



DIGITAL SAVINGS & FINANCIAL RESILIENCE



Evaluating the impact of digital wallet savings on the financial resilience and welfare trade-offs of women and youth





**20
26**

DIGITAL SAVINGS AND FINANCIAL RESILIENCE

IN MARGINALISED
NIGERIAN HOUSEHOLDS

WOMEN & YOUTH · FOUR STATES

Table of Contents

ACKNOWLEDGEMENTS	04	05 — H2 · WELFARE TRADE-OFFS: A DISCIPLINED NULL	46
EXECUTIVE SUMMARY	06	06 — FOR WHOM: WOMEN, YOUTH & THE PRIVACY SHIELD	55
KEY FINDINGS	08	07 — WHERE: REGIONAL DIVERGENCE ACROSS FOUR STATES	64
THE INSIGHT LEDGER — TEN INSIGHTS, TEN DECISIONS	10	08 — WHY: MECHANISMS, TRUST & FINANCIAL LITERACY	72
01 — INTRODUCTION: THE IMPACT QUESTION & HYPOTHESES	13	09 — BENCHMARKING AGAINST THE LITERATURE	78
02 — CONTEXTUAL INSIGHTS: NIGERIA'S INCLUSION-RESILIENCE GAP	20	10 — STRENGTHENING RESILIENCE: DECISIONS & TRANSFORMATION	82
03 — STUDY DESIGN, IDENTIFICATION & METHODOLOGY	27	APPENDIX — METHODOLOGY, QUOTE BANK & REFERENCES	91
04 — H1 · SHOCK ABSORPTION CAPACITY: SUPPORTED	36		

HOW TO READ THIS REPORT

Decision-makers can read pages 06–11 alone: the Executive Summary and Insight Ledger carry every headline result and the decision each enables. Chapters 04–08 hold the full evidence; the Appendix holds the machinery.

ACKNOWLEDGEMENTS



ACKNOWLEDGEMENTS

This study exists because forty-eight women and men in Enugu, Kaduna, Yobe and Ondo sat in focus groups and told the truth about money – about locked accounts and hidden cards, about landlords, hospital bills and the first place a household turns when a shock lands. Their words anchor every number in this report. Image credits , Canva and Unsplash.

Research & authorship

This report was researched and written by Abdullahi Ibrahim, EFINA Research Fellow (2026), under the EFINA Research Fellowship Programme of Enhancing Financial Innovation & Access.

The fellowship benefited from guidance by

The EFINA Research & Innovation team — fellowship mentors, methodology reviewers and the stakeholder review panel whose three rounds of feedback shaped Revisions 2 and 3 of the technical report, and whose insistence on decision-enabling evidence shaped this edition.

Key informants

Officials and specialists of the Central Bank of Nigeria; SMEDAN; the Centre for the Study of the Economies of Africa; the Federal Ministry of Women Affairs; the Kaduna State Internal Revenue Service; and platform and ecosystem respondents of OPay, Moniepoint, MTN MoMo and Innovation Global — twelve interviews, all conducted March–April 2026.

Field teams & communities

The enumeration and moderation teams who delivered eight focus group discussions and an 800-respondent survey across four states; the community gatekeepers, market association leaders and local government contacts who opened doors in Damaturu, Kaduna, Enugu and Akure; and the interpreters who carried Hausa, Igbo and Yoruba testimony into this record without flattening it.

Data & benchmarks

EFInA Access to Financial Services in Nigeria (A2F) 2023 survey; World Bank Global Findex 2021; GSMA State of the Industry 2024; and the academic evidence base cited in the References.

All errors of fact, analysis and interpretation remain the author's alone. Findings do not necessarily represent the views of EFINA or any informant institution.

EXECUTIVE SUMMARY



Among shock-exposed women and youth, active digital savers absorbed a ₦75,000 emergency at **twice the rate** of matched informal savers — 63% versus 31% — and recovered **42 days faster**. After adjusting for a baseline wealth imbalance that favours the control group, the treatment effect remains significant at 1.76× higher odds.

On welfare trade-offs the verdict is disciplined: wallet access alone did not reduce harmful coping overall — but it cut predatory borrowing nearly in half, and it exposed a product-design trap in locked savings that this report names and prices.

These are the difference between designing programs that look good on paper and ones that actually work in people's lives.

Understanding the true cost of locking money away early, knowing how much privacy is worth in real terms, and distinguishing between crisis sales and strategic asset decisions means we can build financial tools that respect how households actually survive and thrive.



This is an impact evaluation, not an inclusion narrative — every result answers one question: what changed *because* of the wallet?

The study combines a quantitative survey (N=800; 400 active digital savers, 400 informal savers, defined behaviourally) with eight focus group discussions (48 participants) and twelve key informant interviews across Yobe, Kaduna, Enugu and Ondo. Treatment status requires a wallet deposit within the past three months *and* adoption at least 30 days before any measured shock — reverse causality is mitigated by design, not assumption.

Hypothesis 1 — shock absorption — is supported. Active digital savers absorbed the ₦75,000 one-week liquidity test at 63% versus 31% ($t(231)=-4.56$, $p<.001$). Controlling for state, gender, livelihood, income volatility and baseline assets, the adjusted odds ratio is 1.76 (95% CI 1.10–2.84, $p=.020$) — deliberately deflated from the unadjusted ~3.55 because the control group is *wealthier* at baseline. Treatment respondents recovered normal spending in 31.6 days versus 73.5, and were half as likely to raise nothing at all when a shock hit. A pre-adoption falsification test confirms direction: respondents whose shock preceded adoption show *no* advantage ($p=.297$), yielding a difference-in-difference estimate of +39.7 percentage points.

Hypothesis 2 — welfare trade-offs — is not supported at the primary level. The Negative Coping Strategy Index is statistically indistinguishable between groups (0.92 vs 0.99, $p=.620$); structural income volatility dominates coping. Two disciplined sub-findings survive: predatory borrowing is halved (8.3% vs 16.7%, $p=.017$), and the intensity model reveals a **digital cash-lock trap** ($B=+0.150$, $p=.009$) in which over-concentration in locked products paradoxically worsens coping. Qualitative evidence reframes part of the null: users rationally sell temporary assets rather than break locked accounts and forfeit up to 15% interest — the Asset Depletion Paradox.

For whom does it work? Precisely where the title points: female youth (+22.0pp, $p=.005$) and older women (+17.5pp, $p=.021$) gain significantly; male youth, whose informal baseline is already 57.5%, do not ($p=.244$). Geographically the effect is strongest where informal alternatives are weakest (Ondo +25pp, $p<.001$) and null where product design outruns savings depth (Kaduna, $p=.922$). The privacy shield — PIN and biometric protection from intra-household appropriation — emerges as a validated, gender-specific welfare mechanism: 74.8% of treatment respondents say private storage directly enabled an emergency response.

63% vs 31%

H1 • SHOCK ABSORPTION

₦75,000 in one week · $p<.001$

OR 1.76

ADJUSTED TREATMENT EFFECT

Wealth-controlled · CI 1.10–2.84

-8.4pp

PREDATORY BORROWING

8.3% vs 16.7% · $p=.017$

p=.620

H2 • NCSI COMPOSITE (NULL)

Access alone is insufficient

Treatment = deposited into a wallet savings product within the past 3 months, adoption ≥ 30 days before any measured shock. Control = informal saver (ajo / esusu / adashe). Causal frame: post-adoption shock sample (T=192, C=215).

**WALLET
ADOPTION**



**SHOCK
EXPOSURE**

**FINANCIAL
RESILIENCE**

Causal design: treatment requires adoption ≥ 30 days before shock — what changed *because* of the wallet?

Key Findings

Nigeria is more banked and less resilient. Formal inclusion rose from 57% to 64% of adults between 2020 and 2023, while the share of Nigerians classified as financially healthy collapsed from 27% to 12%. Ownership KPIs are certifying a resilience failure — the paradox this study was designed to interrogate.

Active digital saving doubles shock absorption. 63% of active digital savers raised ₦75,000 within one week against 31% of matched informal savers; the wealth-adjusted odds ratio is 1.76 and the difference-in-difference estimate is +39.7pp. The advantage does not exist before wallet adoption — the signature a genuine treatment effect must show.

The speed dividend is infrastructure-gated. Digital savers recover normal spending 42 days faster on average — but the gap collapses to exactly zero in Yobe, where network and agent infrastructure fail. Where rails are weak, the wallet still stores value; it stops delivering speed.

The effect is a women's instrument. Female youth gain +22.0pp of absorption ($p=.005$) and older women +17.5pp ($p=.021$); male youth — whose informal baseline is already 57.5% — gain nothing significant. The marginal value of the wallet is greatest for those with the fewest alternative channels.

But wallets halve predatory borrowing. High-cost informal borrowing falls from 16.7% to 8.3% ($p=.017$) — the clearest welfare benefit of wallet access, and the evidence base for funding savings-led rather than credit-led products.

Privacy is the product, not a feature. 74.8% of treatment respondents say PIN- and biometric-protected storage directly enabled an emergency response. Ajo cards are findable and collectors visible; a PIN converts a woman's savings from negotiable to inviolable. Removing authentication would collapse female trust — FGDs in two states agree.

Wallet access alone does not reduce harmful coping. The NCSI composite is statistically flat between groups (0.92 vs 0.99, $p=.620$). Structural income volatility, not savings channel, dominates coping outcomes — access without depth and product design is not a welfare technology.

Locked savings without escape valves backfire. Households concentrating >75% of savings in locked digital products cope worse during shocks ($B=+0.150$, $p=.009$). Kaduna — the study's only NCSI reversal — is the trap's geographic signature.

Asset sales can be strategy, not distress. Users holding locked balances rationally sell repurchasable assets rather than forfeit up to 15% interest — the Asset Depletion Paradox, independently confirmed by four sources. Coping indices that code every sale as harm are mis-measuring welfare in locked-savings contexts.

Geography sorts the intervention. The same product yields +25pp in Ondo ($p<.001$), directional gains in Yobe, informal parity in Enugu, and a null with reversed coping in Kaduna. There is no uniform national rollout to recommend — investment must be sorted by state readiness.

64% → 12%

Sixty-four percent of Nigerian adults are now formally included; twelve percent are financially healthy. The gap between those numbers is the space this report's ten findings occupy — and the case for measuring resilience, not access.



What the findings mean for the NFIS 3.0 moment

Nigeria's next National Financial Inclusion Strategy will be written against the numbers above. The findings sort into three policy postures. **First, measure resilience directly.** The ₦75,000/7-day shock-readiness test and a savings-depth indicator belong beside ownership in the national measurement framework; the access KPI and the welfare outcome have visibly decoupled. All eleven substantive key informants — including the CBN's own estimate of a 60:40 access-to-resilience policy split — converged on this imbalance.

Second, fund design, not just adoption. The HI effect proves savings-led wallets are resilience infrastructure for women; the TA8 trap proves that the same products, locked without emergency-release windows, convert discipline into shock-time harm. The binding constraints are product architecture (Kaduna), rails (Yobe) and depth (everywhere) — not sign-ups.

Third, centre women explicitly. Every stratified estimate says the wallet is a women's resilience instrument. Platform operators independently report women out-saving and out-using men. The privacy shield is the mechanism — which makes authentication design, agent conduct and gender-disaggregated reporting first-order policy questions, not usability details.

MEASURE

Adopt shock-readiness and savings depth as tier-2 inclusion indicators. Publish a resilience rate beside the inclusion rate in A2F 2026+.

DESIGN

Mandate emergency-release windows in locked products; keep PIN/biometric non-negotiable; sort investment by state readiness.

PROTECT

Position savings as the anti-moneylender; tighten multiple-app digital credit; pair credit access with rehabilitation pathways for blacklisted youth.

"Money you have in your wallet is just as if you have your money in your hand. You can access it immediately... But a wallet? In the twinkle of an eye, you point it and you transfer. There is no public holiday."

ONDO MALE FGD PARTICIPANT · THE SELF-SERVICE LIQUIDITY MECHANISM BEHIND HI



The Insight Ledger — Ten Insights, Ten Decisions

This report exists so that a decision-maker can pick up an insight and act on it — or decline it with reasons. The ledger is the whole study in one table: each row states the insight, the evidence behind it, how strong that evidence is, and the decision it enables. Every row is expanded — with its tables, case narratives and counter-arguments — in the chapter referenced.

#	INSIGHT	EVIDENCE	STRENGTH	THE DECISION IT ENABLES
01	Active digital saving doubles shock absorption	63% vs 31% ($p<.001$); wealth-adjusted OR 1.76; DiD +39.7pp	STRONG	Fund savings-led (not credit-led) wallet products as resilience infrastructure. Ch.04
02	The effect is a women's instrument	Female youth +22.0pp ($p=.005$); older women +17.5pp ($p=.021$); male youth null ($p=.244$)	STRONG	Centre women in product and outreach; do not fund male-youth adoption campaigns. Ch.06
03	Privacy is the product, not a feature	74.8% say privacy directly enabled an emergency response (TV6); esusu-appropriation case	STRONG	Keep PIN/biometric non-negotiable; reject shared-access or agent-visible designs. Ch.06
04	Locked savings without escape valves backfire	TA8 B=+0.150 ($p=.009$); Kaduna NCSI reversed (0.71 vs 0.47)	MODERATE	Mandate emergency-release windows before scaling locked products. Ch.05, Ch.07
05	Wallets halve predatory borrowing	NC4 8.3% vs 16.7% ($p=.017$); KII debt-spiral corpus	STRONG	Position wallets as the anti-moneylender — not a case for more digital credit. Ch.05

STRONG = significant at $p<.05$ in the primary causal frame and robust to falsification. **MODERATE** = significant sub-model or triangulated qualitative finding; directional caveats stated in the referenced chapter. Chapter 10 converts this ledger into adopt-or-reject decision cards and a transformation ledger.



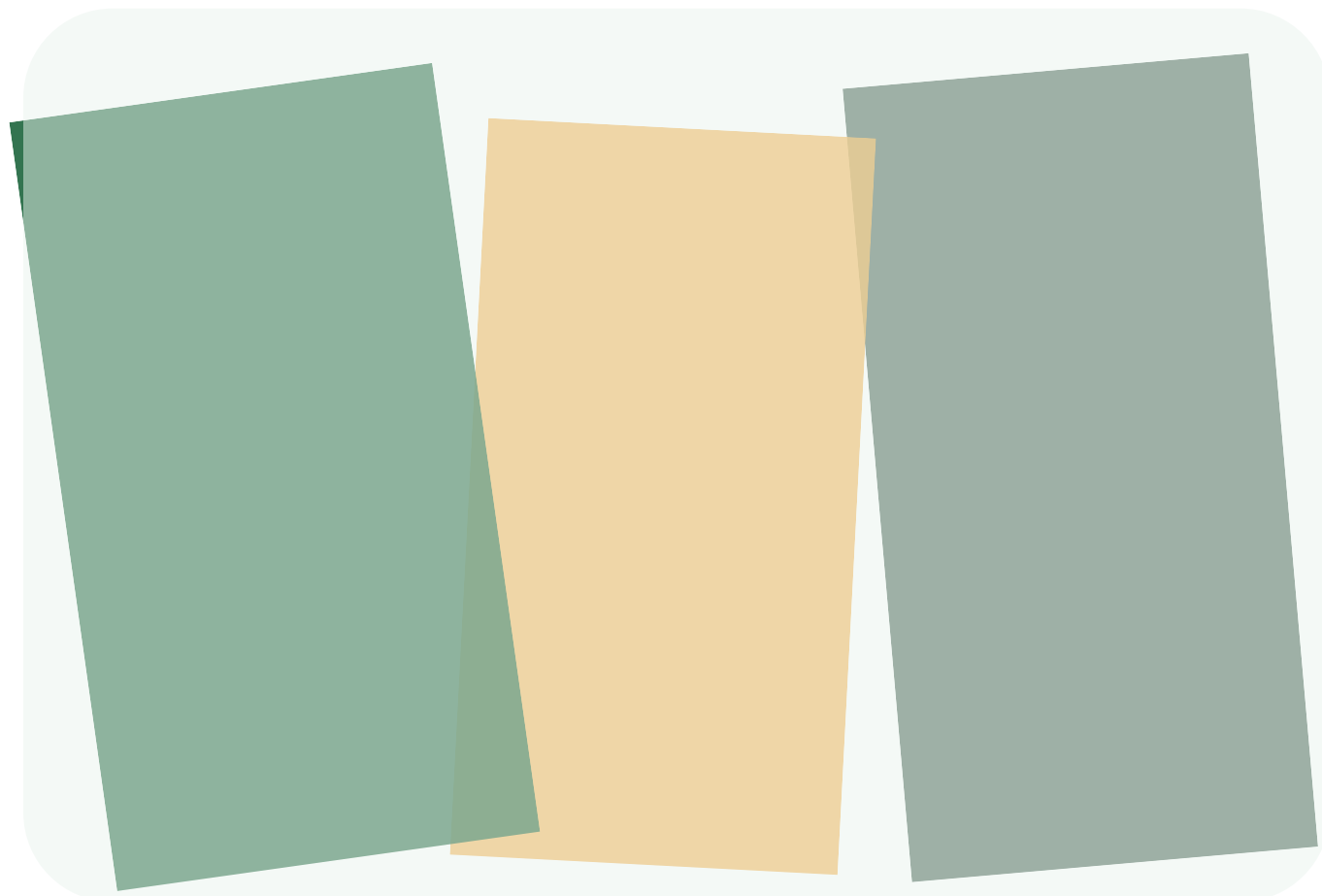
#	INSIGHT	EVIDENCE	STRENGTH	THE DECISION IT ENABLES
06	Participation rises; depth does not	<1-week buffers: 35.8% vs 58.0% ($p<.001$); depth among savers $p=.786$	STRONG	Measure and reward savings depth; ownership KPIs mislead. Ch.04, Ch.10
07	Geography sorts the intervention	Ondo +25pp ($p<.001$); Kaduna null ($p=.922$); Yobe recovery gap = 0; Enugu informal parity	STRONG	No uniform national rollout — sort investment by state readiness. Ch.07
08	Asset sales can be strategy, not distress	NC3 rates equal ($p=.668$) yet sellers' logic diverges; interest-preservation calculus, 4 independent sources	MODERATE	Amend coping indices to track repurchase; stop coding all sales as harm. Ch.05
09	Trust reverses — then over-relies	High digital trust 76.0% vs 10.5% ($p<.001$); TVI×T interaction $B=+0.284$ ($p=.025$)	MODERATE	Pair trust-building with precautionary-depth nudges. Ch.08
10	The speed dividend is infrastructure-gated	42-day faster recovery overall ($p=.010$) but a zero gap in Yobe	STRONG	In fragile states, build rails before products. Ch.04, Ch.07

HOW THE LEDGER WAS BUILT

Each insight had to clear three bars: a quantitative estimate in the primary causal frame, an independently sourced qualitative mechanism, and a stated boundary condition. Insights that cleared only two appear as MODERATE; nothing that cleared fewer appears at all.

WHAT IS DELIBERATELY ABSENT

No insight rests on the unadjusted odds ratio (~3.55), on sub-models substituted for failed primary tests, or on quotations detached from indicators. Where the evidence is null — H2's composite — the null is reported as the finding.





Fieldwork, March–April 2026. Eight focus groups, twelve key informant interviews and an 800-respondent survey across Yobe, Kaduna, Enugu and Ondo.

INTRODUCTION

Nigeria is more banked and less resilient. This study tests whether active digital savings — not account ownership — closes that gap for women and youth, and what it costs when it doesn't.

Divider photo — young woman reading phone, dusk light

1.1 The resilience paradox: financial inclusion is rising while financial health collapses

Nigeria's economy has confronted compounding pressures since 2020: recession (−1.95% real GDP growth in 2020), 28.9% year-on-year inflation by end-2023 following fuel subsidy removal and naira devaluation, and a monetary policy rate rising from 11.5% to 18.75%. Households absorbed these blows while the formal financial system reported steady progress: inclusion expanded from 57% to 64% of adults between the 2020 and 2023 A2F surveys.

Over the same period, the share of Nigerians classified as **financially healthy collapsed from 27% to 12%**. The country is more banked. It is less resilient. That decoupling — between the KPI the policy system optimises and the outcome households actually need — is the paradox this study interrogates at household level, in the populations where the stakes are highest: women and youth in four states spanning Nigeria's inclusion gradient.

The instrument at the centre of the study is the digital wallet savings product — OPay, Moniepoint, MTN MoMo and peers — which has spread through Nigerian markets faster than any prior formal financial technology, carried by agent networks into contexts banks never reached. Whether that spread is producing resilience, and for whom, is an empirical question this report answers with a matched-group causal design rather than adoption statistics.

57→64%

Formal financial inclusion,
2020–2023 (A2F)

27→12%

Financially healthy Nigerians,
same period

MACRO PRESSURE, 2020–2023

Real GDP 2020 **−1.95%**

Inflation, end-2023 **28.9%**

Policy rate **11.5→18.75%**

Naira devaluation & fuel
subsidy removal

THE IMPACT QUESTION

Does **active use of digital savings wallets** — deposits made before a shock, not mere account ownership — measurably improve the ability of Nigerian women and youth to absorb financial shocks (H1) and avoid harmful welfare trade-offs (H2), relative to matched peers saving through ajo, esusu and adashe? Every analysis in this report is disciplined against this question and its counterfactual.



1.2 Two hypotheses, tested against a credible counterfactual

The study's counterfactual is not "the unbanked". It is the informal saver — the woman paying an ajo collector daily, the trader waiting his esusu turn — because that is the real alternative a wallet displaces. Both hypotheses are therefore comparative: not "does the wallet help" but "does the wallet beat the best informal system available to the same person".

H1 **SUPPORTED**

Shock absorption capacity

Active digital savers demonstrate greater shock absorption than informal savers: higher probability of raising ₦75,000 within one week (FS3c), more complete shock coverage (FS1), and faster recovery velocity (RV1). Tested by t-test, covariate-adjusted logistic regression, and a pre-adoption falsification check.

H2 **NOT SUPPORTED (PRIMARY)**

Welfare trade-offs

Greater digital savings intensity is associated with fewer harmful coping strategies (lower NCSI). Binary group membership shows no composite effect ($p=.620$); item-level (NC4, $p=.017$) and intensity-model (TA8, $p=.009$) sub-findings qualify the null in opposite directions.

The behavioural treatment definition

TREATMENT (N=400)

Deposited into a digital wallet savings product within the past three months; adoption date precedes any measured shock by ≥ 30 days. Ownership without deposits does not qualify.

CONTROL (N=400)

Saves primarily through ajo, esusu or adashe; no active digital savings deposits. An economically active saver — not a non-saver — so the comparison prices the channel, not the habit.

EXCLUDED FROM CAUSAL FRAMES

Respondents whose reported shock predates wallet adoption — flagged, removed from H1/H2 estimation, and retained only as the falsification sub-sample (Ch.03).

"If I am number ten or eleven in an Ajo rotation and I have an emergency, the Ajo will not save me."

ONDO MALE FGD PARTICIPANT · THE ROTATION CONSTRAINT THE COUNTERFACTUAL CARRIES



1.3 What this study adds that the literature does not supply

1

A behavioural treatment definition with temporal ordering

Unlike ownership-based inclusion studies, treatment status requires a deposit within three months *and* adoption at least 30 days before the measured shock — mitigating reverse causality by design rather than assumption. The pre-adoption falsification sample this creates is itself a methodological asset.

2

The Asset Depletion Paradox

First documented evidence that locked digital savings with interest incentives can make productive asset sales a *rational, temporary* strategy — challenging the universal-negative coding of asset sales in global coping indices, and motivating a repurchase-tracking amendment.

3

The privacy shield as a measured welfare mechanism

TV5/TV6 instruments quantify what has previously been anecdote: financial privacy is a precondition of saving for many married Nigerian women, and PIN/biometric protection is the mechanism through which a woman's buffer survives to the shock.

4

Sub-national heterogeneity with policy sorting

The four-state design shows where the digital dividend pays (Ondo), where it is directional but infrastructure-constrained (Yobe), where informal systems match it (Enugu), and where product design actively reverses it (Kaduna) — turning one national average into four distinct investment mandates.

×2

The headline is easy to state and hard to earn: comparing two savers of the same state, gender, livelihood and wealth position, the one who saves through a digital wallet is roughly **twice as likely to absorb a ₦75,000 shock within a week** — and the advantage did not exist before the wallet.

1.4 The four study states — a deliberate inclusion gradient

The states were selected to span Nigeria's inclusion distribution, its geopolitical zones, and its security contexts — from Ondo's mature digital market to Yobe's post-conflict fragility. Two hundred respondents were surveyed per state; each state contributed one male and one female focus group.

ONDO

SOUTH WEST · 70% INCLUSION

Agricultural cooperatives and urban market trade; digital finance dominant; the study's deepest FGD narratives. The state where the wallet's full mechanism — liquidity, speed, substitution — operates unobstructed.

ROLE IN THE DESIGN: THE MATURE-MARKET BENCHMARK

ENUGU

SOUTH EAST · 68% INCLUSION

Urban artisans, typists, fashion designers; the strongest ajo culture in the sample, with iron savings boxes still competitive. Informal systems here set the highest bar a wallet must clear.

ROLE IN THE DESIGN: THE INFORMAL-COMPETITION TEST

KADUNA

NORTH WEST · 55% INCLUSION

Mixed urban-rural livelihoods; adashe card culture; heavy uptake of credit-bundled, locked wallet products. The state where product design outruns savings depth — and coping reverses.

ROLE IN THE DESIGN: THE PRODUCT-DESIGN STRESS TEST

YOBE

NORTH EAST · 33% INCLUSION

Post-conflict recovery; severe network and agent deficits; ~38% of the North East's ~9 million adults excluded. Where access itself — not product choice — is the binding constraint.

ROLE IN THE DESIGN: THE FRAGILITY BOUNDARY

N = 800
200 PER STATE

Within each state: 100 active digital savers (treatment) and 100 informal savers (control), quota-sampled on gender and age band so that female youth, older women and male youth are each represented in every state — the strata reported in Chapter 06.

1.5 How the argument is built

The report runs one argument from context to decision. Each chapter closes a specific escape route a sceptical reader might take, in order:

02

Context.

Why inclusion statistics stopped predicting welfare, and what the informal systems the wallet competes with actually do well.

03

Identification.

"Correlation isn't causation" — answered with group definitions, covariate balance, rival-explanation tests and falsification.

04

The effect.

H1 in full: absorption, coverage, speed, mechanism — and the participation-versus-depth distinction that limits it.

05

The honest null.

H2 stated plainly, then decomposed: where the wallet protects (predatory borrowing), where it harms (the cash-lock trap), and where the index itself mis-measures (the Asset Depletion Paradox).

06

For whom.

Stratified estimates and the privacy shield — the gendered mechanism that explains why women gain and male youth do not.

07

Where.

Four states, four stories — the full evidence matrix and the binding constraint in each.

08

Why.

The validated causal pathway, the trust reversal, and financial literacy as the binding moderator.

09

Benchmarks.

Where each finding replicates, extends or departs from the published evidence base.

10

Decisions.

Adopt-or-reject cards with evidence anchors, the transformation ledger, limitations and the research agenda.



Four states, one inclusion gradient: Ondo (70%), Enugu (68%), Kaduna (55%), Yobe (33%). The same wallet meets four different economies.

CONTEXTUAL INSIGHTS: NIGERIA'S INCLUSION— RESILIENCE GAP

The macro shocks households are absorbing, the digital finance landscape they adopted to cope, and the informal systems that landscape must out-perform.



2.1 The household under pressure: what "shock" means in this economy

A financial shock in this study is not an abstraction. In the survey and FGD record it is a landlord doubling two rents in the same month; two children falling sick in the same week; a market fire; stock lost to flooding; a funeral that arrives with an obligation schedule attached. The ₦75,000 benchmark used in the primary test approximates one month of household expenses for the study population — large enough to be diagnostic, small enough to be survivable if any buffer exists.

Three macro forces have raised both the frequency and the price of such shocks since 2020. **Inflation** at 28.9% by end-2023 converts fixed obligations — rent, fees, drug prices — into moving targets. **Currency devaluation** passes import costs directly into medicine and transport. **Subsidy removal** repriced the daily logistics of informal work itself. For households whose income arrives daily and irregularly, volatility is not a risk parameter; it is the operating condition.

This is the environment in which the study's central comparison operates. Both groups face the same macro weather. What differs is the architecture of the buffer each has built — visible or private, liquid or locked, self-service or rotation-bound — and the study's contribution is to price those architectural differences in welfare terms.

28.9%

Year-on-year inflation,
December 2023

18.75%

Monetary policy rate, up
from 11.5%

₦75,000

The one-week liquidity test —
≈ one month of household
expenses

Daily

Modal income frequency in
the sample — volatility is the
operating condition

"My landlord increased my apartment and my shop rent at the same time... For me to manage that scenario was very, very difficult. The first thing is my savings. My wallet."

ONDO MALE FGD PARTICIPANT · A ₦700,000 COMPOUND RENT SHOCK — THE CASE DEVELOPED IN CHAPTER 04

2.2 · BETWEEN 2020 AND 2023, NIGERIA BECAME



+7pp

more **financially included** — 57% to 64% of adults with a formal account



-15pp

less **financially healthy** — 27% down to 12% able to meet obligations and absorb shocks

Every additional account opened during Nigeria's worst inflation decade coincided with a shrinking minority of households that could survive a ₦75,000 emergency. The national measurement framework counts the first number and not the second. This report's core proposal — **measure resilience, not access** — begins on this page.

2.3 The digital savings landscape the sample actually uses

Nigeria's fintech expansion has been agent-led: cash-in/cash-out points in markets and neighbourhoods, onboarding by referral, products layered from transactional balances to **interest-bearing locked savings** ("SafeBox", "OWealth"-type products, fixed accounts paying up to ~15%). It is these savings layers — not payments — that this study evaluates.

Platform concentration in the treatment group is high: **OPay (54.8%) and Moniepoint (26.0%)** hold 80.8% between them, with MTN MoMo and bank wallets sharing the remainder. Concentration matters for policy: two product teams' design choices — lock terms, release friction, default nudges — set the welfare conditions for most of Nigeria's marginalised digital savers.

The savings feature mix drives the study's product findings. Locked products grow balances through commitment and interest; their all-or-nothing release rules create the cash-lock trap of Chapter 05. Flexible balances give the 24/7 self-service liquidity behind HI. Most users hold both, allocating between them — and that allocation share (TAB) turns out to be a welfare parameter.

PLATFORM	TREATMENT SHARE
OPay	54.8%
Moniepoint	26.0%
MTN MoMo	—
Bank wallets & others	19.2% combined

WHY CONCENTRATION MATTERS

An emergency-release window shipped by two product teams would reach four in five treatment households in this sample — the highest-leverage design intervention identified by the study.

THE INTEREST HOOK

"In 2018, my brother told me that OPay has a lot of interest... with digital wallets, we were having a lot of interest." — Ondo male FGD. Product knowledge, not marketing, converts non-savers.

2.4 The systems the wallet must beat: ajo, esusu and adashe, taken seriously

Nigeria's rotating and collected savings institutions are not a deficiency to be corrected; they are a competing financial technology with genuine structural strengths the qualitative record refuses to caricature. The comparison below is the honest baseline for every claim in this report.

DIMENSION	INFORMAL (AJO / ESUSU / ADASHE)	DIGITAL WALLET SAVINGS
Emergency liquidity	Rotation-bound; payout depends on your turn and the collector's availability	24/7 self-service; "no public holiday" — the HI mechanism
Discipline	Forced illiquidity and social pressure — a strength; balances survive temptation	Frictionless access invites depletion; locked products re-import discipline at a welfare price (Ch.05)
Accountability	"You know the person you can hold" — but collectors also disappear with funds (the trust-migration driver)	"The platform cannot run away with your money" — institutional, not personal, accountability
Privacy	Cards are findable, collectors visible, accumulation public within the household — a savings tax on married women	PIN/biometric opacity — the gendered mechanism of Chapter 06
Credit	Group lending at 12–40% below digital rates; character-based underwriting	Instant app loans; spiral risk concentrated in low-literacy youth (Ch.06, Ch.08)
Returns	Zero or negative (collector fees)	Up to ~15% on locked products — the hook that powers both adoption and the Asset Depletion Paradox

"You know the person you can hold."

ENUGU FGD · THE SOCIAL-ACCOUNTABILITY ADVANTAGE
INFORMAL SYSTEMS KEEP

"The platform cannot run away with your money."

FGD CORPUS · THE FRAUD-DRIVEN TRUST MIGRATION
DEVELOPED IN CHAPTER 08



2.5 Why women and youth: the populations where inclusion under-delivers most

Youth are the digital economy's earliest adopters and its least protected borrowers. Platform operators report three in ten borrowers struggling to repay; the FGD record documents loan-app chains "patching each other", diversion of credit to consumption, and SIM-card breaks to escape collection calls — an act that simultaneously erases the borrower's savings history and blacklists them from formal credit. For youth, the wallet is simultaneously the on-ramp to saving and the on-ramp to spiralling.

Women carry Nigeria's persistent inclusion gender gap, and the gap compounds regionally: in the North East, roughly 38% of an estimated nine million adults remain excluded, and key informants describe men controlling wives' phones and SIMs — meaning even "access" statistics overstate women's effective control. Within households, women's savings face a claim men's do not: visible accumulation invites appropriation, documented in this study at case level (the Kaduna esusu appropriation, Chapter 06). A savings technology that cannot survive the household cannot protect the woman.

These two populations therefore define the study's title and its sampling quotas. They are where the resilience paradox bites hardest — and, as Chapters 04–06 show, where the digital savings dividend is largest (women) and most conditional (youth). A secondary demographic signal deserves note: operators independently describe younger Gen-Z men as decreasingly financially active, ceding household financial management to women — a trend that, if it holds, strengthens the case for centring female users in resilience products.

~38%

North-East adults excluded from formal finance (CSEA KII, citing A2F regional data)

3 in 10

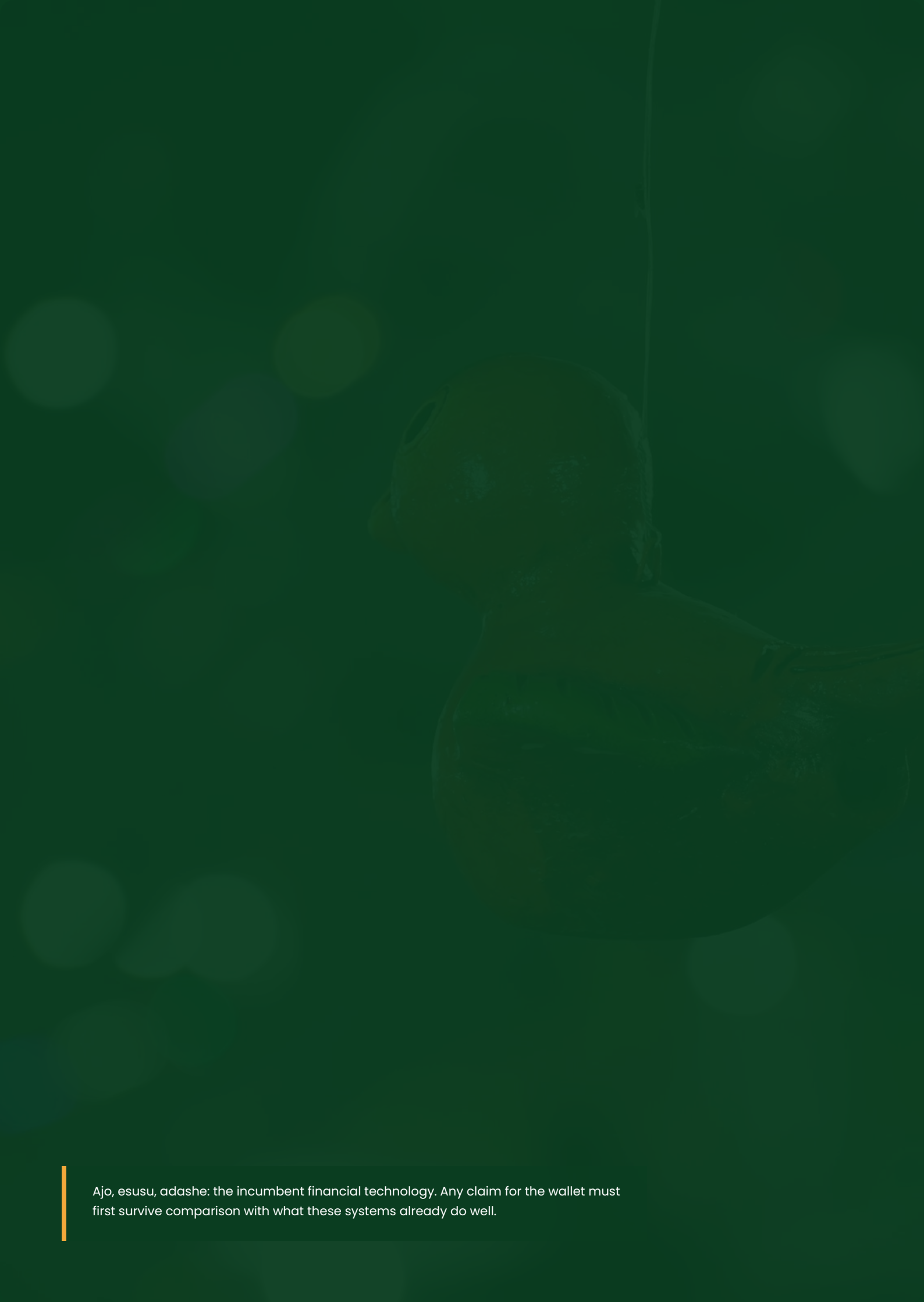
OPay borrowers struggling to repay (platform KII) — the youth debt-spiral base rate

~70:30

KII-converged split of responsible vs risky youth digital behaviour, sorted by literacy

"Women suffer the most as most of the time women are the one with the children at home."

YOBE FGD · WHY SHOCK EXPOSURE IS GENDERED BEFORE FINANCE EVER ENTERS



Ajo, esusu, adashe: the incumbent financial technology. Any claim for the wallet must first survive comparison with what these systems already do well.

STUDY DESIGN, IDENTIFICATION & METHODOLOGY

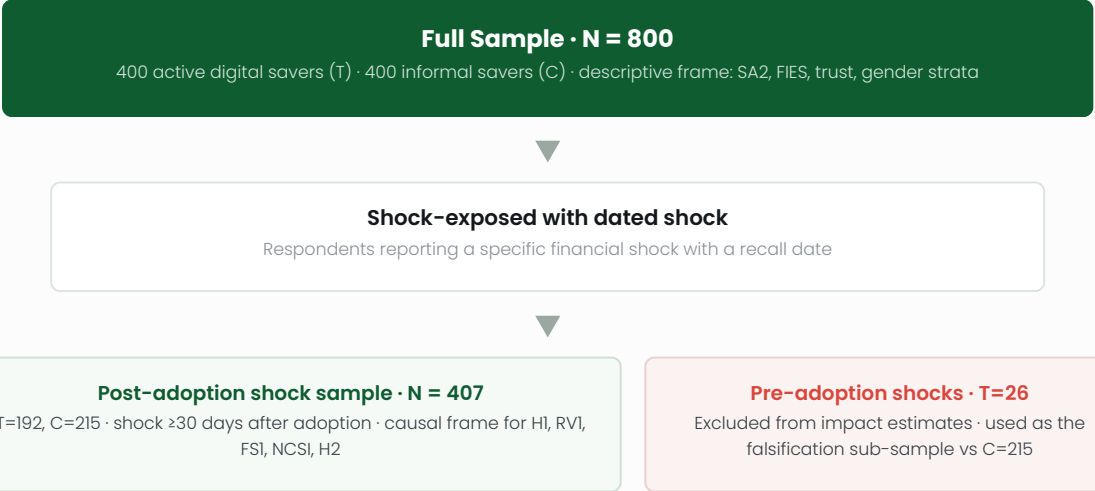
How the study defends causal interpretation: explicit group definitions, temporal ordering, covariate balance, rival-explanation tests, falsification, and a mixed-methods evidence protocol.



3.1 A matched-group observational design, disciplined into causal frames

A cross-sectional matched-group design was deployed across four states (n=200 per state), with treatment defined **behaviourally** — by deposits, not ownership. The full sample supports descriptive comparison; causal estimation is restricted to the post-adoption shock sample, where the wallet demonstrably preceded the shock it is credited with absorbing.

FIGURE 1 · SAMPLE FLOW — FROM SURVEY POPULATION TO CAUSAL INFERENCE FRAMES



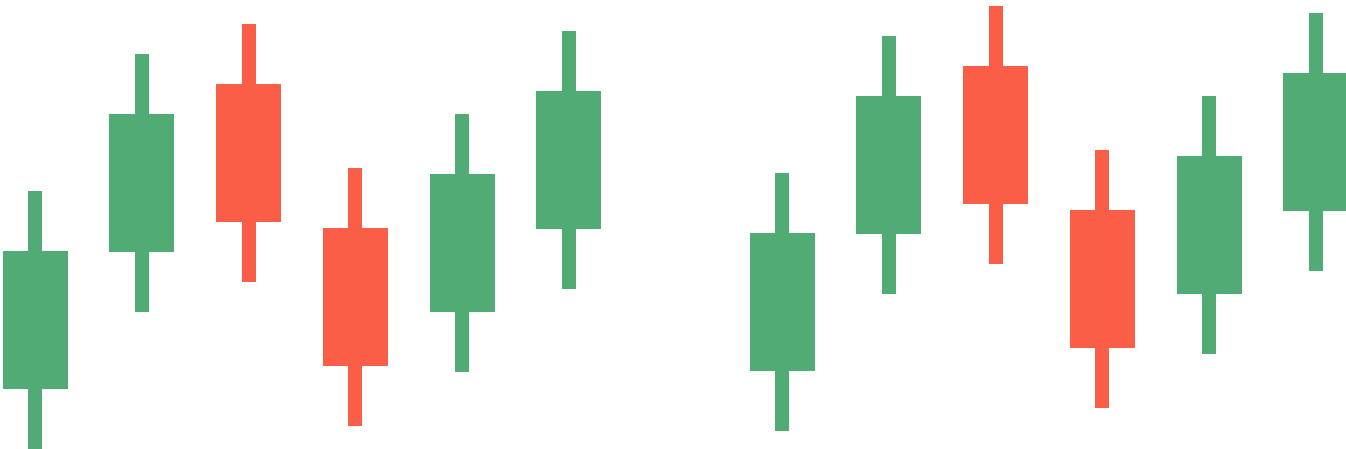
Analysis-specific Ns vary within the causal frame by item completeness (HI primary t-test N=233; RV1 N=197; FS2 N=400). Each table states its frame.

WHY NOT AN RCT

Wallet adoption in Nigeria is already mass-market; withholding it experimentally is neither feasible nor ethical at fellowship scale. The design instead reconstructs the two RCT disciplines that matter — temporal ordering and covariate adjustment — and adds a falsification layer an RCT would not need.

LANGUAGE DISCIPLINE

Causal language is reserved for results that survive all three defences (ordering, adjustment, falsification); associational language is used everywhere else. Where a result is directional but underpowered, the report says so in the sentence that reports it.



3.2 The temporal ordering condition — the design's spine

The single most consequential design choice is the requirement that **wallet adoption precede the dated shock by at least 30 days**. Without it, the study would compare people who saved before trouble with people who downloaded an app during trouble — and would mistake desperation-adoption for treatment failure, or credit the wallet with resilience that was really pre-existing liquidity.

The qualitative record validates the distinction. Participants across all four sites separate, unprompted, the money that was *already there* from the money that had to be *found*: savings accumulated before an emergency versus resources assembled during one. The 30-day threshold operationalises that folk distinction — a buffer must have had time to exist before it can be credited with absorbing anything.

Twenty-six treatment respondents reported shocks predating adoption. Rather than discard them, the design converts them into its own placebo arm: if the wallet is the operative mechanism, these respondents should look like controls — and they do (Section 3.5). Recall-dating of shocks is a limitation carried honestly: misdating attenuates the design's protection rather than inflating the effect, since it moves genuine post-adoption cases out of the causal frame more often than the reverse.

FIGURE 2 · THE ORDERING RULE, ON A TIMELINE



"It was faster because it was my money, and I didn't have to go to anyone to start explaining why I needed the money."

KADUNA FEMALE FGD · "ALREADY THERE" VS "HAD TO BE FOUND" — THE DISTINCTION THE 30-DAY RULE OPERATIONALISES

3.3 Counterfactual credibility: the wealth imbalance that runs the wrong way

Impact interpretation requires the groups to be comparable on everything except wallet use. Standardised mean differences were computed for key baseline covariates. Age and income volatility balance well. Baseline asset condition does not — **the control group is wealthier** (SMD=-0.57). Rather than let that inflate the treatment effect, the asset proxy enters every primary regression, and the adjustment bites hard: the unadjusted odds ratio of ~3.55 deflates to 1.76. The deflated estimate is the one this report headlines — and because the imbalance favours the control group, it biases *against* H1, making the surviving effect conservative.

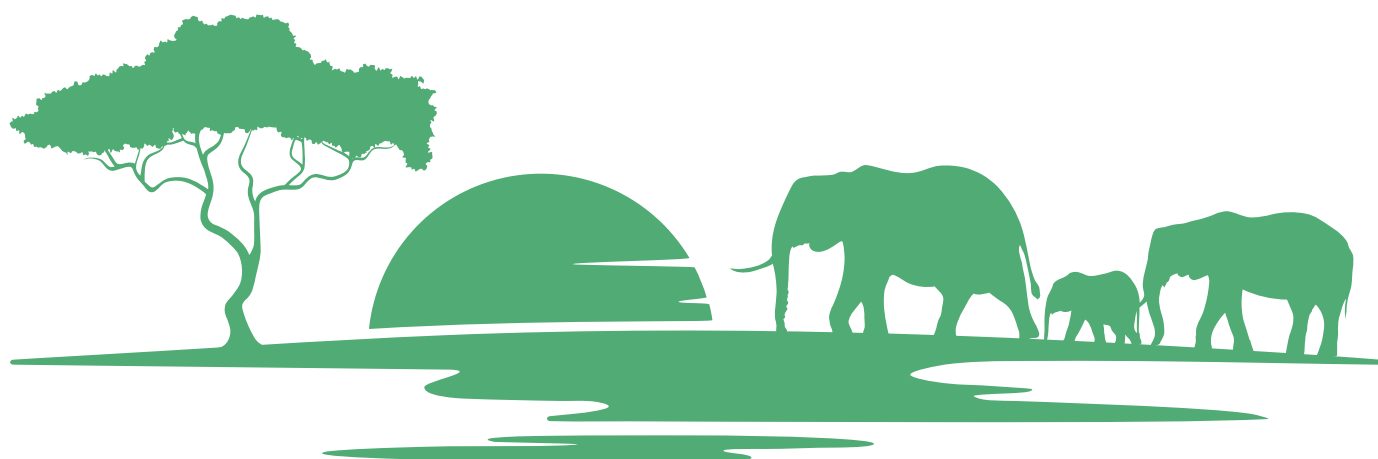
TABLE 1 · COVARIATE	CONTROL	TREATMENT	SMD	HANDLING
Age	35.24	34.17	-0.11	Acceptable balance ($ SMD < 0.20$)
Income volatility proxy	1.90	1.99	+0.14	Acceptable balance
Asset condition (baseline wealth)	3.10	2.55	-0.57	Entered as covariate in all primary models; deflates OR 3.55 → 1.76

WHY THE DIRECTION OF IMBALANCE MATTERS

The classic worry in adoption studies is that adopters are richer, so "the wallet works" really means "money works". Here the adopters are *poorer*. Any residual wealth confounding suppresses the measured effect — the estimate survives with the deck stacked against it.

WHAT ADJUSTMENT CANNOT DO

Covariates control what was measured. Unobservables — grit, planning horizon, social capital — are bounded instead by the falsification test (3.5) and the mature-adoption sensitivity check, and disclosed as a limitation in Chapter 10.



3.4 Ruling out alternative explanations — each rival named, tested, verdicted

Impact claims are only as strong as the rival explanations they survive. The table states the pattern the data *would* show if each rival were the true driver, against what the data actually shows.

TABLE 2 · RIVAL EXPLANATION	IF TRUE, WE WOULD SEE	WHAT THE DATA SHOWS	VERDICT
Wealth, not the wallet	Treatment group wealthier at baseline; effect vanishes once wealth is controlled	Controls are <i>wealthier</i> (SMD=-0.57); effect survives adjustment (OR 1.76, p=.020)	REJECTED
Infrastructure, not saving	Effect largest in the best-connected state; absent in the worst	Worst-connected Yobe shows the largest raw absorption gap (+31pp); only the <i>speed</i> outcome (RV1) is infrastructure-gated	REJECTED AS DRIVER; RETAINED AS MODERATOR
Financial literacy, not the wallet	Adopters (same literacy pre- and post-adoption) outperform controls even <i>before</i> the wallet	Pre-adoption adopters absorb at 7.7% vs control 15.4% (p=.297) — no pre-wallet advantage	BOUNDED; RETAINED AS MODERATOR (CH.08)
Self-selection on unobservables	Effect persists in pre-adoption falsification; fragile to tenure restrictions	Falsification null (as required); mature-adoption model stable (R ² =.364, H-L p=.426)	CANNOT BE ELIMINATED — BOUNDED & DISCLOSED

Infrastructure. If network quality rather than saving drove outcomes, the effect should track connectivity. Instead Yobe — 33% inclusion, severe deficits — shows a directional +31pp absorption gap while its recovery-velocity advantage, the speed-dependent outcome, is exactly zero. Infrastructure moderates *which* outcomes move, consistent with a genuine savings mechanism rather than a connectivity artefact.

Literacy. Literacy plausibly drives both adoption and resilience. It is bounded by the falsification test — the same individuals, with the same literacy, show no advantage before the wallet — and treated as a named moderator rather than assumed away.

Unobservables are the residual honest risk of any observational design; the report's language discipline is the response.



3.5 Falsification and the difference-in-difference layer

The placebo test. If the wallet is the operative mechanism, treatment respondents whose shock occurred *before* adoption should look like controls. They do — absorbing at 7.7% versus the control 15.4% ($p=.297$), with no NCSI difference ($p=.709$). The advantage appears only after the wallet is in active use before the shock.

TABLE 3 · SHOCK TIMING	TREATMENT ABSORPTION	CONTROL ABSORPTION	T - C DIFFERENCE
Shock before adoption (pre-period; T=26)	7.7%	15.4%	-7.7pp ($p=.297$)
Shock after adoption (post-period; T=169, C=64)	63.0%	31.0%	+32.0pp ($p<.001$)
Difference-in-difference estimate — (+32.0pp) - (-7.7pp)			+39.7pp

A DiD-style estimate, not a panel DiD: the pre-period is reconstructed from recall-dated shocks in a cross-section, and the pre-period cell is small ($T=26$). It is the design's second differencing layer on top of covariate adjustment — the wallet's advantage does not exist before adoption and is large after it, the signature a genuine treatment effect must show.

MATURE-ADOPTION SENSITIVITY

Restricting to ≥ 2 months' tenure ($N=186$) preserves the model: omnibus $\chi^2(10)=59.05$ ($p<.001$), Nagelkerke $R^2=.364$, Hosmer-Lemeshow $p=.426$, 73.1% classification accuracy. Results are not an artefact of short-tenure adopters.

WHAT WOULD HAVE FALSIFIED H1

A pre-adoption advantage (selection), an effect that died under wealth adjustment (confounding), or instability under tenure restriction (novelty effect). None occurred. The tests were specified before the estimates were run.



3.6 The mixed-methods protocol: no orphaned quotes, no unexplained coefficients

Eight FGDs (48 participants; one male and one female session per state) and twelve KIIs (platform operators, CBN, SMEDAN, CSEA, state government, civil society; one session non-substantive and excluded) were analysed through framework-anchored thematic coding, triangulated across sites, genders and FGD/KII source types.

The integration rule applied throughout: **every major quantitative finding is paired with its qualitative mechanism and a literature benchmark**, and every quotation is attached to the specific indicator it evidences. The qualitative arm is not decoration; in this edition it carries the explanatory load — each case narrative answers "why this outcome, not that one" for a specific coefficient.

Where qualitative and quantitative evidence disagree — as they do on asset sales, where equal NC3 rates conceal divergent selling logics — the disagreement is reported as a finding about measurement, not smoothed over. That disagreement produced the Asset Depletion Paradox, arguably the study's most original contribution.

TABLE 4 · QUALITATIVE SOURCE REGISTER	COMPOSITION	PRIMARY EVIDENTIARY ROLE
FGDs · 8 sessions, 48 participants	1 male + 1 female session per state; treatment and control savers mixed by design	Mechanisms & case narratives: liquidity ordering, privacy shield, lock-breaking calculus, debt chains
KIIs · platform & ecosystem (5)	OPay business development, Moniepoint, MTN MoMo, Innovation Global (M&E), fintech ecosystem	Product mechanics: lock terms, interest, repayment stress base rates, gender usage patterns
KIIs · government & policy (4)	CBN, SMEDAN, Federal Ministry of Women Affairs, Kaduna State IRS	Policy posture: the 60:40 access-resilience split, GEEP uptake barriers, regulatory gaps
KIIs · research & civil society (3)	CSEA and civil-society respondents; one session non-substantive, excluded	Regional exclusion data; community-mediated model designs for fragile states

TRIANGULATION RULE 1

A mechanism enters the report only if voiced independently in ≥2 sites or ≥2 source types.

TRIANGULATION RULE 2

Every quotation is tagged to the indicator it evidences (FS3c, NC4, TV5...) — no atmospheric quotes.

TRIANGULATION RULE 3

Contradictions between arms are reported as findings — the source of the Asset Depletion Paradox.

3.7 The indicator dictionary — every code used in this report

CODE	DEFINITION	ROLE
FS3c	Could the household raise ₦75,000 within one week ("easily"/"with effort" = 1)	H1 primary outcome — shock absorption
FS1	Shock Coverage Ratio — share of the required amount actually raised (None → Full)	H1 secondary — depth of absorption
RV1	Recovery velocity — days from shock to normal household spending	H1 secondary — speed
FS4	First financial response to the shock (own savings / ajo payout / moneylender / network...)	Mechanism — operational channel
SA2	Savings adequacy — weeks of household expenses held as savings	Participation-vs-depth distinction
NCSI	Negative Coping Strategy Index — composite of NC1–NC6 harmful coping behaviours	H2 primary outcome
NC1–NC6	Meal skipping · school withdrawal · productive asset sale · high-cost borrowing · foregone healthcare · food-quality reduction	H2 item-level decomposition
TA4–TA8	Usage-intensity block: deposit frequency, tenure, product count, digital savings share of total savings (TA8)	Intensity model — source of the cash-lock trap
TV1, TV5, TV6	Trust in digital platforms (TV1); value of savings privacy (TV5); privacy directly enabled an emergency response (TV6)	Trust & privacy-shield mechanisms
FIES	Food Insecurity Experience Scale (adapted)	Welfare context by state

Construct caveat carried throughout:

the NCSI was built for chronic-crisis contexts and codes every asset sale as harm. Chapter 05 shows why that assumption fails in locked-savings environments — and what future instruments should track instead (repurchase within a defined window).

3.8 Fieldwork conduct, ethics and data quality

Language and moderation. FGDs were moderated in Hausa, Igbo, Yoruba, Pidgin and English as each session required, with same-gender moderators for female sessions — a precondition for the candour on which the privacy-shield evidence depends. Sessions were recorded, transcribed and translated with back-checking on high-stakes passages.

Consent and anonymity. All survey, FGD and KII participation was by informed consent, with FGD participants anonymised to site-and-gender level ("Ondo male FGD participant") and KII respondents identified by institution and role only where they consented. Quotations involving intra-household conflict — notably the esusu appropriation case — are reported without any identifying detail beyond state.

Survey quality control. Enumeration used tablet-based capture with range and consistency checks, daily supervisor review, and 10% back-check call verification. Shock dates — the design's load-bearing variable — were elicited with event-calendar anchoring (festivals, school terms, market cycles) to reduce recall error.

Security protocol. Yobe fieldwork followed conflict-sensitive protocols: local enumerators, daylight sessions, no recording of settlement-level location data. One planned KII was displaced by security constraints and completed remotely.

800

survey respondents, tablet-captured, 10% back-checked

48

FGD participants across 8 gender-separated sessions

12

key informant interviews; 12 substantive sessions analysed

5

field languages: Hausa, Igbo, Yoruba, Pidgin, English

Chapters 04–08 now present the evidence. Each results chapter follows the same discipline: the primary estimate first, its qualitative mechanism second, its literature benchmark third — and its boundary conditions in the same chapter, not an appendix.

H1 — SHOCK ABSORPTION CAPACITY: SUPPORTED

Twice the absorption rate, 42 days faster recovery, more complete coverage — robust to wealth adjustment and a pre-adoption falsification test.



4.1 The primary outcome: the ₦75,000 one-week liquidity test

In the post-adoption shock sample, 63% of active digital savers could raise ₦75,000 within one week ("easily" or "with effort") against 31% of informal savers — $t(231)=-4.561$, $p<.001$, 95% CI of the difference $[-0.459, -0.182]$; Levene's test non-significant ($p=.098$). The raw effect is a 32 percentage-point gap: **a doubling of the absorption rate**, not merely a statistically detectable difference.

FIGURE 3 · SHOCK ABSORPTION RATE — POST-ADOPTION SHOCK SAMPLE



FS3c binary indicator. $t(231)=-4.561$, $p<.001$. Equal variances assumed (Levene $p=.098$).

Net treatment effect. The covariate-adjusted logistic regression (state, gender, livelihood, income volatility, asset proxy; $N=233$; Nagelkerke $R^2=.444$) estimates $OR=1.763$ (95% CI 1.095–2.836, $p=.020$). In plain terms: comparing two women in the same state, livelihood and wealth position, the active digital saver has 76% higher odds of absorbing the shock. The asset proxy is itself a significant confound ($p<.001$); adjusting for it deflates the unadjusted OR of ~3.55 — this report deliberately headlines the smaller, internally valid figure.

THE ADJUSTED MODEL

OR 1.763 (CI 1.095–2.836)
 $p = .020$
 Nagelkerke $R^2 = .444$
 $N = 233 \cdot 5$ covariate blocks
 Unadjusted OR ~3.55 **rejected**

"Money you have in your wallet is just as if you have your money in your hand... Banks fail you 98% of the time. But a wallet? In the twinkle of an eye, you point it and you transfer. There is no public holiday."

ONDO MALE FGD · THE SELF-SERVICE LIQUIDITY MECHANISM BEHIND FS3c



If I am number ten or eleven in an Ajo rotation and I have an emergency, **the Ajo will not save me.**

ONDO MALE FGD PARTICIPANT

THE ROTATION CONSTRAINT — WHY THE CONTROL GROUP'S ABSORPTION RATE IS 31%, NOT 63%

4.2 Shock coverage (FS1): not just whether, but how much

Coverage completeness differs significantly between groups ($\chi^2(3)=13.601$, $p=.004$; Mann-Whitney $U=24,494$, $p=.001$; $N=407$). Treatment respondents more often raised the full amount required (20.3% vs 14.9%) or more than half (27.1% vs 19.5%) — and were **half as likely to raise nothing at all** (17.7% vs 33.0%). Digital savers succeed more often; when they succeed, they cover more of the need.

TABLE 5 · GROUP (N=407)	FULL AMOUNT	> HALF	< HALF	NONE
Treatment (n=192)	20.3%	27.1%	34.9%	17.7%
Control (n=215)	14.9%	19.5%	32.6%	33.0%

$\chi^2(3)=13.601$, $p=.004$; Mann-Whitney $U=24,494$, $p=.001$ (ordinal: None=0 ... Full=3).

The distribution's shape carries the mechanism. Treatment coverage is **layered**: the wallet covers the core of the need instantly, and the social network is mobilised only for the residual — in small parcels, from people who lend without pricing desperation. Control coverage is binary: if the rotation is not your turn and the collector is not reachable, the answer is "none" — which is why one control household in three raised nothing.

This layering also explains why the treatment group's "less than half" cell remains large (34.9%): the wallet's constraint is not access but **depth**. Buffers are real but shallow — the participation-versus-depth distinction quantified in Section 4.5, and the reason H1's success does not automatically produce H2's.

*"The first thing is my savings.
My wallet. After that, I draw
from what I normally save.
And then the other people
around me."*

ONDO MALE FGD (₦700,000 RENT SHOCK) · THE LAYERED-RESPONSE MECHANISM BEHIND FS1 PARTIAL COVERAGE

CASE NARRATIVE 01 · ONDO · TREATMENT

The ₦700,000 rent shock — why the wallet comes first and the network comes second

A trader in Ondo was hit by both rents doubling in the same month: his apartment from ₦200,000 to ₦400,000, his shop from ₦150,000 to ₦300,000 — a ₦700,000 shock against a business built on daily turnover.

His response had a strict order. First, his own digital savings: *"Number one, the first thing is my savings — my money. It's easy for me to access it."* Only then his network, in small parcels — ₦20,000, ₦30,000, ₦50,000 — from people who *"related together for me to not be ashamed during that time."*

The shock exceeded any realistic buffer — that is the scale-mismatch mechanism of Chapter 05 — but the wallet determined the *order* and the *terms* of everything that followed. He never entered a moneylender's shop and never priced his own desperation on the asset market.

WHAT THIS NARRATIVE EXPLAINS

The FSI result mechanically: why treatment respondents cluster in "full amount" and "more than half" rather than "none". The wallet covers the core instantly; the network is reserved for the residual — coverage is layered, not binary.

THE ALTERNATIVES NOT TAKEN — AND WHY

A moneylender (12–40% above digital rates, NC4 spiral risk) and a distress asset sale (*"they will not price the property; they will price your desperation"*). Both were dominated because a liquid private buffer existed first. Without it — see the control cases in Chapter 05 — these become the only options.

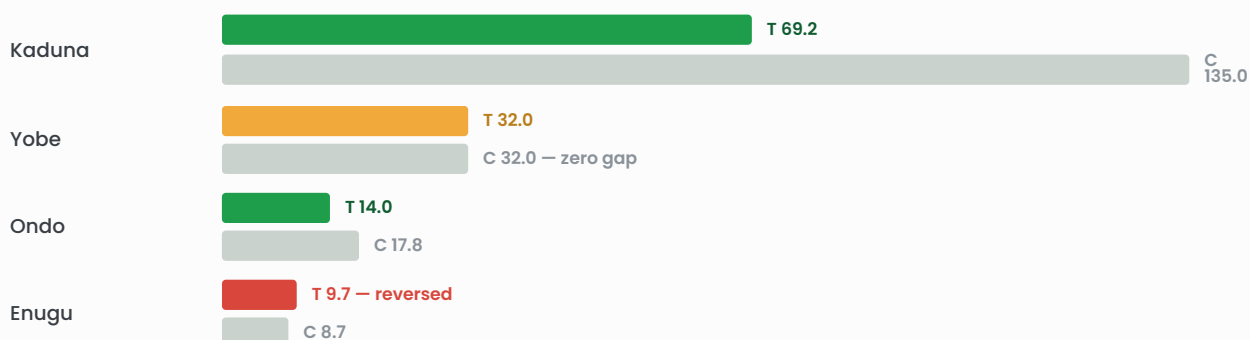
Case narratives in this report are explanatory instruments, not illustrations: each is chosen because it answers **"why this outcome and not that one"** for a specific coefficient. This case carries FSI's layering; the Kaduna pair in Chapter 05 carries NC4; the esusu appropriation in Chapter 06 carries the privacy shield.



4.3 Recovery velocity (RV1): 42 days faster — with an honest map

Treatment respondents returned to normal household spending in a mean of 31.6 days versus 73.5 for controls (Welch $t(61.1)=2.664$, $p=.010$, 95% CI [10.5, 73.4]; Welch specification required, Levene $p<.001$). This 42-day advantage is **not uniform** — and the non-uniformity is a finding, not a footnote.

FIGURE 4 · DAYS TO NORMAL SPENDING, TREATMENT VS CONTROL, BY STATE



Bar length scaled to 135 days = 100%. Overall: 31.6 vs 73.5 days, Welch $p=.010$, $N=197$.

The speed dividend concentrates where two conditions coincide: functioning digital rails *and* slow informal alternatives.

Kaduna's controls take 135 days to recover because adashe payout schedules are rigid; its treatment group halves that. Ondo's whole market is fast, so both groups recover within three weeks.

Yobe's zero gap alongside its +31pp absorption gap is the study's cleanest decomposition: the wallet still stores value where infrastructure fails, but the *speed* mechanism — instant transfer, agent cash-out — dies with the network.

Enugu's marginal reversal shows informal systems fast enough to match digital speed: iron boxes open instantly too. Speed is an infrastructure product, not a wallet property.



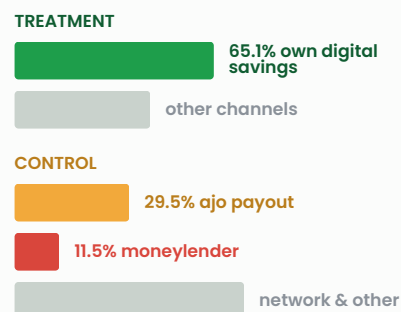
4.4 The operational mechanism (FS4): what households actually reach for first

When a shock hits, **65.1% of treatment respondents draw directly on their digital savings balance** as the first response. Controls reach for ajo payouts (29.5%) — if the rotation allows — or high-cost moneylenders (11.5%). The wallet replaces fragmented, schedule-bound and costly informal channels as the first response: this substitution is the operational core of H1.

The substitution has a welfare geometry. Each first-response channel carries a price: the moneylender charges interest and initiates the NC4 spiral; the ajo payout costs waiting time measured in RVI days; the network costs social capital and shame. The wallet's price is paid *before* the shock — in deposits — which is precisely what makes it a resilience instrument rather than a coping instrument.

Platform concentration (OPay 54.8%, Moniepoint 26.0%) means this first-response behaviour runs through two product architectures. Their design choices — flexible balance versus locked product, release friction, transfer reliability — are therefore not commercial details; they are the operating parameters of Nigeria's de facto emergency-finance system for marginalised savers.

FIGURE 5 · FIRST RESPONSE TO A SHOCK



PLATFORM MIX (TREATMENT)

OPay 54.8%
Moniepoint 26.0%
Others 19.2%

"It was faster because it was my money, and I didn't have to go to anyone to start explaining why I needed the money. They might even just tell me sorry after explaining."

KADUNA FEMALE FGD · SELF-SERVICE VS PERMISSION-BASED LIQUIDITY — THE FS4 SUBSTITUTION IN ONE SENTENCE

4.5 Participation, not depth: the SA2 distinction that limits everything

But among active savers only (N=509), mean adequacy is identical (p=.786). **Digital wallets expand who saves; they do not yet deepen how much savers hold.** The technology succeeds at the extensive margin — conversion — and stalls at the intensive margin — accumulation — echoing Dupas & Robinson (2013) on savings constraints.

On the full N=800 frame, savings adequacy distributions differ sharply ($\chi^2(4)=44.435$, $p<.001$, Gamma=.304): **58.0% of controls hold less than one week of expenses versus 35.8% of treatment.** The wallet visibly pulls households out of the zero-buffer zone.

This distinction anchors the product recommendations of Chapter 10 and foreshadows H2's null: absorption improves because more households have a buffer, but buffers remain too shallow to suppress all harmful coping. A policy regime that rewards account openings will keep buying participation it already has; the unbought margin is depth.

FIGURE 6 · SHARE OF HOUSEHOLDS HOLDING <1 WEEK OF EXPENSES (N=800)



$\chi^2(4)=44.435$, $p<.001$, Gamma=.304. Among active savers only (N=509), mean adequacy identical: $p=.786$.

WHAT THE WALLET BUYS

Conversion: reminders, interest hooks and agent proximity turn non-savers into savers — the extensive-margin win behind the 22-point drop in zero-buffer households.

WHAT IT DOESN'T — YET

Depth: income volatility caps accumulation regardless of channel. Goal-based products, commitment devices with escape valves, and depth-linked incentives are the unclaimed margin.



4.6 The H1 verdict, triangulated

QUANTITATIVE

63% vs 31% absorption ($p < .001$); adjusted OR 1.76 ($p = .020$); DiD +39.7pp; 42-day recovery advantage ($p = .010$); coverage χ^2 $p = .004$; falsification null exactly where required.

QUALITATIVE MECHANISM

24/7 self-service liquidity; no rotation constraint; no intermediary who can refuse; layered response — wallet first, network for the residual; privacy keeping the buffer alive to the shock.

LITERATURE

Consistent with Jack & Suri (2014): M-PESA households smooth consumption through shocks; Riley (2018): mobile money users avoid village-level shock spillovers — here replicated in a savings-led, not transfer-led, mechanism.

CHAPTER VERDICT

H1 is supported at every level the design can test: whether households absorb (FS3c), how much they cover (FS1), how fast they recover (RV1), and through what channel (FS4). The effect survives a wealth adjustment that biases against it and disappears — as it must — when the shock predates the wallet. Its boundary conditions are equally clear: the speed dividend requires infrastructure, and absorption gains are capped by savings depth the technology has not yet moved.

2×

absorption rate multiple

-42

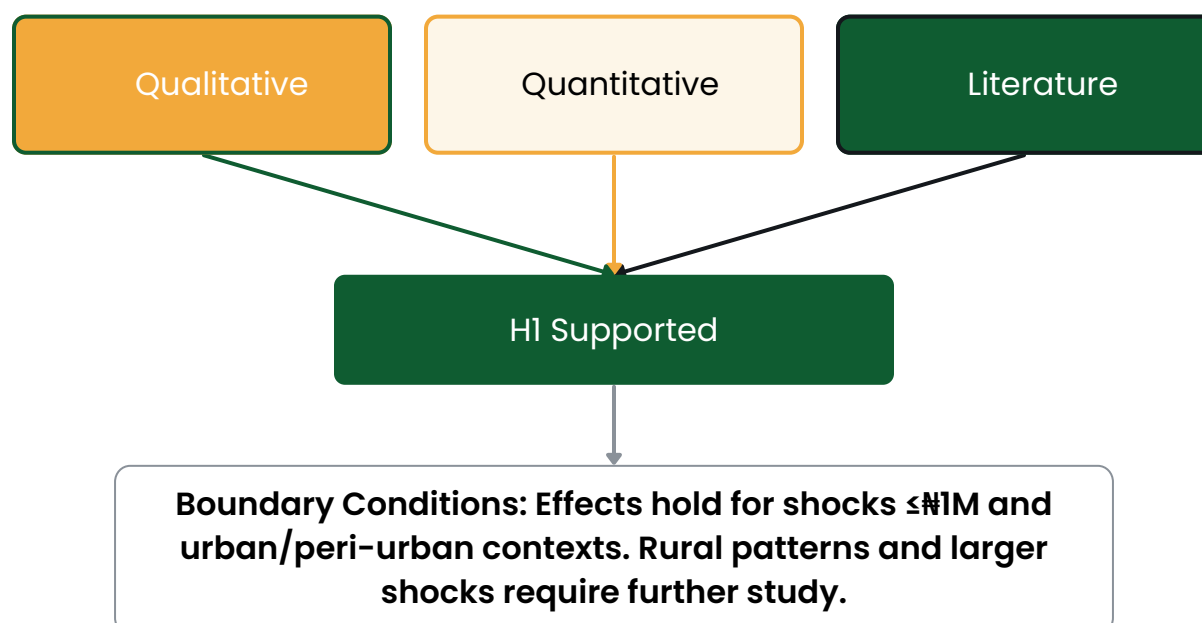
days of recovery time

-15.3pp

households raising nothing at all

p=.786

depth among savers — the unmoved margin





"There is no public holiday": 65.1% of digital savers reach for their own balance first when a shock lands — the substitution at the core of H1.

H2 — WELFARE TRADE-OFFS: A DISCIPLINED NULL

Wallet access alone does not reduce harmful coping overall — but it halves predatory borrowing, and the intensity model exposes a product-design trap this chapter names and prices.



5.1 The primary test: the NCSI composite is flat — and the report says so

On the post-adoption shock sample (N=407), the Negative Coping Strategy Index is statistically indistinguishable between groups: treatment M=0.92, control M=0.99, $t(398)=0.497$, **p=.620** (equal variances, Levene p=.833). **H2 is not supported at the primary level.**

Structural income volatility — not savings channel — is the dominant driver of coping outcomes. A household whose income halves during a lean month will reduce food quality whether its thin buffer sits in a wallet or an ajo round. The wallet changes *how* a shock is financed more than it changes *whether* welfare is cut.

This report states the null plainly rather than substituting a friendlier sub-model. The two significant findings that follow — NC4's protection and TA8's trap — are item-level and intensity-level results respectively. They qualify the null; they do not overturn it. That discipline is what makes them credible.

THE PRIMARY RESULT

p = .620

NCSI composite

T 0.92 vs C 0.99

$t(398)=0.497$ · N=407

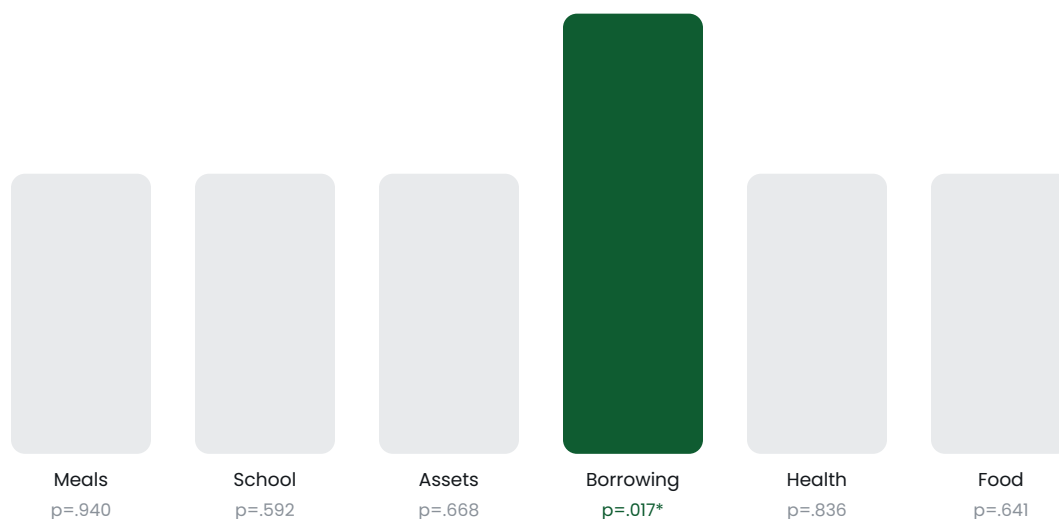
Levene p=.833

WHY PUBLISH A NULL PROMINENTLY

Because the alternative — leading with NC4 and burying the composite — is how inclusion research loses decision-makers' trust. The null also carries real information: access without depth and product design is not a welfare technology.

Reading guide for this chapter. 5.2 decomposes the composite into its six items and finds the wallet's one genuine protection (NC4). 5.3 pairs two Kaduna medical shocks to show what that protection is worth in a real household. 5.4 turns to the intensity model and the cash-lock trap. 5.5–5.6 develop the Asset Depletion Paradox and its measurement implication.

THE SIX-ITEM SCORECARD



Only NC4 clears significance. The wallet is an anti-debt instrument — not yet an anti-hunger one.

5.2 Item-level decomposition: where the wallet does protect

TABLE 6 · NCSI ITEM (T=192, C=215)	CONTROL	TREATMENT	χ^2	p
NC1 · Meal skipping / reduction	24.2%	25.0%	.006	.940
NC2 · School withdrawal	4.7%	3.1%	.287	.592
NC3 · Productive asset sale / pawn	5.6%	4.2%	.184	.668
NC4 · High-cost informal borrowing	16.7%	8.3%	5.706	.017*
NC5 · Foregone healthcare	2.8%	3.6%	.043	.836
NC6 · Food quality reduction	45.1%	47.9%	.217	.641

* p<.05. Chi-square with continuity correction where cell n<5.

NC4 is the single significant item: treatment respondents are **half as likely to resort to high-cost moneylenders** (8.3% vs 16.7%, p=.017). This is the clearest welfare benefit of wallet access — digital savings substitute for predatory lending as the emergency mechanism. It aligns with FS4 (controls' first response includes 11.5% moneylender use; treatment barely uses them) and with Women's World Banking (2025) evidence on over-indebtedness risk.

The food items (NC1, NC6) — the highest-prevalence coping behaviours — do not move. They track income volatility, not savings channel, and they are why the composite stays flat. The policy translation is precise: **the wallet is an anti-debt instrument, not yet an anti-hunger instrument.**

"They take loan from here, use it, take another loan from there just to pay back. It is more like patching each other."

SMEDAN Representative (KII) · THE NC4 DEBT-SPIRAL MECHANISM THE WALLET BUFFER INTERRUPTS



16.7% of controls entered predatory borrowing → The wallet buffer cuts this in half

5.3 Paired cases, Kaduna: the same shock, two savings systems

Two medical emergencies of comparable scale, in the same state, weeks apart. The difference between them is not income or literacy — it is the first place each household could turn.

CASE 02 · TREATMENT · MEDICAL SHOCK, ₦43,000

Her mother's toothache became an emergency hospital run. They arrived with ₦12,000; the bill was ₦28,000, then ₦15,000 more for drugs. She paid the same day — twice — from her digital savings: *"It was faster because it was my money, and I didn't have to go to anyone to start explaining why I needed the money. They might even just tell me sorry after explaining."*

COST OF THE SHOCK: her business capital — painful, but private, immediate, and debt-free.

CASE 03 · CONTROL · MEDICAL SHOCK, ₦36,000

Two children fell sick at once; one had insurance, one did not. No savings buffer existed. Her husband's friend had nothing; his OPay credit line yielded only ₦6,000. The rest was assembled from family loans, triaged child by child — *"We started with the one who had insurance."*

COST OF THE SHOCK: a debt chain — the OPay and friends' loans repaid; "the loan we took from our parents is still being repaid."

Same state, same shock class, comparable scale. One household had a private liquid buffer; the other entered the borrowing cascade that NC4 measures. This pair is the welfare trade-off finding made concrete: **the wallet does not stop shocks — it changes what a shock costs.** Case 02 paid in capital; Case 03 is still paying in obligation, months later.

Same day

Case 02's time to full payment — twice

4 lenders

Case 03's assembly chain: friend, app credit, family ×2

Triage

"We started with the one who had insurance" — coping as rationing

TWO PATHS FROM THE SAME EMERGENCY

CASE 02



Shock hits



Opens wallet



Pays twice, same day



No debt. No asking.
No explaining. Private.

CASE 03



Shock hits



Asks friend — nothing



OPay credit ₦6,000 only



Family loans ×2



Triages children



Months later, the parents' loan is still being repaid. The shock is over — the cost is not.

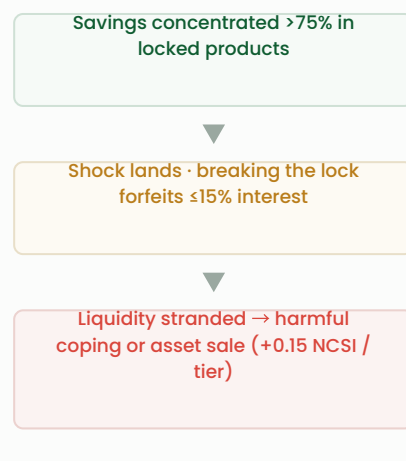
5.4 The intensity model and the digital cash-lock trap

A hierarchical OLS on NCSI (controls in Block 1, $R^2=.466$; intensity variables TA4/TA6/TA7/TA8 in Block 2, $\Delta R^2=.028$, ΔF $p=.050$) identifies one significant intensity predictor: **TA8, digital savings share ($B=+0.150$, $\beta=.238$, $p=.009$)**.

The sign is positive: households concentrating more than 75% of savings in locked digital products cope worse during shocks, by 0.15 NCSI points per intensity tier. This is the **digital cash-lock illiquidity trap** — locked products preserve interest but strand liquidity exactly when it is needed. The direct treatment coefficient stays null ($p=.541$), reinforcing that access without appropriate product design does not reduce welfare harm.

Kaduna is the trap's geographic signature: the only state where treatment NCSI is *higher* than control (0.71 vs 0.47). Its savers adopted credit-bundled locked products aggressively, without the depth that makes a lock affordable — so at shock time the lock, not the shock, dictated coping.

FIGURE 7 · THE TRAP, SCHEMATICALLY

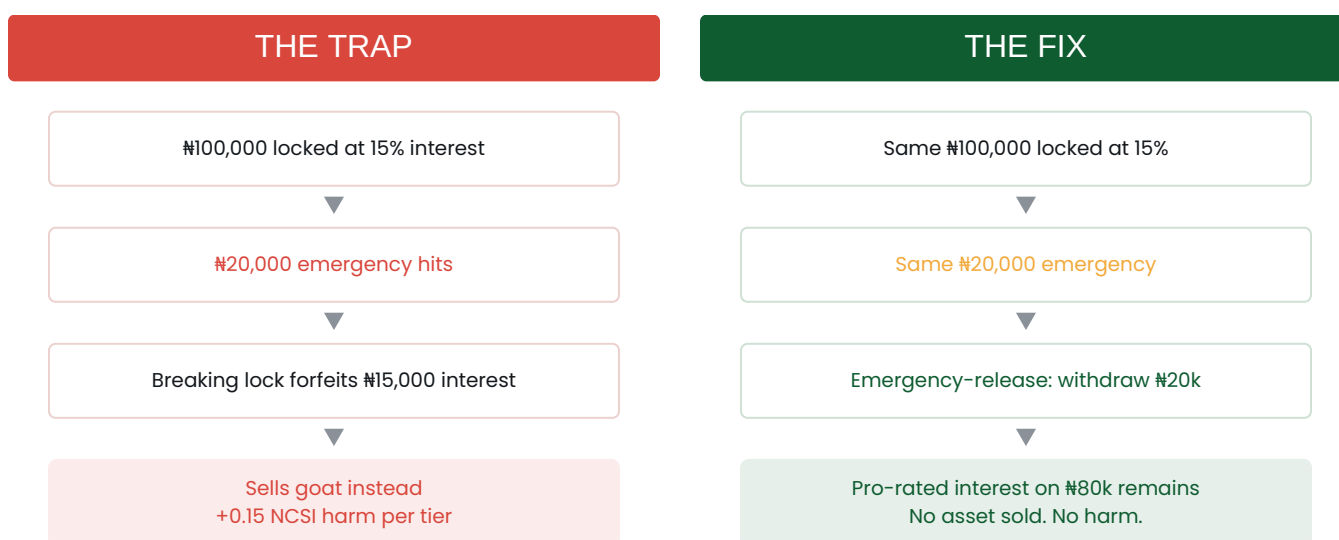


KADUNA · THE SIGNATURE

NCSI T **0.71** vs C 0.47
The study's only reversal
TA8 $B=+0.150$ · $p=.009$

Design translation. Commitment grows balances (Ashraf, Karlan & Yin 2006); this study prices what commitment costs at shock time when there is no escape valve. The fix is surgical, not structural: an **emergency-release window** — partial withdrawal with pro-rated rather than forfeited interest — keeps the discipline and deletes the trap. Chapter 10 carries this as a decision card.

THE TRAP AND THE FIX



The fix is surgical, not structural: keep the discipline, delete the trap.

5.5 The Asset Depletion Paradox: when selling the goat is the rational move

The primary mechanism is **interest-preservation**: a user holding ₦100,000 in a locked account maturing at ₦115,000 rationally sells a repurchasable asset to meet a ₦20,000 emergency rather than break the lock and forfeit up to 15% interest. The arithmetic favours the sale whenever the repurchase spread is smaller than the forfeited interest – which, for phones, tools and small livestock in urban second-hand markets, it usually is.

Formal asset-sale rates are low and statistically equal (NC3: 4.2% vs 5.6%, $p=.668$; FS2a $p=.383$) – yet the qualitative record shows the two groups sell for **different reasons**. Control sellers sell because nothing else exists; treatment sellers sell strategically, to protect a maturing balance.

The mechanism was confirmed independently by the OPay business developer, Innovation Global, CBN, and both Ondo FGDs – four sources, two types. It holds only where the emergency is small relative to the locked balance, a second-hand market exists, and the income gap from the asset's absence is manageable: conditions met in urban Ondo, Enugu and Kaduna, but not reliably in Yobe.

"Instead of me to break it and lose that 15 percent, I better sell off a productive asset and get it back when I get my full money plus the interest."

ONDO FEMALE FGD · THE INTEREST-PRESERVATION CALCULATION, CONFIRMED AS ACCURATE BY THE OPAY BUSINESS DEVELOPER (KII)

TABLE 7 · MECHANISM	LOGIC	EVIDENCE SOURCE
Interest-preservation (primary)	Sell repurchasable asset rather than break lock and forfeit $\leq 15\%$ interest	OPay BD, Innovation Global, CBN KIIs; Ondo M+F FGDs
Investment opportunity	Proactive sale to capture market opportunities and reinvest digitally	Kaduna Revenue, MTN MoMo KIIs
Credit blacklisting	Prior default blocks digital credit; asset sale is the only remaining liquidity	OPay BD, Innovation Global KIIs
Scale mismatch	Emergency exceeds balance; shortfall met from assets regardless of savings type	Ondo ₦700k rent shock (FGD)
Behavioural depletion	Frictionless access enables impulsive spending, thinning the buffer pre-shock	Innovation Global M&E, SMEDAN KIIs



HER CALCULATION

Option A: Break the lock

Get ₦20,000 now
Lose ₦15,000 interest forever
Net cost: **-₦15,000**

Option B: Sell the goat

Get ₦20,000 now
Repurchase later for ₦24,000
Net cost: **-₦4,000**

She saves ₦11,000 by selling. The goat sale is rational. This is not recklessness. It is arithmetic and the product created the equation.

5.6 What the buffer protects — and what the index cannot see

Measurement implication. The NCSI, built for chronic-crisis contexts, scores every asset sale as welfare harm. In a locked-savings environment it conflates distress sales with strategic, temporary displacement — coding the Ondo trader who sells a repurchasable phone to protect ₦15,000 of interest identically with the Yobe widow who sells her last goat. Future instruments should track **whether sold assets are repurchased and on what timeline** — a concrete methodological contribution of this study.

Opportunity cost among actual sellers. Among the five respondents who did sell productive assets, 66.7% of control sellers suffered permanent income damage versus 0% of treatment sellers, whose sales were confined to less disruptive tools and phones (FS2c; cells too small for formal inference, direction consistent with the buffer protecting productive capacity). Severe consumption deprivation was also halved: 4.7% control vs 2.2% treatment.

The chapter's verdict is therefore double-edged. The wallet's welfare protection is real but narrow: it interrupts the debt spiral (NC4) and shields productive capacity at the margin. Its welfare risk is equally real and equally specific: locks without release windows convert saving discipline into shock-time harm. Both edges are product-design facts — which is why Chapter 10's recommendations are addressed to product teams as much as to policy.

0%

treatment sellers with permanent income damage (vs 66.7% control)

2.2%

severe consumption deprivation (vs 4.7% control)

n=5

actual asset sellers — directional evidence, honestly labelled

CHAPTER VERDICT

H2 fails at the composite level and the failure is informative: harmful coping tracks income volatility, not savings channel. Within the null, the wallet halves predatory borrowing — its clearest welfare gain — while badly designed locks measurably increase harm. Access is not a welfare technology; **design is.**

THE DOUBLE EDGE

● Stops the debt spiral

When emergencies hit, people don't need to borrow from predatory lenders

● Shields productive assets

Sellers in the treatment group lost no permanent income from their sales

● Preserves dignity

No begging, no explaining, no waiting — instant private access

● Forces harmful asset sales

Locked savings can't be touched — so people sell goats to pay for medicine

● Creates a false choice

Save and earn interest, OR respond to emergencies — but not both

● Punishes the disciplined

The better you save, the more you lose if life interrupts

The lesson: giving people access to savings is not enough. How you design the product determines whether it helps or harms.



These two days I was sick. The money that I will use to take care of my medical expenses was hard. I had to manage and even **left some medication due to lack of money.**

YOBE FEMALE FGD PARTICIPANT

THE NC5 HEALTHCARE-DEFERRAL EVENT — THE SEVEREST WELFARE OUTCOME IN THE CORPUS, AND THE HUMAN COST OF THE SAVINGS-ADEQUACY GAP



Medical shocks are the corpus's most frequent emergency class — and the setting of both Kaduna case narratives. The wallet changes what such a shock costs, not whether it arrives.

FOR WHOM: WOMEN, YOUTH & THE PRIVACY SHIELD

The study's title promises women and youth. This chapter delivers the stratified estimates — and the effect lands exactly where alternative access is scarcest.



6.1 Stratified treatment effects: the wallet is a women's resilience instrument

TABLE 8 · STRATUM	N (T/C)	TREATMENT	CONTROL	GAP	p
Female youth (18–35)	77/77	51.9%	29.9%	+22.0pp	.005**
Older women (36–60)	78/97	52.6%	35.1%	+17.5pp	.021*
Male youth (18–35)	31/40	71.0%	57.5%	+13.5pp	.244

** p<.01, * p<.05. NCSI effects non-significant across all strata (all p>.10), consistent with the primary H2 null.

The pattern is not random. **The marginal utility of digital savings is greatest for those with the fewest alternative access channels.** Male youth start from a 57.5% informal baseline — nearly double female youth's 29.9% — because rotation systems, moneylenders and social networks already serve them; the wallet adds little. Both female cohorts start low and gain significantly.

The intervention is, in effect, **a women's resilience instrument** — consistent with Suri & Jack (2016), who found M-PESA's long-run poverty effects concentrated in female-headed households, and Field et al. (2021) on women's financial control. The mechanism, developed next, is not access at all: it is privacy.

+22.0pp

Female youth absorption gain — the study's largest significant stratum effect

p=.244

Male youth — no significant gain; do not fund male-youth adoption campaigns on resilience grounds

WHY THE WALLET IS A WOMEN'S INSTRUMENT



Few alternatives

Female youth start at 29.9% informal savings — men start at 57.5%. Women have half the access channels.

Biggest jump

The wallet gives women +22pp gain. Men gain +13.5pp (not significant). The less you have, the more it matters.

Privacy is the product

69.5% rate savings privacy 'very valuable'. For women, the PIN isn't a barrier — it's the reason they save.

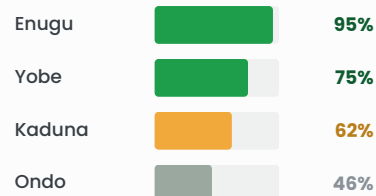
6.2 The privacy shield: a gendered welfare mechanism, measured

Why do women gain most? The strongest qualitative answer is the privacy shield. Ajo contributions are physically visible — the collector comes to the home, the card is findable, accumulation is public within the household. PIN and biometric protection make digital balances **structurally opaque**.

Quantitatively: 69.5% of treatment respondents rate savings privacy "very valuable" (TV5), and **74.8% report that private digital storage directly helped them respond to an emergency** (TV6). Privacy value peaks in Enugu (95.0%) and is high in Yobe (75.0%) and Kaduna (62.0%) — strongest where intra-household redistribution pressure is greatest, weakest (46.0%) in Ondo where the wallet's differentiator is liquidity instead.

Every platform operator interviewed confirmed the demand side: women out-save and out-use men on their platforms (*"it is women that work most now"* — OPay BD, Ondo). And FGD participants in two states agreed that removing PIN/biometric authentication would collapse female trust. **Authentication is not a usability barrier; for women it is the product.**

FIGURE 8 · PRIVACY "VERY VALUABLE" (TV5), BY STATE



Treatment group, N=400. Privacy value runs opposite to infrastructure quality — where alternatives exist, privacy differentiates; where they don't, liquidity does.

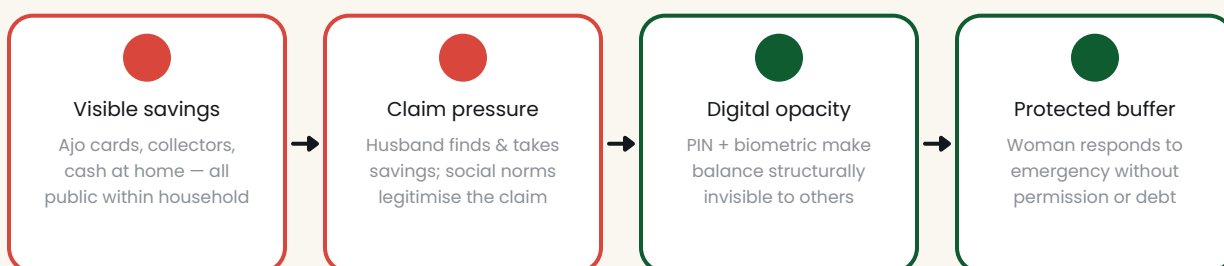
74.8%

say private digital storage directly enabled an emergency response (TV6)

"If you save in daily contribution, your husband might see the card and start questioning you. But once you are saving in a digital wallet which is privacy, there is no how your husband can know about it."

ENUGU FEMALE FGD · THE TV5 PRIVACY-VALUE FINDING, IN THE PARTICIPANTS' OWN TERMS

THE PRIVACY MECHANISM — HOW IT WORKS



A PIN converts permission into architecture. Authentication is not a barrier — for women, it is the product.

CASE NARRATIVE 04 · KADUNA · TREATMENT (FORMER CONTROL)

The esusu appropriation — how one woman's savings became negotiable, then inviolable

She saved through esusu, believing it private. When she opened it, the money was gone — her husband had found and used it. His defence inverted the theft: *"How can you hide money from me in my own house?"* Her response was not to stop saving but to change the technology of saving: *"Since I started using OPay wallet savings, it has changed because I changed the password, and no one has access to it except me."*

This is the causal pathway of the female treatment effect at case level. Ajo cards are findable; collectors are visible; accumulation is public within the household — so a woman's buffer survives only by permission. **A PIN converts permission into architecture.** That is why the +22pp female-youth effect exists and the male-youth effect does not: men's informal savings were never negotiable to begin with.



WHAT THIS CASE EXPLAINS

TV5/TV6 mechanically: why privacy ratings peak where household claim pressure is highest, and why the buffer's survival — not its existence — is the binding constraint on women's resilience.

THE DESIGN LINE IT DRAWS

Any shared-access "family wallet" feature, agent-visible balance, or authentication relaxation re-converts architecture back into permission — a resilience regression for exactly the users who gain most.

"It will need my finger or my face."

ONDO FEMALE FGD · BIOMETRICS AS DEVICE SECURITY — THE SOUTHERN VARIANT OF THE SAME MECHANISM

6.3 The gendered landscape by state: one effect, four textures

The gender effect is national; its texture is regional. Privacy value peaks where intra-household appropriation pressure is strongest, and the binding constraint on women's resilience differs by state — which is why one national product strategy cannot serve all four.

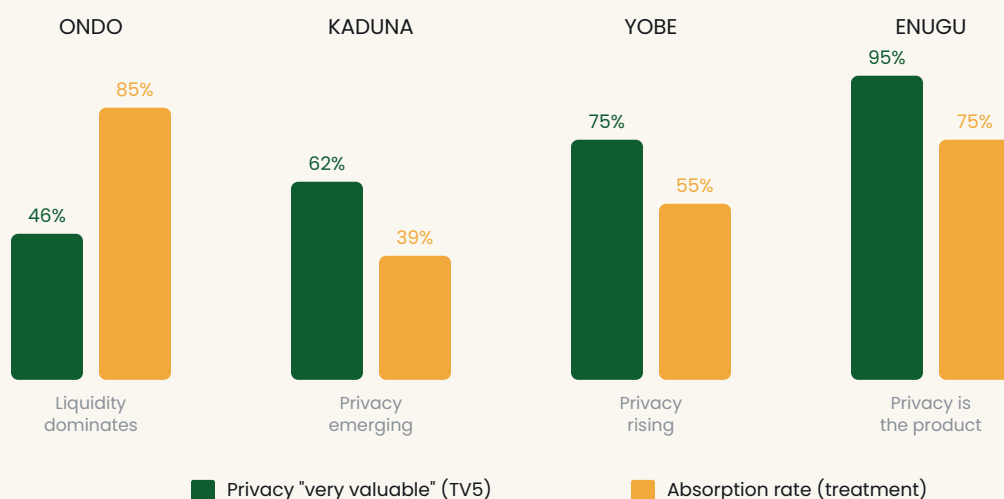
TABLE 9 · DIMENSION	ONDO	ENUGU	KADUNA	YOBE
Privacy "very valuable" (TV5)	46.0%	95.0%	62.0%	75.0%
Absorption T / C (full sample)	85.0 / 60.0%	74.5 / 65.3%	38.8 / 23.5%	55.0 / 24.0%
Gendered context for women savers	Urban market economy; biometrics valued for device security more than household secrecy	Intense household claim pressure; women describe husbands' moral claims on visible savings	Documented appropriation case; adashe card culture makes savings findable	NE exclusion ~38% (~9m adults); men controlling wives' phones/SIMs reported (SMEDAN KII)
Narrative signature	"It will need my finger or my face."	"There is no how your husband can know about it."	"I changed the password, and no one has access to it except me."	"Women suffer the most as most of the time women are the one with the children at home."

TV5 by state, treatment group N=400. Absorption from state-level full-sample means (Chapter 07). Exclusion figures: CSEA KII citing A2F regional data.

The inversion worth memorising: privacy value runs opposite to infrastructure quality. In Ondo, where the wallet works best as a liquidity machine, privacy is the least of its virtues (46%). In Enugu, where informal systems match digital speed, privacy is nearly the whole product (95%). Where alternatives exist, privacy differentiates; where they don't, liquidity does.

THE PRIVACY-INFRASTRUCTURE INVERSION

Where alternatives exist, privacy differentiates. Where they don't, liquidity does.



One national product strategy cannot serve all four textures. Privacy is the whole product where alternatives match digital speed.

6.4 Youth: the literacy bridge and the debt-spiral risk

The downside is the NC4 spiral in its youth form: multiple small app loans servicing each other, loan diversion to consumption, and SIM-card breaks to escape collection calls — an act that simultaneously erases the borrower's savings history and blacklists them from formal credit, the catch-22 the blacklisting mechanism of Chapter 05 feeds on. Three in ten OPay borrowers struggle to repay (OPay BD, KII).

Youth outcomes bifurcate on financial literacy. **The upside:** platforms force digital-skill acquisition, and product knowledge converts non-savers — the interest-discovery narrative ("my brother told me that OPay has a lot of interest") recurs across sites as the moment saving began. For literate youth, app loans function as working capital: borrowed, deployed, repaid.

KII respondents converged on a ~70:30 split between responsible and risky youth digital behaviour, with risk concentrated at the lowest literacy levels — making **literacy, not access, the binding constraint for youth resilience**. A secondary signal warrants monitoring: operators independently describe Gen-Z men as decreasingly financially active, ceding household financial management to women. If the trend holds, resilience products should centre — not merely accommodate — female users.

THE LITERACY BRIDGE — YOUTH WHO CROSS

Discover interest products → automate small deposits → use credit as working capital → build platform history → graduate to larger formal products. Every step is product-knowledge-dependent; none is taught by the app itself.

THE DEBT SPIRAL — YOUTH WHO FALL

Consumption loan → second app to service the first → collection calls → SIM break → savings history erased + blacklisted → moneylender or asset sale next shock. The exit ramp — credit rehabilitation pathways — does not currently exist.

"In 2018, my brother told me that OPay has a lot of interest... with digital wallets, we were having a lot of interest."

ONDO MALE FGD · THE INTEREST-DISCOVERY CONVERSION — PRODUCT KNOWLEDGE, NOT MARKETING, CREATES SAVERS

THE 70 : 30 BIFURCATION

KII respondents converge: literacy, not access, is the binding constraint for youth resilience.

70%

cross the bridge

30%

fall into the spiral

BRIDGE PATHWAY

Interest discovery → automate deposits
→ credit as working capital → platform
history → graduate to formal products

Binding input: product knowledge
Outcome: compounding resilience

SPIRAL PATHWAY

Consumption loan → second app to
service first → collection calls → SIM
break → history erased + blacklisted

Binding input: financial literacy gap
Outcome: permanent exclusion

The app teaches transactions. Nobody teaches financial judgement. Literacy is the missing infrastructure.



Since I started using OPay wallet savings, it has changed because I changed the password, and **no one has access to it except me.**

KADUNA FEMALE FGD PARTICIPANT

AFTER THE ESUSU APPROPRIATION — PERMISSION CONVERTED INTO ARCHITECTURE

6.5 The chapter verdict, triangulated

QUANTITATIVE

Female youth +22.0pp ($p=.005$); older women +17.5pp ($p=.021$); male youth null ($p=.244$). TV5 69.5% overall, peaking 95% in Enugu; TV6 74.8%.

QUALITATIVE MECHANISM

The privacy shield: findable cards vs sealed balances; the esusu appropriation case as the pathway at case level; operator confirmation that women out-save and out-use men.

LITERATURE

Replicates Suri & Jack (2016) and Field et al. (2021) on gendered gains from financial control — and adds the privacy shield as a measured, product-addressable mechanism.

CHAPTER VERDICT

The digital savings dividend is a women's dividend. It exists because PIN and biometric protection convert a woman's savings from negotiable to inviolable — an architectural fact no informal system replicates. For youth, the same platforms carry both the on-ramp to saving and the on-ramp to spiralling, sorted almost entirely by product literacy. Product and policy design should follow the evidence: **centre women; teach youth; never trade authentication for convenience.**

2 of 3

strata with significant gains — both female

74.8%

privacy directly enabled an emergency response

3 in 10

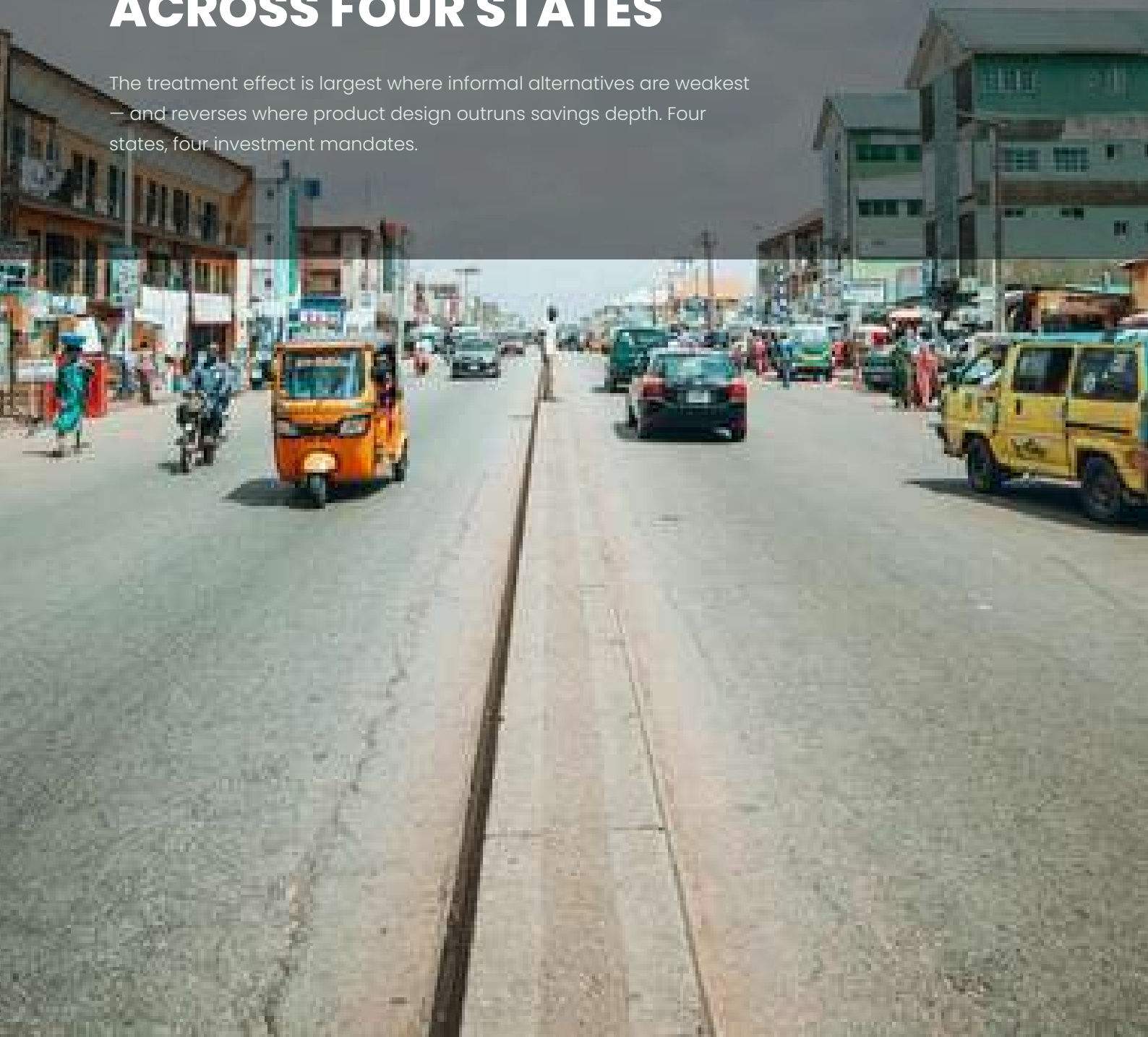
youth borrowers struggling to repay — the literacy frontier



"It is women that work most now" — every platform operator interviewed confirmed that women out-save and out-use men. The product implication is on the preceding pages.

WHERE: REGIONAL DIVERGENCE ACROSS FOUR STATES

The treatment effect is largest where informal alternatives are weakest — and reverses where product design outruns savings depth. Four states, four investment mandates.



7.1 State-level treatment effects: the same product, four different stories

TABLE 10 · STATE	T vs C	GAP	pREADING
Ondo (70% incl.)	85.0 / 60.0%	+25pp	.000*** Strong HI support; mature infrastructure
Yobe (33% incl.)	55.0 / 24.0%	+31pp	.106 Largest raw gap; underpowered; RV1 advantage exactly zero
Enugu (68% incl.)	74.5 / 65.3%	+9pp	.204 Strong informal systems raise the control baseline
Kaduna (55% incl.)	38.8 / 23.5%	+15pp	.922 Null; NCSI reversed (0.71 vs 0.47) — cash-lock trap signature

Three honest qualifications are part of the finding, not footnotes to it. **Kaduna's null (p=.922) with a reversed NCSI** is the cash-lock trap made visible: treatment respondents over-concentrate savings in credit-bundled locked products without sufficient depth. **Yobe's zero recovery-velocity gap** alongside a +31pp absorption gap shows infrastructure limits the *speed* mechanism even where access works.

Enugu's marginal RV1 reversal (9.7 vs 8.7 days) reflects informal systems strong enough to match digital speed — the state where ajo culture and iron savings boxes remain genuinely competitive. Averaging these four stories into one national estimate would fund a success, a stall, a tie and a failure with the same cheque.

+25pp

ONDO, p<.001

p=.922

KADUNA, NULL

The distance between these two cells — the same wallet, the same year, one country — is the whole argument for sorting investment by state readiness rather than rolling out uniformly.

FOUR STATES, FOUR INVESTMENT MANDATES

One national cheque cannot fund a success, a stall, a tie and a failure simultaneously.

FRAGILE

MATURE

YOBE

+40.8%

Infrastructure first

Community-mediated models before digital resilience. Group-lending design (UNDP). Storage works; speed doesn't.

KADUNA

+16.3%

Product redesign

Emergency-release windows. Break the cash-lock trap. NCSI reversed — depth fails. Adoption ≠ resilience here.

ENUGU

+44.7%

Depth interventions

Informal systems competitive. Ajo culture matches digital. Goal-based products needed. Escape valves essential.

ONDO

+46.6%

Scale & deepen

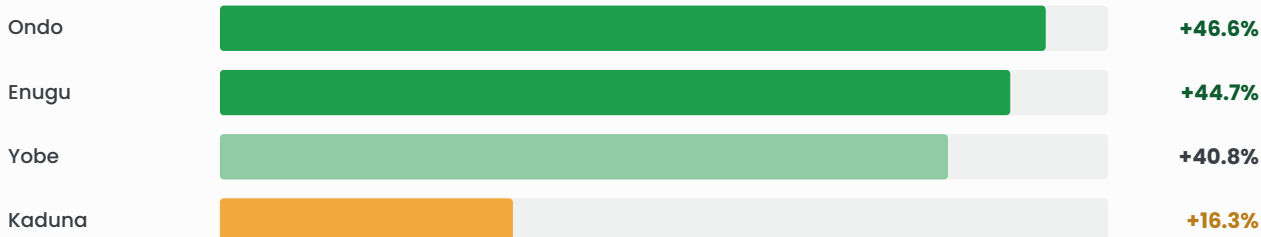
Mature infrastructure ready. Committed savings products. p<.001 — strongest evidence. The model for national roll-out.

Sort investment by state readiness. The premium is universal; the prescription is not.

7.2 The Inclusion Resilience Premium

Subtracting each state's A2F emergency-readiness baseline from its digital savers' absorption rate yields a premium — how much better a digital saver does than her state's average adult. The premium is positive everywhere, and collapses exactly where savings depth fails.

FIGURE 9 · DIGITAL SAVER ABSORPTION MINUS STATE A2F EMERGENCY-READINESS BASELINE



Positive in all four states: digital savers exceed the state baseline everywhere — but the premium collapses where savings depth fails (Kaduna).

THE POLICY SORT THAT FOLLOWS

Ondo & Enugu: ready for product-depth interventions — goal-based and committed products with escape valves. **Yobe:** infrastructure and community-mediated models (the CSEA-recommended UNDP group-lending design) before digital resilience gains are possible. **Kaduna:** product redesign — emergency-release windows — more than adoption campaigns.

WHY YOBE'S PREMIUM SURVIVES

Even with failing rails, the wallet's storage function — value that cannot be stolen, appropriated or flooded — beats a 24% baseline by 40.8 points. Fragile-state savers gain the most from the least; what they cannot get is speed, which requires the network Yobe doesn't have.

WHAT THE PREMIUM BUYS

Each premium point translates into a concrete household protection. Here is what the numbers mean in lived experience.

ONDO

+46.6%

85 in 100 absorb shocks without selling assets or skipping meals. Recovery in 14 days, not 18. The full package works.

ENUGU

+44.7%

Matches informal systems on speed, beats them on privacy. 95% say privacy is 'very valuable' — the wallet wins on secrecy, not velocity.

YOBE

+40.8%

Storage alone — value that cannot be stolen, appropriated or flooded — beats a 24% baseline by 31 points. Speed gains blocked by infrastructure.

KADUNA

+16.3%

Premium collapses. Credit-bundled locks without depth reverse the NCSI. Adoption without product redesign creates a trap, not a shield.

The premium is not abstract. It is fewer hungry days, faster recovery, and savings that survive the people who would take them.

7.3 The state evidence matrix — every primary indicator, all four states

Read down a column and each state's whole profile — what works, what fails, what binds — is visible at once; read across a row and each insight's boundary conditions are explicit.

TABLE 11 · INDICATOR (T / C)	ONDO	ENUGU	YOBE	KADUNA
Shock absorption	85.0 / 60.0% ***	74.5 / 65.3% ns	55.0 / 24.0% ns	38.8 / 23.5% null
Recovery days (lower = better)	14.0 / 17.8	9.7 / 8.7 reversed	32.0 / 32.0 zero gap	69.2 / 135.0
NCSI (lower = better)	0.66 / 1.16	1.47 / 1.53 ≈ equal	0.93 / 1.16	0.71 / 0.47 REVERSED
Food insecurity, FIES (lower = better)	0.76 / 1.36	0.39 / 0.36 ≈ equal	1.18 / 1.67	0.65 / 0.74
Privacy "very valuable" (TV5)	46.0%	95.0%	75.0%	62.0%
Inclusion Resilience Premium	+46.6%	+44.7%	+40.8%	+16.3%
Binding constraint	None structural — ready to scale & deepen	Strong informal competition (ajo, iron boxes)	Infrastructure: network, agents, conflict fragility	Product design: credit- bundled locks without depth
The mandate	Deepen: goal-based & committed products	Out-compete: match informal speed, add privacy	Build rails first; community-mediated models	Redesign locks: emergency-release windows

*** p<.001; ns = directional but not significant; null = p=.922. State means from the full N=800 frame; premium = digital saver absorption minus state A2F emergency-readiness baseline.

THE MATRIX VERDICT

Six indicators, four states. Count the wins and the mandate writes itself.

ONDO	ENUGU	YOBE	KADUNA
5/6 ✓✓✓✓✓	3/6 ✓✓✓○○	3/6 ✓✓✓○○	1/6 ✓○○○○
SCALE	COMPETE	BUILD	REDESIGN
Every indicator favours treatment. No structural barrier. Ready now.	Privacy is the product. Informal speed matched. Depth not yet proven.	Storage works. Speed blocked. Infrastructure must come first.	NCSI reversed. Premium collapses. Product locks harm more than help.

Read the matrix top-to-bottom: Ondo is the proof of concept. Kaduna is the proof that access without design is not inclusion.

7.4 Southern profiles: Ondo, where it works; Enugu, where it competes

ONDO — THE MATURE-MARKET BENCHMARK

+25pp · p<.001 · PREMIUM +46.6%

Ondo is what the intervention looks like with nothing in its way: 85% treatment absorption, recovery in a fortnight, the sample's lowest treatment NCSI (0.66 vs 1.16), and FIES nearly halved (0.76 vs 1.36). Agricultural cooperatives feed steady cash into wallets; the agent network is dense; the FGD narratives are the study's richest — the ₦700k rent shock, the interest-discovery conversion, the "no public holiday" liquidity ethic all come from here. Privacy matters least (46%) because the wallet's differentiator is speed. **Mandate: deepen.** Goal-based products, commitment devices with escape valves, and depth-linked incentives — participation is already won.

Absorption 85.0 / 60.0%

Recovery 14.0 / 17.8 days

NCSI 0.66 / 1.16

FIES 0.76 / 1.36

TV5 privacy 46.0%

ENUGU — THE INFORMAL-COMPETITION TEST

+9pp · ns · PREMIUM +44.7%

Enugu's control group is the strongest in the study: a deep ajo culture, iron savings boxes that open as fast as any app, and community lenders — so the treatment gap narrows to +9pp and recovery marginally reverses (9.7 vs 8.7 days). What the wallet cannot beat on speed it wins on privacy: 95% of Enugu's treatment women rate savings privacy "very valuable" — the study's maximum — because household claim pressure on visible savings is most intense here. **Mandate: out-compete.** Match informal speed and fees, and sell the one feature no ajo can offer — a balance a husband cannot find.

Absorption 74.5 / 65.3%

Recovery 9.7 / 8.7 days (rev.)

NCSI 1.47 / 1.53

FIES 0.39 / 0.36

TV5 privacy 95.0% — max

"There is no how your husband can know about it."

ENUGU FEMALE FGD · WHY PRIVACY IS THE WALLET'S WINNING PRODUCT WHERE INFORMAL SPEED IS ALREADY MATCHED

HEAD TO HEAD: THE SOUTHERN PAIR

Same region, same macro-economy, radically different competitive landscapes.

ONDO

+46.6%
DEEPEN

Absorption: 85.0 vs 60.0% ✓

Recovery: 14.0 vs 17.8 days ✓

NCSI: 0.66 vs 1.16 ✓

FIES: 0.76 vs 1.36 ✓

Privacy: 46% (lowest)

Nothing in its way. Scale now.

ENUGU

+44.7%
OUT-COMPETE

Absorption: 74.5 vs 65.3% ~

Recovery: 9.7 vs 8.7 days

NCSI: 1.47 vs 1.53 ~

FIES: 0.39 vs 0.36 ~

Privacy: 95% (highest) ✓

Wins on privacy, not speed.

Same premium band. Different product logic. Ondo needs depth; Enugu needs differentiation.

7.5 Northern profiles: Kaduna, where design reverses it; Yobe, where rails gate it

KADUNA — THE PRODUCT-DESIGN STRESS TEST

NULL $p=.922$ · NCSI REVERSED · PREMIUM +16.3%

Kaduna adopted the products, not the depth. Credit-bundled locked savings spread through the adashe culture faster than balances grew — so at shock time, locks stranded liquidity and coping *worsened*: the study's only NCSI reversal (0.71 vs 0.47), a collapsed premium (+16.3%), and an absorption null ($p=.922$) despite a +15pp raw gap. Yet Kaduna's treatment group also halves recovery time (69 vs 135 days) — speed and welfare are different outcomes with different design requirements, and a product can deliver one while damaging the other. **Mandate: redesign locks.** Emergency-release windows before any further adoption spend.

Absorption 38.8 / 23.5%

Recovery 69.2 / 135.0 days

NCSI 0.71 / 0.47 REV.

FIES 0.65 / 0.74

TV5 privacy 62.0%

YOBE — THE FRAGILITY BOUNDARY

+31pp RAW · $p=.106$ · RV1 GAP = 0

Yobe shows the study's largest raw absorption gap (+31pp) — and its recovery-velocity advantage is exactly zero (32.03 vs 32.01 days). The decomposition is clean: value storage survives fragility; transaction speed does not. Post-conflict network gaps, thin agent coverage and documented male control of women's phones and SIMs cap what any app can deliver. The state's within-sample test is underpowered ($p=.106$) because shock exposure and sample retention are hardest here. **Mandate: build rails first.** Network, agents, and community-mediated group models before product campaigns; non-interest products to clear the religious-barrier blocking GEEP-type uptake.

Absorption 55.0 / 24.0%

Recovery 32.0 / 32.0 — zero

NCSI 0.93 / 1.16

FIES 1.18 / 1.67

TV5 privacy 75.0%

The chapter's rule of thumb: absorption follows the buffer, speed follows the rails, welfare follows the product design. A state can hold any combination of the three — which is why there are four mandates, not one.



KADUNA + YOBE · THE NORTHERN CONSTRAINT

7.6 Two inversions that overturn intuitions — and the sort that follows

Privacy value runs opposite to infrastructure quality

Lowest in Ondo (46%) — the state where the wallet works best — and near-universal in Enugu (95%), where informal systems are strongest. Where alternatives exist, privacy is the wallet's differentiating product; where they don't, liquidity is. Marketing, product emphasis and even authentication UX should therefore differ by region — a single national message wastes the strongest state-level lever in each place.

Kaduna gains the most recovery time — yet copes worst

Its treatment group halves recovery duration (69 vs 135 days) while showing the study's only NCSI reversal. Speed and welfare are different outcomes with different design requirements: the same locked product that accelerates recovery for a household with depth strands liquidity for a household without it. Any evaluation that reports only one of the two outcomes would score Kaduna a success or a failure — it is both.

FIGURE 10 · THE INVESTMENT SORT, SUMMARISED

ONDO · ENUGU

Product-depth capital: goal-based savings, commitment-with-release, depth-linked rewards

KADUNA

Design capital: emergency-release windows in locked products before any adoption spend

YOBE

Infrastructure capital: network, agents, community-mediated group models, non-interest products

CHAPTER VERDICT

There is no national average worth funding. The digital dividend pays in Ondo, competes in Enugu, stalls on Yobe's rails and reverses on Kaduna's product mix. The evidence supports exactly one national policy: **sort investment by state readiness** — and measure each state against its own binding constraint.





Absorption follows the buffer, speed follows the rails, welfare follows the product design — four states, three mechanisms, four mandates.

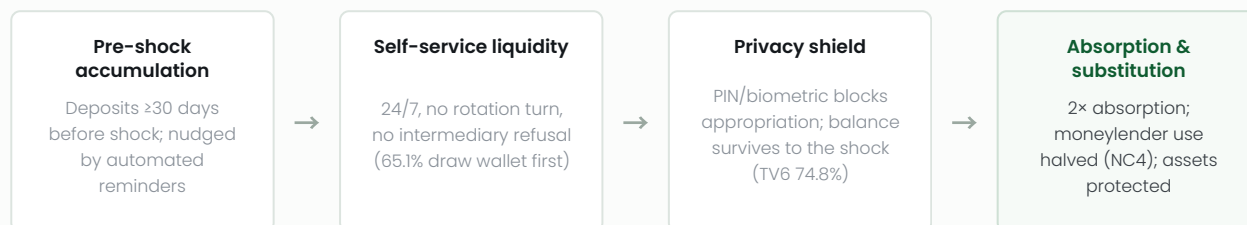
WHY: MECHANISMS, TRUST & FINANCIAL LITERACY

The causal pathway from wallet to resilience – and the moderating factors that switch it on or off.



8.1 The resilience pathway — how digital savings produce the H1 effect

FIGURE 11 · THE VALIDATED PATHWAY



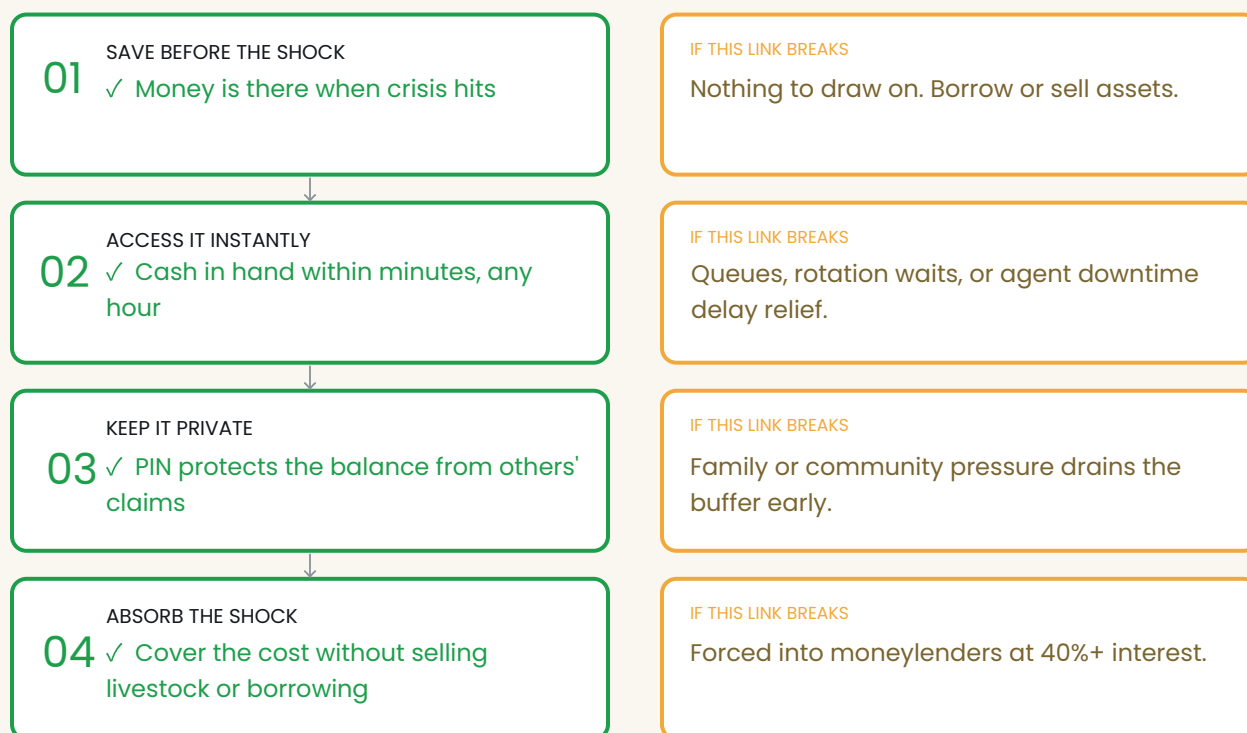
Moderators that gate each step: infrastructure quality (Yobe), product lock design (Kaduna), financial literacy, platform trust, gender norms.

Each link in the pathway has been separately evidenced: accumulation by the temporal-ordering design and TA-block deposit data; liquidity by FS4's 65.1% first-response share and the recovery-velocity results; privacy by TV5/TV6 and the esusu appropriation case; absorption and substitution by the H1 estimates and NC4's halving.

Equally important is what gates the pathway. Break the infrastructure link and speed dies (Yobe); lock the liquidity link and welfare reverses (Kaduna); breach the privacy link and the buffer never survives to the shock (the pre-OPay esusu case). The pathway is a chain, not a menu — the intervention delivers when every link holds, which is why the four states diverge.

THE CHAIN THAT HOLDS

Four steps, in order. Break any one and the benefit stops there.



It works like a chain, not a menu. Every link must hold for the benefit to reach the household.

8.2 Trust: a complete reversal — followed by over-reliance

Wallet adoption coincides with a complete reversal of institutional trust: **76.0% of treatment respondents report high trust in digital wallets versus 10.5% of controls** ($\chi^2(2)=382.29$, $p<.001$), with correspondingly lower trust in informal systems ($p=.003$). The migration driver is fraud experience — ajo collectors disappearing with funds. *"The platform cannot run away with your money."*

Trust is not unconditionally protective. The $TVI \times \text{Treatment}$ moderation is significant ($B=+0.284$, $p=.025$): the highest-trust digital savers show marginally *elevated* NCSI — an **over-reliance effect** in which trusted access substitutes for precautionary depth. "The app will be there" becomes a reason not to hold a deeper buffer; when the shock outruns the balance, coping follows.

Informal systems retain structural advantages the record refuses to caricature: social accountability ("You know the person you can hold"), forced-illiquidity discipline, and group lending at 12–40% below digital rates. The wallet did not win on virtue; it won on custody.

FIGURE 12 · HIGH TRUST IN DIGITAL WALLETS



$\chi^2(2)=382.29$, $p<.001$. Trust in informal systems correspondingly lower ($p=.003$).

THE OVER-RELIANCE COEFFICIENT

$TVI \times \text{Treatment}$ on NCSI

$B = +0.284 \cdot p = .025$

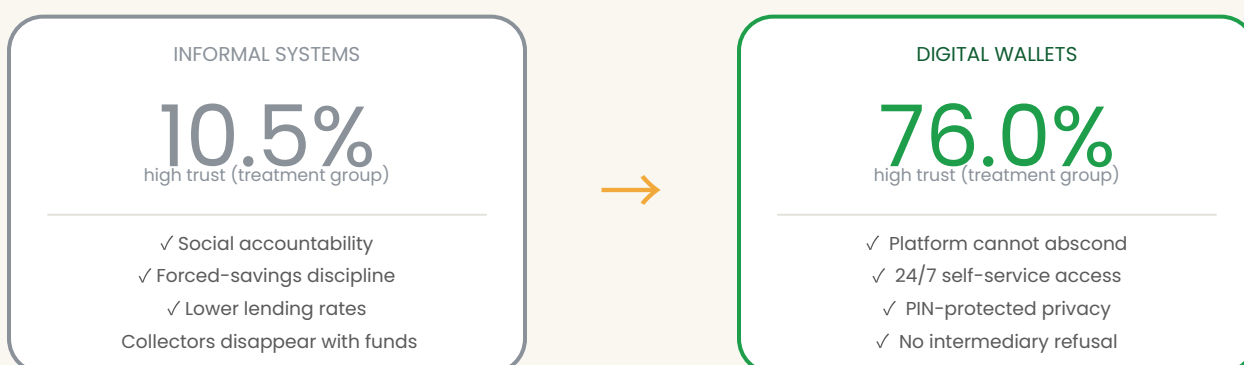
Highest-trust savers cope marginally worse — trusted access substituting for precautionary depth.

"You know the person you can hold."

ENUGU FGD · THE ACCOUNTABILITY ADVANTAGE INFORMAL SYSTEMS KEEP — AND PLATFORMS SHOULD STUDY, NOT DISMISS

THE TRUST MIGRATION

Why people moved their money — and the new risk that followed.



⚠ THE OVER-RELIANCE TRAP

The highest-trust savers hold the shallowest buffers. "The app will be there" becomes a reason not to save deeper. When the shock outruns the balance, coping collapses.

Countermeasure: pair trust-building with precautionary-depth nudges.

8.3 Financial literacy: the binding moderator, honestly held

All eleven substantive KII respondents converged on financial literacy as the gap between digital *access* and digital *resilience*. It operates at three points on the pathway — and it is also the honest rival explanation the design cannot fully exclude, bounded by the falsification test (the same individuals show no advantage before adoption).

1 · CONVERSION

Product knowledge turns transactional users into savers — the interest-discovery narrative. Users who don't know locked products pay interest never open one; users who do begin accumulating.

2 · CREDIT DISCIPLINE

Trained users deploy app loans as working capital; untrained users as consumption bridges that spiral — the ~70:30 responsible-to-risky split KIIs converge on, sorted by literacy level.

3 · LOCK MANAGEMENT

Knowing when interest-preservation is rational versus when it strands emergency liquidity — the competence that decides whether TA8's trap closes on a household.

The design implication is specific: **generic financial-literacy curricula do not touch these three competencies**. Each is product-mechanical — interest mathematics on named products, repayment sequencing on real app terms, lock-breaking arithmetic against actual forfeiture rates. The delivery channel that reaches this population is the platform itself, via CSR partnership, localised by language and religion.

Literacy also stratifies the trust findings: over-reliance (8.2) is a literacy failure wearing a confidence costume — the highest-trust, lowest-literacy savers hold the shallowest buffers. Pairing trust-building with precautionary-depth nudges (Insight 09) is the countermeasure.

CHAPTER VERDICT

The pathway from wallet to resilience is real, validated link by link — and conditional at every link. Trust migrated for good reasons and now needs a depth discipline attached; literacy decides who converts, who spirals and who escapes the lock. **The wallet supplies the mechanism; literacy and design decide who benefits from it.**



They take loan from here, use it, take another loan from there just to pay back. **It is more like patching each other.**

SMEDAN Representative (KII)

THE DEBT-SPIRAL MECHANISM — WHAT A SAVINGS BUFFER INTERRUPTS AND UNREGULATED APP CREDIT ACCELERATES



Trust shifted from informal collectors (10.5%) to digital platforms (76.0%) in one generation—now the challenge is moving from convenient access to building real financial depth.

BENCHMARKING AGAINST THE LITERATURE

Where each finding replicates, extends, or departs from the published evidence base — and where the sample sits against national data.



9.1 Findings against the evidence base

TABLE 12 • THIS STUDY	NEAREST LITERATURE	RELATION
H1: 2× absorption; adjusted OR 1.76	Jack & Suri (2014); Riley (2018): mobile money smooths consumption through shocks	Replicates , in a savings-led (not transfer-led) mechanism
Gains concentrated in women	Suri & Jack (2016); Field et al. (2021): female-headed households gain most from financial control	Replicates ; adds the privacy shield as measured mechanism
Participation up, depth flat (SA2)	Dupas & Robinson (2013); Batista & Vicente (2020): access lifts saving at the extensive margin	Replicates ; explains the H2 composite null
Cash-lock trap (TA8, p=.009)	Ashraf, Karlan & Yin (2006): commitment devices raise balances — silent on emergency release	Extends : documents the welfare cost of commitment without escape valves
Asset Depletion Paradox (rational NC3)	Coping-strategy indices (WFP/FIES tradition) code all asset sales as distress	Departs : novel contribution; motivates a repurchase-tracking amendment
NC4 halved; youth debt spirals	Björkegren & Grissen (2018); Women's World Banking (2025) on digital credit risk	Confirms both faces : savings substitute for predatory credit; unregulated credit spirals

Benchmarked against national data, the sample sits where expected: state absorption baselines track A2F 2023 inclusion gradients (Ondo/Enugu high, Yobe lowest), and the treatment platform mix (OPay 54.8%, Moniepoint 26.0%) mirrors GSMA (2024) agent-led market concentration in Nigeria.

Findex 2021 reports 55% of Nigerian adults able to raise emergency funds within 30 days; this study's stricter 7-day, shock-exposed test explains its lower control baseline of 31%. The two figures are consistent, not contradictory — the difference is the test's severity, chosen deliberately to price genuine emergencies.

9.2 Where this study moves the frontier

The East African mobile-money literature is transfer-led: M-PESA's resilience effects run through remittance networks that mobilise when shocks hit. Nigeria's wallet economy is **savings-led** — the buffer is the user's own accumulation, not the network's transfers. This study is among the first to show the resilience dividend surviving that substitution, which matters for every market where remittance density is low.

Second, the commitment-savings literature has measured what locks *build* (balances) and been largely silent on what they *cost at shock time*. The TA8 coefficient is a price tag on that silence — and the emergency-release window is a testable design remedy no major Nigerian platform currently ships.

Third, the privacy shield converts a rich anthropological record about intra-household money conflict into a measured product parameter (TV5/TV6) with a falsifiable design rule: authentication removal should collapse female savings retention. Fourth, the Asset Depletion Paradox challenges an instrument used across the humanitarian world — with a concrete amendment (repurchase tracking) rather than only a critique.

FOR THE ACADEMIC READER

The falsification design — converting mistimed adopters into a placebo arm — is portable to any cross-sectional adoption study with recall-dated outcomes, at zero additional fieldwork cost.

FOR THE POLICY READER

Every benchmark row above survives translation into a KPI: absorption rate, depth share, lock-release usage, gender-disaggregated retention. Chapter 10 turns them into decisions.

CHAPTER VERDICT

This report doesn't contradict what researchers already know—the main findings match what's been proven before. **What's new here are the details that previous studies missed or couldn't measure. For example: how much it actually costs households to commit their money upfront (the "shock-time cost"), how much people truly value their privacy when using financial services, and the crucial difference between selling something because you're desperate versus selling it as part of a smart plan.**

These aren't headline-grabbing reversals of conventional wisdom—they're the important nuances hiding in the margins that help us understand what really happens to real families in real situations.



From evidence to decision: the final chapter converts every finding into an adopt-or-reject card with a measurable proof indicator.

STRENGTHENING RESILIENCE: DECISIONS & TRANSFORMATION

Every recommendation anchored to its finding; every decision paired with the conditions to decline it; every transformation paired with the indicator that would prove it.

10.1 Recommendations and their evidence anchors

All eleven substantive KII respondents agreed current policy tilts toward access over resilience — the CBN's own estimate is a 60:40 split. Each recommendation below is anchored to a specific result in this report; none is free-floating.

TABLE 13 · ACTOR	RECOMMENDATION	EVIDENCE ANCHOR
CBN / NFIS 3.0	Adopt shock readiness (₦75k/7-day test) and savings depth as tier-2 indicators alongside ownership	Resilience Paradox (64% included, 12% healthy); SA2 participation-vs-depth split
CBN / regulators	Regulatory pathway for embedded micro-insurance, emergency savings and credit controls; mandate gender-disaggregated platform reporting	60:40 access-resilience split (CBN KII); women out-save men (all platform KIIs)
Platforms	Add emergency-release windows to locked products (partial withdrawal with pro-rated interest)	TA8 cash-lock trap ($B=+0.150$, $p=.009$); Kaduna NCSI reversal; Asset Depletion Paradox
Platforms	Keep PIN/biometric authentication non-negotiable; launch non-interest products for northern markets; build credit rehabilitation pathways	Privacy shield (TV6 74.8%); GEEP uptake blocked by interest barrier (FMWA KII); blacklisting catch-22
States / donors	Sort investment by state readiness: product depth in Ondo/Enugu; infrastructure and community-group models in Yobe; product redesign in Kaduna	State t-tests (Table 10); Inclusion Resilience Premium (Figure 9)
Literacy providers	Deliver product-specific literacy (interest mechanics, lock management, credit discipline) via platform CSR partnerships, localised by language and religion	Literacy as binding moderator (Ch.08); youth debt spirals; interest-discovery conversion

60:40

The CBN's own estimate of the access-to-resilience policy split. Every recommendation above moves spend, measurement or design from the left side of that ratio to the right.

FROM ACCESS TO RESILIENCE

Six actions that move the ratio from 60:40 toward real financial strength.

NOW



GOAL



Every row in the table above moves money, measurement, or design from the left side of this bar to the right.

CBN

Measure resilience, not just access

REGULATORS

Clear the path for micro-insurance & credit controls

PLATFORMS

Emergency release windows in locked savings

PLATFORMS

PIN protection as the core product feature

STATES

Invest by readiness — not one-size-fits-all

LITERACY

Teach the product, not just the concept

None of these recommendations is free-floating. Each one is anchored to a finding in this report.

10.2 The decision layer — adopt or reject, with reasons

A recommendation is only useful if a decision-maker can also see when *not* to act on it. Each card states the action, the evidence, when adopting is justified, when it should be declined — and what measurably changes if it is taken up.

CBN / NFIS 3.0 · FROM INSIGHTS 01 & 06

Measure resilience, not access

Adopt the ₦75k/7-day shock-readiness test and savings depth as tier-2 inclusion indicators alongside ownership.

ADOPT BECAUSE: the country is 64% included and 12% financially healthy — ownership KPIs are certifying a resilience failure.

DECLINE ONLY IF: survey cost is binding — then the FS3c single item is the minimum viable addition.

WHAT CHANGES: A2F 2026+ reports a resilience rate next to the inclusion rate; programmes get funded against the 12%, not the 64%.

PLATFORMS · FROM INSIGHT 04

Put emergency-release windows in locked products

Allow partial withdrawal with pro-rated (not forfeited) interest on verified emergencies.

ADOPT BECAUSE: the TA8 trap ($B=+0.150$, $p=.009$) and Kaduna's NCSI reversal show all-or-nothing locks convert savers' discipline into shock-time harm.

DECLINE ONLY IF: release friction falls so low the commitment value collapses — the Ashraf et al. evidence says commitment is why balances grow.

WHAT CHANGES: the Asset Depletion Paradox loses its rationale — users stop selling goats to protect 15% interest; Kaduna's reversal is the test case.

PLATFORMS · FROM INSIGHTS 02 & 03

Centre women; treat authentication as the product

Keep PIN/biometric non-negotiable; design onboarding, agents and marketing around female savers.

ADOPT BECAUSE: the treatment effect exists only for women (+22pp / +17.5pp vs male-youth null) and 74.8% say privacy directly enabled a shock response.

DECLINE ONLY IF: never — FGDs in two states agree removing authentication would collapse female trust. Any shared-access "family wallet" is a resilience regression.

WHAT CHANGES: the buffer survives to the shock — women's savings shift from negotiable to inviolable at household scale.

STATES / DONORS · FROM INSIGHTS 07 & 10

Sort investment by state readiness

Depth products in Ondo/Enugu; rails and community-mediated models in Yobe; lock redesign in Kaduna.

ADOPT BECAUSE: the same product yields +25pp ($p<.001$) in Ondo and a null ($p=.922$) in Kaduna — a uniform rollout buys the average of a success and a failure.

DECLINE ONLY IF: programme mandates legally require national uniformity — then sequence states rather than differentiate products.

WHAT CHANGES: Kaduna-type reversals stop being funded; Yobe money buys network and agents before apps.

REGULATORS • FROM INSIGHT 05

Fund savings—first, not credit—first

Regulatory pathway for embedded emergency savings and micro-insurance; tighten multiple-app digital credit.

ADOPT BECAUSE: savings halve predatory borrowing (NC4 p=.017) while unregulated digital credit produces the youth debt spiral — 3 in 10 OPay borrowers struggle to repay.

DECLINE ONLY IF: credit access is the binding constraint for a specific segment (e.g. blacklisted youth) — then pair credit with rehabilitation pathways, not more apps.

WHAT CHANGES: the emergency channel shifts from 16.7% moneylender exposure toward self-financed absorption; "patching each other" loans shrink.

LITERACY PROVIDERS / M&E • FROM INSIGHTS 08 & 09

Teach lock management; fix the measurement

Product-specific literacy (interest mechanics, when to break a lock, credit discipline); amend coping indices to track asset repurchase.

ADOPT BECAUSE: all 12 substantive KIs converge on literacy as the access-resilience gap, and NCSI currently scores rational interest-preserving sales as harm.

DECLINE ONLY IF: generic (non-product-specific) literacy is all that's fundable — the evidence here says generic curricula don't touch the TA8 trap.

WHAT CHANGES: the ~70:30 responsible-to-risky youth split moves; future evaluations can distinguish distress from strategy.

How to use the cards. Each is self-contained: an actor can adopt one without adopting the set. The "decline only if" line is not rhetorical — where the stated condition holds, declining is the evidence-consistent choice, and the report should be cited for the rejection as legitimately as for the adoption.

THE SIX DECISIONS

01

Measure resilience, not access — put the ₦75k test in A2F.

02

Ship emergency-release windows before scaling locks.

03

Centre women; never trade authentication for convenience.

04

Sort investment by state readiness — no uniform rollout.

05

Fund savings-led products; tighten multi-app credit.

06

Teach lock management; track asset repurchase in coping indices.

10.3 The transformation ledger — what is changing, what would change, how we would know

TABLE 14 · DOMAIN	ALREADY CHANGING (MEASURED)	TRANSFORMS IF ACTED ON	PROOF INDICATOR
Emergency finance	65.1% of savers now draw the wallet first; moneylender recourse halved (NC4)	Self-financed absorption becomes the norm for shock-exposed women and youth	FS3c absorption >50% national; NC4 <8%
Women's financial control	Savings shifting from findable cards to PIN-sealed balances; operators report women out-saving men	Intra-household appropriation stops being a savings tax; women's buffers survive to the shock	TV6 ≥80%; gender-disaggregated platform reporting mandated
Product design	Locked products grow balances but strand liquidity (TA8 trap); rational asset sales substitute for lock-breaking	Commitment products acquire escape valves; discipline stops costing welfare	Kaduna NCSI reversal closes ($T \leq C$); TA8 coefficient → 0
Measurement & policy	Inclusion rose 57→64% while financial health fell 27→12% — the KPI and the outcome have decoupled	NFIS 3.0 targets resilience directly; the 60:40 access-resilience spend rebalances	Resilience tier published in A2F; financially-healthy share recovers past 20%
Geography	The digital dividend pays in Ondo, stalls on Yobe's rails, reverses on Kaduna's product mix	Investment sorted by state readiness; fragile-state money buys infrastructure before apps	Yobe RV1 gap > 0; Kaduna premium converges toward +40%

Transformation is the test of this evidence. Each row states what the data shows is already changing because of digital savings, what would change next if the decision layer is acted on, and the indicator that would prove it — so that a follow-up study in 2028 can score this report against its own predictions.

10.4 Limitations — carried in the text, not buried here

Observational design

Despite temporal ordering, covariate adjustment and falsification, unobserved selection into wallet use cannot be fully excluded. Causal language is reserved for results surviving all three defences; associational language is used elsewhere.

Recall-dated shocks

Shock timing is respondent-reported, anchored by event calendars. Misdating attenuates rather than inflates the design's protection — it moves genuine post-adoption cases out of the causal frame more often than the reverse.

Small robustness cells

The pre-adoption falsification sample ($T=26$) and the FS2c asset-seller sample ($n=5$) support directional, not precise, inference — and are labelled as such at every use.

State-level power

Within-state tests are underpowered where shock exposure is low — Yobe's +31pp gap at $p=.106$ is the clearest case. State readings rest on the pattern across indicators, not single tests.

NCSI construct validity

The Asset Depletion Paradox shows NC3 conflates distress and strategy in locked-savings contexts; composite NCSI results carry this measurement caveat throughout.

Generalisation boundary

Four states spanning the inclusion gradient support national relevance, not national representativeness. Extrapolation to states off the gradient (e.g. Lagos, Borno) should use the mechanism map, not the point estimates.

A note on honesty as method. Every limitation above appears in the chapter where it bites — the falsification cell size in Chapter 03, the Yobe power problem in Chapter 07, the NCSI caveat in Chapter 05. This page is the collection of them all, not the disclosure.

10.5 Conclusion

But the wallet is not yet a welfare technology: it expands who saves without deepening how much, and locked products without escape valves can strand liquidity exactly when households need it. The composite coping index does not move because the deepest driver of harmful coping — income volatility — is upstream of any savings channel.

Active digital savings — not account ownership — **doubles the shock absorption rate** of Nigerian women and youth, accelerates recovery by six weeks, and halves recourse to predatory lenders. These effects survive adjustment for a wealth imbalance that favours the control group and disappear, as they should, when the shock predates the wallet.

The study's contribution to the NFIS 3.0 moment is therefore precise: **measure resilience, not access; design for release, not just commitment; and centre the users the data says gain most — women.** The decision layer and transformation ledger convert those three sentences into six adopt-or-reject choices with proof indicators attached. The evidence has done its work; the rest is decision.

10.6 The research agenda this study opens

1 · A longitudinal repurchase panel

Track asset repurchase after shock-time sales — the direct test of the paradox's "temporary" claim.

2 · An emergency-release RCT

Randomise release windows in locked products; Kaduna's reversal is the natural test bed.

3 · Privacy as adoption driver

Formally model the privacy shield among married northern women — the segment where TV5 and exclusion co-peak.

4 · A Yobe group-lending pilot

Pilot the community-mediated digital design (CSEA/UNDP model) where individual rails fail.

12%

One number should outlive this report: twelve percent of Nigerians are financially healthy in the most included decade the country has ever recorded. Every decision card in this chapter is a way of refusing to let that number stand.



Number one, the first thing is my savings — my money. **It's easy for me to access it.**

ONDO MALE FGD PARTICIPANT

THE FIRST RESPONSE OF A RESILIENT HOUSEHOLD — WHAT EVERY DECISION IN THIS REPORT IS DESIGNED TO MAKE UNIVERSAL

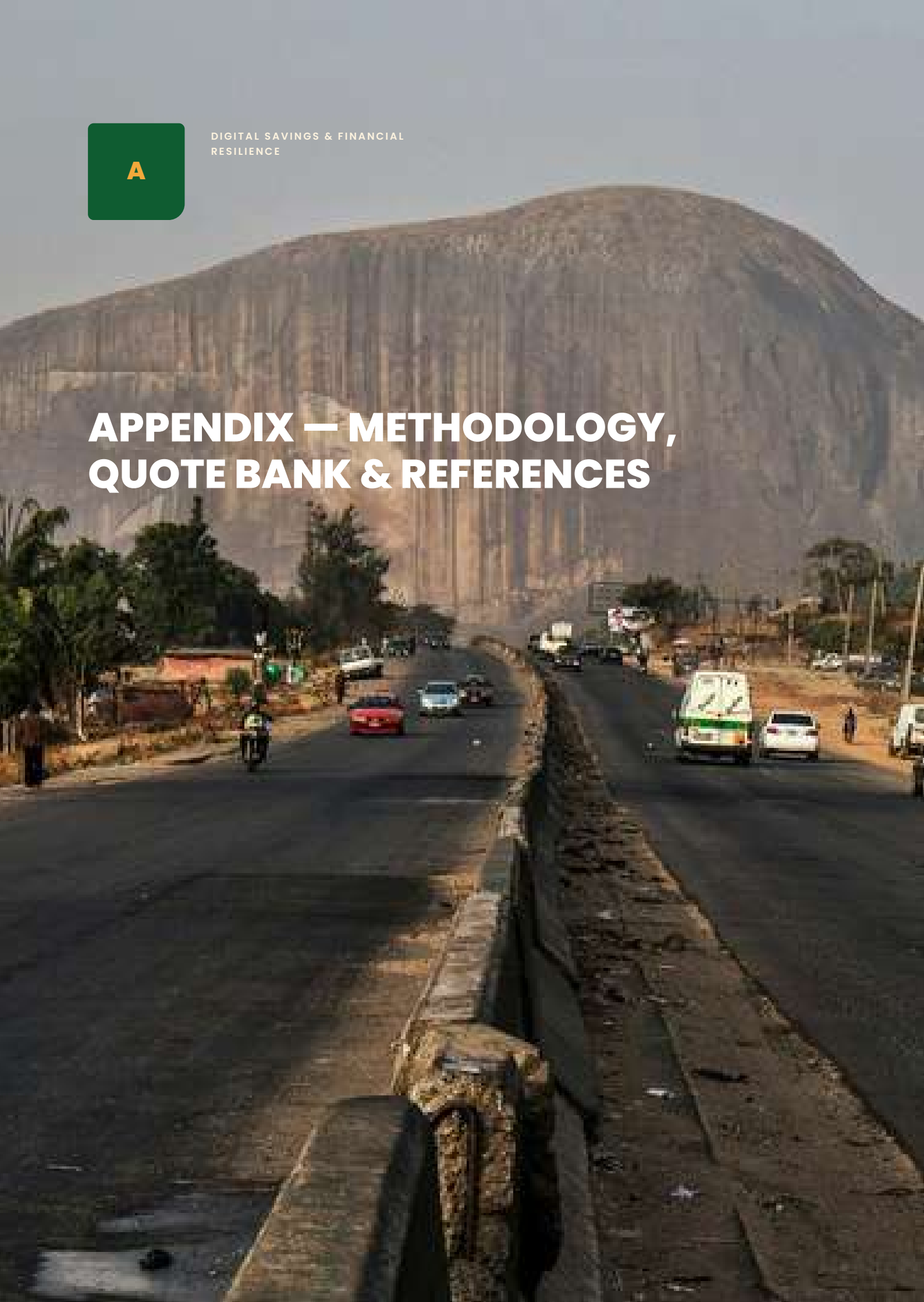


Measure resilience. Design for release. Centre women. The evidence has done its work; the rest is decision.



A

DIGITAL SAVINGS & FINANCIAL
RESILIENCE



APPENDIX — METHODOLOGY, QUOTE BANK & REFERENCES

A1 • Primary model outputs

ANALYSIS	FRAME / N	KEY STATISTICS	RESULT
H1 primary t-test (FS3c)	Post-adoption shock; N=233	$t(231)=-4.561$; CI [-0.459, -0.182]; Levene $p=.098$	63% vs 31%; $p<.001$
Adjusted logistic (FS3c)	N=233; state, gender, livelihood, volatility, assets	Nagelkerke $R^2=.444$; asset proxy $p<.001$	OR 1.763 (1.095–2.836); $p=.020$
FS1 coverage	N=407	$\chi^2(3)=13.601$; M-W $U=24,494$	$p=.004$ / $p=.001$
RV1 recovery velocity	N=197; Welch (Levene $p<.001$)	$t(61.1)=2.664$; CI [10.5, 73.4]	31.6 vs 73.5 days; $p=.010$
H2 NCSI composite	N=407; equal variances (Levene $p=.833$)	$t(398)=0.497$	0.92 vs 0.99; $p=.620$ (null)
NC4 borrowing item	T=192, C=215	$\chi^2=5.706$	8.3% vs 16.7%; $p=.017$
Intensity hierarchical OLS (NCSI)	Block 1 $R^2=.466$; Block 2 $\Delta R^2=.028$, ΔF $p=.050$	TA8 $B=+0.150$, $\beta=.238$; direct treatment $p=.541$	Cash-lock trap; $p=.009$
SA2 adequacy	Full N=800; savers-only N=509	$\chi^2(4)=44.435$, Gamma=.304	$p<.001$; depth $p=.786$
Trust distribution (TV1)	N=800	$\chi^2(2)=382.29$; TV1×T $B=+0.284$	76.0% vs 10.5%, $p<.001$; moderation $p=.025$
Falsification (pre-adoption)	T=26 vs C=215	Absorption 7.7% vs 15.4%; NCSI $p=.709$	Null as required; $p=.297$
Mature-adoption sensitivity	≥2 months tenure; N=186	$\chi^2(10)=59.05$; H-L $p=.426$; 73.1% accuracy	Stable; $R^2=.364$

A2 · Qualitative framework and coding architecture

Coding proceeded in three passes: (1) descriptive coding of all eight FGD and eleven substantive KII transcripts; (2) mechanism coding linking each coded segment to the indicator it evidences (FS3c, NC4, TV5...); (3) case assembly, in which multi-segment narratives — the ₦700k rent shock, the paired medical shocks, the esusu appropriation — were reconstructed with their full decision sequences.

Analysis followed a framework-anchored thematic method: an a-priori codebook derived from the Integrated Resilience Framework (shock exposure → buffer architecture → response repertoire → welfare outcome), extended inductively where the data outran it. Emergent codes — the interest-preservation calculus, the SIM-break, the privacy shield — were admitted only after appearing independently in two or more sites or source types.

The quote bank (A3) is the audit trail: every quotation used in this report appears there with its indicator tag, site and speaker class. Nothing in the qualitative record was quoted for colour.

THEME (FINAL CODEBOOK)	SOURCES CONFIRMING	CARRIES
Self-service liquidity ("no public holiday")	4 sites, FGD + KII	HI mechanism (Ch.04)
Privacy shield / appropriation risk	4 sites (F sessions), 3 KIIs	Gender effect (Ch.06)
Interest-preservation calculus	2 FGDs + 3 KIIs (independent)	Asset Depletion Paradox (Ch.05)
Debt spiral / SIM-break	All sites, FGD + platform & SMEDAN KIIs	NC4 & youth risk (Ch.05, 06)
Informal-system strengths	All sites, control-saver segments	Counterfactual honesty (Ch.02, 08)
Policy imbalance (access > resilience)	Unanimous — 12/12 substantive KIIs	Decision layer (Ch.10)

A3 · The indicator-tagged quote bank — H1: absorption, coverage & speed

"Money you have in your wallet is just as if you have your money in your hand. You can access it immediately. Banks fail you 98% of the time... But a wallet? In the twinkle of an eye, you point it and you transfer. There is no public holiday."

FS3c · ONDO MALE FGD · SELF-SERVICE LIQUIDITY

"If I am number ten or eleven in an Ajo rotation and I have an emergency, the Ajo will not save me."

FS3c · ONDO MALE FGD · THE ROTATION CONSTRAINT

"My landlord increased my apartment and my shop rent at the same time... For me to manage that scenario was very, very difficult. The first thing is my savings. My wallet. After that, I draw from what I normally save. And then the other people around me."

FS1 · ONDO MALE FGD · LAYERED COVERAGE, ₦700,000 RENT SHOCK

"Number one, the first thing is my savings — my money. It's easy for me to access it."

FS4 · ONDO MALE FGD · FIRST-RESPONSE ORDERING

"It was faster because it was my money, and I didn't have to go to anyone to start explaining why I needed the money. They might even just tell me sorry after explaining."

RV1 / FS4 · KADUNA FEMALE FGD · SPEED WITHOUT PERMISSION — CASE 02

"We started with the one who had insurance."

FS1 / NC4 · KADUNA FEMALE FGD (CONTROL) · TRIAGE UNDER ZERO BUFFER — CASE 03

"In 2018, my brother told me that OPay has a lot of interest... with digital wallets, we were having a lot of interest."

SA2 / TA-BLOCK · ONDO MALE FGD · THE INTEREST-DISCOVERY CONVERSION

Verbatim quotations, translated where sessions ran in Hausa, Igbo, Yoruba or Pidgin; back-checked on high-stakes passages. Full session-level register in the study's qualitative analysis annex.

A3 (continued) · H2, the privacy shield, and trust

"Instead of me to break it and lose that 15 percent, I better sell off a productive asset and get it back when I get my full money plus the interest."

NC3 / TAB · ONDO FEMALE FGD · INTEREST-PRESERVATION — THE ASSET DEPLETION PARADOX

"They take loan from here, use it, take another loan from there just to pay back. It is more like patching each other."

NC4 · SMEDAN (KII) · THE DEBT SPIRAL

"These two days I was sick. The money that I will use to take care of my medical expenses was hard. I had to manage and even left some medication due to lack of money."

NC5 · YOBE FEMALE FGD · HEALTHCARE DEFERRAL — THE SEVEREST WELFARE OUTCOME IN THE CORPUS

"If you save in daily contribution, your husband might see the card and start questioning you. But once you are saving in a digital wallet which is privacy, there is no how your husband can know about it."

TV5 · ENUGU FEMALE FGD · THE PRIVACY SHIELD

"Since I started using OPay wallet savings, it has changed because I changed the password, and no one has access to it except me." — after her husband's defence: "How can you hide money from me in my own house?"

TV6 · KADUNA FEMALE FGD · THE ESUSU APPROPRIATION — CASE 04

"It will need my finger or my face."

TV5 · ONDO FEMALE FGD · BIOMETRICS AS DEVICE SECURITY

"You know the person you can hold." · "The platform cannot run away with your money."

TV1 · ENUGU FGD / CORPUS · THE TWO ACCOUNTABILITIES — SOCIAL VS INSTITUTIONAL

"It is women that work most now."

GENDER USAGE · OPAY BUSINESS DEVELOPER, ONDO (KII) · OPERATOR CONFIRMATION OF FEMALE DOMINANCE

"Women suffer the most as most of the time women are the one with the children at home."

GENDERED EXPOSURE · YOBE FGD · SHOCK INCIDENCE BEFORE FINANCE

A4 • References

- Apeti, A. E. (2023). Household welfare in the digital age: Assessing the effect of mobile money on household consumption volatility in Sub-Saharan Africa. *World Development*, 161, 106093.
- Ashraf, N., Karlan, D., & Yin, W. (2006). Tying Odysseus to the mast: Evidence from a commitment savings product in the Philippines. *Quarterly Journal of Economics*, 121(2), 635–672.
- Batista, C., & Vicente, P. C. (2020). Improving access to savings through mobile money: Experimental evidence from African smallholder farmers. *World Development*, 129, 104905.
- Björkegren, D., & Grissen, D. (2018). The potential of digital credit to bank the poor. *AEA Papers and Proceedings*, 108, 68–71.
- Central Bank of Nigeria. (2018). *National Financial Inclusion Strategy (revised)*. CBN.
- CGAP. (2023). *Bridging the evidence gap in women's financial inclusion*. Consultative Group to Assist the Poor.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank.
- Dupas, P., & Robinson, J. (2013). Savings constraints and microenterprise development: Evidence from a field experiment in Kenya. *American Economic Journal: Applied Economics*, 5(1), 163–192.
- EFinA. (2023). *Access to Financial Services in Nigeria 2023 Survey*. Enhancing Financial Innovation and Access.
- Field, E., Pande, R., Rigol, N., Schaner, S., & Moore, C. T. (2021). On her own account: How strengthening women's financial control impacts labor supply and gender norms. *American Economic Review*, 111(7), 2342–2375.
- GSMA. (2024). *State of the Industry Report on Mobile Money 2024*. GSM Association.
- Jack, W., & Suri, T. (2014). Risk sharing and transactions costs: Evidence from Kenya's mobile money revolution. *American Economic Review*, 104(1), 183–223.
- National Bureau of Statistics. (2022). *Nigeria Living Standards Survey 2022*. Federal Republic of Nigeria.
- Riley, E. (2018). Mobile money and risk sharing against village shocks. *Journal of Development Economics*, 135, 43–58.
- Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money. *Science*, 354(6317), 1288–1292.
- Women's World Banking. (2025). *Over-indebtedness: An escalating risk for consumers*. Women's World Banking.



DIGITAL SAVINGS & FINANCIAL RESILIENCE

Abdullahi Ibrahim · EFInA Research Fellow, 2026

RESEARCH FELLOWSHIP REPORT



CONFIDENTIAL VERSION — FOR REVIEW AND INPUT · FINDINGS DO NOT NECESSARILY REPRESENT THE VIEWS
OF EFInA