

MOBILE MONEY: CELL PHONE BANKING IN DEVELOPING COUNTRIES

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Mobile money allows users to pay for goods and services by using short message service (SMS) to transfer either local currency or mobile minutes. Mobile money can increase access to financial services. Microfinance institutions in particular can benefit from the use of mobile money. Unfortunately, regulatory and initial investment barriers currently prevent widespread adoption of mobile money. In this paper, we demonstrate that mobile money can serve as a poverty reduction tool by increasing savings rates, creating jobs, and increasing access to financial products offered by microfinance institutions. Based on the potential benefits of mobile money, we recommend that governments subsidize the development of local mobile money infrastructure and adopt policies that enable the formation of a decentralized network of trusted mobile money agents.

INTRODUCTION

According to development economist Jeffrey Sachs, the mobile phone has become “the single most transformative tool for development.”[1] Seventy-five percent of the 4 billion mobile phones currently in use worldwide are in developing countries, and within the next decade there will be more mobile phone subscriptions in the world than people.[2] A recent econometric study by the World Bank shows that, on average, an additional ten phones per one hundred people in a developing country boosts GDP growth by 0.8 percent.[3]

Though mobile phones make communication easier, resulting in economic growth, they can also be useful for things other than simple communication. One such innovation is mobile money: using mobile phones to electronically store currency and pay for goods and services via short message service (SMS).[4] Consumers, vendors, and financial institutions can transfer mobile money, denominated in either local currency or mobile minutes, easily and with low transaction costs. Because mobile money is a cheaper, safer, and more convenient way to transfer funds, and reduces the costs associated with saving and lending, consumers in developing countries are recognizing its benefits.[5] Like the microfinance institution (MFI) model pioneered by Grameen Bank in the 1970s, mobile money has increased access to financial services. Working together, mobile money and MFIs can expand access to financial services in developing countries.

This paper will explore mobile banking, specifically as it relates to poverty reduction strategies in developing countries, by discussing (1) a brief history of the rise of mobile phones, (2) how mobile money works, (3) use of mobile money as a

poverty reduction strategy, (4) the various uses of mobile money, and (5) overcoming challenges for mobile money. Based on the potential benefits of mobile money, we recommend that governments subsidize the formation of local mobile money infrastructure and adopt policies that encourage the formation of mobile money networks and the use of these networks by MFIs.

THE RISE OF MOBILE PHONES

Though mobile phones were once viewed as a luxury item, their recent rise and worldwide penetration has been remarkable.[6] In 1999, only 8 percent of the world population had mobile phone subscriptions.[7] By 2007, 49 percent were mobile phone subscribers.[8] Today more than 80 percent of the world’s population is within mobile coverage.[9] We can attribute the rapid adoption of mobile phone technology in developing countries to a combination of low infrastructure costs, the rise of pre-paid service, the decrease in handset prices, and the privatization of mobile phone service.

Developing countries lack the physical and technical infrastructure present in more developed nations. Due to the high cost of connecting individual houses to phone lines, many developing countries simply bypassed full landline phone service and leapfrogged to a wide cellular phone network.[10, 11] Once the mobile telecommunications network was installed, the introduction of prepaid mobile service made flat-rate monthly contracts unnecessary, allowing many more users to enter the market. Telecommunications providers relied on a network of micro-entrepreneurs who could sell pre-paid mo-

mobile cards in denominations as small as \$0.50 in shops, village markets, and along streets for a small commission.[12]

The final two obstacles preventing widespread adoption of mobile phones were the cost of handsets and government monopolies on telecommunications service in developing countries. As mobile phones became more common worldwide, the price of basic models steadily fell, from around \$250 in 1997 to around \$20 today.[13] This was partly the result of phone manufacturers realizing that there was unmet consumer demand for low-cost, basic phones. The next catalyst for mobile phone penetration was the privatization of telecommunications services. There is clear evidence that privatization drives adoption.[14] Ethiopia, for example, is one of the few remaining countries where mobile phone service remains a government-run monopoly. At the end of 2008 the country had a “mobile teledensity” of 3.5 percent (3.5 mobile phones per 100 people), compared with 40 percent for Africa as a whole.[15]

Mobile phone connectivity in otherwise marginalized communities facilitates social and economic development through increased access to people, information, and services such as health care, education, employment opportunities, and market information.[16] In Niger, for example, mobile phone coverage reduced variation in grain prices between markets, increasing profits for farmers and reducing prices for consumers. Mobile phones also make it easier for small business owners to order products and interact with customers. In these instances, mobile phones facilitate development by making it easier to exchange information. With mobile money, phones can promote economic development by making it easier to exchange money.

HOW MOBILE MONEY WORKS

Mobile money allows any mobile subscriber to add credit to his or her mobile account and store it for later use or send it to other mobile subscribers via SMS.[17] The receiver can inexpensively convert this credit back into cash. Mobile money allows users to send cash as quickly as a text message, avoiding inconvenient and costly transfer methods such as physical travel, the mail, or traditional wire transfer services like Western Union.[18]

Mobile money services allow small retailers such as local corner shops to act as bank branches by charging a small fee for each transaction.[19] For small transfers, these mobile money fees are significantly less than fees charged by traditional services such as Western Union.[20]

To deposit funds to their mobile money account, consumers go to participating local shops and hand over physical money to the shopkeeper. The shopkeeper subtracts a small fee from the deposit and then sends a coded text message to a mobile money provider, which then credits the customer’s mobile money account. Customers can then transfer money—again, via text message—to other registered users, who can withdraw it by visiting their own local corner shops. Some

telecommunication providers and retailers also allow users to send money to people who are not registered mobile money users. Cell phone credit becomes a form of currency that people can trade and later exchange for traditional money through a network of informal banking outlets located in towns and villages.[21] Since mobile money services often include SMS and paper receipts, customers may be willing to trust the brand of the mobile money provider even if they don’t trust the local agents themselves.[22, 23] (see Figure 1, page 31)

MOBILE MONEY AND MICROFINANCE EXPAND ACCESS TO FINANCIAL SERVICES IN DEVELOPING COUNTRIES

Evidence shows that expanding access among the poor to financial services is effective in reducing poverty. Poor individuals without access to banking services are forced to rely on the informal cash economy, leaving them vulnerable to risks and lacking means to efficiently save or borrow money. A study in Ethiopia based on household surveys from 1994 to 2000 demonstrated that access to financial services caused a statistically significant reduction in five of seventeen determinants of poverty.[24] A similar multi-country study demonstrated how access to financial services encourages social mobility across generations, thereby leading to poverty reduction in the long run.[25]

Microfinance has proven to be a successful strategy to expand access to financial services in developing countries. In the 1970s, Muhammad Yunus of Grameen Bank pioneered the idea that microfinance—small loans to poor, high-risk individuals—could enable people to pursue activities that would not only sustain their livelihood but also bring their families out of poverty. Since then, the notion of microfinance has expanded beyond lending.[26] Many MFIs now offer additional services such as savings and insurance. In 2005, the World Bank estimated that less than 5 percent of world demand for microfinance loans was being met. With only 26 percent of the global population connected to formal banking institutions, MFIs, which penetrate rural areas where no conventional banks exist, are in a good position to meet the large demand for credit among the world’s poor.[27]

In the last five years, mobile money has proven to be another scalable method to expand the poor’s access to financial services in developing countries. According to a recent study by the Consultative Group to Assist the Poor (CGAP), many poor people who do not currently have access to financial services may first gain access to those services through electronic payment tools like mobile money.[28] In South Africa, a CGAP study estimates that 10 percent of current mobile banking customers fall below South Africa’s poverty line and did not previously hold a bank account.[29]

BENEFITS OF A MOBILE MONEY SYSTEM

In addition to providing an inexpensive way to transfer funds, mobile money can improve access to savings mecha-

nisms, facilitate the purchase of insurance, and help MFIs reduce transaction costs.

An Easier and More Affordable Way to Send Remittances

Mobile money is already being used by people working away from home to send remittances to family members.[30] Formal and informal remittances, which sum to \$674 billion globally, make up about 30 percent of some countries' GDPs.[31] Traditional channels for sending remittances charge fees ranging from 10 to 25 percent. Reducing transfer fees by 10 percent could result in a \$65 billion increase in remittances to people living in developing countries.[32] Recipients of remittances are often low-income females without formal bank accounts.[33]

Insurance Through Mobile Money

The poor can also use mobile money to purchase insurance for their businesses. [34] In Kenya, Safaricom, UAP Insurance of Kenya, and the Syngenta Foundation for Sustainable Agriculture recently started a micro-insurance scheme that uses mobile phones and solar-powered weather stations to provide crop insurance to rural Kenyan farmers. Farmers pay an insurance premium of 5 percent of the price of a bag of seeds they purchase to insure their crops against failure due to drought or other weather problems. Local agents scan a bar code on each bag of seeds with a camera phone and send the photo to UAP in order to register the product with the client's policy. The farmer then receives a confirmation via SMS. In addition to registering with UAP, the farmers register at their nearest weather station. If a client reports damaged crops due to poor weather conditions, a panel of UAP experts investigates the regularly indexed weather conditions in the client's area and their impact on the crops. After verification, payouts are made directly to the client via the Kenya-based mobile money service M-PESA.[35]

Decreasing the Costs of Saving

Mobile money allows users to make most of the same transactions that they would be able to make with a savings account from a traditional bank. Users can deposit funds in their mobile money accounts, save them for later use, and withdraw or transfer them via an agent or an ATM.[36] Savings is the complement to credit; both enable people to accumulate capital and smooth their consumption during times of need such as unemployment or drought. With credit, people acquire a lump sum up front and then pay it off over time. With savings, they accumulate capital over time in order to build a lump sum. A mobile money account can serve as an inexpensive, risk-free means of storing wealth, an alternative to storing it in the form of livestock or as cash hidden in the home.[37] For people who already have savings accounts with conventional banks or MFIs, these institutions may integrate with mobile

money so that customers can make deposits to and withdrawals from their accounts as easily as they can transfer money to other mobile money users.[38]

Increasing the Reach and Affordability of Microloans

One of the main obstacles to the expansion of microfinance, according to the CGAP, is the high interest rates that MFIs charge on loans: the industry average is 28 percent annually, with standard rates varying from 25 to 100 percent. MFI interest rates are a function of four primary costs: (1) the cost of money, (2) the cost of loan default, (3) administrative costs, and (4) return on investment (profit).

MFIs are increasingly interested in ways to capitalize on the reliability and cost savings mobile money provides to both institutions and clients.[39] Since MFIs lend out small increments of money to people in rural areas, they face high transaction and labor costs.[40] A member of the CGAP recently identified administrative costs, especially transaction costs, as the primary cause of high MFI interest rates, particularly in rural and disconnected markets.[41] Mobile money presents an opportunity to reduce transaction costs by replacing costly labor with less expensive, automated technology and decreasing transportation costs associated with disbursing loans and collecting payments.[42] For example, mobile money helped Peru's Banco Credito reduce its per-transaction cost from eighty-five cents to thirty-two cents.[43] Similarly, Pakistan's Tameer Bank estimates that set-up costs for a mobile agent are thirty times lower than for a branch and that monthly operations costs are ninety times lower.[44]

Beyond reducing costs for MFIs, mobile money may also decrease default rates and credit risks as clients reallocate the time formerly spent traveling to banks to income-generating activities. According to World Bank research, mobile money's ability to grow and ease of use could foster wider penetration of MFIs, decrease defaults on loans (by providing people with the flexibility to repay loans at any time), and decrease transaction costs associated with repaying loans.[45] Mobile phones can also allow clients to easily send updates regarding their progress either to MFIs or to MFI donors. Mobile money will help MFI clients accumulate wealth from productive activities, purchase insurance to smooth income during a crisis, and make payments when necessary.[46] While mobile money is a poverty reduction tool in itself, it is also a tool for MFIs to expand at a faster rate and attract a greater share of the world's population into the formal banking sector.

OVERCOMING CHALLENGES FOR EXPANDING MOBILE MONEY

Though mobile money has the potential to improve savings rates and provide access to financial products such as microcredit and micro-insurance, MFIs and telecommunications providers who want to implement mobile money still face several challenges. These challenges include difficult regulatory

environments, high barriers to entry, and MFIs' fears that with mobile money they will not be able to use social pressure to encourage loan repayment.[47]

Difficult Regulatory Environments

Mobile money agents are necessary for a convenient, scalable mobile money distribution network, yet only 40 percent of countries currently allow third-party agents, such as local merchants, to handle cash for mobile money deposits and withdrawals. Of those countries, only one-third allow third-party agents to create new accounts on a customer's behalf.[48] Part of the concern over mobile money deposits stems from fears that mobile money transfers may be used in terrorism plots. Many countries' regulations regarding who can accept deposits must become more flexible if financial institutions are to provide branchless banking via mobile phones.[49] Since phone providers control access to phones' SIM cards, agreements between phone service providers and mobile money providers must be reached in order to secure SMS transactions.[50]

Though mobile money has successfully extended the reach of financial services to the poor in Kenya and other developing countries, regulatory frameworks vary substantially among different countries, suggesting that there is no single solution for regulating branchless banking. The regulation simply needs to be cost-effective and ensure that rural and urban consumers can trust agents to handle their cash and keep their bank accounts secure.[51] Regulation must be flexible enough to allow low-cost banking services to spread, but strict enough to prevent fraud and money laundering.[52] One approach used in Kenya is to regulate mobile stored-value accounts separately from traditional banking activity, which gives Safaricom the authority to certify its own agents.[53] Brazil, on the other hand, requires all agents to be approved by a central bank.

Barriers to Entry

Due to the high cost of integration with current mobile money programs, transaction costs often increase in the short run for institutions that adopt mobile money. These higher costs can result in micro-lenders having to charge higher interest rates. For example, while trying to penetrate the micro-credit market, Safaricom in Kenya reported that the high fixed cost of mobile money infrastructure increased operating costs and led MFIs to increase interest rates by up to 10 percent. Given the positive externalities of microfinance and mobile money in particular, governments should intervene to subsidize the creation of mobile money infrastructure.

Less Human Contact Could Increase Loan Defaults

Some MFIs fear that mobile money will lead to a decrease in human contact between their employees and clients. MFIs rely on human contact and social pressure to encourage loan

repayment and keep default rates low. Though human contact does likely decrease default rates, other innovative methods, such as sending repayment reminders, using mobile money agents as MFI collection agents, or fingerprinting borrowers, could also be used to encourage repayment.[54]

CONCLUSION

Mobile money has the potential to be a powerful tool for poverty alleviation. In developing countries where financial services are scarce, mobile money provides an inexpensive and secure way to transfer funds. It also offers improved access to savings accounts, insurance, and microcredit. CGAP's preliminary research has shown that mobile banking extends formal financial services to poor individuals in developing countries who previously did not have them. Mobile money may reduce MFI transaction costs, which experts, such as the founders of Grameen Bank, believe will ultimately lower interest rates for customers.[55]

Still, there is room for mobile money to expand in both geographical coverage and service provision. In the future, mobile money could expand into the untapped territory of interest-bearing savings, international remittances, and money transfer services between individuals with different telecommunications providers. Mobile money agents are necessary for a convenient, scalable mobile money distribution network, yet they are severely restricted by many countries' regulations. In order to take full advantage of the potential benefits of mobile money, governments must provide a supportive policy framework that matches the growth rates in demand for microfinance and adoption rates of mobile money.

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Figure 1: Key Players in the Rise of Mobile Money

| Service | Scope | Description and impacts |
|---|---|--|
| <p>M-PESA[56]</p> <p>Location: Kenya</p> <p>Provider: Safaricom Kenya, a private company jointly owned by Vodafone and the Kenyan government</p> | <ul style="list-style-type: none"> •Approximately 7 million users out of Kenya's total population of 38 million [57] •Program started in 2007 and it is growing exponentially[58] •Over 11,000 M-PESA agents in Kenya, four times the number of Kenyan bank branches and ATMs combined[59] | <ul style="list-style-type: none"> •Originally gained popularity as a cheap way for urban migrants to transfer remittances to their families in the countryside.[60] •Now being used to buy goods and services and pay bills to insurance brokers, corporate entities, microfinance lenders, and nearly one hundred utility companies. •Ensures that customers can always access their money, specifically when unexpected expenses, such as medical costs, arise.[61] •M-PESA accounts do not pay interest, but are still used as savings accounts because they are safer and cheaper than saving through money collectors, cattle (which are at risk of dying), gold (which can be easily stolen), neighborhood savings schemes (based on human relationships), or storing cash in the home.[62, 63] •A recent study found that people using M-PESA experienced a 5 to 30 percent increase in household income.[64] |
| <p>Bolsa Familia [24]</p> <p>Location: Brazil</p> <p>Provider: National government</p> | <ul style="list-style-type: none"> •The main vehicle for government social welfare payments to 12 million recipients, affecting as many as 45 million people when considering family members[65] •Users include indigenous recipients in remote regions | <ul style="list-style-type: none"> •Bank-led payment model operated through debit cards and point-of-sale devices. •According to the Brazilian government, the transfers target the female head of the household and require that woman to meet a number of conditions, such as enrolling her children in school. •The government finds that distributing social welfare through mobile phones has reduced program costs and increases the program's efficiency by reducing mail delays.[66] |
| <p>MoneyGram</p> <p>Location: Available in over 190 countries and territories</p> <p>Provider: MoneyGram (private company)</p> | <ul style="list-style-type: none"> •180,000 locations worldwide | <ul style="list-style-type: none"> •Targets migrants and expatriate workers through a new mobile money service geared towards distributing remittances •MoneyGram is exploring partnerships with mobile financial services companies such as Affinity Global Services.[67] •According to Richard Meredith, MoneyGram's regional director for the Middle East, "mobile money transfer services are an emerging part of our product offering and we are eager to bring these services to the Middle East. Overall, we expect mobile service to be in highest demand in developing economies where individuals are more likely to have mobile phones than bank accounts."[68] |

ENDNOTES

- [1] *The Economist*, "How a luxury item became a tool of global development," September 24, 2009, http://www.economist.com/specialreports/displaystory.cfm?story_id=14483872 (accessed December 3, 2009)
- [2] *The Economist*, "The power of mobile money," http://www.economist.com/opinion/displaystory.cfm?story_id=14505519, September 24, 2009 (accessed December 3, 2009). The Economist also reports that no other technology has spread faster around the world.
- [3] Ibid.
- [4] GSMA, *Mobile Money for the Unbanked Annual Report 2009*, http://www.gsmworld.com/documents/mmu_2009_annual_report.pdf (accessed December 20, 2009).
- [5] *The Economist* 2009a.
- [6] *The Economist* 2009b.
- [7] Mark Pickens, David Porteous, and Sarah Rotman, *Scenarios for branchless banking in 2020* (CGAP, November 2009), <http://www.cgap.org/gm/document-1.9.40599/FN57.pdf> (accessed December 19, 2009).
- [8] ITU, "ICT Statistics," <http://www.itu.int/ITU-D/ict/statistics/ict/graphs/mobile.jpg> (accessed March 29, 2010).
- [9] Pickens et al.
- [10] A telecommunications provider enjoys economies of scale when laying wire, cable, or fiber along the main route (e.g. along roads), but it is very costly to extend that fiber from the main route to individual houses and buildings. For this reason, universal landline access is often not achieved.
- [11] This explains why mobile phone penetration has spread much faster in developing countries than in many developed countries (see Figure 1).
- [12] Unless otherwise noted, all denominations are in US dollars.
- [13] *The Economist* 2009a.
- [14] Ibid.
- [15] South Africa passed the 100 percent mobile phone penetration mark in January 2009 and Kenya and Tanzania are expected to reach it by 2013. Teledensity of 100 percent does not mean that every person has a phone because many people have two phones or multiple SIM cards.
- [16] Peter Day, "Mutual benefits of profits from poverty," *BBC*, July 4, 2005, <http://news.bbc.co.uk/2/hi/business/4648049.stm> (accessed November 30, 2009).
- [17] Emmanuel Abunyang, "Mobile banking in developing countries: secure framework for delivery of SMS-banking services" (master's thesis, Radboud University Nijmegen, August 2007), <http://masalai.files.wordpress.com/2009/03/sms-bank-in-developing-countries.pdf> (accessed November 30, 2009).
- [18] *The Economist* 2009a.
- [19] Ignacio Mas and Hannah Siedek, *Banking through networks of retail agents* (CGAP, May 2008), <http://www.cgap.org/p/site/c/template.rc/1.9.3922/>.
- [20] Western Union has expanded its services beyond wire transfers and now offers international transfers from the Internet to a receiver's mobile wallet, but still at a fee of 20 percent for a \$50 transfer from Kenya to the US.
- [21] Ignacio Mas, "With mobile banking, technology is easy, distribution is not: interview with Ignacio Mas," <http://technology.cgap.org/2010/03/12/with-mobile-banking-technology-is-easy-distribution-is-not-interview-with-ignacio-mas/> (accessed March 15, 2010).
- [22] Ibid.
- [23] Ignacio Mas and O. Morawczynski, "Designing mobile money services: Lessons from M-PESA," *Innovations: Technology, Governance, Globalization* 4(2)(2009): 77-91. <http://www.microfinancegateway.org/p/site/m/template.rc/1.9.37315/> (accessed December 21, 2009)
- [24] Asli Demircug-Kunt. *Finance and economic development: Evidence, indicators and policy choices* (World Bank Development Research Department, February 2007).
- [25] T. Beck, Asli Demircug-Kunta, et al., "Reaching out: Access to and use of banking services across countries," *Journal of Financial Economics* 85(1)(2007): 234-266.
- [26] In January 2010, the Bill & Melinda Gates Foundation announced grants worth \$38 million to 18 MFIs in South Asia, Latin America, and Africa to encourage them to expand their savings offerings. *The Economist*, "Microfinance focuses on lending. Now the industry is turning to deposits," March 11, 2010, http://www.economist.com/business-finance/displaystory.cfm?story_id=15663834 (accessed March 12, 2010).
- [27] Gates Foundation, "Financial services for the poor: Fact sheet," <http://www.gatesfoundation.org/financialservicesforthepoor/Documents/financial-services-for-the-poor-fact-sheet.pdf>. C.K. Prahalad and S. Hart, "The fortune at the bottom of the pyramid," *Strategy+Business* 26(2002): 55-67 (reprint #02106).
- [28] Pickens et al., 1.
- [29] Innovations for Poverty Action, "Mobile banking," <http://poverty-action.org/node/1634> (accessed February 13, 2010).
- [30] Kabir Kumar, "Do low-income mobile phone users want mobile money?" <http://technology.cgap.org/2009/11/20/do-low-income-mobile-phone-users-want-mobile-money/> (accessed March 15, 2010).
- [31] Sanjay Dhawan, "How mobile international money remittances might benefit the developing world," <http://blog.zoompass.com/2009/09/09/mobile-international-money-remittances-developing-world/> (accessed April 2, 2010).
- [32] Ibid.
- [33] Ibid.
- [34] *The Economist* "Insuring crops with a mobile phone," March 11, 2010, http://www.economist.com/business-finance/displaystory.cfm?story_id=15663856 (accessed March 12, 2010).
- [35] Ibid.
- [36] Christine Bowers, "How banking on a mobile phone can help the poor," *Foreign Policy*, January 17, 2007, http://blog.foreignpolicy.com/posts/2007/01/17/how_banking_on_a_mobile_phone_can_help_the_poor (accessed November 23, 2009).
- [37] *The Economist*, "The hidden wealth of the poor," November 3, 2005, http://www.economist.com/surveys/displaystory.cfm?story_id=E1_VDSJPNQ (accessed April 2, 2010)
- [38] South African company Wizzit (<http://www.wizzit.co.za/>) is one example of a mobile money provider that offers transfers to other users as well as to bank accounts.
- [39] Chris Nicholson, "In poorer nations, cellphones help open up microfinancing," *New York Times*, July 9, 2007, <http://www.nytimes.com/2007/07/09/business/worldbusiness/09micro.html> (accessed November 30, 2009).
- [40] Lecture by Professor Deborah Burand, Director of the International Transactions Clinic, University of Michigan Law School, December 14, 2009.
- [41] Ibid.
- [42] A recent study by the Clinton Foundation estimates that mobile money may reduce transaction costs for MFIs by up to 80 percent.
- [43] *IBS Journal: Technology for Microfinance Supplement*, "Analysis: Mobile microfinance - mobile money for the unbanked," October 2009, <http://www.ibspublishing.com/index.cfm?section=MF09&action=view&cid=13431> (accessed December 10, 2009). This is the cost of each transaction, not the cost for each dollar loaned.
- [44] Ibid.
- [45] Demircug-Kunt 2007.
- [46] *CGAP*, "Is mobile banking more hype than reality? New Focus Note explores the future of branchless banking," November 18, 2009, <http://www.cgap.org/p/site/c/template.rc/1.26.12247/> (accessed December 4, 2009).
- [47] India and Tanzania are examples of countries with extremely strict regulations regarding mobile money. These strict regulations stem partly from fears that the autonomous nature of mobile money could make it a convenient way to fund terrorism.
- [48] Pickens et al., 13.

- [49] *The Economist*, "Microfinance focuses on lending. Now the industry is turning to deposits," March 11, 2010, http://www.economist.com/business-finance/displaystory.cfm?story_id=15663834 (accessed March 12, 2010).
- [50] Ibid.
- [51] *CGAP*, "Debating the regulation of branchless banking: Agents at the center," March 8, 2010, <http://www.cgap.org/p/site/c/template.rc/1.26.13105/> (accessed March 15, 2010).
- [52] Ibid.
- [53] Vodafone and the Kenyan government jointly own Safaricom, so the government may still influence Safaricom mobile money agent policies outside of official legislation.
- [54] Xavier Giné, Jessica Goldberg, and Dean Yang, "Identification strategy: A field experiment on dynamic incentives in rural credit markets," <http://www.umich.edu/~deanyang/papers/gine%20goldberg%20yang%20-%20fingerprinting.pdf> (accessed 15 March 2010).
- [55] The Asian Banker, a financial industry research group, estimates that a typical financial transaction in the Philippines would cost 80 percent less if carried out on a mobile phone instead of in a bank.
- [56] BBC, "Help for poor to access banking," February 20, 2009, <http://news.bbc.co.uk/2/hi/technology/7899396.stm> (accessed November 30, 2009). FSD Kenya, *Research on Mobile Payments Experience; Results of the 2007 Survey*, 2008, http://www.gsmworld.com/documents/m-pesa_case_study.pdf (accessed April 2, 2010).
- [57] Gunnar Camner, Emil Sjoblom, and Caroline Pulver, "What makes a successful mobile money implementation? Learnings from M-PESA in Kenya and Tanzania," *GSM.A*, 2008, <http://mobileactive.org/research/what-makes-successful-mobile-money-implementation-learning-s-m-pesa-kenya-and-tanzania> (accessed December 19, 2009).
- [58] In Kenya, people wanting to sign up to M-PESA can go to any registered agent, fill in a short registration form, and show their national ID (which most people do have). Agents are permitted to process customer registrations online instantly, without having to return any paperwork back to Safaricom. Instantaneous account opening has been one of the success drivers of M-PESA. The customer experience is more cumbersome in Peru, where regulations do not permit agents to process account opening requests at all, meaning that customers must go to a bank branch. In Brazil and India, banks are able to open a class of low-balance accounts with reduced Know Your Customer standards through agents, but the banks must physically see the documents before an account can be opened. In Tanzania, where there is no national ID, there is a more cumbersome registration process and accounts often cannot be opened on the spot. Additionally, anti-money laundering (AML) requirements in Tanzania make registration procedures more complex for consumers wishing to transact above around \$1,300. Amrik Heyer and Ignacio Mas, "Seeking fertile grounds for mobile money," September 2009, http://www.gsmworld.com/documents/Fertile_Grounds_Mobile_Money.pdf (accessed December 20, 2009).
- [59] Pickens et al.
- [60] In Kenya and Tanzania, 17 and 28 percent of households respectively depend on remittances as their primary income source. FSD Kenya, *Financial access in Kenya, results of the 2006 National Survey* (Nairobi, 2007). FSD-Tanzania, *Key findings of the FinScope survey in Tanzania in 2006* (2007). Of Africa's 16 million international labor migrants, 63 percent are regional as opposed to trans-continental, with major corridors in West Africa. Leon Isaacs, "IAMNT Presentation" (presented at MMTA Conference, Johannesburg, May 2008). However, in places like the Philippines and Latin America, where urbanization ratios exceed 50 percent, remittances are more likely to be due to international rather than domestic migration.
- [61] *The Economist* 2009a.
- [62] Due to regulatory reasons.
- [63] Caroline Pulver, William Jack, and Tavneet Suri, *The performance and impact of M-PESA: Preliminary evidence from a household survey* (FSD Kenya, 2007, unpublished). In Kenya, banked users have been quicker to adopt mobile services than unbanked users. Seventy percent of M-PESA users are banked as opposed to 40 percent of nonusers.
- [64] Pulver et al.
- [65] World Bank, "Bolsa Família: Changing the lives of millions in Brazil," <http://go.worldbank.org/M4EQDZNQX0> (accessed December 20, 2009).
- [66] Denise Dias, "Brazil banks on financial inclusion through government transfers," *CGAP*, November 5, 2009, <http://technology.cgap.org/2009/11/05/brazil-banks-on-financial-inclusion-through-government-transfers/> (accessed December 5, 2009).
- [67] Jordan Crook, "MoneyGram launches global mobile money transfer service," *Mobile Marketer*, August 4, 2009, <http://www.mobilemarketer.com/cms/news/banking-payments/3830.html> (accessed December 20, 2009).
- [68] Ibid.