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Mobile Money: The First Decade

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Abstract

Over the past decade, mobile phone-enabled financial services, such as those made famous by the Kenyan mobile money platform M-Pesa, have been heralded as a means of poverty alleviation and financial inclusion. The mobile platform represents an exciting possibility as a delivery channel for digital financial services and as a technology that, like money, connects people with one another. Yet mobile money deployments around the world have not had unequivocal success. In this working paper, we survey lessons from the first decade of research into mobile money, focusing on an archive of studies produced by fellows funded by the Institute for Money, Technology and Financial Inclusion (IMTFI), based at the University of California, Irvine. We describe mobile money's primary use case—P2P money transfer—and argue that both the “Ps” and the “2s” of this model (mobile money's “peers” and the technological and social infrastructures that intermediate them) must be understood in context. We then outline ten insights from the IMTFI research archive that demonstrate the contextual complexities involved in introducing and scaling mobile money, including discussions of: agent networks; physical infrastructure; location, place, and space; kinship and family; gender and gender inequality; class, caste, and rank; religion and ritual; time and tempo; government and regulation; and the persistence of both cash and non-currency stores of value. We conclude by raising issues that promise to be critical provocations for the next decade of mobile money research, making an argument for methodological diversity, and interrogating the limitations of the “financial inclusion” frame within which mobile money has been situated as a development intervention. If mobile money is, at its core, a technology of communication and circulation, it is also a central means of distribution and redistribution. What would it mean, then, to shift the conversation from debates over financial inclusion to questions about financial justice?

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Introduction

Over the past ten years, the mobile platform has transformed how many people around the world access and use their money. Mobile money services have existed for more than a decade, but since 2007, 270 new mobile money services—i.e., services that allow users to access value transfer and payments via a mobile phone, typically without needing a bank account—have been launched in 92 countries across the global South. During that same period, over 500 million new mobile money accounts have been opened, and the number of accounts that have been active in the past 30 days has increased by over 350%. In the fourth quarter of 2016 alone, global mobile money transactions—including bill payment, cash transfers, and bulk disbursements, among other categories—totaled over \$22 billion, compared to \$96.5 million a decade before (GSMA 2017b).

Such services promise special transformative potential for the 2 billion who live on less than \$2/day and the some 2.5 billion who do not use formal financial services. Mobile money has been heralded by the development community as a means of alleviating poverty and reducing economic inequality by bringing the poor and un- or under-banked into formal financial systems. At the same time, many actors in the private sector have sought to make mobile money into a profitable business model, using it to harness what has been famously called “the fortune at the bottom of the pyramid” (Pralhad 2005; cf. Elyachar 2012, Roy 2015, Schwittay 2011b). Mobile money proponents seek to reconcile these interests. As the Deputy Director of Financial Services for the Poor at the Bill and Melinda Gates Foundation has written:

Financial inclusion is not about charity—it is about designing a single financial system that serves the poor and provides an opportunity for commercial players to create a business by serving the poor. (Peric 2015: 213)

Mobile money has thus become a central pillar of a global and internally heterogeneous—although by-now mostly “market-driven” (see Costa & Ehrbeck 2015)—“financial inclusion assemblage,” bringing together many different stakeholders in international development and philanthropy, industry (including telecommunications, banking, technology start-ups, and more), multinational aid and regulatory organizations, government, and academia (Schwittay 2011a).¹

Mobile money’s rapid proliferation over the last decade—and its installation at the center of this broader development assemblage—emerged in the context of several intersecting histories. The financial inclusion paradigm was an outgrowth of institutionalized programs to democratize access to capital, especially through microlending. Although collective and community finance has long existed in a variety of local settings and diverse configurations, microcredit as a development intervention institutionally organized around poverty alleviation emerged in the 1970s and quickly became a global phenomenon, evidenced especially through the popularity of Mohammad Yunus’s Grameen Bank in the 1990s. In response to critiques of such strategies, however, development professionals began to emphasize savings and then payment alongside or even instead of credit. “Microcredit” was replaced by “microfinance” in the international development vernacular, introducing tensions as development knowledge and practice became increasingly privatized and financialized. In the first decade of the 21st century, promoting access to financial services began to take on a new kind of common sense, codified in the United Nations’ Millennium Development Goals and advanced through a 2004 report by the UK Treasury (HM Treasury 2004). At the same time, the 2007-2008 global financial crisis set in stark relief the precariousness of banking institutions and the vulnerabilities of the poor, especially in the context of increasing personal and household indebtedness.

¹ See also Donner & Tellez 2008, Donovan 2012, Duncombe & Boateng 2009, Maurer 2012a, Singh 2013. Gabor & Brooks 2016 and Mader 2016 offer more critical overviews.

In the midst and wake of the crisis, philanthrocapitalist institutions in partnership with older development organizations began pursuing and promoting commitments to expanding access to basic financial services among the world's poor, often through new technologies. They did so while building on research insights from development economists using novel methods, such as household financial diaries, to demonstrate the diversity of financial instruments already available to the poor, as well as their everyday financial creativity in using those instruments (e.g., Banerjee & Duflo 2011, Collins et al. 2009, Rutherford 2001). Announcing the designation of 2005 as the "Year of Microcredit" then-UN Secretary General Kofi Annan remarked in 2003 that "[t]he stark reality is that most poor people in the world still lack access to sustainable financial services, whether it is savings, credit or insurance. The great challenge before us is to address the constraints that exclude people from full participation in the financial sector" (United Nations 2003). More than a decade later, dozens of institutions have sprung up around this challenge, and massive investments from the likes of the Gates Foundation, the World Bank, Visa and Mastercard, and many national governments have made "universal financial access" the central pillar of poverty alleviation efforts worldwide (e.g., World Bank 2015).

Mobile phone technology plays a critical role in this agenda. The turn to an "inclusion"-centric development and poverty reduction paradigm was cemented into place by a basic and seemingly transparent fact: while billions of people around the world do not have access to banks or bank accounts, they do own and use mobile phones. When the Financial Access Initiative's 2009 cross-country data comparison found that 2.5 billion of the world's adults were unbanked (Chaia et al. 2009), and when the Consultative Group to Assist the Poor (CGAP) and Groupe Spécial Mobile Association (GSMA) found that, of those 2.5 billion, 1 billion had access to mobile phones (Leishman 2009), mobile money's value proposition not only for business, but also as a vehicle for combatting poverty and socioeconomic marginalization, became clear.

In this working paper, we survey lessons from the first decade of research into mobile money, focusing on an archive of studies produced by fellows funded by the Institute for Money, Technology and Financial Inclusion (IMTFI), based at the University of California, Irvine. Since its first call for proposals in 2008, IMTFI has supported a global network of locally-based practitioners engaged in qualitative research on everyday financial behavior and monetary practices among the world's poorest communities.² Started with a grant from the Bill and Melinda Gates Foundation but operating autonomously within UC Irvine's Department of Anthropology, IMTFI has supported 187 researchers in 47 countries. IMTFI's central mission is to test the assumptions of the global, mobile money-based financial inclusion project. The central hypothesis of this project, IMTFI Director Bill Maurer explains, is

that moving people away from physical tokens of money into digital ones will have positive spillover effects for the rest of their lives. [...] One of the purposes of IMTFI is to test this hypothesis over and over and over again. ([IMTFI 2015](#))

Below, we highlight key themes about mobile money that have emerged from IMTFI's research network over the past ten years. We specifically target insights about mobile money users' everyday social, cultural, political, and economic practices. It is our hope that this synthesis will be beneficial for mobile money's various stakeholders.

² Our association with IMTFI began in 2010 (for Rea) and 2011 (for Nelms) as graduate student researchers. We have continued to work with IMTFI administrators and researchers since then. Below, wherever possible, we provide links to the online versions of the IMTFI research we cite.

The title of this paper implicitly identifies 2007 as the origin point for mobile money.³ That year marked the release of the first iPhone, heralding an explosion of technical innovation that would reshape the ways people in the global North and South pay for things, manage their money, and transact with one another (Nelms et al. n.d.). 2007 also marked the beginnings of the subprime mortgage crisis in the United States that would spread in the following months to become a global financial crisis. But it was also in March of 2007 that Safaricom, Kenya's largest mobile network operator (MNO), in partnership with the United Kingdom's Department for International Development (DFID), launched M-Pesa.

Today, M-Pesa is synonymous with mobile money and lauded as its most visible success story (for overviews, see Morawczynski 2009, Omwansa & Sullivan 2012). Roughly 20 million Kenyans use M-Pesa, accounting for 96% of all households, and there are more mobile money accounts in Kenya than there are bank accounts. Prior to M-Pesa's launch, only 20% of Kenyans had access to formal financial institutions, compared to 75% after just three years of existence (Yousif et al. 2012). M-Pesa has also been credited with helping to lift an estimated 2% of Kenyans above the poverty threshold (Suri & Jack 2016).

One of M-Pesa's first print advertisements represents well mobile money's ideal type (Fig. 1). The now-famous image shows a young man dressed like an urban professional standing in the foreground on the left holding a mobile phone. Kenyan shillings appear to be "flying" from his phone into another, held by an older woman with a tilling tool slung over her shoulder standing in the foreground on the right.⁴ In the background, an older man stands in a field next to a grazing cow. The caption reads, "Send pesa [the Swahili word for money] by phone: M-Pesa is the new, easy and affordable way to send money home." A bright red pinwheel directs the reader to "Register FREE at any Authorized M-PESA Agent."



Figure 1: M-Pesa advertisement, c. 2007

This deceptively simple advertisement contains nearly all of the key elements that have come to define mobile money in the post-M-Pesa landscape. The caption explicitly invokes the concept of "home" and the common practice of sending remittances from the city back to one's family in a rural village.

³ As we noted above, 2007 is an arbitrary date. Mobile money has existed since at least December 2000, when Smart's Smart Money was launched in the Philippines; Globe Telecom launched its service GCash in 2004. But this is a useful periodization nonetheless, as we explain here. (The GSMA [2017a] agrees).

⁴ In the televised version of the advertisement, the bills *literally* fly from a male office worker's mobile phone to that of the older woman working in the field; she then visits an M-Pesa agent to cash out. See here: <https://www.youtube.com/watch?v=nEZ30K5dBWU>.

The images of the young man and older woman—in all likelihood intended to be a son and his mother—imply that money and mobile telephony are both tools that help individuals maintain social bonds across distance (Kusimba et al. 2016). And the instructions about registering with an M-Pesa agent introduce arguably the most important piece of the mobile money puzzle: the network of retail agents who make up a crucial portion of the *social infrastructures* that complement the mobile telecommunications infrastructure, ensuring that the entire service can operate effectively—even if not always in the ways imagined by its designers.⁵

M-Pesa was initially a tool for transferring money from one point (and, it was often assumed, one person) to another. This was important in a place where bank branches and ATMs were thin on the ground, especially outside cities, and where moving money by foot or motor transport was costly and sometimes dangerous. With M-Pesa, all that was needed to send and receive money was access to a basic mobile handset and proximity to a mobile money agent who could perform cash-in/cash-out functions. As M-Pesa quickly scaled—from 1 million active users within the first nine months, to 10 million by June 2010, to 25 million globally by April 2016—Safaricom introduced savings, credit, merchant pay, and micro-insurance services that could ride on its rails, thereby extending the range of services for Kenya’s unbanked. Even so, the vast majority of M-Pesa transactions are still person-to-person (P2P) transfers and cash-in/cash-out operations, trends that are reflected in global data about mobile money use as well.⁶

The oft-repeated M-Pesa success story, however, is not simply one of technological innovation. Rather, the ways its clients have made use of the service—often in unexpected ways—have been arguably the most important forces shaping the direction of mobile money over the past decade. This comes as no surprise; after all, the idea of using mobile phones not for communication but for monetary transactions and branchless banking wasn’t something that Safaricom executives cooked up in their boardrooms. Instead, it emerged from people’s own innovative strategies. During a Ugandan field study for Nokia research in 2006, Jan Chipchase and his colleagues observed people in a rural village using a shared mobile phone to receive remittances in the form of airtime minutes from friends and family working in cities. In effect, the airtime minutes acted as stores of value that could be exchanged like any other, and the mobile platform afforded a convenient, secure delivery channel. The mobile money model grew out of this informal practice, kludging together systems to allow people to trade airtime and cash, which then provided the platform for other business models servicing other financial practices (Kendall et al. 2012).

Chipchase’s research illustrates two key lessons that remain relevant for research on mobile money today. The first is that mobile money is embedded in existing sociocultural practices and relationships; it is part and parcel of the sociality of communities, local and across borders. Indeed, insofar as airtime is both a medium of interpersonal communication and substitutable for cash as a medium of monetary value, it is sociality itself (Maurer 2012a). When and where mobile money services have been introduced, they are incorporated into and can become catalysts for rearranging existing monetary “ecologies”—that is, the “assemblages of technologies, objects, animals, people, relationships, forms of property, and methods of record-keeping that, together, make up the world of value and exchange in people’s everyday lives”—and monetary “repertoires,” which are comprised of “all the ways people might use, deploy, or manipulate the components of their monetary ecology” (Tankha 2016: 97).⁷

⁵ We borrow the term “social infrastructure” from anthropologists Julia Elyachar (e.g., 2010) and AbdouMalik Simone (e.g., 2004).

⁶ In the fourth quarter of 2016, P2P transfers and cash-in/cash-out accounted for only 47% of the total *volume* of mobile money transactions globally, but made up over 86% of the total *value* of all transactions (GSMA 2017b).

⁷ Maurer (2010) introduced these concepts as guiding principles for IMTFI research, borrowing from work by economic anthropologists, sociologists, geographers, and other social scientists.

Research into mobile money must always take into account the diverse and dynamic forms of value and wealth that people around the world use, beyond the recognizably “financial” tools and assets: not just cash, for example, but cattle; not just individuals’ account books, but the collective financial practices of neighborhood savings groups (Maurer et al. n.d.).

Paying attention to the particular contexts of mobile money deployments also means taking into account existing political cultures and institutions, existing legal regimes, and the existing commercial landscape. At the 2011 Mobile Money Summit in Singapore, Seema Desai, head of the GSMA’s Mobile Money Programme, described Kenya as, “a garden of Eden where mobile money flourished.” That is, M-Pesa’s success there was no accident. It benefited in crucial ways, for example, from a favorable regulatory environment (Heyer and Mas, 2011), Safaricom’s de facto near-monopoly status (Kaminska 2015a), and dense social networks of obligation that facilitated longstanding practices of interpersonal exchange as well as remittances (Johnson 2016). As MNOs, banks, governments, and development agencies alike have attempted to replicate M-Pesa outside of Kenya—with varying degrees of success—they have encountered this lesson about sociocultural, regulatory, and economic specificity time and again. Perhaps the most important insight from the first decade of mobile money research is, then, this one: one size does not fit all.

It is a rather straightforward thing simply to assert the importance of context. “The nice thing about context,” Nick Seaver (2015: 1101) has written, “is that everyone has it.” Indeed, in studies of technology, Seaver continues, “the importance of context is uncontroversial; the controversy lies in determining what context is.” This determination relies significantly on the methods one deploys. Thus, we suggest that the second key lesson to be taken from Chipchase’s story about M-Pesa is the importance of qualitative research for detailing the empirical contours of the contexts where mobile money *might* make sense, as a business venture, development project, or everyday practice. While there are some examples of efforts to account for the impact of mobile money in quantitative or experimental terms, much of the formal academic and professional gray literature makes ample use of qualitative case studies, interviews, participant-observation, and anecdotal vignettes. We do not see this as a weakness. Instead, we suggest that what Musaraj and Small (n.d.) call the “ethnographic sensibility” of mobile money researchers has enabled attention to mobile money’s real use cases, while demonstrating how those use cases are context-specific and dependent on material, political, and sociocultural conditions that are often not replicable—at least not without massive investment and unintended, unforeseeable effects.

At the same time, however, this literature has been characterized by a lack of systematization and comparative insight. As in microfinance and global development more generally, as Sohini Kar and Caroline Schuster (2016) have argued, built into the discourses and practices of mobile money is an assumption about the *comparability* of the circumstances within which people use mobile money and thus for which the service must be designed. Mobile money is embedded in and institutionalized through a global development agenda whose uniformity is premised on generalizing assumptions about poverty (and how to confront it through finance). Often explicitly aspiring to replicating and scaling specific innovations, mobile money professionals (like those in across the development world) make constant use of comparisons across contexts. Many of these comparisons mobilize categories familiar to social scientists: culture, history, locality, inequality. Yet the outcomes of those comparisons—mobile’s money’s models, instruments, services, and so on—are always “mediated by local” actors and institutions and “inserted into a diverse array of [...] existing financial practices” that cannot always be predicted in advance (Kar & Schuster 2016: 349).

We see the case studies produced by IMTFI researchers as contributing to an explicitly collaborative project that lays bare these assumptions of comparability, as well as their limits. Our goal is not to use what’s different to explain what’s the same, in the hopes of “fine-tuning” mobile money as a

development project or business model. Instead, like Kar and Schuster (2016: 349), “we aim create uncertainty” around these assumptions—inverting the “tendency” to treat mobile money as “the globally institutionalized and realized norm” and the “local” and “unruly” efforts and failures to reproduce or scale mobile money across contexts as “the exception.”

In what follows, we begin by describing the actors, channels, and relationships that are common to mobile money services around the world, yet emphasizing how the complexity of their arrangements resists simple distillation. We find that the complexities involved in introducing and scaling mobile money, shared across contexts, are not going away. They include infrastructural maintenance, liquidity management, and the coordination of interaction between all the people in the system, from users to agents to service providers to regulators. From a practical perspective, we insist that such complexities are best thought of not as “pain points” to be bypassed or “frictions” to be smoothed over, but challenges to be carefully and regularly attended to in ways that put history, culture, and politics front and center: not as buzzwords, but as windows onto the variables that make a difference—differently in different times and different places—in shaping uptake and use of both money and technology.

In what constitutes the bulk of this paper, we outline ten key insights about mobile money’s first decade, drawing heavily on IMTFI’s research archives. These insights have to do with agent networks; physical infrastructure; location, place, and space; kinship and family; gender and gender inequality; class, caste, and rank; religion and ritual; time and tempo; government and regulation; and the persistence of both cash and non-currency stores of value. If indeed the comparative categories of social science—history, culture, and politics foremost among them—are now being embedded in the strategies, operating procedures, and even self-presentation of global development, then it’s up to us to specify the contours and content of those categories. For each, we attend to the gaps between the hopes for and realities of mobile money’s impact thus far, as well as some of the fissures that have emerged among mobile money’s different stakeholder groups. We hope these insights will be useful not only for academics researching financial practices and behaviors, but also for policymakers, regulators, designers, and development experts and practitioners working on financial inclusion. We conclude by considering some unresolved questions and raising issues that promise critical provocations for the next decade of mobile money research.

Mind Your “Ps” and “2s”

The paradigmatic mobile money transaction is still the kind of exchange captured in that early M-Pesa advertisement: one person transfers digital value, denominated in state-issued currency, to another. At one end of this transfer, the sender “cashes in” by trading cash for electronic credits, effectively purchasing those credits from a mobile money agent. At the other end of the transfer, the receiver “cashes out,” trading electronic credits registered in their account for cash held by an agent, or holds onto the credits until a later date to use in a different transaction. This is the “atom” of mobile money, its fundamental transactional form: P2P money transfer. Two actors, two nodes, and a technical network between them. Indeed, while much focus in recent years has been devoted to attempts to use the “platform” offered by mobile money services for other purposes (e.g., Kendall et al. 2012), P2P money transfer remains the most popular use case for mobile money users and is thus often the central pillar of mobile money businesses around the world (GSMA 2017a). Classic examples of that use case—e.g., remittances sent along rural-to-urban migration routes—remain compelling business and development propositions, even as efforts to promote savings, credit, insurance, and other services have sometimes floundered.

At the same time, however, a review of the mobile money literature reveals the limits of P2P as a foundational use case. These limits often stem from the plural and complicated nature of the “Ps” and

the “2s”: the “peers” or users, and the technological and social infrastructures that intermediate them. First, the “peers” and “nodes of mobile money transactions are never isolated individuals, whose decisions and actions are context-free or independent of external influence. Rather, mobile money users are part of families, communities, and other social networks; indeed, there is some evidence to suggest that mobile money accounts are frequently used by multiple individuals in making household budgeting decisions—just as credit cards, for example, are borrowed and loaned among family members in Chile (Ossandón 2017). Neither are “peers” restricted to customers: In many cases, mobile money users are government institutions (“Gs”) or businesses (“Bs”). If we are to understand the uses of mobile money, and its successes and failures, we must therefore focus not simply on individuals’ economic calculations, but on the variety of actors that are lumped together under the “peer” label, as well as the variety of relationships that they create and maintain in and through mobile money. Those relationships can be relatively egalitarian, or they can be relatively unequal, differentiated by socioeconomic class, political power, or cultural status.

This lesson—that social relations matter in complicating the picture of the “peers” in P2P transactions—gives rise to questions about the intermediaries that connect them, the “2” that stands for the systems through which value is transacted. But the “2” encompasses much more than simply the direction of the transfer. Money has long circulated through and alongside the conduits laid down by information and communication technologies, and mobile money is similarly layered on top of existing communication technologies: the phone, the network, the network operator. Yet mobile phones are also multipurpose social devices—objects of cultural reflection, repositories of desires and fears, tools for managing social life, and targets of creative appropriation and modification—that are embedded in preexisting communication ecologies and economies (de Bruijn et al. 2009, Horst & Miller 2006). Mobile money thus offers a new channel to meet existing social and economic demands: making and maintaining relations across space and time, expanding support networks, accessing finances, and protecting wealth (Baptiste et al. 2010, Taylor & Horst 2013). It also relies on existing infrastructures, both material—the physical and technological components of the mobile money network—and social—the people who operate it (Rea et al. 2017). P2P only functions through these intermediating infrastructures and the particular contexts that, in turn, shape those infrastructures. The insights we draw from the archive of research conducted over the past decade offer empirical examples the complexity of “Ps” and “2s”.

Insights from the Research Archive

1. Agent Networks

If P2P is the “atom” of mobile money, then agents are the actors in the middle without whom mobile money transactions could not work. Building a large, widespread agent network is an absolute necessity, as having too few agents can engender the same sorts of challenges to access and availability that plague the banking industry in many parts of the developing world and consequently become a barrier to uptake (Mas & Radcliffe 2011; see also Okello 2015). The 2017 Kenyan presidential elections demonstrated just how indispensable agents are as “bridges to cash” (Maurer et al. 2013): Fearing possible violence, many agents closed their locations on the day of the election, and estimated billions of Kenyan shillings were essentially frozen because P2P transfers and cash-in/cash-out transactions could not be completed. This echoed an early example of mobile money success from the 2007 elections, when Kenyans were, in fact, able to turn to M-Pesa agents en masse for funds to escape the violence that erupted after opposition supporters alleged fraud (Morawczynski 2009).

Agents and the institutions that support and manage them face a variety of challenges: making a living is no guarantee, costs and barriers to entry are high, liquidity management is difficult, customer service can be undermined by a range of factors well outside of the agent’s control, and so on (Eijkman

et al. 2010, Flaming et al. 2011, Lyman et al. 2006). Whether they add mobile money services to their existing retail businesses or work solely for a dedicated mobile money provider, agents are the so-called “human ATMs” (Mas & Siedek 2008) who make it possible for branchless banking to reach “last-mile” communities (Church 2015, Ghosh 2013, Mas & Morawczynski 2009). Agents often have to take on other economic activities to make ends meet, and they also must conform to existing local ideas about the role of financial intermediaries: in some cases agents take on the role of informal money courier ([Balderrama & Rocabado 2015](#)); in others, agents are seen through the sets of expectations—both good and bad—associated with local moneylenders ([Osei-Assibey 2014](#)).

Beyond their capacity for performing financial services like liquidity management and know your customer (KYC) verification, agents’ greatest value for mobile money providers is their status as “individuals in the community who are known and trusted intermediaries [and] could also build up trust and support in the system” ([Baptiste et al. 2010](#): 22; see also [Yousif et al. 2012](#), [Cassoni & Ramada-Sarasola 2012](#), Ghosh 2013, Medhi et al. 2009, [Paek 2016](#), [Oreglia & Srinivasan 2017](#)). Establishing and maintaining that trust is often a make-or-break proposition for achieving scale, as without trustworthy agents not only the brand, but also potentially the entire value proposition of mobile money falls apart (see [Adamba et al. 2016](#)). For this reason, ensuring against agent-perpetrated fraud has been a key concern for mobile money providers from the very beginning. At the 2011 Mobile Money Summit in Singapore, Jennifer Barassa, who was responsible for setting up Safaricom’s agent network, told the audience that if an agent is suspected of fraud, “I cut them! [...] I’ll tell Safaricom, and he’ll be shut off forever.” In fact, some mobile money services have incorporated intentional policies of mandatory agent turnover every few years to act as an additional check against potential fraud. Yet institutionalizing high agent turnover also adds to the already precarious situations in which agents find themselves vis-à-vis the sustainability of their roles in the mobile money ecosystem.

While mobile money agents have helped to make financial services more accessible for traditionally excluded groups in some locations, elsewhere agent networks have contributed to existing patterns of social exclusion and inequality. Many of the same issues of discrimination and harassment that are common in the marginalization of the unbanked by bank tellers can also arise in the relationship between mobile money agent and customer. When float liquidity is unstable, agents sometimes play favoritism and earmark funds for some customers while denying service to others ([Mahiya & Gukurume 2016](#)). Women are particularly vulnerable and in some cases are reluctant to provide their phone numbers out of fear of being harassed by male agents (McKee & Zimmerman 2014). In other areas, prohibitions on women’s mobility in public make visiting an agent location virtually impossible ([Baig 2017](#)). In short, agents are often just as embedded in local sociocultural norms and expectations as their customers; this is what makes them valuable as a kind of social infrastructure, but it can also work against socioeconomic inclusion.

2. Infrastructure

End users and agent networks together constitute mobile money’s social infrastructure, but physical infrastructures are also crucial in any mobile money ecosystem. It is difficult and expensive to build out the infrastructures needed for brick-and-mortar banks when roads are poor and few, and when electrical grids are either unreliable or nonexistent (Costa & Ehrbeck 2015). The high infrastructural costs for banking have also been an obstacle for microfinance institutions (MFIs), contributing to their relatively high interest rates on loans—frequently the target of criticism (e.g., Morduch 2000, Rosenberg et al. 2009). Mobile money advocates argue that the developing world’s *lack* of communications and transportation infrastructures has contributed to the relatively rapid uptake of mobile telephony and, by extension, adoption of mobile money. In places without strong legacy landline systems provided by a centralized and/or nationalized network, MNOs were able to “leapfrog” this step in telecommunications development. Lack of quality roads only further made the

case for mobile communications and mobile money, as it significantly reduced the time required to transfer funds from one place to another.

While infrastructural shortcomings may be key to mobile money's value proposition, however, they can also be obstacles for a service's ability to scale. Unpredictable electrical grids ([Mesfin 2012](#); [Champatiray & Agarwal 2015](#)), intermittent mobile network coverage ([Dzokoto & Imasiku 2013](#); [Adamba et al. 2016](#)), and inability to reach a mobile money agent due to few transportation options ([Alampay & Cabotaje 2014](#); [Kenechi & Uchenna 2015](#)) can all be impediments for mobile money users. Just as lack of trust in the agent network can spell the end for a mobile money service, so too can lack of trust in physical infrastructures. For example, Ghanaians were initially hesitant to use mobile money because they were afraid that their transactions would not go through due to frequent network outages ([Dzokoto & Mensah 2012](#)). Thus, even as relatively poor infrastructural conditions can be a boon for new mobile money services, there is no getting around issues related to physical infrastructure and location when it comes to ensuring that mobile money can actually reach the communities that it purports to serve.

3. Location

Issues surrounding physical infrastructure go hand-in-hand with spatial considerations, especially with respect to rurality. As the iconic M-Pesa advertisement demonstrates, Safaricom initially pitched its mobile money service for the urban-to-rural domestic remittance market (Morawczynski 2009), and some observers have identified urban-to-rural transaction flows as key drivers of mobile money adoption (Heyer & Mas 2011). However, other research challenges this fixation on the directionality of remittances, noting that, for the most part, mobile remittances tend to circulate through "relatively dense and reciprocal pathways" that flow from rural senders to urban receivers as well (Kusimba et al. 2015b) and may cluster in other ways around existing social networks. In other words, urban-to-rural remittances are sometimes significant factors in a local mobile money ecosystem, but it would be inaccurate to say that they are the only ones, or even the most significant.

Urban and rural communities often have different financial needs and behaviors. For example, the rural poor in Tamil Nadu in India borrow money primarily for animal husbandry and agriculture, while their urban counterparts borrow for a more diverse range of activities: flower selling, tailoring, food vending, and so on ([Kumar & Mukhopadhyay 2013](#)). Rural contexts also have complex monetary ecologies in which state-backed currencies and more "traditional" stores of value—e.g., livestock, agricultural products, and precious metals—have coexisted for decades or longer ([Tyukhtenava 2010](#); [Villarreal & Santana 2012](#); [Oluwatayo & Oluwatayo 2012](#); [Hassen 2016](#); see below). These contrasts in sociality and value forms across the rural-urban divide have implications for designing mobile money services, too; what works in an urban context may not be effective in a rural one, and vice versa (see [Balen 2017](#)). For example, based on observations of how rural Ethiopians categorize their monies according to size, shape, and material, Mesfin ([2012](#): 2) argues:

If electronic payment systems are to replace currency objects, it would then be crucial to gain a better understanding of existing practices of stashing, retrieving, sharing, spending, and saving as a means of designing more inclusive mobile money systems that build upon (rather than substitute) existing financial practices and institutions.

Though rural communities tend to be less transient than urban ones, it is also a misconception about rural communities that they are isolated and sedentary. The inaccuracy of such representations has been confirmed time and again through the lens of mobile money. Ethiopia's pastoral herders, for example, facilitated trade corridors from the interior to Red Sea ports for centuries before forced sedentarization policies constrained their mobility; now, mobile phones afford them opportunities to

check in with extended kinship networks and compare commodity prices in different markets ([Hassen 2016](#)). In Uganda, the introduction of mobile money has in some ways restricted mobility in *urban* areas; because it is easier to send and receive money via mobile channels, people travel less between the cities and the countryside ([Guma 2014](#)). And, crucially, it is not just people, but also wealth that is mobile in rural areas. In Tamil Nadu, for instance, wealth that does not circulate is viewed as suspect ([Guérin et al. 2016](#)).

Location also affects researchers' experiences. Over the years, many of IMTFI's researchers have had difficulty traveling from their rural field sites to the Institute's annual conference in Irvine, California; others have not been able to make the trek due to the infrequency of transportation options and/or challenges with obtaining travel visas. Fieldwork itself can also be quite different in rural areas than it is in urban ones; Nyamnjoh and Fuh ([2014](#)) found that the rural Cameroonian farmers they interviewed suspected them of being parties to larger schemes by bandits to defraud them of their money. Location is a salient factor not only in the content of mobile money research, but also in its practice.

4. Kinship

Mobile money research affords opportunities to draw upon classic insights from kinship studies and peasant economics—two of the oldest themes in qualitative social science—in order to place financial practices and behaviors in broader cultural and institutional contexts. As vehicles for socialization, families are fundamental to the reproduction of monetary practices, and so it should come as no surprise that exploring mobile money leads almost immediately to discussions of kinship and family dynamics. In Bolivia, for example, people most often learn about mobile money not from advertising campaigns or training seminars, but rather through word of mouth from family members ([Balderrama & Rocabado 2015](#)).

While agent networks represent a crucial dimension of mobile money's social infrastructure, in many instances kinship networks are just as important, if not more so. Individuals who have migrated for work, especially within the same country, often remit payments to their family members in another location, and these remittances help to sustain local economies. Remittance corridors existed long before mobile money, and the peer-to-peer transfer function of mobile money services has frequently been adopted into remittance networks historically conducted along routes traversed by bus drivers and boat captains, or via the trust-based relationships of friends and family members, shopkeepers, wholesalers, and hawala brokers (e.g., [Morvant-Roux et al. 2017](#), [lazzolino 2014](#), [Taylor et al. 2011](#)). In some contexts, this has made sending money to family easier, quicker, safer, and more affordable, while also imbuing those transfers with a sense of the familial (Singh 2017a, 2017b).

Sending and receiving money via kinship networks is a common practice for people all over the world, but it takes on added significance in times of crisis and emergency, or when amassing funds for special occasions, e.g., coming of age ceremonies, funerals, or seasonal festivals. At these times, individuals mobilize resources in their social networks, especially extended kinship groups, with the expectation that they will reciprocate at some point in the future ([Taylor et al. 2011](#); [Raza 2012](#)). Where mobile money services have been most successful at quickly achieving scale, they have been laminated on top of these well-established kinship networks of obligation and reciprocity ([Baig 2017](#)). Based on their analysis of Kenyan kinship systems, Kusimba et al. ([2013](#): 2, original emphasis) argue, "Although mobile money technology is designed for person-to-person transfers, it is more accurately a tool of *individuals who see themselves as parts of groups or collectivities.*"

Though mobile money can help families pool their collective resources, it has also proven to be instrumental in avoiding conflicts that arise around household consumption decisions, which often

break down along gender lines. In Tanzania, for instance, women micro-entrepreneurs use mobile money to exert autonomy over their own finances when their husbands or other male kin spend household resources unwisely ([Mulu-Mutuku & Gichuki 2017](#); see [Arnado 2012](#) on a similar, non-mobile money phenomenon in the Philippines). Similarly, Kc and Tiwari ([2015](#)) developed financial literacy tools for women in rural India to help educate them about alternative tools they could use to protect household savings from their husbands.⁸ In other words, even as mobile money can complement and reinforce strong kinship relationships, it can also be used “behind the scenes” in innovative yet precarious ways in the context of familial disputes.

5. Gender

Economic development discourses since the emergence of microfinance in the 1970s have consistently framed poverty alleviation and gender equality as complementary goals. World Bank Group President Jim Yong Kim (2015) recently reaffirmed that working toward greater gender equality “is not only a condition for social justice but a powerful driver of the economic growth that can help deliver it—the inclusive growth that benefits all.” Despite early excitement about the potential for new financial technologies to advance gender equality, thus far the data do not support claims that mobile money is helping to close the gender gap to the extent that many had hoped. For example, the 2014 World Bank Global Findex data showed that women are 36% less likely than men to have a mobile money account, although this difference is less than that between women and men with regards to a formal bank account (Demirguc-Kunt et al. 2015). While women are often the most innovative financial actors in their communities—whether as vanguard adapters to changes in the mode of production ([Hassen 2016](#)), influential small lenders in densely imbricated social networks ([Kusimba et al. 2013](#)), or leaders of rotating savings and credit associations (ROSCAs) ([Kiiti & Mutinda 2011](#))—they are also more likely to be financially excluded and face more severe modes of discrimination than men. For example, informal lenders in the Philippines prefer female clients because it is easier to extract debt repayments from women through pressure ([Dula & Grego 2017](#)), and in the Ivory Coast, where international remittances from neighboring Burkina Faso have helped mobile financial services scale quickly, women are largely excluded from mobile money transactions, with the notable exception of entrepreneurs ([Morvant-Roux et al. 2017](#)). Indeed, as Susan Johnson (2017) argues, the original M-Pesa marketing push reflected these gendered dynamics: it was, she writes, a “story of men – in this case probably well-educated, young, urban, employed men – sending funds to their rurally based mothers.”

These cases offer example after example of how, even as it introduces new technical capabilities, mobile money is necessarily embedded in existing cultural norms and social practices that are often gendered. This has proven especially important when these norms combine the intimate relations of sex and money with the politics of respect and respectability (e.g., Archambault 2013, 2017). One of the mobile phone’s most important features is the privacy that the individual handset can afford, as it can be used to protect some transactions from the scrutiny of others. Such control was at the center of predictions that women would benefit from mobile money; being able to manage which relations are revealed and which remain concealed can aid in managing local social norms and economic disparities. Yet in many areas of the world, especially parts of sub-Saharan Africa, many people—older men in particular—fear phones’ capacities for clandestine communication. Mobile phones have thus become enrolled in negotiations around money involving shifting gender norms, patriarchal expectations, and efforts to control public and private lives—especially those of young women (see, e.g., Kenny 2016).

⁸ Though KC & Tiwari do not explicitly discuss mobile money as a savings alternative, their findings have implications for designing mobile financial services that can meet this need.

Development practitioners had also hoped that women would be able to use the privacy afforded by the mobile platform to secure their own savings, thereby achieving some measure of financial independence. While this may be true for some, research thus far indicates that most women are much more likely to use mobile money for replicating cash transfer obligations—often to their husbands—while mobile wallets intended for use as savings instruments lie dormant (Stuart & Cohen 2011). Moreover, women’s financial resources are rarely separated in practice from commitments to the social networks in which they are embedded, with savings typically earmarked for household expenses or in order to secure opportunities for their children, including school fees, healthcare, coming-of-age ceremonies, and so on. In fact, women may face intensified expectations and demands to distribute their savings, and some may therefore choose *not* to save on the mobile phone. Access to saving has thus not proven to be a “quick fix” for gender inequality; “[s]aving alone [...] offers a relatively weak alternative to investing in, building, and diversifying income-generating activities through [social] networks” (Johnson 2015: 12).

IMTFI’s researchers have also described, however, how women are potentially the greatest beneficiaries of mobile money projects, insofar as these services are inserted into existing relationships. In Pakistan, being able to receive mobile remittances from family in cities frees rural women from the shame incurred by borrowing money from relatives, thereby minimizing their risk exposure (Baig 2017). In Uganda, women reported experiencing less discrimination and a greater sense of empowerment in their communities after the government introduced a bulk disbursement program for social assistance that could be delivered via MTN’s mobile money service (Okello 2015), and they are more likely than men to use mobile money to pay bills to national utilities (Tugume et al. 2015). Finally, Kusimba has written extensively about how, as M-Pesa is inserted into long-standing cultural norms and practices encouraging the circulation of wealth through kin ties, flows of mobile money strengthen ties among women, especially women who act as brokers or bridges between these dense nodes of siblings and their families (Kusimba et al. 2013, 2015b, 2016, 2017). In patrilineal societies, wealth is traditionally controlled and inherited through male lines of descent. Mobile money, Kusimba argues, facilitates other economic relations identified with forms of care and support and operating through the kin ties formed by mothers and grandmothers: e.g., transfers between a grandmother in Kenya and her sister’s daughters in Chicago, Illinois, or between mothers and their married daughters, which keep pockets of value separate or hidden from the more public relations of their husbands, fathers, and sons. Johnson’s (2017) work with the Kenya Financial Diaries dataset confirms that women are often the “linchpins” of such transactional networks.

If we have learned anything, then, it is that when it comes to mobile money and gender dynamics, there is no simple universal story: In some cases, mobile money might become a tool that helps to confront gender inequality—giving women, for example, a tool with which they can build and maintain connections with one another—while in others it can help to maintain the status quo of women’s exclusion and subordination.

6. Class, Caste, and Rank

Like the hopes that mobile money could be used to promote gender equality, interest in mobile money as a development tool was also driven by a belief that in democratizing finance it would also narrow gaps in economic inequality—in the process flattening other kinds of social and cultural hierarchies. As in the case of gender inequality, however, mobile money uptake among many populations around the world has been frustrated by these very economic inequalities and sociocultural hierarchies. Such inequalities and hierarchies are highly local and variable: from ethnic heritage or generational cohort

in sub-Saharan Africa, to caste belonging in India, to family prestige in southern Mexico. They are also quite persistent, generating frictions that are not simply economic but, at the same time, social, cultural, and political in nature.

In Ghana, one long-standing perception is that mobile money is “for rich people” ([Dzokoto & Appiah 2014](#): 31; see also [IMTFI 2013](#)). Yet this perception is specific to a cultural context in which higher-ranking people are expected to make public displays of wealth, such as at parties thrown to celebrate rites of passage. These displays offer opportunities to redistribute money and goods and, at the same time, reinforce differences in social status. Access to mobile money is simply another way to differentiate oneself, and that perception of difference can thwart adoption by associating mobile money with a group of people to which one does not belong. Isles ([2015](#)) similarly notes how, in the Philippines, using mobile phones to make loan repayments depends less on location (i.e., urban vs. rural) than it does on local class hierarchies: Farmers perceive themselves as actively “excluded” by the mobile platform—or they simply have no interest in using it.

Such examples highlight long histories of sociocultural exclusion behind the lack of access to financial services that mobile money advocates had hoped to confront. In Sri Lanka, for instance, the rural poor are discriminated against by bank officers, which discourages them from ever setting foot inside of a bank ([Colombage 2011](#)), while in India the low-caste Dalit community “feel they are treated as ‘goats’ or ‘dogs’” by bankers ([Guérin et al. 2016](#): 10). Other studies have demonstrated that India’s scheduled tribes—formally acknowledged indigenous groups who have been historically marginalized—continue to be excluded not only from public services of all sorts, but also from financial inclusion initiatives ([Nithyanada & Fouillet 2015](#)). Around the world, anecdotal evidence suggests that mobile money’s potential users can be discouraged by such feelings of intimidation, as well as other forms of exclusion, such as literacy barriers.

Generational differences can also play a role in limiting access to mobile money, often by restricting access to the mobile platform itself. In Nigeria, community elders often dictate when women and girls can begin using smartphones ([Kenechi & Egbunike 2017](#)). And among the Kassena-Nankana in northern Ghana, it is not only elders who determine mobile phone uptake for the entire community, but also the ancestors, who are consulted from beyond the grave via soothsayers ([Santuah 2015](#)). Inversely, status distinctions can be important in encouraging adoption of mobile money services. As one person described it to researchers in rural Nigeria: “Mobile money might be useful, but I cannot subscribe based on what they say during adverts on the radio. I can only believe if someone I trust like our priest or my son’s teacher convinces me” ([Kenechi & Uchenna 2015](#): 6).

In short, improving access to financial services by building out an agent network or investing in mobile telecommunications and electricity infrastructures, while important, is not sufficient for solving the underlying problems of social exclusion. As Oreglia and Srinivasan ([2017](#): 14) argue:

Whereas in principle social barriers to entry are lowered on the class-less and ethnicity-blind world of ICT-based services such as digital money, [...] in reality such experiences are highly mediated by the offline worlds that people belong to.

In other words, mobile money, like any technology, cannot by itself determine how it is used, nor is it realistic to expect that it will. Rather, it is slotted into social and cultural contexts with legacies of division and distinction that vary greatly across space and time; what’s more, these legacies can often only be glimpsed in the gap between what people say they do and what they do in practice (Taylor & Horst 2013).

7. Religion and Ritual

Money has long been used in religious and ritual contexts, and faith in the divine and the ancestors remains linked in myriad ways with financial practices, from the simple to the elaborate: making church donations, praying over business investments, or refusing monetary compensation for labor that is seen as spiritual in nature or orientation. Kenechi and Uchenna (2015) and Omeje and Magawi (2013), for example, document how the Igbo in Nigeria use oracular deities as traditional sources of credit. Many rituals like these have the important effect of transferring wealth across generations or validating claims to future value. Religious and spiritual concerns can also structure the organization of money, both conceptually and materially, as Mesfin (2012) documents in Ethiopia, where special monies called *yeselet genzeb* are earmarked for paying supernatural beings in times of crisis. Similarly, mobile phones have also become the object of both religious practice and religious debate (e.g., as people consult with clergy or the ancestors about the appropriateness of using mobile technology in certain contexts). In Papua New Guinea, for example, some “ring the ancestors” to ask for money to be put into their bank accounts (Telban & Vávrova 2014). It is thus unsurprising that the uses to which mobile money has been put are also religious and ritual in nature.

In Kenya, for example, televangelists have sometimes used M-Pesa to solicit donations (Daily Nation 2011, Gicheha 2013). M-Pesa has also been used as form of collective savings in kinship networks. These savings are often said to be dedicated to school fees or similar expenditures, but ethnographic and financial diaries research suggests that in many cases, the money is collected for ritual purposes. Funerals are especially important and are often the focus of efforts to collect sums of money from many different people (Kusimba personal communication). Similarly, M-Pesa has also been used to create a “contingency fund” to save for adolescent boys’ coming of age ceremonies (Kusimba et al. 2015a). These ceremonies frequently involve heavy outlays of funds, especially for feasting. In one stage of the ritual, moreover, a live animal—typically a cow—is purchased and gifted to the boy by his maternal uncle. The boy then parades the cow through the streets as he returns home to his parents. Traditionally, this gift is known as the “thirteenth cow,” because it represents the return of the bridewealth—transferred from the boy’s father’s family to his mother’s family at the time of his parents’ marriage. While the enactment of these traditions varies widely from family to family, many still seek to gift a “thirteenth cow,” and so today, young cows are sold at elevated prices during ritual seasons, and M-Pesa is employed to save for its purchase.

In Ghana, mobile money and the divine are more ambiguously intertwined. Santuah (2015) writes about the intermediaries who are consulted on behalf of the ancestors about the appropriate use of mobile money; “the dead decide,” he reports, but they do not accept mobile money transfer themselves, preferring to receive cash instead. Similarly, in urban Ghana, people expressed skepticism about the use of mobile money for religious purposes (Dzokoto & Appiah 2014: 33; see Iazzolino & Wasike 2015: 238 for a similar finding in Kenya), though more recently some churches have begun adopting it. This is for two reasons: First, the “intangibility” of mobile money made it undesirable for donations that were often accompanied by public and material displays (“e.g., offertory bowls and bags, tithe envelopes, and in some churches, dancing to the front of the church to deposit the contribution”). Second, cash was also preferred for gifts and payments at special occasions like weddings and funerals because its visibility made it easier to count—and thus easier to keep attendees accountable.

Finally, religion often works as a tool for managing uncertainty, particularly with respect to the physical environment and agriculture. In highland Chiapas in Mexico, offerings are made to the saints as a means of purchasing credit with “the divine” in preparation for unforeseen future crises. In fact, the *milpa* system of planting crops is organized according to “God’s time,” which is the time of the ancestors, not the standardized, state-endorsed calendar (Villarreal & Santana 2012). Designing

mobile money services to complement religious beliefs and ritual practices like these might help integrate mobile money into local monetary ecologies.

8. Time and Tempo

A consistent finding in mobile money research concerns the importance of time in shaping its uptake and use. Financial inclusion proponents' traditional focus on poverty and impoverishment should not lead us to overlook the fact that the poor also have aspirations and plan for the future. Such planning involves varying degrees of saving and investment across multiple modalities and forms of value (Guyer n.d.). At the same time, the rhythms and tempos of financial practices are often quite dynamic, and the uses of mobile money are subject to both expected and unexpected variations.

Uncertainty about the future is a consistent theme running throughout research on the poor's financial practices. The "God's time" described by Villarreal and Santana (2012) above, for example, helps to manage the regular uncertainties of agricultural production. Yet while environmental changes are especially pertinent for farming tempos (see [Mesfin 2011](#)), patterns of precarious employment, like short-term contracts or day laboring, make income volatility the norm, even in non-agricultural contexts. Prices for goods fluctuate according to market forces. Unforeseen events like natural disasters, political violence, or deaths in the family throw up financial emergencies. In such contexts, the temporal logics of formal financial services—e.g., loan disbursement and repayment schedules, monthly service fees, even saving itself—cannot match the rhythms of the poor's financial needs. When it comes to microfinance, for example, delays in the repayment of loans are not only common, but the expectations of delay take on foundational importance in structuring the decision-making of recipients and the actions of those responsible for ensuring obligations are met ([Schuster 2010](#); see also Schuster 2015). Yet, as Oreglia and Srinivasan write with regards to India and Myanmar:

Paradoxically, the instant transaction time that is the advantage of mobile money is often a mismatch for [...] farmers and fishers. It is either not instant enough, as in the case of the fisher who wants to purchase a drink in a place that might not take mobile money, and would thus force him to cash mobile money out in order to spend it, or the instantaneousness is not the important part of the transaction, as in the case of the tea farmer/trader and the pineapple grower, who do not think it is worth the risk nor the extra gain to wait to sell at a higher price, but later on. ([Oreglia and Srinivasan 2017](#): 12)

Mobile money ecosystems must take these heterogeneous temporal realities into account.

Interestingly, researchers regularly note how often mobile money is used for short-term financial purposes. In Zambia, people see mobile money as fast, but not safe—that is, not for saving ([Dzokoto & Imasiku 2013](#)). Indeed, around the world, mobile is often doubted as a long-term durable form of value that will remain safe and secure. It is instead frequently used for short-term saving, like avoiding highway robbery ([Baptiste et al. 2010](#), [Nyamnjoh & Fuh 2014](#)). In Colombia, mobile betting games are widely popular in part because they double as informal financial service providers who adapt to the short-term income and expenditure cycles of their customers ([Echeverry & Herrán 2013](#)). Yet we must also acknowledge that short-term savings are typically undertaken in conjunction with other, non-cash value forms with longer time horizons (such as savings with deities, investing in livestock, or even having children).

Different social and cultural tempos also shape the rhythm of savings and payment. In India, for example, wait times for customers at agent outlets skyrocket during festivals ([Goel & Pal 2014](#)); in Cameroon, September (the start of the school year) and December (a "festive season") are key periods for mobile transactions ([Nyamnjoh & Fuh 2014](#)). Many people save for special occasions, like initiation

rituals, marriages, births, circumcision rituals, religious festivals, and funerary rites. They often pool community resources to provide individual members with funds when they are needed. In Kenya, as we describe above, mobile money services have become a means of collecting money for coming-of-age rituals. Yet the timespans involved in these rituals are not simply those required to save enough to purchase the livestock required for the ceremony, because the animal also represents the repayment of a debt incurred at the marriage of the initiate's parents, more than a decade before. In this way, a very public long-term savings practice is supported and made possible through short-term collection of value via mobile money ([Kusimba et al. 2015a](#)).

Finally, other payments are expected and scheduled according to institutional tempos, such as school fees, utility bills, and taxes, and managing these tempos influences how people use mobile money, too. For example, India's EKO mobile banking customers typically used their EKO-held savings to pay school fees and medical expenses—i.e., to make regularly scheduled payments. Meanwhile, they used contributions to ROSCAs to save for special occasions and cash in the home or on their persons for everyday expenses ([Nandhi 2012](#): 12). In other words, as in this case, mobile money accounts often correlate with “rational-bureaucratic” time, while informal savings correlate with other seasonal or ritual cycles or with the less certain, more irregular tempos of everyday life.

9. Government and Regulation

The rollout of mobile money services in different legal jurisdictions around the world has raised questions about regulation and the role of government in stimulating or inhibiting technological and economic innovation. Many in the private sector and development domains have worried about the effect of new and existing legal restrictions on the mobile money business model, framing state regulation as a burdensome imposition on non-bank mobile money providers like MNOs and an obstacle to scaling mobile money adoption. Indeed, in some areas, “regulation” has become a proxy for what is, in fact, a *business* conflict between MNOs and banks about which should take the lead (and thus the profits) in mobile money deployments. In some cases, such as in Kenya in the early years of M-Pesa's development, financial institutions pushed back against telcos, complaining that the latter were essentially taking deposits without conforming to the prudential norms and regulations of banks ([Maurer 2012a](#); [Muthiora 2015](#)).

Others, however, have argued that government regulators will necessarily play a crucial role no matter the particulars of market: addressing risks to customers and the wider financial system, ensuring best practices regarding liquidity management and customer identification, fighting fraud and money laundering, combating the financing of terrorism, and regulating interoperability across mobile platforms and mobile money services—not to mention structuring an “enabling” environment for new mobile money businesses more generally ([di Castri 2013](#)). Indeed, many have noted that M-Pesa's initial success was largely shaped by the fact that Safaricom was in effect granted near-monopoly status by Kenyan regulators until 2014 ([Kaminska 2015a](#), [2015b](#)). Thus, the standard that has emerged in balancing this tension between facilitating the operation of mobile money services and confronting these risks, especially with regards to consumer protections and customer due diligence, is a proportional risk-based one that takes into account the diverse economic and social positions and experiences of mobile money users (e.g., [USAID 2010](#); [FATF 2013](#); [Maurer 2012b](#)).

Regulation is not the only way states shape mobile money markets. In some critical academic circles, there has emerged a tendency to lump mobile money services together with other recent phenomena like microfinance to make a theoretical statement about the financialization of poverty in the absence of state oversight. Yet it is also clear that state governments around the world have actively sought not only to regulate mobile money services, but also to harness the mobile channel for the delivery and payment of state services. Indeed, whether it involves receiving government subsidies, making

utility payments, paying for one's passport, or receiving cash transfers, mobile money has been hitched to existing and new state programs, perhaps even contributing to what some scholars have suggested might amount to the transnational re-invention of the welfare state (Ferguson 2015). Mexico's famous Oportunidades conditional cash transfer (CCT) program, for example, seeks to foster financial inclusion by distributing ATM cards for accessing public cash disbursements ([Bachas et al. 2014](#), [Angelucci et al. 2016](#)). CCT programs like Mexico's operate in other locales, like the Philippines; however, Gusto and Roque ([2014](#)) found that these programs did not help rural, indigenous communities where cash was not the preferred medium of exchange, and Alampay and Cabotaje ([2014](#)) note that they fail to reach many of the areas they are intended to serve because of inadequate telecommunications infrastructures. Finally, some states have attempted to participate directly in developing mobile payments systems. In Uruguay, for example, the Commercial Credit Circuit provides "a network where participants would make payments in the form of digital claims among each other via the Internet or through mobile-phones" ([Cassoni & Ramada-Sarasola 2012](#): 7). Other state-backed payment infrastructures have been developed, for example, in Ecuador, although Ecuador's central bank-led payments program has faced an uphill battle in scaling adoption ([Félix et al. 2014](#), Nelms 2015, Rea et al. 2017).⁹

In sum, whether by becoming a mobile money service operator itself or by becoming the first and largest customer for such services, the state has the potential to help mobile money scale. This is an old lesson being learned anew: The state has a role to play in financial inclusion (Costa & Ehrbeck 2015, Gates Foundation 2015). At the same time, state interventions are always at least potentially threatened by two persistent bugaboos: corruption and populism. People around the world worry about both in different ways, from using cash transfers to "buy votes" to using government procurement systems to privilege some companies over others. Worries like these can derail a mobile money project, as they are based in long histories of unfulfilled promises by governments and development organizations that are difficult, if not impossible, to ameliorate. In some contexts, non-state providers (or systems with a non-state brand) might be better situated to deliver social services, because of histories that associate the state with failure, inefficiency, corruption, or politicization. In other contexts, like Ethiopia ([Hassen 2016](#)) and Myanmar ([Oreglia & Srinivasan 2017](#)), ongoing histories of state violence engender distrust of any state-led initiative. Indeed, in many areas of the world today, the very real origins of the distrust between citizenry and the state is not just historical. For example, in India, the Modi government's "mass banking" initiative raised the official number of banked citizens in the country, but the vast majority of these accounts have never been used by the account holders, remaining merely symbols of financial inclusion rather than practical tools. And in Indonesia, as of 2015, the government required Indonesian-based banks to offer low-interest loans to migrants, but banks persisted in lending only to migrants headed to countries with higher wages and better labor laws ([Chan 2017](#)). In any case, these still-unfolding "legacies of suspicion and skepticism" cannot be countered with "simple promises that 'this time will be different'" ([IMTFI 2013](#): 13).

10. Cash and Non-Currency Stores of Value

Does mobile money herald a world without cash? For some, "killing cash" has been a long-time goal, driven by critiques of the perceived "costs" of cash: the cost of transporting and storing cash due to its physical presence, or the costs of securing cash in the context of concerns about its susceptibility to theft and use for crime and corruption. These costs, many have suggested, fall disproportionately on the poor and unbanked. The dream of a "cashless" or, at the very least, "cash-lite" world has been bolstered by the spread of mobile technology and mobile money services; it has also become a central

⁹ As we prepared this report, the Ecuadorian government announced it would hand over management of the system to the private banking sector (El Comercio 2017). It is worth comparing the state-led Ecuadorian effort with a similar program undertaken in Peru, known as Modelo Perú, led by the Bankers' Association of Peru and backed by NGOs like Accion's Center for Financial Inclusion (Antón & Conde 2017).

objective targeted by prominent organizations like the Better Than Cash Alliance,¹⁰ scholarly work (e.g., Rogoff 2016), and controversial efforts by states to eliminate or reduce the circulation of certain cash denominations—from the Central Bank of Nigeria’s Cashless Nigeria project,¹¹ to India’s surprise 2016 demonetization of some 86% of the country’s total cash supply, to the European Union’s plans to phase out its highest denomination note by 2018.

By outsourcing cash-handling, mobile money does address some of the challenges of physical currency, such as its vulnerability to theft and deterioration. At the same time, however, mobile money may also introduce problems that critics of cash have not yet acknowledged. The digitization of financial services, that is, introduces not just new opportunities, but also new instabilities, uncertainties, and risks: infrastructural breakdown, liquidity management problems, and new kinds of fraud (USAID 2010; [Dalinghaus 2017](#)).

Tellingly, mobile money has not replaced cash anywhere it has been introduced; in fact, most mobile money users turn to mobile money as a *bridge* to cash, rather than its substitute. Thus, all around the world, demand for cash is steady despite growth in the availability of mobile (and digital) financial services; even in Kenya, cash remains the most important tool for everyday expenditures and transactions (Iazzolino & Wasike 2015; cf. Dzokoto et al. 2016 for Ghana and Zambia). Cash remains useful for many legitimate purposes. We have yet to see a mobile money service replicate the full range of qualities associated with cash, including its cost (mobile money transfers require fees, while cash is free), accessibility (cash does not require another technological platform to use), and fungibility (interoperability between mobile money systems remains limited in most places). For this reason, cash is particularly important in the economic lives of the poorest and most marginalized people; some have suggested that cash is, in effect, a public good ([Dalinghaus 2017](#)).

More relevant than cash’s economic utility is its cultural and symbolic importance in many of the same contexts where stakeholders see the potential benefits of mobile money. In Ghana’s marketplaces, for example:

Counting cash at the end of a day’s business is an indication of a good day and enhances one’s self-image [...]. The power associated with the holding of cash supersedes digital money. The feeling of having cash in hand arouses a greater sense of liquidity, power and feeling than digital money. ([Adamba et al. 2016](#): 9-10)

In fact, the redenomination of the Ghanaian cedi in 2007 may have inadvertently discouraged uptake of mobile money by obviating one of its greatest value propositions; with cash no longer such a burden to carry around because individual notes were more valuable, the ease and convenience of using mobile money was not as stark by comparison ([Mensah & Dzokoto 2011](#)). Similarly, in Kenya, many people prefer cash when contributing to local savings groups known as *chamas*, because in the public meetings, it is better to display one’s contribution (Iazzolino & Wasike 2015).

Looking at the uneven and dynamic history of cash use itself shows that all new financial technologies are used alongside older technologies, practices, and institutions, including non-cash or even non-currency forms of value, from real estate to livestock. In earmarking money for savings versus payments or for particular expenditures, people’s organizational calculations are shaped by these local monetary ecologies. In Russia’s Altai Republic, different stores of value (livestock, precious metals, furs, textiles, alcohol, and yes, cash and coin) are designated for different situations. Bank-deposited savings are held exclusively in Russian rubles, while American dollars and Euros are kept as savings in

¹⁰ The many partners of the Better Than Cash Alliance, which is housed at the UN and is a key partner of the G20 Global Partnership for Financial Inclusion, can be found here: <https://www.betterthancash.org/members>.

¹¹ On the Cash-less Nigeria project, see here: <https://www.cbn.gov.ng/cashless/>.

the home. Coins from a variety of different national currencies are used as ritual offerings. Debit cards have been recently introduced, and are more common among urban workers who access their wage payments via direct deposit ([Tyukhtenava 2010](#)).

Elsewhere, state-issued currencies have little value whatsoever. The Afar people of Ethiopia exchange livestock, particularly female camels, in the most important transactions such as payment of bridewealth and inheritance. They see paper money as “valueless” due in large part to its volatility as a store of value:

Depreciations in the value of money and the rising cost of basic goods are the background for most women who reacted to the very question about money by saying, “Money has no value.” ([Hassen 2016](#): 67)

Similarly, for women in rural southwestern Nigeria, small ruminants like goats are critical stores of value, especially for managing shocks and crises ([Oluwatayo & Oluwatayo 2012](#)). In sum, due to both personal experience with and longer, multi-generational histories of monetary instability and banking crises, many people around the world maintain a preference of illiquid assets, choosing to save in non-currency stores of value instead of cash. Mobile money, meanwhile, is denominated in national currency and so cannot avoid the everyday monetary stresses of living in a soft-currency economy. In some cases, this may in fact promote cash use, as people attempt to avoid liquidating assets like livestock, which are not only often more stable than state currency, but have the potential for reproducing themselves.

In short, it is inaccurate and, frankly, counterproductive to assume that mobile money will replace cash and non-currency stores of value. Rather, we have seen that mobile money becomes one more part of complex and varied monetary ecologies, as people use it alongside cash and a diversity of other financial instruments and practices.

Concluding Thoughts and Provocations

Mobile money has been heralded by some as a “disruptive technology” (MIT 2013) with the potential to become a “transformative power” (Everett 2014) in the lives of the world’s poorest communities. Due in large measure to its near-ubiquity, the mobile platform represents an exciting possibility as a delivery channel for digital financial services and as a technology that, like money, connects people with one another. It would be foolish to claim that mobile money services have not made any impact in the global South; many point as evidence for such impact to the medium-term effects of M-Pesa in increasing consumption and reducing the number of households in extreme poverty in Kenya (Suri & Jack 2016). Yet when contextualized globally, mobile money has not had unequivocal success, and its impact on poverty alleviation and financial inclusion remain ambiguous.

As the IMTFI research projects we have examined above demonstrate, “mobile money” means different things for different people, and its uses and usefulness vary according to highly localized contexts. For some, it has been a tool for increased financial stability, inclusion, and even wellbeing; for others it has strengthened mechanisms that perpetuate their social, economic, and political marginalization. When researching and writing about mobile money, then, too often the hype surrounding new technologies overshadows the importance of the people who use them, the ways they use them, and the challenges they face: Are the costs of using mobile money worth it? Or are the world’s poor being enrolled into new avenues for their financial exploitation? As mobile money research moves into its second decade, attending to these challenges and focusing on the social and cultural contexts of mobile money use is as important as ever.

One thing that we can say with certainty is that mobile money never arrives in a vacuum. Rather, it is shaped by existing cultural and political settings and existing technology and communication practices, and it must always be incorporated into monetary repertoires and ecologies with legacies of their own. Mobile money deployments, that is, are shaped not only by physical infrastructures—telecommunications, electricity, transportation, and so on—but also by social infrastructures that include agent networks, kinship ties, cultural traditions, and bureaucratic arrangements. Understanding that “one size does not fit all” is imperative for the financial inclusion assemblage’s different stakeholders as we enter mobile money’s next decade.

As researchers have sought to characterize mobile money’s social infrastructures, they have often turned to the question of *trust* (see [IMTFI 2016](#)). Many have suggested that the contemporary world is witnessing a global crisis of trust (e.g., Edelman 2017), and accounting for how mobile money services touch on people’s trust in banks, businesses, physical infrastructures, governments, and one another reveals important lessons about how trust emerges, how it is maintained, and how it falls apart. Trust does not come about easily or automatically; rather, it must be built up over time and continually maintained (see, e.g., [Raza 2012](#); [Osei-Assibey 2014](#)). Dzokoto and Mensah ([2012](#)) found that Ghana’s urban poor trusted word-of-mouth, face-to-face recommendations about mobile money more than the advertising outreach from mobile money providers like MTN Ghana; Balderrama and Rocabado ([2015](#)) report similar findings in Bolivia. Estuar and Estuar ([2012](#)) observed a related trend in a rural Philippine village where people did not identify as mobile money users, preferring instead to abide by trusted local norms around face-to-face cash transactions with known associates. These cases demonstrate how the success or failure of a mobile money rollout often rests upon a critical mass of early adopters who can effectively act as brand ambassadors because they are already trusted voices in their communities.

Similarly, brand recognition frequently matters in customers’ estimations of a mobile money service’s trustworthiness. EKO, for example, benefited from partnering with the State Bank of India, which enjoys considerable trust among some as the largest public sector bank in India ([Nandhi 2012](#)). In Kenya, M-Pesa’s early successes translated into greater trust of the mobile platform in general when compared to other national contexts; as a result, Kenyan microfinance organizations have had greater success in promoting mobile banking services than MFIs elsewhere. By contrast, a general lack of trust in formal financial institutions can discourage participation in mobile money schemes that partner with banks. WING, a mobile money service launched by ANZ Bank in Cambodia in 2009, found difficulty attracting customers, in part due to lingering skepticism of the banking sector in the wake of the devastating 1997 Asian financial crisis ([Yousif et al. 2012](#)). And as we outlined above, in situations where government institutions are leading efforts to promote mobile money, legacies of state violence, institutionalized discrimination, and political corruption can be obstacles to trust that are especially difficult to overcome.

While understanding local contexts that both enable and discourage trust is important, an equally important—if also surprising—variable is the role of what might be seen as trust’s evil twin: *shame*. Trust might secure someone’s commitment, but it is often shame that offer the initial motivation. In the Philippines, shame encourages people to save in order to avoid having to turn to one’s social networks to borrow ([Ang et al. 2016](#)); in Pakistan, that same sense of shame falls heavily on women, for whom mobile money represents a means of avoiding the social risks involved in borrowing from relatives ([Baig 2017](#)). In Bangladesh, shame is what motivates people to make payments on their micro-loans, as missing a payment is considered “un-Islamic” ([Kustin 2013](#); see also Kustin 2015). And in Kenya, shame can drive the financial maneuvering behind coming-of-age rituals, because to run out of beer, not have enough gifts, or be able to provide a satisfactory ceremony would be deeply embarrassing, not just personally, but for one’s family ([Kusimba et al. 2015a](#)).

Mobile money as a development project and business model was made possible through the convergence of diverse stakeholders. Today, it may be that we are witnessing the fracturing of this convergence. This fracturing is evident not simply in the increasingly divergent interests of these stakeholders, but also in the mobile money research agenda itself. That agenda is being pushed, on the one hand, towards ever-more-fine-grained studies of user experience in an effort to understand the obstacles that slow or prevent uptake and adoption of mobile money services and, on the other, towards ever-more-statistically-rigorous studies, typically of the RCT variety, of mobile money's impact on indicators of financial inclusion, security, or wellbeing writ large. Methodological diversity in this context is a necessity not only to understand mobile money, but also to track these shifts in the mobile money agenda as empirical phenomena themselves, with their own comparative commitments.

Qualitative research projects like the ones IMTFI has supported have demonstrated the complex and innovative ways people manage their own finances, both before and after the introduction of mobile money. Such studies are crucial for improving our understanding of people's financial lives and practices, while also identifying unmet needs and imagining new services that might bridge the gap between aspiration and reality as such they enter into local monetary ecologies. Data from the first decade of mobile money research indicate that mobile money users are most excited about, and most impacted by, services that afford fast, cheap, and secure P2P value transfers and convenient cash-in/cash-out operations. Savings, credit, and insurance products that ride mobile money's rails may be useful for some, but their applications and uptake will always be context-dependent; similarly, while cash may be costly in some ways, both for the poor and for financial institutions, cashlessness is not an inevitable outcome of mobile money—nor is it necessarily a desirable one. Mobile seems to work best when it offers a more flexible and more proximate system for smaller and more frequent transactions. It is, at its core, a tool for money transfer, a technology that facilitates circulation—and thus a means of distribution and redistribution.

At a symposium titled “Mobile Money, Development and Financial Inclusion in Africa” held at Cornell University in 2017, Edward Mabaya told the audience, “It’s easy to get carried away by technologies, but they’re only as useful as the problems they solve.” Mobile money’s value proposition for its many proponents and stakeholders often boils down to how well it can solve, across a variety of different contexts, the problems of financial exclusion and, seemingly by extension, poverty and insecurity. Yet it seems clear that in some situations, despite the many ways mobile money can advance “financial inclusion,” the conditions that produce chronic and pervasive poverty persist. Indeed, mobile money as a project of financial inclusion may not, at a structural level, target those conditions but instead perpetuate and sustain them. Assessing the situation for migrant laborers in Karachi, Pakistan, Noman Baig (2017: 12) suggests that financial inclusion comes with an important corollary, linking the finances of the poor to often-unstable regional and global economic circuits, thus making them even more “vulnerable to monetary shocks and crises.” In this way, “financial inclusion of the laborers’ saving, historically saved in community networks, and physical exclusion of the laborers from the benefits of digitization of finance happen simultaneously.”¹²

We insist, then, that critical questions remain. If the “mobilization” or digitization of money results, ultimately, neither in its dematerialization nor its disintermediation, but rather in diverse forms of re-

¹² Along these lines, we note here the recent push to reintroduce credit and debt through digital and mobile channels (Francis et al. 2017; Hwang & Tellez 2016). This push poses risks to users, from predatory and opaque fee structures to the cultivation of over-indebtedness to increased surveillance (Mazer & McKee 2017), as long-standing critiques of microcredit and warnings from social scientists about the financialization of everyday life have shown again and again.

materialization and re-intermediation, we need to ask: What materials? What intermediaries? Which mobile money tools are most useful as complements to existing financial practices? Who benefits, and in what ways, from bringing the unbanked into formal financial systems? We close by suggesting, instead of financial “inclusion,” “security,” or “wellbeing,” what would it mean to shift to a language of “financial equity” or even—as Lisa Servon (2017: 178) has suggested for the post-crisis economic landscape of the United States—“financial *justice*”? Does mobile money—and its many supporters and stakeholders—have a role to play not simply in making financial services more accessible, but also in confronting the sources of social stratification? Just as one size does not fit all when it comes to understanding the successes and failures of mobile money in its first decade, mobile money’s future is not given in advance. That future is neither inevitable nor unidirectional.

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