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Privacy-Inclusive Financial Access Framework: Bridging the Privacy Divide in Digital Financial Services

Written by Sam Smith

Maria sells fruit at a Nairobi market. When her husband became abusive, she tried opening a mobile money account to secretly save money to escape. But the Know-Your-Customer (KYC) requirements meant she had to use her national identification card, which her husband controlled, leaving her bankless. She is trapped, not because technology failed. This is just one theoretical example of how digital banking was supposed to solve the problem of financial access, but omits the margins. The reality is that 1.4 billion adults still don't have a bank account, and those who do are increasingly forced to give up their privacy as the price of admission.[1] Think about this number: over one billion people are not participating in the global digital financial ecosystem. In my researcher, I reviewed data from Kenya, India, Nigeria, and Latin America, in our research we found a pattern emerging: when marginalized communities (particularly affecting women, rural populations, LGBTQIA+ communities, refugees, the working poor, informal or migrant workers, sex workers, and many more) encounter the surveillance built into these digital financial systems, many choose to remain outside the formal banking sector entirely. These billion individuals are deciding that protecting their privacy matters more than accessing these financial services.

My findings challenge the basic assumptions about the current financial inclusion ecosystem. Banks insist they need extensive data collection for security and regulatory

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[1] World Bank Group, "COVID-19 Boosted the Adoption of Digital Financial Services," Feature story, July 21, 2022, World Bank, https://www.worldbank.org/en/news/feature/2022/07/21/covid-19-botrade-offosted-the-adoption-of-digital-financial-services.

compliance, but these same requirements are creating barriers for the people who most need financial services. We've created a system that serves those with resources and alternatives, while effectively excluding everyone else. We need financial services that don't treat privacy as a luxury good. Our research examines how a theoretical Privacy-Inclusive Financial Access (PIFA) Framework could document and quantify this trade-off, providing evidence for advocacy, rather than pretending technical solutions alone can resolve fundamentally political problems.

Existing Frameworks Ignore Privacy

Digital financial institutions often require customers to give out personal identifiable information in the form of government issued identification documents, biometric data (facial recognition or fingerprints), address and contact information, family members identity, source of funds, and ongoing monitoring of account activity; many of which marginalized individuals will not have[2], or are apprehensive to give out this information due to privacy and security concerns.[3]

If we look to history, it shows us that financial records can and have been weaponized against people across the globe. Nazi Germany's use of banking records to identify and expropriate Jewish assets. McCarthyist blacklists enforced through financial institutions. Operation Choke Point targeting legal but "undesirable" businesses. Even in the present day, China's Social Credit System links financial access to political compliance. All of these and more, are reasons enough for individuals to maintain their privacy in the financial sector and beyond.

Current financial inclusion metrics systematically fail to capture privacy and security dimensions. The World Bank's Global FinDex tracks that 79% of adults globally have financial accounts, yet never asks whether people control their financial data or understand how it's used, either for or against them.[4] The Alliance for Financial Inclusion Core Set focuses on availability, adoption, and traditional consumer protection without assessing surveillance

[2] Adolfo Barajas, Thorsten Beck, Mohammed Belhaj, and Samy Ben Naceur. (2020). "Financial Inclusion: What Have We Learned So Far? What Do We Have to Learn?" *IMF Working Papers*, Volume 2020, Issue 157 https://www.elibrary.imf.org/view/journals/001/2020/157/article-A001-en.xml

[3] Lal, T. (2021). "Impact of financial inclusion on economic development of marginalized communities through the mediation of social and economic empowerment." *International Journal of Social Economics*. https://www.pingidentity.com/en/resources/blog/post/know-your-customer.html

[4] Leora Klapper, Dorothe Singer, Laura Starita, and Alexandra Norris, The Global Findex Database 2025: Connectivity and Financial Inclusion in the Digital Economy (Washington, DC: World Bank, 2025), xxi. https://openknowledge.worldbank.org/entities/publication/8b9002b6-d8dd-426c-aa7c-6d7d16902cd7

impacts or data extraction practices.[5] Similarly, the GSMA Mobile Money Metrics measure access and usage but completely ignore privacy considerations.[6]

This measurement blindness reflects the interests of those who design these frameworks. In his book "Surveillance Gap," Michele E. Gilman argues the harms of extreme privacy and data marginalization disproportionately affects already vulnerable populations.[7] The "Capability Approach", developed by Amartya Sen[8] exposes this: financial inclusion should expand real freedoms and choices.[9] Yet, when participation requires surrendering privacy, it becomes what Shoshana Zuboff terms "Surveillance Capitalism," the extraction of human experience as raw material (data) for predictive products.[10]

Privacy-Inclusive Financial Access Framework

The Privacy-Inclusive Financial Access (PIFA) represents a proposed measurement framework that would change how we evaluate financial inclusion by adding privacy as a core metric alongside traditional access indicators. This conceptual framework draws inspiration from Freedom House's Democracy Index[11]. PIFA posits that having a bank account may mean nothing if using it requires surrendering your privacy, paying premium rates for anonymous alternatives, or self-censoring transactions to avoid algorithmic discrimination. The framework would score financial systems across four dimensions: whether people can access services without excessive surveillance, if usage is genuinely voluntary or coerced by lack of alternatives, what privacy protections actually exist, and whether users have meaningful recourse when violated. Current financial metrics celebrate account ownership, while PIFA would reveal that many users may pay higher interest rates to avoid government surveillance, or that marginalized communities might systematically choose expensive workarounds or complete exclusion rather than submit to financial surveillance. PIFA would be a tool that aims to quantify the hidden trade-offs between financial participation and privacy, making visible the "privacy tax" on poverty and providing evidence that surveillance-based inclusion may not be real inclusion at all. When people

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[5] Alliance for Financial Inclusion, "AFI Core Set of Financial Inclusion Indicators Policy Model," December 2019, 19-20. https://www.afi-global.org/sites/default/files/publications/2019-12/AFI_PM_Core%20Set_FINAL_digital.pdf

[6] GSMA, "Mobile Money Regulatory Index Methodology," March 2020, 7. https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/wp-content/uploads/2021/11/MMRI-2020-Methodology.pdf

[7] Michele E. Gilman and Rebecca Green, "The Surveillance Gap: The Harms of Extreme Privacy and Data Marginalization," N.Y.U. Review of Law & Social Change 42 (2018): 253-307. https://scholarship.law.wm.edu/facpubs/1883/

[8] Kuriakose, Francis and Kylasam Iyer, Deepa, Understanding Financial Inclusion Through Deconstructing Human Development Approach and Capabilities Theory (July 8, 2015). http://dx.doi.org/10.2139/ssrn.2609240

[9] Kais Tissaoui, Abderrazek Hakimi, and Taha Zaghdoudi, "Can Financial Inclusion Enhance Human Development? Evidence from Low- and Middle-Income Countries," Humanities and Social Sciences Communications 11 (2024): article 573. https://ideas.repec.org/a/pal/palcom/v11y2024i1d10.1057_s41599-024-03048-8.html

[10] Shoshana Zuboff, The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power (New York: PublicAffairs, 2019), 8. https://www.hbs.edu/faculty/Pages/item.aspx?num=56791

[11] Freedom House. "Countries and Territories: Scores." *Freedom House*. Accessed September 10, 2025. https://freedomhouse.org/country/scores

reject digital financial services, they may not be acting irrationally or remaining unbanked by choice; they could be making a rational decision that privacy and autonomy matter more than the conventional benefits of financial inclusion.

The Four Pillars of PIFA

PIFA is basically a scoring system that shows the real cost of financial services, not just in money, but in privacy, dignity, and would expose when "financial inclusion" actually means surrender your privacy or staying poor.

1. Access with Dignity

PIFA would ask: What must you sacrifice to participate? Or, can people access financial services without surveillance? Instead of asking "Can you open an account?"

This pillar measures:

- Whether alternatives exist that respect privacy
- How much personal information is required at each service level
- Whether you can access services without surveillance
- The degree of coercion versus genuine choice

Score range: 0 (total surveillance required) to 25 (privacy-preserving options available)

2. **Quality of Use**

PIFA would ask: Is usage voluntary or coerced? Do people self-censor transactions? Instead of counting transactions, PIFA evaluates whether usage is voluntary or forced.

This pillar measures:

- Self-censorship rates (avoiding certain transactions due to monitoring)
    - Measuring this, unfortunately, relies primarily on observable behavioral proxies and sampling strategies
- The premium people pay for privacy-preserving alternatives
- Behavioral changes under surveillance
- The difference between genuine adoption and forced participation

Score range: 0 (completely coerced usage) to 25 (fully voluntary participation)

3. Privacy Protection

PIFA would ask: Is data encrypted? Can users control their information? This entirely new dimension measures actual privacy safeguards.

This pillar evaluates:

- Data control: Can users decide who sees what?
- Technical protection: Is encryption available?
- Consent quality: Can users give selective permissions, or is it all-or-nothing?
- Transparency: Do users understand how their data is used?
- Data minimization: Is only the necessary information collected?

Score range: 0 (no privacy protection) to 25 (full user control)

4. System Accountability

PIFA would ask: Do alternatives exist? Can violations be challenged? This measures whether the system provides recourse and alternatives.

This pillar examines:

- Market competition (availability of privacy-respecting options)
- Regulatory alignment (do privacy and financial rules work together?)
- Democratic participation (can civil society influence policies?)
- Remedy effectiveness (can violations be successfully challenged?)

Score range: 0 (no accountability) to 25 (robust oversight and alternatives)

How PIFA Scoring Works

Each pillar generates a score from 0-25 based on multiple indicators. The overall PIFA score combines all four:

- 0-25: Surveillance-based exclusion (inclusion exists only through privacy sacrifice)
- 26-50: Problematic inclusion (significant privacy trade-offs required)
- 51-75: Improving inclusion (some privacy-respecting options available)
- 76-100: Privacy-inclusive access (genuine choice with dignity maintained)

PIFA exposes what traditional metrics overlook. While conventional financial measurements celebrate success when people have online accounts, PIFA reveals the actual costs: the privacy, security, independence, dignity, autonomy, safety, or money that users sacrifice for access. The framework quantifies power imbalances by distinguishing between genuine choice and coercion, documenting situations where consent becomes meaningless because no real alternatives exist. This creates a standardized measurement system that allows objective comparison across countries, regions, and services, where a PIFA score of 75 carries the same meaning regardless of context. The framework also establishes accountability mechanisms: declining scores trigger investigations, disparities between populations expose discrimination, and improvements in privacy practices that raise scores become financially incentivized. At its core, PIFA's innovation is straightforward but powerful. Rather than accepting the premise that privacy and inclusion must conflict, it measures precisely how systems manufacture this false choice, making these hidden trade offs visible and quantifiable for the first time.

The Math of Risk-Based Compliance:

Transaction Risk = (Amount × Frequency × Velocity) / (History × Verification Level)

If Risk > Threshold: Require additional verification

Else: Preserve privacy

Refute Against Privacy: Nothing to Hide Argument

The "if you have nothing to hide, you have nothing to fear" argument fundamentally misunderstands both privacy and power.[12] Everyone has legitimate reasons for financial privacy: medical expenses revealing health conditions, donations exposing political views, or payment patterns indicating sexual orientation or religious beliefs.[13] But more critically, "nothing to hide" assumes today's legal will remain tomorrow's legal, ignoring how financial surveillance enables retroactive persecution.[14] Women in Afghanistan had "nothing to hide" when they opened bank accounts, until the Taliban used that financial data to enforce economic exclusion.[15] Chinese cryptocurrency traders operated legally until the government banned crypto and used transaction histories for prosecution.[16] Even when activities remain legal, surveillance fundamentally changes behavior, PIFA would measure this self-censorship, documenting how people avoid mental health services, reproductive

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[12] Daniel J. Solove, "'I've Got Nothing to Hide' and Other Misunderstandings of Privacy," *San Diego Law Review* 44 (2007): 745-772. https://digital.sandiego.edu/sdlr/vol44/iss4/5/ and https://papers.ssrn.com/sol3/papers.cfm?abstract_id=998565 Julie E. Cohen, "What Privacy Is For," *Harvard Law Review* 126, no. 7 (May 2013): 1904-1933. https://harvardlawreview.org/print/vol-126/what-privacy-is-for/ and https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2175406

[13] Helen Nissenbaum, *Privacy in Context: Technology, Policy, and the Integrity of Social Life* (Stanford: Stanford University Press, 2010). https://nyuscholars.nyu.edu/en/publications/privacy-as-contextual-integrity

[14] Jonathon W. Penney, "Chilling Effects: Online Surveillance and Wikipedia Use," *Berkeley Technology Law Journal* 31, no. 1 (2016): 117-182. https://btlj.org/data/articles2016/vol31/31_1/0117_0182_Penney_ChillingEffects_WEB.pdf

[15] "As the Taliban seized cities, they sent women home," Al Jazeera, August 16, 2021 https://www.aljazeera.com/economy/2021/8/16/as-the-taliban-seized-cities-they-sent-women-packing-home; "Afghanistan: Taliban Deprive Women of Livelihoods, Identity," Human Rights Watch, January 18, 2022. https://www.hrw.org/news/2022/01/18/afghanistan-taliban-deprive-women-livelihoods-identity

[16] "China: Central Bank Issues New Regulatory Document on Cryptocurrency Trading," Library of Congress, October 13, 2021, https://www.loc.gov/item/global-legal-monitor/2021-10-13/china-central-bank-issues-new-regulatory-document-on-cryptocurrency-trading/; "China jails traders for 5 years re Tether stablecoin FX," Ledger Insights, December 19, 2024, https://www.ledgerinsights.com/china-jails-traders-for-5-years-re-tether-stablecoin-fx/

healthcare, or political donations not because these are wrong, but because they know they're being watched.[17] The framework recognizes that financial privacy isn't about hiding crimes, it's about preserving the autonomy to make legal choices without judgment, maintaining dignity in difficult circumstances, and protecting against future persecution by governments or corporations whose values may shift. When PIFA reveals that people pay premiums or accept exclusion to avoid surveillance, its quantifying a rational response to the reality that "nothing to hide" is a privilege that assumes your circumstances, government, and social norms will never change an assumption that history repeatedly proves false.[18]

Conclusion

The Privacy-Inclusive Financial Access Framework represents more than a new measurement tool, it challenges the fundamental assumption that financial inclusion must come at the cost of privacy. By making visible the hidden trade offs that force 1.4 billion people to choose between financial participation and personal autonomy, PIFA exposes how current systems perpetuate inequality rather than solve it. The framework's four pillars reveal that true financial inclusion isn't just about opening accounts, but about preserving dignity, enabling genuine choice, and recognizing that privacy is not a luxury for the privileged but a fundamental requirement for human agency. As financial services become increasingly digital and surveillance-based, PIFA provides the evidence needed to advocate for systems that expand real freedoms rather than extract them as the price of participation. The question isn't whether we can afford privacy-inclusive financial systems, it's whether we can afford to continue excluding billions of people through surveillance-based models that mistake coercion for inclusion.

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[17] Julie E. Cohen, "What Privacy Is For," *Harvard Law Review* 126, no. 7 (May 2013): 1904-1933. https://harvardlawreview.org/print/vol-126/what-privacy-is-for/ and https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2175406

[18] Margo Anderson and William Seltzer, "The Dark Side of Numbers: The Role of Population Data Systems in Human Rights Abuses," *Social Research* 68, no. 2 (2001): 481-513; "Confirmed: The U.S. Census Bureau Gave Up Names of Japanese-Americans in WW II," *Scientific American*, March 30, 2007, https://www.scientificamerican.com/article/confirmed-the-us-census-b/

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\PIFA Framework: Part Two - Case Studies

Across seven countries and three continents, a pattern emerges that challenges everything we thought we knew about financial inclusion: millions of people are actively choosing to opt out of the financial system, over surveillance. From Kenya's mobile money revolution to Brazil's instant payment system, from India's biometric database covering 1.4 billion people to El Salvador's mandatory Bitcoin adoption, the evidence is unequivocal; when financial participation requires surrendering privacy, those most in need of services opt out entirely. These case studies reveal not isolated incidents but a global phenomenon where the world's most vulnerable populations pay what amounts to a "surveillance tax," accepting higher interest rates, risking informal channels, or remaining completely unbanked rather than submit to financial monitoring. The Privacy-Inclusive Financial Access (PIFA) Framework, outlined in Part One, provides the lens through which these seemingly disparate failures become a coherent narrative: traditional financial inclusion metrics celebrate account openings while ignoring that 52% of low-income Kenyans pay premium rates to avoid government tracking, that Nigeria's digital currency achieved only 0.8% adoption despite government force, and that Argentina's citizens trust unregulated "crypto caves" more than their banking system. What follows is not a story of technological failure or user ignorance, but documented proof that privacy and financial inclusion are not competing goals, they are prerequisites for each other.

Case Studies: Surveillance Deters Participation

Kenya: The Privacy Premium

In Kenya, M-PESA revolutionized mobile money, reaching 34 million customers by 2024 and processing transactions worth 42% of Safaricom's service revenue.[19] Yet early adoption patterns show a systematic exclusion of those who were "predominantly poor,

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[19] Safaricom PLC, Annual Report and Financial Statements 2024 (Nairobi: Safaricom, July 2024). https://www.safaricom.co.ke/annualreport_2024/wp-content/uploads/2024/07/safaricom-financial-statements.pdf

non-educated, and female," precisely the groups most vulnerable to surveillance abuse.[20] During COVID-19, 52% of low-income Kenyan borrowers chose loans with higher interest rates but better privacy protections, paying substantial premiums to avoid government surveillance.[21] CGAP research definitively shows low-income users value privacy, and will pay for it, contradicting the "privacy paradox" observed in developed markets.[22] This divergence reflects Kenya's political reality where financial data has been weaponized during election violence and ethnic targeting, making privacy not an abstract preference but a concrete safety concern. Unlike citizens in stable democracies who may trade privacy for convenience without immediate consequences, Kenyan users understand from lived experience that today's legitimate transaction can become tomorrow's evidence for persecution when political winds shift.

India: Biometric Coercion

India's Aadhaar system covers 1.42 billion people with ~90% population coverage, representing the world's largest biometric database.[23] Yet biometric failure rates reached 49% in Jharkhand and 37% in Rajasthan, disproportionately affecting manual laborers whose fingerprints wore down from physical work.[24] The Indian Supreme Court's 2018 ruling acknowledged the impossible choice between "right to privacy on one hand and right to food, shelter, and employment on the other," ultimately restricting private sector usage while warning about "grave portents for the future" of networked biometric surveillance.[25] While the Court upheld Aadhaar's constitutionality for government welfare distribution, effectively making surveillance mandatory for survival, the government has systematically eroded even the limited privacy protections through subsequent regulations, reintroducing private sector access via the 2019 Aadhaar Authentication for Good Governance Rules and voluntary but coercive mechanisms. This judicial validation of forced biometric enrollment for basic necessities exemplifies how legal systems normalize the surveillance tax on poverty, transforming what should be rights into privileges contingent on data surrender.

Nigeria: Rejection Despite Force

[20] Central Bank of Kenya, "2024 FinAccess Household Survey Report," December 3, 2024. https://www.knbs.or.ke/wp-content/uploads/2024/12/2024-FinAccess-Household-Survey-Report.pdf.
[21] David Medine, "Study Shows Kenyan Borrowers Value Data Privacy, Even During Pandemic," CGAP Blog, July 2021, https://www.cgap.org/blog/study-shows-kenyan-borrowers-value-data-privacy-even-during-pandemic.
[22] Maria Fernandez Vidal and David Medine, "Is Data Privacy Good for Business?" CGAP Focus Note (Washington, DC: CGAP, December 2019). https://www.cgap.org/sites/default/files/publications/2019_12_Focus_Note_Is_Data_Privacy_Good_for_Business.pdf.
[23] Government of India, "Aadhaar Dashboard," Unique Identification Authority of India, accessed August 2025. https://uidai.gov.in/aadhaar_dashboard/
[24] Pam Dixon, "A Failure to 'Do No Harm' - India's Aadhaar Biometric ID Program and Its Inability to Protect Privacy in Relation to Measures in Europe and the U.S.," Technology Science (2017), https://techscience.org/a/2017082901/.
[25] Justice K.S. Puttaswamy and Another vs. Union of India and Others, Writ Petition (Civil) No. 494 of 2012, Supreme Court of India (August 24, 2017). https://privacylibrary.ccgnlud.org/case/justice-ks-puttaswamy-ors-vs-union-of-india-ors

In Nigeria, the eNaira CBDC's spectacular failure demonstrates that government force cannot overcome privacy concerns. Due to distrust in the government, the International Monetary Fund reported 0.8% adoption with "98.5 percent of the wallets issued have never been used."[26] Lagos Business School researcher found 49% of non-users cited lack of value beyond existing systems, while forced adoption during cash shortages triggered protests and riots.[27] Meanwhile, approximately 22 million Nigerians (10.34% of the population) own cryptocurrency, seeking permissionless participation.[28]

Brazil: Mass Adoption Meets Resistance

Brazil's PIX instant payment system attracted 140[29] million users processing 42 billion transactions (75% growth compared to 2022), with a turnover of R$17.2 trillion.[30] Yet when tax authorities implemented reporting requirements for transactions above R$5,000 monthly in January 2025, over 18,000 unique messages spread across 2,200 WhatsApp and Telegram groups warning of government monitoring.[31] Small businesses saw daily earnings drop from R$800 to R$150, forcing the government to revoke the measure entirely within two weeks.[32]

Mexico: Cash Dominance Persists

Despite government initiatives, Mexico's CoDi system[33] achieved 9,487,666 transactions, 1.5 million users.[34] Cash still accounts for 82% of all transactions.[35] This reflects extensive surveillance capabilities: Mexico's tax authority maintains comprehensive monitoring through electronic invoice tracking, automatic bank account access via RFC registration,

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[26] Jookyung Ree, "Nigeria's eNaira, One Year After," IMF Working Papers No. 2023/104 (Washington, DC: International Monetary Fund, May 16, 2023). https://www.imf.org/en/Publications/WP/Issues/2023/05/16/Nigerias-eNaira-One-Year-After-533487.

[27] Olayinka David-West and Immanuel Umukoro, "CBDC Field Research Insights: Nigeria's eNaira: Enabling Possibilities," UC Irvine, February 23, 2023. https://www.imtfi.uci.edu/research/2022/cbdc_nigeria_david-west.php.

[28] Uche Igwe, "Cryptocurrency and the Quest for Financial Inclusion in Africa," Africa at LSE (blog), August 13, 2025, https://blogs.lse.ac.uk/africaatlse/2025/08/13/cryptocurrency-and-the-quest-for-financial-inclusion-in-africa/.

[29] International Monetary Fund. Western Hemisphere Dept. "Pix: Brazil's Successful Instant Payment System," IMF Staff Country Reports 2023, no. 289 (2023). https://www.elibrary.imf.org/view/journals/002/2023/289/article-A004-en.xml.

[30] "Pix: the Latest Updates on Brazil's Leading Instant Payment Scheme," *European Payments Council*, May 30, 2024, *European Payments Council*, https://www.europeanpaymentscouncil.eu/news-insights/insight/pix-latest-updates-brazils-leading-instant-payment-scheme.

[31] Maria Luciano, Giovana Fleck. "How Disinformation Is Undermining Trust In Brazil's Most Used Digital Public Infrastructure," Tech Policy Press, 2025, https://www.techpolicy.press/how-disinformation-is-undermining-trust-in-brazils-most-used-digital-public-infrastructure/.

[32] "Governo Federal apresenta MP que blinda Pix de taxação, e de mentiras," Agência Gov, January 2025, https://agenciagov.ebc.com.br/noticias/202501/governo-federal-apresenta-mp-que-blinda-pix-de-taxacao-e-de-mentiras.

[33] Jaime Márquez Poo, "Real-Time Digital Payments: The CoDi Case in Mexico," *Mexico Business News*, April 2, 2024, *Mexico-Business.News*, https://mexicobusiness.news/finance/news/real-time-digital-payments-codi-case-mexico.

[34] MBN Staff, "SPEI Use Grows in Mexico; CoDi and DiMo Lag," Mexico Business News, August 27, 2024, https://mexicobusiness.news/finance/news/spei-use-grows-mexico-codi-and-dimo-lag.

[35] Mexico: 2024 Analysis of Payments and Ecommerce Trends," Payments and Commerce Market Intelligence, 2024, https://paymentscmi.com/insights/mexico-2024-analysis-of-payments-and-ecommerce-trends/.

and mandatory reporting of cash deposits exceeding 15,000 pesos/month.[36] The Pegasus spyware scandal, where Mexico was NSO Group's number one global client, further eroded governmental and financial trust.[37]

Argentina: Cryptocurrency Escape

Argentina leads Latin America with 30% cryptocurrency adoption, the highest rate in the Western Hemisphere, receiving $91.1 billion in crypto value between July 2023 and June 2024.[38] Buenos Aires' "crypto caves," clandestine exchanges hidden in shops, serve thousands daily, offering 5-6% commission rates for anonymous USDT to cash conversions.[39] The preference for stablecoins (61.8% of transaction volume versus 44.7% globally) reflects needs for dollar stability (avoiding inflation) without surveillance.[40]

El Salvador: Mandatory Bitcoin Fails

Despite mandatory adoption targeting the 70% unbanked population, Bitcoin usage declined from 25.7% in 2021 to just 8.1% in 2024.[41] Only 1.3-1.9% of remittances use Bitcoin.[42] The Chivo wallet data breach exposed 5.1 million citizens, nearly the entire adult population, with 144GB of data including names, ID numbers, and photos sold on dark web forums.[43] Protests erupted with citizens burning ATMs, forcing IMF intervention in 2024 making Bitcoin acceptance voluntary.[44]

Why Privacy Centered Approaches Fail

Three obstacles prevent technical solutions from succeeding:

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36 "How the SAT Keeps Track of Your Financial Activities," MEXTAX Accounting, 2024, https://mextax.com.mx/how-the-sat-keeps-track-of-your-financial-activities/.

37 Access Now, Spyware in Mexico: An Interview with Luis Fernando García of R3D Mexico," Access Now, June 22, 2017, https://www.accessnow.org/spyware-mexico-interview-luis-fernando-garcia-r3d-mexico/.

38 Chainalysis, "2024 LATAM Crypto Adoption: The Rise of Stablecoins," 2024, https://www.chainalysis.com/blog/2024-latin-america-crypto-adoption/.

39 Brayden Lindrea. "In Inflation-Torn Argentina, Locals Use 'Crypto Caves' and Avoid Bitcoin," Cointelegraph, 2024, https://cointelegraph.com/news/argentina-inflation-unofficial-exchange-crypto-caves.

40 Chainalysis, "2024 LATAM Crypto Adoption: The Rise of Stablecoins," 2024, https://www.chainalysis.com/blog/2024-latin-america-crypto-adoption/.

41 Global Finance. "El Salvador Alters Bitcoin Policy." March 1, 2025. https://gfmag.com/economics-policy-regulation/el-salvador-drops-bitcoin-legal-tender/.

42 "El Salvador: Selected Issues," IMF Staff Country Reports 2025, no. 068 (2025). https://www.imf.org/en/Publications/CR/Issues/2025/03/19/El-Salvador-Selected-Issues-565394

43 Resecurity. 2024. "Massive Dump of Hacked Salvadorean Headshots and PII Highlights Growing Threat-Actor Interest in Biometric Data." Resecurity Blog, May 6, 2024. Accessed August 19, 2025. https://www.resecurity.com/blog/article/massive-dump-of-hacked-salvadorean-headshots-and-pii-highlights-growing-threat-actor-interest-in-biometric-data.

44 "IMF Deal Forces El Salvador To Liquidate Bitcoin Trust, Cut Chivo Wallet, and Accept Stricter Transparency Terms," CCN.com, 2024, https://www.ccn.com/news/crypto/imf-deal-el-salvador-liquidate-bitcoin-trust-chivo-stricter-transparency/.

Regulatory Capture: Anti-money laundering and Know-Your-Customer (KYC) compliance costs average $60 million annually for financial institutions, with some firms spending up to $500 million.[45] In the UK, a Consult Hyperion report estimates KYC compliance costs banks £47 million a year, while each check runs £10 to £100.[46] Each client verification costs between $1,500 and $3,000, with one in five spending more than $3,000.[47]

Power Asymmetries: Marginalized groups, like sex workers, globally face systematic financial exclusion when banks use transaction monitoring to de-bank or close accounts.[48] Racial minorities experience "payments censorship," where algorithmic surveillance flags legitimate transactions as suspicious based on discriminatory patterns.[49]

Technical Limitations: Scalability remains a significant challenge when using zero-knowledge proofs in blockchain applications due to high computational requirements.[50] Fully homomorphic encryption "has not yet met all expectations due to challenges such as high computational overhead, presence of noise, and relatively large memory requirements."[51]

The Hidden Economic Cost of Surveillance Avoidance

Across continents, evidence shows privacy concerns aren't peripheral but central determinants of financial behavior. Why would marginalized groups want to opt-into a formal financial system that fundamentally does not want to include them? The global Regulatory Technology market, projected to exceed $22 billion by mid-2025 (growing at 23.5% CAGR), demonstrates massive investment in compliance technology.[52] Yet people consistently choose informal systems, cryptocurrencies, or non-participation over surveilled inclusion. So, what are some solutions to this privacy problem?

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[45] Thomson Reuters. "2016 Know Your Customer Surveys Reveal Escalating Costs and Complexity." Press release, May 9, 2016. https://www.globenewswire.com/news-release/2016/05/09/837756/10162496/en/Thomson-Reuters-2016-Know-Your-Customer-Surveys-Reveal-Escalating-Costs-and-Complexity.html.

[46] *Mitek Systems.* "Typical UK Bank Will Waste £10 M Annually on Inefficient KYC Checks as AMLD4 Regulation Comes into Force." *Mitek Systems*, June 26, 2017. https://www.miteksystems.com/press-releases/typical-uk-bank-will-waste-ps10m-annually-on-inefficient-kyc-checks-as-amld4.

[47] "The Cost of KYC Compliance and How to Eliminate It," Didit (blog), October 24, 2024, https://didit.me/blog/the-cost-of-kyc-compliance-and-how-to-eliminate-it.

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[51] Mona Tiesler, "Enhancing Data Privacy in Blockchain: FHE versus ZKP," Medium, November 24, 2023, https://m-tiesler.medium.com/enhancing-data-privacy-in-blockchain-fhe-versus-zkp-4549d6bb9fd7.

[52] SilentEight, "2025 Trends in AML and Financial Crime Compliance: A Data-Centric Perspective," 2025, https://www.silenteight.com/blog/2025-trends-in-aml-and-financial-crime-compliance-a-data-centric-perspective-and-deep-dive-into-transaction-monitoring.

Potential solutions are emergent privacy preserving technologies like the Self-Sovereign Identity Systems,[53] which shows mixed progress toward global adoption. The European Digital Identity Wallet is another potential option and will deploy to approximately 450 million EU citizens by December 2026 (with mandatory acceptance by December 2027), implementing selective disclosure through cryptographic proofs.[54] India's Account Aggregator Framework serves 80-90 million active users (about 6-7% of the population) as of 2025, facilitating ₹887 billion in loan disbursements since 2021.[55] The Sovrin Network, which issued 1.4 million verifiable credentials in Canada, announced its shutdown by March 31, 2025, citing financial challenges.[56] Microsoft's ION implements Bitcoin anchored decentralized identifiers, though Microsoft has shifted away from blockchain based identity for new enterprise deployments.[57]

Conclusion

Financial inclusion without privacy protection, ultimately fails those it is meant to help. The evidence from Kenya, India, Nigeria, Brazil, Mexico, Argentina, and El Salvador shows that privacy and inclusion are not competing goals but interdependent with equitable economic participation. The billions of dollars in annual privacy premium paid by the world's poorest, represents not just an economic inefficiency, but a moral failure of our financial systems. By implementing privacy-preserving technologies and compliance frameworks, we can eliminate this surveillance tax while maintaining, possibly even enhancing financial system integrity.

The case studies from seven countries show that privacy and inclusion are interdependent, not opposing goals. Traditional metrics hide this reality by counting accounts while ignoring dignity. PIFA would make the invisible visible. It would show that when people reject digital financial services, they're not rejecting inclusion, they're rejecting surveillance. When 1.4

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[57] Microsoft ION: "Sidetree v1.0.1," Decentralized Identity Foundation, https://identity.foundation/sidetree/spec/. Technical Specifications (where I could verify): "Data Integrity BBS Cryptosuites v1.0," W3C, https://www.w3.org/TR/vc-di-bbs/; "AnonCreds Specification," Hyperledger, https://hyperledger.github.io/anoncreds-spec/.

billion adults remain unbanked in the digital age, it's not despite our financial systems but because of them. The framework wouldn't just measure failure; it would point toward solutions. Argentina's crypto markets show people will participate when privacy is respected. Brazil's reversal shows accountability is possible. These aren't anomalies, they're proof that better is possible. We have the evidence. PIFA would give us the framework to act on it. The question is whether we have the will to measure what actually matters: not just financial access, but financial inclusion with dignity.

The PIFA framework's value lies in documenting this reality, measuring the surveillance tax on poverty, and the privacy penalty for inclusion. Until systems respect both access and agency, marginalized communities will continue choosing exclusion over surveillance, a rational response to unconstrained government and corporate data extraction. PIFA transforms qualitative suffering into quantitative evidence. It makes invisible trade-offs visible. It turns "unintended consequences" into measurable political choices. Most importantly, it provides a framework for demanding better, because once we can measure the true cost of financial inclusion, we can no longer pretend that surveillance is the price of participation. The framework asks a simple question: If financial inclusion requires sacrificing privacy, is it truly inclusive?

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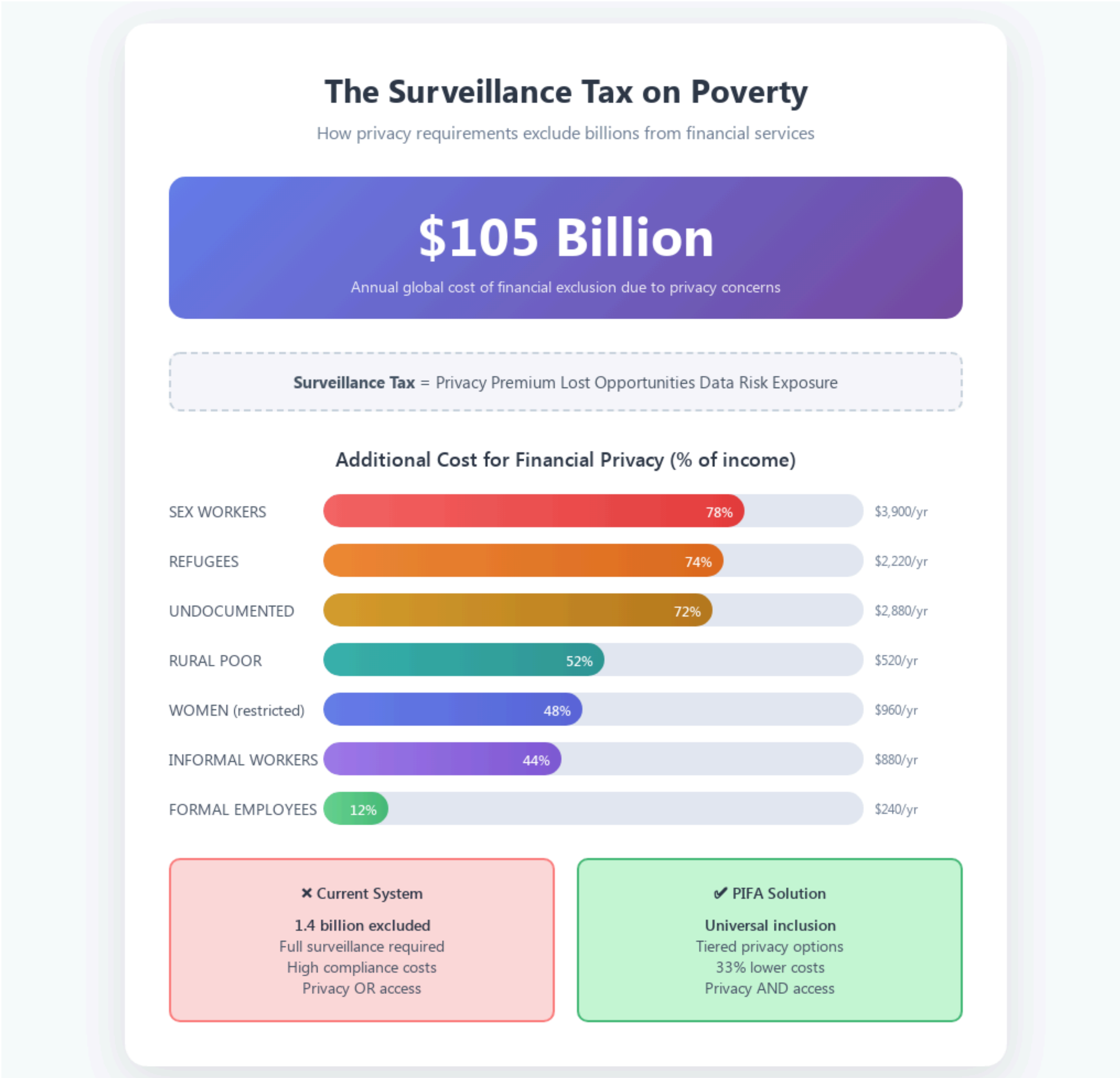
The Surveillance Tax on Poverty
How privacy requirements exclude billions from financial services
$105 Billion
Annual global cost of financial exclusion due to privacy concerns
Surveillance Tax = Privacy Premium Lost Opportunities Data Risk Exposure
Additional Cost for Financial Privacy (% of income)
SEX WORKERS
78%
$3,900/yr
REFUGEES
74%
$2,220/yr
UNDOCUMENTED
72%
$2,880/yr
RURAL POOR
52%
$520/yr
WOMEN (restricted)
48%
$960/yr
INFORMAL WORKERS
44%
$880/yr
FORMAL EMPLOYEES
12%
$240/yr
✗ Current System
1.4 billion excluded
Full surveillance required
High compliance costs
Privacy OR access
✔ PIFA Solution
Universal inclusion
Tiered privacy options
33% lower costs
Privacy AND access


Privacy-Inclusive Financial Access (PIFA) Framework
Revealing the Political Choices Behind Technical Systems
Enhanced Access Metrics 1
Beyond simple account ownership to dignity-preserving access
Traditional Metric:
Do you have a bank account? (Yes/No)
PIFA Metric:
Can you access services while maintaining privacy dignity?
• Privacy-preserving alternatives available
• Consent coercion level (1-10)
• Privacy sacrifice per service tier
Usage Quality Assessment 2
Voluntary participation vs forced adoption
Traditional Metric:
Transaction frequency and volume
PIFA Metric:
Voluntary vs coerced participation rates
• Self-censorship under surveillance
• Privacy premiums paid (Kenya: high interest rates)
• Behavioral modification tracking
Privacy Protection Indicators 3
New category completely absent from traditional metrics
Traditional Metric:
Not measured
PIFA Metric:
• Data rights implementation score
• Encryption deployment rate
• Consent granularity index
• Algorithmic transparency score
• Surveillance burden coefficient
Systemic Integrity Measures 4
Market and regulatory environment for privacy
Traditional Metric:
Not measured
PIFA Metric:
• Competition for privacy-respecting services
• Regulatory coherence score
• Democratic participation index
• Recourse effectiveness rate
PIFA Operational Process
Phase 1: Data Collection
• Differential privacy techniques
• Federated learning
• Zero-knowledge proofs
• Participatory research
Phase 2: Analysis
• Population segmentation
• Geographic comparison
• Temporal tracking
• Cross-sector analysis
Phase 3: Evidence Synthesis
• Composite PIFA scores
• Privacy-inclusion heat maps
• Cost-benefit analyses
• Alternative scenarios
Global Evidence: Country Application
39
Kenya
52% pay premium for privacy
High interest rates accepted
M-Pesa surveillance concerns
28
India
49% biometric failures
Aadhaar exclusion documented
Starvation deaths reported
19
Nigeria
98.5% eNaira wallets unused
0.5% adoption despite coercion
Cash shortage riots
30
Argentina
30% crypto adoption
Highest in Western Hemisphere
"Crypto caves" for privacy
Making Political Choices Visible
Architecture as Politics
Centralized vs federated storage
Biometric vs alternative auth
Real-time surveillance capability
Hidden Trade-offs
49% biometric failures = "progress"
30.8% LGBTQ+ discrimination
$2,412 annual immigrant penalty
False Choices
India: Surveillance or starvation
Nigeria: eNaira or no cash
Global: KYC or exclusion
Power Asymmetries
Take it or leave it "consent"
No meaningful recourse
Algorithmic discrimination
Traditional vs PIFA Outcomes
Traditional Metrics Show "Success"
Kenya M-Pesa 85% accounts
India Aadhaar 1.4B enrolled
Nigeria Digital Push 64% inclusion
Policy Conclusion "Working well"
PIFA Reveals Reality
Kenya Privacy Cost High interest rates
India Exclusion 49% failures
Nigeria Rejection 98.5% unused
True Impact Surveillance harm