

HOW DO INSTANT INTEROPERABLE PAYMENT SYSTEMS TRANSFORM MODERN ECONOMIES?

A synthesis of recent evidence

AFI - Competition Enablers Knowledge Exchange

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6th March 2025

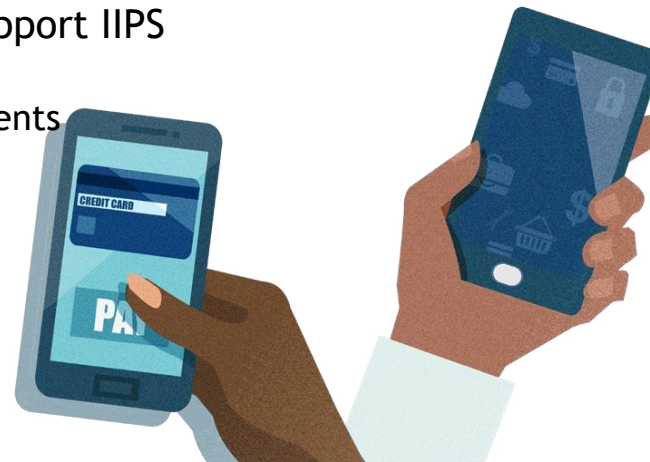


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INSTANT INTEROPERABLE PAYMENT SYSTEMS (IIPS) AS DIGITAL PUBLIC INFRASTRUCTURE

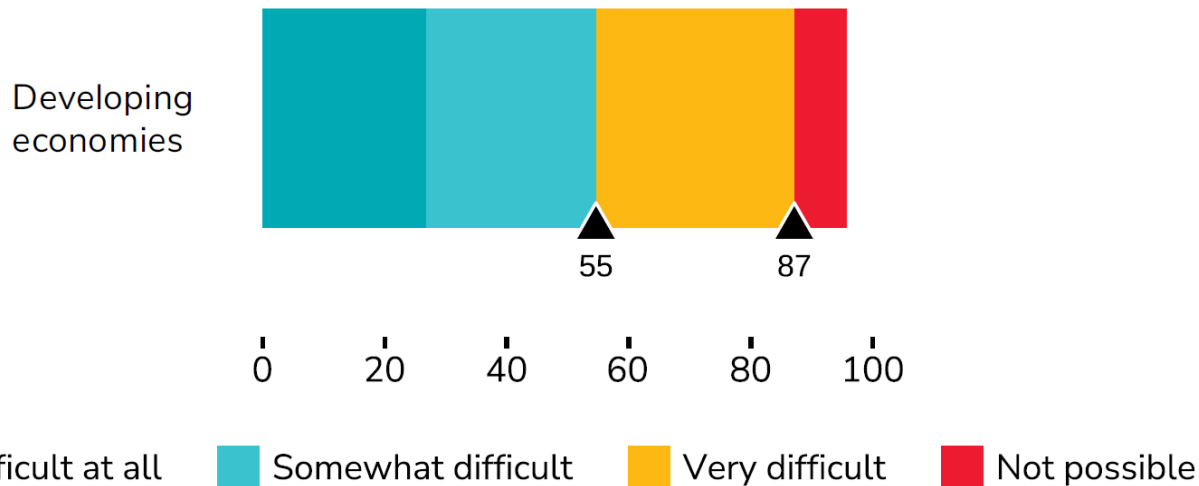
- Digital public infrastructure (DPI) refers to “digital railroads” that governments use to deliver economic opportunities and social services to their citizens
- Instant Interoperable Payment Systems (IIPS) is a core component of DPI
 - Allows **instantaneous transfer of digital money** between individuals, businesses, and governments
 - Even if they use different banks or mobile service providers
- Digital Identification and Open Data Sharing could further support IIPS
- **Why care?**
- Establishing a robust digital public infrastructure can help governments address some of their most pressing challenges



KEY FINANCIAL CHALLENGES IN EMERGING MARKETS

Low Financial Resilience

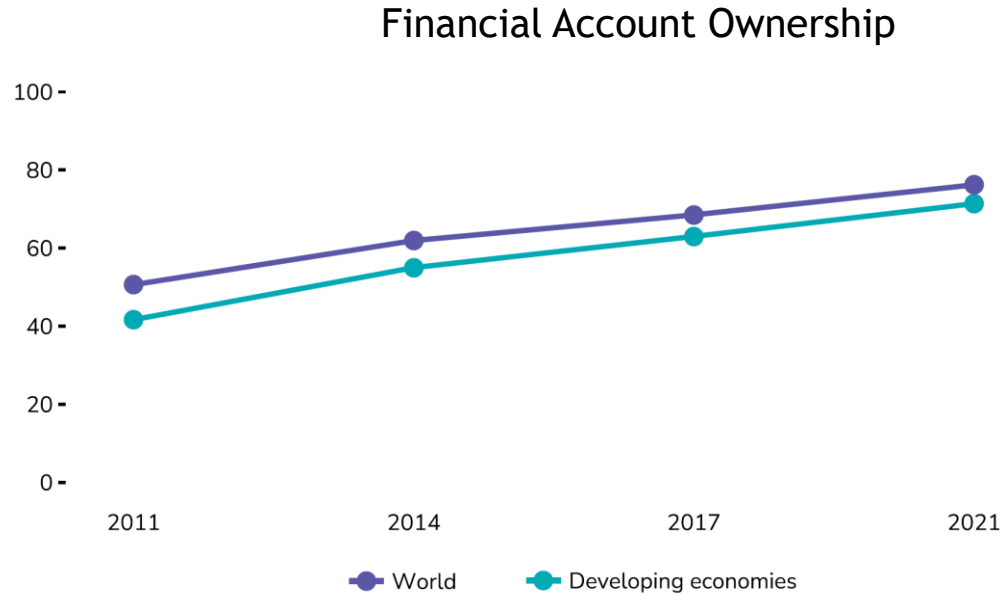
“How difficult would it be to come up with emergency money in 30 days?”



Source: Global Findex Database 2021.

KEY FINANCIAL CHALLENGES IN EMERGING MARKETS

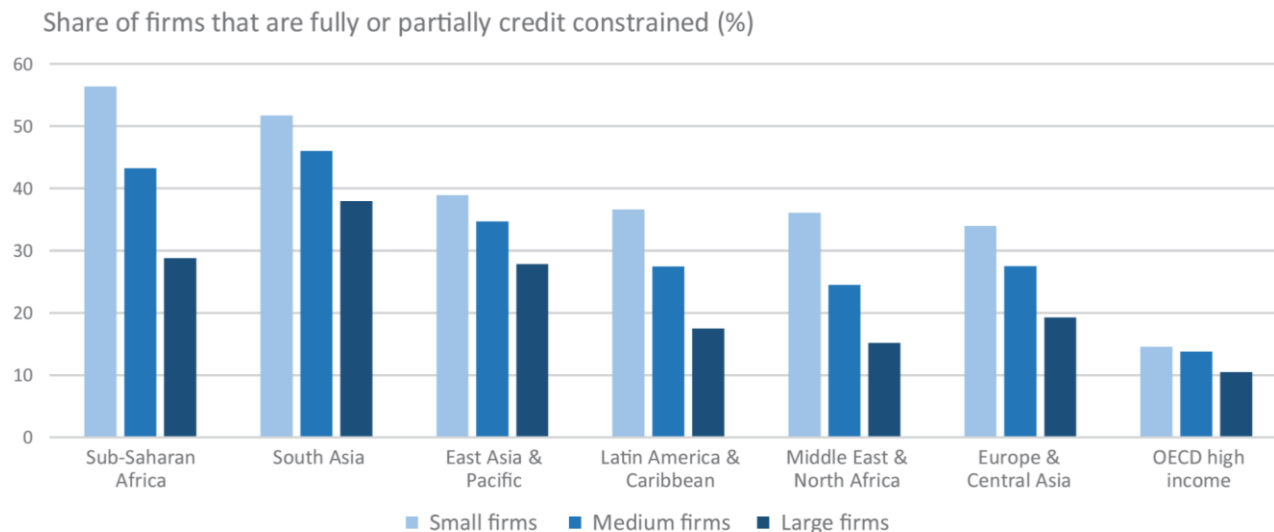
Limited Financial Inclusion



Source: Global Findex Database 2021.

KEY FINANCIAL CHALLENGES IN EMERGING MARKETS

Access to Credit for Businesses



Source: Enterprise Surveys database (<http://www.enterprisesurveys.org>), World Bank.

Note: Firm size is defined based on the classification of World Bank Enterprise Surveys. Small firms are those that have less than 20 employees, medium firms are those that have between 20 and 99 employees and large firms are those that have 100 or more employees.

EARLIER FORMS OF IIPS: MOBILE MONEY

- **Mobile money has been pivotal in advancing financial inclusion**
 - Sub-Saharan Africa is home to 11 countries in which individuals with mobile money accounts outnumber those with traditional bank accounts (Demirgüç-Kunt et al., 2022)
 - Increased financial resilience and facilitated risk-sharing through remittances in the face of income or health shocks (Jack and Suri, 2014)
 - Increased formal savings through reduction in transaction costs (Blumenstock et al., 2016; Riley, 2018; Breza et al., 2020)
- **Challenges with Mobile Money**
 - Mobile money users often have limited access to broader financial services (Razi et al. 2022)
 - Lack of interoperability prevents transfers across different providers, reducing value for users and limiting competition (Bianchi et al., 2023)

IIPS offer to be an appealing alternative to cash by resolving these challenges

INTEROPERABILITY CAN ENHANCE COMPETITION

- A key advantage of Instant Interoperable Payment Systems is interoperability
- Interoperability can enhance competition among providers, leading to substantial reductions in transaction fees that benefit consumers and businesses.
- In Africa, implementing platform-level interoperability is associated with:
 - A 20% reduction in on-network transaction fees and a 35% reduction in off-network fees, making digital payments more accessible.
 - Off-network fees for small transactions fell even further, by more than 45% (Brunnermeier et al., 2023)

HOW CAN INSTANT INTEROPERABLE PAYMENT SYSTEMS INFLUENCE ECONOMIC OUTCOMES?

Insights from previous research on payment systems suggest IIPS can help with some of the key challenges emerging economies face

- **Financial Inclusion**
 - IIPS can lower transaction costs—both explicit (e.g., fees) and implicit (e.g., time, inconvenience)— and enhance access to a broad set of financial services
- **Access to Credit and Economic Growth**
 - Digital transaction records reduce information asymmetries, facilitating credit access.
 - This can encourage investment and entrepreneurship, spurring economic growth
- **Competition and Innovation**
 - IIPS can close the convenience gap between large banks and smaller financial service providers, fostering competition and innovation in the financial sector

DO IIPS DELIVER ON THEIR PROMISE?

DEEPER FINANCIAL INCLUSION

INDIA'S UPI (GREENLEND & TOTH, 2023)

- UPI users are **nearly three times more likely to save** in formal accounts without a reduction in their informal savings
- UPI users are more likely to **switch from cash to digital for bill payments and receiving wages**
- UPI users are more likely to **purchase insurance and investment products** through digital channels.

BRAZIL'S PIX (SAMPAIO & ORNELAS, 2024)

As the number of Pix users increases, so does the use of other traditional banking services, such as wire transfers and card transactions

1%

increase in number of active Pix users

0.8%

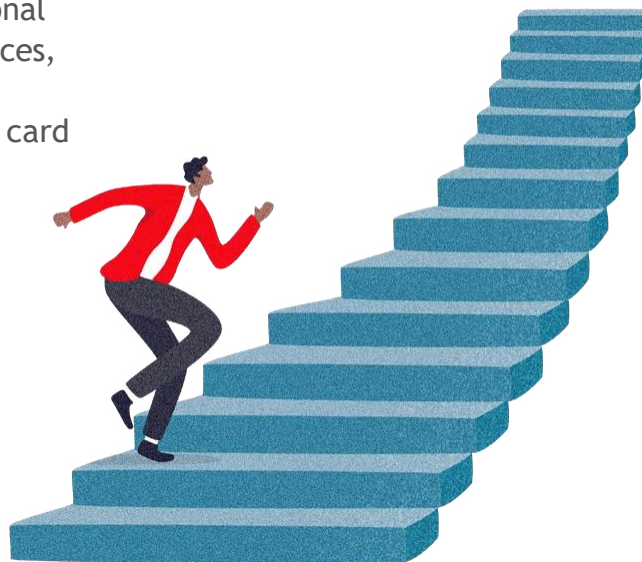
rise in first-time bank account holders

0.45%

rise in people establishing a credit relationship in the same municipality

0.25%

rise in individuals creating a relationship with a new bank



DO IIPS DELIVER ON THEIR PROMISE?

ACCESS TO CREDIT

HIGHER BUSINESS INCOME AND INCREASED BORROWING

- Households in districts with higher participation in India's UPI saw around **8% more income growth** between 2018 and 2022
- Primarily driven by higher borrowing, these households gained a **2% increase in business ownership** and higher business income. The COVID-19 pandemic amplified these effects
- Increased borrowing had a time lag, suggesting that **digital payments help households build transaction histories** which later serve as collateral for obtaining loans

OPEN BANKING

- Alok et al. (2024) show that **UPI expanded access to credit** by allowing customers to share financial transaction data with various providers
- **Credit markets expanded by 17%**, with significant expansion toward the underbanked
- **Fintech firms were responsible** for this growth, although traditional banks also saw an increase in the value and volume of loans issued

DO IIPS DELIVER ON THEIR PROMISE?

COMPETITION AND INNOVATION

CHALLENGES IN TRADITIONAL BANKING

- Banking systems often suffer from **market concentration**, which stifles **innovation** in financial services.
- It also **limits competition**, with negative impacts on deposit rates offered to consumers, aggregate formal savings and the overall credit supply.

IMPACT ON COMPETITION

- IIPS such as Brazil's Pix can **lower entry barriers** for a broader range of financial service providers, **challenging large banks** (Sarkisyan, 2023)
- In regions with higher Pix usage, **deposits at small banks grew more relative to larger banks**, reducing deposit market concentration
 - This shift is largely attributed to **Pix reducing the convenience gap** between large and small banks

IMPACT ON INNOVATION

- IIPS can stimulate both **financial innovation** and greater **demand** for digital financial services (Roessler, Toth and Tsai, 2024)
- India's UPI stimulated the **development of new financial products, user-friendly features, and improved payment functionalities**



KEY POLICY INSIGHTS

IIPS BENEFITS ARE NOT GUARANTEED

More research is needed to understand if similar effects exist in countries with low baseline financial inclusion

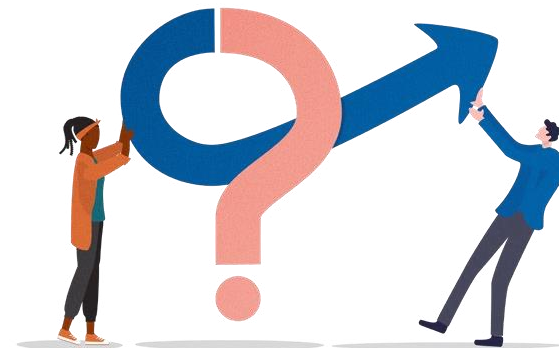
CONSIDER THE TRADE-OFFS

Interoperability could dampen incentives for investment in mobile money infrastructure, particularly in rural and underserved regions

- Subsidies for rural mobile money agents/telecommunication

USE COMPLEMENTARY POLICIES

Mandating participation from financial institutions can drive network effects, Open banking initiatives can amplify the benefits of competition and enhance credit access.



CAN INDIA AND BRAZIL'S SUCCESS BE REPLICATED?

IIPS benefits may depend on market conditions, pricing structures, and the regulatory environment.

THE CONTEXT FOR UPI (2016)

- Government **incentives** and **promotional campaigns** were accompanied by heavy **investment** in digital infrastructure for secure, cross-platform payment systems.
- A nationwide **digital ID system** reduced onboarding and verification costs for both users and financial institutions.
- Prior to UPI, **99% of households had at least one bank account**, thanks to the Jan Dhan Yojana program.
- Demonetization and COVID-19 accelerated adoption of digital transactions.

THE CONTEXT FOR PIX (2020)

- More than **70% of Brazilians** already held a **bank account** when Pix was launched.
- Requiring larger banks to participate created a **critical mass of users**, encouraging smaller banks and providers to join voluntarily.
- During COVID-19, Pix cash withdrawals were limited, compelling new users to engage more with digital payments (Aurazo and Gasmí, 2024).

WHAT HAPPENS IN COUNTRIES WITH LOW FINANCIAL INCLUSION?

By reducing the scope for competition-free rent extraction, interoperability may lower providers' **incentives to invest** in infrastructure (Brunnermeier et al, 2023).

- In countries that adopted interoperability, mobile money firms suffered an **18% decline** in population coverage, a **22% drop** in market penetration, a **29% reduction** in revenue, and a **12% decrease** in towers.
- Interoperability offers clear benefits (e.g., cost reductions and consumer welfare) but it may **reduce network coverage** and **financial inclusion** in rural and underserved areas.





THANK YOU

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