

# The Old and the New Economics of Financial Inclusion

*By*

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*Working Paper FI-004*

AFRICAN ECONOMIC RESEARCH CONSORTIUM  
CONSORTIUM POUR LA RECHERCHE ÉCONOMIQUE EN AFRIQUE

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AERC Working Paper FI-004  
African Economic Research Consortium, Nairobi  
April 2023

THIS RESEARCH STUDY was supported by a grant from the African Economic Research Consortium. The findings, opinions and recommendations are those of the author, however, and do not necessarily reflect the views of the Consortium, its individual members or the AERC Secretariat.

Published by: The African Economic Research Consortium  
P.O. Box 62882 - City Square  
Nairobi 00200, Kenya

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## Abbreviations and Acronyms

ATMs	Automated Teller Machines
BOP	Bottom of the Pyramid
CAK	Competition Authority of Kenya
CBK	Central Bank of Kenya
CGAP	Consultative Group to Assist the Poor
CGFS	Committee on the Global Financial System
DNA	Deoxyribonucleic acid
FSB	Financial Stability Board
GSMA	Global System for Mobile Communications Association
MFIs	Microfinance Institutions
MNOs	Mobile Network Operators
MSMEs	Micro, Small and Medium Enterprises
USSD	Unstructured Supplementary Service Data

# Abstract

The past decade has witnessed dramatic technological advances that have changed the economics of financial inclusion. This paper contrasts the old and the new economics of financial inclusion and draws policy implications. The old model of financial inclusion was not able to defy the logic of financial markets, relying on subsidies and nudges from state authorities to make financial institutions include underserved segments of the economy. The new economics of financial inclusion derive from digital automation. It has dramatically lowered transaction costs and increased returns to scale, allowing services at lower margins and lower volumes than ever before to be commercially sustainable. Rather than banks, digital newcomers such as mobile network operators or BigTech firms are protagonists of digital financial inclusion. They are willing to make significant investments that foster financial inclusion even when it is not profitable in the short-run, because it allows them to leverage a feedback loop of data analytics and network externalities that also harbours the danger of creating new monopolies and oligopolies. Regulators may thus face a Faustian Bargain: trade private sector led financial infrastructure investment now for anticompetitive behaviour later. To avoid the short end of the Faustian Bargain, regulators can consider a two-step policy: laissez-faire first, rectification later.

# 1.0 Introduction

Financial inclusion has proven to be welfare-enhancing. As a solid and growing body of research has shown, low-income and rural households can use domestic and international remittances as an informal risk-sharing tool to enhance their resilience vis-à-vis economic shocks. Moreover, digital financial services allow the under-banked and unbanked to save and obtain credit to diversify and branch into higher-income occupations. Climate-vulnerable populations can leverage digital financial services to adapt to and enhance their resilience to climate risk. Innovative green services can even help them turn from victims into agents to combat global warming, financing low-carbon technologies to help mitigate climate change.

The past decade has witnessed dramatic technological advances that have changed the economics of financial inclusion. This is good news because the old model of fostering financial inclusion has seen limited success. At the same time, the new model of financial inclusion entails new dilemmas and trade-offs. This paper contrasts the old and the new economics of financial inclusion (Figure 1) and draws policy implications for regulators and policy makers in emerging markets and developing economies around the world.

Figure 1: The old and the new economics of financial inclusion: key differences

Old Financial Inclusion	New Financial Inclusion
Banks and MFI as key actors	BigTech and MNOs as key actors
Labour-intensive	Data-intensive
Financial inclusion vs profits	Financial inclusion as source of profits
Interventionism: use nudges, regulation, subsidies to push banks to reach BOP	Laissez-faire: provide regulatory enablers to allow newcomers to start with BOP
Main concerns: financial literacy, stability	Main concerns: competition, privacy, data governance

The old model of financial inclusion was not able to defy the logic of financial markets. Financial services providers derive their profits mainly from high-margin (i.e., rich customers) or high-volume business (i.e., in urban areas). Providing financial services to the bottom of the pyramid (BOP) challenges their commercial sustainability



and thus requires government interventions in the market. Consequently, policy makers around the world have used a combination of subsidies, regulations, interest rate caps, sectoral credit targets, and credit guarantees to make banks and microfinance institutions (MFIs) provide affordable financial services to underserved market segments such as MSMEs, low-income and rural households.

In many countries, government interventions at prodding banks to reach the BOP have seen limited success. Despite a combination of government-provided incentives and obligations, commercial banks and MFIs on their own have failed to expand their network of access points (branches and automated teller machines - ATMs) significantly. No-frills accounts are only reluctantly offered by banks, and often shunned by customers. In a few countries, top-down interventionism has succeeded, in most it has not. A lesson learnt is that financial inclusion initiatives are limited at best and doomed at worst if they centre on traditional actors such as banks and MFIs (microfinance institutions).

The new economics of financial inclusion derive from digital automation. It has dramatically lowered the costs of providing financial services and increased returns to scale, allowing services at lower margins and lower volumes than ever before to be commercially sustainable. Digitization leads to better risk-adjusted returns for financial firms, representing a positive supply shock. Therefore, the commercially sustainable production possibility frontier has expanded. However, firms vary dramatically in their capacity to change their business model and harness the benefits of digital transformation. This has consequences not only for the financial services market, but also for the range of meaningful policy actions to foster (digital) financial inclusion in developing countries.

Banks are not protagonists of digital financial inclusion. Most of the success stories in financial inclusion over the past decade happened with commercial banks at the margins, even despite their resistance. Non-bank digital financial intermediaries such as mobile network operators (MNO) or BigTech firms are not encumbered by high operating costs, legacy business models, and other constraints that hold back traditional players. Even though banks are not protagonists, they partner with MNOs or BigTech firms to provide capital for digital credit, keep customer funds in savings and trust accounts, and offer a range of financial services under prudential supervision. At the same time, they compete for retail deposits, data, and customer relationships.

MNOs and BigTech firms are willing to make significant investments that foster financial inclusion even when it is not profitable in the short-run. This is because, unlike traditional financial services providers, they have incentives to reach scale that extends beyond the financial sector. Digital platforms can leverage a “DNA feedback loop”: data analytics, network externalities, and interwoven activities. While this feedback loop provides them with an incentive to reach the BOP, it also harbours the danger of creating new monopolies and oligopolies in the absence of corrective regulation. Regulators may thus face a Faustian Bargain: trade private sector led financial infrastructure investment now for anticompetitive behaviour later.

To avoid the short end of the Faustian Bargain, regulators can consider a two-step policy: laissez-faire first, rectification later. The two phases of this policy can be summarized as follows:

1. Do not engineer market change from above, remove regulatory obstacles to it. There is a surprising disconnect between top-down efforts to foster financial inclusion and actual progress in the uptake of (digital) financial services from below. M-Pesa and AliPay did not respond to G20 commitments or policy targets from any Finance Ministry. Rather than advocating for interventions from above, policy makers may want to renew their focus on regulatory enablers of market change. To foster market entry, proportional regulation is key. Do not wait for banks to deliver digital self-disruption; lower barriers to entry for digital newcomers instead. Let a thousand oligopolies bloom: private firms have an incentive to invest in financial services infrastructure because they can reap the benefits of limited competition, at least for some time. Substance matters more than form: wholesale legislative reform and regulatory sandboxes, for example, have not proven to be key drivers of financial inclusion.
2. Rectify once the network is established. Once a well-functioning digital retail payment (mobile money) system and a wide and dense agent network is established, begin rectification. This includes interoperability, agent non-exclusivity, data sharing, and a crack-down on horizontal mergers, exclusivity agreements that bind platform suppliers, and other anti-competitive practices. Patent law provides useful lessons for this policy approach. In the financial services sector, close cooperation between financial stability, data governance, and competition authorities is necessary to make rectification successful, along with institutional distance from vested interests.

The rest of the paper proceeds as follows. Section two describes the old model of financial inclusion and highlights its limits. Section three outlines the new economics of financial inclusion and the key role played by digital automation. It shows how non-banks can benefit more from digital innovation than traditional players, and what drives them to invest in fostering financial inclusion without government subsidies. A fourth section lists regulatory concerns that remain relevant, even in a new digital world. Section five introduces the Faustian Bargain that is offered to regulators across the developing world. It gathers examples of anti-competitive practices from two jurisdictions with the longest history of digital financial market development, which is Kenya and China. The concluding section draws lessons from rectification actions in both jurisdictions and draws some tentative policy recommendations.

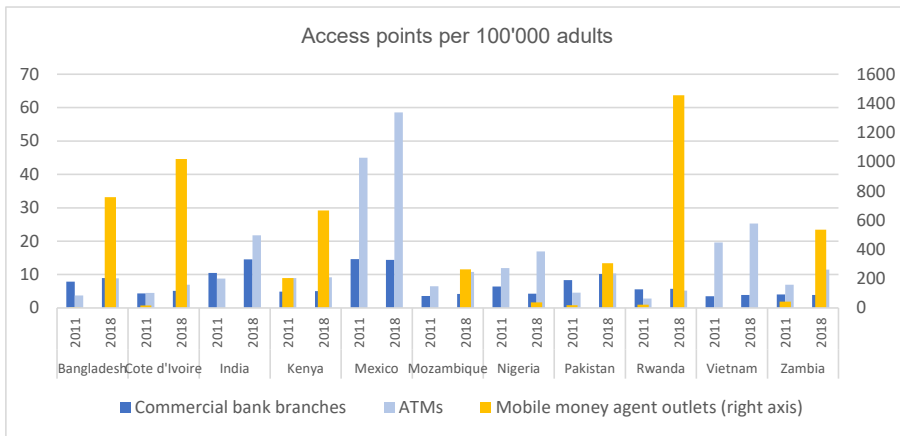
## 2.0 Old Financial Inclusion

By the 2010s, development economists had produced some evidence that financial inclusion contributes to poverty reduction (Demirgüç-Kunt et al., 2008). The use of financial diaries by researchers such as Collins et al. (2009) show that for much of the population in developing countries, existing financial instruments are risky, badly designed for their needs, unreliable, or expensive. The authors assert: “This made us realize that if poor households enjoyed access to a handful of better financial tools, their chances of improving their lives would surely be much higher.” (Collins et al., 2009, p. 4).

Policy makers hoped that banks would provide this handful of better financial tools. Even though banking systems in Sub-Saharan Africa and other low and middle-income regions are more profitable than those of advanced economies, they are less efficient, more concentrated, and less competitive (Beck and Cull, 2013; Beck and Levine, 2018; Gottschalk, 2016). The client roster and loan portfolios of banks tend to be skewed towards large firms, high-income individuals, and sovereigns. Financial inclusion advocates promoted a series of policies to change this situation. They encouraged the expansion of credit to Micro, Small and Medium Enterprises (MSMEs) by issuing loan guarantees and creating credit information bureaus to address information asymmetries. They hailed the creation of microfinance institutions (MFIs) as complements to banks in fostering financial inclusion (Cull et al., 2013). They nudged banks to increase the number of financial access points by expanding their branch and ATM networks. And they asked or required banks to offer free, no-frills accounts to low-income households. Often, such top-down policy measures and targets would be enshrined in a National Financial Inclusion Strategy. By the end of the 2010s, 34 developing countries had published such a strategy document (World Bank, 2019a). But after over a decade and a half of such financial inclusion efforts, the results are at odds with the expectations of its advocates.

First, despite a combination of government-provided incentives and obligations, commercial banks on their own have failed to expand their network of access points significantly (Figure 2). In contrast, mobile money agent networks have grown exponentially in countries where governments have allowed *non-banks* to provide mobile money services, creating a grid of access points multiple times denser than what would have been considered fathomable in the bank-centred model of old financial inclusion.

Figure 2: Progress in financial access networks



Source: IMF Financial Access Survey

Second, MFIs have failed to make a dent in offering financial inclusion and in improving the economic well-being of their customers (Karlan and Zinman, 2009; Banerjee et al., 2015; Duvendack et al., 2011). In some well-publicized cases, microcredit became a nightmare for vulnerable people (Bateman and Maclean, 2017)2017.

Third, the old model of financial inclusion has never achieved commercial sustainability (Mader, 2018). A recent study of 1,335 MFIs found that subsidies amount to 13c per dollar lent, or US\$ 248 per borrower on average (Cull et al., 2018). World Bank economists approach such interventionism with wariness rather than enthusiasm. François Bourguignon and Michael Klein, Chief Economists of the World Bank Group in 2008, put it succinctly: “Despite best efforts, it seems likely that provision of some financial services to the very poor may require subsidies.” (Demirgüç-Kunt et al., 2008, p. xi).

The situation for banks is similar. Bankers argue that because transaction costs in finance are high, they require either high margins or large volumes to be commercially sustainable. In response, financial inclusion advocates have used a combination of subsidies, regulations, interest rate caps, sectoral credit targets, and credit guarantees to make banks provide affordable financial services to underserved market segments such as MSMEs, low-income and rural households. As mentioned above, some governments have nudged or obliged commercial banks to offer no-frills accounts. But mystery shopping exercises sponsored by CGAP (a financial inclusion advocacy organization) reveal that bank clerks seldom offer them to prospective customers (CGAP, 2014; Gine et al., 2017)a mystery shopping exercise completed by The World Bank, CGAP, and CONDUSEF highlighted significant gaps between what is required by law and what is happening on the ground. Setting policy targets of account ownership can also lead to shallow inclusion or outright window dressing. Research in South Africa reveals that 90% of social security (SASSA) account holders

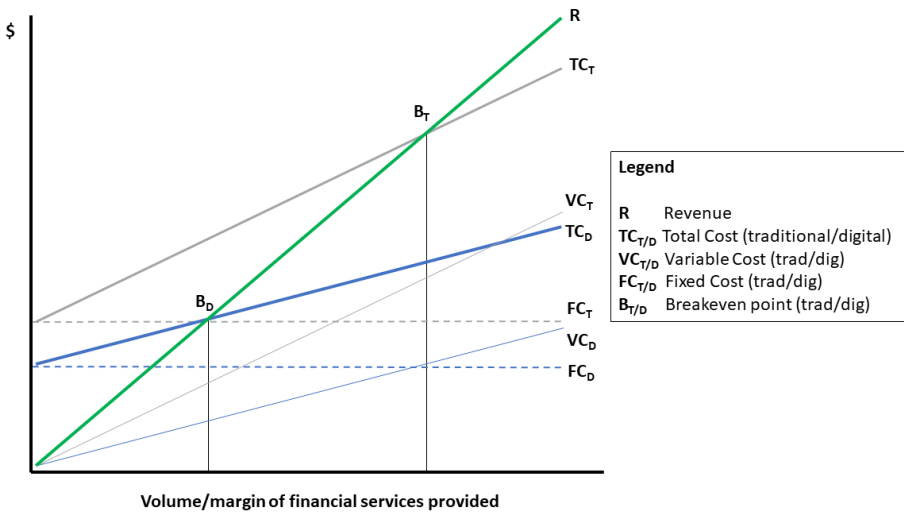
withdraw all their money at the beginning of the month, treating a bank account like a mailbox (Finmark Trust, 2016). Bangladeshi authorities obliged banks to offer no-frills “10 Taka” accounts, but only 4% of them were actively used (Iqbal, 2014). In 2015, half of India’s flagship financial inclusion Jan Dhan accounts had no money in them when bank officials quietly deposited one rupee in each to meet government targets (Yadav and Mazoomdaar, 2016). In sum, the old model of financial inclusion relied on an array of interventionist measures to push traditional banks to offer services to parts of the population that they considered unprofitable. However, just as the limits of this approach became apparent, technological change made the economics that informed the old model of financial inclusion obsolete.

## 3.0 New Financial Inclusion

Digital automation is the key technological breakthrough that has transformed financial inclusion in the 2010s. It has dramatically lowered the costs of providing financial services, allowing services at lower margins and lower volumes than ever before to be commercially sustainable. Digital automation has also allowed people to adopt financial services in ways few economists had anticipated. However, firms vary dramatically in their capacity to change their operational model and harness the benefits of digital transformation. This has consequences not only for the financial services market, but also for the range of meaningful policy actions to foster (digital) financial inclusion and address second-order problems.

The central tenet of new financial inclusion is that digital automation lowers the transaction costs of financial services and increases returns to scale. Human involvement in back-office tasks such as settlements, conduct risk management, etc can be reduced dramatically, even though investment in resilient IT infrastructure has risen. Some customer-facing services such as wealth management advisory can also be automated, such that the cost of each client relationship approaches zero (Philippon, 2019). Others, such as cash-in-cash-out, remain relatively labour intensive, but agent banking has significantly lower fixed and variable costs than branches, while being more versatile and customer-friendly than ATMs. Thus, digitization lowers the break-even point for financial services providers, and it allows them to reap greater economies of scale (Lee and Teo, 2015). Consequently, digital financial service providers can operate profitably at much lower volumes and margins than their traditional competitors (Figure 3).

**Figure 3: Cost and breakeven points for traditional and digital financial services providers**



Source: Author

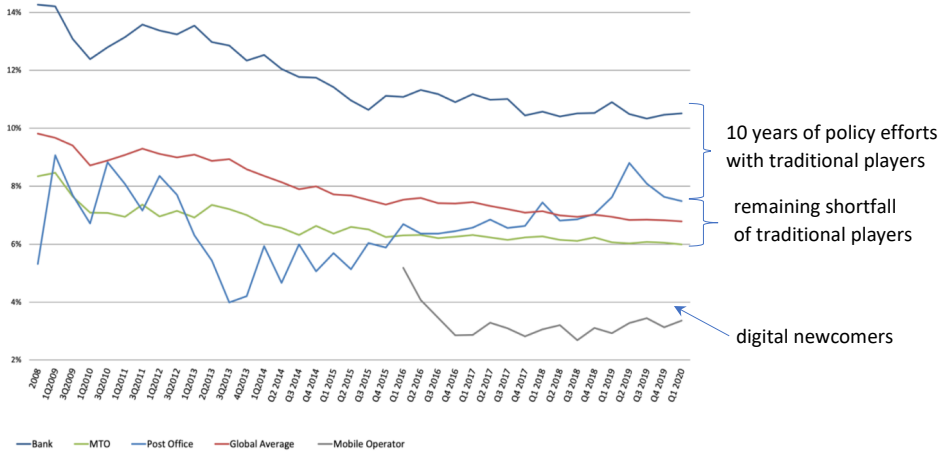
Mobile money, that is retail payment systems that allow users to transfer funds between simple cell phones, is an illustrative case of new financial inclusion. Households and small firms in developing countries are using mobile money in ways that defy traditional models of financial intermediation. Field research in Kenya shows that mobile money is used to weave a wider net of informal insurance and risk sharing. Households in need can reach out to friends and family near and far for emergency transfers when faced with negative shocks, rather than having to decrease consumption or sell assets (Jack et al., 2013; Jack and Suri, 2014; Bharadwaj et al., 2019). Such informal risk sharing mechanisms do not neatly fit financial market categories: it is insurance but without a premium; it is credit but at zero interest and with state-contingent repayment terms, and it is a financial network of diffuse reciprocity rather than a transaction between a firm and customers. In this respect, financial anthropologists in the tradition of Mauss (1925/2002) who conceive of (financial) gifts as a community-constituting web of support, obligation, and group solidarity might have a more valid assessment of the economic function of mobile money than mainstream economists (Johnson, 2016). While this network of informal insurance and credit does not generate rent for the providers of capital, it significantly improves the economic situation of its members. Financial inclusion allows individuals to increase resilience, avoid asset sales under distress, switch to higher-risk but more profitable jobs (such as retail commerce), increases returns on savings, and thus raises household income to lift people out of poverty. Women are more than twice as likely to benefit from financial access (Jones and Gong, 2021; Suri and Jack, 2016;

Digital credit assessment is cheaper and not dependent on collateral but may be of equal or higher predictive quality than traditional methods. Digital models use data from cash flows, social networks, and other alternative sources. The empirical studies published to date show that not only are digital models at least as accurate as traditional models in predicting default (Freedman and Jin, 2017; Gambacorta et al., 2019; 2020; Petralia et al., 2019; Beck et al., 2022). They also work with similar accuracy for “unscorable” customers, who are not registered at credit information bureaus (Berg et al., 2020; FinRegLab, 2019; Jagtiani and Lemieux, 2018). Importantly, predatory lending and over-indebtedness remain salient concerns, as the following section will discuss. But both the cost reduction in credit assessment and the potential to accurately price credit risk for customers without collateral or a credit history make digital credit a noteworthy tool for financial inclusion.

Digital automation also introduces much-needed competition in the remittances market. At the G8 Summit in 2010 and the G20 Summit in Cannes in 2011, policy makers committed to bringing down the price of remittances to 5% in 5 years. Ten years later, that goal has still not been reached, and the “5-in-5” ambition of policy makers compares unfavourably to the “6.8-in-10” result in 2020 (Figure 4). However, a breakdown of the trajectory of remittance prices over the past decade by provider type reveals a stunning picture. It shows that banks have remained by far the most expensive remittance operators, with average fees still above 10% in 2020. Money transfer operators (MTOs) have also consistently missed the 5% goal, and post offices have even increased their fees over time. At the same time, mobile money operator fees started at around 5% and have since decreased to slightly above 3%. In other words, despite 10 years of efforts by policy makers, traditional players have failed to reach the price level that digital newcomers achieved from the start. In Kenya, digital competition by M-Pesa has pushed competitors in the domestic market such as Western Union and MoneyGram to lower their prices (Mbiti and Weil, 2016).



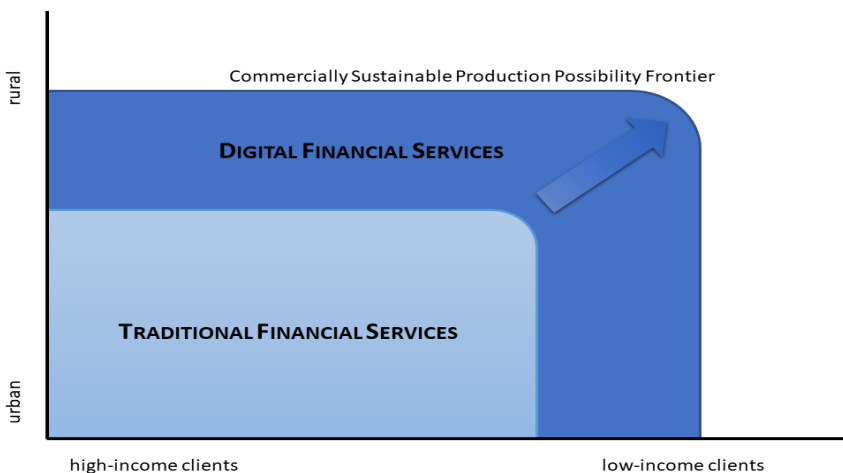
Figure 4: Remittance prices of traditional and new providers



Source: Modified from World Bank (2020)

The technological innovations that underly digital finance reduce the cost of service provision and lead to better risk-adjusted returns for financial firms, representing a positive supply shock (Beck and De La Torre, 2007). Thus, in principle, financial service providers can use the digital windfall to provide cheaper service to existing customers and expand their customer base, in particular to rural areas (lower volumes) and low-margin clients (such as poor households and MSMEs) that are currently excluded (Figure 5).

Figure 5: Fintech and the commercially sustainable production possibility frontier



Source: Xu (2019)

Banks, however, are not protagonists of digital financial inclusion. Even though old financial inclusion policies focused on them, most of the success stories over the past decade occurred with commercial banks at the margins, even despite their resistance. In Kenya, the banking association pressured the Acting Finance Minister in 2008 to order an audit over M-Pesa because of concerns that the newcomer would compete with bank deposits (Ndung'u, 2021). In South Africa, commercial banks exert pressure to keep non-banks excluded from the National Payment System, stifling the rise of non-bank Digital Financial Services (DFS) providers (World Bank, 2019b). In the eight countries of WAEMU and Ghana, financial inclusion stalled for years because mobile money providers had to partner with a commercial bank. Regulatory changes in the mid-2010s freed non-banks from this obligation and the number of mobile money agents and accounts has grown exponentially since then (Mattern and McKay, 2018; Mattern and Riquet, 2019).

The relationship between commercial banks and non-bank digital providers is one of “coopetition” (Nalebuff and Brandenburger, 1996). Banks have some reasons to be concerned: non-banks tend to be more agile, have lower operating costs, and offer better products to a wider range of customers, including but not limited to low-income households and MSMEs. They also compete for retail deposits, data, and customer relationships. Banks can also partner with non-banks to provide capital for digital credit, keep customer funds in savings and trust accounts, and offer a range of financial services under prudential supervision.

Mobile network operators (MNOs) and BigTech firms have emerged as key actors in digital financial inclusion, with regional variations. In Sub-Saharan Africa, MNOs as mobile money providers are key drivers of financial inclusion, supported by expansive agent networks that exchange e-money and cash. Kenya is the trailblazer in this field, where mobile money accounts outpaced banks as financial access providers as early as 2009, only two years after the introduction of M-Pesa (Heyer and King, 2015; Ndung'u, 2021). In Tanzania, Zambia, and Rwanda, mobile money accounts represented the majority of all transaction accounts as early as 2015 (World Bank, 2016). By 2021, there were 518 million active mobile money accounts in 98 countries processing US\$1 trillion in transactions annually (GSMA, 2022).

In China and other East and South East Asian countries, BigTech firms drove mobile money adoption in the absence of an agent network (Chen, 2016; Mittal and Lloyd, 2016). In 2016, the processing volume of e-payments in China reached US\$ 790 billion, eleven times that of the United States (Woetzel et al., 2017). In 2022, two BigTech firms (Alipay and WechatPay) count on 1.3 and 0.9 billion digital wallets, respectively (Fintech News, 2022).

Microfinance institutions are struggling to keep up with the new economics of financial inclusion. The business model of microfinance institutions is analog and labour-intensive; it involves a costly branch network, extensive community engagement, credit assessment by humans, and social collateral. Over the past decade, microfinance institutions have not reached scale, and many are pushed to the margins by the lower-cost and more convenient DFS provided by MNOs or BigTech

firms (FSD Kenya, 2021). Some, such as Baobab MFI in Madagascar, have tried to go digital, but they have lost their community engagement edge while still not being as competitive as fintech credit firms (IFC, 2018).

## 4.0 Things that Stay the Same

While digital automation has overcome some obstacles to financial inclusion, others remain relevant. Volatile and small incomes, geographical barriers, informality, literacy and trust remain key constraints on the demand side. Some of them, such as literacy and trust, gain renewed importance as new instruments and products create unprecedented opportunities for financial scams, cyber-attacks, and other criminal behaviour (Bylander and Res, 2021). While digital technology can address geographical barriers and lack of documentation to some extent, other demand-side constraints require policies that transcend the financial sector.

Digital technology and agent banking has reduced geographical barriers to financial inclusion, but not eliminated them. Field research in the DRC has found that agents in low-income urban areas make enough profit from frequent low value interactions, akin to Unilever Hindustan's "low price, low margin, high volume" model of reaching the bottom of the pyramid (Cull et al., 2018). But low volumes challenge profitability of agents in rural areas (Hernandez et al., 2020). Informality and lack of documentation continue to be a concern, but they may not be the key obstacle to financial access in many low-income countries. Countries that have made major gains in financial inclusion, such as Kenya, Tanzania, and Bangladesh, also feature a high degree of informality.

While digital technologies can help address some financial risk, as indicated above, they cannot ameliorate or may even exacerbate other kinds of risk. Financial intermediaries using fintech still face traditional risks such as credit, liquidity, conduct and operational risk. Financial capability, and investor and consumer protection are concerns that should be at least as salient among fintech firms as among traditional providers. Moreover, fintech may expose market participants and regulators to unprecedented challenges in areas such as cyber risk (cloud computing, data integrity), complexity (algorithm assessment), interoperability and competition (data ownership, platforms, Application Programming Interface), integrity (crypto-assets), and macro-stability (unsupervised linkages among financial intermediaries, untested algorithms and credit models) (CGFS and FSB, 2017; FSB, 2017).

Responsible financial access also remains a salient concern. As the protagonists of new financial inclusion reach the bottom of the pyramid, they incorporate an increasing number of customers with limited financial literacy and numeracy (World Bank, 2022). Predatory lending at triple-digit annualized interest rates has

been common in the informal sector in many developing countries. Unfortunately, some digital lenders are expanding, with business models based on rudimentary algorithms that are too similar to that of loan sharks, as the recent experience of Kenya, Tanzania, and South Africa shows (Izaguirre, 2018; Kaffenberger et al., 2018). Regulatory intervention to prevent over-indebtedness was a concern for microfinance advocates a decade ago – it remains one today.

Gender inequities persist in digital finance. Even though the gender gap in digital financial access tends to be lower than for its traditional counterpart and is shrinking, it is significant. Men are more likely to open mobile money accounts and use digital financial services in general than women (Shin et al., 2021). Policy makers should look at obstacles to fintech adoption by women, including lower trust in male mobile money agents (Barooah et al., 2018) or privacy concerns, and take appropriate action.

## 5.0 The Faustian Bargain

Technological change and digital automation have not only transformed the financial services market, rendering some financial inclusion policies obsolete. They have also created a new, second-order challenge for policy makers: Unlike banks, MNOs and BigTech firms have the incentives and the necessary capital to invest in a significant expansion of their service networks to facilitate access to financial services even among MSMEs, rural and low-income households. But while such network expansion helps excluded parts of the population obtain access to better financial services without draining the public purse, digital financial inclusion comes at the cost of establishing a novel monopoly or oligopoly of platform providers. This section lays out the logic behind this Faustian bargain.

MNOs and BigTech firms are willing to make significant investments that foster financial inclusion even when it is not profitable in the short-run. Unlike traditional financial service providers, they have incentives to reach a wide customer base. In a recent report, the BIS summarizes the incentive structure of these companies neatly, stating that digital platforms are able to leverage a “DNA feedback loop”: data analytics, network externalities, and interwoven activities (BIS, 2019; Frost et al., 2019). The following paragraphs will briefly elaborate on each in turn.

MNOs and BigTech firms are keener to harness the value of data than traditional financial services providers. These two types of non-banks are protagonists of financial inclusion because each additional customer is a valuable source of data for them. DFS providers can train artificial intelligence-powered financial models on their proprietary database, for example when making credit decisions (Ding et al., 2018; Hau et al., 2018). Such data-driven decision-making may help address current financial access gaps. For example, Ant Financial microloan data reveals that women are more creditworthy than men, with 20% lower default rates *ceteris paribus* (Zhang, 2017). Conversely, there is a risk that algorithms accentuate existing inequalities or discriminate against certain customers in ways that are neither transparent to regulators nor the firm itself (Feyen et al., 2021). MNOs and BigTech firms also use customer data to inform the non-financial part of their business.

The network externalities of digital platforms justify significant up-front investment. Once a digital platform reaches a critical mass of customers, it can expect to reap the benefits of network externalities (including customer loyalty) and monopsony (selling other firms access to customers at a markup). M-Pesa, Ant Group, and Tencent have

excelled at both, and aspiring platform providers elsewhere have long taken notice. In addition, operating costs per customer decrease significantly as DFS networks reach scale. An analysis of proprietary data from six mobile money operators by McKinsey reveals that the profit margins on digital transactions can exceed 75% for first movers. Moreover, established players spend less money on marketing (because customers and agents approach the firm on their own) and cash distribution, as individual agents collect and disburse cash in more equal measure each day (Osafo-Kwaako et al., 2018). The benefits of market dominance can be massive: in 2019-22, M-Pesa is expected to generate 50% of the revenues of Safaricom, the MNO that operates the platform in Kenya, according to GSMA (2019) research.

The ability to cross-sell services provides an additional incentive to reach the bottom of the economic pyramid. The capital and effort MNOs and BigTech firms dedicate to fostering financial inclusion can in part – and ironically – be attributed to the fact that financial services are not their core business. DFS can conveniently be added to existing infrastructure (e.g., mobile or e-commerce networks), and they serve to lock customers into a firm-owned service environment and thus reduce client attrition. In short, unlike banks, MNOs and BigTech firms have both the capital and incentives to expand the financial access network even when it is not profitable for their financial business, at least in the short-term.

Prematurely imposing interoperability can undermine these incentives. Mozambique is a case in point. Over the last half-decade, several mobile money providers have engaged in competition over network dominance, investing in telecommunications towers, network equipment, and agent outlets. Researchers at the International Growth Centre make an explicit case against imposing interoperability at this time because it would reduce company incentives to invest. They argue that the regulator can make policy changes a later point, once the market has matured (Hoernig and Maugeri, 2017).

What is not to like about private firms dedicating massive investments towards expanding the financial access infrastructure, a public policy goal designed to help underserved communities use a better and wider range of financial services than what they currently have at their disposal? The Faustian side to the bargain surfaces in the anti-competitive behaviour MNOs and BigTech firms may exhibit once they have reached market dominance (Feyen et al., 2021). Kenya and China are noteworthy examples.

The speed of M-Pesa uptake was breathtaking: only five years after its launch in 2007, 70% of Kenya's adult population was using the mobile money service (Ndung'u, 2021). Today, the number of mobile money accounts outnumber the country's population. The network of mobile money agents multiplied by a factor of ten between 2007 and 2010, and again by 2022 (Central Bank of Kenya, 2022a). Thus, in a matter of years, M-Pesa has established a financial access infrastructure that dwarfs the country's bank branch and ATM network, at no cost to official coffers. Quite the opposite, M-Pesa generates revenue for the Kenyan government in the form

of taxes and dividends (Tyce, 2020). The Treasury is the second-biggest shareholder of Safaricom, the MNO that operated and now owns M-Pesa in Kenya (Mwaniki, 2022).

M-Pesa is one of four mobile money providers in the country, but it commands a 99% market share today, up from around 75% during much of the 2010s (Gilbert, 2020). Its dominance of the mobile market allows M-Pesa to charge a hefty mark-up on two kinds of fees: (1) transaction fees for customers; and (2) access fees for financial service providers to offer products to M-Pesa customers. First, money transfer fees in 2022 are between equal and 60% higher than for Airtel, M-Pesa's closest competitor, and up to twice as much for "unregistered users" of other mobile money services. Notably, Airtel customers can transfer money among themselves for free, whereas M-Pesa customers have to pay fees both within and out-of-network (Safaricom, 2022). Second, MNOs control the gates to the Unstructured Supplementary Service Data (USSD) messaging network that underlies mobile money on feature phones. The price of access to Safaricom's USSD network was twice as high as for the second largest MNO, and ten times that of the third provider, according to a price comparison from 2014 (Mazer and Rowan, 2016). MNOs also control mobile subscription and mobile money transaction data, which reveals valuable customer attributes such as liquidity, regularity and scale of cash flow, and breadth of a customer's social network (Blechman, 2016). MNO's role as gatekeepers for both kinds of data may discourage competition and privilege individual firms that enter in exclusive arrangements with the MNO to access data and customers. At the same time, innovative newcomers that operate on smartphones only can obtain user data independently, attenuating the power of MNOs.

M-Pesa resisted calls for interoperability for many years. Interoperability requires multidimensional negotiations on issues such as membership criteria, participation in rule-setting, operations, dispute management, and technology. Here, mobile money providers can find focal points of agreement, either alone or with the prodding of authorities. Negotiations regarding switch and interchange fees appear to be more complicated. If end users are to pay no additional fee for out-of-network transfers, mobile money providers need to negotiate internal interchange fees in line with expected costs and revenues for bilateral customer transfer streams, all subject to differentials in market power. This may be why interchange pricing is often negotiated bilaterally. In 2015, out-of-network transfer charges were three times as high as within the M-Pesa network (Mazer and Rowan, 2016). It took until 2018 for M-Pesa to sign an interoperability agreement with the next biggest two providers (Airtel Money and Telkom TKash) (Cook, 2018).

China provides another noteworthy example of the Faustian Bargain. Two BigTech firms, namely Alibaba and Tencent, entered the retail payment business in 2003 and 2013, respectively. By 2021, Alipay has 1.3 billion users, closely followed by WeChat Pay with 900 million (Feyen et al., 2021). In the mid-2010s, QR codes that link to the payment networks became ubiquitous, allowing individuals to easily transfer money and even small MSMEs such as street food vendors to get paid digitally. Cash flow analysis of digital payments allowed Ant Group (the finance company spun off from



Alibaba in 2014) to innovate further. It launched the 3-1-0 model of microlending, where a loan application takes 3 minutes, and loan decision 1 second, with 0 humans involved. No collateral is required. Ant Group is now the biggest online lender, specializing in MSME loans and consumer credit. In 2020, microlending activities generated 40% of Ant Group's revenue and 48% of its profits (Isjwara, 2021; Liu et al., 2020).

As the digital retail financial market in China matured, a duopoly emerged. Alipay and WeChat Pay comprise over 90% of the digital payment market in China. The two are not interoperable, and websites owned by one conglomerate typically only accept their in-house payment service, not the competitor's (Tencent Opens WeChat Further to Rivals as App Walls Come Down, 2021). Until 2021, when the PBOC issued guidelines on a unified barcode, each payment provider had their own exclusive QR standard (Zhang et al., 2019). Ant Group also engaged in creative interpretations of financial rules and regulations: its microlending products (Huabei and Jiebei) did not meet prudential capital requirements. It has securitized its micro-loans to gain greater leverage, and its insurance-like service (Xiang Hu Bao) does not have an insurance license (Zhu, 2021). Ant Group also abused its dominant market position to exclude peer operators, and parent company Alibaba presented some vendors with the choice to sell exclusively on its platform or not sell at all. Customer data from Alibaba companies are kept in-house for commercial use. At the same time, consumers complain about the risk of data leakage and unauthorized use of their personal data (Walsh, 2021). Concerns about over-indebtedness among college students are rising as online lenders target advertisement at this consumer group.

## 6.0 Conclusion: What to do?

Faced with the Faustian bargain, regulators in some jurisdictions opt to retain barriers to market entry and keep the digital retail payments system on a tight, bank-dominated leash. This can lead to stagnation in digital financial inclusion as non-banks are discouraged from investing in financial access networks, with important differences across jurisdictions.

Policy makers who have adopted a more laissez-faire approach have often seen the private digital financial services sector thrive, with a plethora of second and third-generation services building on top of retail payment platforms. At the same time, market abuses by dominant players have required corrective policy intervention. Again, Kenya and China provide lessons from such rectification measures.

In Kenya, the 2011 National Payment Systems Act and additional e-money regulations in 2013 gave monitoring and regulatory power over mobile money to the Central Bank. In 2014, the Competition Authority of Kenya (CAK) ruled that Safaricom could no longer require agents to exclusively work for the company. The Central Bank of Kenya also put a ban on exclusivity agreements in agent contracts in 2014. After the 2014 ruling, the percentage of agents working for one company has steadily decreased from a high of 96% in 2013. Ending agent exclusivity has increased the profitability of agent outlets and benefited customers (Mazer et al., 2016).

In a separate case, CAK reprimanded M-Pesa for a lack of transparency on prices for transactions going through its network. M-Pesa in turn agreed to lower its service charges and to inform payment service providers of transaction prices via real-time notification after initiation, but before completion (Business Daily, 2017). In April 2018, CAK, the Communication Authority, and the Central Bank of Kenya took a joint initiative to nudge all mobile money providers to sign agreements for the seamless transfer of funds between individual e-wallets (Ombok, 2022). Since April 2022, customers can pay merchants on an interoperable platform, no matter which mobile money wallet they use (CBK, 2022b). Meanwhile, the Central Bank of Kenya has issued new regulations covering all digital credit providers (Digital Credit Providers Regulations, 2022).

In addition, Kenya updated its data governance framework with the 2018 General Data Protection Regulations and the 2019 Data Protection Act. The new legal framework identifies the Communications Authority of Kenya (CA), Competition Authority of Kenya (CAK), and the Central Bank of Kenya as the major enforcers of

privacy regulations. The 2019 Act prompted Safaricom to establish an internal office for data protection to review how the company handles consumer data.

In China, regulatory authorities have reigned in excesses in the digital financial market since 2016, when a booming P2P credit market harboured repeated cases of regulatory arbitrage and fraud (Gruin & Knaack, 2019). BigTech platforms offering financial services enjoyed a high degree of leeway until recently. In November 2020, the State Administration for Market Regulation (SAMR) started drafting a new antitrust guideline to curb monopolistic behaviour in a first attempt to define anti-competitive practices online. The new guideline by the market regulator directly addresses tech giants such as Alibaba and Tencent (Liu and Ren, 2020). In the same month, financial supervisors canceled the stock market launch of Ant Group, scuppering what would have been the world's largest IPO to date. The top management of Ant Group was summoned for a joint meeting with the People's Bank of China (PBOC), the banking, insurance, and securities regulators, and the State Administration for Foreign Exchange. The authorities accused Ant of scant awareness of the law, defiance of regulatory compliance requirements, regulatory arbitrage, abuse of its market dominance, and of inflicting damage to the legitimate rights and interests of consumers. Ant is required to address a long list of such wrongdoings, and the company had to undergo a rectification process that is still in process (Pan, 2020). In a separate decision, financial supervisors and the Ministry of Public Security banned online microlending platforms from granting new consumer loans to college students and required platform providers to show proof of secondary payment channels, effectively placing the onus of ensuring "responsible" financial access to the firm, and not the customer (Yue and Jia, 2021).

China has also witnessed significant changes in data governance in 2021. In March 2021, data governance authorities tightened the rules for BigTech platforms. The Cyberspace Administration of China (CAC), the Ministry of Industry and Information Technology (MIIT), the Ministry of Public Security, and the SAMR jointly issued rules that restrict what kind of personal info apps can demand (Cyberspace Administration of China, 2021). MIIT, which also serves as China's telecom regulator, ordered 90 apps to be withdrawn from several app stores, citing violations of users' rights. In the summer of 2021, China's parliament passed two laws governing data, the National Data Security Law to address cyber-risks and data sovereignty, and the Personal Information Protection Law that dictates how personal data is to be collected and utilized (Wang, 2021). Analysts disagree on the reasons and effects of the laws once they are implemented, but some agree that the legal changes are meant to reign in BigTech companies, and also to present to the world a model of how individual and national rights can be protected against increasingly powerful digital firms (Mok, 2021).

More recently, Xi Jinping addressed the Politburo of the Communist Party in a speech on developing the country's digital economy, stating that "it is necessary to rectify and standardize conduct and practices that harm the public interests and impede fair competition in the development process, prevent monopoly by platform

companies and disorderly expansion of capital, and investigate and punish acts of monopoly and unfair competition in accordance with the law.” (Xi, 2022). Given such a clear message from the top, BigTech platform operators can expect continued scrutiny regarding regulatory arbitrage or anti-competitive practices in the future.

Two preliminary lessons can be drawn from both the Kenyan and Chinese cases. First, rectification started after the market had reached a certain degree of maturity. The authorities in both jurisdictions had adopted a *laissez-faire* approach first and only tightened the rules once market abuse and consumer right infringements by dominant firms became a salient concern. Second, financial supervisors cooperated across regulatory siloes. In Kenya, the Central Bank consults with the antitrust regulator and telecom regulators to govern the mobile money market. In China, new rules and regulations are usually issued jointly by several relevant ministries and regulatory agencies. Regulators in China and beyond must balance the goals of encouraging innovation, protecting consumer interest, and enhancing the international competitiveness of national firms (Zhang, 2021). This balancing act requires both careful policy sequencing and a focus on cross-agency cooperation. While the jury is out on the effectiveness of the rectification measures discussed above, Kenya and China harbour valuable policy lessons for regulators in East Africa and the rest of the world.

## References

- Banerjee, A., Karlan, D. and Zinman, J. 2015. "Six randomized evaluations of microcredit: Introduction and further steps". *American Economic Journal: Applied Economics*, 7(1): 1-21.
- Barooah, P., Sahoo, S., Bhat, S. and George, D. 2018. *Closing the gender gap: Opportunities for the women's mobile financial services market in Bangladesh*. Washington DC: World Bank.
- Bateman, M. and Maclean, K. 2017. *Seduced and betrayed: Exposing the contemporary microfinance phenomenon*. University of New Mexico Press.
- Beck, T., and Cull, R. 2013. *Banking in Africa*. <https://openknowledge.worldbank.org/handle/10986/16899>.
- Beck, T. and De La Torre, A. 2007. "The basic analytics of access to financial services". *Financial Markets, Institutions and Instruments*, 16(2): 79-117.
- Beck, T., Gambacorta, L., Huang, Y., Li, Z. and Qiu, H. (2022). Big techs, QR code payments and financial inclusion. <https://www.bis.org/publ/work1011.htm>.
- Beck, T. and Levine, R. 2018. *Handbook of finance and development*. Edward Elgar Publishing Inc.
- Berg, T., Burg, V., Gombović, A. and Puri, M. 2020. "On the rise of fintechs: Credit scoring using digital footprints". *The Review of Financial Studies*, 33(7): 2845-2897.
- Bharadwaj, P., Jack, W. and Suri, T. 2019. *Fintech and household resilience to shocks: Evidence from digital loans in Kenya*. National Bureau of Economic Research.
- BIS. 2019. *Annual Economic Report 2019*. <https://www.bis.org/publ/arpdf/ar2019e.htm>.
- Blechman, J.G. 2016. "Mobile credit in Kenya and Tanzania: Emerging regulatory challenges in consumer protection, credit reporting and use of customer transactional data". *The African Journal of Information and Communication*, 2016(17): 61-61.
- Business Daily. 2017. *Safaricom complies with CAK order on M-Pesa fees disclosure*. Business Daily. <https://www.businessdailyafrica.com/bd/corporate/companies/safaricom-complies-with-cak-order-on-m-pesa-fees-disclosure-2139612>.
- Bylander, M. and Res, P. 2021. "If you fall, stand up again: The moral nature of financial literacy in the Global South". *Development and Change*, 52(1): 26-53.

- Central Bank of Kenya. 2022a. Mobile payments. <https://www.centralbank.go.ke/national-payments-system/mobile-payments/>. Digital Credit Providers Regulations Legal Notice No. 46. 2022. file:///C:/Users/pknaa/Downloads/L.-N.-No.-46-Central-Bank-of-Kenya-Digital-Credit-Providers-Regulations-2022.pdf.
- Central Bank of Kenya. 2022b. Launch of mobile money merchant interoperability. [https://www.centralbank.go.ke/uploads/press\\_releases/1691854698\\_Press%20Release%20-Mobile%20Money%20Merchant%20Interoperability.pdf](https://www.centralbank.go.ke/uploads/press_releases/1691854698_Press%20Release%20-Mobile%20Money%20Merchant%20Interoperability.pdf).
- CGAP. 2014. Mystery shopping in Mexico. <https://www.cgap.org/research/infographic/mystery-shopping-mexico>.
- CGFS and FSB. 2017. FinTech credit: Market structure, business models and financial stability implications. [https://www.bis.org/publ/cgfs\\_fsb1.htm](https://www.bis.org/publ/cgfs_fsb1.htm).
- Chen, L. 2016. "From Fintech to Finlife: The case of fintech development in China". *China Economic Journal*, 9(3): 225-239.
- Collins, D., Morduch, J., Rutherford, S. and Ruthven, O. 2009. *Portfolios of the poor: How the world's poor live on \$2 a day*. Princeton University Press.
- Cook, W. 2018. East African interoperability: Dispatches from the home of M-Pesa. CGAP. <https://www.cgap.org/blog/east-african-interoperability-dispatches-home-m-pesa>.
- Cull, R., Demirgüç-Kunt, A. and Morduch, J. 2013. *Banking the world: Empirical foundations of financial inclusion*. MIT Press.
- Cull, R., Demirgüç-Kunt, A. and Morduch, J. 2018. "The microfinance business model: Enduring subsidy and modest profit". *The World Bank Economic Review*, 32(2): 221-244.
- Cull, R., Gine, X., Harten, S., Heitmann, S. and Rusu, A.B. 2018. "Agent banking in a highly under-developed financial sector: Evidence from Democratic Republic of Congo". *World Development*, 107: 54-74.
- Cyberspace Administration of China. 2021. Notice on issuing the "Regulations on the Scope of Necessary Personal Information for Common Types of Mobile Internet Applications" [http://www.cac.gov.cn/2021-03/22/c\\_1617990997054277.htm](http://www.cac.gov.cn/2021-03/22/c_1617990997054277.htm).
- Demirgüç-Kunt, A., Honohan, P. and Beck, T. 2008. *Finance for all? Policies and pitfalls in expanding access*. Washington DC: World Bank.
- Ding, D., Chong, G., Chuen, D.L.K. and Cheng, T.L. 2018. "From Ant Financial to Alibaba's rural Taobao strategy—how fintech is transforming social inclusion". In *Handbook of blockchain, digital finance, and inclusion*, Volume 1: 19-35.
- Duvendack, M., Palmer-Jones, R., Copestake, J.G., Hooper, L., Loke, Y. and Rao, N. 2011. What is the evidence of the impact of microfinance on the well-being of poor people? EPPI-Centre, Social Science Research Unit, Institute of Education.
- Feyen, E., Frost, J., Gambacorta, L., Natarajan, H. and Saal, M. 2021. Fintech and the digital transformation of financial services: Implications for market structure and public policy. BIS Papers.

- Finmark Trust. 2016. Why use accounts? Understanding account usage through a consumer lens. [https://cenfri.org/wp-content/uploads/2016/11/Why-use-accounts-understanding-account-usage-through-a-consumer-lense\\_FinMark-Trust\\_2016.pdf](https://cenfri.org/wp-content/uploads/2016/11/Why-use-accounts-understanding-account-usage-through-a-consumer-lense_FinMark-Trust_2016.pdf).
- FinRegLab. 2019. The use of cash-flow data in underwriting credit: Empirical research findings. <https://finreglab.org/cash-flow-data-in-underwriting-credit-empirical-research-findings/>.
- Freedman, S. and Jin, G.Z. 2017. “The information value of online social networks: Lessons from peer-to-peer lending”. *International Journal of Industrial Organization*, 51: 185-222.
- Frost, J., Gambacorta, L., Huang, Y., Shin, H. S. and Zbinden, P. 2019. BigTech and the changing structure of financial intermediation. <https://www.bis.org/publ/work779.htm>.
- FSB. 2017. Financial stability implications from finTech. <http://www.fsb.org/wp-content/uploads/R270617.pdf>.
- FSD Kenya. 2021. FinAccess household survey. <https://www.fsdkenya.org/blogs-publications/publications/finaccess-household-surveys/>.
- Gambacorta, L., Huang, Y., Li, Z., Qiu, H. and Chen, S. 2020. Data vs collateral (No. 881; BIS Working Papers). <https://www.bis.org/publ/work881.htm>.
- Gambacorta, L., Huang, Y., Qiu, H. and Wang, J. 2019. How do machine learning and non-traditional data affect credit scoring? New evidence from a Chinese fintech firm. <https://www.bis.org/publ/work834.htm>.
- Gilbert, P. 2020. M-Pesa has almost 99% market share in Kenya. Connecting Africa. [http://www.connectingafrica.com/author.asp?section\\_id=761&doc\\_id=762180](http://www.connectingafrica.com/author.asp?section_id=761&doc_id=762180).
- Gine, X., Garcia, N. and Gomez-Gonzalez, J. 2017. Financial information in Colombia. Policy Research WP No. 7998. Washington DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/26248>.
- Gottschalk, R. 2016. “Assessing capacity constraints for effective financial regulation in Sub-Saharan Africa”. In S. Griffith-Jones and R. Gottschalk (eds.), *Achieving financial stability and growth in Africa* (pp. 61–82). Routledge.
- GSMA. 2019. 10 years of mobile for development. <https://www.gsma.com/mobilefordevelopment/10yearsofm4d/>.
- Hau, H., Huang, Y., Shan, H. and Sheng, Z. 2018. Fintech credit, financial inclusion and entrepreneurial growth. Unpublished Working Paper.
- Hernandez, E., Blackburn, C., Raman, A. and Reynolds, P. 2020. Agent network journeys towards the last mile. CGAP. [https://www.cgap.org/sites/default/files/publications/2020\\_12\\_Focus\\_Note\\_Agent\\_Network\\_Journeys.pdf](https://www.cgap.org/sites/default/files/publications/2020_12_Focus_Note_Agent_Network_Journeys.pdf).
- Heyer, A. and King, M. 2015. Kenya’s financial transformation in the 21st century. <https://fsdkenya.org/publication/kenyas-financial-transformation-in-the-21st-century/>.
- Hoernig, S. and Maugeri, N. 2017. Achieving greater financial inclusion in Mozambique: Challenges and the way forward. ICG. <https://www.theigc.org/wp-content/uploads/2017/09/Hoernig-Maugeri-2017-Policy-brief.pdf>.

- IFC. 2018. Digital access: The future of financial inclusion in Africa. [https://www.ifc.org/wps/wcm/connect/REGION\\_\\_EXT\\_Content/IFC\\_External\\_Corporate\\_Site/Sub-Saharan+Africa/Resources/201805\\_Report\\_Digital-Access-Africa](https://www.ifc.org/wps/wcm/connect/REGION__EXT_Content/IFC_External_Corporate_Site/Sub-Saharan+Africa/Resources/201805_Report_Digital-Access-Africa).
- Iqbal, A. 2014. Heating up the lives. Exploring ways to activate “dead” no frills accounts in Bangladesh (Fletcher School Policy Memoranda). [https://sites.tufts.edu/flpfi/files/2017/08/FLPFI\\_PolicyMemoranda\\_2014.pdf](https://sites.tufts.edu/flpfi/files/2017/08/FLPFI_PolicyMemoranda_2014.pdf).
- Isjwara, R. 2021. Ant Group’s revamp to hit biggest revenue source as regulators nix cross-selling. <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/ant-group-s-revamp-to-hit-biggest-revenue-source-as-regulators-nix-cross-selling-63653313>.
- Izaguirre, J.C. 2018. Digital credit market monitoring in Tanzania. <https://www.cgap.org/research/slide-deck/digital-credit-market-monitoring-tanzania>.
- Jack, W., Ray, A. and Suri, T. 2013. “Transaction networks: Evidence from mobile money in Kenya”. *American Economic Review*, 103(3): 356-361.
- Jack, W. and Suri, T. 2014. “Risk sharing and transactions costs: Evidence from Kenya’s mobile money revolution”. *American Economic Review*, 104(1): 183-223.
- Jagtiani, J. and Lemieux, C. 2018. The roles of alternative data and machine learning in fintech lending: Evidence from the LendingClub consumer platform.
- Johnson, S. 2016. “Competing visions of financial inclusion in Kenya: The rift revealed by mobile money transfer”. *Canadian Journal of Development Studies/Revue Canadienne d’études Du Développement*, 37(1): 83-100.
- Jones, K. and Gong, E. 2021. “Precautionary savings and shock-coping behaviors: Effects of promoting mobile bank savings on transactional sex in Kenya”. *Journal of Health Economics*, 78: 102460.
- Kaffenberger, M., Totolo, E. and Soursourian, M. 2018. A digital credit revolution: Insights from borrowers in Kenya and Tanzania. <https://www.cgap.org/research/publication/digital-credit-revolution-insights-borrowers-kenya-and-tanzania>.
- Karlan, D. and Zinman, J. 2009. “Expanding credit access: Using randomized supply decisions to estimate the impacts”. *Review of Financial Studies*, hhp092.
- Lee, D.K.C. and Teo, E.G. 2015. “Emergence of FinTech and the LASIC principles”. *Journal of Financial Perspectives*, 3(3).
- Liu, C., Zhang, Y., Yue, Y., Wei, Y. and Han, W. 2020. Cover story: Why Ant Group’s IPO may stay on ice for a while - Caixin Global. <https://www.caixinglobal.com/2020-11-09/cover-story-why-ant-groups-ipo-may-stay-on-ice-for-a-while-101624536.html>.
- Liu, Y. and Ren, D. 2020. China targets tech giants in new antitrust guideline, slamming ATM stocks. South China morning post. <https://www.scmp.com/business/china-business/article/3109188/china-drafts-new-antitrust-guideline-rein-tech-giants>.
- Lu, M. and Zhou, L. 2020. Interpretation of the spirit of the Central Economic Work Conference [http://www.xinhuanet.com/fortune/2020-12/27/c\\_1126911793.htm](http://www.xinhuanet.com/fortune/2020-12/27/c_1126911793.htm).
- Mader, P. 2018. “Contesting financial inclusion”. *Development and Change*, 49(2): 461-483.



- Mattern, M. and McKay, C. 2018. Building inclusive payment ecosystems in Tanzania and Ghana. <https://www.cgap.org/research/publication/building-inclusive-payment-ecosystems-tanzania-and-ghana>.
- Mattern, M. and Riquet, C. 2019. Regulations drive success of digital finance in Côte d'Ivoire. CGAP. <https://www.cgap.org/blog/regulations-drive-success-digital-finance-cote-divoire>.
- Mauss, M. 2002. *The gift: The form and reason for exchange in archaic societies*. Routledge.
- Mazer, R., Pillai, R. and Staschen, S. 2016. Agents for everyone: Removing agent exclusivity in Kenya and Uganda. CGAP. <https://www.cgap.org/blog/agents-everyone-removing-agent-exclusivity-kenya-uganda>.
- Mazer, R. and Rowan, P. 2016. "Competition in mobile financial services: Lessons from Kenya and Tanzania". *The African Journal of Information and Communication*, 2016(17): 39-59.
- Mbiti, I. and Weil, D.N. 2016. "Mobile banking: The impact of M-Pesa in Kenya". In S. Edwards, S. Johnson and D. Weil (Eds.), *African successes*, Vol. III: Modernization and Development (pp. 247–293). University of Chicago Press.
- Mittal, S. and Lloyd, J. 2016. The rise of FinTech in China redefining financial services. DBS Bank and Ernest and Young. <https://www.digitalfrontiersinstitute.org/resources/item/the-rise-of-fintech-in-china-redefining-financial-services>.
- Mok, C. 2021. Why China is going after its tech giants. ChinaFile. <https://www.chinafile.com/reporting-opinion/viewpoint/why-china-going-after-its-tech-giants>.
- Mwaniki, C. 2022. Treasury prepares to slash M-Pesa charges. *Business Daily*. <https://www.businessdailyafrica.com/bd/economy/treasury-prepares-to-slash-m-pesa-charges-3755850>.
- Nalebuff, B. and Brandenburger, A. 1996. Coopetition. na.
- Ndung'u, N. 2021. A digital financial services revolution in Kenya: The M-Pesa case study. <https://aercafrica.org/latest-news/a-digital-financial-services-revolution-in-kenya-the-m-pesa-case-study/>.
- Ombok, E. 2022. Kenyan mobile money gets boost in shift to seamless payments. Bloomberg.Com. <https://www.bloomberg.com/news/articles/2022-04-08/kenyan-mobile-money-gets-boost-in-shift-to-seamless-payments>.
- Osafo-Kwaako, P., Singer, M., White, O. and Zouaoui, Y. 2018. Mobile money in emerging markets: The business case for financial inclusion. McKinsey & Co. <https://www.mckinsey.com/industries/financial-services/our-insights/mobile-money-in-emerging-markets-the-business-case-for-financial-inclusion>.
- Pan, G. 2020. Answers to reporter's questions by PBC Deputy Governor Pan Gongsheng <http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/4153479/index.html>.
- Petralia, K., Philippon, T., Rice, T.N. and Véron, N. 2019. Banking disrupted? Financial intermediation in an era of transformational technology. ICMB International Centre for Monetary and Banking Studies.
- Philippon, T. 2019. *On fintech and financial inclusion*. National Bureau of Economic Research.

- Safaricom. 2022. M-Pesa charges 2022: New Safaricom M-Pesa withdrawal charges and tariffs. Safaricom M-Pesa rates, charges and tariffs. <https://www.mpesacharges.com/mpesa-charges/>.
- Shin, H.S., Gambacorta, L., Frost, J., Doerr, S. and Chen, S. 2021. The fintech gender gap. Available at SSRN 3799864.
- Suri, T. and Jack, W. 2016. “The long-run poverty and gender impacts of mobile money”. *Science*, 354(6317): 1288–1292.
- Tencent Opens WeChat Further to Rivals as App Walls Come Down. 2021. <https://www.caixinglobal.com/2021-11-30/tencent-opens-wechat-further-to-rivals-as-app-walls-come-down-101811482.html>.
- Tyce, M. 2020. “Beyond the neoliberal-statist divide on the drivers of innovation: A political settlements reading of Kenya’s M-Pesa success story”. *World Development*, 125, 104621. <https://doi.org/10.1016/j.worlddev.2019.104621>.
- Wakadha, H., Chandir, S., Were, E.V., Rubin, A., Obor, D., Levine, O.S., Gibson, D.G., Odhiambo, F., Laserson, K. F. and Feikin, D.R. 2013. “The feasibility of using mobile phone-based SMS reminders and conditional cash transfers to improve timely immunization in rural Kenya”. *Vaccine*, 31(6): 987-993. <https://doi.org/10.1016/j.vaccine.2012.11.093>.
- Walsh, M. 2021. China’s market regulator publishes tech firms’ vows of virtue. Caixin. <https://www.caixinglobal.com/2021-04-16/chinas-market-regulator-publishes-tech-firms-vows-of-virtue-101692406.html>.
- Wang, X. 2021. China passes data security law in bid to stamp out breaches, misuse. Caixin. <https://www.caixinglobal.com/2021-06-11/china-passes-data-security-law-in-bid-to-stamp-out-breaches-misuse-101726322.html>.
- Woetzel, J., Seong, J., Wang, K.W., Manyika, J., Chui, M. and Wong, W. 2017. China’s digital economy: A leading global force. McKinsey Global Institute. <https://www.mckinsey.com/featured-insights/china/chinas-digital-economy-a-leading-global-force>.
- World Bank. 2016. Global Payment Systems Survey (GPSS). <https://www.worldbank.org/en/topic/financialinclusion/brief/gpss>.
- World Bank. 2019a. National Financial Inclusion Strategies Resource Centre. <https://www.worldbank.org/en/topic/financialinclusion/brief/financial-inclusion-strategies-resource-centre>.
- World Bank. 2019b. South Africa—digital economy diagnostic. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail>.
- World Bank. 2022. Global Findex 2021. <https://www.worldbank.org/en/publication/globalindex>.
- World Bank. 2020. Remittances prices worldwide. [https://remittanceprices.worldbank.org/sites/default/files/rpw\\_report\\_march\\_2020.pdf](https://remittanceprices.worldbank.org/sites/default/files/rpw_report_march_2020.pdf).
- Xi, J. 2022. Continuing to strengthen and optimize China’s digital economy Qiushi, 2022/2. [http://www.qstheory.cn/dukan/qs/2022-01/15/c\\_1128261632.htm](http://www.qstheory.cn/dukan/qs/2022-01/15/c_1128261632.htm).
- Xu, Y. 2019. Technology can expand the financial inclusion frontier. Caijing Fintech. <https://fintech.caijing.com.cn/20190221/4575714.shtml>.

- Yadav, S. and Mazoomdaar, J. 2016. The one-rupee trick: How banks cut their zero-balance Jan Dhan accounts. The Indian Express. <https://indianexpress.com/article/business/banking-and-finance/how-banks-cut-their-zero-balance-jan-dhan-accounts-one-rupee-trick-3028190/>.
- Yue, H. and Jia, D. 2021. China bans micro lenders from targeting college students. <https://www.caixinglobal.com/2021-03-18/china-bans-micro-lenders-from-targeting-college-students-101676766.html>.
- Zhang, H. 2017. Ant Financial loan big data tells you: Women are more trustworthy than men. <https://zj.zjol.com.cn/news/576647.html?t=1518508358818&ismobilephone=2>
- Zhang, X. 2021. The challenges and reforms of China's finance. Chinese Academy of Social Sciences. <https://mp.weixin.qq.com/s/0ksSxMyWdZLlKXWUVqcug>.
- Zhang, Y., Yuan, R., Qu, Y., Liu, Y. and Han, W. 2019. In depth: The fight for dominance in China's mobile payment market. <https://www.caixinglobal.com/2019-09-23/in-depth-the-fight-for-dominance-in-chinas-mobile-payment-market-101464880.html>.
- Zhu, J. 2021. China's Ant to boost consumer finance unit capital as it restructures micro-lending: Sources. Reuters. <https://www.reuters.com/article/us-china-ant-group-consumer-finance-idUSKBN2AQ11C>.



## Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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