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RBA ANNUAL BANKING RESEARCH CONFERENCE 2026

June 25th, 2026

Institutional Voids and Fintech Innovation in Sub-Saharan Africa

Presenter:

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MOTIVATION

Stylized Facts: The Inclusion Leap yet with a Persistent Paradox

Fintech has driven some of the fastest inclusion gains anywhere in SSA — yet hundreds of millions remain excluded and new risks are surfacing. Advance and fragility coexist.

90%
Kenya account ownership (2024)

92%
Rwanda formal inclusion; 96% overall

64B
Mobile-money transactions
Sector volume cited for 2024

400M+
Adults still excluded across SSA

30%
Fraud exposure — new voids emerge

The inclusion leap (2010 → 2024)

Financial inclusion	35.3% → 86.6%
Fintech adoption	23.5% → 84.7%
Correlation (FII, FAR)	r = 0.941
Mobile-money accounts	27% → 40% (2021–24)
Mobile-money transactions	64B (2024)
Fintech & Africa's GDP	+$220B (2024) → $270B (2030)

Sources: *Global Findex 2024; GSMA SOIR 2025; IMF FAS 2025; fintech GDP-contribution estimates; fraud / regulation risks (paper, stylized-facts section).*

The research gap

- Khanna & Palepu's framework names voids — but not how SSA's extreme voids drive adaptive, hybrid models that deliver inclusion faster than mature economies.
- Empirical tension: fintech adds an estimated $220B to SSA GDP, yet creates new voids (≈30% fraud exposure; rural service gaps).
- We treat SSA as a frontier laboratory — institutional voids as a building block for resilient digital inclusion.
- The mechanism is testable beyond SSA: South Asia and Latin America.

- SSA finance both enables and frustrates digital transformation; pervasive institutional voids make it hard to reach the mass population through conventional finance.
- The same voids create opportunity: fintechs step in to meet latent financial needs where conventional infrastructure is underdeveloped.
- Despite mobile money reaching ~40% of adults and inclusion of 90% (Kenya) and 92% (Rwanda), 400M+ adults remain excluded — amid weak institutions, poor regulation, scarce infrastructure, and corruption.
- These conditions reveal acute institutional voids and the rise of institutional bricolage — combining informal trust networks with new technology to bridge access barriers.

The conundrum: *rapid, world-leading digital payments sit alongside pervasive institutional voids — fintech fills old voids yet creates new ones.*

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REFRAMING

Inclusion as a Fundamental Right

THE CLAIM If exclusion entrenches poverty and blocks economic participation, access to finance becomes a precondition for exercising other rights — not a commercial convenience.

An enabling right

Financial Inclusion is globally considered as an essential enabler of human rights

- ❖ Recognized in SDG 8.10 : Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.

- ✓ especially principle 1: 8.10.1 (a) Number of commercial bank branches per 100.000 adults and (b) number of automated teller machines (ATMs) per 100.000 adults.
- ✓ 8.10.2 Proportion of adults (15 years and older) with an account at a bank or other financial institution or with a mobile-money-service provider.

- ❖ The G20 principles (P1): **Promote a Digital Approach-** Prioritize digital financial services (DFS) as the core driver of an inclusive financial infrastructure

- ❖ Kenya's 2010 Constitution (Art. 43) entrenches economic and social rights. A digital account is the gateway to wages, transfers, and liquidity.

A state duty

Rights imply duties: to provide enabling infrastructure and guarantee protection — the minimum institutional floor below which fintech adoption falters.

A rights gap

400M+ adults remain excluded across SSA — a denial of participation, not merely an unserved market.

Meeting access as a right reframes the agenda — toward depth, reliability, and protection.

INSTITUTIONAL COMPARISON

Effectiveness · Efficiency · Reliability

Kenya, Rwanda and South Africa occupy distinct institutional positions on governance and market depth.

Kenya	
Effectiveness	Moderate (enabling)
Efficiency	High (test-and-learn)
Reliability	Low–mod. (corruption)
Market depth	Moderate (NSE, bonds)

reach + enabling rules; reliability gap

Rwanda	
Effectiveness	High (decisive state)
Efficiency	High
Reliability	High (low corruption)
Market depth	Shallow (nascent)

reliable & effective; thin markets

South Africa	
Effectiveness	High (twin-peaks)
Efficiency	Moderate–high
Reliability	Moderate–high
Market depth	Deep (JSE, derivatives)

deep markets; uneven reach

The trade-off triangle: No frontrunner combines deep markets, reliable institutions, and universal reach simultaneously. South Africa possesses depth and reliability but lacks last-mile informal access; Rwanda offers clean stability but shallow markets; Kenya excels in agile reach but faces persistent reliability gaps.

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GROUNDING

Literature Review: Voids, Fintech & the Bricolage Gap

FOUNDATION

Institutional voids

Missing or inefficient market-supporting institutions — regulation, intermediaries, enforcement — raise transaction costs and exclude the mass market; framed as deficits to be filled.

THE OPTIMISTS

Fintech fills the voids

Mobile money substitutes for absent institutions and cuts transaction costs; M-Pesa drove ~90% inclusion in leaders; fintech projected to add ~$220B to SSA GDP by 2024.

THE MECHANISM

Institutional bricolage

Entrepreneurs recombine informal trust networks with digital tools — "frugal innovation" at the social–technological–institutional junction; hybrid local-plus-digital models.

THE CRITICS

Fintech creates new voids

Fintech may disintermediate rather than reform: ~30% fraud exposure, digital divide, disruption of ROSCAs, platformised inequality; legal origins shape void-bridging.

THE GAP The literature catalogues voids but under-theorizes how SSA's extreme voids drive adaptive hybrid models faster than mature economies and rarely models the dynamic void–finance link. This paper frames SSA as a "frontier laboratory" and formalizes institutional bricolage (IV×MP) on a 2010–2024 System GMM panel.

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PURPOSE

Research Objectives

OVERARCHING OBJECTIVE Examine how institutional voids in SSA spur fintech innovation as a channel for digital financial inclusion — and advance general emerging-market theory.

01

Estimate the impact of voids

Examine the extent to which institutional voids influence fintech adoption and digital financial-inclusion outcomes across SSA.

02

Theorize & test bricolage

Develop and empirically test institutional bricolage as a novel adaptive mechanism in void-prone SSA markets.

03

Assess moderating enablers

Evaluate the moderating role of mobile penetration and macroeconomic controls in the void–inclusion relationship.

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THEORY

From Institutional Voids to Institutional Bricolage

The paper builds on Khanna & Palepu's institutional-void theory — and extends it with a new explanatory mechanism.

ESTABLISHED FRAMEWORK

Khanna & Palepu — Institutional Voids

Absent or inefficient market-supporting institutions — regulation, intermediaries, enforcement — **constrain** transactions in emerging markets.

Khanna & Palepu frame voids primarily as *deficits to be filled* — gaps a firm must work around or build substitute institutions for.

Voids are framed as deficits to be filled by importing or building intermediary institutions.

THIS PAPER'S CONTRIBUTION

Institutional Bricolage

The ad hoc juxtaposition of informal trust networks and digital technology. Deep voids do not merely constrain — they **raise the marginal return** to the technologies that substitute for absent institutions.

Voids become fertile ground for flexible, technology-based finance.

In relation to banking. Voids are what make conventional banking fail at the mass-market level. Without reliable credit information, collateral registries, and enforcement, banks ration credit and can't profitably serve low-income or rural customers; branch networks stay thin; the unbanked majority is structurally locked out.

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EVIDENCE BASE

Data & Sample

Coverage

45 Sub-Saharan African countries, 2010–2024. Balanced macro-panel, N = 675 country-years (585 in the GMM estimation).

Outcomes

Two dependent variables: a Financial Inclusion Index (broad access) and the Fintech Adoption Rate.

Key regressors

Institutional-void score (inverted regulatory quality), mobile penetration, and their interaction (bricolage).

Controls

ln GDP per capita, urbanization, inflation, and remittances as a share of GDP.

Sources

World Bank/Global Findex, GSMA, WGI, IMF and central-bank reporting through 2024–2025.

Frontier sub-sample

Nine advanced adopters analyzed separately to probe saturation dynamics.

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Empirical Methodology: Dynamic Panel Estimation

Core estimator: **Two-step System GMM (Blundell–Bond, 1998)** · Supplementary: Fixed Effects, Random Effects, Pooled OLS

$$FI_{it} = \beta_0 + \rho\, FI_{i,t-1} + \beta_1 IV_{it} + \beta_2 MP_{it} + \beta_3 (IV \times MP)_{it} + \gamma X_{it} + \alpha_i + \delta_t + \varepsilon_{it}$$

$\beta_3 > 0$ operationalises the bricolage hypothesis: mobile penetration delivers larger inclusion gains where voids are deeper.

Path dependence

A lagged dependent variable captures self-reinforcing adoption; static FE suffers Nickell bias.

Endogeneity

Internal (lagged) instruments address reverse causality between voids and inclusion.

Small-T, large-N

System GMM suits persistent series; collapsed instruments, lags 2–4, Windmeijer correction.

Diagnostics: Hansen J (instrument validity) · Arellano–Bond AR(1)/AR(2) (serial correlation) · Hausman test (FE vs RE).

IDENTIFICATION

Methodology: Two-Step System GMM

Why System GMM

- **Dynamic outcome:** Financial inclusion is path-dependent — today builds on yesterday — so a dynamic panel with a lagged dependent variable is needed. static FE model is mis-specified
- **Endogenous regressors:** Mobile penetration, institutional voids, and finance are jointly determined; System GMM treats them as endogenous and uses internal lag instruments instead of needing external instruments
- **Unobserved country traits:** Time-invariant factors such as culture, geography, and legal origin are swept out in the differenced equations, while the levels equations restore efficiency.
- **Small-T, large-N panel:** With many countries but few periods, FE suffers Nickell bias in a dynamic setting, whereas System GMM is designed for this

Robustness Check

- **Pooled OLS** — the benchmark. Biased because it ignores both heterogeneity and dynamics, but it shows the raw associations and the interaction's sign.
- **Random Effects** — a base static estimator, formally tested against FE via the Hausman (1978) test
- **Two-Way Fixed Effects** — the preferred static estimator if Hausman test strongly rejects RE consistencyis rejected. It also controls for country and time effects

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MAIN SSA RESULTS

System GMM Estimates (Table 5)

*Headline coefficients, M3 Full. FAR = fintech adoption; FII = broad inclusion (reference). *** p<0.01, * p<0.10.*

Variable	FAR — fintech	FII — broad	What it means
Lagged DV (ρ)	**0.614*** **	**0.679*** **	Strong path dependence — early movers compound
Institutional void	**−2.18*** **	**−3.94*** **	Voids hurt fintech ~45% less than broad inclusion
Mobile penetration	**0.129*** **	**0.087*** **	Phones drive fintech ~49% harder (main channel)
Void × Mobile (bricolage ★)	**0.024*** **	**0.033*** **	Mobile pays off most where voids are deepest (1%)
ln GDP per capita	**−0.35 (ns)**	**0.68***	Growth is not the main inclusion channel for fintech
Inflation (CPI)	**−0.16*** **	**−0.07**	Macro instability dampens fintech adoption

+0.033 & +0.024 ***

Significant at the 1% level — one of the first panel-level estimates of bricolage as a void × enabler interaction.

- Weak institutions hurt fintech, but ~45% less than ordinary banking.
- Phones are fintech's engine — a ~49% premium.
- Bricolage: the void × mobile term is positive at 1% — phones substitute for missing institutions.
- Persistence ρ ≈ 0.61 — leads compound.

Path dependence

Lagged FII is about 0.63–0.68 and highly significant.

Void effect

Institutional voids reduce financial inclusion with coefficients around -3.76 to -3.94.

Mobile effect

Mobile penetration stays positive and significant, around 0.087–0.131.

Bricolage effect

IV×MP is positive and highly significant at about 0.032–0.033. 0.033.

The negative direct effect of institutional weakness remains real, but mobile technology softens that penalty and becomes more valuable in higher-void environments. That is the core empirical support for institutional bricolage.

ROBUSTNESS · FRONTIER

Advanced Frontier vs Full SSA — System GMM (Table 8)

M3 Full two-step System GMM for both dependent variables. ADV = 9 advanced frontier countries; Full = all 45.

	BROAD INCLUSION (FII)		FINTECH ADOPTION (FAR)	
Variable	**Advanced**	**Full SSA**	**Advanced**	**Full SSA**
Lagged DV (ρ)	**1.084*** **	0.679***	**0.779*** **	0.614***
Institutional void (IV)	**−0.224*** **	−3.94***	**−0.175***	−2.18***
Mobile penetration (MP)	**−0.144***	0.087***	**0.220***	0.129***
Void × Mobile (bricolage ★)	**0.009**	**0.033*** **	**0.045*** **	**0.024*** **
ln GDP per capita	**1.715*** **	0.684*	**1.182***	−0.350
Inflation (%)	**−0.182** **	−0.068	**−0.164**	−0.160***
Observations	*117*	*585*	*117*	*585*
Hansen J (p)	*1.000*	*0.031*	*1.000*	*0.009*
AR(2) (p)	*0.991*	*0.782*	*0.776*	*0.080*

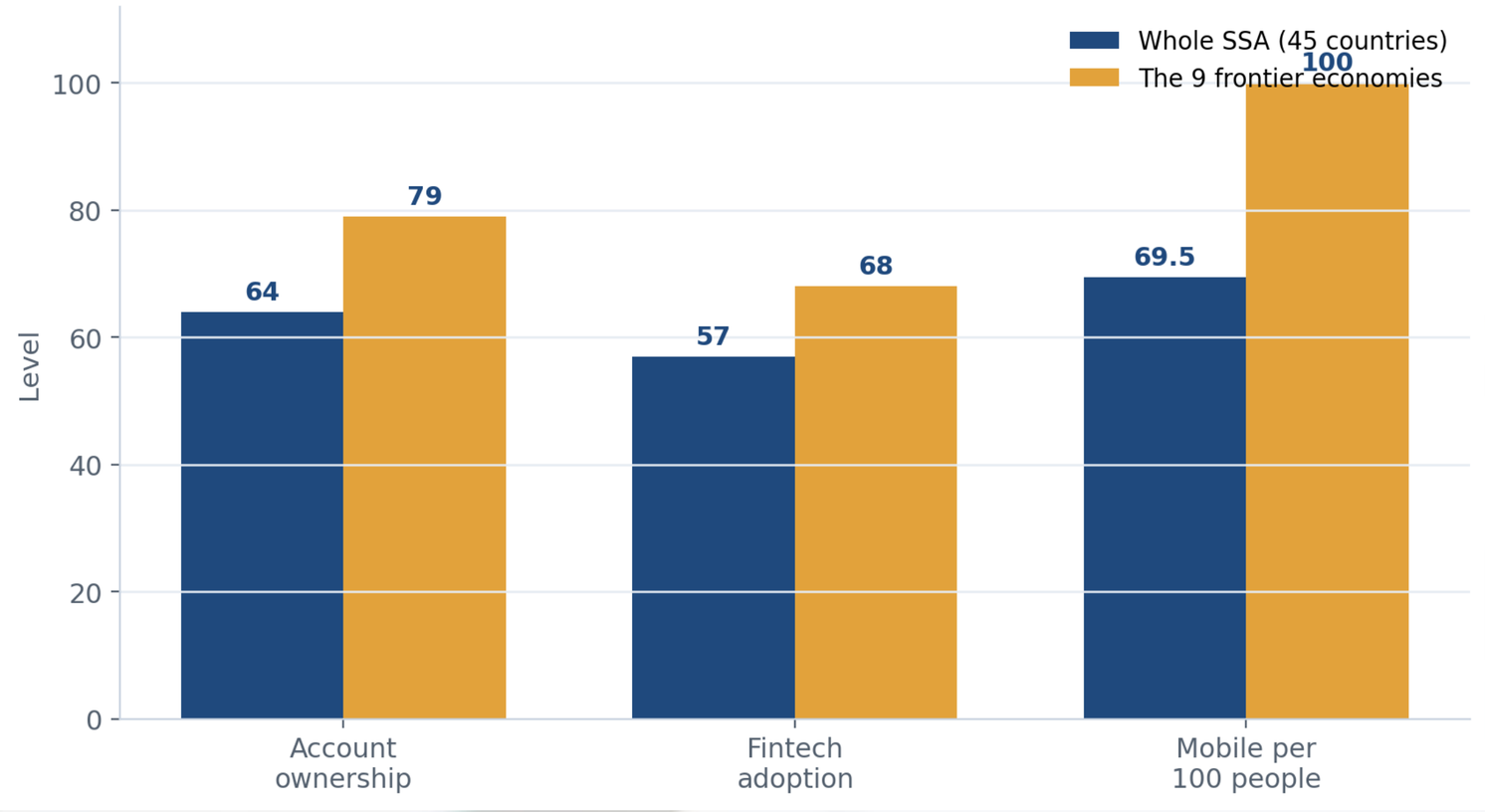
*Table 8 — System GMM M3 Full. ADV n=9 (N=117); Full n=45 (N=585). *** p<0.01, ** p<0.05, * p<0.10 · Windmeijer SE · Hansen p=1.000 = instrument proliferation (T>N).*

ADV Frontier vs Full SSA Economies

- Void penalty nearly vanishes: −0.22 / −0.18 vs −3.94 / −2.18 — frontrunners have largely filled their voids.
- Inclusion self-sustaining: ρ(FII) = 1.08, a near unit-root lock-in; FAR 0.78.
- Saturation: mobile turns weak/negative for FII and the FII bricolage term goes flat — IV variance is compressed (mean −0.92).
- ADV Hansen p = 1.000 (T > N) — corroborates the FE results, not a standalone estimate.

RESULTS IN PLAIN LANGUAGE

Whole SSA vs the Nine Frontrunners



Further along

Higher inclusion and near-saturated phone coverage.

Phones stop mattering

Almost everyone has one — more coverage adds little.

Lead is self-sustaining

Persistence ρ ≈ 1.08; growth hits a ceiling.

The job shifts from getting people IN to making access deeper and better.

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FRONTIER

The Nine Advanced Economies

Kenya · Rwanda · South Africa · Ghana · Tanzania · Senegal · Mauritius · Botswana · Cabo Verde

How they differ

- Inclusion 78.8% vs 64.2%; fintech 68.3% vs 56.8%.
- Much stronger institutions: void −0.92 vs +0.13.
- Mobile near-saturated: 100 vs 69.5 per 100 people.
- Returns exhausted; lock-in so strong ρ ≈ 1.08.

What we learn

- Leapfrog is real: enabling rules + void-driven innovation reach near-universal access.
- Move early — head starts compound over time.
- The playbook changes at saturation: shift to quality, depth, protection.
- Rural areas are the last inclusion frontier.

DISCUSSION

Theoretical Contributions

Voids as productive, not just constraining

Extends Khanna & Palepu: the positive void × mobile interaction shows deep voids raise the marginal return to mobile-delivered finance — quantified at panel level for the first time.

Fintech's institutional buffering capacity

Fintech absorbs roughly 45% of the void penalty before it reaches adoption — bounding the optimism-versus-pessimism debate with a magnitude.

SSA as a generalizable frontier laboratory

Bricolage offers a portable mechanism for void-prone emerging markets — testable beyond SSA in South Asia and Latin America.

MODE OF INNOVATION

Doing Things Better, or Doing New Things

Efficiency innovation

doing the same things better

Digitises existing banking to cut cost and friction.
Depends on existing institutions to optimise.

South Africa's mode — atop a deep system.

Market-creating innovation

doing entirely new things

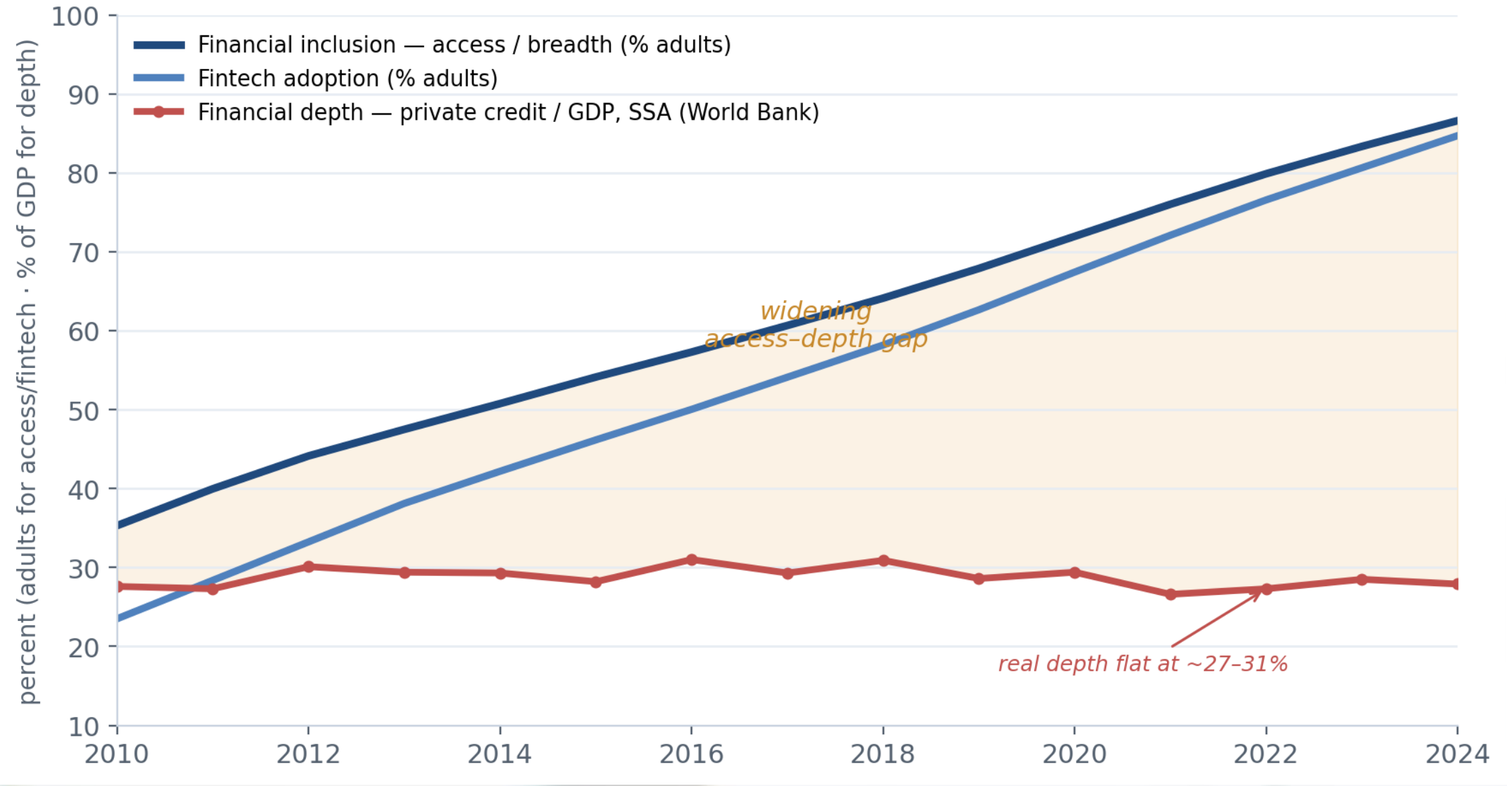
Builds accounts and markets for the never-served.
Thrives in voids — nothing to optimise, a market to create.

Kenya's mode — M-Pesa.

What next — both. Phase 1 created the market; Phase 2 needs efficiency to deepen it and new market creation in adjacent domains — transaction-data credit, micro-insurance, cross-border rails, and tokenized finance.

CO-EVOLUTION · REAL DATA

Wide but Shallow: The Depth Gap



Access & fintech soared

Inclusion 35% → 87% and fintech 24% → 85% (2010–2024).

Real depth stayed flat

Private credit / GDP across SSA held at ~27–31% the whole period (World Bank).

The gap is structural

Payments-led access far outran credit, insurance, and capital-market depth.

Next task: depth

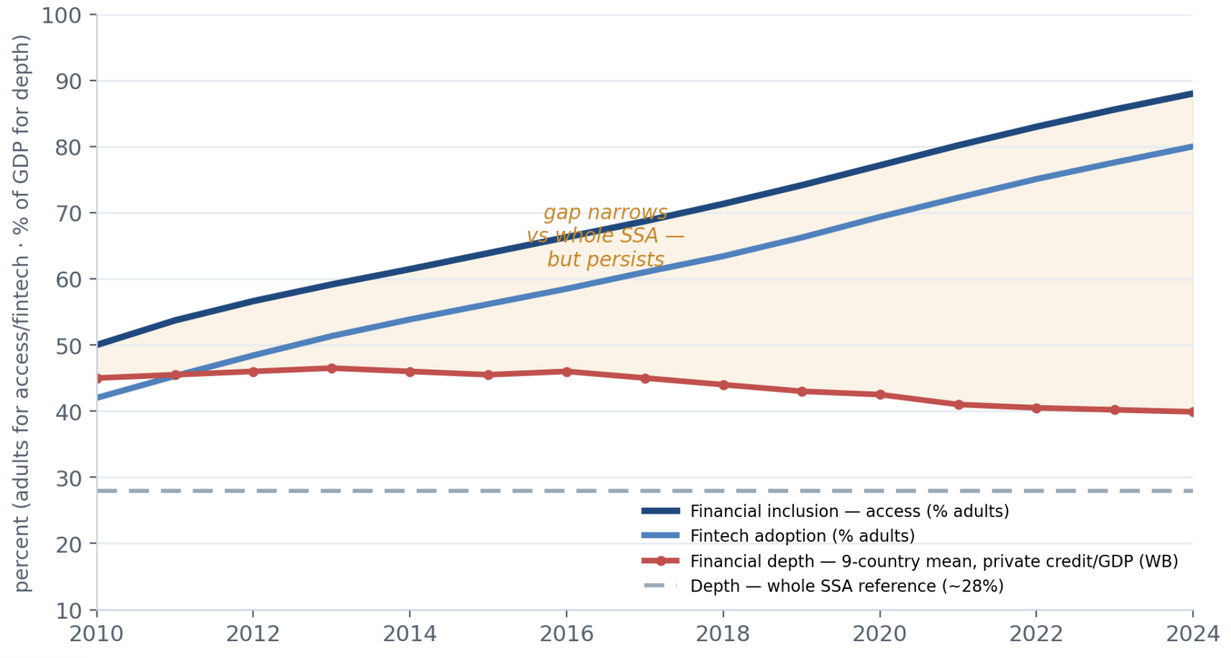
Turn access into productive finance on the digital rails.

Source: *Access & fintech — paper's stylized facts (calibrated panel indices, 45 SSA countries). Depth — World Bank WDI, Domestic credit to private sector (% of GDP), Sub-Saharan Africa, FS.AST.PRVT.GD.ZS, 2010–2024 (2020 ≈ 28–29%, cross-checked vs TheGlobalEconomy 40-country average). Units: access & fintech are % of adults; depth is % of GDP. Retrieved Jun 2026. Replaces the earlier illustrative depth curve.*

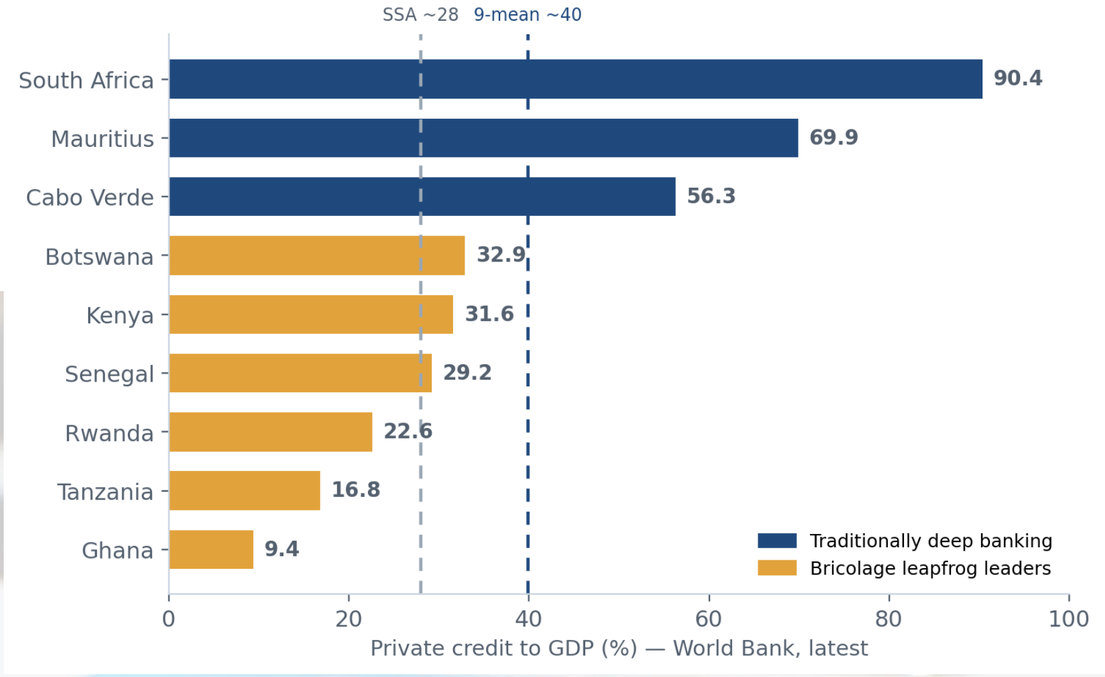
FRONTIER · CO-EVOLUTION

The Depth Gap for the Nine — Does It Differ?

Same format as the SSA chart — now for the nine frontrunners



Why the average misleads: the per-country split



How it differs: the nine's mean depth (~40% of GDP) beats the whole SSA (~28%), so the gap narrows. But the lift is entirely from traditionally deep banking systems — South Africa, Mauritius, Cabo Verde. The bricolage leapfrog leaders (Kenya, Rwanda, Ghana, Tanzania, Senegal) average just ~24% — as shallow as the rest of SSA. **Bricolage delivered access, not depth — even among the frontrunners.**

IMPLICATIONS

Policy Implications for SSA

REGULATORS

Flexible, tiered regulation

Adopt adaptive, principles-based frameworks (Kenya & Rwanda) that enable bricolage without waiting for full institutional maturity.

DEVELOPMENT PRACTITIONERS

Prioritise mobile infrastructure

Mobile rollout yields above-average inclusion returns in void-prone, below-saturation markets — a prime target for assistance.

RESEARCHERS

Adopt bricolage as a lens

A generalizable tool for rapid digital inclusion in void-prone economies, sidestepping the developed-market institution-building sequence.

FRONTRUNNERS

Shift to quality & depth

At saturation, infrastructure returns diminish; redirect toward product depth, consumer protection, and digital literacy.

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DISCUSSION · CO-EVOLUTION

What the Depth Gap Means

WHAT IT DEPICTS

- Access and fintech rose in lockstep (r = 0.941) — fintech is the access engine.
- Real depth stayed flat at ~28% of GDP for 14 years.
- Breadth without intermediation: money moves, but isn't transformed into credit, savings, insurance, or capital.

WHY IT MATTERS — FOR THIS STUDY

- Bricolage substitutes for institutions at the payments layer — not the intermediation layer.
- The flat line is the empirical signature of voids still binding (the void coefficient is smaller, but still negative).
- Confirms the minimum institutional floor: depth cannot be improvised.

IMPACT FOR THE FUTURE

- Risk of a shallow-inclusion trap — access saturates while the welfare dividend stalls.
- Next task: convert access into depth — credit, insurance, capital markets on the digital rails.
- As depth rises, conventional institutions reassert importance — build it with the floor, or risk instability.

INSIGHTS & CAVEATS

- The flat line names bricolage's limit, not just its power.
- The aggregate hides South Africa (deep, but falling) vs Kenya/Rwanda (access-rich, depth-poor).
- Units differ (% adults vs % of GDP) — read trajectories, not levels.
- Open question: does fintech eventually create depth (data → credit), or cap out at payments?

Bottom line: bricolage built universal on-ramps (access); the productive economy (depth) isn't wired in yet. Converting access into depth — with the institutional floor in place — is the unfinished agenda.

FROM ACCESS TO AGENCY

After Saturation: What the Nine Should Concentrate On Now

Kenya · Rwanda · South Africa · Ghana · Tanzania · Senegal · Mauritius · Botswana · Cabo Verde

DEPTH
Financial focus

- Shift from breadth to depth
- Credit, insurance, long-term savings
- Access → agency: productive finance, not just payments

MARKETS
Market infrastructure

- Full interoperability + cross-border (PAPSS, AfCFTA)
- Deepen bond & equity markets; securitise loan books
- Open finance / data portability

FEES
Revenue model

- Exit regressive cash-out / transaction fees
- Earn on intermediation: NIM, asset mgmt, insurance
- Transparent, capped, merchant-led pricing

PRODUCTS
Value ladder

- SME, supply-chain, agri & asset finance
- Savings, micro-pensions, parametric insurance
- Alt-data + digital ID; guard over-indebtedness

BANKING
Reliability & protection

- Fraud, recourse, data privacy, cyber resilience
- Prudential oversight as fintechs turn systemic
- Bank–fintech convergence

THE TRADE-OFF TRIANGLE No frontrunner yet combines deep markets + reliable institutions + universal reach.

Kenya access-first → add depth & reliability. **South Africa** depth-first → extend reach. **Rwanda** reliable but thin markets. Last frontier: rural depth & the gender gap.

Caveat: *the flat bricolage interaction signals saturation, not failure — build the next financial layer ON the digital rails, not past them.*

DISCUSSION · FUTURE RESEARCH

A Future Research Agenda

1. Separate breadth from depth

Model access and depth as distinct outcomes and ask whether the digital footprint seeds credit, insurance, and capital markets — or caps at payments. The flat depth line makes this the central question.

2. Quasi-experimental identification

Use staggered mobile-money rollouts, interoperability mandates, regulatory sandboxes, and cable arrivals as natural experiments (DiD, event study, synthetic control); add geographic/technological instruments for mobile.

3. Upgrade the panel econometrics

Test and correct cross-sectional dependence (Pesaran CD; CCE-MG, Driscoll–Kraay, spatial). Allow heterogeneous slopes. Use threshold / PSTR models with the void level as the transition variable.

4. Endogenous, dynamic institutions

Trace the fintech ⇔ institutions feedback with panel-VAR or structural models, and empirically model the second-generation voids fintech creates: fraud, over-indebtedness, data and regulatory gaps.

5. Outcomes & distribution

Link inclusion to growth, poverty, SME investment, and resilience; test the shallow-inclusion trap directly. Add individual-level micro-data (Findex / FinScope / GSMA) in a multilevel design.

6. Frontier lab & comparative

Treat the advanced nine as a preview of post-saturation constraints. Compare SSA with Asia and Latin America; add mixed-methods / RCTs and a Bayesian approach for the small-N frontier.

The agenda: identify the mechanism cleanly, follow access into depth, and test whether the inclusion dividend is real.

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