



How can interoperability improve financial inclusion? Research insights from the FIT IN Initiative



Toulouse
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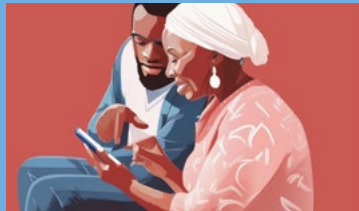
Context and research approach

How can interoperability drive investment and competition in digital payments? _____

How can data sharing help improve access to credit? _____

How do instant interoperable payment systems transform modern economies? _____

Acknowledgments and useful links



CONTEXT AND RESEARCH APPROACH



CONTEXT

The Financial Inclusion Through INteroperability Initiative (FIT IN Initiative) is a **4-year research initiative launched in November 2020**.



MAIN OBJECTIVE:

Catalyze new research to constructively **influence the design and regulation of interoperable digital financial services systems** in low- and middle-income countries.

UNDERLYING GOAL:

Better understand the implications of alternative competition and regulatory policies and ultimately **inform policies to expand the scope, improve the quality and reduce the cost of digital payment systems for impoverished users**.

RESEARCH APPROACH

FIT IN Initiative research focuses on competition, incentives, regulation, governance, technology adoption, and welfare impacts in the design of interoperable payment systems. Researchers have explored issues such as:

Incentives: Balancing competition and cooperation

Governance: Managing key assets

Welfare: Impacts on market participants

The initiative **combined descriptive, theoretical, and empirical research**, drawing on expertise from literatures on industrial organization, digital finance, technology adoption, development economics, mechanism design, and public policy.

Building a better future

This presentation reviews three main research issues related to financial inclusion through interoperability of digital payments, highlighting key policy recommendations.

HOW CAN INTEROPERABILITY DRIVE INVESTMENT AND COMPETITION IN DIGITAL PAYMENTS?

Key ideas for practitioners

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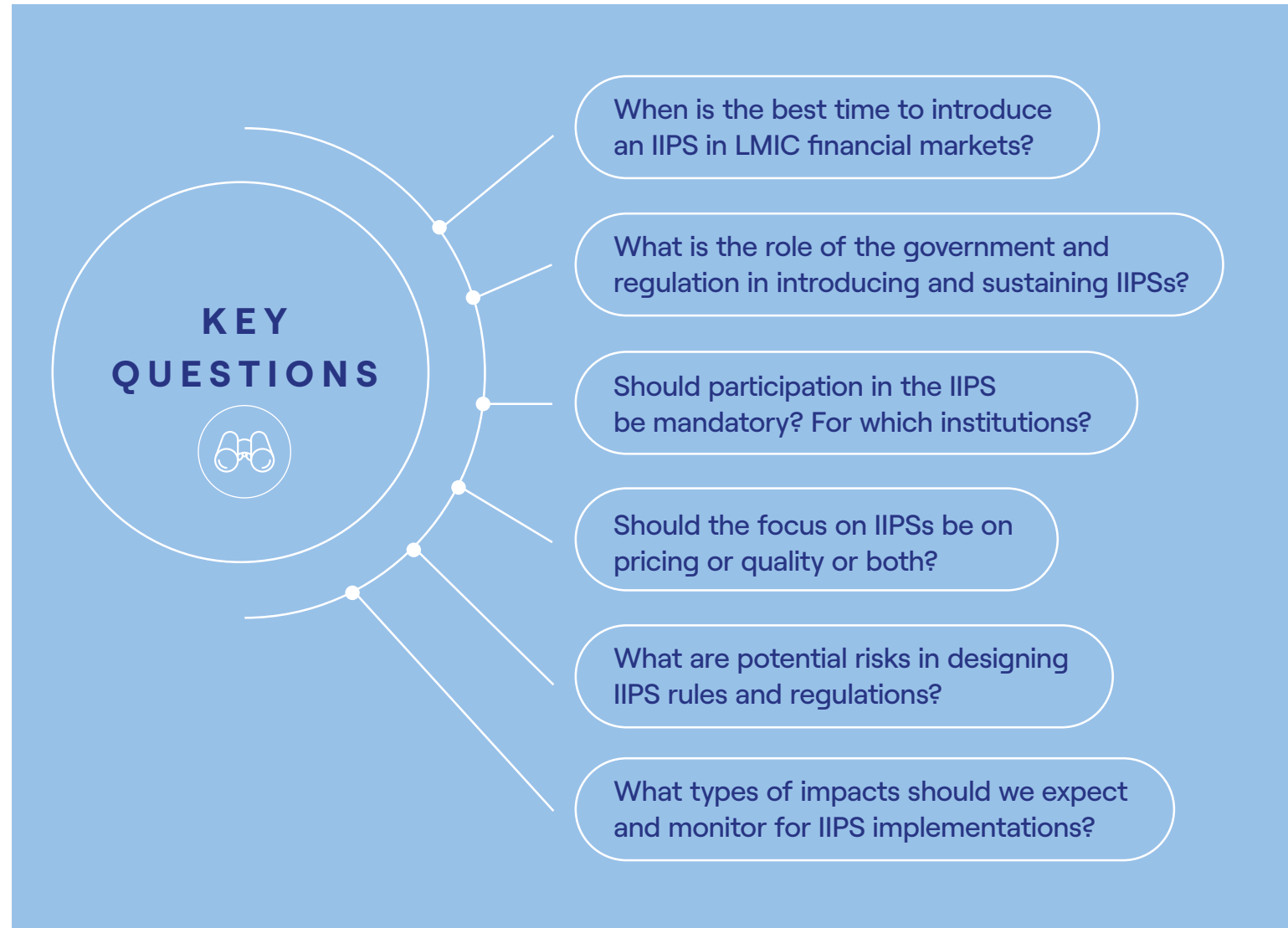
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INTRODUCTION

Interoperable Instant Payment Systems (IIPs) are increasingly celebrated as a means to promote growth and financial consumer welfare, particularly in low- and middle-income countries (LMICs).

- Success stories from **India** and **Brazil** highlight the potential of government-led IIPs.
- Advocates suggest IIPs will lead to more **robust competition** among financial service providers, reducing costs and increasing quality for consumers.
- Successful adoption of IIPs requires **complex institutional design, pricing, and general policy decisions**, reflecting the unique structure of **local markets**.
- Poorly designed and mistimed rules and regulations can have negative consequences for financial consumers and firms.



KEY TAKEAWAYS FROM EXISTING RESEARCH

→ As with other public goods, regulation is often needed to deliver socially optimal levels of investment in digital payment infrastructure.

→ Regulators should play different roles depending on the maturity of the market for digital payments. At an early stage, regulators should focus on **pricing**. At later stages, regulators should focus on **coordinating** investment and usage.

→ Interoperability may be more beneficial in mature markets where it is often important to **mandate** that all firms operate on the common IIPS. Policymakers should ensure there is sufficient regulatory capacity and authority to implement such a mandate.

→ If interoperability decreases fees, it can **reduce investments** in the infrastructure required to reach peripheral rural consumers. This can have detrimental effects on financial inclusion, particularly where financial and telecom services are offered by the same providers. Allowing incumbents a **grace period** before mandating interoperability may offer a solution.

→ The most important consumer benefits of interoperability may accrue through improved investments in financial service **quality**, not just through improved pricing.



CHARACTERISTICS OF DIGITAL FINANCIAL INFRASTRUCTURE

A well-functioning market for digital payments requires investment in various “layers” of infrastructure that demonstrate the complexity of IIPS policy and system design.

Relying solely on operators’ private incentives is often not enough to guarantee socially optimal investment, due to the following characteristics:

NETWORK EFFECTS

- The more users on the network, the more valuable it becomes for everyone.
- The presence of “network externalities” means it may be socially beneficial to develop common digital payments infrastructures.

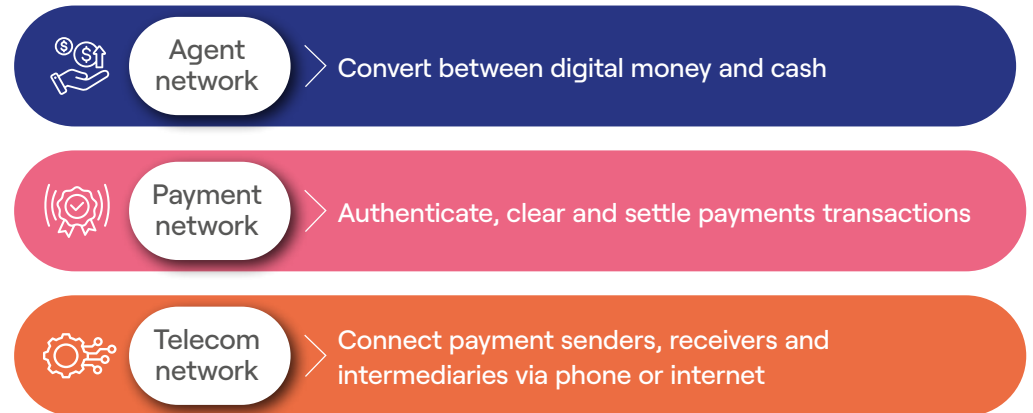
SUBSTITUTION EFFECTS

- Dominant providers have strong incentives to make it costly for consumers to switch between services.
- IIPs are designed to reduce these costs and encourage consumer substitution as would be efficient in a competitive market.

NON-RIVAL INFRASTRUCTURE

- Once built, digital payments infrastructure can support multiple providers without limiting access.
- Dominant incumbents may resist opening up their infrastructure to competitors.
- New entrants may benefit from early investments without contributing (“free-riding”).

Layers of infrastructures for digital payment transactions



EXAMPLES OF NETWORK AND SUBSTITUTION EFFECTS

ATMs

- In 1977, Citibank invested heavily in ATMs in New York, giving it a competitive advantage. Its market share for deposits doubled by 1981.
- In 1985, six competing banks formed the New York Cash Exchange (NYCE). This larger ATM network provided clients with higher payment convenience.
- Citibank joined NYCE in 1994, illustrating how common infrastructure can promote competition.

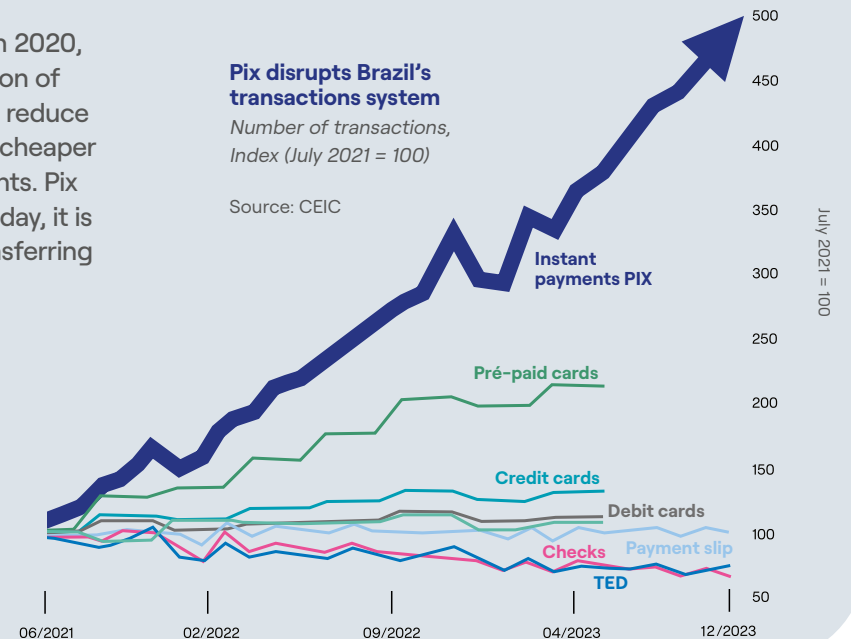
PIX IN BRAZIL

- By mandating participation, Brazil's public IIPS reduced the comparative advantage of larger banks and fostered competition in the deposit market.
- Consumers benefited from higher deposit rates by switching to smaller banks.

Success stories: UPI in India and Pix in Brazil

UPI is a mobile-based, real-time payment system that enables instant personal and merchant payments. A joint venture between the Reserve Bank of India and the Indian Banks' Association, it was launched in April 2016 with the goal of building an efficient, inclusive, interoperable payment and settlement system. Today, UPI processes over 75% of the country's retail digital payments, with more than 1 billion transactions every month.

Launched by the Central Bank of Brazil in 2020, Pix is a platform enabling instant execution of payments and transfers. Its aims were to reduce cash transactions and offer a faster and cheaper alternative to existing payment instruments. Pix quickly gained widespread popularity. Today, it is by far the most common method of transferring money among Brazilian households and merchants.



SHOULD INTEROPERABILITY BE MANDATORY?

PRIVATE-SECTOR BENEFITS

- Governments may not understand technological innovation or consumer needs sufficiently well to be able to tell firms how to use and invest in digital infrastructure.
- Card companies and private payment switch operators have successfully built and sustained interoperable systems.

INTEROPERABILITY WITHOUT REGULATION

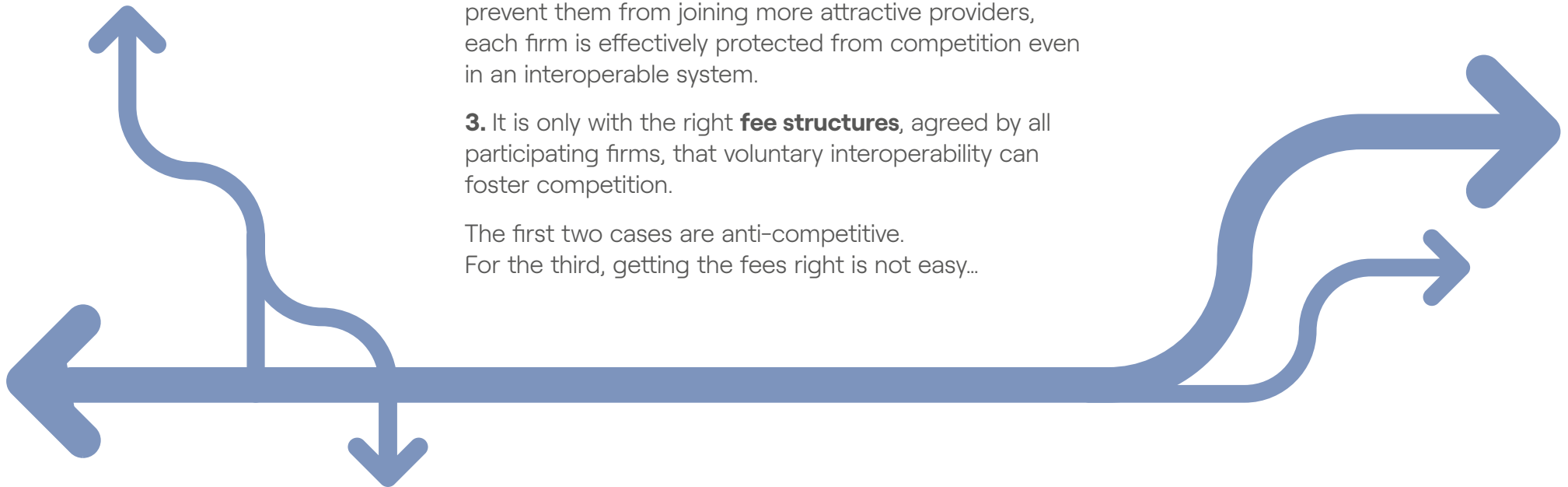
What are the private incentives to develop voluntary interoperability? Matutes and Padilla (1994) identified three cases where interoperable ATM networks can be sustained without government regulation:

1. When the **network benefits** to clients of existing interoperable providers are sufficiently large, no new firms (e.g., future fintechs) will seek to enter the market.
2. When consumers face large **switching costs** which prevent them from joining more attractive providers, each firm is effectively protected from competition even in an interoperable system.
3. It is only with the right **fee structures**, agreed by all participating firms, that voluntary interoperability can foster competition.

The first two cases are anti-competitive.
For the third, getting the fees right is not easy..

PRICES NEED TO BE REGULATED

- Interchange fees, cash-out fees, and other charges must be carefully regulated.
- In an unregulated market, incumbents might set fees too high, discouraging new entrants.
- Low fees could reduce incentives for investment in infrastructure.



ROLE OF REGULATORS: TIMING IS CRITICAL

REGULATORS MUST ADAPT TO MARKET DEVELOPMENT

- When markets are less mature, regulators should prioritize **pricing** to balance incentives for participation and investment.
- Once adoption occurs, regulation can shift towards optimizing usage and **quality** improvements.
- As the market develops, the focus should be on **coordinating** investment, making sure each firm has the incentive to operate on the common infrastructure.



DON'T RUSH IN

Bianchi and Yamashita (2024) show that **delayed intervention may be effective**, allowing regulators to gather more precise information about the market.

- Participation in the common IIPS, whether operated by a public or private entity, should be a regulatory **mandate at later stages** of market development
- Interoperability should not be pursued if it is unlikely to become mandated:
 - Not all markets have the **political will** to institute a mandate.
 - Regulators need sufficient **technical capacity** and staff to enforce and monitor mandates.
 - In LMICs, this may require priority investment by domestic governments, with support from international donors.

IIPS IMPACT ON INFRASTRUCTURE

NASCENT AND MATURE MARKETS

Brunnermeier et al. (2024) highlight the need for regulators to differentiate between nascent and mature markets **to avoid harming financial inclusion:**

- Looking at 40 African countries, they find interoperability tended to reduce mobile money fees.
- **BUT** interoperability discouraged investment in telecom infrastructure, especially in rural areas.
- Operators stop serving remote regions when facing fiercer competition and smaller profit margins.

HOW TO BOOST INFRASTRUCTURE INVESTMENT?

- Effects tend to be stronger for operators who recently entered the market, so interoperability design could resemble **patent expiration**.
- Allowing incumbents a **grace period** (e.g., Ethio Telecom) before mandating interoperability can ensure adequate infrastructure development.
- As well as telecom infrastructure, policymakers should consider how interoperability impacts investment in **retail agent infrastructure**.

INFRASTRUCTURE QUALITY

Interoperability can drive down prices but impacts on service quality may be more valuable to consumers.

- Quality can include negative experiences (e.g., poor service, fraud, misconduct, and overcharging) as well as positive ones (e.g., perks, expedited service, convenience).
- Many mobile money transactions fail due to agent's unavailability, lack of liquidity, or other technical issues. These **transaction costs** can be more important than direct transaction fees (IPA, 2024).
- In already competitive markets, Bianchi et al. (2024) show interoperability may weaken **competition on fees** by reducing incentives to steal customers from rivals. However, incentives to invest in network quality may increase.

KEY POLICY INSIGHTS



CAREFUL DESIGN AND TIMING ARE CRUCIAL

- Policymakers need to ensure that IIPS implementation aligns with market maturity and local infrastructure needs.
- Early intervention may harm financial inclusion, especially in remote areas.
- Early-stage markets may need pricing regulation, while mature markets require coordination of investments.

BALANCE COMPETITION WITH INVESTMENT

- Consider the trade-off between encouraging competition and incentivizing investments in digital payment infrastructure.
- To boost infrastructure investment, regulators may need to provide incentives or a phased introduction of interoperability.

MANDATES SHOULD CONSIDER REGULATORY CAPACITY

- In markets where regulators have limited capacity, voluntary participation in IIPS may be preferable.
- Mandates need to be backed by strong enforcement mechanisms.

DON'T FORGET SERVICE QUALITY

- While it is vital to get pricing right, long-term benefits for consumers may also come from improvements in service quality.

HOW CAN DATA SHARING HELP IMPROVE ACCESS TO CREDIT?

Implications for lending in low- and middle-income countries (LMICs)

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BIG DATA AND CREDIT: THREAT OR OPPORTUNITY?

THE DATA REVOLUTION IN FINANCE

- Digitization is creating new data sources that are transforming credit underwriting and consumer borrowing.
- New data sources include transactions, payments, government records, search, and social communication.

FINANCIAL INCLUSION

- New data sources can expand access to credit among consumers and small businesses in low- and middle-income countries (LMICs).
- Open Data and Open Banking initiatives seek to enable new entrants to share access to data (Jenik et al., 2024).

CONCERNS ABOUT BIG TECH

- Firms with access to new proprietary data sources may quickly outcompete traditional lenders.
- Potential threat to regulatory efforts to ensure competition, consumer protection, and financial stability (Frost et al., 2019).



FOCUS OF DISCUSSION

This section reviews the latest research on the economics of data sharing and its influence on access to credit. It aims to provide decision-makers with practical insights and a common vocabulary.

KEY TAKEAWAYS

- Enforcing data sharing may change firms' incentives to invest in data collection;
- Payment and credit underwriting services can be **complements** or **substitutes**, depending on the structure of payment and lending markets;
- Allowing consumers to share data does not necessarily improve lenders' **access to information** if consumers value privacy differently.

KEY QUESTIONS



Which types of data affect the allocation of credit?

How do new sources of data impact the profitability and risk of underwriting?

Do these new data sources expand access to credit?

What policy challenges arise from the impact of data sharing on access to credit?

WHICH TYPES OF DATA AFFECT CREDIT ALLOCATION?

Information that helps predict the credit risk of a loan applicant – e.g., loan size, repayment schedule or interest rate – is a key component of the decision to provide credit. The importance of a data source should be evaluated relative to other sources.

DATA, INFORMATION AND KNOWLEDGE

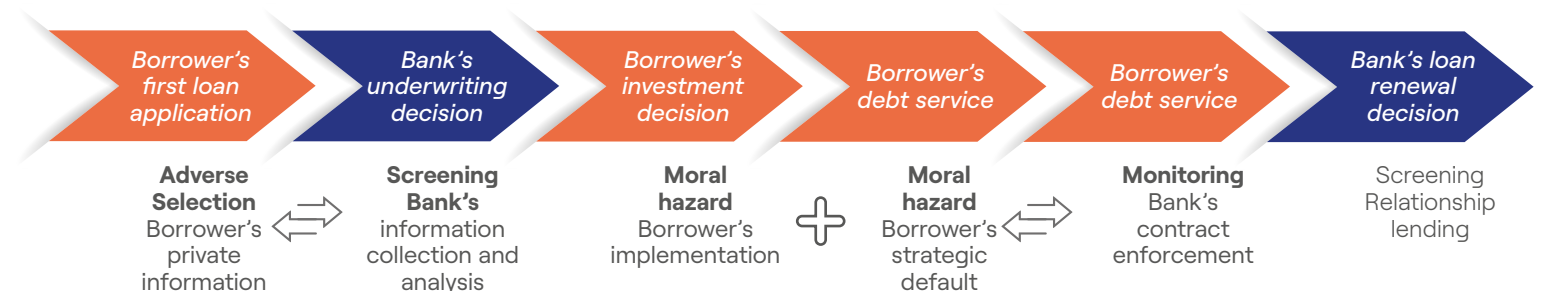
Understanding the relationship between hard and soft information is crucial to develop effective lending practices that promote fairness and accessibility. Does data complement or substitute for traditional evaluation methods?

→ **Hard information** includes verifiable and transferable data, such as payment records, credit scores, and financial histories.

→ **Soft information** is difficult to quantify or transfer, often because it is context-dependent knowledge and insights gained from personal interactions and experience.

- Fisman et al. (2017) show that cultural proximity between loan officers and applicants can enhance efficiency of credit allocation, improving credit access and repayment rates.
- However, loan officer biases may also limit lending to women and immigrants (Alesina et al., 2013; Dobbie et al., 2021).
- Petersen and Rajan (2002) for the U.S. or Mian (2006) for Pakistan find that hard information can substitute for a local loan officer's expertise and extend the geographical reach of bank credit.

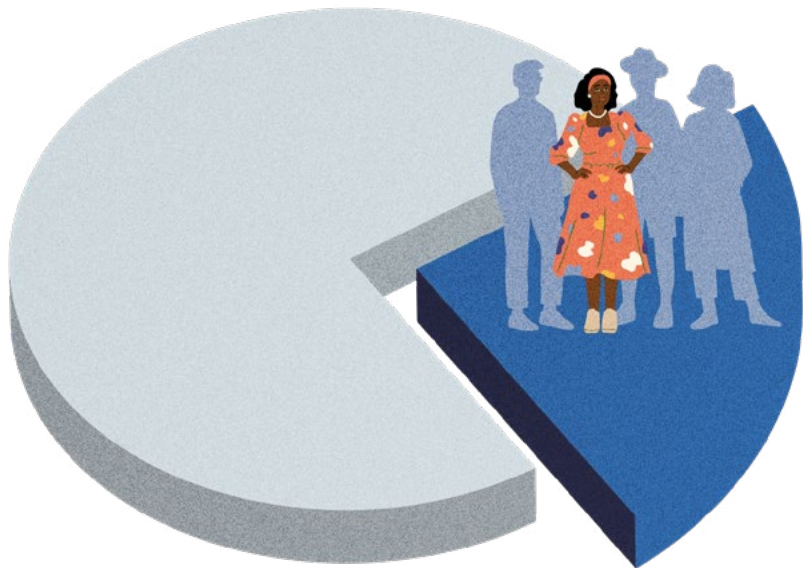
Information plays a role at different stages of the lending relationship



FINANCIAL DATA: CREDIT HISTORIES AND ACCESSIBILITY

THE PROBLEM...

Credit histories are the traditional basis for evaluating credit risk. But they only work for consumers and firms who have previous interactions with a formal channel of credit.



23%

In 2021, less than one in four of adults in developing countries had borrowed from a formal institution (Demirgüç-Kunt et al., 2022).

THE SOLUTION?

- As digital financial services become prevalent in LMICs, lenders are gaining new insights into borrower behavior through payment data.
- **Payment data** can provide rich, high-frequency hard information about loan applicants who may lack formal credit histories, allowing lenders to expand credit access for underserved populations.
 - **In India**, payment data has been shown to enhance prediction of loan delinquency, improving both the underwriting process and post-disbursal monitoring (Rishabh, 2024).
 - > Access to digital payment by small businesses is linked to an increased likelihood of obtaining a loan and with lower interest rates (Ghosh et al., 2023).
 - Similarly, Ouyang (2023) uses Alipay data in **China** to provide evidence of a causal link between the adoption of cashless payments by poorer consumers and access to credit.

ALTERNATIVE DATA SOURCES

ALTERNATIVE DATA

→ “Alternative data” enables more comprehensive assessment of borrowers. It covers a wide range of non-traditional information, including:

- **demographics** (e.g., education, residence)
- **transaction records** (e.g., customer reviews, text analysis of listings on P2P platforms)
- **digital footprint** (e.g., social network, search history, operating system)

BIG DATA DISRUPTION

→ Many fintech entrants use alternative data to assess creditworthiness, challenging models of traditional banks (Jagtiani and Lemieux, 2019).

→ Entry of Big Tech platforms may reflect access to proprietary data that improves screening and monitoring.

- Search engines may infer the likelihood of life events (e.g., divorce, new children or jobs) from an individual’s search history, without observing transactions or payments.

→ Disruption may be good news for the underbanked in LMICs if alternative data increases financial inclusion.

EVIDENCE FROM USA, CHINA AND GERMANY

→ Fintechs’ use of alternative data – notably education and job history – can outperform traditional credit scoring, particularly for borrowers with low credit scores. (Di Maggio et al., 2022).

→ Lenders can use e-commerce data to predict delinquencies and to target credit at borrowers with low credit scores. (Berg et al., 2020; Hau et al., 2019).

Research challenges

- Berg et al. (2022) raise questions about the overall competitive advantage of fintech models over traditional banks.
- Does alternative data complement or substitute traditional information?
- More evidence is needed on alternative data in LMICs.

HOLISTIC APPROACH TO DATA SHARING

Effective data sharing requires a combination of regulation and technological infrastructure (e.g., APIs, access to mobile devices, internet connectivity). Policymakers and providers must consider broader impact on competitive landscape, distribution of credit, and consumer welfare as well as privacy concerns.

COMPETITIVE EFFECTS

- Enhanced access to data may improve credit risk evaluation, leading to a **more competitive credit market**.
- By enabling incumbents and new fintech players to access similar information, data sharing could mitigate **adverse selection** concerns.

DISTRIBUTIONAL EFFECTS

- Data sharing may **expand inequalities in credit access**, in some circumstances.
 - Babina et al. (2024) find the positive effect of UK open banking on the credit offering for SMEs is concentrated among borrowers with existing access to credit.
- **Training datasets** and **machine learning models** may amplify structural biases.
 - Fuster et al. (2022) show that introduction of machine learning models in the U.S. mortgage market is less likely to benefit Black and Hispanic borrowers.

PRIVACY CAN BE COSTLY

- **Privacy concerns affect data-sharing incentives.** Lack of trust in lenders, especially new entrants like fintechs, can undo the positive competitive effects of data sharing (Tang, 2019).
 - Differences in willingness to share data across genders and age groups will have distributional effects (Armantier et al., 2024).
- Data sharing creates **indirect costs** for those who value privacy.
 - **Data retention invites suspicion.** If lenders struggle to discern whether a consumer is not sharing due to privacy concerns or to hide negative information, “shy” consumers may face worse credit terms (He et al., 2023).
 - **Externalities.** Data sharing by one group of consumers can provide information about other (similar) consumers who place a higher value on privacy. This creates a costly loss of privacy for “shy” consumers.

KEY POLICY INSIGHTS

FINANCIAL INCLUSION

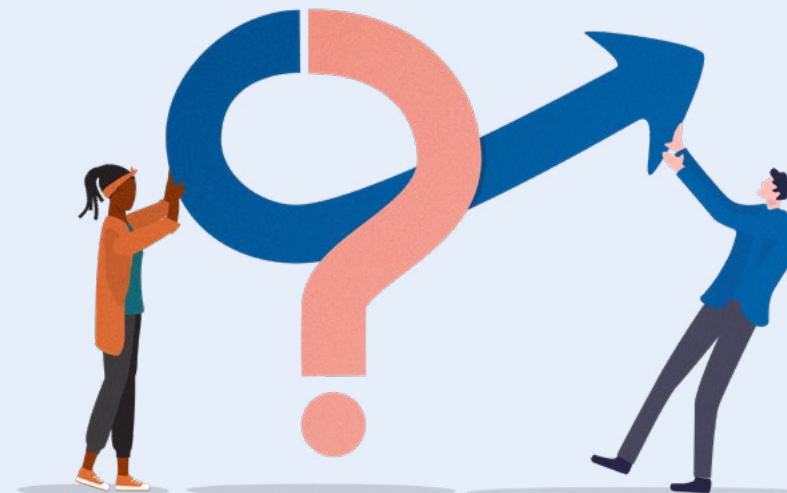
- Expanding access to payment data is essential to increase lending opportunities for the underbanked.
- Policymakers in LMICs must carefully consider **how to encourage data sharing**.
 - Payment providers may be reluctant to invest in acquiring new clients if compelled to share data with rivals.
 - Mandated data sharing may increase adoption of digital payments if consumers gain access to credit (Ghosh et al., 2023).
 - Policy design should depend on market penetration of digital payments and may need to be differentially applied.

REGULATION OF OPEN FINANCE

- Open banking policies usually require financial institutions to grant third-party access to consumer data.
- Effective implementation requires addressing **technical standards** to facilitate seamless data sharing across platforms.
- Broader regulations on **sharing of non-financial data** (such as the EU's Data Act) are needed, particularly for large social media or e-commerce platforms.

PRIVACY PROTECTION

- Open-banking policies are less effective when trust in fintechs is lower (Babina et al., 2024).
- Stricter privacy rules may increase loan applications (Doerr et al., 2023) and willingness to share transaction data (Armantier et al., 2024).
- Privacy rules must navigate the balance between bolstering consumer confidence and letting firms exploit richer data (Rishabh, 2024).



HOW DO INSTANT INTEROPERABLE PAYMENT SYSTEMS TRANSFORM MODERN ECONOMIES?

A synthesis of recent evidence

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WHY DO WE NEED INSTANT INTEROPERABLE PAYMENT SYSTEMS (IIPSs)?

GLOBAL FINANCIAL CHALLENGES

→ Development of a robust **digital public infrastructure** is critical to tackle **global financial challenges**:

- **1 in 3 people worldwide lack access to basic financial accounts** (Demirgüç-Kunt et al., 2022).
- 34% of the adult population has never made or received a digital payment (Demirgüç-Kunt et al., 2022).
- Small businesses often face severe credit constraints, hindering their growth and economic development.

INSTANT INTEROPERABLE PAYMENT SYSTEMS (IIPSs)

→ By laying the groundwork for digital financial markets, IIPSs hold significant potential to leapfrog economies, foster financial inclusion, create innovative and competitive financial markets, and drive sustainable economic growth.

- IIPSs facilitate the rapid transfer of digital money between users, regardless of their financial institutions.
- Seamless transactions for individuals, businesses, and governments enhance the overall efficiency of financial ecosystems.
- IIPSs may be particularly useful in underbanked regions, enabling access for marginalized users.
- Closed-loop mobile money systems have succeeded in driving peer-to-peer transfers in emerging markets, but often struggle to promote other uses such as merchant or bill payments (Suri, 2017).



DIGITAL INFRASTRUCTURE AND FINANCIAL INCLUSION

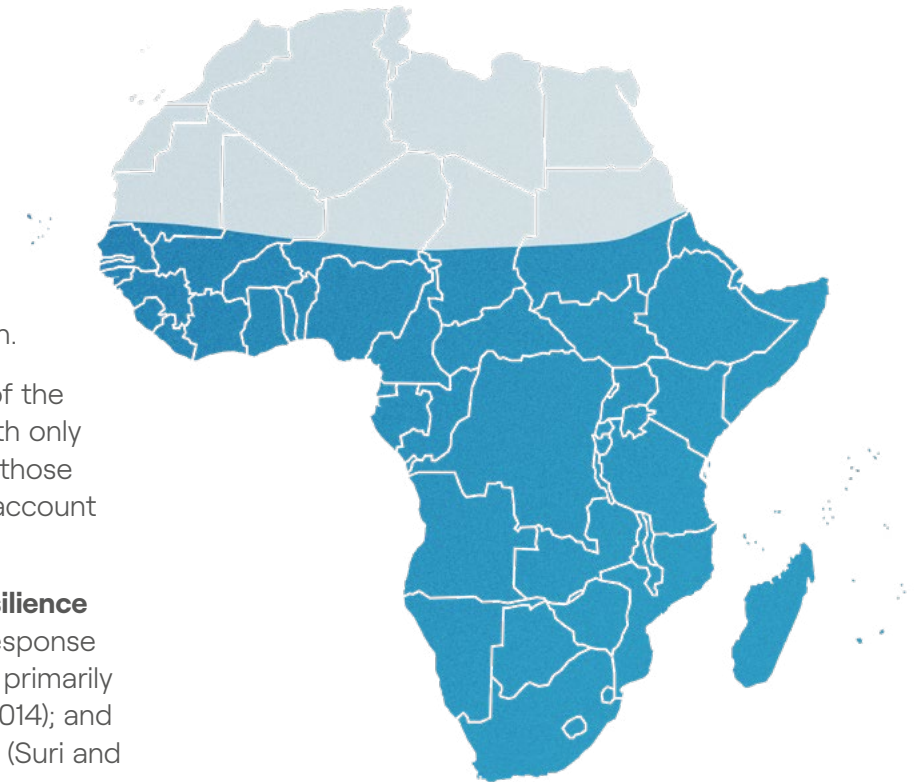
Digital public infrastructure refers to a set of secure and interoperable digital systems, based on open standards, that provide equitable access to public and private services.

As well as IIPS, key components include secure mechanisms for **verification of user identities** and **open data sharing** to facilitate transparency and trust.

DIGITAL PAYMENT SYSTEMS

→ Early forms of digital payment systems, particularly **mobile money**, have been instrumental in driving financial inclusion.

- Sub-Saharan Africa is home to all 11 of the world's economies in which adults with only a mobile money account outnumber those with a traditional financial institution account (Demirgüç-Kunt et al., 2022).
- Mobile money enhances **financial resilience** and **risk-sharing** among families in response to negative income or health shocks, primarily through remittances (Jack and Suri, 2014); and has been linked to **poverty reduction** (Suri and Jack, 2016).
- Mobile money remittances and payments also promote **higher savings** in formal financial accounts.



MOBILE MONEY NEEDS INTEROPERABILITY

CHALLENGES FOR MOBILE MONEY

→ While digital payments help reduce explicit and implicit transaction costs, lack of interoperability remains one of the most significant obstacles, particularly in emerging markets.

- Complicated onboarding and authentication processes, as well as unintuitive user interfaces, hinder widespread adoption (SWIFT, 2015).
- Payment clearing between different financial service providers remains slow, costly, and often inaccessible for users of mobile money and digital wallets (Razi et al., 2022).
- Lack of interoperability in closed-loop mobile money systems has encouraged consumers to stick to cash, which, despite its drawbacks, is universally accepted.
- Lack of interoperability may also reduce incentives for mobile money platforms to compete (Bianchi et al., 2023).

RESEARCH INSIGHTS

→ 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.
- Cross-network fees for small transactions fell even further, by more than 45%. (Brunnermeier et al., 2023).

However, more research is needed to reach a definitive conclusion on the effect of interoperability on consumer welfare, market competition, and the broader financial ecosystem.

IIPS ADVANTAGES

Policymakers implementing IIPSs can achieve several objectives.

DEEPEN FINANCIAL INCLUSION

- Despite expansion in many emerging markets, use of financial instruments – accounts, insurance, investment and credit products – remains limited, with many financially included individuals still relying on cash for key transactions.
- By lowering explicit (e.g., fees) and implicit (e.g., time and inconvenience) costs, IIPS can deepen inclusion, building trust and expanding access to other financial services (Greenlend and Toth, 2023; Sampaio and Ornelas, 2024).

DRIVE ECONOMIC GROWTH

- IIPS can reduce transaction costs and mitigate information asymmetries through the creation of verifiable digital transaction records, especially in underbanked communities (Dubey and Purnanandam, 2023).

PROMOTE COMPETITION AND INNOVATION

- IIPS allow smaller banks and financial service providers to compete with larger rivals by closing the **convenience gap** (Sarkisyan, 2023; Roessler, Toth and Tsai, 2024).
- Integrating **open banking** into IIPSs frameworks enhances these benefits (Alok et al., 2024).

IMPROVE MONETARY POLICY TRANSMISSION

- Monetary policy is an essential tool for steering growth. But banks with higher market power tend to raise deposit rates less during interest rate hikes, insulating themselves from competition.
- IIPSs, such as Brazil's Pix, reduce **switching costs**. If consumers can move deposits more easily, increased competition compels banks to adjust rates in line with monetary policy (Liang, Sampaio and Sarkisyan, 2024).

DO IIPs DELIVER ON THEIR PROMISE? DEEPER FINANCIAL INCLUSION

India's Unified Payments Interface (UPI) and Brazil's fast payment system (Pix) demonstrate the ability of IIPs to drive broader adoption of digital financial services and better integrate individuals into the financial ecosystem.

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.



DO IIPs DELIVER ON THEIR PROMISE? GROWTH AND CREDIT ACCESS

REDUCE FRICTIONS

In the presence of transaction costs and information asymmetries, **digital payments can reduce frictions**, especially in areas with few brick-and-mortar banks. Dubey and Purnanandam (2023) show this allows IIPs to have a direct impact on real outcomes and economic growth:

- 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) argue 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.
- Regions with a higher proportion of previously unbanked populations saw the greatest credit growth.
- Credit growth was more pronounced in areas with better internet connectivity.

DO IIPSS 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

- IIPSS such as Brazil's Pix can lower entry barriers for a broader range of financial service providers, challenging the traditional dominance of large banks (Sarkisyan, 2023).
- Brazil's government mandated large and medium-sized banks to participate in Pix, resulting in more than 90% of banks joining within two months.
- In regions with higher Pix usage after the easing of COVID-19 restrictions, deposits at small banks grew more relative to larger banks, reducing deposit market concentration and deposit rate spread.
- This shift is largely attributed to Pix reducing the convenience gap between large and small banks, making consumers more sensitive to deposit rates. This allowed smaller banks to compete more effectively by offering higher deposit rates.

IMPACT ON INNOVATION

- By fostering a competitive environment, IIPSSs can stimulate both **financial innovation** and greater **demand** for digital financial services (Roessler, Toth and Tsai, 2024).
- India's UPI stimulated frequent updates to mobile banking apps and development of new financial products, technologies, user-friendly features, and improved payment functionalities.

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 Gasmi, 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.

KEY POLICY INSIGHTS

IIPs hold transformative potential for modern economies, acting as a catalyst for financial inclusion, economic growth, competition, and financial innovation. By lowering transaction costs and expanding access to financial products, they can play a pivotal role for underserved populations and encourage engagement with formal financial systems.

IIPS BENEFITS ARE NOT GUARANTEED

The effectiveness of IIPs is contingent on existing levels of financial inclusion and robust digital infrastructure.

USE COMPLEMENTARY POLICIES

Where financial inclusion is low, policymakers should consider additional solutions such as digital identity systems and improving infrastructure.

CONSIDER THE TRADE-OFFS

Interoperability could dampen incentives for investment in digital infrastructure, particularly in rural and underserved regions.

MAXIMIZE IMPACT

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



Final thoughts

- Successful deployment of IIPs requires a nuanced approach that addresses both the opportunities and the challenges posed by existing market dynamics.
- Thoughtful design and implementation can support equitable and sustainable economic growth.

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IN-HOUSE AND EXTERNAL CONTRIBUTORS

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USEFUL LINKS

See detailed research synthesis briefs and policy papers:

<https://www.tse-fr.eu/groups/FIT-IN-Initiative?tabs=8>

Learn more about the FIT IN Initiative:

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