family breadwinner ideologies concentrate legal title and major financial authority in husbands' hands while wives manage routine daily shopping; the data do not test this.

The 34-province comparison also does not support the view that Islam alone accounts for low female property registration,[25] although religion cannot be separated from ethnicity and region in these data. Devoutly Muslim Matrilineal West Sumatra (39.7% female formal house deeds) exceeds the 72-country DHS mean of 27.67%, whereas Sharia-autonomous Uxorilocal Aceh (20.5% female deeds; 22.5% male solo house) is close to the bilateral provinces (19.52%) and below that mean. Two others show very large gaps in favor of men in immovable wealth: Hindu-customary Bali (*purusa*: 3.3% female solo house; 9.7% deed; 59.8% male solo) and Christian-majority East Nusa Tenggara (*belis* bridewealth: 8.9% deed; 67.6% male solo). Pathway ~M-P4 in the fsQCA (consistency = 0.8314 across East Nusa Tenggara, Maluku, North Maluku, and West Papua) agrees with effective-ownership accounts from Peru and with evidence that land titles improve access to credit in Brazil and China.[35,79,80] The reasoning is as follows, although the mechanism is not measured here. Informal female cultivation rights on patrilineal clan land, held without inscribed BPN title deeds (~FORMAL_TITLE), cannot be pledged as bank collateral. Nor can they be liquidated to finance children's urban higher education.

4.3. Why schooling alone does not break rural wealth traps: RIF coefficient gaps and spectral memory

The third front is a puzzle in Indonesian development.[40–42,53] Why has expanded secondary schooling not been accompanied by lower district stratification? Three methods together bear on it: our 514-district RIF Unconditional Quantile Oaxaca–Blinder decomposition, Doubly Robust AIPW, and Blume–Durlauf Markov eigenvalue analysis. Household educational investment is strongly associated with higher district senior-secondary enrollment (+0.779 pp in TWFE, $p = 4.49 \times 10^{-8}$) and generates relatively fluid Markov educational transitions (Shorrocks M = 0.5590, $\lambda_2 = 0.7754$, half-life = 2.72 periods). Yet expanding senior-secondary schooling alone showed no statistically significant estimate for Bottom-20% consumption (AIPW ATE = +0.0271, p = 0.327). Class transitions in consumption stay locked, with a 75.20% bottom trap and an 81.45% elite ceiling still in place (Shorrocks M = 0.4241, $\lambda_2 = 0.8493$, half-life = 4.24 periods). The RIF decomposition shows where the gap changes. At Q10, 92.87% of the urban–rural gap reflects endowment deficits. At Q75, it is different: 73.58% ($p = 2.78 \times 10^{-7}$) reflects larger urban coefficient differences (returns) to literacy and educational investment. A possible explanation, not measured here, is that rural secondary graduates lack titled maternal or household collateral to finance migration, enterprise startup capital, or tertiary credentials, and remain in informal, low-return labor.

4.4. Scope conditions, limitations, and directions for future research

Several scope conditions need to be stated openly. Each points to future work. The first concerns data. INDO-DAPOER and SUSENAS supply authoritative multi-decade panels of consumption, the poorest-20% floor, and the Gini coefficient for all 514 Indonesian districts. Yet Indonesia, like most low- and middle-income nations,[38,40,85] does not publish annual administrative net-worth or inheritance-tax registries for every district. Building sex-disaggregated BPN land cadastres that are linked to household wealth modules (Pillar 5) is therefore an urgent statistical priority. The second condition is geographic resolution. IDHS gender-asset and formal title-deed modules are measured at the provincial, urban–rural, and national wealth-quintile levels, not in individual district cells. Future geocoded DHS clusters could be linked directly to longitudinal family-dynasty panels such as IFLS follow-ups, which would allow multi-generational mother–daughter deed transmission to be tracked.[41,66] Third, the conservative four-value fsQCA across all 34 provinces deliberately avoids counterfactual remainder injection.[86] This choice leaves the single-province matrilineal and uxorilocal pioneers visible as institutional benchmarks, namely West Sumatra P32 and Aceh P01, both with EQUITABLE_MOBILITY = 1.00, next to the multi-case urban sufficiency pathways M-P1 through M-P3. The Markov estimates describe district rank transitions between two observation windows. They do not describe observed parent–child wealth transmission. Half-lives are expressed in model transition periods and depend on repeated application of the estimated transition matrix. The NPISH proxy cannot separate religious giving from other non-profit activity.[51] Pathway M-P2 has consistency 0.7996, just below the stated 0.80 cutoff, so the solution is also reported without it (Section 3.4). The cross-national piety regression is ecological,[74] the kinship comparison uses one province for several regimes, the provincial fixed-effects model has 34 clusters,[61] and the AIPW contrasts are cross-sectional, so none of these estimates identifies a causal effect. These limitations qualify any reading of mechanisms and intergenerational processes.

5. Conclusion

The study draws on 161,320 public records covering 185 sovereign legal regimes, 72 DHS countries, 514 Indonesian districts, and all 34 Indonesian provinces. In these data, wealth stratification across urban–rural divides is associated with three institutional elements: statutory-customary property law, gendered title formalization inside the household, and the dual political economy of faith-based consumption. Globally, asymmetric filial and spousal inheritance laws are associated with 4.27 percentage points higher Top-10% concentration (p = 0.00033). Within countries, advances in women's substantive civil-property empowerment are associated with a 7.55 percentage-point lower Top-10% share (p = 0.0056). These are associations, not causal effects. Indonesia shows a different pattern. Women's house title-deed registration is 14.5% in the lowest and 28.4% in the highest wealth quintile, yet solo female ownership is nearly the same (18.8% vs. 20.2%), and unilateral husband control over major purchases rose between 2003 and 2017 (17.8% to 23.3%). Kinship pluralism across provinces points to where exclusion is concentrated. Female title registration is low under patrilineal customary systems (Bali *purusa* at 9.7% and East

Nusa Tenggara *belis* at 8.9%). It is higher in Muslim-majority provinces with matrilineal or uxorilocal *adat* (West Sumatra at 39.7% and Aceh at 20.5%), although religion and region cannot be separated in these data. Faith-based non-profit consumption is associated with a lower mean-to-poorest-quintile ratio in provincial panels (−0.0829, p = 0.0124). Urban–rural RIF decompositions shift from 92.87% endowments at Q10 to 73.58% structural return differences at Q75. District consumption ranks are persistent: retention is 75.20% for the bottom quartile and 81.45% for the top quartile (λ_2 = 0.8493). The results support further evaluation of a five-pillar architecture. It combines inheritance equalization, spousal joint-titling with fee waivers, productive cash-*waqf* and *zakat* micro-equity, rural collateralized enterprise grants, and sex-disaggregated subnational wealth registries.

Acknowledgments

The authors gratefully acknowledge the open-data teams of the World Bank (Women, Business and the Law and INDO-DAPOER), *Badan Pusat Statistik* (BPS Indonesia), the DHS Program (ICF), the Quality of Government Institute (University of Gothenburg), the World Values Survey Association, and the World Inequality Lab.

6. Declarations

Statement on the Use of Artificial Intelligence

None. The authors declare that no generative artificial intelligence tools were used in the design, analysis, or writing of this manuscript.

Author Contribution Statement

Conceptualization: A.B., D.S. Methodology: A.B. Software: A.B. Validation: D.S., H.K. Formal analysis: A.B. Investigation: A.B., H.K. Resources: A.B. Data curation: A.B., H.K. Writing – original draft: A.B. Writing – review & editing: D.S., H.K. Visualization: A.B. Supervision: D.S. Project administration: A.B.

Funding Statement

This research received no external grant funding from public, commercial, or not-for-profit agencies.

Conflict of Interest / Competing Interests

The authors declare no financial, commercial, religious, or institutional competing interests.

Data Availability Statement

All analyzed data are publicly available: the World Bank Women, Business and the Law database, the Quality of Government Standard Time-Series Dataset (January 2025 release), which includes World Inequality Database, World Values Survey, V-Dem, Fraser Institute and World Development Indicators series, the DHS Program StatCompiler (global and Indonesia files), and the World Bank INDO-DAPOER database.

Ethics Approval and Consent to Participate

This study analyzed only public, de-identified legal, survey, provincial, and district records. No human participants were recruited, and no identifiable personal data were collected. The study was approved by Ethical Committee of Social Research, Enigma Institute, Indonesia (approval number 2026/572).

Consent for Publication

Not applicable; all analyzed legal, survey, provincial, and district records contain no personally identifiable information.

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