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Digital payments: Does interoperability harm consumers?

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Digital payments: Does interoperability harm consumers?

On the road to financial inclusion, the first step for many people is to start using digital payments. Allowing consumers to make transactions across networks is widely seen as an important way to increase their access to digital financial services, while promoting competition among service providers. However, in a new study backed by the FIT IN Initiative and the Bill & Melinda Gates Foundation, TSE researchers Milo Bianchi and Andrew Rhodes explain why consumers may not always benefit from platform-level interoperability.

Why do digital finance users need protection?

As digital payments are often the entry port into financial services, consumers may lack the skills, knowledge and experience to accurately assess their costs and benefits. For example, only 48% of mobile money customers in Ghana know the official fees they should pay to transfer money; in Uganda, 83% don't know the fees charged by their provider; and in Kenya 72% learn the fees only after carrying out a transaction.

Providers contribute to and exploit this confusion with a wide variety of complex and often unfavorable pricing structures. Different fees may be charged in different ways that span many dimensions such as for sending or receiving money and for on-net or off-net transactions. Unsurprisingly, consumers are often unaware of the fees they face and report incurring unexpected fees, especially for off-net transactions which are less familiar.

How does your paper evaluate the impact of interoperability?

We develop a simple model in which consumers from isolated villages need to send money to each other. Each village has only one digital payment provider which acts as a bridge for sending and receiving transfers. Consumers vary in their valuation of digital transactions, driven by taste, for example, or access to alternative ways to transfer money. Distance can also be a factor as even digital payments may require travelling to a local agent to convert cash.

Consumers consider the fees incurred both by the sender and the receiver – as to be expected for payments between family or friends – and decide to make the transaction only if their net valuation is positive. Without interoperability, each consumer can only send and receive money from those in the same network. We then introduce interoperability in different scenarios, with varying levels of consumer sophistication.



With fully rational consumers, interoperability is beneficial because it expands the set of feasible transactions. However, providers charge larger off-net fees because they do not internalize the negative effect of doing so on demand for other providers' services. This mirrors the current situation in Africa, where on-net fees are on average 4% of the transaction value, while off-net fees are 11%. Interoperability generally increases consumer surplus in spite of high off-net fees, especially when the market is less concentrated. The benefits are larger with no dominant market player, and are maximized when providers have equal market shares.

48%

Only 48% of mobile money customers in Ghana know the official fees for making a transfer; in Uganda, 83% don't know the fees or estimate them with errors exceeding 10%; in Kenya, 72% learn the fees only after carrying out a transaction

What happens when consumers are confused by pricing structures?

We first look at a small departure from full information, assuming that consumers mistakenly believe the other network's receiving fee to be the same as if they were using their own network. In this setting, interoperability is unambiguously bad for consumers. On-net prices are unchanged, but optimal fees for receiving money

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off-net will be zero for one provider (A), and equal the consumers' maximal valuation for the other provider (B). Consumers will tend to avoid beneficial off-net transactions (from B to A) because they overestimate A's receiving fees; and perform lots of unfavorable ones (from A to B) because they underestimate B's receiving fees.

Interoperability is often advocated as a way to promote competition and decrease fees. Our model supports this view only when consumers use on-net fees to estimate off-net fees for both sending and receiving. However, these consumers should be wary of being drawn in by reduced on-net prices. In line with existing research on shrouded attributes, we show that firms use low on-net fees to attract consumers and blind them to unreasonably high off-net fees. The level of on-net fees also depends on market share: for example, a firm with a low market share will set lower on-net fees because its off-net transactions are more important.

Which policy tools could benefit consumers?

We evaluate various regulatory interventions, starting with absolute caps on off-net fees. Even if in some instances providers may respond to this policy by increasing on-net fees, we show that the net effect on consumers' welfare is generally positive.

What if providers are obliged to charge the same fees for off-net and on-net transactions? This tends to lower off-net fees, as expected, but providers respond by increasing on-net fees. The resulting effects depend crucially on consumer biases. When consumers are fully rational, this policy generally increases their surplus. When consumers have biased beliefs only about off-net receiving fees, there is an ambiguous effect on their welfare. When firms have sufficiently different market shares, increased on-net fees make consumers worse off. Conversely, when consumers have biased beliefs about off-net fees for both sending and receiving, the regulation can bring substantial benefits that largely compensate the loss in surplus induced by interoperability.

4%
Across African countries, on-net fees for digital payments are on average 4% of the transaction value, while off-net fees are 11%

We also consider the common requirement that either the senders or the receivers should be exempt from fees. We show that this policy has no impact on consumers' welfare when consumers have biased beliefs, so introducing interoperability may be harmful to consumers even when this regulation is in place.

With fully rational consumers, interoperability is beneficial. However, providers charge larger off-net fees because they do not internalize their negative effect on demand for other providers' services

Which directions do you recommend for future research?

Our simple model could be enriched by the possibility for new firms to enter the market or for existing firms to expand their coverage. Rather than a local monopolist, future research may also consider the possibility that villages are served by different providers who compete with each other to attract consumers. We expect that interoperability may have interesting, and possibly different, effects on consumers' welfare in these settings.

KEY TAKEAWAYS

- This research shows that the impact of interoperability across digital payment platforms depends on consumers' financial literacy.
- If we assume digital payment users are fully rational, platform-level interoperability is beneficial. It raises financial inclusion, which increases consumer surplus.
- When users are poorly informed about providers' fees for off-net transactions, interoperability can harm consumers.
- While off-net transactions tend to be overpriced, standard policy interventions that impose fee caps do not necessarily make consumers better off.
- As well as consumers' sophistication, the effect of fee caps depends on how they are implemented and the asymmetry of providers' coverage.

FURTHER READING

Document based on "Digital Payments Interoperability with Naïve Consumers", Milo Bianchi and Andrew Rhodes, FIT IN Initiative Working Paper, n. 13, August 2024.



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Milo is Professor of Finance at TSE and Director of the FIT IN Initiative. His research focuses on fintech and on sustainable finance, with specific focus on individual investors. His work has been published in leading economics and finance journals. Milo is junior member of the Institut Universitaire de France. He has held research positions at various institutions including MIT, Paris School of Economics, University College London, and Shanghai University of Finance and Economics.



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Andrew is a Professor of Economics at TSE and a Research Fellow at the CEPR. His research interests include industrial organization, competition policy, and the digital economy. He currently serves as Co-Editor at the Journal of Industrial Economics, as well as Associate Editor at the International Journal of Industrial Organization and the RAND Journal. He is also director of the TSE master's program "Economics of Markets and Organizations".

About the FIT IN Initiative

In November 2020, the Toulouse School of Economics launched the Financial Inclusion Through Interoperability Initiative to catalyze new research to constructively influence the design and regulation of interoperable digital financial services systems in low- and middle-income countries.

The main objective of this four-year research initiative is to 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.

The FIT IN Initiative receives support from the Bill & Melinda Gates Foundation's Financial Services for the Poor program.

For more information: www.tse-fr.eu/groups/FIT-IN-Initiative / fitininitiative@tse-fr.eu

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