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**Economic Impact Analysis of
Mobile Financial Services on the Unbanked Population of Jamaica**

Advisor:
Dawn Elliott

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EXPLORING THE ECONOMIC POTENTIAL OF A MOBILE FINANCIAL SYSTEM IN JAMAICA



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Dawn Richards Elliott

This study was commissioned by PRIDE Jamaica, a project funded by the United States Agency for International Development (USAID)/Jamaica. The views of the author do not represent the views of USAID/Jamaica nor the U.S. Government. This work will be incorporated into a broader project evaluating the implications of implementing a Mobile Financial System in Jamaica. This project is associated with the Mona School of Business and Solutions for Society both at the University of the West Indies-(UWI). Dawn Richards Elliott served as consultant for the economic impact study working in close collaboration with a team that includes: Independent Systems consultant Carl Johan Rosenquist; PRIDE Jamaica Project Director Debra Wahlberg; Statistical Team directed by Gavin Daley; the Management Team of the Broader Project and affiliates of the UWI Maurice MacNaughton, Evan Duggan, and Terrence Forester. This report draws on published research and documents, interviews with key stakeholders, and results from a survey that was administered and analyzed by Gavin Daley's Research Team. The meetings with key stakeholders include representatives of the Ministry of Labour, Jamaica National Building Society, Office of Utilities Regulation, and the National Commercial Bank. Professional due diligence was practiced throughout the project to ensure that the final product reflects a quality that is consistent with research standards. The consultant does not accept any financial and or other responsibility that may result from the use of the information in this document either directly, indirectly, or under special circumstances. This final product comes with no warranties granted or extended.

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EXECUTIVE SUMMARY

Developing countries that have implemented a Mobile Financial System have been rewarded with:

-  Lower costs of accessing financial services
-  Increased transparency
-  Improvements in the degree of financial inclusion
 - Mobile subscribers without bank accounts who access financial services via the mobile
 - Mobile subscribers with savings and or credit only accounts who access money transfer services, bill payments and remittances, via the mobile
 - Mobile subscribers who own money transfer accounts but find it convenient to access financial services via the mobile
-  Increases in GDP

Although the Mobile Financial System is used for a variety of purposes, including savings, its primary purpose and use is to support existing payments and remittances channels. By implication, any country where large numbers of the population cannot access payments and remittances channel through financial account ownership and or at relatively low costs will benefit from the Mobile Financial System.

This is the case for Jamaica, where the need for a low-cost, safe, payments channel appears critical:

-  In Jamaica 33.65% of the adult population do not own bank accounts and must use cash and or the non-bank payment outlets at relatively high costs,
-  Although 66.35% own a bank account, banking remains very basic with few able to access payments and remittances services using account ownership
 - Only 12% own money transfer accounts, checking accounts and credit cards
-  Few Jamaicans have access to internet at home, 15% , suggesting that most of the banked cannot use their savings accounts to make payments and remittances
-  77.9% - 86% of adult Jamaicans have limited access to low-cost, safe, payments channel and as a result can benefit from the implementation of a Mobile Financial System

The size of the economic impact from this system depends on the business model that is implemented. For Jamaica, a model that ensures financial stability while encouraging rapid uptake in the system and the greatest volume of traffic is critical. As a result, we recommend that Jamaica adopt the fully interoperable agent-based bank model to achieve these objectives. Existing regulations that will ensure the implementation of this business model remain insufficient; although The Money Order Act 2006 from the Bank of Jamaica ensures the implementation of a bank model, there remains a regulatory void regarding interoperability and the use of agents. To ensure that Jamaica realizes the promises for financial inclusion and economic development, we propose that the Bank of Jamaica provide legal directives on both issues.

STUDY PURPOSE AND DESIGN

This report results from a study that explores the economic potential of a Mobile Financial System on Jamaicans and the Jamaican economy. The term Mobile Financial System describes the business architecture that allow mobile subscribers, those who own bank accounts and those who do not, to make purchases, bill payments, and money transfers to others who subscribe to this system and to those who do not. It can also be used to support the delivery of cash benefits between governments and private sector firms, and the mobile subscribers of a country. The study, which was conducted during the May – August 2011 period, was financed by USAID/Jamaica through the USAID funded project PRIDE Jamaica. It is a part of a broader project commissioned and managed by affiliates of the UWI Mona School of Business and Solutions for Society: Maurice McNaughton; Evan Duggan; and Terrence Forester. This study and ensuing report have 5 primary purposes:

-  provide estimates of the numbers of adult Jamaicans who do not own financial accounts, the unbanked,
 - and as a result who cannot access money transfer and other financial services
 - through banking institutions
-  provide estimates of the numbers of adult Jamaicans who own financial accounts,
 - but cannot, and or do not use them to access money transfer and other financial services through banking institutions
-  explore some of the economic implications of a Mobile Financial System on Jamaicans and Jamaica
 - given its ability to deliver low-cost access to financial services with or without the ownership of financial accounts
-  explore the attitudes of recipients of conditional cash transfers from the Government of Jamaica to the mobile delivery of benefits and
 - to explore the potential savings for delivering these benefits through the mobile channel for the Government of Jamaica
-  provide policy guidance based on the findings from this study

Estimates of financial access using account ownership, and insights on the attitudes of cash recipients of Government benefits were obtained from a nationally representative sample¹. A probability (randomized) sampling method, commonly referred to as proportionate stratified sampling, was used. This divides the population into non-overlapping groups (i.e. 14 parishes), from which a less than 1% random sample of Enumeration Districts, EDs, proportional to parish size, were selected; the ED's were obtained from Mona Info-Geomatics at the UWI. Once the numbers of ED clusters per parish were identified, a random sample was chosen using the GIS Hawth's Analysis Tool, <http://www.spatial ecology.com/htools/rndselss.php>. From the thirty eight (38) randomly selected ED's, households were randomly selected, and in each household all eligible participants, those 18 years and older, were interviewed, by the survey team, See Appendix A and B for the survey instrument and the 38 EDs. The number of households identified within an ED varied between 22 and 67, depending on the number of qualified

¹ The discussions in the rest of this chapter that address issues related to the survey process benefitted from the contributions of Gavin Daley, the statistical team leader for the overall project.

persons. A total sample size of two thousand four hundred and seventy six (2476) was drawn from the thirty-eight enumeration districts to address the objectives of the study. A sample of 2500 was selected because of the unknown population size: typically, where the population size is unknown a sample of two to three times the conventional sample is used. This reduces uncertainties regarding data accuracy, and provides data representation that is robust and representative of the wider population. Insights on cash transfer recipients used a quota sample; each surveyor using a sample of 67 interviews per ED, had a quota of at least eleven cash transfer recipients to meet. The objective was a sample of at least four hundred from a population of three hundred and seventy-five thousand (375,000) who receive Conditional Cash Transfers from the Government of Jamaica.

DATA VALIDATION AND ANALYSIS

A team of trained individuals were used to ensure that data coding, validation, and analyses was done in keeping with accepted research standards. Data validation was performed through direct field supervision, and prior to analysis the data was scrutinized and cleansed in order to reduce inaccuracies. The trained surveyors were introduced to the survey instrument and its embedded questions that were included to help assess the quality of responses, through the use of a focus group; the focus group was also used to make necessary adjustments to the instrument. Field supervisors ensured that proper procedures were adhered to during the data collection process. Data coding and analyses were performed using the Statistical Package for the Social Sciences (SPSS). Once the data was coded, SPSS reliability tests such as Duplication of cases and Cronbach's Alpha were done to ensure the integrity of the data. At the descriptive level, data frequencies were generated to provide information about the characteristics of the population of interest. Some of these characteristics included the mean, mode, median, skewness and range. In addition, bivariate tests were generated to provide deeper insights from which several inferences are drawn.

SURVEY INSTRUMENT AND PILOT

The survey instrument was created by Dawn Richards Elliott with many useful insights provided by Gavin Daley, Debra Wahlberg, Maurice McNaughton, and Evan Duggan. Prior to the launch of the survey, a pilot was conducted and changes to the instrument made based on the pilot of twenty seven adults from three parishes and four communities: Kingston (Chisholm); St Andrew (Cassava Piece); St. Ann (Claremont and Woodstock). To assist in improving data integrity, several questions and answer choices were included in the instrument that served as a warning flag based on the responses.

LIMITATIONS

Surveyors report several limitations that must be noted, given their potential impact on the responses that frame this study.

-  The incidence of survey fatigue appeared to be high; a consequence of the timing of this study which followed other surveys such as the Population Census Study.

Exploring the Economic Potential of a Mobile Financial System in Jamaica

-  The level of mistrust for government appeared to be high; despite repeated efforts to demonstrate the anonymity of the responses and emphasize the nature of the study and the groups that commissioned the study, some chose not to participate, and others were not forthcoming with the requested information.
-  During the time of this study, Jamaica suffered from significant rainfall which posed challenges for the survey team including delays.
-  In a number of cases, surveyors had to be reassigned due to fear and other difficulties that resulted from the original assignment.

Other limitations include the assumptions that are made in this report regarding the impact of the Mobile Financial System on the transactions costs of performing money transfers in Jamaica. A conservative approach was assumed, in order to reduce the chances of inappropriate inferences. One consequence is that this study underestimates the economic potential of implementing a Mobile Financial System; a reasonable outcome given the high degree of uncertainty regarding the use of this system and how Jamaicans are likely to redirect the transactions costs savings into productive economic activities.

STUDY BACKGROUND AND JUSTIFICATION

The implementation of Mobile Financial Systems in developing countries, slightly more than a decade ago has commanded attention from economists, policymakers, development agencies, and multilateral financial institutions. The reason is simple: the Mobile Financial System offers unique opportunities for encouraging broad-based access to financial transactions for all, those who own bank accounts and those who do not. Economists emphasize the impact of open or broad-based access to economic resources on economic development; societies that provide open access to resources and the opportunities to use them efficiently, outperform those that limit access, North, Wallis, Web, and Weingast (2010). Understanding this does not typically make it easier to end a long legacy of limited access; indeed few societies have successfully done so, transitioning to one that encourages open access to economic resources and opportunities, North et al (2010). Not surprisingly, when technological breakthroughs provide opportunities for open access that efforts at institutional changes have failed to do, these innovations are bound to encourage euphoria. This is the story of Mobile Financial Systems around the globe: although these systems are deeply entrenched throughout Europe and Asia, their introduction into developing countries have encouraged euphoria because of a long legacy of persistent limited access to financial services and few opportunities to overcome this limitation.

The Mobile Financial System benefits from innovations in the telecommunications sector that allows the low-cost transmission of information. When used to transmit financial information, it provides opportunities for improved access to financial services for any person who own, and or can access a mobile device. In 2000, the period around which the first Mobile Financial System was launched in a developing country², mobile telephone use was relatively modest. Since then as handset prices have fallen, and innovations have encouraged new products and pricing arrangements, communications using a mobile phone have grown, and with it the case for using the mobile for payments and remittances. Today, it is estimated that 5.3 billion of the world's 6.8 billion, 77%, are mobile users. Current estimates of mobile subscribers who use the phone to make payments and remittances are 109 million, with Asians dominating the share of mobile payments users (63 of 109 million). It is projected that by 2014, of the 5.3 billion mobile subscribers today one-half will use the mobile for money transfer services³.

² SMART Telecommunications in collaboration with 1st eBank, now Banco de Oro Universal, launched SMART MONEY in December 2000. SMART Money is the first reloadable electronic cash in the developing world that is loaded onto a mobile and used to make payments to others who use SMART Money through partnerships that are established with SMART Telecommunications. Since then, SMART has launched a contact-less debit card that allows users to make tap their cards on a Paypass terminal reader to make payments, and they have also launched SMART Padala to support international remittances.

³ <http://www.physorg.com/news196349063.html>; <http://www.mobilecommercedaily.com/2010/04/22/50-percent-of-consumers-will-make-mobile-payments-by-2014>.

In one decade, the innovations in the digital transmission of information and the growth of uses of the mobile have improved access to money transfer financial services in profound ways: achieving what financial sectors have failed to do over the course of many more decades. This is the basis of the euphoria that surrounds the Mobile Financial System, which is better understood when we contrast the uptake of mobile access, to financial services access. In 2000 there were 719 million mobile subscribers; five years later that number increased to 2.2 billion, and most recent estimates for 2010, are 5.3 billion users. In 2000, 65% of mobile subscribers were from developed countries and 35% from developing countries; but by 2005 and 2010 this shifted to 45%:54% and 27%:73% respectively. Although regulated financial systems have been around for very long times, and in many developing countries modern systems headed by a Central Bank are typically 50 years or older, the reach of account ownership is modest and access to money transfer services through account ownership even more so. Globally 50% of the adult population in 2010 do not own savings and or loan accounts, and as a result cannot access financial services through account ownership, compared to 77%, who are mobile subscribers, the latter being achieved in less than a decade. In developing countries limited ownership of financial accounts and the opportunities they provide for accessing financial services is acute; 90% of those who do not own financial accounts live in Africa, Asia, Latin America, and the Caribbean.

Since financial access carries a host of economic development opportunities, it is understandable that there has been an emphasis on developing countries and their unbanked populations. Although these associations will be discussed later, it is important to note that despite the euphoria over the unbanked, the economic opportunities offered by the mobile payments channel extend to all groups of people: banked and unbanked; farmers and fishermen; informal workers and formal workers; rich and poor; educated and less educated; health service providers and health service users. The Mobile Financial System, given its broad-based reach has been linked around the globe to greater economic transparency, lower transactions costs, employment and small business opportunities, and increases in GDP. From a national policy perspective, this means that for any slow-growing, high-poverty, low-asset country such as Jamaica, the opportunities to improve financial access while ensuring the protection of financial stability and the roles mandated by law for mobile providers and financial institutions, must be considered, studied, and from this, policy directives encouraged. It is against this background that this study was conducted and the following report drafted. Jamaica exhibits many of the prerequisites that would suggest a useful role for using the mobile technology to encourage financial inclusion and reap the benefits generally associated with this. In Jamaica mobile subscription rates exceed 100% and there is suggestion of large numbers of individuals who are excluded from financial account ownership and or access to payments and remittance channels that result from account ownership. As a result, this study explores the macroeconomic and microeconomic possibilities for Jamaica of a Mobile Financial System. In addition, we report on the attitudes of those that receive Government benefits to receiving these over a mobile and evaluate the potential for using the mobile channel for delivery of cash benefits from the Government of Jamaica.

ECONOMIC SUCCESS FACTORS IN A MOBILE FINANCIAL SYSTEM: BUSINESS MODEL ALTERNATIVES

A Mobile Financial System is a two-sided market system that interconnects users and providers who use a mobile device to gain lower-cost access to transactional financial services. Interconnectivity is achieved using a Mobile Financial Platform; a set of rules and a technological infrastructure that facilitates access to financial services.

Interconnectivity is the “establishment of electronic linkages between service providers so that they can exchange traffic. It is the physical and logical linking of telecommunications used by the same or different service providers in order to allow the users on one service provider’s network to communicate with the users on the same or another provider’s network, or to access services offered by another undertaking,” Technical Standards for Interconnection of Networks, www.ncc.gov.ng.

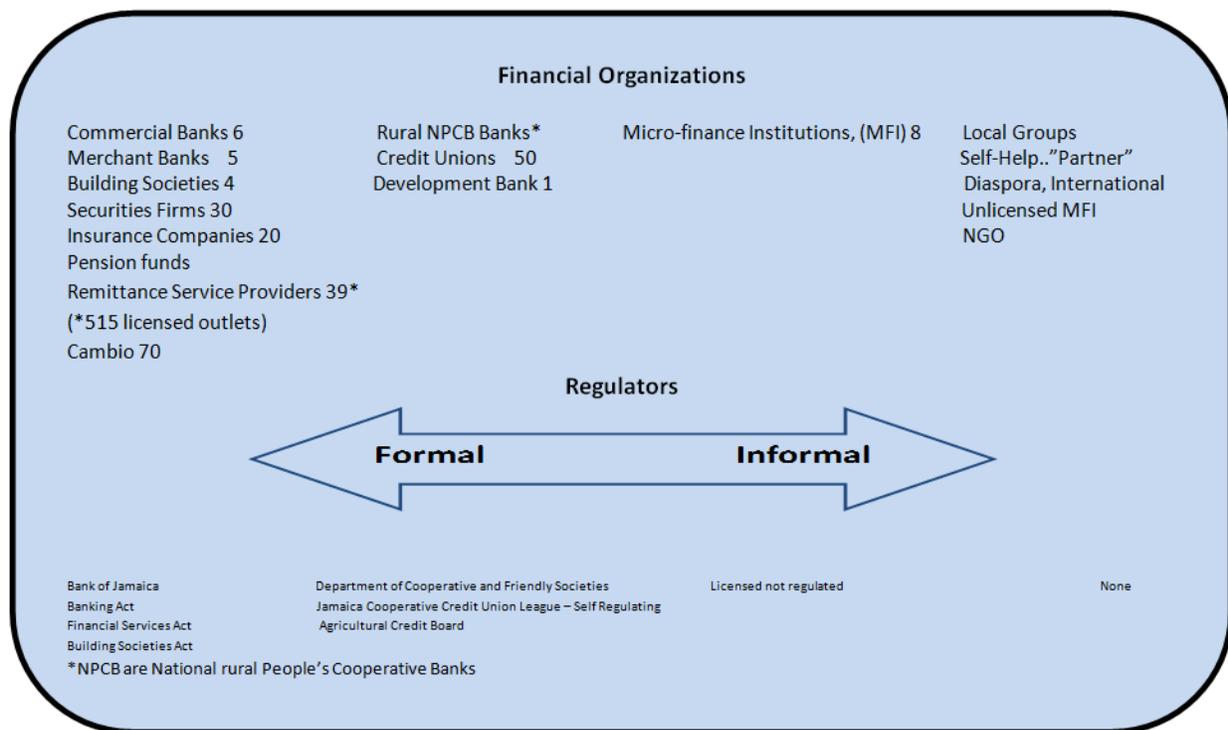
Interoperability is “the capability to communicate, execute programs, or transfer data among various functional units in a manner that requires the user to have little or no knowledge of the unique characteristics of those units, International Standards Organization, draft technical report.

A financial system describes the structure and processes that financial organizations use to transfer financial resources between suppliers and demanders. A telecommunications sector describes the structure and processes that telecommunications firms use to transfer information over long distances; these include cable, mobile telephony, land-line telephony, internet, television and satellite. A Mobile Financial System describes the intersection of both sectors in what has been described as a two-sided market system. It connects users and suppliers from the financial services and mobile services sectors by enabling the transfer of financial resources over long distances using mobile phones. By enabling the transfer of financial resources over a mobile phone, a Mobile Financial System encourages open access to financial services without the need for physical bank branches and traditional bank account ownership. Later we investigate the economic implications of this possibility in Jamaica, but first we explore the implementation of this system and the implications for the various business models that exist.

As we indicated, on one-side of the Mobile Financial System is the financial sector which is comprised of private regulated financial organizations, not-for profit private institutions, regulated and unregulated, and public organizations. Through the ownership of financial accounts, individuals access financial services typically at lower opportunity costs than acquiring the same services outside of the regulated financial system. Some of these services are transactional; those who own accounts can use them to make payments and remittances to others. Others relate to reducing risks and wealth and asset building, such as savings and

borrowing accounts as well as retirement and other investment-based accounts. In Jamaica there are more than 100 regulated financial institutions that operate in a highly concentrated market, with the commercial banks dominating as service providers, Figure 1.

Figure 1 The Jamaican Financial System



Together these organizations help to shape individual access to financial resources, which correlates positively to quality of life measures; financial access is positively correlated with poverty reduction, employment generation, assets and wealth accumulation, and even economic growth. Typically financial intermediaries seek to provide financial services by reducing risks in order to maximize profits. Financial risks which include those related to asymmetry of information, moral hazard, and the principal-agent problem are compounded in societies like Jamaica, with high rates of economic and employment informality and poverty and limited opportunities to evaluate risks. With these additional risks, a highly concentrated financial sector, and the absence of a stream-lined process and agency that elevate financial risks, market failures are not surprising and instead are predictable. A market failure means one of two things: (1) an under-production of goods and services at relatively high prices; or (2) an over-production of goods and services at relatively low prices. Market failures that encourage over-production reflect situations where buyers and sellers are paying prices for a good and or service that are lower than the true costs to society, encouraging over-production. Market failures that encourage under-production are a symptom of limited access; it means that the numbers of people who have access to a good or service are fewer than the numbers that would provide the best outcome for society. Market failures are as natural as the air we breathe and yet they result in economic waste. The conditions for self-corrections of market failures are

stringent, and as a result they rarely occur without some form of socioeconomic mandate or in some cases technological innovation that offers new opportunities⁴. We will explore in greater details the claim that the Jamaican financial sector provides evidence of a market failure; we will demonstrate that the reach of the financial sector in Jamaica is narrow, partly because of the structure of the market, the economic and social conditions of the Island that are historically-rooted, and external influences many of which carry even more stringent implications for small economies. As we indicated, the incentives for self-correction of market failures rarely exist. If as we claim there are failures in the Jamaican financial sector, this means that in addition to a public mandate for financial inclusion, the best opportunities for financial inclusion for Jamaicans will result from technological innovations such as the mobile and the supporting environment it demands. It is against the financial market reality of high concentration and risks that co-exists with 100% mobile subscription, that the transformations in the telecommunications sector and the potential to broaden access to financial services via the mobile⁵ phone in Jamaica is being considered: first by summarizing how this system works and the models that are associated with its implementation.

Recall that the Mobile Financial System is a two sided market; in addition to the financial sector we have, on the other side mobile subscribers and the service providers that operate through the acquisition of mobile license by the telecommunications regulator, in the case of Jamaica the Office of Utilities Regulation, OUR. In Jamaica there are three providers of mobile services, Digicel, Lime, and Claro with 3.1 million subscribers, and 65% of the market owned by Digicel⁶. As indicated a Mobile Financial System describes an architecture that enables mobile subscribers to conduct financial transactions with or without the ownership of a bank account, Figure 2. It typically includes: Mobile Network Operators, (MNO), and mobile subscribers; financial institutions that are legally responsible for all deposits and their uses; an agent network that links the mobile subscriber to the transaction services they demand, and which in some

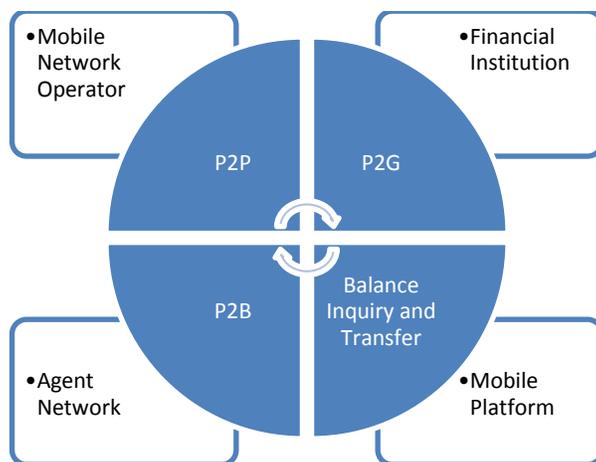
⁴ In 1960 Robert Coase, a Nobel Laureate Economist, elaborated the set of stringent perfectly competitive conditions that are necessary for achieving an efficient market outcome, one without a market failure as described above, and that makes laws and regulations unimportant. Given that these conditions typically do not prevail, Coase's theory indicates that the role of a nation's institutions is critical; these laws and regulations impact the costs of economic transacting and as a result the incidence of market failures, their size, and the opportunities to correct these failures. Douglass North, another Nobel Laureate Economist, later used these insights to develop a theory of the role of institutions and the process of institutional change. Influenced by the earlier works of Thorstein Veblen and earlier intuitionists, North emphasized the roles of the laws of the land and informal codes of conduct in addressing and or promoting market failures. Institutions can promote access or limit access, and where access is limited and is associated with economic waste, the process of correction demands institutional changes; changes in the existing laws and informal norms that can promote access and reduce economic waste. Theories of institutional change remain elusive, but it is proposed that such change will require the input of those that are most likely to benefit from change, those who benefit least from the existing sets of norms. In many cases, these are the groups that are least likely to pursue such change, making the need for a collaborative approach driven by political leadership critical.

⁵ The term mobile phone is often used interchangeably with cellular phone although there are technical differences. A cellular phone communicates via a base station that is fixed in a specific land area. Mobile phones include satellite phones that do not communicate via a land-based transmitter. This discussion benefitted from resources identified on wiki-encyclopedia.

⁶ Data on mobile subscriptions were obtained from the Office of Utilities Regulation, OUR. Data on the market share could not be obtained from this source and the 65% reported share for Digicel was calculated based on newspaper clippings where company executives reported a subscriber base of 2,000,000.

models may be restricted to the banking ATM infrastructure or may include agents of the MNO as well as other more traditional payments and remittance providers such as Western Union, Paymaster, Grace Kennedy and Associates. It also includes the mobile platform and or banking platform that manages the accounts of users and the interactions between the mobile networks and the handsets and point of sale, (POS) and banking infrastructure; again this depends on the business model that is implemented.

Figure 2 The Mobile Financial System⁷

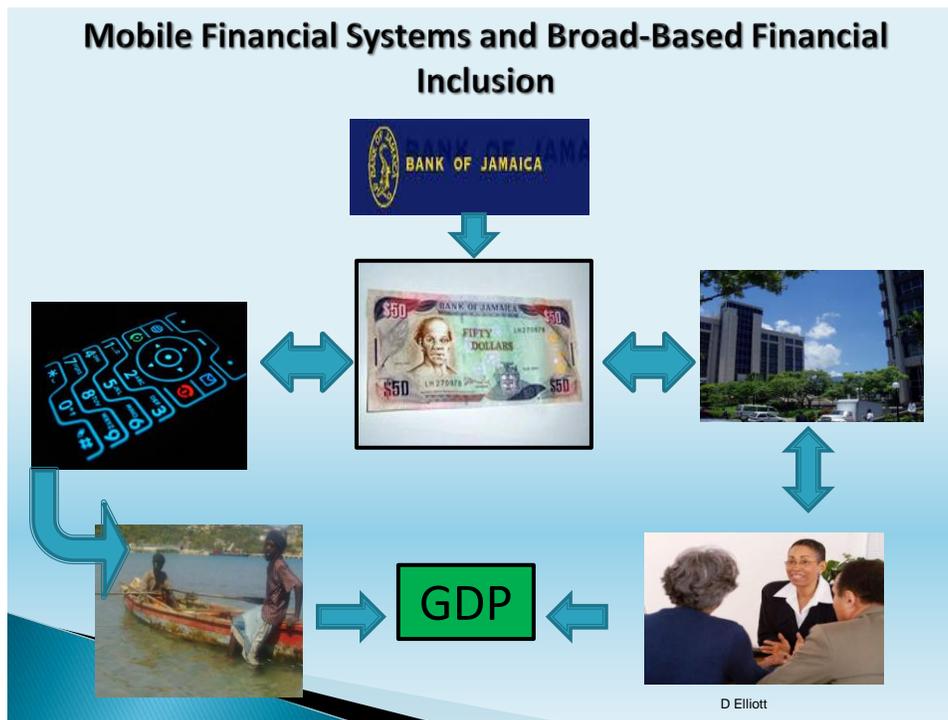


The basic process in a Mobile Financial System is simple. Mobile subscriber, both the banked and the unbanked, via a protected message that is sent over a cellular channel such as Short Message Service, SMS, Unstructured Supplementary Subscriber Data, USSD, or Wireless Application Protocol, WAP, use the mobile phone to conduct a wide variety of mostly transaction-based services. In a typical transaction there are five messages: customer transaction request; system request for approval and Personal Identification Number (PIN); customer approval (PIN); system transaction confirmation to both requestor and recipient⁸. The Mobile Financial System can be used by both the banked and unbanked to: receive and send payments for goods and services; receive payroll deposits and other forms of employment and social benefits; establish direct debits with utilities and microfinance institutions; deposit and withdraw cash - the so-called cash-in/ cash-out services that are conducted through retail agents including bank ATM and merchant POS terminals; and receive domestic and international remittances all using an SMS instruction. For those who are banked, they may also use the mobile device to conduct inquiries and initiate payments and transfers on bank accounts. From a socioeconomic perspective, Mobile Financial Systems are attractive to policymakers and economists because they provide growth-related opportunities related to the improved access to financial services for all groups of people in a given society, as long as they are mobile subscribers, Figure3.

⁷ In Figure 2 and elsewhere in this report these are the meanings of the following acronyms: P2P person to person mobile payment; P2G person to government mobile payment; P2B person to business mobile payment.

⁸ Comments from Carl Rosenquist, the lead consultant for Solutions for Society are included in the description of how the Mobile Financial System works.

Figure 3 The Inclusive Nature of Mobile Financial Systems for Jamaica



Although relatively simple conceptually, different models may be used to implement a Mobile Financial System, and they have different consequences for Jamaica and Jamaicans and the corresponding roles of financial intermediaries in the financial system. These will be discussed in much greater detail later in this report.

As indicated earlier, the Mobile Financial System is a two-sided market structure and on each side are issues related to the ability to communicate within a provider network and across networks. On the mobile side, users communicate within a given provider's network and across networks based on interconnectivity agreements. In Jamaica mobile interconnectivity exists within and between all three providers. Interconnectivity on the banking side of the Mobile Financial System means that all banks operate on the same standards and protocols and that the clearing and settlement process occurs through a common platform. Interoperability in Jamaica's Banking sector exists at the wholesale level, storage, clearing, and settlement level and at the retail level as well, with customers of any bank being able to access funds from their accounts in any of the retail banks via ATM's and POS devices. Like the telecommunications sector, the fee structure for interconnectivity is determined by banking institutions and reflects the high degree of concentration in this sector as well. From an infrastructure perspective, Jamaica is well-positioned for the implementation of a Mobile Financial System. Issues related to the model choice and the regulatory impediments that constrain these must however be addressed in order to ensure that the interests of stakeholders on both sides of this two-sided market are realized in ways that provide the best economic outcomes for Jamaicans and Jamaica. There are three central challenges that will shape our discussions:

- 📱 Identifying the business model that supports open access across both the mobile and financial sectors

D. Elliott, USAID Contractor

- one that allows information transfer between any financial institution and any mobile operator
-  Exploring the regulatory needs that will protect the legal roles of financial and mobile providers
-  Assessing the implications for financial inclusion

Business models that provide open access are fully interoperable; users of mobile and financial services can choose to access financial services from any provider and can make payments and remittances to any person no matter the providers they extract financial and mobile services from. Interoperability is least likely to occur without a mandate in mobile markets that are concentrated and dominated by one firm; as in the case of Jamaica with Digicel. Business models that support financial inclusion rely on a strong retail network that extends beyond the banking infrastructure; this means the outsourcing of basic bank functions and requires regulatory directives from the Bank of Jamaica to manage the associated agent-related risks. Business models that protect the traditional roles of banks as stipulated in the Banking Act of Jamaica are bank models. The implementation of a bank model will require directives from the Bank of Jamaica that restricts the roles of mobile providers with regards to the issuing and distributing of proprietary forms of electronic currency. Five business models have evolved around the globe that relate to these issues, each with varying degrees of interoperability and potential for financial inclusion and economic development, Table 1.

Table 1 Business Model Alternatives in the Mobile Financial System⁹								
Business Model	Legal Responsibility for Deposits	Means of Accessing Cash	Types of Services	Examples	Mobile Channel	Multiple Network User Costs	Degree of Interoperability and Security	Economic Potential
Bank Only	Banks	Bank Branch + Bank ATM Network	Additive Branchless Banking e.g. Balance Inquiry Deposits Withdrawals Transfers Pay bills	Bank of Nova Scotia Jamaica Limited National Commercial Bank	Internet WAP (MNO Agnostic)	Low Shared banking platform	Low to No Interoperability between Banks No Interoperability between MNO Internet type Security (User Name, Password & Memorable word etc.)	Low Service to Bank Customers with internet mobile service and Smartphone
MNO Only	MNO	Mobile Phones + Mobile Operator Agents	Mobile Wallet Cash-in / Cash-out Airtime Purchase & Resale P2P, P2G, P2M	MTN Ghana	Internet WAP USSD SMS	NA	Low No Interoperability between Banks No Interoperability between MNO Encrypted Phone PIN	Low Contributes to MNO Average Revenue Per Unit, APRU, and Profitability only

⁹ Transformational branchless banking describes the use of non-bank agents to facilitate financial inclusion, Consultative Group to Assist the Poorest, CGAP and its associated partners.

Table 1 Business Model Alternatives in the Mobile Financial System ⁹								
Business Model	Legal Responsibility for Deposits	Means of Accessing Cash	Types of Services	Examples	Mobile Channel	Multiple Network User Costs	Degree of Interoperability and Security	Economic Potential
One-to-One	Bank as Subsidiary with deposits held at MNO or at the Bank	MNO Agent Network	Potential for Transformational Branchless Banking Cash-in / Cash-out Deposits from Payment System Withdrawals Payments, P2P, P2G, P2M Air Time Purchase & Resale Interest	Safaricom M-Pesa Safaricom + Equity Bank M-Kosho Smart + Banco'D ORO	USSD SMS WAP	High Multiple SIM for different M-platform	Low No interoperability between banks No interoperability between Telecom Encrypted Phone PIN, Card PIN	Moderate Unbanked + Banked Agency Network Density Impacts Reach to Unbanked
One-to-Many	Bank	Telecom Agents + Network of banks and bank ATM Branches	Potential for Transformational Branchless Banking Cash-in / Cash-out Deposits from Payment System Withdrawals Payments, P2P, P2G, P2M Air Time Purchase Interest	Globe + Rural Banks Smart + Rural Banks	USSD SMS WAP	Moderate Multiple SIM for different M-platform Access to Bank + Agent Network can lower cost	Moderate Interoperability between banks No interoperability between Telecom Encrypted Phone PIN, Card PIN	Moderate Unbanked + Banked Agency Network Density Impacts Reach to Unbanked

Table 1 Business Model Alternatives in the Mobile Financial System⁹								
Business Model	Legal Responsibility for Deposits	Means of Accessing Cash	Types of Services	Examples	Mobile Channel	Multiple Network User Costs	Degree of Interoperability and Security	Economic Potential
Many-to-One	Bank	Bank + Any Telecom Agent Network+ Non-Telecom Agent Network including Post Office	Potential for Transformational Branchless Banking Payments through mobile on any network using credit card, operators account, debit card, bank account, Deposits, Withdrawals Transfers	Wizzit + South African Bank of Athens Mobipay Mobile Money Cool Biz Jamaica	USSD SMS WAP ATM/Point-of-sale Networks, if card is used	Low Access to services using multiple platforms	Moderate Interoperability between Telecom No interoperability between banks Encrypted Phone PIN, Card PIN	Moderate Unbanked + Banked Agency Network Density Impacts Reach to Unbanked
Many-to-Many	Any Bank	Any Bank + Any Telecom Agent+ Non-Telecom Agent	Potential for Transformational Branchless Banking Balance Inquiry Deposits Withdrawals Transfers Payments on any network	Maldives Ghana	USSD SMS WAP ATM/POS Networks, if card is used	Low Access to services using multiple platforms	High Interoperability across bank and Telecom networks	High Unbanked + Banked Agency Network Density Impacts Reach to Unbanked At lowest transactions costs

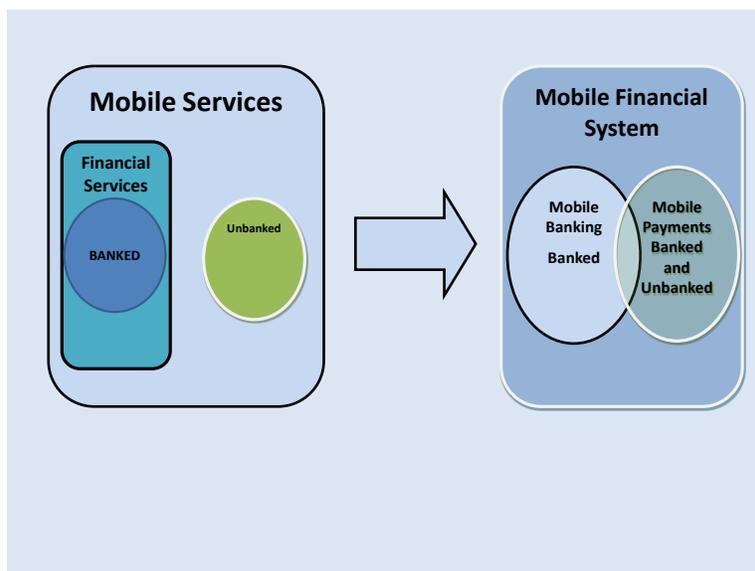
MOBILE FINANCIAL SYSTEMS AND ECONOMIC DEVELOPMENT: LESSONS FROM AROUND THE WORLD

Although the first trials and commercial efforts to use a mobile phone to conduct payments was done in 1998 in Finland, Sweden, and Norway, and is now routinely used throughout Asia and Europe, it is its use in the developing world that has commanded the attention of scholars. The reason for this is simple. Developing countries host the majority of the world's poor, much of whom are excluded from formal financial markets. This exclusion is caused by three broad factors: physical access to banking infrastructure; high rates of economic and social deprivations; and under-developed financial markets. These barriers and the causes of financial exclusion are slow-changing and the opportunities for correcting the implied financial sector market failure stringent. As a result there is little reason to believe that the challenges of financial exclusion will be resolved quickly and without an explicit mandate and or innovations that can reduce the costs of access these barriers typically erect. This reality shaped the Microfinance Movement of the 1980s and led to the establishment of Microfinance Institutions, MFI, the most famous being the Grameen Bank. The idea then was that improved access to non-collateral, micro-loan products would help the very poor alleviate the financial constraints they often confront given limited access to traditional collateral.

The mobile telephone and advances in mobile technology may be seen in a similar way as the earlier MFI movement and the euphoria attached to it. The mobile phone holds much promise for uses in the financial services sector; promising access to those who must seek access outside of the formal financial sector while providing the same opportunities to those who are a part of it. The mobile and the telecommunications sector have achieved in ten years what financial markets are simply ill positioned to do; through the Mobile Financial System millions of people around the globe have gained low-cost access to financial payments and remittances. It is little wonder that the first full commercial launch of a Mobile Financial System in the Philippines in 2000 by Smart and Globe Telecommunication commanded attention from others looking to replicate their success. Since this launch many others have come on board in developing countries, but possibly none as famous as Safaricom's M-Pesa Kenya, introduced in 2007. In less than three years M-Pesa grew rapidly, and today 70% of adult Kenyans own an M-Pesa account, Jack and Suri (2010). This spectacular uptake in using the mobile to send and receive payments results from technological innovations that lifted a binding constraint on Kenyan society: the ability to move information over long distances. In 2004 about 7% of Kenyans were mobile users; by 2007 32% were and today that number is 70% of the population, with Safaricom owning 70% of the market.

With both very low banking penetration and land-line penetration, the M-Pesa effect has made discussions on the unbanked center stage in the discussions on Mobile Financial Systems. It is important to note however that this system is an inclusive one; it provides a service that is accessible to the banked and unbanked and it is used by both, Figure 3.

Figure 3 Mobiles and Financial Inclusion



In general the banked have responded fastest and earliest to the implementation of a Mobile Financial System. In the case of Kenya, the numbers of unbanked have steadily increased from 25% of M-Pesa users to 50% currently, as have the numbers of banked, Jack and Suri (2010). It has been reported that in Kenya, the ratio of banked to unbanked users is 2:1, emphasizing that although the mobile opportunity reaches to the previously unreached, it is fundamentally a tool for financial inclusion, Bowen (2010), CGAP DFID (2009). This is also true in the Philippines where CGAP reports that one-half of mobile money users are unbanked and by implication one-half are banked. Mobile Payments users make remittances and they save; 70% of M-Pesa users send remittances, 60% receive and 89% save, Jack and Suri (2010). The evolution of M-Pesa and others demonstrate how easy it is to blur the lines between mobile service providers and financial institutions, and the importance of regulatory guidance to address this potential prior to the launch of the system.

The economic development outcomes that have been associated with mobile technology are not surprising. Economists have long understood the importance of technological innovation in the pursuit of economic development. Technological innovations in the telecommunications sector that have created the Mobile Financial System have been associated with development-related outcomes such as:

-  Easier and lower cost access to trade
-  Employment and income opportunities
-  Opportunities for saving
-  Better management of risk
-  Improved bargaining power for small producers and traders
-  Improved access to traditional banking infrastructure and the numbers of banked

In a Mobile Financial System economic waste in the form of high transactions costs and dead-weight losses that are associated with the use of resources to access financial services leads to greater transparency and a redistribution of spending that manifest in higher GDP. Although

there are expected short-term improvements in GDP, the implementation of a Mobile Financial System does not guarantee long run sustainable GDP growth. This depends on the degree to which economic waste is redistributed into activities that encourage improvements in labor and resource productivity, and as a result cannot be predicted with any confidence. This is especially true for Jamaica which ranks low in terms of productivity and competitive indicators, and where large numbers of the labor force are unskilled and firms which are typically small struggle with limited access to resources, technology, weak business skills, and low levels of technical skills¹⁰.

Of the expected economic benefits, possibly the most important and certainly the one that is uniformly shared for all users of a Mobile Financial System is the reduction in price and non-price barriers to trade. This results from the low cost of transmitting information over a mobile, Table 2¹¹.

Table 2 SMS, Short Messaging Service, Use per month and Costs per text (US\$)		
Philippines	834 SMS (Approx) Per Subscriber per Month	1-3 cents
USA	464 SMS (Approx) Per Subscriber per Month	22 cents
UK	142 SMS (Approx) Per Subscriber per Month	9-19 cents
Sweden	149 SMS (Approx) Per Subscriber per Month	14 cents
Pakistan	128 SMS (Approx) Per Subscriber per Month	0.32 cents
Kenya		0.7cent *
India		1 cent
Jamaica	0.05 SMS Per subscriber per Month	3.5 cents**
World Average	105 SMS (Approx) Per Subscriber per Month	7 cents

Sources

Pakistan Telecommunications Authority, <http://www.scribd.com/doc/50872832/Study-on-SMS-Traffic-in-Pakistan-and-Global-Trends>

*Since January 2011 Kenyan regulators determine 1 sms cost 0.017 US cents and MNOs were charging 2 cents. Mandated overhaul; agreement is 0.7 cents slated for steady decline by 2013 will be 0.06US cents Short Message Service (SMS) Interconnection Termination Rates Addendum to Interconnection Termination NO.2 December 2010,

http://www.cck.go.ke/regulations/downloads/DETERMINATION_NO_SMS_rates_Dec_22nd_2010_pdf, Retrieved, June 18, 2010

**Rates for Jamaica reflect those of the Telecommunications Firm Digicel and are obtained from the company website.

SMS use for Jamaica is calculated by author using data from the Office of Utilities Regulation on mobiles subscriber and sms traffic.

Retrieved, June 17 2010

¹⁰ Recent attention on low and declining levels of productivity in Jamaica at the firm, sector, and country levels has been documented in the economic development literature. For the purposes of this study, we site one of the most recent efforts by Claremont Kirton and David Tennant economists at the UWI Department of Economics in a report to the United Nations Economic Commission on Latin America and the Caribbean, http://www.eclac.org/portofspain/noticias/paginas/5/35505/POLICIES_AND_INSTITUTIONS.pdf.

¹¹ All monetary values in this report are reported in Jamaican dollars, unless otherwise specified. In the event that US dollars are reported, where the Jamaican equivalent is included the exchange rate of US\$ 1.00 = J\$ 85.00 will be used.

In a Mobile Financial System, financial transactions require the transmission of instructional messages that do not generate any value and typically do not result in a cost to users, and those that transfer value attach a user-fee. Since these transactions begin and end with the sending of information via a text, SMS or USSD, and or the internet, it is little wonder that around the globe it costs less to conduct the same financial transaction on a mobile compared to a bank, Table 3. In countries with a Mobile Financial System, a CGAP team determined that in 16 countries that offer it, mobile banking is on average 19% cheaper compared to traditional banking and 54% cheaper than accessing financial services through informal channels, McKay and Pickens (2010). In the G-Cash system in the Philippines, the user fee for remittances average 2% of the value of the transaction compared to 10% of value of the same transaction in-branch¹². The exceptions are countries like India whose governments have made low-cost banking and financial inclusion a national priority. Although Jamaica does not yet have a Mobile Financial System, sms costs are lower than the world average: in Jamaica the cost of a local sms between subscribers of the largest network provider is lower than the world average, US\$0.035. As will be demonstrated later, banking costs in Jamaica are high, and this suggests that with sms costs low prior to the existence of a Mobile Payments System, such a system when developed will provide financial access at lower costs than banks, as it has done in all other countries.

Table 3 Transactions cost of Domestic Bill Pay versus Mobile in US \$PPP*

Country	Bank	Mobile
India	\$1.50	\$0.40
Kenya	\$6.00	\$1.70
Ivory Coast	\$9.40	\$4.40
South Africa	\$4.40	\$5.30
**Philippines	\$2.50	\$0.50

*Source CGAP: Average fees drawn from 8-cases covering 16 countries. Branchless Banking Pricing Analysis are reported in US dollars where the conversion is the Purchasing Power Parity Exchange Rate.

**Aiase Mitha (2011) The Transformative Role of Mobile Financial Services and the Role of the German Development Corporation.

In addition to lower direct costs, the opportunity costs of conducting financial transactions using a Mobile Financial System are also lower. For those who cannot make a payment using the check-writing privilege of a checking account, which is the most costly method given issues related to fraud, clearing and settlement, and storage, payments must be made by visiting a branch or ATM to make a withdrawal; making the payment in person or through some other trusted person; and or visiting a domestic remittance firm, all of which require transportation cost, queuing time, and issues related to security. It has been estimated in the Philippines that a

¹² RBAP Text-A-Payment and G-Cash In/-Cash Out Services: Innovative Banking Services at Your fingertips, www.bwtp.org/asiamicrofinance/documents/JohnOwensRBAP.pdf.

Globe G-Cash customer making a deposit of P1, 000 will incur a transaction fee of 10 peso compared to doing the same transaction without a mobile where the opportunity cost is 216 peso, www.bwtp.org/asiamicrofinance/documents/JohnOwensRBAP.pdf.

The benefits from lower transactions costs are powerful economic incentives, and not surprisingly the lower costs have encouraged a rapid uptake, most notably in countries like Kenya where the barriers to traditional access are greatest. With more people using a mobile to conduct economic transactions, and the opportunities for macro-level gains described earlier, it is little wonder that cross-country analyses confirm the positive associations between mobile penetration and use and GDP growth, Lee, Lavendis, and Gutierrez (2009); Thompson and Garbacz (2007); Gyimah-Brempong and Karikari (2007); Waverman, Meschi, and Fuss (2005). It has been predicted that a developing country with a mobile penetration of 10 or more per 100 people will grow 0.59% faster than a control country, for the 1996-2003 period, Waverman, Meschi, and Fuss (2005). Driving these macro-level outcomes are peoples' responses to the changes in pricing that the Mobile Financial System encourages and to the higher levels of income that result from reductions in the economic waste associated with traditional barriers to financial services. For developing countries as a group, a 1% decline in the price of mobile use encourages a 1.5% increase in mobile use, and a 1% increase in income results in a 1.95% increase in mobile use. In addition, because the Mobile Financial System reduces the use of cash, it is associated with reductions in informality as the cash-driven economy is transformed to a cash-less economy. The economic growth that has been associated with the Mobile Financial System has positive implications for the so called bottom-of-the pyramid economic groups.

Other country level impacts that have coincided with the use of the mobile phone include the improved conditions in the banking infrastructure, and the competition from the mobile has encouraged lower costs of traditional banking services. At the time of the M-Pesa launch in 2007 in Kenya, 2.3 million had bank accounts and by 2010, there were more bank-branches with bank fees and unnecessary opening requirements were reduced. The M-Pesa impact resulted in an increased number of banked from 18%, to 22% over three years, Hack and Suri (2010). This impact is likely the result of increased competition for financial services that M-Pesa encouraged; with more channels to support payments and remittances and with these channels being used disproportionately by the banked, it appears that the formal banking institutions responded by lowering opening demands and increasing the numbers of branch access, resulting in the increased numbers of banked individuals in Kenya. This experience as well as others around the globe challenges the fear that the Mobile Financial System is a zero-sum game, outcomes that are consistent with basic economic principles. Open competitive access can increase market share for any organization that is prepared to adapt to the changing environment, a demand for any business model.

The ability of technological improvements to transform human lives is possibly most important at the micro-level. In the case of the Mobile Financial System, opportunities related to employment, earnings, and poverty reduction have been demonstrated repeatedly. Employment and income opportunities derive from two sources. On one hand are the direct opportunities that derive from the implementation of an Agency-Based model and on the other from the income opportunities that derive from improved access to low-cost information transfer. These potential are greatest in models that develop an agency network outside of the existing banking and payments infrastructure. In Kenya, for example, the numbers of agents keep growing, from 4,000 in 2007 to over 15,000 today, and the same is true in other countries; in Brazil there are

more than 90,000 agents who operate by banking regulation as Non-Bank-Correspondents taking deposits, performing withdrawals, and managing bank operations, CGAP and DFID (2009). This is in addition to the high value payments and remittances core business services with a 2007 transaction value of US\$93.3 billion for 1.6 billion transactions, CGAP and DFID (2009). More modestly in India, possibly because low-cost banking is a priority, there are more than 10,000 agents, CGAP and DFID (2009). Agents earn commissions on the services they perform, and providers benefit from the lower-cost delivery of financial services, making this a win-win solution if guided by appropriate regulations, training, and assessment of agents. Income opportunities have also been recorded with mobile use that relate to improved bargaining power and simply greater knowledge of economic opportunities. Examples include M-farming and M-Fisheries that in the case of Kerala, India have been associated with increases in fisherman's profits of 8%, Jensen (2007).

Economic development is a story of improving human productivity. Technological innovation affords such opportunities, explaining on average 2/3 of long run growth. Yet technological innovation cannot guarantee broad-based productivity improvements and growth. Innovation that is limited to a few and or if widely available is not used in ways that improve productivity, will offer few opportunities for long-run growth. Such is the case for the Mobile Financial System: it holds the potential for financial inclusion, quality of life improvements, short-run increases in GDP, and long-run growth. To harness this potential, the stakeholders must understand the country-level constraints they confront and craft regulations that are consistent with implementing the model that is best suited to that reality.

IS THERE A NEED FOR THE MOBILE AS A PAYMENTS AND REMITTANCE DEVICE IN JAMAICA?

Mobile subscribers in a Mobile Financial System can transfer financial resources to make payments, transfer money between governments, private firms, and individuals, conduct balance inquiries, and even save, typically at lower costs than can be done through the traditional bank infrastructure. This means that in any country where relatively large numbers of the adult population cannot easily and at low cost make payments and remittances, the core of any modern day economy, there is a need for new and innovative payments channels. The mobile phone is an example of such a channel, and its use holds economic promises for those who own financial accounts and those who do not. The potential benefits of financial inclusion for this latter group, the unbanked, have created much euphoria around the world, similar to the MFI movement of the 1980s. As a result, most who analyze the economic impact of this system emphasize its benefits for those who do not own either savings and or loan accounts in the banking sector, the so called unbanked. Where the numbers of these unbanked and the mobile subscription rates among them are high, the case for the Mobile Financial System is considered to be the strongest.

Our approach in this study will be somewhat different. Although the Mobile Financial System can be used to store/save, most use it for low-cost money transfer, its comparative advantage. Given this advantage, we argue that the strongest case for the implementation of a Mobile Financial System is where there are large numbers of people with limited access to the existing payments channel whether because of the high cost of access and or an absence of widespread ownership of money transfer accounts, such as checking accounts and credit cards. Some with limited access to low-cost money transfer services will be people who are banked by the traditional definition; they own savings and or loan accounts but must make payments and remittances in the same ways as those who own do not own any financial accounts, our definition of the unbanked. There is a strong body of suggestive evidence that in Jamaica large numbers of the population are excluded from low-cost money transfer access, and as a result Jamaica's need for a new payments channel such as the mobile handset appears to be very strong. There is also strong anecdotal evidence that Jamaica exhibits many of the features that are preconditions for the success of a Mobile Financial System, and it is our goal to use the results from a national study to evaluate both the need and economic potential of a Mobile Financial System given these preconditions which include¹³:

¹³ Although Jamaica has not yet implemented an integrated Mobile Financial System, Mobile Banking platforms have been implemented in some of the major commercial banks, and there is a Mobile Commerce platform, Cool Biz Jamaica.

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- 📱 Strong mobile subscriber base
 - Coexisting with weak land-line penetration
- 📱 Indicators of financial market concentration and financial exclusion most notably to payments and remittances services
 - High financial market segmentation
 - Low penetration and or high concentration banking infrastructure
 - Above-average costs of account ownership and use
 - Above average costs of payments and remittance services
- 📱 Infrastructure that supports interoperability of banking and mobile services
- 📱 Regulations that ensure appropriate roles for all market stakeholders while supporting communications across stakeholder sectors
- 📱 High rates of economic informality
- 📱 High rates of unemployment, limited production base, and slow-growth economy.

Stress factors that can hinder the ability of a Mobile Financial System to deliver the broadest set of economic potential to Jamaicans include:

- 📱 Concentrated mobile subscriber market
- 📱 Concentrated financial services market
- 📱 Slow-responding regulations
- 📱 Consumer fear and or other forms of resistance
- 📱 Lack of leadership in developing appropriate incentives to encourage rapid uptake in the event of implementation

The mobile subscriber base in Jamaica exceeds 100%; according to the Office of Utilities Regulation, there are 3,182,000 subscribers of whom 3,048,970 use a prepaid platform in a country of 2,705,800. Although market share information is difficult to confirm, a 2010 newspaper document indicates high concentration with one provider, Digicel's subscriber base of 2,000,000 or 63% of the mobile subscriber market¹⁴. Land-line penetration is low: there are about 444,000 landlines and regarding use, there is a 27% residential penetration and 97% business penetration; this compared to a 42% business penetration for mobile phone use; Federal Trade Commission and Office of Utilities Regulation Report (2007).

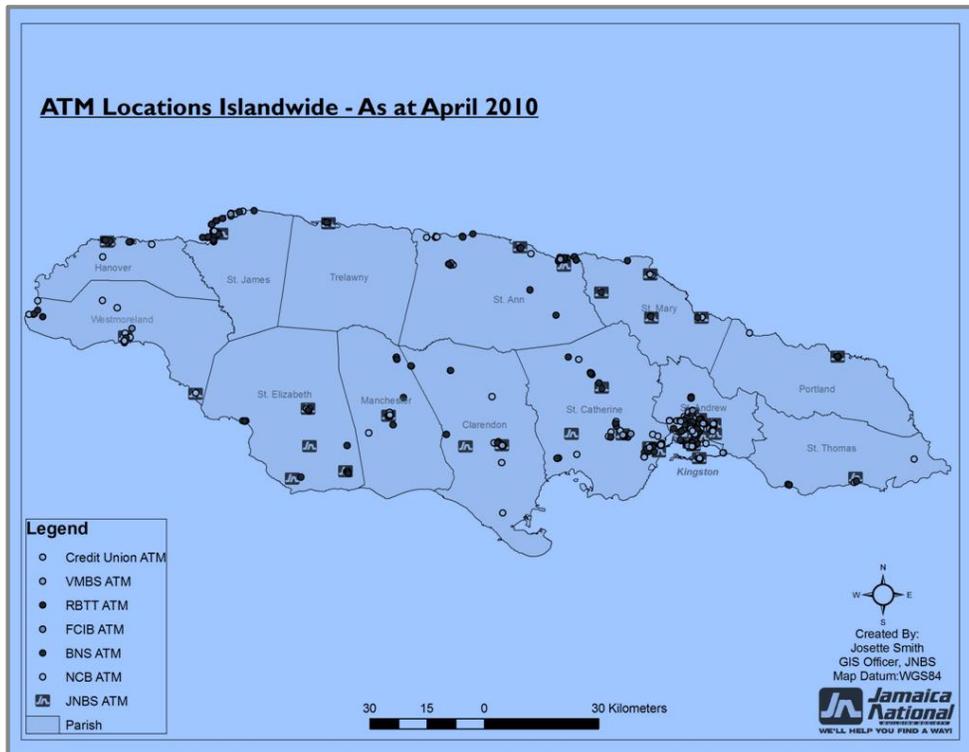
Like the mobile subscriber market, the financial sector in Jamaica and the penetration of its infrastructure is highly concentrated. Of more than 100 financial institutions, some regulated by the Central Bank and others not, there are seven commercial banks, 2 of which own 75% of assets/deposits/revenues and more than 65% of branch networks; jointly the penetration of banks per 1,000 Jamaicans is estimated at 21% by the World Bank. As Figure 4 reveals, the physical access to banking infrastructure is highly clustered along the coast, while mobile phone access reported by the most dominant carrier is distributed over the entire Island, 100%, Figure 6¹⁵. This suggests that for those living some distance from the coast, there are mobile subscribers who do not own financial accounts.

¹⁴ http://www.jamaicaobserver.com/business/Digicel-all-set-to-unveil-4G-Broadband-offering_7875517

¹⁵ Figures 4, 5, 6, 7 are obtained from: Jamaica National Building Society; JamStats; and an internet search for maps of Jamaica.

Figure 4 Bank ATM Distribution Jamaica

Although these are also the areas in Jamaica with the lowest population density, Figure 5,



without a study such as this we cannot know how many in Jamaica who subscribe to a mobile phone do not own financial accounts and or cannot easily, safely, and at low-cost access the payments and remittance services.

Figure 5 Population Density of Jamaica, 2008

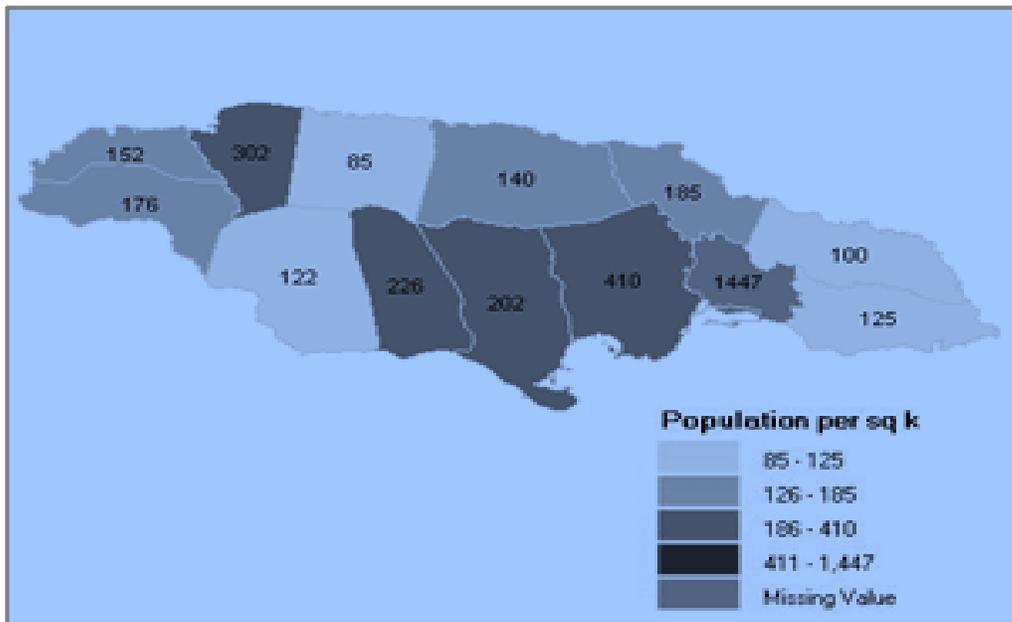
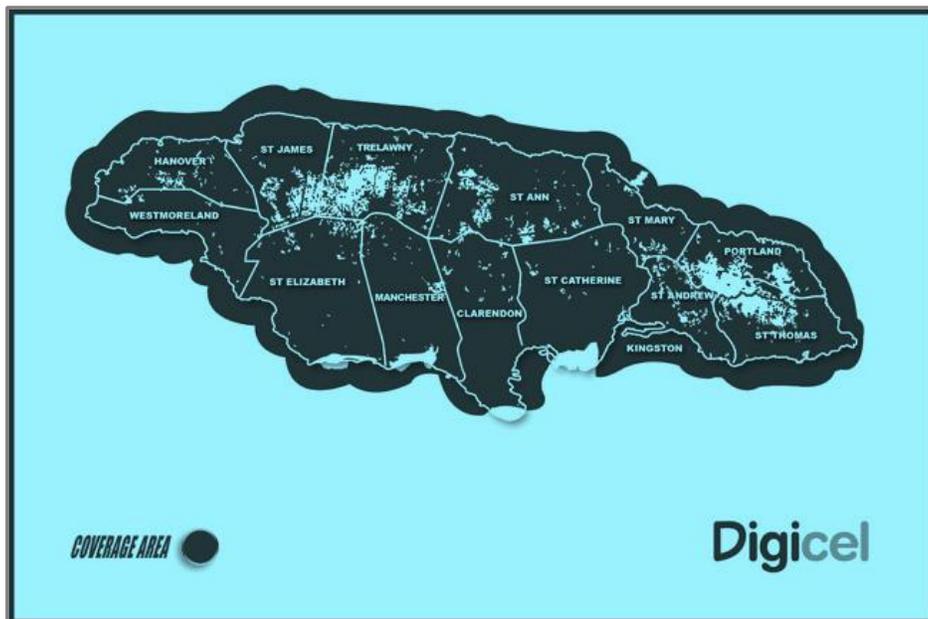
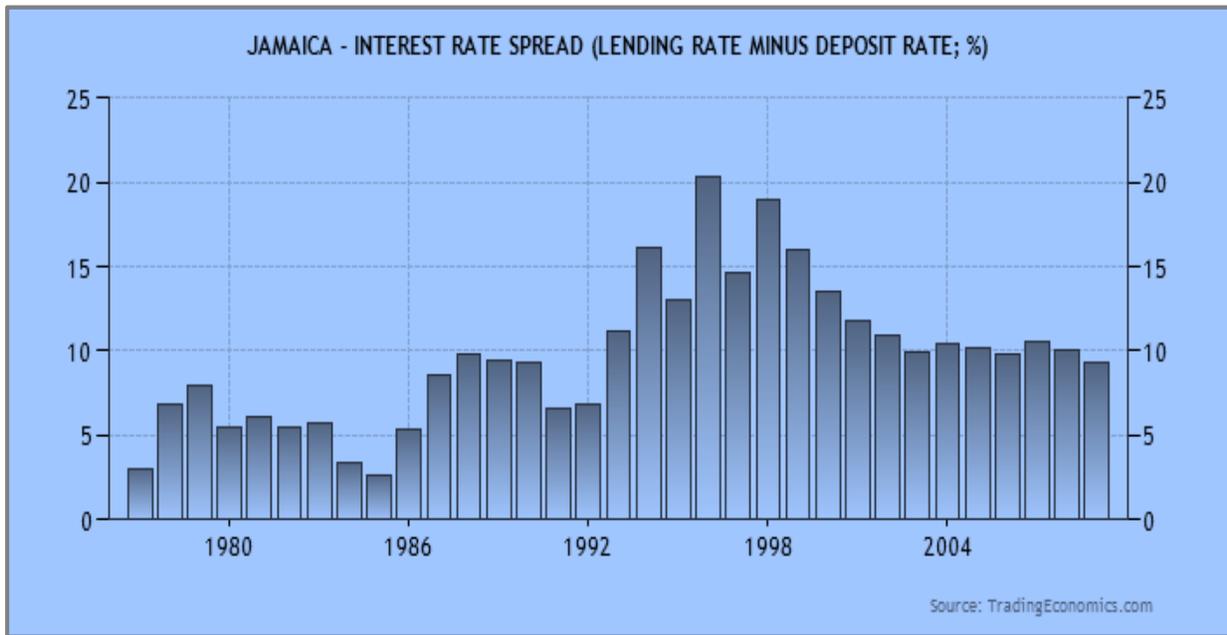


Figure 6 Mobile Subscriber Coverage Digicel



In addition to these physical barriers to financial services through traditional banks, the costs of financial services and the opening demands also provide further suggestion of limited access. In Jamaica, the cost of banking is high and increasing; the most recent reports of bank fees reveal increases from 127-400%, Consumer Affairs Commission (2008). The high cost of financial services is also evident in the interest rate spread, Figure 7, which have been attributed to the high degree of market concentration, operational inefficiency of banks, large numbers of unregulated financial institutions pre the crises of a decade ago, and macroeconomic challenges, Tennant (2006).

Figure 7 Interest Rate Spread Jamaica 1967-2009



These spreads have recently narrowed, likely in response to the improved efficiency associated with the reduction in non-performing loans that has followed massive failures in the banking sector and the retreat of unregulated financial institutions, as well as the Government’s recent debt-exchange program¹⁶. Ironically market concentration remains high, which probably explains the ability of banks to aggressively respond to the narrowing of the interest rate spread with tariff increases that, as reported, have approached 400% in some cases. Banking fees vary by account types and the most costly accounts and services appear to be those that are linked to money transfers; in the case of checking accounts at the top two commercial banks, National Commercial Bank, NCB, and Scotia Bank Jamaica, Scotia, there is no such thing as “free checking” that is popular in other countries. Checking account owners must pay at some of

¹⁶ For discussions in improved efficiency unrelated to the widely discussed debt-exchange program see Jennifer Daley and Kent Mathews, “Efficiency and Convergence in the Jamaican Banking Sector 1998-2007, http://docs.google.com/jenifer_daley/efficiencypaper_final.pdf

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these institutions, \$1,500 for a book of checks; and for each check that is processed processing fees apply, in some cases \$60.00 per processed check¹⁷.

These accounts come with the additional demands and associated costs of balance management, the failure of which will lead to steep overdraft charges. The other money-transfer account is a credit card; it allows owners to make payments and remittances without taking a host of additional steps to get access to money and initiate payments. The costs of these are high, in some cases with interest rates as high as 51% on balances¹⁸.

The opening requirements for bank accounts in Jamaica as reflected by those of one of the largest commercial banks, NCB are: (1) proof of valid identification, drivers license, passport, (2) proof of residence, utility bill; (3) tax- payer ID number; (4) 2 character/personal reference with addresses and occupation and in some cases letters that are notarized ; (5) opening balances that are lowest for savings accounts, and in the case of the money transfer checking account, balances that are 2.5 times higher than the savings demands. These demands, most notably the personal references and the higher opening balances for checking compared to savings accounts, are more restrictive than similar accounts offered by institutions in the USA. Possibly these are in response to the post-2011 Patriot Act that overhauled Bank Secrecy laws with the new practices of the Customer Identification Program, CIP; that financial institutions know who their customers are, KYC, as a means of ensuring against money laundering , AML, and other illegal activities including terrorist ones, CFT – Combating the Financing of Terrorism. Under the US Patriot Act all financial institutions that do business in the USA must meet these standards. For individuals opening financial accounts in Jamaica or elsewhere these standards apply, but while there are minimum standards, much is left up to the discretion of institutions. Minimum demands are: name; date of birth; address; and identification. Jamaican banks appear to have responded to these demands with much zeal, demanding of customers personal, notarized references that can testify to their place in society as a basis for inclusion in the financial sector.

As we claimed earlier there are suggestions that Jamaicans, although 100% subscribed to mobile services, confront a host of barriers to financial account ownership and services, some institutional, others country-imposed, and still others externally imposed by international demands. To better assess the need for a Mobile Financial System in Jamaica, we used a national survey to answer the following questions:

- 📱 How many Jamaicans have access to financial services through bank account ownership?
 - What type of account ownerships and services? and
 - What implications for implementing a Mobile Financial System?
- 📱 How many in Jamaica can access Financial Services through Bank Account Ownership?

The implementation of Mobile Financial Systems in the Philippines and Kenya encouraged great interest in measuring financial access in developing countries and around the globe. In this quest to measure access to financial services the unbanked have earned a special place, and

¹⁷ For the purposes of this report, the exchange rate of US\$ 1.00 = J\$85.00 is used.
http://scotiabank.com/jm/cda/content/0,1679,CCDjm_CID5541_LIDen_SID2_YID1,00.html

¹⁸ http://scotiabank.com/jm/cda/content/0,1679,CCDjm_CID5665_LIDen_SID2_YID1,00.html

the promise of inclusion has encouraged an almost blind-focus on this group. Conceptually, the term unbanked describes adults who do not have access to the financial services of regulated financial institutions. Since financial institutions perform an array of services, those who measure the unbanked have used ownership of different financial accounts and the services that are generally associated with them. Possibly the most popular measure of the unbanked emphasizes how many save and or borrow using the financial products of the regulated and or licensed financial institutions, commonly called the formal financial sector or market. The motivation is to count the numbers of people who have transitioned from a reliance on themselves and kin, informal means of access, to a reliance on financial markets to gain access to the saving and borrowing services offered by financial institutions. Those who count the numbers of people who are savers and or borrowers, the banked, and those who are not, the unbanked, often use household surveys such as the Survey of Living Conditions. In Jamaica, annual survey data have been collected since 1988, and in 1997 one question regarding ownership of savings and loan accounts by institutions has been collected. Household data from the last “high quality” survey, indicates that in 1997, 32% of all Jamaican households did not own either a savings and or loan account with a financial institution, or were unbanked, and 51.1% of poor households were unbanked, Tejerina and Westley (2007). Since household surveys hide power asymmetries in ownership patterns, there has been a shift towards counting individual access. In the case of measurements for the numbers of unbanked in the world, household surveys are used in conjunction with econometric tools to predict the numbers of unbanked individuals. Using this approach it is estimated that 56% of the adult population of the world are unbanked, and when disaggregated by country type are 64% and 17% for the developing and developed worlds respectively, Ardic, Heimann, Mylenko (2011). Other efforts to measure the numbers of unbanked individuals globally use surveys that include questions about account ownership, retail penetration, account regulation, www.financialaccess.org. Despite noted challenges with measuring individual access from this sample of 144 countries, the study reveals that numbers of individuals globally who do not own a savings or loan account at a financial institution is 2.5 billion, or about 50% of the global adult population, www.financialaccess.org.

Although most who measure financial access use the savings and or loan approach, others use: (1) deposit accounts – savings and checking accounts; (2) loan accounts; (3) ATM and Bank penetration, Beck, Demirguc-Kunt, Peria (2005); World Bank and CGAP (2010). Both studies provide some insights about the preconditions for a Mobile Financial System in Jamaica. In their study, Beck, et al looked at financial access by ranking countries according to several categories, including deposits per 1,000; loans, per 1,000; and bank and ATM penetration per 1,000 people. Using a sample of 99 countries, not including Jamaica, they report that:

-  The median bank/atm network per 1,000 people was 16.63
 - The lowest groups in Asia and Africa had less than 0.58 per 1,000
 - The highest in Asia, and North America 101.46
-  Median Deposits per 1,000 was 528.89
 - The lowest groups have 61.81
 - The highest 2,569.40 or 2.569 deposit accounts per person
-  Median loans per 1,000 people was 80.57
 - The lowest have 6.35
 - Highest 700.56

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The World Bank/CGAP study reveals that although Jamaica is an upper middle income country and fares better than this group of 99, which includes some of the poorest countries in the world, it does not fare well when compared to countries at a similar level of development, and in fact is the worst performer on all three categories in the Caribbean region. In Jamaica for the 2010 period the numbers of each are:

-  Bank Branch/ATM 6.64 per 100,000 or 0.06 per 1,000 people
-  Deposits per 1,000 was 1,149 or 1.149 account per person
-  Loans per 1,000 201 or 0.201 loans per person

These numbers from the World Bank/CGAP confirm our earlier claim of limited access to financial account ownership and services in Jamaica. Most interesting is the suggestion that Jamaicans own deposit accounts, but they do not own borrowing accounts and they have limited access to the banking infrastructure, which as we showed earlier is highly clustered along the coast. To measure financial access in a specific country, surveys are constructed to measure account ownership according to one of the measurement choices described earlier and a randomized sample used to make country-level inferences¹⁹. In this study, although we seek to identify the numbers of individuals in Jamaica with a variety of financial access, we are motivated by providing guidance on what can be expected from the implementation of a Mobile Financial System. As indicated earlier, Mobile Financial Systems are designed to facilitate payments and remittances for mobile subscribers. This makes our target group any individual who cannot easily access a payments and remittance channel; those who own financial accounts but not own money transfer ones, such as checking accounts and credit cards, and, those who do not own any accounts. In pursuing this analysis we are sensitive to the peculiarities of the Jamaican economy. Jamaica is an upper-middle income, small-Island country with average per-capita income of about USPPP\$8,200²⁰; and like many other countries in the broader Latin American and Caribbean, it exhibits many contradictions. In Jamaica, although per capita income is relatively high, income is highly concentrated; it boasts universal primary and secondary education, but the quality of the labor force is low with close to 80% having no formal training; its literacy rates are high, and yet there are suggestions of high levels of functional illiteracy throughout the Island; it is a high investment country, one of the highest in the world, but with a reliance that is almost exclusively on foreign investment in aging sectors, which contributes to a no-growth-high-investment outcome; its people are considered entrepreneurial, measuring high in global rankings of entrepreneurial activities, while measures of competitiveness at the firm, sector, and country level routinely reveal dismal performances; its financial sector is well developed, and yet its reach appears to be narrow and limited. As a result of these and many more contradictions, Jamaica has a long legacy of limiting access to many things that are generally considered good for development; and as indicated earlier, societies that limit access find it difficult to encourage broad-based economic development.

¹⁹ The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction: A Study of Rural Communities in India (Gujarat), Mozambique, and Tanzania, DFID KaR Project 8357.

²⁰ For country comparison purposes GDP may be converted using either market exchange rates and or purchasing power exchange rates. The conversion using purchasing power parity, PPP, seeks to determine the purchasing power of one US\$ in different parts of the world. The PP is also intended to solve the bias in market exchange rates towards goods that are traded. In countries where relatively large numbers of domestic production is not traded, the market exchange rate typically undervalues purchasing power. In the case of Jamaica the per capita income using the USPPP is\$ 8,200 but US\$4,500 using market exchange rates.

These contradictions, especially those that relate to the financial sector, encouraged the development of a survey instrument that is designed to provide a comprehensive look at the access to financial services in Jamaica, and that has a number of built-in quality checks to help gauge the quality and accuracy of the responses. This survey tool measures all forms of account ownership and uses; uses of the mobile telephone; and attitudes of those who receive social welfare benefits to potentially receiving them via mobile delivery. As a result, we provide estimates of the unbanked using the popular measures, before focusing on the measure that is most useful for guiding policy about the Mobile Financial System in Jamaica. The field work was conducted by Gavin Daley of the Department of Government at the University of the West Indies and a team of 38 surveyors.²¹ The instrument was written by Dawn Richards Elliott with contributions from Gavin Daley, Maurice McNaughton and Evan Duggan of the Mona School of Business, and Debra Wahlberg of PRIDE Jamaica. The demographics of the sample are presented in Tables 4-8. Given the nature of this study, Jamaicans 18 and older were surveyed. Almost two-thirds of the sample is employed: 38.5% work for another and 23.7% are self-employed. More than half are females; more than 60% have completed high school; and almost one-half report incomes less than J\$200, 000 for the 2010 year. Unemployment rates of 23% are higher than the national rate of 12.9% likely because of the high numbers of the under-24 age group, who generally report the highest rates of unemployment.

Table 4 Gender of Survey Respondents

Gender	Frequency	Percent	Valid Percent
Male	1073	43.3	43.5
Female	1395	56.3	56.5
Total	2468	99.7	100.0
Missing	99	8	.3
Total	2476	100.0	

Table 5 Age Distribution of Survey Respondents

Age	Frequency	Percent	Cumulative Percent
18 – 24 Years Old	413	16.8	16.8
25 -34 Years Old	600	24.4	41.1
35- 44 Years Old	569	23.1	64.2
45 – 54 Years Old	392	15.9	80.1
55-59 Years Old	165	6.7	86.8
60-64 Years Old	116	4.7	91.5

²¹ The conduct of the field survey work was financed by PRIDE Jamaica.

	65 Years or older	209	8.5	100.0
	Total	2464	100.0	
Missing	99	12		
	Total	2476		

Table 6 Employment Status of Survey Respondents

	Employment	Frequency	Percent	Cumulative Percent
	Employed	941	38.5	38.5
	Unemployed	563	23.0	61.5
	Retired	224	9.2	70.6
	Self-employed	579	23.7	94.3
	Students	135	5.5	99.8
	Other	4	.2	100.0
	Total	2446	100.0	
Missing	99	30		
	Total	2476		

Table 7 Education Attainment of Survey Respondents

	Education	Frequency	Percent	Cumulative Percent
	No Formal Schooling	61	2.5	2.5
	Primary School (Grades 1- 6)	153	6.3	8.8
	All-age or Junior High (Grades 7-9)	567	23.4	32.2
	High School (Grades 7-12: or 1st – 5th form)	1036	42.7	74.9
	Sixth Form High School College or University	467	19.2	94.1
	Vocational skills	142	5.9	100.0
	Total	2426	100.0	
Missing	99	49		
	System	1		
	Total	50		
	Total	2476		

Table 8 Income Distribution of Survey Respondents

Annual Income (Jamaican Dollars)	Frequency	Valid Percent	Cumulative Percent	Ratio of Income Category to Adult Equivalent Poverty Line*
\$200,000 or less	1072	48.9	48.9	0.0 - 1.8
\$200,000 but LESS than \$400,000	512	23.3	72.2	1.8 - 3.6
\$400,000 but LESS than \$600,000	230	10.5	82.7	3.6 - 5.4
\$600,000 but LESS than \$800,000	190	8.7	91.4	5.4 - 7.2
800,000 or more	189	8.6	100.0	> 7.2
Total	2193	100.0		
Missing	99	283		
Total				
*The adult equivalent poverty line is \$110,099 and the minimum wage in Jamaica is \$200,000 annually.		2476		

As we indicated earlier, the most popular measure for the unbanked, and the one that has been used before in Jamaica, is those who do not own savings and or loan accounts at a financial institution. For comparison purposes we first report this measure: 64.3% of adult Jamaicans, about 956,913, own a savings and or loan account at a banking institution, or are banked, and 35.7% , 531,287, do not or are popularly considered unbanked, Table 9. The margin of error is 5% and the confidence interval 95%. This means that we are 95% confident that the numbers of unbanked Jamaicans are between 30.7% and 40.7%. Our estimates are consistent with others such as the Alliance for Financial Inclusion, AFI estimate of 41% unbanked Jamaicans.

Table 9 Banking Status in Jamaica Using the Savings and or Borrowing Measure

	Frequency	Percent
Banked	1574	64.3
Not banked	873	35.7
Total	2447	100.0
Missing	29	
Total		
Confidence Interval 95%	2476	
Margin of error 5%		

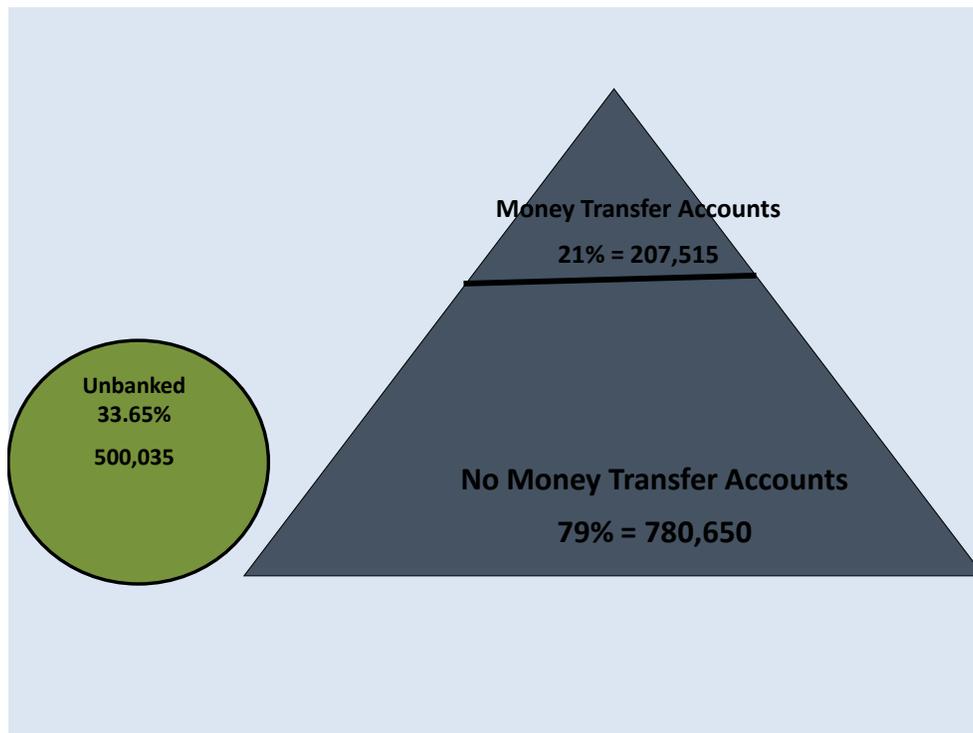
Our estimates are also consistent with the estimates of unbanked Jamaicans from the household survey data from the 1997 survey of Living Conditions that estimates that 32% of Jamaican households do not own a savings and or loan account, Tejerina and Westley (2007). In Jamaica it is widely reported that close to one-half of households are single-headed females and untold numbers are single-headed males. This means that in more than one-half of Jamaican households there is only one-adult, and as a result estimates of the numbers of unbanked households is unlikely to differ by large numbers when compared to estimates of those individuals that are unbanked. Compared to the rest of the world where 50% of the adult population is unbanked, and for developing countries where this number is 64%, Jamaica fares well.

Although Jamaica's comparison is better than the global norm, these estimates hide much; and what is hidden is of concern when considering the impact of a new payments channel, the Mobile Financial System. The comparative advantage of the Mobile Financial System when compared to financial institutions is its ability to deliver safe, low-cost access for money transfers; access that does not require the traditional tile'n mortar structure of a bank. Financial accounts that support payments and remittances without such access already exist; they are the checking account, credit-cards, or internet-based accounts. Like the Mobile Financial System those who own these accounts are integrated into the payments channel of the financial sector; they make payments and or remittances without the need to visit a bank-branch, store cash, and or visit other payments-agencies. It means that while the measures of the unbanked that emphasize savings and or loan ownership are important, from the perspective of the Mobile Financial System it is insufficient, and in the case of Jamaica of little use. The emphasis on savings and or loan ownership and access, although appropriate in lower-developed countries with large populations, extremely low bank infrastructure, and difficult physical access, is less useful in countries like Jamaica; small-size, upper-middle income, and developed banking infrastructure. Given the gaps between deposits and loans per person, and the small size of deposits in Jamaica, it is not unreasonable to expect that most Jamaicans have access to the most basic forms of banking, savings, and are excluded from the higher tiers of banking: money transfer, borrowing, and wealth and asset creation. When considering the implementation of a Mobile Financial System and its potential impact, in Jamaica and countries with a similar profile, the relevant measure of the unbanked are those who cannot conduct payments and or remittances without engaging in trips to a bank, payments providers, and or storing cash to facilitate payments. We obtain this measure in two steps: first we identify the numbers of Jamaicans who own some form of financial accounts, defining these as banked Jamaicans, and those who do not, as unbanked. In the second step we disaggregate the numbers of banked into two groups: those who own money transfer accounts, checking accounts and credit cards, and those who do not.

In Jamaica 66.35% of the adult population own financial accounts either as savers, borrowers, payments users, and or investors, and 33.65% do not own any financial accounts. Of the 66.35% who are banked, 79% do not own money transfer accounts, checking accounts and or credit cards; and 21% do, Figure 8. In other words, of the 988,165 Jamaicans, 780,650 own savings and or borrowing(not credit card) accounts, and or retirement accounts, but do not own checking and or credit card accounts. While only 500,035 adults in Jamaica do not own any form of financial accounts, in actuality as many as 1.28 million do not own financial accounts

that can provide payments and remittance services²². This means that 86% of adult Jamaicans, those over 18 years, must rely on cash and or trips to non-bank payments providers, incurring additional costs, to access these kinds of services. These Jamaicans, 77.9%-86% are potential targets for a Mobile Financial System, assuming that this system can indeed deliver these services at lower costs than currently exists in Jamaica.

Figure 8 Banking Statuses in Jamaica Using Alternative Measures



The growing body of evidence confirms our earlier claims of a high degree of financial exclusion in Jamaica. The nature of this exclusion is different from what is typically emphasized in the discourse on Mobile Financial Systems, which are large numbers of people who are cut-off from all forms of account ownership and the services of banks. This does not undermine in any way the claim that the need for a mobile payments channel is very strong in Jamaica. Instead it strengthens it: when we consider that the primary use of the mobile channel is for money transfer, and although all adult Jamaicans, 1,488,200, have mobile access, only 14% - 22% have access to financial accounts that can be used for money transfers. These results are consistent with the findings of the CGAP/World Bank Group that suggests that although

²² For those Jamaicans who own a checking and or credit card and have access to the internet, they can conduct money transfer services on line. It has been estimated elsewhere and widely reported that about 15% of Jamaican households have internet access at home. If we assume that this approximates closely to individual access, given the single-headed composition of most households, then the numbers who do not have money transfer access falls to about 1.16 million, 77.9% of the adult population.

D. Elliott, USAID Contractor

financial access in Jamaica is relatively high, banking remains very basic for most. Financial institutions attract deposits from more than 2/3 of the adult population, but these institutions fail to redirect these deposits into borrowing and wealth generating activities, and they fail to support money-transfers on the Island. Of the 66.35% of Jamaicans who own some form of financial accounts;

-  66% or 652,188 own a savings account
-  8.1% or 80,220 own a checking account
-  16.7% or 164,694 own a credit card
-  16.1% or 159, 224 own a mortgage, car loan, or micro finance loan
-  12.7% or 126,407 own a retirement account
-  1.4% or 14,585 own stocks

Low value savings account ownership dominates the Jamaican Financial Sector, which explains the World Bank/CGAP report that deposits per capita are relatively high, 1.149 per person, but the balances on average are low, and the loans per person extraordinarily low, 0.02 loans per person. The pattern of unbanked and basic banking extends across the residential and commercial sectors in Jamaica; although we did not decompose the pattern of account ownership in this way, in the earlier cited study by Kirton and Tennant (2008) 23% of small firms are unbanked, owned no bank accounts. They also report that although 33% of small firms report a need for loans, only 18% applied and 15% obtained loans in 2004.

Results from our survey, together with reported results from other studies indicate a strong need for a low-cost payments channel in Jamaica. In addition, they also suggest the need for a strong mandate from the Government of Jamaica that addresses the inadequacies in the financial sector and its contribution to slow growth and employment generation. Modern financial institutions in collaboration with the government and private sectors are typically expected to identify solutions to financial access; moving its population from financial behaviors that depend on family and kin, informal means, to behaviors that depend on the financial markets for access to the borrowing, payments and remittances, and wealth generating needs of modern society. A useful example is Singapore, which many like to compare with Jamaica given a similar economic profile 50 years ago and their successful transition into an open access, fast-growing, high-productive, small, and resource-poor nation. In Singapore, a creative mandatory savings policy, with mandatory rates as high as 40%, serves as the conduit for above-normal public savings rates, 48%, and access to a broader array of account ownership and the services that are tied to these. For example, individuals use their savings funds to support home purchases and other credit-services. As a result 85% own their homes which in turn encourage extraordinarily high money transfer and other forms of account ownership in the commercial and residential sectors. It is beyond the scope of this report to emphasize the implications of its findings for issues related to deepening the reach of the financial sector as a hand-maiden for economic development. As a result we focus on the findings that relate to payments and remittances; seeking further insights on how those who own money transfer accounts differ from these who do not, the majority of Jamaicans.

To better understand the relationship between banking status and wealth creation in Jamaica, we looked at two groups of the banked population; those with savings accounts only and those with checking and or credit card accounts only. We want to see how many of those with savings accounts only, use the banking institution to build wealth, and how many of those with checking and credit cards only do, and to assess if there are any statistically significant differences

between the two groups with respect to these behaviors. We determined that there are no statistically significant differences between the savings-only and the transactions-only banked population regarding the process of wealth generation, and that any observed differences in financial behaviors are due to chance. Of course, statistical significance does not imply economic importance and in this case it must be observed that those with money transfers only financial accounts are more integrated in the banking system, accessing a broader array of its financial services, compared to the savings-only group:

- 📱 One-half of savers do not borrow from banks
 - But almost 70% of those with checking and credit cards do
- 📱 A little more than one-half of savers use informal means such as a partners²³ to build assets
 - The same is true for those with checking and credit cards
- 📱 While the numbers of Jamaicans with checking and credit cards are small, 81% of them use money in a savings account to build wealth
- 📱 Most of the banked do not rely on loans, or gifts from family and friends
 - 36% of the checking and credit card group do use loans from family and friends, while 25% use gifts
 - 23% of savers-only use loans from family and friends and 25% use gifts

More important, for this study, is how the adult populations make payments and remittances given that most do not have access to accounts that facilitate either. It is typically the case that those without money transfer access rely on alternative means which can be costly. To gain some insights on these issues, we asked the unbanked, the group with the highest level of financial exclusion. The unbanked, who report a high dependency on cash and almost no use of financial products such as money orders, indicate that:

- 📱 In a typical month 91% of them never incur money order fees, indicating that 91% do not use money orders to make payments and send remittances
 - 3.7% of the unbanked incur money order fees at least twice per month and 3.8% more than twice per month
- 📱 Cash is the method of choice for payments and remittances
 - 86.4% use cash 3 or more times per month to make payments and remittances, of which 73.1% do so more than 4 times per month
 - 8.9% of the unbanked use cash one or two times per week to make payments and remittances
- 📱 80.1% of the unbanked make transactions on “trust”; they are allowed access to goods and services with the promise to pay, by cash, at a later date
 - 33.4% use “trust” once or twice per month and 46.7% 3 or more times per month

Since there are no statistically significant differences between the banked and the unbanked regarding a variety of socioeconomic measures, Tables 10-16, we infer that a similar pattern

²³ The term “partner” describes an informal savings scheme that is popular in Jamaica. Groups of individuals establish a weekly deposit and withdrawal schedule that extends over a number of weeks as determined by the size of the group. The money management process is assigned to the treasurer, who is compensated in some cases.

exists for the banked. Despite the highly developed and profitable banking sector, most Jamaicans use cash; a “trust” system; and or payments and remittance providers. Remittance providers in Jamaica are now a part of the Bank of Jamaica’s regulatory purview. This means that money transfer services for Jamaicans, who use these agencies, banked and unbanked, occur in the regulated space of the financial sector, which is different in other countries. This realization means little however, since the underlying fundamental remains intact: 77.9%-86% of Jamaicans 18 and older, some banked and others unbanked, do not own money-transfer accounts and as a result must incur additional costs to conduct money transfer transactions.

Once again we turn to the unbanked: this time to gain some additional insights on the nature of these costs, while noting that they must also be paid by those with bank accounts given the structure of account ownership in Jamaica. We know that among those in Jamaica who are unbanked:

- 📱 26.8% incur transportation costs related to accessing payments and remittances transactions once-to-twice per month
 - 20.1%, 3 or more times per month
 - and 53.1% do not incur these costs at all, possibly relying exclusively on cash which is stored outside of the financial sector

Cash-dependency with few alternatives for payments and remittances is typically associated with low bargaining power. It is also associated with a propensity to delay important purchases; approximately one-half report that cash-dependency is a binding constraint that manifests in the regular delay of important purchases, delays that often result in additional though often implicit and unmeasured costs.

We have indicated that in Jamaica, those who do not own any financial accounts are, from a money transfer perspective, no different from those who do. In addition, we have used insights from the unbanked to make inferences about the banked; indicating that there are no statistically significant differences between these two groups of Jamaicans socioeconomically. Regarding socioeconomic differences between the banked and unbanked, the opposite is generally argued; it is often believed that with regards to employment, income, and education the banked and the unbanked differ. By implication it is often argued that this difference will encourage differences in a host of behaviors and access to opportunities including financial behaviors and inclusion. We evaluate this argument; testing the null hypothesis that there are no differences between the banked and the unbanked regarding these socioeconomic variables. We also evaluate whether there are differences between the two with regard to mobile phone ownership and use and age, Table 10.

What does this all mean? First, since we accept the null hypothesis for employment, income, education, age, mobile ownership, and mobile use this means that we accept the hypothesis that the banked are no different from the unbanked with regard to these variables. This suggests that the banked and unbanked are not likely to behave in ways that are different simply because of their banking status. Second, it means that any differences that are observed between these two groups using these socioeconomic measures are not statistically significant. This means that the statistical profiles which allude to differences, Tables 11- 16 are not statistically relevant and as a result inferences about the banked that are drawn using insights from the unbanked are acceptable.

Table 10 Cross Tabulation Analysis I: Hypothesis: There are Socioeconomic Differences Between the Banked and Unbanked Populations

No Differences	Accept Null Hypothesis	Reject Null Hypotheses	Probability Value	Pearson Chi Squared*	# Banked Responses	# Unbanked Responses
Employment	√		0.05	243	779	158
Income	√			325		
Education	√		0.05	325		
Mobile Ownership	√		0.05	93.6		
Mobile Access if no Ownership	√		0.05	1.4		
Age	√		0.05	37.7		

*Chi squared is a non-parametric test statistic that is used when there is no underlying assumption of a normal distribution. It produces a statistical value that seeks to determine the existence of differences between two populations by comparing the counts not the means. If the Chi value > 0.05 we accept the null hypothesis. This means that we accept the argument that there are no statistical differences between the two population groups regarding the variables measured. If the statistic is < 0.05 we would accept the null hypothesis; that there are statistically significant differences between the two populations.

Table 11 Cross Tabulation Count for Employment Status

	Banked..own some form financial account*	Unbanked..do not own any financial account	Total
Employed..work for other	779 (48.4 %) [32.2%]	157 (19.4%) [6.5%]	937
Unemployed	254 (15.8%) [10.5%]	302 (37.1%) [12.5%]	556
Retired	158 (9.8%) [6.5%]	66 (8.1%) [2.7%]	254
Self-employed	337 (20.9%) [13.9%]	237 (29.2%) [9.8%]	574
Student	79 (4.9%) [3.3%]	48 (5.9%) [2.0%]	127
Other	2 (0.1%) [0.1%]	2 (0.2%) [0.2%]	4
Total Count	1609	813	2452

*() is % within the Banked and Unbanked Samples, 1609:813 respectively and [] is relative to the entire sample, 2452.

Table 12 Cross Tabulation Count for Income

	Banked..own some form of financial account*	Unbanked..do not own any financial account	Total
< 200,000	534 (36.5%) [24.6]	525 (73.8%) [24.1%]	1059
200,000 < I < 400,000	369 (25.2%) [17.0%]	141 (19.8%) [6.5%]	510
400,000 < I < 600,000	197 (13.5%) [9.1%]	30 (4.2%) [1.4%]	227
600,000 < I < 800,000	176 (12.0%) [8.1%]	13 (1.8%) [0.6%]	189
> 800,000	187 (12.8%) [8.5%]	2 (0.3%) [0.1%]	189
Total Count	1463	711	2174
*() is % within the Banked and Unbanked Samples, 1463:711 respectively and [] is relative to the entire sample, 2174.			

Table 13 Cross Tabulation Count for Education

	Banked..own some form of financial account*	Unbanked..do not own any financial account	Total
No Formal School	13 (0.8%) [0.5%]	47 (5.9%) [2.0%]	60
Grades 1-6 (Primary School)	59 (3.7%) [2.5%]	90 (11.2%) [3.7%]	149
Grades 7-9 (All-Age Junior High)	294 (18.4%) [12.2%]	269 (33.5%) [11.2%]	563
Grades 7- 12 (High School, 1 st -5 th form)	683 (42.6%) [28.4%]	342 (42.6%) [14.2%]	1025
Sixth Form High School/College/University	435 (27.2%) [18.1%]	30 (3.7%) [1.2%]	465
Vocational	118 (7.4%) [4.9%]	24 (3.0%) [1.0%]	142
Total Count	1602	802	2404
*() is % within the Banked and Unbanked Samples, 1602:802 respectively and [] is relative to the entire sample, 2404.			

Table 14 Cross Tabulation Account for Mobile Phone Ownership

	Banked..I own some form of financial account*	Unbanked..I do not own any financial account	Total
Yes..I own a mobile phone	1556 (98.1%) [64.9%]	728 (89.1%) [30.2%]	2294
No..I do not own a	30 (1.9%)	89 (10.9%)	114

mobile phone	[1.2%]	[3.7%]	
Total Count	1596	817	2413
*() is % within the Banked and Unbanked Samples, 1596:817 respectively and [] is relative to the entire sample, 2413.			

Table 15 Cross Tabulation for Mobile Phone Access

	Banked..own some form of financial account*	Unbanked..do not own any financial account	Total
Yes..although I do not own a mobile, I have regular, daily access to a mobile phone	37 (68.5%) [24.5%]	57 (58.8%) [37.7%]	94
No...although I do not own a mobile, I have regular, daily access to a mobile phone	17 (31.5%) [11.3%]	40 (41.2%) [26.5%]	57
Total Count	54	97	151
*() is % within the Banked and Unbanked Samples, 94:57 respectively and [] is relative to the entire sample, 151.			

Table 16 Cross Tabulation Count for Age

	Banked..own some form of financial account*	Unbanked..do not own any financial account	Total
18 - 24 years	236 (14.6%) [9.7%]	167 (20.4%) [6.8%]	403
25 – 34 years	406 (25.1%) [16.6%]	191 (23.3%) [7.8%]	597
35 – 44 years	380 (23.5%) [15.6%]	184 (22.5) [7.5%]	564
45 – 54 years	296 (18.3%) [12.1%]	94 (11.5%) [3.9%]	390
55 – 59 years	104 (6.4%) [4.3%]	59 (7.2%) [2.4%]	163
60 – 64 years	80 (4.9%) [3.3%]	34 (4.2%) [1.4%]	114
> 65 years	118 (7.3%) [4.8%]	90 (11.0%) [3.7%]	208
Total Count	1620	819	2439
*() is % within the Banked and Unbanked Samples, 1620:819 respectively and [] is relative to the entire sample, 2439.			

We know that although 66.35% of Jamaicans own bank accounts, financial behavior for most remains very basic, and the reliance on informal means high. From a development perspective, the goal is one of financial inclusion, where individuals gain access to the full array of services

that are offered by financial institutions. This means that those who have bank accounts can use them to access the savings, borrowing, transactions, and wealth-generating services. For those who are unbanked, financial inclusion means that they will gain access to these banking services, either by owning accounts one day or by gaining access through innovative channels such as the mobile access. Traditional banking infrastructures are unlikely on their own to overcome the barriers to access and encourage broad-based use of this array of services. This is the basis for the Mobile Financial System; it offers a new channel for the banked and the unbanked to access the payments services that are typically associated with checking accounts and credit cards. A part of the process of evaluating the impact of this new payment channel is to understand the nature of these barriers. We described earlier some of the institutional barriers: high interest rate spreads; uncompetitive markets; inefficient operations; high risks that result from high levels of economic informalities; failures of the banking institutions to identify products conducive to the socioeconomic realities of Jamaica. To gain some insights on the micro-level barriers, we asked the unbanked, the most financially excluded group, Table 17.

Table 17 Barriers to Banking for the Unbanked

I do not have accounts because...	Yes	No	# Respondents
I do not have some of the paper work such as TRN Number	25.8%	74.2%	302
I live/work too far from the bank/atm	7.2%	92.8%	304
of bank fees; atm; overdraft; interest cost; check processing	13.8%	86.2%	304
of the amount of money I have	59.4%	40.6%	303
I have no need for cheques	3.6%	96.4%	304
I do not need a bank to save	18.4%	81.7%	304
It is more work than it is worth to me	5.9%	94.1%	304
I do not trust banks	17.0%	83%	305
of record keeping	17.0%	83%	305
of the need to read and understand bank documents	7.9%	92.1%	305

The responses in Table 17 suggest that the unbanked do not have accounts because of their perceptions that income levels are too low to make it worthwhile. The overwhelming majority of the unbanked reject the statements that they: have no need for a transaction-based checking account 96.4%; do not need a bank to save, 81.7%; and they do not have the documents required to meet the stringent KYC/AML demands for opening financial accounts, 74.2%. These results imply that although the unbanked believe that they have a need for these traditional financial services, they cannot access them through the traditional banking channels because of their level of socioeconomic deprivation. This is consistent with our claim that traditional banking institutions are unlikely to be a primary source of encouraging broad-based financial inclusion in Jamaica, especially it would appear among those who do not own financial accounts.

WHAT CAN WE EXPECT FROM THE IMPLEMENTATION OF A MOBILE FINANCIAL SYSTEM IN JAMAICA?

A Mobile Financial System has the potential to benefit those Jamaicans who are unbanked and those who although banked, do not have immediate access to payments and remittances using the accounts they own. This is the majority of adult Jamaicans; the 500,035 without bank accounts and the 780,650 banked who do not own a money transfer account, adjusted for those with internet access of about 15%. The economic impact of a Mobile Financial System in Jamaica will be similar to that experienced globally; micro level benefits that result from lower transactions costs and increased opportunities for employment, income and savings if an agency-based model is assumed; and, at a macro-level, improved transparency, and potential productivity gains both with implications for GDP growth. The scale of this impact is likely to be large since the potential beneficiaries are the 1,280,650 million Jamaicans who are excluded from the payments channel offered by the ownership of money transfer accounts.

Of all these possibilities, the most consistent and predictable is the reduction in the barriers to trade that result from the lower-cost of transacting. To understand the micro-level impact of this, we determine the cost of conducting specific financial transactions in Jamaica using existing channels and compare these against the costs that are likely under a Mobile Financial System. To make payments, send, and or receive remittances from others domestically, Jamaicans can: (1) use their checking accounts; (2) purchase money orders and or bank checks; (3) make payments at a domestic remittance provider in store; (4) make payments at a domestic remittance provider online and or (5) use cash. For the 1.28 million Jamaicans without checking and or credit accounts, they have two payments channels available: (1) cash; and (2) the wide network of payments providers that evolved over the past 20 years to fill the gap left by the banking institutions. We tried to obtain payments and remittance data from a broad sample of financial institutions including commercial banks, but only Jamaica National Building Society, JNBS, provided the requested information. Data from JNBS reveals that on average Jamaicans who use the JNBS service pay 3 bills per month and most who use this service do so in-branch, Table 18.

Table 18 Use Pattern of Bill Payments at Jamaica National Building Society

Average # bills paid per month online	1,158
Average # Bills paid per month in branch	61, 272
Average monthly value of bill paid in store	\$6,423.53
Average monthly value off bills paid online	\$4,285.04
Average # bills paid per month	3

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There is no way to know if the bill payment patterns at JNBS are similar to those at other institutions such as Paymaster and Bill Express. For modeling purposes, we assume that they are. This means that we assume that Jamaicans who do not own a checking and or credit-card account make 3 bill-payments per month at an average value of \$6423; each person pays on average \$19,270 per month or \$231,228 per year, for a total value of \$2.96 billion.

What is the cost that the average Jamaican incurs using the existing payments channels? The total cost of bill payments under the current channel includes direct and indirect costs: costs of the bill payments service; costs of getting to the bill payment providers; and for those who do not store cash, the costs of visiting and using the branch/atm network; the costs of returning home; the opportunity costs of travelling and queuing time. Without any credible data on queuing and travel time, it is not possible to estimate the indirect costs and so these estimates will be lower than the true cost of bill payments in Jamaica. To calculate the direct costs we use data from JNBS, Grace Kennedy and Company Bill Express, and Paymaster which were obtained online and through in-store visits to view posted rate sheets; and we include one commercial bank for comparison purposes, the National Commercial Bank, NCB, the second largest in Jamaica, whose rate charges were obtained online, Table 19. Although online bill payment options exist in Jamaica, based on payment patterns at Jamaica National Building Society, Table 18, the vast majority of bill payments occur in branches, 98%. This is consistent with the low levels of internet use reported by the Mona School of Business and so for the purposes of this report, online bill payments are ignored.

Table 19 Bill Payment Fees in Jamaica

Utility Bill By Institution	In-Branch Cost
JNBS	\$ 50.00
Bill Express	\$ 50.00
Paymaster	\$ 50.00
National Commercial Bank	\$250.00

Table 20 Cost of Average Bill Pay Transactions in Jamaica per Transaction

Institution	Value	Cost-in branch	Cost of getting cash in branch	Cost of public bus *	Bill Pay Cost per Banked **	Fee % Banked	Total per transaction unbanked***	Fee % Unbanked
JNBS	\$6423	\$50	na	\$100	\$350	5.5%	\$150	2.3%
Paymaster	\$6423	\$50	na	\$100	\$350	5.5%	\$150	2.3%
Bill Express	\$6423	\$50	na	\$100	\$350	5.5%	\$140	2.2%
NCB	\$6423	\$250	\$200	\$100	\$550	8.6%	na	na
*The Jamaica Bus authority reports one-way adult cost of public transportation of \$50.00; we assume one round-trip cost per bill per transaction.								
**For the banked, we assume that there are savings withdrawal costs that must be borne prior to each bill payment, independent of where the bill payment transaction occurs. Given the decision to use NCB, the largest commercial bank, as a reflection of bank costs, the withdrawal fees for NCB applies.								
***The unbanked do not incur any bank withdrawal fees. Although many of the banked may also choose								

to store cash, avoiding bank withdrawal fees, to illustrate the differences in costs between these two groups we assume that the banked hold deposits in their savings accounts.

Bill payments for the banked incur direct transactions costs between 5.5% - 8.6% of the value of the transaction, and for the unbanked this range is 2.2-2.3%, Table 20.

In addition to bill payments, Jamaicans may send remittances locally, transferring money from one person to another, P2P. Currently, domestic person-to-person, p2p, transfer in Jamaica can be done by: (1) writing and mailing a check; (2) paying by cash; and or (3) making a transfer at a local remittance provider. Since most Jamaicans do not own a checking account, p2p remittances over relatively long distances can only be done using the bank and or one of the remittance providers. International remittance data provides a benchmark for this analysis; it indicates a very high satisfaction with remittance providers that is explained by speed, opening hours, and accessibility, compared to banks. The very high incidence of international remittances in Jamaica, suggests a familiar relationship between Jamaicans and remittance providers. As a result we assume that domestic p2p over long distances is conducted using these providers, and not the banking institutions, for the both banked and unbanked alike. The fee structure for domestic p2p was obtained for two remittance providers by visiting a Jamaica National Building Society Branch and Grace Kennedy Bill Express Branch in New Kingston, Table 21.

Table 21 Person-to-Person, P2P Domestic Transfer Fees Jamaica per Transaction

Amount in J\$	Amount in US\$	Fees - Grace New Kingston off Knutsford Boulevard J\$	Fees - JNBS New Kingston Knutsford Blvd J\$	Percentage Grace	Percentage JNBS
2000	23.52941	264.38	150	13.22	7.50
4000	47.05882	411.25	150	10.28	3.75
8000	94.11765	616.38	150	7.70	1.88
16,000	188.2353	940.00	150	5.88	0.94
32,000	376.4706	2350.00	150	7.34	0.47
64,000	752.9412	3642.00	150	5.69	0.23
128,000	1505.882	6345.00	300	4.96	0.23
256,000	3011.765	9047.50	300	3.53	0.12
400,000	4705.882	11632.00	450	2.91	0.11
512,000	6023.529	11632.00	600	2.27	0.11

There is a wide variation in p2p fees by institution: for the two companies we visited, the tariff margin ranged from almost 2 to 26 times the cost for Grace Kennedy and Company compared to Jamaica National Building Society. In the absence of data on the average size of local p2p, we make assumptions that are shaped by the data on international remittances. The average Jamaican that receives regular monthly international remittances receives \$26,350 per month, Bank of Jamaica Remittance Report 2010. Remittances are primarily used to support households: consumption, education, health, savings, housing, Bank of Jamaica Remittance Report (2010). Since more than one-half of Jamaicans are single-headed households it is reasonable to expect that international remittances help to support local p2p. We assume, very conservatively, that the 10% of international remittances used for “other” are re-circulated as local p2p to support families and friends who do not share a common household. This means that each month on average \$2,635 is sent as a p2p, Table 22.

Table 22 Cost of P2P Remittances in Jamaica per Transaction

Institution	Value	Cost-in branch per transaction	Cost of getting cash in branch	Cost of transportation public bus	Total fees banked	Total fees unbanked	Fee % banked	Fee % unbanked
Grace P2P	\$2635	\$264.38	\$200.00	\$100.00	\$564.38	\$364.38	21.4%	13.8%
JNBS P2P	\$2635	\$150.00	\$200.00	\$100.00	\$450.00	\$250.00	17.1%	9.5%

What can we expect from a Mobile Payment System in Jamaica? If we assume that the average Jamaican makes 3 bill payments, and 1 P2P using the services of remittance providers, we can estimate the average cost of payments and remittances without a Mobile Financial System, Table 23.

Table 23 Bill Pay and P2P Remittance Cost in Jamaica

Transaction type	Value	Average cost-in branch per transaction	Cost of getting cash in branch	Cost of transportation public bus	Total per transaction banked	Total per transaction unbanked	Total fees per month banked	Total fees per month unbanked	Monthly transaction fees % banked	Monthly transaction fees % unbanked
Bill Pay Non-Bank	\$6423	\$50	\$200.00	\$100.00	\$350.00	\$150.00	\$1050.00	\$450.00	6.2%	3.5%
Bill Pay Bank	\$6423	\$250.00	\$200.00	\$100.00	\$550.00	\$350.00	\$1650.00	\$1050.00	8.9%	6.2%
P2P	\$2635	\$207.19	\$200.00	\$100.00	\$507.19	\$307.19	\$307.19	\$307.19		
*Average of JNBS, BillExpress, and Paymaster for Non Bank ; Bill Pay cost at bank reflects NCB charge										
** Average for Grace and JNBS \$264.38+\$150/2 = \$207.19										
Total Monthly Transaction = 1 P2P and 3BillPay = \$21,904.00										

Both banked and unbanked Jamaicans confront high costs of accessing payments services in the bank and with payments and remittance providers. The highest costs for transactions are those that are conducted in the banks, most likely exclusively by the banked; 8.9% on the value of transactions. In every country that a Mobile Financial System has been implemented banking costs have declined as a result. The rationale is simple; the Mobile Financial System competes directly with the payments and remittances aspect of the financial sector and the low costs of text-messaging translate into lower transactions costs for the average user who typically pays a user fee, only when a value has been created in the financial transaction. As indicated earlier, CGAP estimates that those who conduct payments and remittances using a mobile pay on average 2.9% of the value of the transactions. If we assume similar numbers for Jamaica, in the event that a Mobile Financial System is implemented the impact is startling, Table 24.

Table 24 Per person Comparative costs of Transactions in Jamaica

1P2P + 3Bill Pay \$21,904	Fees at NonBank	Fees% NonBank	Fees with Mobile Global Average CGAP	Fees % Global Average CGAP	Fees at Bank	Fees % at Bank	Fees with Mobile Global Avg CGAP	Fees % Global Avg. CGAP
Banked	\$1357.19	6.2%	\$635.2	2.9%	\$1957.19	8.9%	\$635.2	2.9%
Unbanked	\$ 757.19	3.5%	\$635.2	2.9%	\$1357.19	6.2%	\$635.2	2.9%

Under Jamaica’s payment channels, Jamaicans who own savings and or loan accounts and who pay 3 bills and make 1 remittance per month outside of the banking channels, for a total value of \$21, 904, would incur monthly savings of \$721.99, or \$8,663.88 per year if global mobile rates applied. For those who do not own financial accounts, the comparable savings would be \$121.99 per month or \$1,463.88 per year. For the banked who conduct the same transactions at banking institutions, \$1,321.99 per month or \$15,863.88 per year.

The experiences around the globe with new payments channels tell a common story: the implementation of new channels to make payments and remittances increase market competition and reduce the costs of transacting. Ultimately, the size of these transactions savings will depend on how many actually use the Mobile Financial System and the frequency of use. How many use the system is partly determined by the pricing gap between the Mobile Financial System and the alternatives that are available. It also depends on the business model that is implemented and the degree of interoperability which helps to determine the volume of transactions. Which business model is implemented is strongly influenced by the banking regulation as stipulated either explicitly or implicitly by the Bank of Jamaica, as we will explore later. How many use the system will also be impacted by the willingness of the Government and private sector firms to use the mobile channel to deploy cash benefits and compensation; something that will be explored for conditional cash transfers later.

Given the implied uncertainties, it is not possible to predict with any kind of certainty the economic impact of a Mobile Financial System. Nevertheless, it is not unreasonable to expect a rapid uptake in Jamaica. This is because of the potentially large pricing gap, assuming a similar pricing structure for the Mobile Payments System as those that exist around the world and costs

of existing channels that better reflects the true costs Jamaicans incur. With large numbers excluded from the payments system, and wide pricing gaps we expect a rapid uptake, especially among the banked Jamaicans in the short run, although we cannot predict the numbers of active users over time. For the unbanked where the pricing gap is narrower, the uptake will likely be slower in the short run, speeding up over time as more people come to understand the associated convenience that this Mobile Financial System promises, possibly the greatest incentive for the unbanked. It is important to also note that in most countries around the world the rapid uptake that is reported in Kenya and the Philippines have not been replicated, and as a result the economic impact has been relatively modest. Although many other countries share the preconditions for success of these early-entry countries, the regulatory void and willingness to experiment encouraged very strong outcomes, which will be difficult to replicate, at least on the same scale and over a similar time period.

To get some insight on how different rates of use can impact the transactions savings in a Mobile Financial System, we present in Table 25 various simulations of the transactions savings using different uptake assumptions. Although we retain the 2:1 uptake ratio between the banked and the unbanked in Kenya, we use much more modest responses than the situation in Kenya where in only three years 70% of the population have opened a mobile payments account. For example we simulate the outcome if there is a 10% uptake among the banked population and 5% for the unbanked population, and using this we calculate what the expected transactions savings might be.

Table 25 Projected Annual Transactions Savings in a Mobile Financial System 3 bill Payments and 1 P2P Transfer

	Mild Uptake 10:5%	Transactions Savings	Modest Uptake 20:10%	Transactions Savings	High Uptake 40:20%	Transactions Savings	Super-High Uptake 60:30%	Transaction Savings
Banked	78,065	\$1.24 billion	156,130	\$2.477 billion	312,260	\$4.95 billion	468,390	\$7.43 billion
Unbanked	25,001	\$36.6 million	50,000	\$73.19 million	100,000	\$146 million	150,011	\$219 million
Total Mobile Financial System Subscriber	103,067	\$1.275 billion	206,130	\$2.55 billion	412,260	\$5.096 billion	618,400	\$7.649 billion

More specific data on the average volume of financial transactions in Jamaica are difficult to come by; as a result this simulation exercise assumes the volume and transactions value data for JNBS and assumptions based on international remittances and the structure of the average Jamaican household. Despite the limitations in using these simulated outcomes, the important point to note is the opportunity to recover economic waste and to redirect it into more productive and fulfilling uses.

In addition to transactions costs savings, some of which will encourage increases in GDP as a result of greater economic transparency and depending on how these savings are used, productivity improvements, there are also employment and income benefits that can be

expected; and since both will impact the macro-economy through a multiplier effect, there are also growth implications that can be assumed. This will depend on the business model that is implemented: an agency-based model promises the greatest employment and income generating opportunities. The agency model provides opportunities for Jamaicans to form business relationships with the banking sector and use their existing small business infrastructure to offer many of the services that are associated with the Mobile Financial System. The roles of specific agents vary, and the agency network model is typically based on ensuring agency homogeneity regarding these roles or heterogeneity. For example in Kenya the Safaricom model is homogenous; each agent has the same roles. This differs from the situation in Uganda and South Africa, where there are different roles for each agent. We will explore these details later, and the implications for Jamaica, including those related to the implied regulatory challenges that must be considered. Nevertheless, it is important to note that the agencies and their accessibility greatly impact the uptake rate in any Mobile Financial System; agents are the primary sources of cash-in and cash-out services and not surprisingly, where they are easily accessible to end-users, volume of transactions are increased.

Although there are no clear guidelines on the optimal numbers of agents to simulate some of the impact that agency accessibility have on the numbers of agents, and hence the employment implications, we use the experiences from Kenya’s M-Pesa product. In April 2007 when M-Pesa was first launched commercially, each agent served about 250 customers and the starting number of agents, about 5% less than current levels, remained constant as Safaricom worked to increase customer base. Once the existing agents were serving about 1,000 customers each, the approach shifted and Safaricom began to increase the numbers of agents, lowering the agent:per customer number to about 600 in 2009, two years into the commercial launch. In Table 26 we simulate the numbers of agents that would be needed based on the different uptake scenarios from earlier estimates and based on income earning assumptions, the income potential that is implied by this employment pattern.

Table 26 Employment Potential and Income Impact of Mobile Financial System

	250 Customers per Agent	500 Customers per Agent	Income Effect*
10:5% Uptake	412	206	\$41- \$82 million
20:10% Uptake	825	412	\$83- \$165 million
40:20% Uptake	1649	823	\$165-\$330 million
60:30%	2474	1237	\$330-\$495 million
100% Uptake All mobile subscribers	5912	2956	\$495 million- \$1.2 billion
*The income effect assumes minimum wage as the opportunity cost of opening a Mobile Money Agency; rational agents would only operate if the income earned from commission is equal to the lowest possible income if employed. In Jamaica, many are self-employed and the implicit assumption is also that the opportunity cost of self employment is the minimum wage if one was employed alternatively.			

It is important to put this simulation into perspective. Agency models typically use the existing infrastructure: banking and remittance channels, supermarkets, and small shops for example. This means that estimates of agent employment creation is not likely to manifest in an increase in the labor force, but instead an increase in activities associated with agents assuming new roles. The factor to consider then is the potential income effect: a 60:30% uptake in transactions savings and income generated from agent employment under the assumptions used can be expected to generate annual revenue flows of approximately J\$8.849 billion or about US\$104 million per year.

Transactions-related gains of J\$8.849 billion per year will cause an increase in GDP. How much depends on many factors including the size of the Jamaican spending multiplier and the opportunities for leakage. Transactions-related gains are only one small part of the possibilities that can occur with the widespread use of the Mobile Financial System across all sectors of the Jamaican economy. As a result we must emphasize that it is premature to provide any suggestions of the impact on GDP; especially given the uncertainties of the ability to redeploy these gains into productivity-improving activities. Nevertheless, we propose some crude insights into the short-term impact of transaction-related gains only. National net savings rate is about 15% and Jamaicans save about 9% of remittance inflows. By implication the crude spending multiplier associated with short-term injections into the economy would be as high as 6.7 or as low as 1.1, the spending multiplier being defined as the reciprocal of the savings rate. With a multiplier of 1.1, the estimated size of the tourism spending multiplier, transactions-related gains could increase GDP by J\$9.733 billion each year or US\$59 billion each year.

The estimated J\$8.8 billion in transaction-related gains and the multiplier effect on the Jamaican economy in the short-medium runs is merely a glimpse into the possibilities offered by the Mobile Financial System. Yet although only a glimpse, it invites us to consider the important implications of the Mobile Financial System including the transparency effect that is critical in a highly informal economy like Jamaica. The implementation of a Mobile Financial System means that cash-based transactions, which are almost impossible to track, become more transparent. In Jamaica, estimates of the size of the informal economy cluster around 40% of GDP or US \$4.8 billion or J \$410 billion. Greater transparency means that, at a minimum, 1% of the estimated J \$410 billion in untraced transactions will become transparent each year, showing up as a part of the higher GDP. Beyond these short and medium term increases in GDP, the possibility for sustainable growth improves if, in addition to the increases in the numbers who use the mobile, the Mobile Financial System implementation in Jamaica encourages increases in the numbers of banked and improved access to a broader array of financial account ownership. This has been the experience around the globe, and should not come as a surprise. The payments system provides data on the habits of consumers that can be used to identify credit and bank-ready individuals from the unbanked and banked populations. In Indonesia for example a group of bankers evaluated the credit-worthiness of the unbanked populations and determined that 40% are bankable; and in the USA 56% of unbanked remitters have become banked based on their increased association with financial institutions. In Kenya, competitive pressures from M-Pesa encouraged banks to address unnatural barriers, resulting in increases in the banked population from 18% to 22% in three years. In India, the Government has long recognized this possibility and has encouraged a variety of means for offering access to a variety of financial accounts at levels that are suitable to the lower-income profile of the credit-worthy unbanked populations. As we saw earlier, the unbanked in Jamaica reject the claims that they have no need for money transfer services and savings services from banks and that they distrust the banking institutions. Yet the banking communities and the Government have been unsuccessful at crafting creative tools that can encourage financial inclusion, for the banked

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who need a broader array of services and the unbanked who desire these services but who believe that their socioeconomic levels bar them for account ownership. If Jamaica is like India, Indonesia, Kenya, and the USA in their responses to the introduction of new payments channels, we can expect a growth in the numbers of banked; and for the banked population, we can expect increased access to the payments and wealth generating accounts and services offered by the financial sector. How much more is impossible to know without a pilot study since these are externalities effects, positive outcomes that follow the implementation of new payments channels that was not designed for that effect. With that caveat aside, if we assume that 40% of this group are bankable, then as the barriers to bank account ownership fall with the implementation of a mobile payments channel, we might expect to see 200,014 newly banked Jamaicans. If we assume that 40% of the banked are capable of more sophisticated bank ownership, we might expect to see 312,260 additional Jamaicans participating in the wider array of banking services and products that are available.

THE MOBILE AND CONDITIONAL CASH TRANSFERS: ECONOMIC IMPLICATIONS USING INSIGHTS FROM BENEFICIARIES

Our efforts to simulate the effect of a Mobile Financial System on Jamaica and Jamaicans ignored the role of the Government of Jamaica. The Government of Jamaica can play multiple roles in a Mobile Financial System including the delivery of Conditional Cash Transfers over a mobile phone. The benefits to the Government for transfers of relatively low value are important, and these savings are encouraging many around the globe to experiment with transfers to the poor. Most recently, the Government of the Philippines ran a pilot with the development group CGAP to deliver government conditional cash benefits over the Globe G-Cash Text-A-Remittance network to 300,000 people located in 70 areas throughout 16 of the most remote parts of the Philippines at a value of US 23 million²⁴. The CGAP/Philippines pilot demonstrated not only the cost savings to Government, but the success for the recipients who receive benefits faster and with little issues related to fraud. This pilot has caught the attention of the Government of Guatemala which is reportedly exploring a similar effort.

In addition to the benefits to government and the beneficiaries, the willingness of governments to use this new payments channel serves as a powerful incentive to the rest of the population and can be an important factor in encouraging its rapid uptake and the associated economic benefits that derive from this. These signals can encourage the wide adaptation for the private sector who in some countries have become the leading player in using the Mobile Financial system: in the Philippines for example, the Mobile Financial System is used by rural banks and their customers for bank deposits, payroll, loan payments, withdrawals, local and international remittances, bill payments, pay-bills and, under development, is the Text-A-Credit feature for credit approval and loan disbursements²⁵.

The Mobile Financial System is also used by governments and the non-government sectors to disseminate information that can improve the bargaining power and health status of marginalized groups such as rural farmers, and those with limited access to health care. Supporting this effort, the Bill and Melinda Gates Foundation has launched the M-Farmer and M-Health initiatives to improve farming productivity and health in rural Africa, efforts that are similar to its own M-Loans initiative that use the mobile to promote rural development through improved financial access. Like the Philippines and Guatemala, the Government of Jamaica provides conditional cash transfers and retirement benefits to eligible residents. Like the situation in Kenya, Jamaican farmers confront severe constraints related to post-production and

²⁴ <http://technology.cgap.org/2011/03/29/globe-telecom%E2%80%99s-gcash-remit-in-support-of-the-philippine-government%E2%80%99s-poverty-alleviation-programs>

²⁵ <http://www.mobilephonebanking.rbap.org/article/archive/15>

limited markets, constraints that manifest in very weak bargaining powers. Like these countries, the Government of Jamaica is also interested in improving the efficiency of its payments delivery and improving farmer access to critical information regarding post-production handling, farm-gate prices, and marketing related issues. The Mobile Financial System offers solutions to these and many other challenges, but in this report we shall focus on the possibilities that address conditional case transfers.

Conditional Cash Transfers in Jamaica are of two types; retirement benefits are awarded to those who once contributed to the National Insurance Scheme, NIS, and conditional cash transfers are awarded to some of the most socioeconomically vulnerable members of the Jamaican population, using health and education criteria under the Programme of Advancement through Health and Education, PATH, program²⁶. In 2001 as a part of a broader reform effort of the Jamaican Welfare System the Government of Jamaica replaced the existing practices of food stamps, relief for the poor and public assistance with the singular conditional cash transfer program know as PATH. PATH serves about 377,000 and the NIS about 90,000, Table 27. PATH payments depend on proof of school and or health attendance, which are monitored by the Ministry of Labour and Social Security (MLSS). The conditions reflect the goals of the program to increase the value of cash transfers to the poor, improve educational attainment among the poor, reduce child labor and deviations by encouraging school attendance, and protect the poor from falling further behind, PATH Policy Brief 4 (2006).

Table 27 PATH Registered Beneficiaries April 2011

Benefit Group	Total
Children (0-18 years)	289,056
Adult Poor	2,916
Disabled	9,221
Elderly	54,799
Pregnant/Lactating	1,590
PAD/Poor Relief	12,379
Payment suspension	7,748
Total	377,709

PATH and NIS beneficiaries receive payments in the form of checks and vouchers. In the case of PATH, 91% receive checks and 9% debit cards and all NIS beneficiaries receive vouchers that can be cashed at the Post Office or bank. NIS benefits can be cashed once every two weeks and PATH benefits are distributed bi-monthly, six times per year, to the designated adult beneficiary. In April 2011 87% of PATH beneficiaries received \$540 million, which means \$1,644 per recipient on average, Table 28. At this rate the total annual benefits to award are \$3,240,336,360.00 - \$9,864.00 per beneficiary per year, or about 1.4% of annual per capita income.

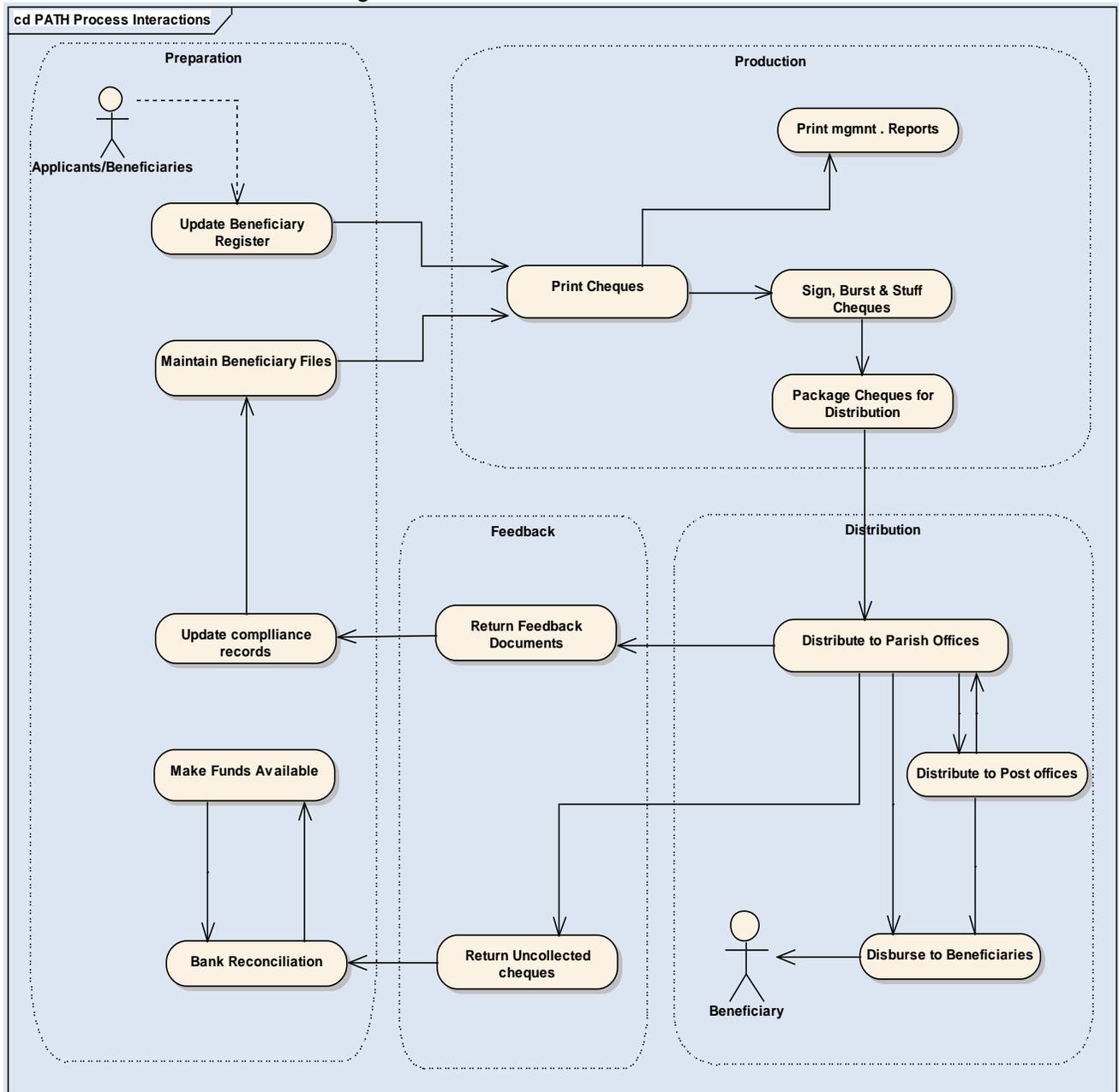
²⁶ On June 13, 2011 following a meeting with representatives of the Ministry of Labour and Social Security, and in keeping with the Access to Information Policy of the Government of Jamaica, a formal request for information on the PATH and Pensions Programme was made. All data on these programs are from the public documents provided by the Ministry.

Table 28 Distribution of PATH Benefits April 2011

Benefit Category		Compulsory		Full Benefit		Total		
Grade	Gender	# paid	Amount paid (J\$)	# paid	Amount paid(J\$)	# paid	Amount paid (J\$)	
	No Grade	61	48,800.00	6,091	7,918,300.00	6,152	7,967,100.00	
Education	1-6	Boys	6,475	5,180,000.00	41,835	69,027,750.00	48,310	74,207,750.00
		Girls	4,963	3,970,400.00	40,484	60,726,000.00	45,447	64,696,400.00
	7-9	Boys	5,616	4,492,800.00	20,944	45,029,600.00	26,560	49,522,400.00
		Girls	4,095	3,276,000.00	21,434	41,796,300.00	25,529	45,072,300.00
	10-13	Boys	3,628	2,902,400.00	12,124	30,673,720.00	15,752	33,576,120.00
		Girls	3,360	2,688,000.00	14,574	33,520,200.00	17,934	36,208,200.00
Child 0-6		14,385	11,508,000.00	45,948	68,922,000.00	60,333	80,430,000.00	
Elderly				54,799	98,638,200.00	54,799	98,638,200.00	
Disabled				9,221	16,597,800.00	9,221	16,597,800.00	
Pregnant/Lactating		292	233,600.00	1,298	2,336,400.00	1,590	2,570,000.00	
Adult Poor				2,916	5,248,800.00	2,916	5,248,800.00	
PAD/Poor Relief				13,936	25,320,990.00	13,936	25,320,990.00	
Total		42,875	34,300,000.00	285,604	505,756,060.00	328,479	540,056,060.00	
Payment Method		91% by cheque 9% by cash card						

The check and voucher payment system is one of the most expensive methods of delivering benefits, and it is also one that is typically associated with a high incidence of fraud. For the Government of Jamaica this process is complex and requires the production, distribution, and reconciliation of checks/vouchers Figure 9.

Figure 9 Path Process Interactions*

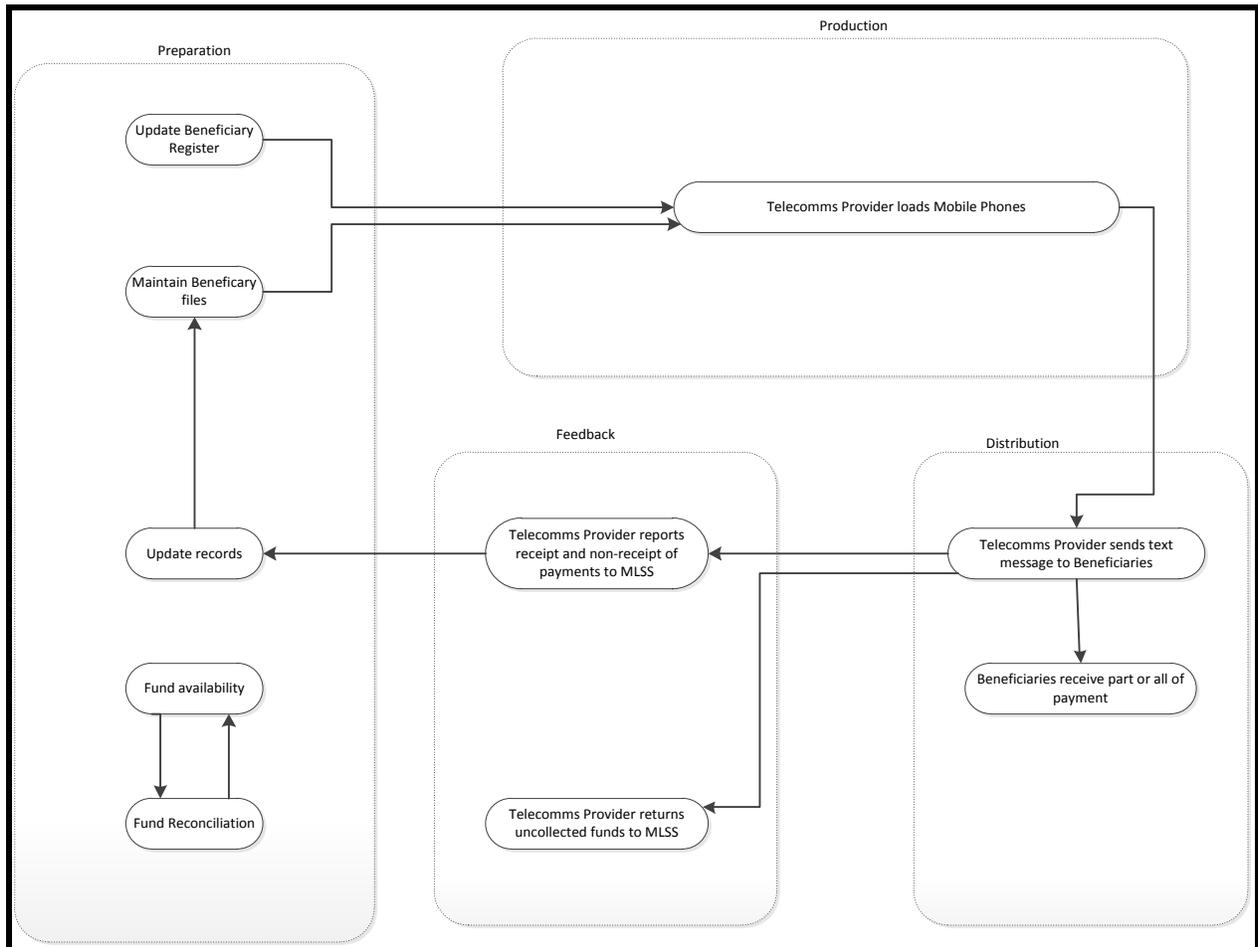


*Prepared by Michael Witter and reproduced with permission

For the beneficiaries, this delivery channel demands regular visits to the post-office and banks. Along with the costs associated with transportation and queuing time there are additional costs related to converting the checks/vouchers into cash for use and the mechanisms that are then employed to conduct payments and remittances.

With a mobile delivery system the process is simpler, more streamlined and as result more efficient, especially where the volume of transactions is large, Figure 10.

Figure 10 PATH Production Process in a Mobile Financial System*



*Picture prepared by Michael Witter and reproduced with permission

As figures 9 and 10 clearly demonstrate, the check/voucher payments channel is a more tedious, complex, and labor intensive one that does not end with the production, distribution, and reconciliation demands; there are additional considerations related to storage and privacy. These costs are not lost on the Government of Jamaica which reports that the distribution 6 times per year of approximately 750,000 checks is exhausting, time-consuming, and demanding, requiring 40 members of staff working overtime for at least 7 days per round, or over 42 hours of over- time per year²⁷. Estimates of the per unit costs of delivering benefits to PATH/Pension beneficiaries under the current check/voucher system compared to a Mobile Financial System reveal that for the conditional cash transfer, PATH, costs are lower under a mobile system, although for the NIS they are higher, given the higher value of payments, Table 29.

²⁷ PATH KeyCard Cash Pilot Study, Ministry of Labour and Social Security 2006.

Table 29 Comparative Cost Estimates for PATH/NIS

	PATH	NIS	Path Mobile 2.9%	NIS Mobile 2.9%
Cost per unit per year	\$447	\$1640	\$286.01	\$2,900
# Recipients per year	328,479	90,000	328,479	90,000
Total Cost	\$146,830,113	\$147,600,000	\$93,963,388	\$290,000,000
Costs Differential Current – Mobile Delivery	\$52,866,725	- \$118,6000,00 0	Na	
The per unit costs for the year are based on estimates by Michael Witter. Based on April 2011 PATH disbursement, annual average benefits per person are \$9,864. From the annual report of the MLSS new NIS participants received on average \$133,000 per year. Since older members receive less, how much less we do not know, we discounted this for estimating to \$100,000. In countries with a mobile payments system CGAP estimates that on average it delivers benefits at of 2.9% of the transaction value.				

The large value of pension benefits and the relatively small numbers of recipients suggests that even if the implementation of a Mobile Financial System encourages rates as low as the global average of 2.9%, the delivery costs would be higher for the Government of Jamaica. This is not the case for PATH: with lower per unit value and volumes about 4 times that of NIS, there is a strong case for using a Mobile Financial System to deliver conditional cash transfers.

The case for PATH delivery on a mobile is even stronger because these estimates hide the true potential for the Government of Jamaica and the peoples of Jamaica. The large volumes of checks are difficult to process and clear, and this has encouraged delays in the process of delivering benefits. For beneficiaries, in addition to the direct costs they incur in travelling and queuing time, slow delivery time has important implications because of the indirect costs associated with it. It is little wonder that the results from a pilot to deliver PATH benefits on debit cards has met with overwhelming success; 93% of those who receive benefits on a debit card were satisfied with it. Despite this, only 9% receive PATH benefits on a debit card. This method of delivery is severely dependent on the banking ATM infrastructure and POS terminals, which seems to serve as a binding constraint, restricting the ability of the Government to use this more efficient method on a larger scale despite the high levels of beneficiary satisfaction. A member of the Ministry of Labour and Social Security expressed concerns over the limited sources that are available to debit-card recipients for accessing benefits; a challenge that suggests that any new payments channel such as the mobile channel must pay due diligence to ensuring a strong, and easily accessed retail network. These estimates underscore the global interests in the mobile as a delivery channel for conditional cash transfers, which is the most recent in what is a growing trend to deliver cash benefits electronically. A few examples include the Bolsa Familia Program in Brazil and the associated reported cuts in administrative costs for the Government. The cost savings, quick access, and reductions in fraud that are associated with electronic deliveries are compounded by the benefits of mobile delivery discussed in this report. The mobile provides easy access to money transfer services that can benefit those who are unbanked, and for those who are banked but only own savings and other non-transactions accounts. This is particularly true in Jamaica where mobile use is ubiquitous. In the specific

case of PATH, a mobile delivery channel promises lower administrative costs, quick predictable access to benefits, and lower transportation costs.

Costs savings though guaranteed cannot be realized if end-users are unwilling to adapt to new payments channels. The responses of PATH beneficiaries to the debit-card pilot and the overwhelming responses of all Jamaicans to the mobile phone and text methods of delivering information suggests that this is not a constraint in Jamaica. Of the complete sample, 17% indicate that they receive some form of Government cash benefit; for this group we asked about their satisfaction with the current delivery channels, to which only about one-half responded. Of those who responded, 67.4% indicate satisfaction with the current delivery methods and 32.6% dissatisfaction:

-  24% were highly satisfied
-  43.4% satisfied
-  32.6% partly to not at all satisfied

Respondents were given a list of seven reasons why governments around the globe are exploring the mobile delivery system for cash transfers. They were asked to indicate using the importance of each to them using a 1-5 scale, 1 being critical and 5 of no importance at all, Table 30.

Table 30 Perceptions of Importance of a Mobile Financial System for Cash Beneficiaries of Government Services

Reasons governments deliver benefits on a mobile that are important to me	Critically Important	Very Important	Important	Slightly Important	Unimportant	No.	Share of Total Sample
Get money quicker	38.6%	26.1%	12.0%	7.8%	15.5%	425	17.2%
No need to go to bank to cash benefit	27.9%	23.6%	16.0%	11.9%	20.7%	420	17%
Lower costs to government	10.7%	21.2%	19.5%	21.2%	27.3%	410	16.6%
No need to pick-up check	34.2%	26.3%	11.7%	10.5%	17.2%	418	16.9%
Less theft and fraud	18.8%	24.8%	16.1%	16.6%	23.8%	416	16.8%
Safe way of storing/saving	15.1%	22.6%	15.1%	17.8%	29.4%	411	16.6%
Money ready to be used; pay bills, make purchases	17%	23%	10.3%	20.8%	28.9%	418	16.9%

Beneficiaries of cash services from the Government indicate a strong preference for the convenience of the mobile delivery system, even though 67% are satisfied with the current method of delivery. Also of importance are:

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- 📱 Fast delivery of benefits, which appeals to 77%
- 📱 Convenience; 67% consider important the fact that they would no longer have to visit a financial institution to cash the benefit check or voucher and
 - 72% believe it is important that they would no longer need to pick up the benefits

Less important, though in all cases important to at least one-half of the respondents, are perceptions of the mobile as an important tool for storing/saving; making purchases and paying bills; reducing administrative costs for the Government; and reducing fraud and theft:

- 📱 53% see the mobile as an important source for storing/savings
- 📱 50% believe the mobile is important for bill payments and purchases
- 📱 52% see the ability of the mobile to reduce administrative costs as important
- 📱 60% believe that the ability of the mobile to reduce theft and fraud as important to them

These responses are consistent with the pattern of account ownership in Jamaica: given the high level of savings account ownership it is reasonable to expect that the mobile's importance as a savings product is rated relatively low. This is especially true since 15.4% of those who own a bank account receive some form of pension, including Government pension, compared to 9.7% who are unbanked and do not own any account. One-half believe that the ability of the mobile to make payments and remittances is important; not an unreasonable response considering that such a system is not familiar to most in the region where it is not yet used. Nevertheless, we asked these beneficiaries to imagine how a mobile delivery might affect their lives. Despite the absence of a Mobile Financial System in the Caribbean and a lack of familiarity with the idea, almost 60% imagined either a positive or neutral outcome, or 40% a fearful and negative one. More specifically;

- 📱 39.5% expressed fear about having money stored on a mobile and as a result expecting a bad impact
- 📱 18.2% could see no impact, positive or negative
- 📱 18.1% could imagine a small, positive impact
- 📱 25.2% imagined a large and positive impact

These responses are consistent with the evidence that Jamaicans have an open attitude to new technologies, products and services, which have the potential to improve their lives; a critical ingredient to a rapid uptake for the Mobile Financial System. It also suggests that projections of a positive economic outcome are reasonable to expect; and the most binding constraint will be the willingness and ability of regulators to craft the legal framework that will support the implementation of the mobile payments channel in Jamaica.

REGULATORY CHALLENGES OF A MOBILE FINANCIAL SYSTEM: POLICY IMPLICATIONS FOR JAMAICA

This report has made clear the simple fact about a Mobile Financial System; it is a two-sided market that brings together mobile providers and subscribers with financial institutions and customers by providing access to payments and remittances services via the mobile handset. Its potential for economic development has been explored, and despite the limitations noted earlier, the expectation is that the Mobile Financial System, if implemented in Jamaica, will help to overcome important failures in the Jamaican Financial Sector. More specifically, the implementation of a Mobile Financial System in Jamaica is expected to encourage:

-  Access to a broader array of traditional financial services for the majority of banked Jamaicans, whose access is limited to low-value savings accounts
-  Lower costs of financial services
-  A new low-cost and safe payments and remittance channel for all Jamaicans and economic sectors
-  Greater transparency in economic activities
-  Increased GDP, with the possibilities for sustainable increases depending on how transactions savings are used

The realizations of these potential outcomes depend on several things, including how many actively use the Mobile Financial System and the volume of transactions that occur, both of which depend on the business model that is implemented. Although many factors, including market structures, help to determine the business models that are implemented, the single most important factor is the regulatory environment as dictated by financial sector regulations. In the absence of regulations that limit the behaviors of licensed telecommunications firms, where the mobile provider market is highly concentrated, the dominant firm has strong incentives for implementing a Mobile Financial System. Let us imagine for a minute that in Jamaica there are no financial regulations that serve to limit the activities of telecommunications firms. In this hypothetical scenario, we would expect to observe the dominant provider implementing a mobile led model using proprietary electronic currency. Quite likely, the competitor firms would also issue a proprietary form of electronic currency, possibly in association with partner banks given the smaller market share. In this scenario many of the expected economic benefits that are associated with improved levels of financial inclusion and economic transparency are likely to be realized. Nevertheless, all would not be well in this hypothetical scenario: (1) there would be multiple forms of currency; the Jamaican dollar, and the electronic currency of mobile subscribers; (2) Jamaicans on one mobile subscriber network would be restricted to making payments and remittances to others on the same network; (3) network externalities that result from large market size would encourage an even greater concentration of market power; (4) existing financial laws of the land would be compromised, and as a result unfortunate tensions and economic waste would result; waste that would be exacerbated by the unfortunate tensions

between those charged with maintaining laws and traditions and those who benefit from the implemented system.

Hypothetical scenarios such as this have played out repeatedly across the world since the first commercial launch of the Mobile Financial System in the Philippines by SMART Communications in 2000. For those concerned about issues related to financial markets and stability, this scenario is cause for alarm; for the dominant mobile provider, its subscribers, and partners this scenario might be seen with euphoria. This is the challenge with a Mobile Financial System which results from the blending of two distinctly different markets, each with regulators charged to protect different outcomes. The Jamaican telecommunications sector comes under the purview of the Office of Utilities Regulation Act 1995, amended 2000. Although the leaders of the Office of Utilities Regulation, OUR, are appointed, the institution is relatively independent from the executive branch of government regarding funding and its regulatory decision making. The telecommunications sector under the auspices of OUR is directly regulated by the Telecommunications Act of 2000 which seeks to:

-  Promote fair and open competition
-  Promote access to telecommunications services
-  Protect customers
-  Protect customers regarding quality and service variety
-  Promote the industry

The OUR is responsible for accepting applications for a license to operate as a telecommunications provider in Jamaica and for processing and issuing such license providing that the applicant:

-  Has no legal impediment
-  Agrees to comply with the Telecommunications Act 2000
-  Possesses the technical skills needed to operate under the terms of the license
-  Possesses the financial resources that are needed to operate as a provider

Once a license is awarded, the provider is allowed, with prior approval, to transfer control of its operations and or assign its license or the rights associated with this license. This means that once an MNO is granted a license to offer mobile services, the decisions regarding the specific uses of this license are not regulated. As a result, licensed mobile services providers in Jamaica are legally free to construct creative uses of the mobile for delivering information; even if these uses impinge on the traditional roles of other institutions such as banks, and in so doing introduce additional risks in financial markets. In the absence of financial sector regulations that limit the opportunities for a mobile subscriber to assume some of the traditional roles of a bank, the hypothetical scenario described earlier is likely to actualize.

Although the Telecommunications Act 2000 provides opportunities for the mobile providers in Jamaica to assume some of the roles of financial institutions, the Bank of Jamaica (BOJ) has the power to issue financial regulations for electronic currency that can protect the traditional roles of banks. Reasonable though this may seem, depending on how these regulations are crafted they can also prevent many of the expected benefits that are associated with financial inclusion. In the two-sided Mobile Financial System, Central Banks and the regulatory staff often find themselves in very difficult positions; and depending on perceptions about their roles in

society, regulators can respond to the opportunities that innovations offer in ways that are unreasonably limiting. The purpose of this part of the report is to provide some guidance on how to avoid a regulatory quagmire. Its importance reflects the realization that in Jamaica the mission of the BOJ predisposes it to a regulatory approach that is potentially unwarranted, given the experiences around the globe that provides useful guidance on how to achieve financial inclusion without compromising financial stability, and while defending the legal roles of banking institutions.

The Bank of Jamaica appears to be predisposed, though not destined, to making regulatory decisions that maintain the high degree of financial exclusion in Jamaica, ironically because of its legal role in the Jamaican economy. In describing its role in the Jamaican society, the BOJ states that the *mission of the Bank of Jamaica is to formulate and implement monetary and regulatory policies to safeguard the soundness of the financial system by being a strong and efficient organization with highly motivated and professional employees working for the benefit of the people of Jamaica*, www.boj.org.jm/bank/bank_mission_statement.php. For institutions like the BOJ, regulators are less likely to experiment with financial innovations, especially those that originate outside of the financial sector and that have the potential of introducing risks into the financial system. Confronted with innovations that change the status quo and protected by their mission, such institutions may be more inclined to opt for regulations that miss opportunities for economic development. For other countries, like the Philippines, where the Central Bank's mission includes the pursuit of economic growth and human development, the responses to innovative payments channels are likely to be more open. According to the *Bangko Sentral ng Pilipinas, BSP*, its vision is *to be a world-class monetary authority and a catalyst for a globally competitive economy and financial system that delivers a high quality of life for all Filipinos*; And the BSP's mission one that *is committed to promote and maintain price stability and provide proactive leadership in bringing about a strong financial system conducive to a balanced and sustainable growth of the economy. Towards this end, it shall conduct sound monetary policy and effective supervision over financial institutions under its jurisdiction*.

With different expressed roles in the respective societies, it is not surprisingly that the BSP and the BOJ have responded to the innovations in the use of mobiles for payments and remittances in a different manner. The BSP's response to innovations in the use of mobiles has been permissive but guarded; described as "*flexible but hands-on...finding ways to permit innovation within safe, sound, and prudent standards*," CGAP (2010) pp2. The BSP adapted an experimental, evidence-based approach to Mobile Financial Systems, as a precursor to guiding the content of regulatory documents, Roman (2009), CGAP (2010). More specifically, the BSP issued a variety of circulars as needed, while allowing two different models to play-out, SMART's Communications Mobile –led model and Globe's GX Bank-led model, and based on the data collected, they formalized regulations five years and more into the mobile experiment. Key highlights of this approach, which is instructive for Jamaica, include:

-  In 2000 the BSP established a taskforce to explore the use of electronic money and circular 240 and 269 to guide its use until formal regulations were established
 - From 2000-2005 the use of electronic money by Smart Communications and Globe's GX were permitted via circulars 240 and 269, which required mobile providers to engage in several risk-management practices such as the regular reporting of activities, and full access to operations and activities by BSP supervisors.

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- The BSP circular 268 of 2000, the year SMART cash was issued allowed the outsourcing of bank functions to non-bank agents except those related to the servicing of the core, deposit-taking, activities of banks.
 - Treated strictly, this would bar cash-handling by non-bank agents. SMART communications is built on the use of such agents; it defined its deposit-taking activities as prepaid accounts and not deposits a loophole that was not be challenged by the BSP
- 📞 In 2005 BSP formalized its electronic rules. BSP:
 - Establishes a Core Information Technology Specialist Group, CITSG within BSP
 - Charged to oversee electronic issues and supervise institutions offering electronic services
 - Issues Circular 471: to meet CIP rules, Customer Identification Program, agents must be registered and trained by BSP
 - Issues circular 511 in 2006 to address Technical Risk Management Issues
 - Issues circular 542 in 2006 to address customer protection issues
- 📞 Since 2008
 - 2008 Permission granted for training by mobile provider, using BSP CIP training guidelines approved by BSP, due to burdensome costs on agents
 - 2009 Circular 649 defining electronic money as an activity not a product that can be issued by banks, non-banks supervised by the BSP, and non-banks registered at the BSP, and that electronic money activities at banks are not the same thing as deposits
 - Circular 649 also establishes minimum operating standards; sets upper monthly limits on transactions values; paves the way for non-banks to accept electronic activities through its qualification standards; establishes compliance methods with CIP that establishes customer protection protocols

The BOJ has opted for a different approach; one that is understandable given the mission of the Bank and the lessons from early-entry countries. The BOJ has chosen not to experiment before formalizing regulations regarding electronic transactions and currency. In 2006 the BOJ issued the Electronic Money Order to be interpreted within the confines of the Banking Act section 2(1). According to the BOJ, electronic money is a product not an activity and it can only be issued by a bank, a company licensed by the Banking Act to conduct banking business, “*the business of receiving from the public on current account or deposit account, money which is repayable on demand by cheque or order*”. According to the BOJ:

- 📞 “Electronic Money” means a card based product, including any plastic card with a magnetic strip or other such electronic device which can be used to access financial services by way of any electronics transaction network, whereby monetary value is represented by claim on the person issuing the card and which claim is stored and recorded on an electronic device.
- 📞 The issue, sale, and distribution of Electronic Money is hereby designated bank business for the purpose of section 2(1) of the Banking Act.

The Electronic Money Order Act 2006 of the BOJ along with the Electronic Transactions Act of 2006 paves the way for the use of a mobile or other electronic device for the purposes of payments, remittances, and or purchases electronically. By defining electronic money as the business of banks, the BOJ has issued a legal directive that the only business model that can

be implemented in Jamaica is some version of a bank model. It is important to pause and note what this means. First, it means that unlike the case of the Philippines and other countries, or the hypothetical scenario described earlier, in Jamaica if a Mobile Financial System is implemented there will be:

- 📱 Only one model; a bank model, although which version is acceptable has not been specified by the BOJ
- 📱 No proprietary electronic currency comparable to M-Pesa or G-Cash or SMART Money
 - Only Jamaican currency that may be represented in an electronic form to support electronic purchases, payments, and or remittances.

There are two basic types of bank models and several variants of both, and each carries different regulatory tradeoffs and implications for economic development, Table 31.

Table 31 Bank Model Choices for a Mobile Financial System in Jamaica

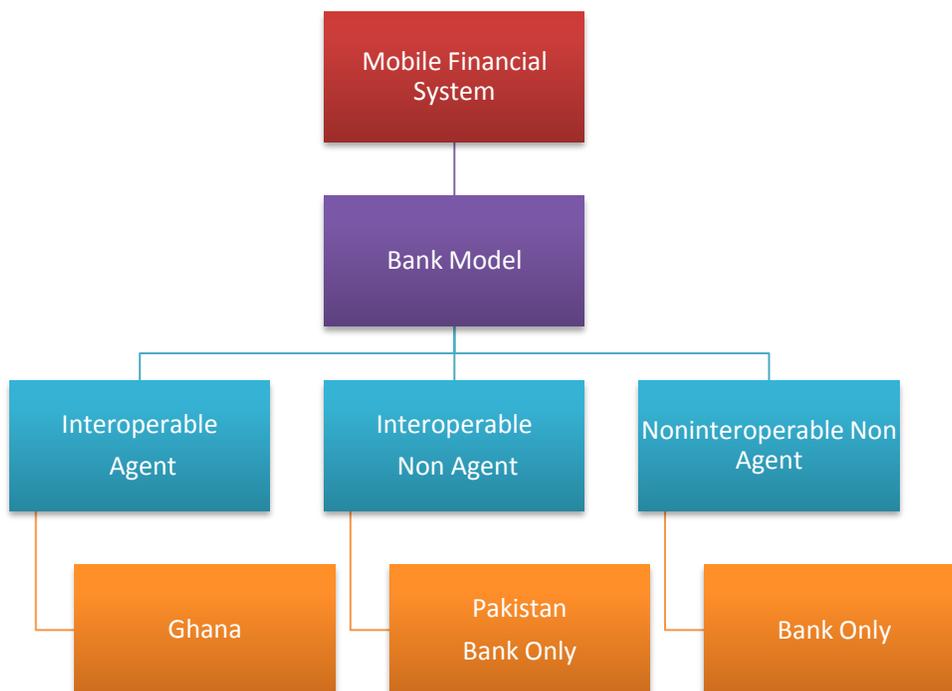
	Examples	Pros	Cons	Financial Inclusion Potential	Transaction Volume
Bank Only Typically non-agent with recent exception from Pakistan as noted	Scotia Mobile Banking	No additional change to banking regulation Internet based access through SMART phones	Fails to harness economic potential	None without deeper penetration and computer ownership	Low
Many to One Non Agent Based	Wizzit Cool Group Jamaica	No additional change to banking regulation Cash-in/Cash-out access through POS terminals – if card based - Post Offices, internet existing payment channels	Uptake based on firm ability to develop creative solutions to sell services and access payments and remittances through large partner network Wizzit use unemployed to sell services; but limitations encouraging pilots for new solutions	High	Moderate
Many to One Agent Based			Further bank regulations	High	Moderate
Many to Many Non Agent		No additional change to banking regulation Access through		High	Moderate

		POS terminals – if card-based ; Bank ATM/Infrastructure channels			
Many to Many Agent Based	Maldives Iraq As per Ruling in Ghana	Access through POS terminals – if card-based ; Bank ATM/Infrastructure channels: Agent Network	Changes to bank regulation	High	High

The greater the market share of a mobile subscriber and or numbers of partners the bigger the volume effect. These comparisons assume the same market share of a subscriber across the models.

The variations manifest in the differences as related to interoperability and the use of non-bank retail agents, Figure 11. Given the Electronic Money Order Act 2006, the next stage of BOJ regulations will determine which of the variants to the bank model is implemented, and this will determine the economic outcomes.

Figure 11 Variations of the Bank Model for a Mobile Financial System



With the bank model directive in place, there are two additional regulatory decisions that the BOJ must make, either explicitly by a legal directive or implicitly by choosing to do nothing: issue regulations that mandate interoperability or not; and, issue regulations that approve non-bank agents, or not. In the event that the BOJ approves an agent model, it must then issue regulations to guide the application, approval, selection, and training process. In the bank only

variation of the bank model, the mobile serves as an additional payment channel for existing bank customers who can access financial services through the banking infrastructure with no role for non-bank agents.

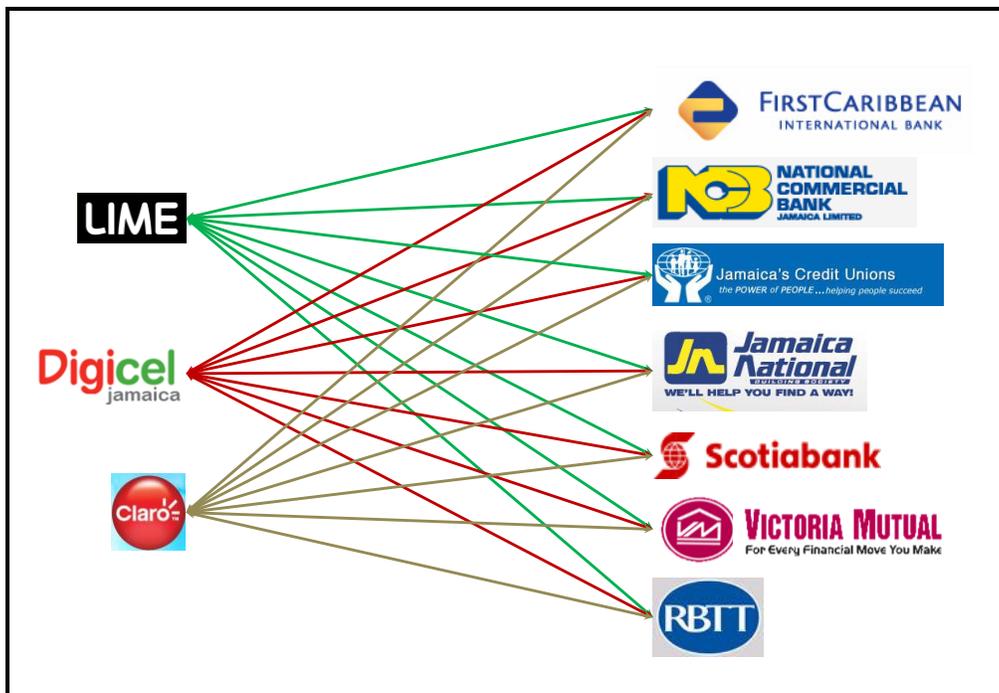
For a regulatory body like the BOJ, one that does not include a development mandate in its mission, the bank only variation is the simplest model to support; it demands no explicit statement directing interoperability, leaving each bank to devise a system for its existing customers, and based on existing laws it demands no additional consideration and directives regarding the types of institutions that can serve as banking agents. The regulatory simplicity of the bank only version of the bank model, although attractive to those seeking no additional risks and no changes to the norm in the financial sector, comes with a tradeoff: a bank only bank model in Jamaica means continued financial exclusion. Bank only bank models such as those that currently exist at Scotia Bank and NCB provide existing customers with internet-based services and so called smart phones access to a low-cost option. Since the Electronic Money Order Act 2006 effectively prohibits the implementation of an MNO model, this means that most Jamaicans, all of the unbanked and about 85% of the banked, those with accounts but no internet access at home, will be excluded from this innovative payments channel. This regulatory approach will also mean that the potential economic benefits to Jamaica will not be actualized; as described earlier, the benefits that are associated with greater transparency, including increases in GDP results from broad-based financial inclusion and wide and frequent usage of the Mobile Financial System.

As is indicated in Figure 11, the BOJ may choose two alternatives at this juncture, given the demands for a bank model that the Electronic Money Order Act 2006 demands. It may choose to mandate interoperability using banks and banking agents or mandate interoperability without agents. The recent examples from Ghana and Pakistan provide examples of each of these respectively. In the case of Ghana, the Bank of Ghana describes an approach with banks and MNO's "holding hands" in order to allow maximum outreach and connectivity while supporting interoperability, as in the ATM system that allows all carded customers access to the ATM infrastructure of a given bank. In the Ghanaian system, the Central Bank demands that the business of deposit-taking is banking only business. As a result it specifies that all deposit-taking activities, clearing, settling, and storage must be done through the banking infrastructure, specifically through the Ghana Interbank Payments and Settlement System, GhIPPS. This is the equivalent of Jamaica's own J.E.T.S. Limited and its Automatic Clearing house and MULTILINK ATM/POS Electronic transfer platforms.

As is the case of Ghana and elsewhere, interoperability without a wide network of banks and banking agents will undermine the ability to achieve maximum outreach and the ability to extract economic benefits. The appeal of interoperability and the use of bank and banking agents rests on an economic fundamental - economies of scale, the idea of long run decline in per unit costs that result from increases in the scale of operations. Payments systems are most efficient when they capture the benefits from economies of scale, and this means that regulations that support broad-based use are inherently more efficient over time. Countries with small populations like Jamaica have an inherent disadvantage compared to larger ones like Kenya and the Philippines, and as a result cannot afford to implement regulations that will support a Mobile Financial System that will restrict the volume of traffic and minimize opportunities for outreach. The bank model that best achieves large numbers of transactions is the so called Many-to-Many interoperable model, Figure 12. The bank model that best achieves the greatest outreach is an agent-based model. By implication, the model that is associated with both the greatest volume

of traffic and the highest level of financial inclusion is the agent-based, Many-to-Many interoperable model.

Figure 12 An Interoperable, Many-to-Many, Mobile Financial System for Jamaica²⁸



This is the interoperable bank model that is now mandated in Ghana, and that demands regulations that direct interoperability and the use of agents, as well as additional regulations that provide details on the issues related to managing agent-related risks.

For Jamaica this Many-to-Many model is attractive for several reasons: (1) 77.9%-86% of adult Jamaicans are excluded from a low-cost payments channel; (2) the small size of the adult population is a cost-disadvantage that must be leveraged; (3) it is consistent the demands of the Jamaican Banking Act and Electronic money Order Act 2006; and (4) the causes for persistent failures in the financial sector that encourage large numbers of excluded and basic-banking uses are complex, manifold, and unlikely to be resolved in the near future – these include market concentration, high rates of poverty, and commercial and individual informality, external challenges such as those that are imposed by Jamaica’s place in a global economy. Nevertheless, as in the case of all agent-based models it introduces agent-related risks; risks that result from the outsourcing of basic bank functions to small-scale operators. These risks are not unique to non-bank agents: banks must manage constantly risks related to credit, liquidity and operational management, privacy, and security, the same sets of risks that regulators are typically uncomfortable with in the case of small, non-bank agents. Banks have learned to manage these risks by relying on regulation directives from the Central Bank. Since the nature of the risks are the same for non-bank agents and banks, and since the accounts in a Mobile

²⁸ Figure 12 is provided by Carl Rosenquist along with his permission for use in this report.

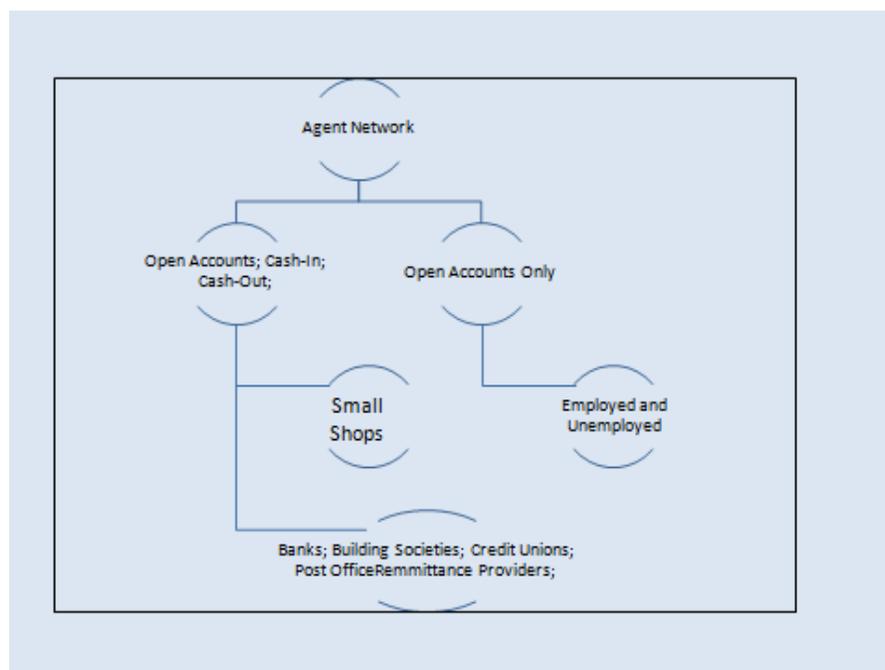
Financial System are prepaid, Central Banks such as the BOJ are strongly positioned to manage the risks of bank agents in similar ways by using Central Bank directives that dictate the types of activities the agents can participate in, as well as the relationships that must be developed with the banking institutions and infrastructure. Not surprisingly then, Central Banks around the globe have come to this realization through a process of experimenting, either in response to the active pursuit of the twin objectives of financial inclusion and financial stability, or in response to financial stability and its challenges in an electronic age, as for example in the case of the Bank of Ghana. A common thread between these two groups of Central Banks is the creation of regulations that ensure that the financial activities of non-bank agents are under the guidance of the Central Bank. This explains the ability of Brazil to incorporate more than 90,000 agents in its banking system; agents that function under the auspices of the Central Bank regulation that defines them as Non-Bank Correspondents and that addresses all areas of their activities. The same is true for the Philippines, and India, Mexico, and Colombia, and as indicated, in Ghana. The Brazilian agent model has commanded much attention for its ability to reach the last mile in financial inclusion; it delivers financial services through bank associations with non-bank correspondents that include supermarkets, pharmacies, post offices, bakeries, small stores, lottery shops, Diniz (2009); Kumar, Nair, Parsons and Urdapilleta (2006). Many have adapted lessons from the Brazilian success with agents, which the World Bank argues is replicable. For example, the Colombian Central Bank, Banco de la República de Colombia passed Decrees 2233 and 1121 that provides regulatory guidance for the establishment of non-bank correspondents who initially were not allowed to open accounts and now can, with guidance on meeting all CIP demands, Lozano and Madrille (2011). Many more examples abound all demonstrating that if a nation's Central Bank is interested in ensuring financial stability without blocking innovations that promise financial inclusion and economic development, and or if it is interested in pursuing both, the additional risks from the agent-based model can be managed in the same way that the risks of banking in general are.

With the wealth of experiences around the globe, the BOJ has many experiences to draw from should regulators decide to support the broad-based access, high volume capacity of an interoperable, agent-based payments and remittances model for mobile subscribers. Support for high-volume use would demand directives that demand that all relationships between financial institutions and MNOs are interoperable, and clear and settle through the banking infrastructure. Support for open access would require regulations related to agents, their roles and the associated risks. It is beyond the scope of this report to provide a detailed analysis of the various agent models around the globe and to provide specific directives related to using these models in Jamaica. Nevertheless, we offer some broad suggestions that might prove useful for consideration. One of the first steps is to understand the core functions of non-bank agents and assess the implications on banking regulations. Agents have several roles in a bank model, many of which are similar in other models as well, including:

-  Account Opening
-  Cash in, accepting cash and converting it into an electronic form
-  Cash out, withdrawals
-  Educate Customers
-  Print Account statements
-  Rebalancing and liquidity management

Account opening standards at banking institutions are in keeping with the CIP rules of the US Patriot Act, and deposit taking activities are consistent with the Banking Act's legal definition of a deposit and the role of banks. Since these are the core activities of retail agents in a Mobile Financial System, if the BOJ decides to support, although not pursue, the financial inclusion possibilities of a Mobile Financial System, additional regulations must be constructed. The following schematic which is offered for consideration, blends aspects of existing approaches in other countries in order to address some of the additional risks in the Jamaican economy, Figure 13.

Figure 13 Blended Agent Network Structure: Possibilities for Jamaica



Agent- related risks in Jamaica include, but extend beyond, the usual concerns over liquidity and operational management, compliance with CIP demands, privacy and security, and include issues related to crime, robbery, extortion, and murder; low levels of trust; and high potential for the disruption of service. One way of managing these risks which have strong spatial overtones, is to use a two tier agent network structure. The two tier approach is used in Uganda, South Africa, and Brazil but in each country the tiers vary; in Uganda there are field agents who only register new subscribers, and cash in/cash out agents that accept deposits and conduct withdrawals. In South Africa the agent tiers are disaggregated by the size of agents and associated transactions, with each agent posting a different tariff structure that is based on the type of agent, small shop versus larger supermarket for example; and, in Brazil there are two types of correspondents - those who do banking, open accounts, deposits, withdrawals and those who conduct payments only. With high potential for cash-related crime in Jamaica, and with the incidence of crime being unequally distributed, impacting urban areas more than rural ones, and with potentially large differences in the concentration of small-agents in rural spaces, the two tier approach may prove to be more useful in Jamaica than the homogenous one-tier method that is popular in some places, for example M-Pesa in Kenya.

Ultimately, the type of agent network that is developed must be directed by the BOJ, as well as activities related to agents. The process could be incremental, beginning with the minimum guidelines for the application and approval process, and demands for agents based on their role in the agent network. For example, agents who are approved for the purposes of opening accounts only must be extensively trained on the BOJ's opening demands for subscribers to the Mobile Financial System and how these demands reflect the broader CIP guidelines as specified by the BOJ in the Bank of Jamaica Act; Proceeds of Crime Act, PCA; BOJ AML/CFT Guidance Notes; and the Terrorism Prevention Act. The BOJ would, through its regulatory process, consider the level of CIP compliance it seeks possibly experimenting with the most basic forms of identifications that are allowed. Although CIP guidelines require information that proves who a customer is and where they live, there is flexibility in these demands and institutions can choose to erect above-normal restrictions that functions as unnecessary barriers, or erect those within the context of other considerations including transaction type, size and frequency. For the other group of agents, although all could open accounts and conduct cash-in and cash-out, the transaction value would be restricted based on the type of agent. For example, small shops and business establishments might be the most restricted; supermarkets and post office the next tier; and then banks, credit unions, building societies and payments providers the final tiers with the highest levels of transaction value given their relationships with the BOJ.

The beauty of an interoperable agent-based bank model is the ability to add new layers of agents over time, based on observations of need and associated challenges and risks. Given its mission statement it is reasonable to expect that the BOJ would begin conservatively; establishing guidelines that limit agents and agents activities to the organizations in the existing payments channels, with the possibilities of including small shops and businesses that can meet a set of strict demands such as: evidence of business license; security considerations including locations in high crime areas and mechanisms to manage crime; ID verification of all staff including shop owners; application form; personal declaration to comply with all regulatory demands; police record of all staff. Over time these regulations would be formalized based on the assessments of need, risks, and impact. There is no doubt that this variation of the bank model that is mandated by the Electronic Money Order Act demands much more of regulators than the bank only variation. On the other hand it promises more; it offers the best opportunity for financial inclusion if regulators take the time to craft legal documents that contain the associated risks.

IMPLEMENTING MOBILE FINANCIAL SYSTEM IN JAMAICA: CONCLUDING REMARKS

National Goals for Jamaica, Goal 1, Jamaicans are empowered to achieve their fullest potential

Planning Institute of Jamaica Growth Inducement Strategy 2011

Jamaica and Jamaicans have a long history of limited access to economic resources and opportunities. This pattern persists in the financial sector; though a highly sophisticated market, offering a wide array of financial products and services, its reach is shallow. Undoubtedly, Jamaica fares better than many poor countries in the world in terms of savings and or loan account ownership; more than 66% of its adult population own a savings and or loan accounts, although the vast majority of these own only a savings accounts. This means that in Jamaica, banking, though relatively accessible is basic and most Jamaicans continue to rely on non-bank channels to access the financial services that are needed in modern, commodity based economies. There is another layer of complexity to this situation; between one third and one-fourth of adult Jamaicans do not own any form of financial accounts, and as reported by Claremont and Kirton, 23% of small firms are unbanked. These unbanked Jamaicans and Jamaican firms indicate a strong awareness of the importance of financial account ownership, and even a desire for many of the services that are associated with account ownership; but as the individuals in our survey report, their unbanked status reflects their levels of socioeconomic achievements.

The financial situation in Jamaica is one of missed opportunities. As in other parts of the world, it is probably the case that large numbers of Jamaicans who are excluded from account ownership, and for those who are under-served through the low-balance savings account ownership pattern that is common, are bankable and capable of more sophisticated ownership and access. This possibility has been revealed in the global remittances and MFI markets. The Grameen Bank for example that lends to the extremely poor, reports a loan recovery rate of 98%; in Indonesia it has been estimated that 40% of the unbanked are credit worthy; and in the USA remittances from unbanked Mexicans home to Mexico have encouraged relationships with the financial institutions and have resulted in increased financial account ownership of a wide variety and low –cost access to financial services. In Jamaica, there are few opportunities for evaluating how many of the unbanked and those with basic banking are credit-worthy and capable of behaving financially responsible. There is however an abundance of evidence that the need for broad-based financial services, including payments and remittances, is large, including the evidence from this study. There are close to 100,000 small firms in Jamaica, a situation that reflects the fact that larger numbers of the Jamaican labor force are own-account workers and as a group they struggle with limited access to financial service. Their contributions to GDP are non- trivial; it has been estimated that the small firms of Jamaica despite the many

constraints they routinely confront, contribute close to 50% of GDP in value. The MFI sector tells a similar story of un-realized need; it has been estimated that only 10% of the need for micro-based credit in Jamaica has been realized. This need is being partly met by the Government of Jamaica, GOJ, and financial institutions such as Scotia Bank, but much more is needed especially when the potential for success is considered. For example, although the GOJ flagship MFI program the Micro Investment Development Agency Limited (MIDA) struggles with a host of issues, including low repayment rates of 70% that suggests a lack of sustainability in a sector that typically demands rates over 80-90%, Scotia Bank boasts repayment rates of 93%. What these indicators suggest is that the financially excluded and poor Jamaicans when given the opportunity to access financial services, and if provided with the appropriate support such as the business development training and compulsory savings program of Scotia bank, can and do behave financially responsible. The challenge is devising mechanisms for open access in societies like Jamaica with a host of socioeconomic constraints.

The Mobile Financial System offers such a channel and one that is useful to all groups of Jamaicans who own a mobile phone given the low-cost means of delivery: it can deliver payments and remittances; deliver cash transfers; be used to develop credit-based information and to deliver loans, and make loan payments; be used to disseminate useful information and a host of other financially related services. As we indicated earlier, lower transactions costs reduce the barriers to economic transactions and encourage broader access. Within the confines of appropriate regulations, lower transactions costs can be Pareto-Improving; enhancing the economic welfare of users without adversely impacting the welfare of others, correcting market failures where there are few economic incentives for self-correction. The opportunity for greater transparency and improved economic efficiency will support existing efforts in Jamaica to broaden access through MFI's and a host of low-credit loans and to better understand financial risks through risk-rating agencies. These efforts though important are themselves limited; they are limited to the kinds of services they offer and to the ability for broad-based access. The Mobile Financial System extends these efforts by broadening both the services that are offered to include payments and remittances and cash transfers, and the reach of these services to all Jamaicans who are mobile subscribers, the entire adult population. Although it also means greater competition and lower bank fees, this should be welcome news for Jamaican Bankers who will have new opportunities to serve the large numbers of small businesses and individuals who are excluded from the borrowing, payments, and wealth generating activities of this sector.

Political leaders should also welcome the opportunities from the Mobile Financial System. It has brought to light the benefits from financial inclusion and the opportunities to address the failings of the financial sector that in Jamaica is a complex historical process that is a result of multiple sources. The political leaders of Jamaica have a unique opportunity to overhaul this legacy of exclusion by : (1) crafting a mandate for improving financial inclusion as a supporting goal to the Planning Institute's Goal 1, that seeks to empower all Jamaicans as a mechanism that supports economic growth; (2) supporting initiatives that are private-sector led, for example as a partner with the financial institutions in establishing the Mobile Financial System; (3) leading through example, using the established system to deploy easily, safely, and at low cost, the conditional cash transfers under PATH and issuing directives to marginalized groups including Jamaican Farmers; and (4) encouraging the BOJ regulators to lead the implementation process by establishing directives that are consistent with their mission of financial stability without inadvertently assuming a role as an agent of exclusion.

The BOJ regulators, although they are likely and understandably uncomfortable with the implied regulatory changes in an interoperable agent based bank model, must be encouraged to direct the process for implementation of this new payments channel and not to hide behind regulatory fears including those related to agent risks. To hide behind these fears is to encourage both sins of commission, directives that block an agent-network without any objective evidence to support the block; and sins of omission, the failure to provide clear directives and mandates that will ensure the implementation of variations to the bank model that are good for all Jamaicans. Based on the findings from this report and the associated research, the following recommendations are offered to the Government of Jamaica, the Bank of Jamaica, and all stakeholders in the Mobile Financial System, bankers, MNOs, and most important the peoples of Jamaica:

-  The BOJ is advised to take advantage of experiences that time has allowed late-entry countries to learn from , and are encouraged as a result to supplement the existing Electronic Money Order Act 2006 with a series of circulars mandating that the bank model must also be
 - Fully Interoperable, supporting the ability of all Jamaicans in all sectors to transfer financial resources easily, safely, and at low-cost
-  The BOJ is encouraged to take an incremental, experimental, but actively engaged role in crafting regulatory guidelines to support financial inclusion
 - Guidelines related to the institutions that can serve as bank agents
 - initially the existing infrastructure of credit unions, rural banks, commercial banks, building societies, post offices, remittance and payments providers,
 - and possibly large supermarkets and well established small shops especially in rural areas, that can meet the demands established by the Bank
 - Guidelines related to the application and approval process, training and management, privacy and security, and management and storage of data
 - And guidelines related to the assessment process will include issues related to ensuring compliance and documenting and assessing the impact of existing guidelines, using these assessments as an instrument for improving and formalizing regulations.
-  The Government of Jamaica is encouraged to take a strong leadership role regarding a mandate on financial inclusion that supports existing efforts through the collaboration with the Development Bank of Jamaica and private institutions and extends beyond these to include incentives that will support a Mobile Financial System
 - This means identifying the role of the Government through the Ministry of Finance and the Public Service and the BOJ in implementing a Mobile Financial System, possibly in partnership with international development and funding agents and the Jamaica Banking and Telecommunications Sectors
 - It also means making a commitment to use the system to deliver PATH benefits and to use the system to disseminate critical information to marginalized groups including Jamaican Farmers
-  Financial Institutions are encouraged to participate with the Mobile Network Operators to provide mobile financial services to a shared network of Jamaican customers
-  Mobile Network Operators are encouraged to stay actively engaged in the Mobile Financial System despite directives that do not support a mobile model. Mobile operators are encouraged to understand within the context of Jamaican laws and norms their roles and those of the other stakeholders, and to work within these roles to deliver

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low-cost access to financial services for the largest numbers of Jamaicans that is possible.

These guidelines are not exhaustive and they are far too general to provide the necessary guidance that will be critical before the implementation of a Mobile Financial System. They are intended, however, to provide a basic picture of the next step; this starts with the BOJ Regulators and the Government of Jamaica, through the Ministry of Finance and the Public Service.

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APPENDIX A - SURVEY

SURVEY INSTRUMENT

Introduction

Dear respondent, thank you for your participation in this survey. Please be assured that all responses are anonymous and as a result personal identifiers such as names and addresses will not be collected from you and used in the analysis and presentation of the data.

There are 24 questions. We ask that you carefully consider each question and provide the answer that most accurately reflects your individual situation. We also ask that you complete the entire survey.

We appreciate your willingness to complete this survey, and again thank you for your participation.

SURVEY INSTRUCTIONS

The purpose of this survey is to provide a measure of the numbers of Jamaicans who do not have access to the financial services that account ownership in the formal banking system provides, the so-called unbanked. The information will be used to explore the economic consequences of financial exclusion and to gain some insights for policy solutions to reduce some of the adverse consequences. The survey is being conducted on behalf of a team of researchers associated with the University of the West Indies and Texas Christian University and is supported and funded by PRIDE Jamaica and USAID.

The survey is comprised of 24 questions and will be administered to individuals who are older than 18 years. For some questions you are asked to indicate your answer with a check mark, \checkmark . For others you are asked to circle your responses, and for others to indicate the importance of each of 5 choices by assigning a value from 0-100 to each of the choices.

GENERAL SURVEY DATA

(To be completed by the surveyor before entering data for the survey)

1. Date of Survey

_____.

2. Age of person completing the survey questions

_____.

3. Gender of person completing the survey

_____.

4. Is the person completing the survey the Head of the Household?

_____.

5. What is the gender of the person completing the survey?

_____.

6. Number of other persons older than 18 who live in the household?

_____.

7. Number of children younger than 18 who live in the household?

_____.

8. Name of Surveyor

_____.

9. Name of Field Supervisor

_____.

10. Name of Community

_____.

11. Enumeration District

_____.

12. Distance to Town Center

(Write in distance to a principal town/market center)

Distance in Kilometers

Confirmed by _____

(Sign Above)

13. Is there at least one bank branch in the Principal Town Center?

Yes, there is at least one No, there are no bank branches

14. Is there are least one ATM machine in the Principal Town Center?

Yes, there is at least one ATM in the Town Center No, there are no ATM's in the Town Center

SURVEY QUESTIONS

Survey Determining Question: Are you a legal resident of this household and 18 years or older? If yes proceed with the survey if no thank the respondent and move on if there are no legal residents of this unit that meets the age criteria to proceed.

1. Put a check mark \checkmark beside **each** of the following boxes that indicate all the financial accounts you currently own. These are accounts with your name on the account that at a bank, credit union, or some other financial institution.

Checking Account

Savings Account

Credit Card

Mortgage – House Note

Car Loan

Microfinance Loan

Retirement or Pension Account

Stocks for example on the Jamaica Stock Exchange

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I have never owned an account

I do not own one, but have in the past.

Please specify how long ago (years) and account type.

If you do not currently own any financial accounts, please go to question 2. All others go to question 4.

- Listed below are 10 reasons that many without bank accounts indicate as explanations for this. We would like you to indicate which are most important to you as reasons for not having a bank account. Please allot a total of 100 points between all 10 choices. Allot more points to those choices that are more important, fewer points to those of lesser importance, and the same to choices of equal importance. You may allot zero points for any reason that does not explain why you do not have accounts at a bank or other financial institution.

Reasons for Not Owning Bank Accounts
Do not have some of the paperwork the bank requires _____
Distance between my house or business and the banks and ATM _____
Bank Fees, ATM, overdraft, interest, check-processing _____
Amount of Money I have _____
No need for checks _____
Do not need a bank to save _____
More work than it is worth _____
Trust in banks _____

Keeping up with withdrawal, deposits, payments _____
Ability to read and understand bank documents _____
Total 100

3. The following are costs that many without bank accounts often incur. Indicate using the scale given, the frequency in a typical month that you pay these.

1 = Never Pay; 2 = once per month; 3 = two times per month; 4 = three times per month; 5 = four or more times per month; 6 = more than four times per month.

Check-cashing Fees	<input type="text"/>
Money Order Fees	<input type="text"/>
Bus Fare; to purchase money orders, cash checks, pay bills, get cash etc.	<input type="text"/>
Putting off purchases due to cash-limits and no access to credit	<input type="text"/>
Cannot wait for best business deals; must accept first offer due to cash-need	<input type="text"/>
Gas cost; for going into town to get cash, purchase money orders, etc	<input type="text"/>

4. In a typical month, how often do you use the following 3 accounts? Examples include: check account balances; deposits; withdrawals; cashing checks on the accounts; writing checks to make payments; Indicate using the following scale.

1 = not used; 2 = once per month; 3 =two times per month; 4 = three times per month; 5 = four or more times per month; 6 =one or more times each week day; 7 = I do not own this accounts

Checking Account

Savings Account

Credit Card

If you indicated in question 4 that you do not own one of the three listed accounts go to question 5. All others go to question 6.

If you do not own a checking or savings account, indicate in a typical month how often you use the following methods to make payments; for services, goods, or to pay your bills. Indicate with the following scale:

1 = not used; 2 = once per month; 3 = two times per month; 4= three times per month; 5 = four or more times per month; 6 = one or more times each week day

Money Order

Cash

Buy on trust; and pay with cash when I have cash

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Other, please specify what other methods how much

If you indicated on question 1 that you own a retirement account, please go to question 6. All others skip question 6 and go to question 7.

If on question 1 you indicated that you own a retirement or pension account; which of the following describes how you came to own that account? Put a check mark \checkmark beside each of the boxes that applies.

Company I work for Pension from government Money I saved in a retirement account

Indicate with a \checkmark each of the following assets you own now or have owned in the past 12 months. These are assets with a title, deed, bill of sale, or other form of document that shows ownership.

House

Land

Car

Furniture

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Farm Machines; greenhouse, tractor, irrigation system, well, etc.

Computer

Office Machines; fax, computer, scanner, etc.

Other, please specify up to 3 assets

--	--	--

Listed below are 5 ways people often build assets. Please indicate the relative importance of each, by assigning a score to each of them. Please allot a total of 100 points between all 5 choices. Allot more points to those choices that are more important, fewer points to those of lesser importance, and the same to choices of equal importance. You may allot zero points for any reason that does not apply to you.

Methods Often Used for Asset-building
Bank Loans _____
Money in savings accounts at banks _____
Money saved but not in bank accounts, including partner draw _____
Loans from Family and Friends _____
Gifts or other help from family and friends _____
Total 100

What is your employment status? Check the one that applies to you.

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Self-Employed, I work for myself

Employed

Unemployed

Retired

5. If you work for somebody, how do you get paid? Please indicate with a \checkmark the box that applies.

In Cash Direct Deposit – the company deposits money to my account By check

Which of the following monetary assistance do you regularly receive? Indicate with the following scale.

1 = Never; 2 = once per month; 3 = two times per month; 4 = three times per month; 5 = four or more times per month; 6 = more than four times per month.

Government Cash Assistance

Remittances from family or friends

Government Pension

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If you receive monetary assistance from the government, how do you get the money? Put a check beside all that applies.

Check; by mail Check; I pick it up Direct Deposit to my bank account On a Debit Card

If you reported that your get your pay and or assistance from government deposited to a bank account answer question 13. For all others skip question 13 and go to 14.

When your employer, pension, and or assistance form government deposit money to your bank account, how do you use it? Circle the letter that best describes your situation.

A	B	C	D	E
I draw it out all of it at once and keep with me, because it costs too much to use the account.	I leave all of it in the bank and pay my bills from the account.	I leave some in the bank to pay bills and take some out to keep with me.	I leave some in the bank to pay bills and put some in a savings account in the bank.	I draw all of it out at once and keep it with me because it is easier for me to get my money when I need it.

How old are you? Please indicate with a √ the box that applies.

18 – 24 Years Old

25 -34 Years Old

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35- 44 Years Old

45 – 54 Years Old

55-59 Years Old

60-64 Years Old

65 Years or older

Please indicate with a \checkmark the box that indicates **the highest** level of school you completed.

No Formal Schooling

Primary School (Grades 1- 6)

All-age or Junior High (Grades 7-9)

High School (Grades 7-12: or 1st – 5th form)

Sixth Form High School, College, or University

Vocational Skills

15b. If you checked “No Formal Schooling” in question 15 please indicate by checking the appropriate box if you can read and write. For example, can you read: newspaper; information on applications; information on mobile phone? Can you fill out applications for services; write a text message?

I can read; bill of sale; bank documents, newspapers etc I can write; fill out applications

Please indicate with a \checkmark the box that best reflects your personal income for 2010; this is the amount of money you have access to and use to take care of you and your dependents.

\$200,000 or less

More than \$200,000 but LESS than \$400,000

More than \$400,000 but LESS than \$600,000

More than \$600,000 but LESS than \$800,000

\$800,000 or more

17. Do you own a mobile phone? Please indicate with a \checkmark the box that applies.

Yes No

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17b. If you answered yes in Question 12, list # of phones and mobile companies you use?

_____ # of phones _____ # Mobile Companies
--

18. If you do not own a mobile phone, do you have regular daily access to one? Check the answer that applies.

Yes No

19. In the past 12 months, how did you typically use a mobile phone? Please indicate the relative importance of each by assigning a score to each of them. The higher the score the more you used the phone for that purpose, and all together they must add to 100. Allot zero for any choice that does not apply to how you use a mobile phone.

Mobile Phone Use
Text Messages (SMS) _____
Calls to family and friends _____
To pay for purchases _____
To pay bills _____
To send money to family and friends _____
To receive money from family and friends _____

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To make business deals _____
For security for you and or your dependents _____
To get information quicker _____
To make new business clients _____
Total 100

20. In the past 12 months, indicate with a check the extent to which the use of mobile-phones has impacted each of the following benefits.

Large Impact Medium Impact Small Impact No Impact Not Applicable

1 2 3 5 5

Reduced Cost

Less time spent travelling

Lower cost of travel

Ability to pay bills

Quick access to information

Ability to send money

Lower cost of sending money

Fast help during emergency

Ability to check bank account balances

New clients

Better prices for goods and series

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Increased sales

Communication with government department

Lower cost of sending money

If you receive monetary assistance from the government and or you receive a pension from the government, answer questions 21-24. If you do not; thank you for participating in this survey.

21. Do you know that in some countries government cash benefits like PATH/Pension are paid on a mobile phone?

Yes No

22. Check the box that indicates the level of satisfaction you feel with the way you currently receive your PATH/Pension benefits from the government.

Highly Satisfied Satisfied Partly Satisfied Not Satisfied Not at all Satisfied

Below are some of the reasons governments use the mobile phone to pay cash benefits such as Path/Pension. Using a 1-5 scale, indicate which of these would be an important reason for getting your cash benefits on a mobile.

1 = critical; 2 = very important; 3 = important; 4 = slightly important; 5 =unimportant.

Getting the money quicker

No need to visit a bank to cash the monthly checks

Lower administrative costs to government

No need to pick up check; at the post office or elsewhere

Less theft and fraud in making sure the benefits get to the correct person

Safe way of storing, saving, money

Funds on mobiles ready to be used; pay bills; make purchases

23. If you were able to get your government benefits such as PATH/Pension on your mobile phone, how would this impact your life?

Please indicate with a \checkmark only one box that applies.

It would have no change

It would have a bad impact; I would be afraid to have my money on a phone

It would have a slight positive change

It would have a very good impact

Once again we thank you for the time taken to complete this survey. The data collected will be used carefully and with respect for your personal privacy. The information is anonymous and not traceable to any person who completed this survey. The information will be analyzed to gain better understanding of the issues that impact the access of Jamaicans to the financial services sector.

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Thank You!!

APPENDIX B - ENUMERATION DISTRICTS

ED Number	ED Parish	ED Community	ED_ID1
1	Kingston & St. Andrew	Eastwood Park Gardens	East Central 031
2	Kingston & St. Andrew	Molynes/Four Roads	East Central 057
3	Kingston & St. Andrew	Gordon Town	East Rural 024
4	Kingston & St. Andrew	Trench Town	South 022
5	Kingston & St. Andrew	Delacree Pen	South West 008
6	Kingston & St. Andrew	Greenwich Town/Newport West	South West 071
7	St. Thomas	Morant Bay	East 079
8	St. Thomas	Yallahs	West 103
9	Portland	Moore Town	East 071
10	Portland	Hope Bay	West 044
11	St. Mary	Castleton	South East 080
12	St. Mary	Gayle	West 074
13	St. Ann	Bamboo	North West 035
14	St. Ann	Moneague	South East 033
15	St. Ann	Browns Town	South West 009
16	Trelawny	Falmouth	North 020
17	Trelawny	Clarks Town	North 090
18	St. James	Montego Bay	North West 080
19	St. James	Green Pond	West Central 003
20	St. James	Granville	West Central 058
21	Hanover	Cascade	East 039
22	Hanover	Rock Spring	West 080
23	Westmoreland	Darliston	East 039
24	Westmoreland	Frome	West 019
25	St. Elizabeth	Nain	South East 032
26	St. Elizabeth	Junction	South East 041
27	Manchester	Porus	Central 017
28	Manchester	Mandeville	Central 062
29	Manchester	KnockPatrick	North West 041
30	Clarendon	May Pen	North Central

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31	Clarendon	Frankfield	North West 024
32	Clarendon	Lionel Town	South West 060
33	St. Catherine	Eltham View	Central 014
34	St. Catherine	Wilowdene	Central 111
35	St. Catherine	Portmore	South East 049
36	St. Catherine	Portmore	South East 072
37	St. Catherine	Old Harbour	South West 011
38	St. Catherine	Old Harbour	South West 067