BCG

THE BOSTON CONSULTING GROUP

The Socio-Economic Impact of Mobile Financial Services

Analysis of Pakistan, Bangladesh, India, Serbia and Malaysia

April 2011

Note to the reader:

This report is part of a suite of presentations prepared for the Telenor Group by The Boston Consulting Group (BCG). The presentations provide additional details on the findings for each country, and this report should ideally be read in conjunction with them.

BCG has not independently verified all of the data and assumptions used in these analyses, although we have attempted, where possible, to test for plausibility. Changes in the underlying data or operating assumptions will clearly impact the analyses and conclusions.

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1. OVERVIEW

1.1 Introduction to the Study

Telenor Group commissioned The Boston Consulting Group to study the potential social and economic impacts of mobile financial services over the next decade. This report summarizes the findings of the study, which focused on five countries representing a broad developmental range.

In the developing world, more than 2.5 billion adults—or approximately 72 percent of the developing population—are unbanked, meaning they have no access to financial services. At the same time, nearly 2.5 billion people in developing countries have mobile phones. This means that there could be up to 2 billion mobile phone users who are not financially included and who could be served through mobile financial services (MFS).

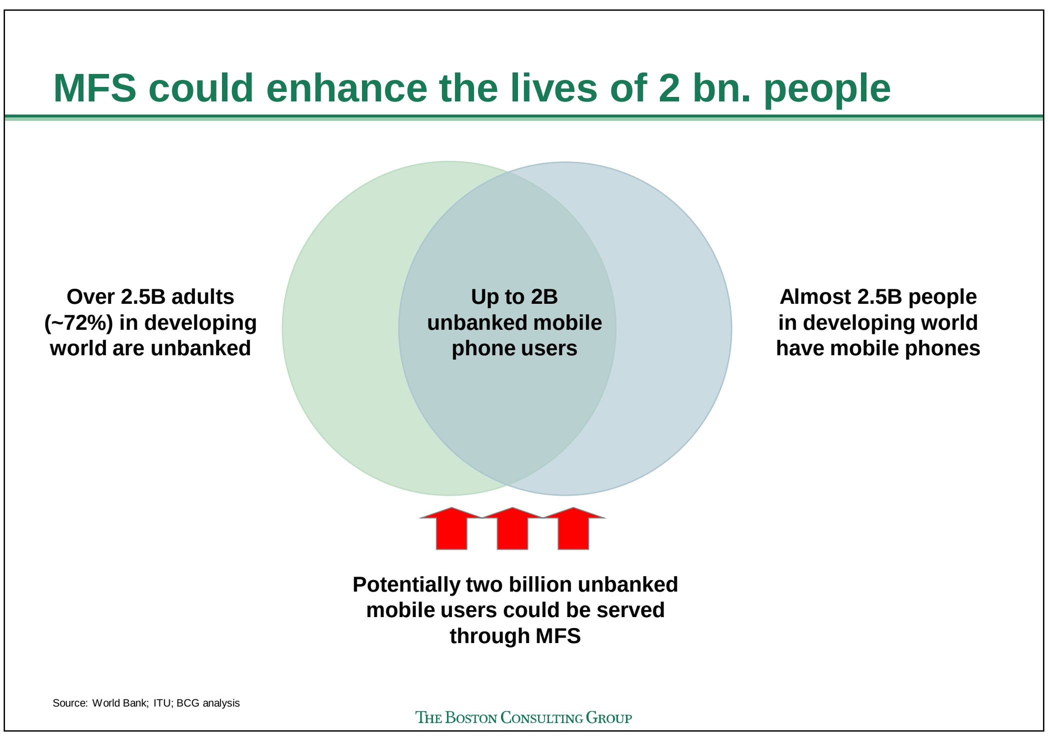

Exhibit 1.1 Potential of MFS

The unbanked have an urgent need for formal financial services, but they lack access for a variety of reasons, and make use of informal channels instead. For instance, out of a need to manage the short-term volatility of cash flows, they often borrow money from, or save money with, friends and relatives. To manage low-frequency but high-cost risks, they obtain short-term credit from landlords, shopkeepers, or employers, depending on the situation. When they need a significant lump sum of cash, they sometimes participate in informal savings clubs or will use illegal moneylenders. And to receive money transfers from family working elsewhere, for instance, they may seek out informal remittance channels.

The informal financial services prevalent among the unbanked are often costly, intransparent, and risky.

Populations are without formal financial inclusion for a variety of reasons. Overall, an estimated 15 percent to 30 percent of the unbanked fall into one of these four categories:

- There is no perceived need for financial services.
- Cultural or religious reasons keep them from seeking out services, or they have no direct access to a bank branch.
- An informational or contractual framework puts banking services out of reach.
- They face (real or perceived) discrimination.

A larger proportion, an estimated 70 percent to 85 percent, are unbanked for any of the following reasons:

- The cost of services is too high.
- The products offered do not suit their needs.
- Financial institutions see their low income as too great a risk.

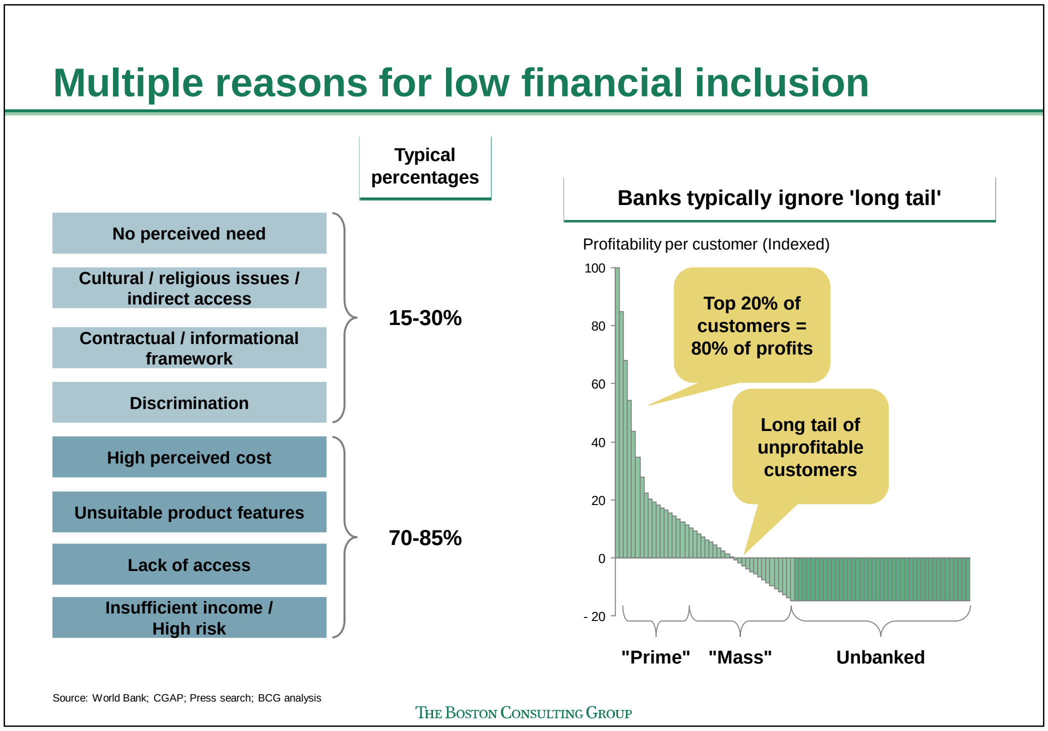

Exhibit 1.2 Reasons for low financial inclusion

Another reason for low financial inclusion is that banks tend to ignore the "long-tail" customers, who they are unable to serve profitably. For banks, the top 20 percent of customers can contribute up to 80 percent of the profits, hence there is little economic incentive to bank the unbanked.

In this report, we define "mobile financial services" by including two broad categories: branchless banking via mobile phones and mobile banking as a channel for financial services. With branchless banking, users can take advantage of services allowing them to make basic payments—utilities and other bills—and domestic and international remittances. These transactions become fast, easy, and cost-effective through MFS. Users can also participate in savings, credit, and insurance programs. Such services drive the financial inclusion of the unbanked through m-wallet solutions, micro-loans, and micro health and crop-failure insurance.

The other side of MFS provides existing banking customers with a highly accessible portal for financial services, increasing convenience. The frequency of interactions between customers and financial providers is enhanced through this mobile portal, allowing for convenient mobile banking and the use of Internet applications on smartphones.

1.2 Economic and Social Benefits

The unbanked live with the reality of two main challenges that can be addressed by financial services: high income volatility and severe expense shocks. Obtaining financial services can smooth out cash flow by building a buffer through savings, increase inflows through remittances, and accumulate lump sums of money for major expenses through credit and savings products. Financial inclusion will also defend against severe expense shocks by helping to provide funds when an unexpected negative event occurs. Temporary shortfalls can be addressed through credit, remittances, and insurance products.

Mobile financial services' basic qualities can help the unbanked overcome barriers and reap the benefits of financial services. MFS can be used by nearly everyone at any time of day or night and from anywhere, eliminating the accessibility issues presented by traditional banking. In addition, MFS provides secure services at a low cost.

Telecommunications companies (telcos) bring five unique advantages over traditional banks. They have traditionally focused on all customers, not just the most profitable among them. They already have a secure device—the mobile phone—in customers' hands. Unlike banks, telcos have existing relationships with these customers and have already established trust. And telcos have the added benefit of a large distribution network.

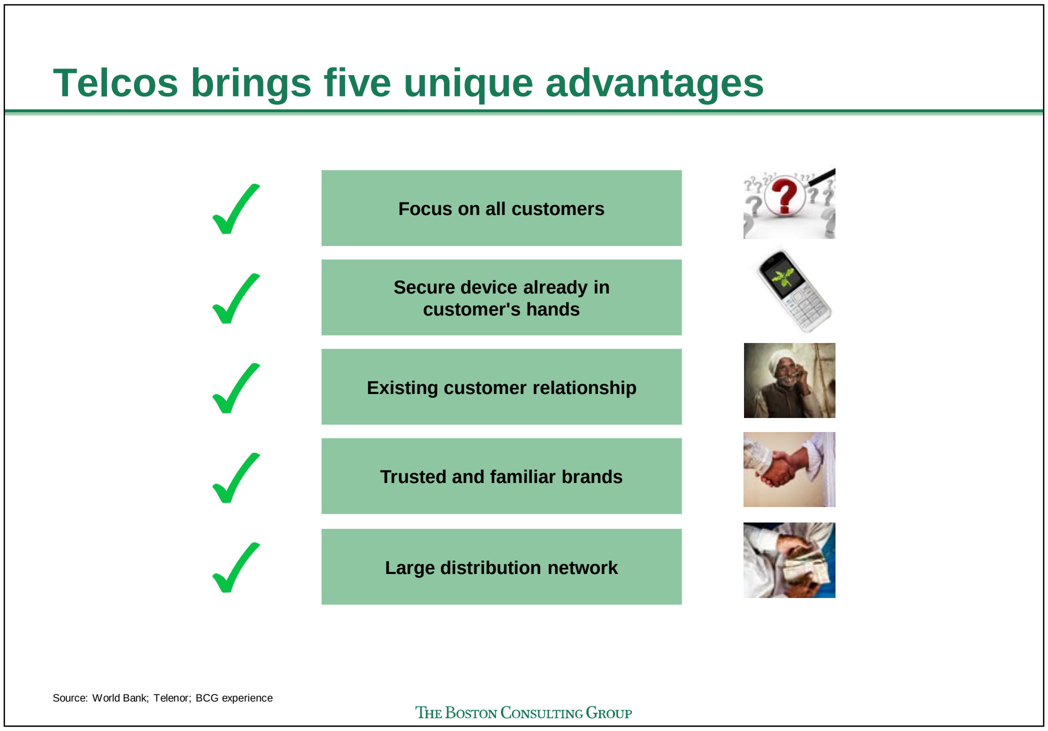

Exhibit 1.3 Advantages of telcos

This report examines the potential social and economic benefits—as well as the regulatory requirements—of MFS on the following five countries:

- Pakistan
- Bangladesh
- India
- Serbia
- Malaysia

In each country, we project the possible evolution of adoption over the next ten years, assuming a supportive ecosystem for MFS can be developed and maintained. For more information on the methodology, please see Appendix.

Further, we assess the economic and social impacts of MFS and lay out the various benefits. Economic benefits include an increase in domestic capital formation, the drawing of credit into the banking system, and the time and cost savings MFS would bring to individuals and companies. Those impacts serve to form the larger economic effects, including growth in Gross Domestic Product (GDP), entrepreneurship, and jobs.

Social benefits include the supplementing of incomes through remittances, providing a safe means to store income during good times, and access to insurance. These impacts lead to larger social benefits, such as a reduction in financial exclusion, an increase in the poor population's resilience to shocks, and the improved ability to keep children in school should a financial shock occur.

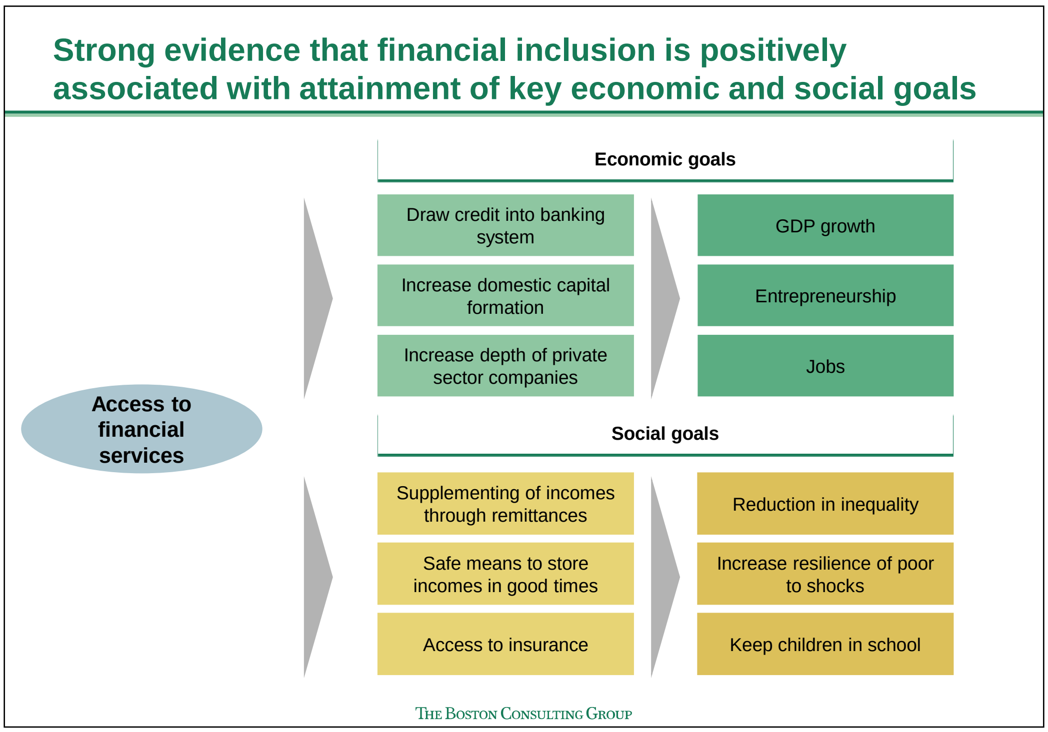

Exhibit 1.4 Positive impact of financial inclusion

Among the five countries we studied, there is significant variation in the current rates of financial inclusion—with Pakistan at one end (15 percent inclusion rate) and Serbia and Malaysia at the other (with 73 percent and 80 percent inclusion rates, respectively). This suggests that as MFS contributes to financial inclusion, it will make a larger impact on those countries with very low financial inclusion rates. But even developed countries such as Serbia and Malaysia, with larger banked populations, can reap significant benefits as MFS spreads, with much of these benefits accruing to the poorest segments of society.

Evidence shows that financial inclusion can increase a nation's GDP[1]. Access to credit facilitates entrepreneurship and new business creation[2]. The formalization of remittances and domestic payments adds an "accounting benefit" to the economy, and the increased savings within the banking system facilitates the expansion of credit. Overall, mobile financial services can reduce financial exclusion by 5 percent to 20 percent through 2020 and increase GDP by up to 5 percent, with Pakistan, for instance, potentially seeing a 3 percent uplift. This increase in GDP will also create additional jobs and businesses, and stimulate additional tax revenues for governments.

From a social perspective, financial inclusion promotes inclusive growth[3], which is especially meaningful for the more developed countries in the study, such as Serbia and Malaysia. In Malaysia, for example, economic inequality could be reduced by an additional 5 percent by 2020 with MFS, relative to the baseline. The benefits of MFS accrue to the poorest of the population by supporting entrepreneurs with savings and credit, reducing leakages and costs imposed by middlemen, and facilitating domestic and international remittances and transfers.

For the poor in any country, financial shocks put a severe financial burden on families that can be hard to overcome. Such shocks can come from natural disasters, unexpected medical emergencies, or loss of income due to injury, or even bad luck. In Bangladesh, for instance, floods occur on average every five years, last 35 days, and affect up to 75 percent of the population. Average flood damage cost is US$ 365 per household, or 30 percent of the average annual household income. Most of the damage hits crops and property[4].

[1] King and Levine (1993): *"Finance, entrepreneurship and growth"*
[2] World Bank (2009): *"The impact of banking the unbanked"*
[3] Ang (2008): *"Finance and Inequality – The Case of India"*
[4] Akter (2007): *"Introducing a Micro-Flood Insurance Market in Bangladesh"*

MFS can help the poor prepare for and respond to shocks, including natural disasters. In Pakistan, EasyPaisa launched a relief payment distribution system. During floods, EasyPaisa used its platform to solicit donations and distribute donations. This same concept was used in Haiti to provide earthquake relief. Another example is Kenya MPesa's UAP Insurance, which insures poor farmers through mobile phones against weather-induced crop failures. Claims are disbursed as soon as weather information is verified.

1.3 Preconditions for adoption

To establish a successful MFS ecosystem, several elements need to be in place.

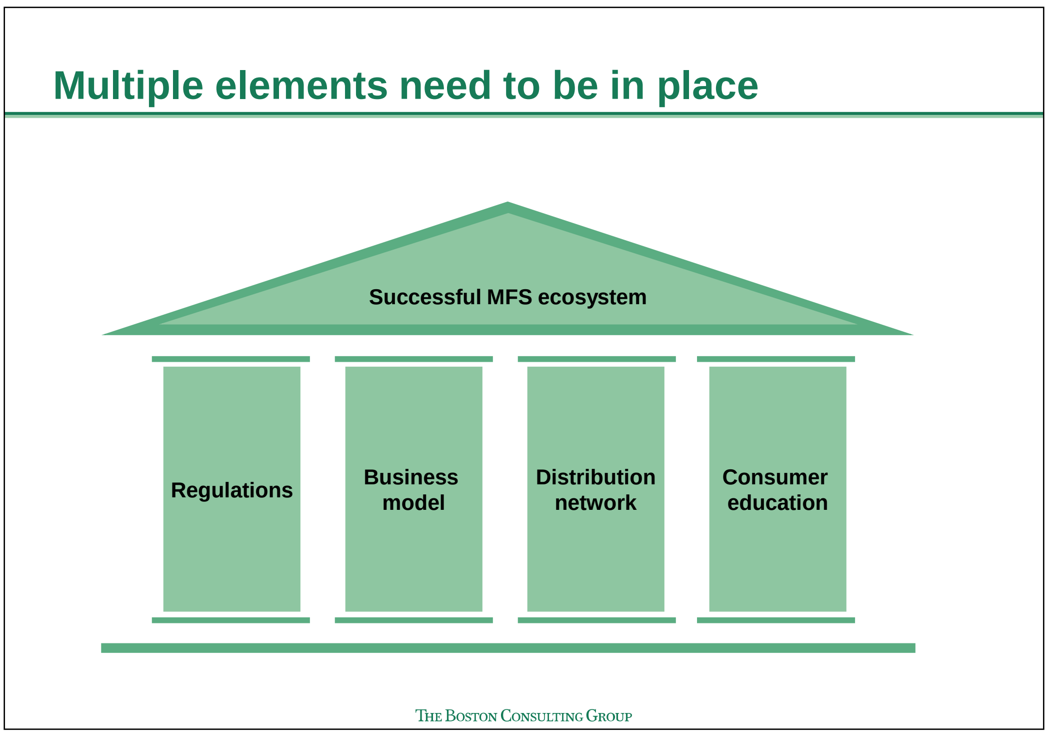

Exhibit 1.5 Prerequisites for successful MFS ecosystem

Regulations. Setting up and enforcing MFS regulations is a key step in the inclusion process. These regulations must include the structure of the MFS framework for non-banks, guidelines for the use of MFS agents, and government initiatives and focus.

Business Model. Since both banks and telcos will offer mobile financial services, there must be cooperation and transparency between these different types of players. The MFS business model must include profit sharing and pricing mechanisms.

Distribution Network. A reliable distribution network must be represented by MFS agents who are trained and certified, and must guarantee the security and flow of cash.

Consumer education. Understanding the advantages of becoming banked is an important part of MFS adoption, as is the collaboration of all members of the ecosystem, including the regulators.

1.4 Regulatory Requirements

A supportive regulatory regime is a vital first step in developing a thriving MFS ecosystem. Such a framework would be based on three tiers of branchless banking regulation, which would address a wide variety of domains. *Vital*, the first tier of regulations, addresses agents and controls anti-money laundering, countering of terrorism financing, and know-your-customer. The second, *necessary*, regulates consumer protection, payment systems, and more. And the third tier, *supporting*, includes the underlying framework, such as data privacy, e-commerce and e-security, general banking, taxation, and general telecommunications[5].

[5] Based on CGAP (2010): *Branchless Banking Self Assessment*

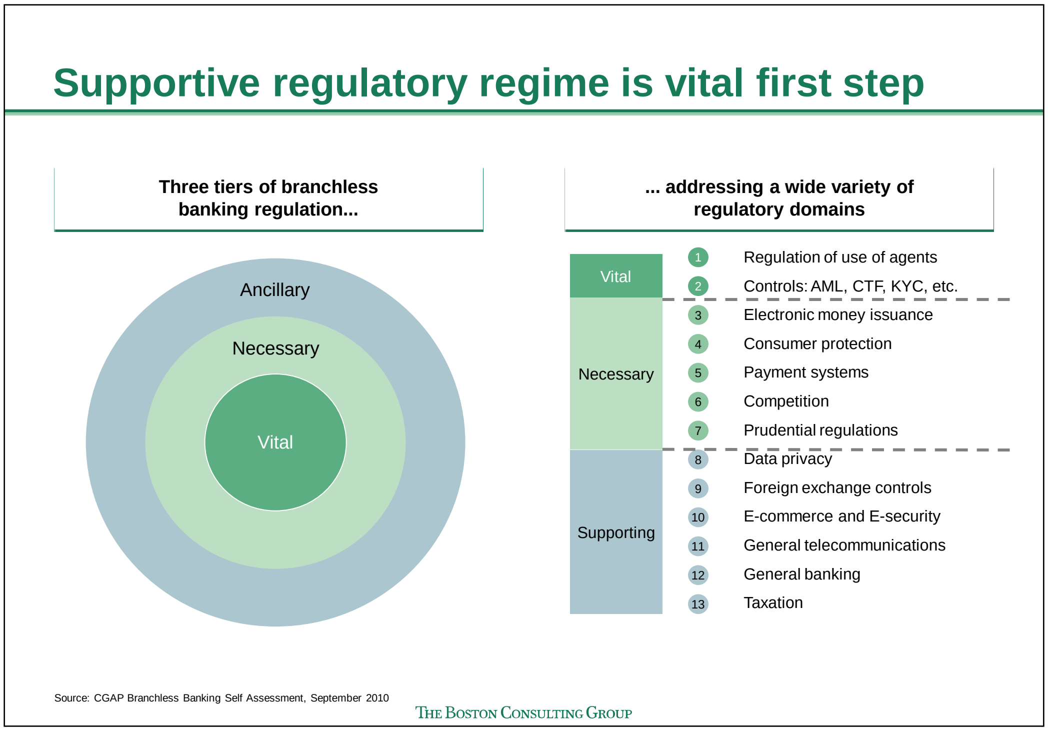

Exhibit 1.6 Regulatory framework

1.5 Key findings and conclusions

Looking across the five study countries, a number of key findings and conclusions emerge:

MFS will drive financial inclusion: The impact varies by country, depending on, for example, the existing level of financial inclusion and the level of mobile penetration. The study finds that the impact ranges from a 20 percentage point increase in financial inclusion in Pakistan (from 21% to 41%) to a 5 percentage point increase in Malaysia (from 90% to 95%). The other three countries are likely to experience an impact of around 10-12 percentage points.

MFS will increase economic growth: MFS could accelerate economic growth by up to 5% in the case of India, where it helps fuel entrepreneurship and new business creation. GDP in Pakistan, Bangladesh and Serbia could be between 2-3% higher in 2020 as a result of MFS, while the impact on Malaysia is more modest, at around 0.3%, reflecting the smaller financial inclusion impact. This additional growth will be associated with an increase in employment, creating up to 4 million additional jobs in India, as well as an increase in tax revenues for governments, spurred by the increase in economic activities.

MFS will help the poorest in society: MFS will help reduce income inequality by increasing opportunities for the poorest segments of society to experience the benefits of financial services, and hence mitigate income and expenditure volatility. In addition to a reduction in measured inequality, MFS brings many other important benefits within reach, in particular, education and healthcare, for example, by providing access to insurance to help mitigate the impact of unexpected shocks. These will in turn have critical long-term impact on development, especially rural development.

*   *   *

In summary, MFS presents enormous potential and certain challenges. More than 2.5 billion people in the developing world are financially excluded, but many already have mobile phones and relationships with telcos. MFS has the potential to be the most powerful tool for economic and social development for all of the countries in this report. For such potential to be realized, multiple elements must be established. And finally, regulators have to create a supportive environment that manages risk but also makes room for flexibility and innovation as the MFS ecosystem evolves.

2. PAKISTAN

2.1 Introduction

Pakistan currently has a 15 percent financial inclusion rate[6]. This means that in Pakistan today, 85 percent of adults have no access to formal financial services. Among the remaining 15 percent, 5 percent are fully banked, meaning they are able to take advantage of a full range of financial services (including savings, insurance, credits and others); and 10 percent are underbanked, with only basic access, such as a savings account[7]. Furthermore, even among the financially included population, the penetration of key services—such as insurance and credit—remains quite low, and MFS is nearly nonexistent.

There is strong evidence that financial inclusion—the delivery of affordable banking services to a population—is associated with the attainment of a nation's crucial economic and social goals. Providing financial services draws credit into the banking system, leading eventually to GDP growth. It increases the formation of domestic capital, spurring entrepreneurship. And it develops the depth of a nation's private sector, which in turn builds new jobs. These financial developments reduce a nation's overall income inequality, increase income growth among the lowest paid quintile of the population, and accelerate poverty alleviation.

From a social perspective, financial inclusion gives workers the means to make remittances, a key goal in promoting the reduction of inequality. It provides them with a safe way to save their income, increasing the resiliency of the poor to unexpected economic or political shocks and food shortages. And it gives the population access to insurance—a basic safety net for emergencies such as accidents or crop and weather catastrophes—making it possible for families to keep their children in school through difficult times.

[6] State Bank of Pakistan estimate. World Bank financial inclusion survey estimates 14.3% banked in 2009
[7] Conservative estimate based on World Bank studies and US FDIC study of under-banked

2.11 Advantages of MFS

Mobile financial services providers would bring five distinct advantages over traditional banks to give the unbanked and underbanked access to the benefits of financial services in Pakistan.

A focus on "long-tail" customers. Telcos have extensive experience targeting their customers and understanding their needs, making it possible for them to deepen and broaden the relationships they have with existing customers. In contrast, banks have typically given the lion's share of their attention to the wealthiest customers, ignoring the "long-tail," which they are unable to serve profitably.

Key infrastructure in customers' hands. Mobile customers already have the critical piece of infrastructure they need to access MFS, since the mobile SIM card can act as a secure identification and authentication device.

Customer relationships. Many of the unbanked already have relationships with mobile operators, which means their usage history is available. This gives telcos an advantage in knowing who potential financial-services customers are and where they live. It gives them information on transactional patterns, which can become a basis for building a credit history, as well as an established channel for communication with customers.

Brand recognition. The population in general has had limited interactions with large, formal financial institutions, which has created a "trust gap" that could be a potential barrier to financial inclusion. Telecom companies, on the other hand, are typically well known even among the poorest segments of society, are considered safe, and are associated with instant transmission—through text messaging, or SMS, for instance.

Large distribution network. Unlike traditional banks, telcos have behind them an extensive, nationwide network of merchants who are accustomed to working as commissioned agents. These companies have broad experience working with such partners on both pricing and product distribution.

2.12 Addressing the Unbanked

Mobile financial services lower some of the key barriers to banking inclusion in Pakistan by reducing start-up costs and service prices, as well as by delivering the banking products that meet the particular needs of Pakistanis. Widespread network coverage allows for around-the-clock account access and eliminates travel time and costs. Furthermore, mobile banking gives customers access to additional products, such as credit and insurance policies, thereby breaking the chicken-and-the-egg cycle and providing Pakistan's population with a much-needed opportunity to build credit histories.

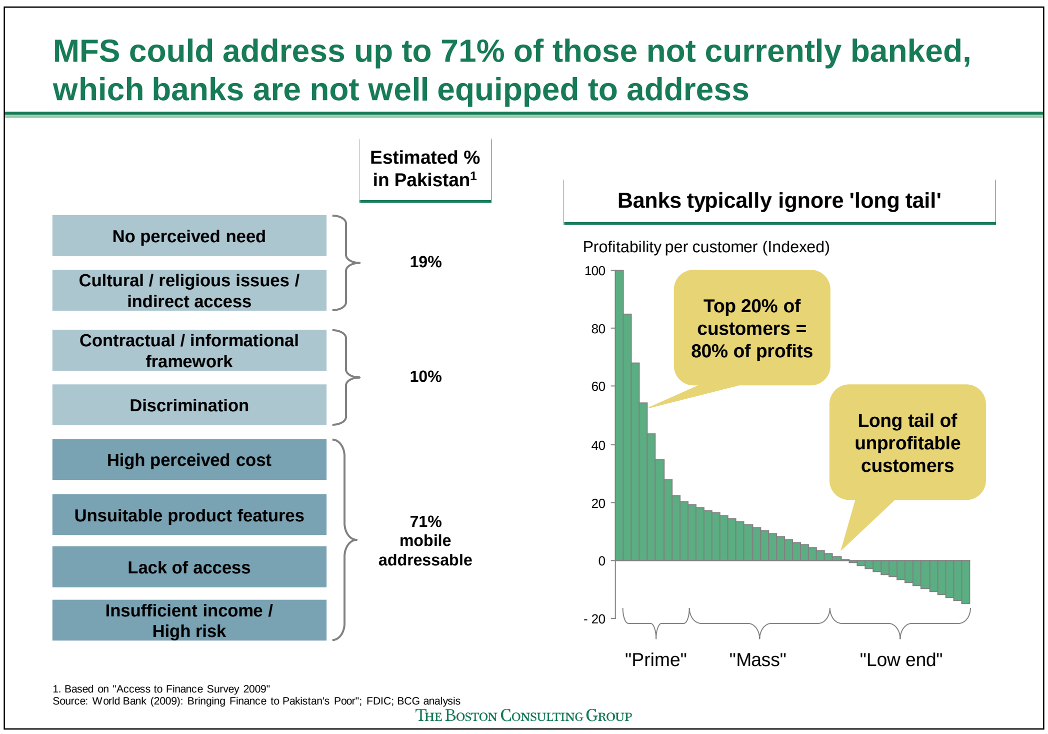

Exhibit 1.1 Addressing the unbanked

To consider who might benefit from the distribution of MFS, we broke down the unbanked population into several categories. Among those Pakistanis who do not use formal financial services in any way, an estimated 19 percent are in that position of their own accord[8]—either for cultural or religious reasons, or because they simply have no need for banking services. The remaining 81 percent are excluded involuntarily—10 percent because they face (real or perceived) discrimination or because they cannot get past the information and contractual requirements needed to access banking services.

The final 71 percent of this group is unbanked because financial institutions see their low income as too great of a risk, or because, for these Pakistanis, the cost of services is too high and the product features that are offered are not sufficiently useful for them[9]. This is the group—71 percent of the unbanked—that MFS is well suited to address.

"Mobile financial services" is defined here to include two broad categories of services: branchless banking via mobile phones and mobile banking as a channel for financial services. With branchless banking, users can take advantage of services allowing them to make basic payments—utilities and other bills—and domestic and international remittances. These transactions become fast, easy, and cost-effective through MFS. Users can also participate in savings, credit, and insurance programs. Such services drive the financial inclusion of the unbanked through m-wallet solutions, micro-loans, and micro health and crop-failure insurance.

[8] DFID (2009): *Access to Finance Survey*
[9] World Bank (2009): *Bringing Finance to Pakistan's Poor*

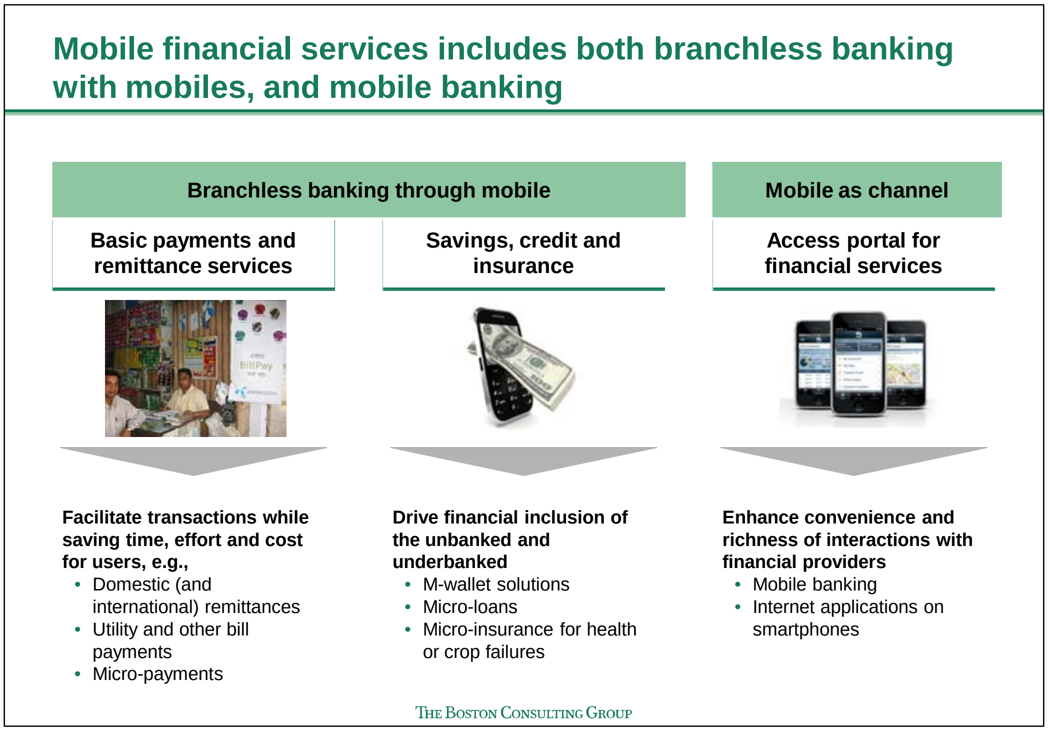

Exhibit 1.2 The two categories of services

The other side of MFS provides existing banking customers with a highly accessible portal for financial services, increasing convenience. The frequency of interactions between customers and financial providers is enhanced through this mobile portal, allowing for convenient mobile banking and the use of Internet applications on smartphones.

While bill payment offerings through mobile financial services are well established in Pakistan—from companies such as EasyPaisa, UBL, and MCB—other basic offerings that could serve a large portion of the population are just getting off the ground or have yet to begin. Savings and remittance products are in their starting phase, insurance offerings exist only through Mobilink so far, and credit products have yet to take hold. Pakistan, thus, has the potential for great influence by MFS, with a large population in need of secure, convenient, and affordable banking services.

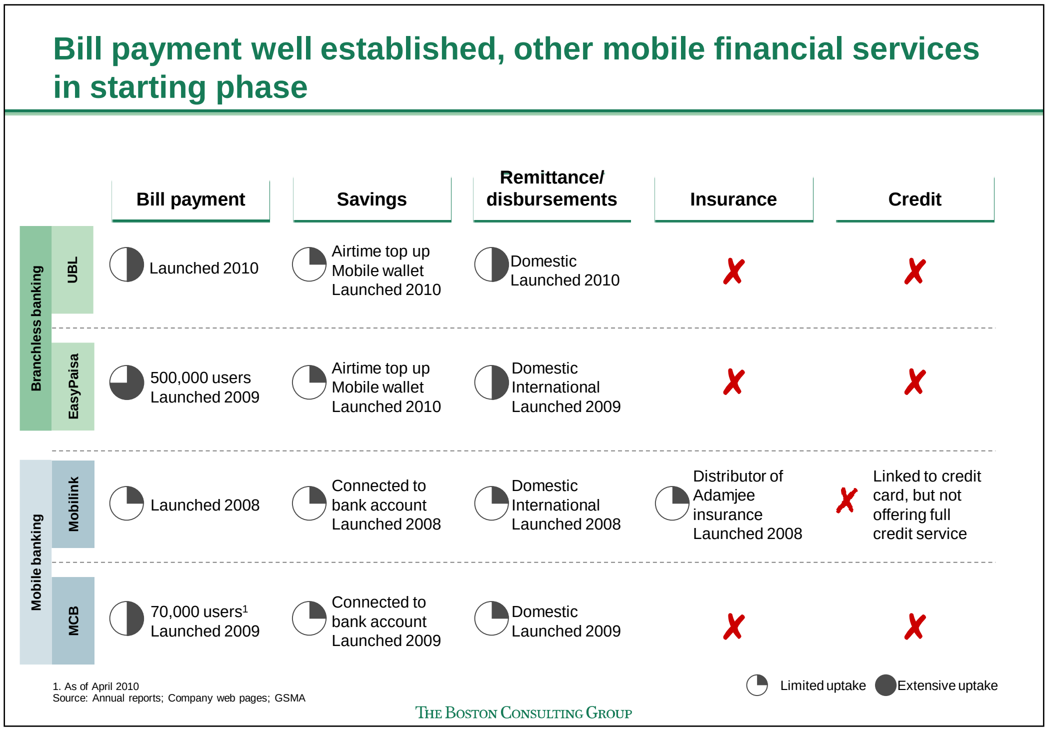

Exhibit 1.3 Current MFS offering

2.2 Adoption

For mobile financial services to gain a strong footing in Pakistan and develop a successful, sustainable ecosystem, a number of elements have to be in place. These include regulations, business model planning, distribution networks, and consumer education.

Implementing and enforcing regulations of mobile services is a key step in the inclusion process. These regulations must include the structure of the MFS framework for non-banks, guidelines for the use of MFS agents, and a determined government initiative and focus.

In addition, the establishment of a workable MFS business model will be necessary. Since both banks and telecom operators will offer mobile financial services, there must be cooperation and transparency between these different types of players. Profit sharing and pricing mechanisms must also be built into the MFS business model.

A stable, reliable distribution network has to take hold before MFS can be successful in Pakistan. This includes how MFS agents are used, trained, and certified. A strong network must also be made up of liquidity management, or the guaranteed security and flow of cash.

Finally, consumer education is of crucial importance in guiding the success of mobile financial services. Consumers will have to be taught the advantages of becoming banked and begin to understand the importance of moving away from a cash-based economy. This process will also include attempts at establishing trust in MFS as a reliable and useful system, and will likely require the collaboration of all members of the ecosystem, including the regulators.

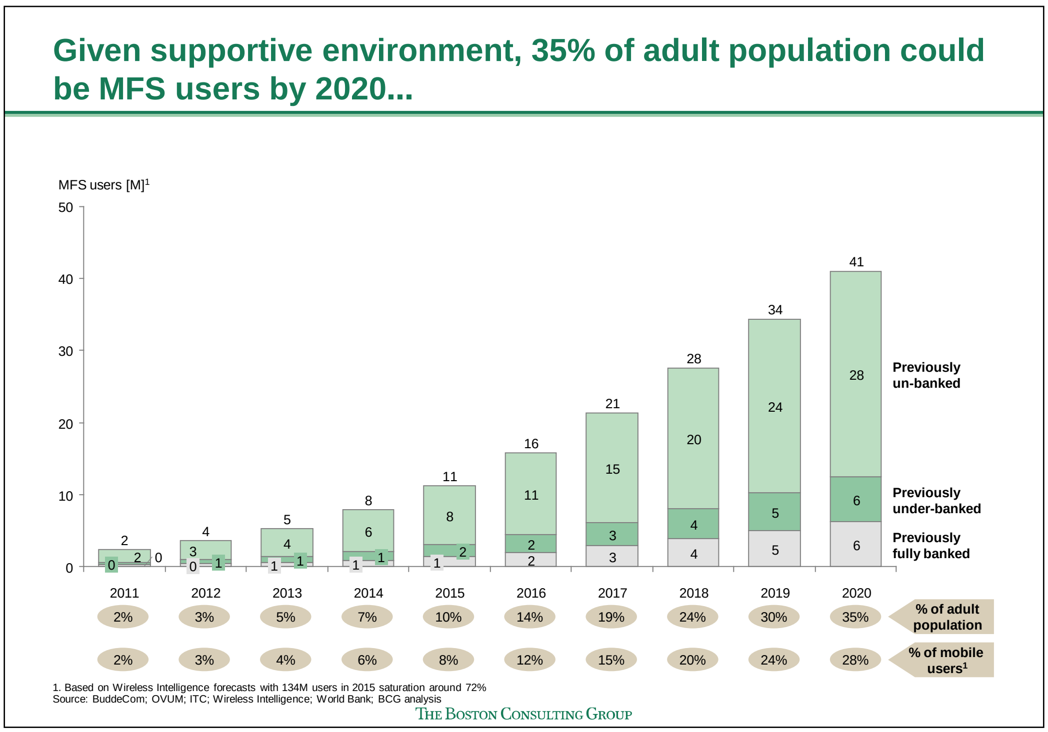

Exhibit 1.4 Reduction in number of unbanked

Given that this sort of supportive environment is in place, the potential number of MFS users has been projected until 2020. For more details on the analysis please refer to the Appendix. By 2020, 35 percent of all Pakistanis—from the unbanked to the fully banked—could be MFS users, thereby reducing the number of unbanked by 20 percent.

While the current financial inclusion rate of 15 percent should gradually increase to 21 percent by 2020, driven by overall development and economic growth, the additional 20 percent inclusion from MFS means financial inclusion in the country could reach 41 percent by that year.

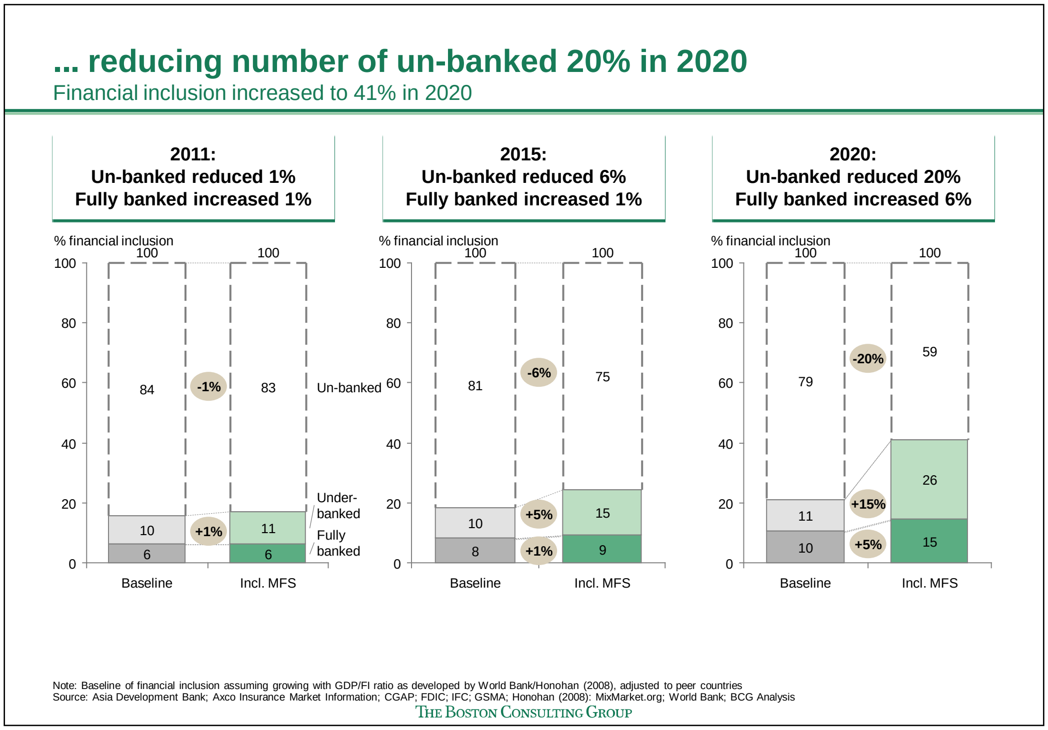

Exhibit 1.5 Details on reduction in number of unbanked

2.21 From MFS to Traditional Institutions

With wide MFS adoption, the number of people with formal savings accounts could increase by 27 million by 2020, doubling transaction volumes with 14 transactions per user. In addition, that same number—27 million—can be added to the number of people using formal bill payment products, increasing payment transaction volume by 47 percent, or 18 transactions per user.

As Pakistanis adopt mobile financial services, they will also begin to gain access to a greater range of formal financial services. For example, customer relationships will deepen through MFS, with mobile providers gleaning more information about who their customers are and where they live, as well as deeper knowledge of transactional patterns, all of which will begin the basis for building customer credit histories. Given wide MFS distribution beginning in 2012, the number of formal credit service users could increase by 10 million people by 2020.

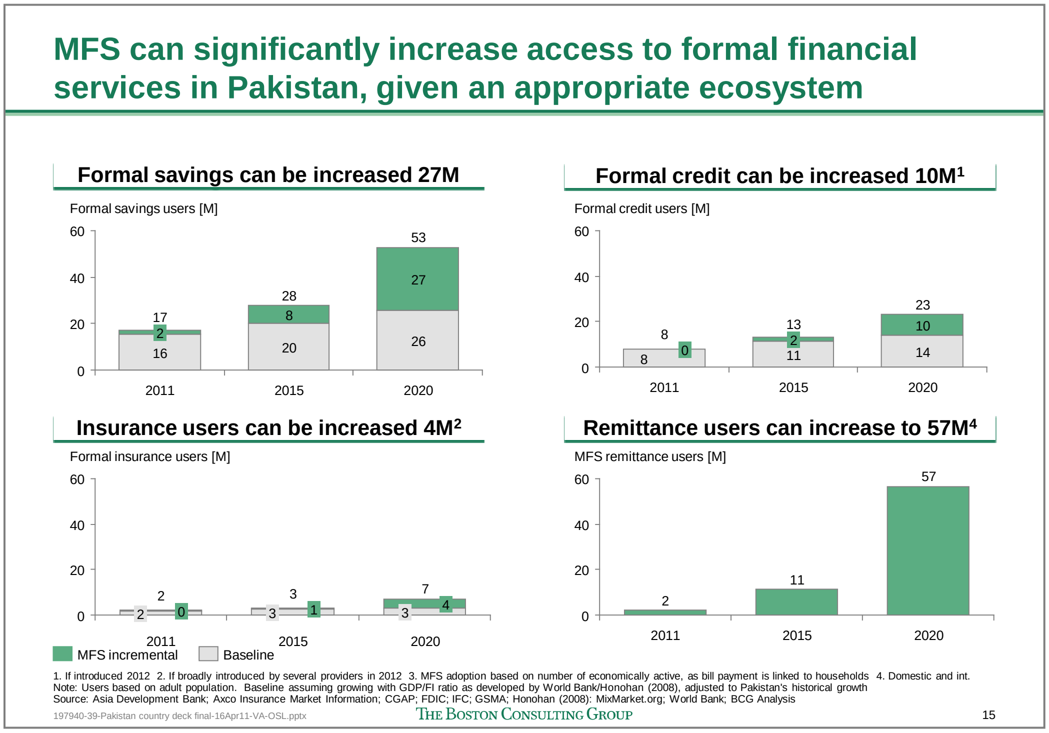

Exhibit 1.6 Access to financial services

Further, with the start date, again, of 2012, the number of formally insured Pakistanis can increase by 4 million by 2020, more than doubling the number of today's users[10]. Currently, the limited rural distribution of insurance products makes for high transaction costs. Pakistan's poor are also inhibited from gaining access to insurance as a result of their lack of credit history and their general classification as high-risk customers. Many are also without documentation, which oftentimes makes claim verification difficult. Mobile distribution of insurance policies could introduce products better suited to the needs and payment capacities of a considerably wider range of customers. These products could include health insurance, particularly micro-insurance; crop insurance; and rainfall and weather insurance.

[10] DFID (2009): *Access to Finance Survey*, Axco Insurance Market Information

Remittance systems are another key beneficial service that will be much more accessible through MFS and will eventually lead to an increase in formal users. Mobile remittances can be made through a fast, secure channel that would be available to all. These services are designed to be instant, safe, and secure, which should draw users away from the informal channels many use today and also likely lure those unbanked who do not trust traditional banks but who would find the brand names of mobile providers appealing. With up to 57M MFS users of remittances services, the formal remittances volume could increase by 24% by 2020.

2.22 Benefits: From the Individual to Society

Mobile financial services can offer all Pakistanis certain benefits. Banking becomes much more accessible and affordable. Products are tailored to customers and are thus more relevant and meaningful. And MFS leads overall to a reduced reliance on cash. In addition, those MFS adopters who were previously unbanked will benefit from mitigated income volatility and expense shocks.

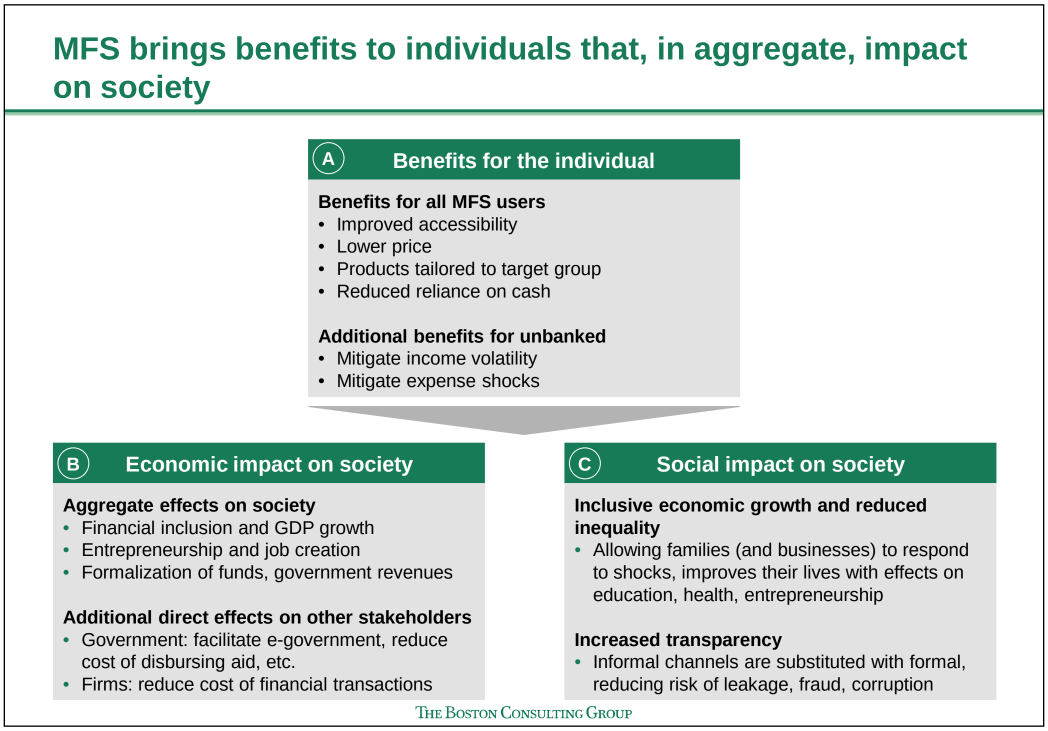

Exhibit 1.7 Overview of benefits

All of these advantages accrued by the individual will ripple outward and affect society economically and socially. Economic benefits include the increase in financial inclusion, which leads to GDP growth; the sparking of entrepreneurship and job creation; and the formalization of funds and government revenues. Other stakeholders will feel direct economic effects as well, such as government, through the facilitation of e-governing and the reduction in the cost of aid disbursement; and private firms, through lower costs of financial transactions.

Socially, the impact of MFS will be substantial as well. Inclusion, which leads to economic growth, means an overall reduction in population inequality. Families and small businesses will be better able to respond to shocks, and because of the effects MFS will have on education, health, and entrepreneurship, Pakistanis will have the opportunity to lead improved lives. Informal channels of financial services—with the inherent risks of leakage, fraud, and corruption—will be behind them, and instead Pakistanis can make use of the formal, more transparent channels of mobile financial services.

2.3 Benefits for the Individual

The practical and attractive features of mobile financial services are a strong draw for individual customers. The accessibility of MFS, for instance, has meaningful appeal. Banking no longer requires the time and cost of travel, and users do not even need a computer to manage accounts and seek information about products. They can conduct transactions of any amount at any time of the day or night from anywhere. And those transactions—such as purchases, personal remittances, and business operations—are completed instantly and at a relatively low cost.

Another key benefit to the individual is how MFS lets users spend less of their time overcoming bureaucratic obstacles. Tailored features, as well as flexible repayment plans and reduced balance requirements, give the previously unbanked the ability to open accounts and gain access to products tailored to their own needs. It also puts them in a position to build up credit histories, an important stepping-stone in individual economic improvement.

Mobile banking reduces its customers' reliance on cash, a feature that brings increased convenience and savings potential into Pakistanis' lives. Cash becomes unnecessary for transferring or receiving money, which reduces the inherent risks of cash handling, such as loss, theft, or fraud. With middlemen squeezed out of the transaction equation as a result of MFS, customers will experience increased transparency. All of these benefits give consumers good reason to adopt mobile banking.

Pakistan's poor face two primary challenges that financial services can help address. First, they tend to live with a high degree of income volatility. Financial services can help smooth out their cash flow in several ways: by building a buffer through savings; by increasing inflow through remittances; and by accumulating lump sums of money—through savings and credit—that can be used to manage major expenses as they come up.

The poor also suffer from the severe expense shocks that occur now and then in their lives. Again, access to financial services would help. Customers can obtain funds to help overcome temporary shortfalls through credit, remittances, and insurance, all of which is out of reach for the unbanked and has served to keep the poor from improving their economic situation.

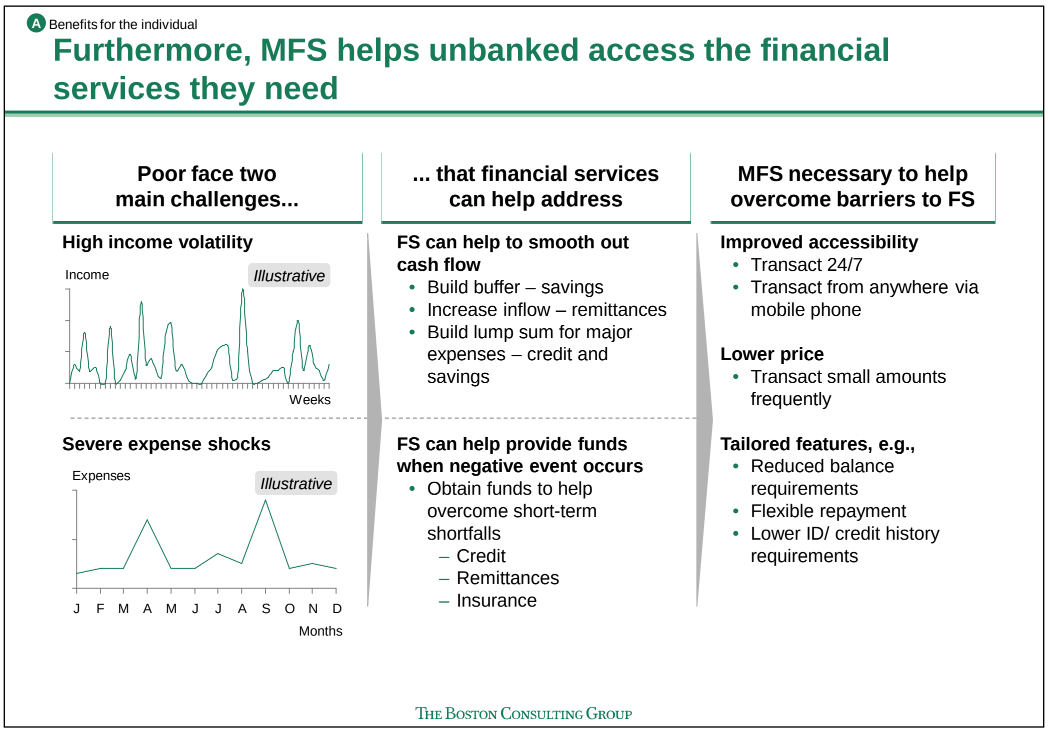

Exhibit 1.8 Income volatility and expense shocks

For urban Pakistanis, MFS produces a savings equivalent of 1 percent[11] of income as a result of reduced travel and waiting time—including the commuting time for users who don't live close to a branch, the waiting time involved when standing in long lines, and the transaction processing times. The savings will be significantly higher for rural users, who have to travel farther to get to banks. As MFS does away with these inconveniences, the benefits will be felt by both banks and communities. Banks will have fewer low-value, high-cost transactions to contend with as customers migrate to cheaper

[11] Based on average number of transactions as reported by CGAP (2010): *Branchless Banking 2010*, half an hour time saving pr transaction valued at average hourly wage of US$ 0.47 reported by the International Labor Organization

channels—improving the overall cost to serve. The reduction in customer waiting times translates to reduced requirements for bank staff, too. From an even broader perspective, MFS will contribute to a decrease in city traffic congestion and a reduction in the lost productivity that occurs when workers have to run inconvenient errands.

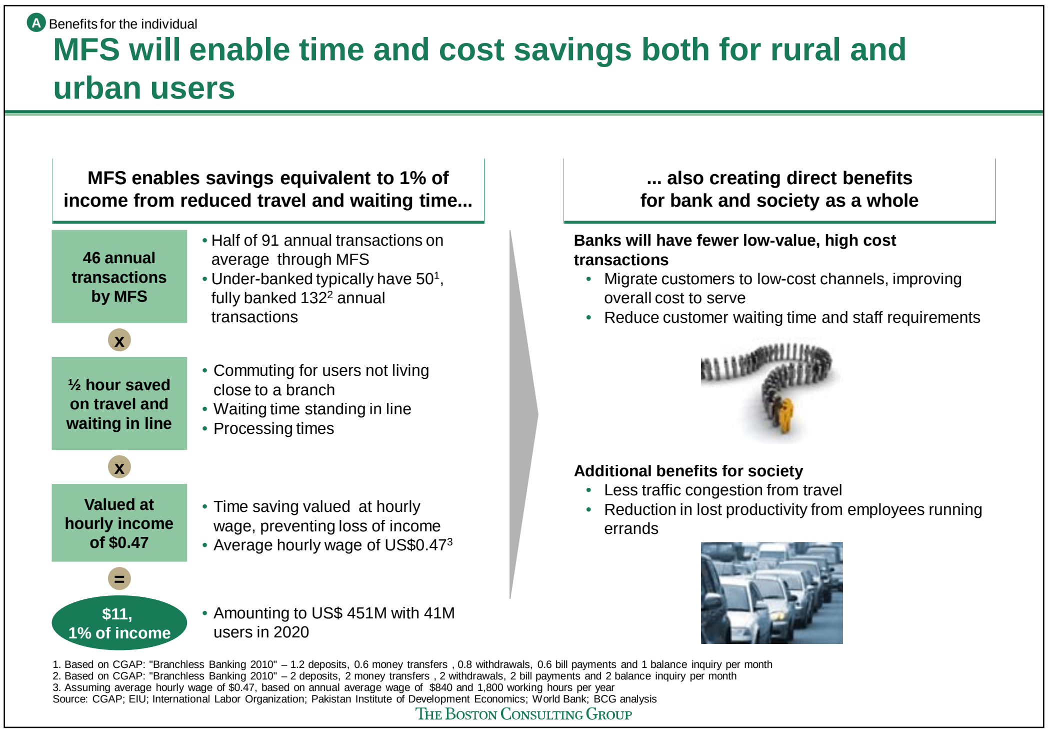

Exhibit 1.9 MFS time and cost savings

2.4 Economic Impact on Society

Strong evidence exists that growing financial inclusion increases a nation's GDP[12]. As entrepreneurs with business ideas gain access to credit, economic activity grows, and new businesses and jobs mean a more productive society. In addition, there is a sort of accounting benefit from the formalization of savings within the banking system, as this will power further credit creation, increasing investments. With mobile financial services adoption, Pakistan could see a GDP increase of US$20 billion, or 3 percent, by 2020.

[12] Based on Beck, Demirgüç-Kunt, and Levine (2004): *Finance, Inequality and Poverty: Cross-Country Evidence* and King and Levine (1993): *Finance, entrepreneurship, and growth*

2.41 New Job Creation

Increased access to finance facilitates entrepreneurship, new business creation, and new jobs. A World Bank study finds a 1 percent increase in financial inclusion corresponds to a 0.51 percent increase in business creation, and a 15 percent inclusion increase leads to employment growth of 1 percent[13].

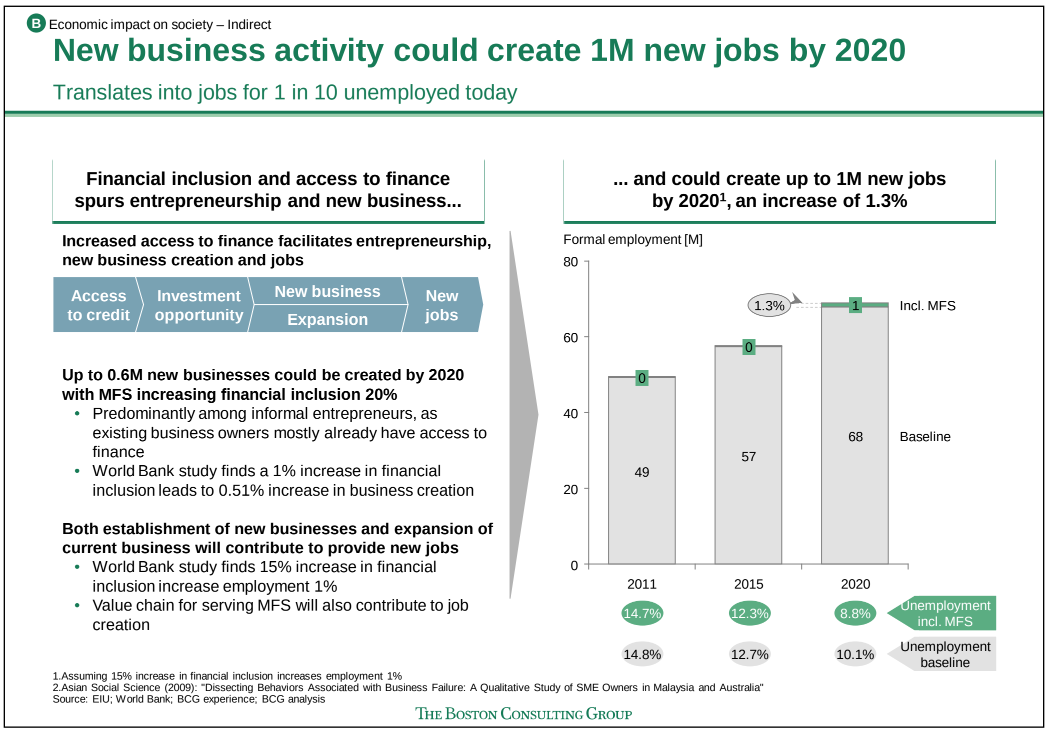

Exhibit 1.10 New job creation

By 2020, if MFS adoption increases financial inclusion by 20 percent, up to 600,000 new businesses could be created, leading to 1 million new jobs—an employment increase of 1.3 percent. This is the equivalent of new jobs for 1 out of every 10 currently unemployed Pakistani.

[13] World Bank (2009): *The impact of banking the unbanked - Evidence from Mexico*

2.42 Tax Revenue Growth

The benefits of the economic growth stimulated by MFS will increase tax revenues, as well. Corporate taxes will grow as a result of new business creation along the MFS value chain, growing profits within existing firms thanks to savings from MFS, and company expansions made possible by MFS. This business growth and creation will generate new jobs, which means increased employee income taxes. MFS could therefore add US$2 billion annually to Pakistan's government revenues by 2020—an increase of 3 percent.

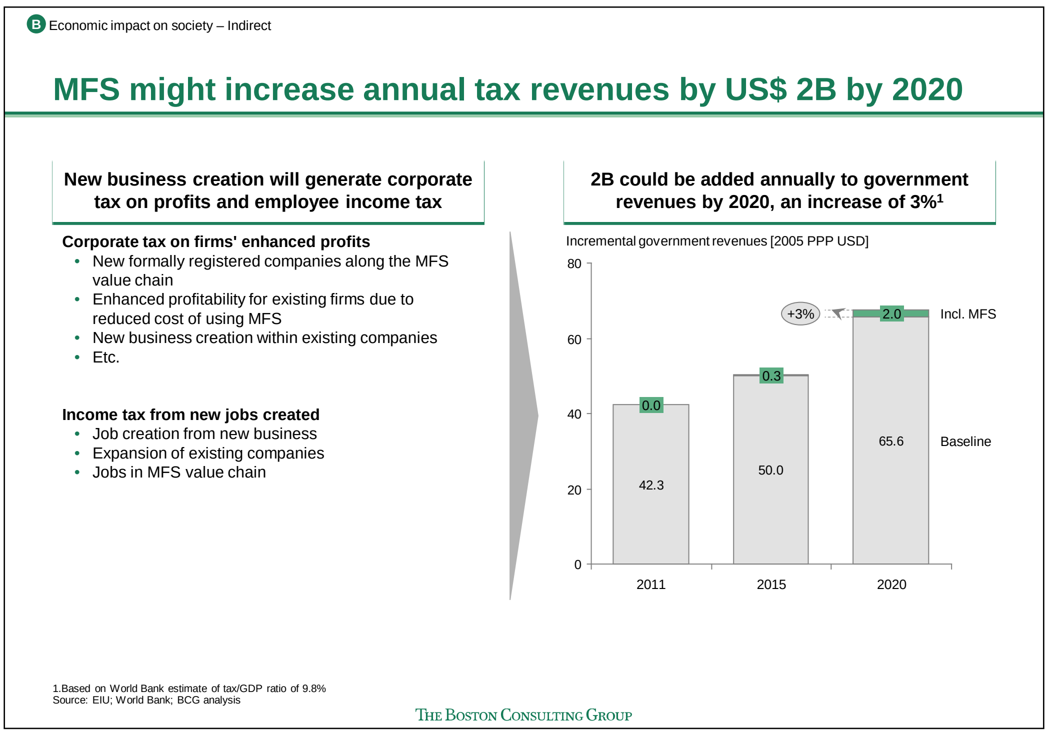

Exhibit 1.11 Impact on annual tax revenues

2.43 Tools for Government

Mobile financial services can bring a distinct advantage as an efficient disbursement tool for federal welfare. The current system involves paying by checks or cash, and making use of offline points of service. Such cash payments and subsidies saddle the government with significant costs and inefficiencies, including possible delays, leakages, and risk of corruption by middlemen. To open individual bank accounts for beneficiaries would cause these problems to diminish, but such services would be expensive and inconvenient, especially for poor rural users.

MFS would provide beneficiaries with direct access through electronic identification and mobile accounts. They would receive their welfare and subsidy payments instantly, at low cost, with no risk of leakages.

Furthermore, mobile banking would encourage the development of e-government services, benefitting both government and citizenry with a user-friendly system that would facilitate payments and ID solutions cost effectively. Canada has implemented such a system and has saved US$9 per inhabitant on public services annually, with high user satisfaction. In 2005, that nation launched mobile services meant to improve the delivery of government programs and services to Canadians. The program handles requests for Social Security numbers and passport and credit applications, and it also disburses tax and social security payments. It has provided users with a faster and easier way to access government services, even those in rural and remote locations.

2.44 MFS Impact on Firms, Merchants, and Middlemen

The adoption of mobile financial services can decrease administrative costs for companies. Many firms, such as utility companies, spend significant time and money on the administration and processing of paper bills. Incorporating electronic receipts and reporting can reduce costs and improve speed and accuracy, reducing erroneous charges for arrears, for example. In addition, MFS will increase transaction speeds and reduce outstanding credit times, minimizing how long it takes to collect and inquire after payments.

A byproduct of companies' reduced administrative duties is an increase in the flow of customers—and revenues—to over-the-counter MFS agents. The merchants who take on these jobs will benefit from the growing sales of financial services, larger revenues from the sales of ordinary goods, and an improved social standing as a result of their work.

Another byproduct, however, will be a lesser need for middlemen, some of whom will experience a cut in income. For example, the livelihoods of some middlemen have been based on the transport of money for remittances and payments, and some have worked as money collectors for informal savings and credit schemes. All of those jobs will be less in demand as mobile services spread and their products become more popular. Thanks to MFS, however, new opportunities will arise—such as jobs for formal banking agents—for those willing to be trained and licensed.

2.5 Social Impact on Society

The adoption of mobile financial services can help support the achievement of Pakistan's social development goals. The growth of the country's technological infrastructure—mobile, Internet, and, thus, MFS—will be at the root of the development of rural society, education, health care, gender equality, and transparency. As these improvements occur, human capital and economic development will thrive, as will improvements in the equality of opportunity and income. MFS can support the development that leads to a higher quality of life through more equitable economic growth, helping Pakistan address some of the social goals of its Five-Year Plan (2010 to 2015) and Vision 2030.

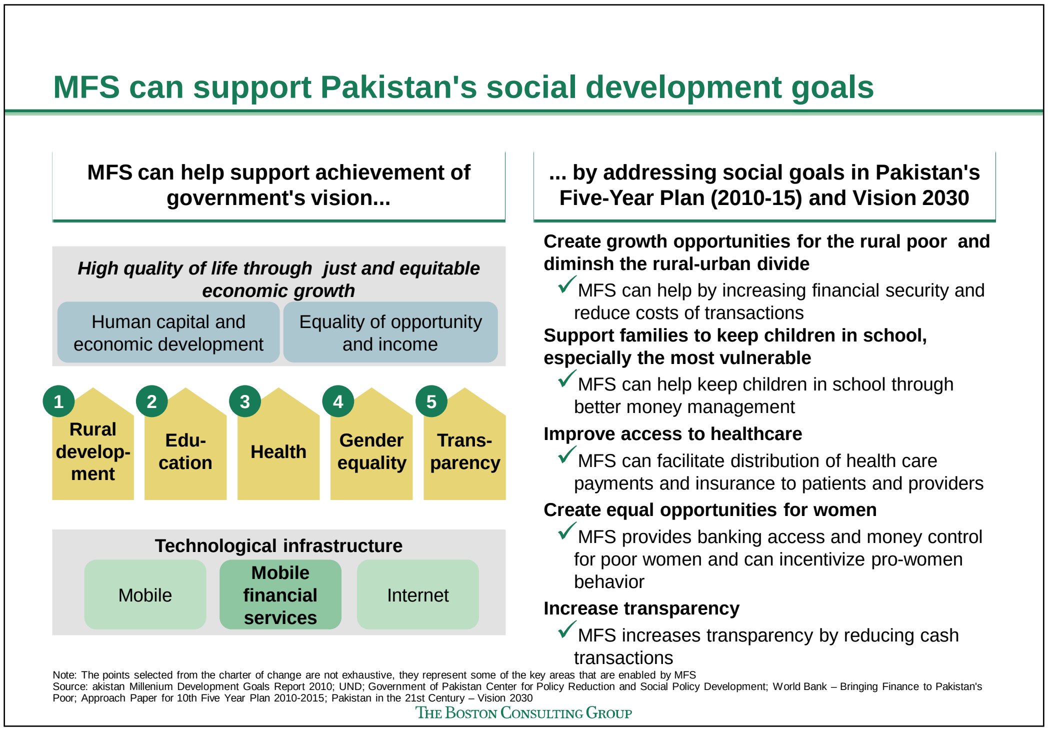

Exhibit 1.12 Overview impact on society

2.51 Reducing Economic Inequality

By 2020, with the distribution of MFS having widened access to financial services, the Gini coefficient—the most commonly used measure of inequality—can be reduced by 0.8 percent.[14] With such a shift, Pakistan's economic equality would be roughly equivalent to that of Hungary.

[14] The Gini coefficient varies between 0, which reflects complete equality, and 1, which indicates complete inequality. Ratios based on Ang (2008): *Finance and Inequality – The Case of India*

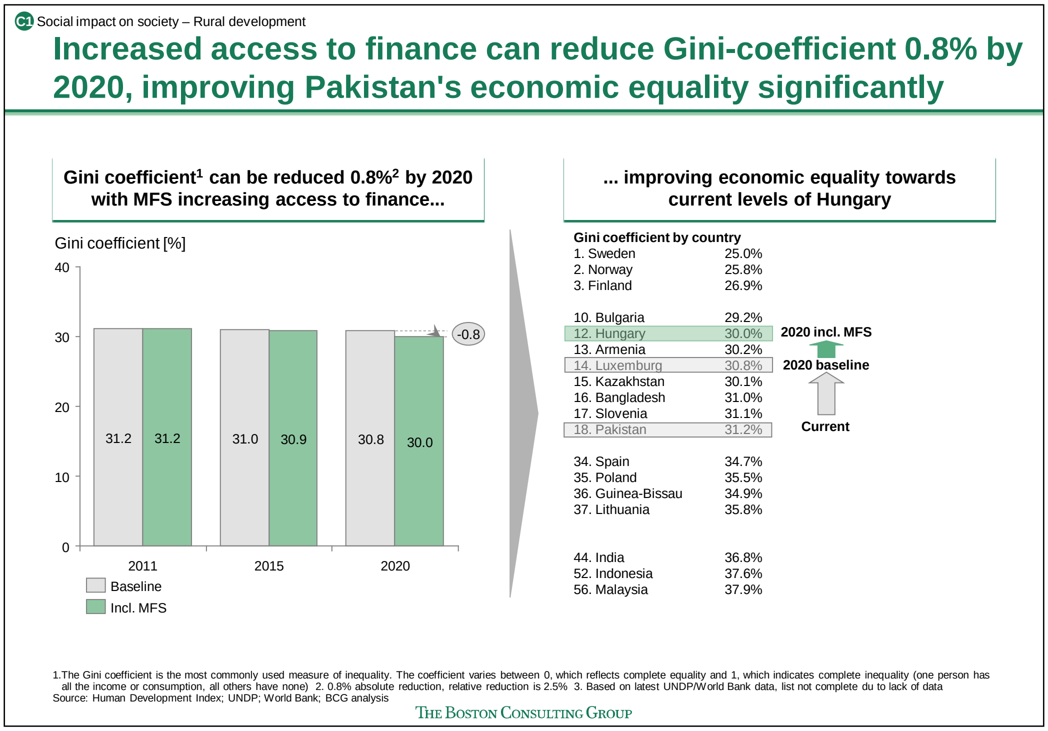

Exhibit 1.13 Reduction in income inequality

The current inaccessibility of bank branches is an important reason that the rural poor in Pakistan remain unbanked. For some potential customers, a trip to the bank could take a whole day, which would mean a day of lost pay, the expense of the trip, and exposure to theft. Women may also not be permitted to make such trips alone.

Mobile banking reduces or eliminates these problems. Customers save time and money, potentially 12 days' worth of wages annually, plus travel expenses. Storing money electronically removes the risk of theft or loss, and customers have the potential of earning interest. MFS improves flexibility tremendously, with transactions available at customers' fingertips at any time of day or night, as well as the use of a wide network of agents, facilitating customers' access to cash. Overall, mobile services can contribute to the creation of growth opportunities for the rural poor and diminish the rural-urban divide.

2.52 Supporting Education

In Pakistan, financial shocks make it difficult for children to finish primary school. Since the 2005 earthquake, for instance, primary school completion has dropped almost 20 percent[15]. Poor families also pull their children out of school early so that they can join the labor force.

MFS can contribute to a solution that improves Pakistanis' financial security and helps to keep children in school. Mobile money transfers are a good example. A husband working in the city can electronically transfer money home to his wife in the village, who can then send money to a child studying in a different town. Students can pay school fees with cash or through their mobile phones. Families will benefit from the convenience and security of storing education funds in an m-wallet and of having easy access to additional cash through local agents. Small, frequent transactions are now an option, reducing the cash-flow burden on the family.

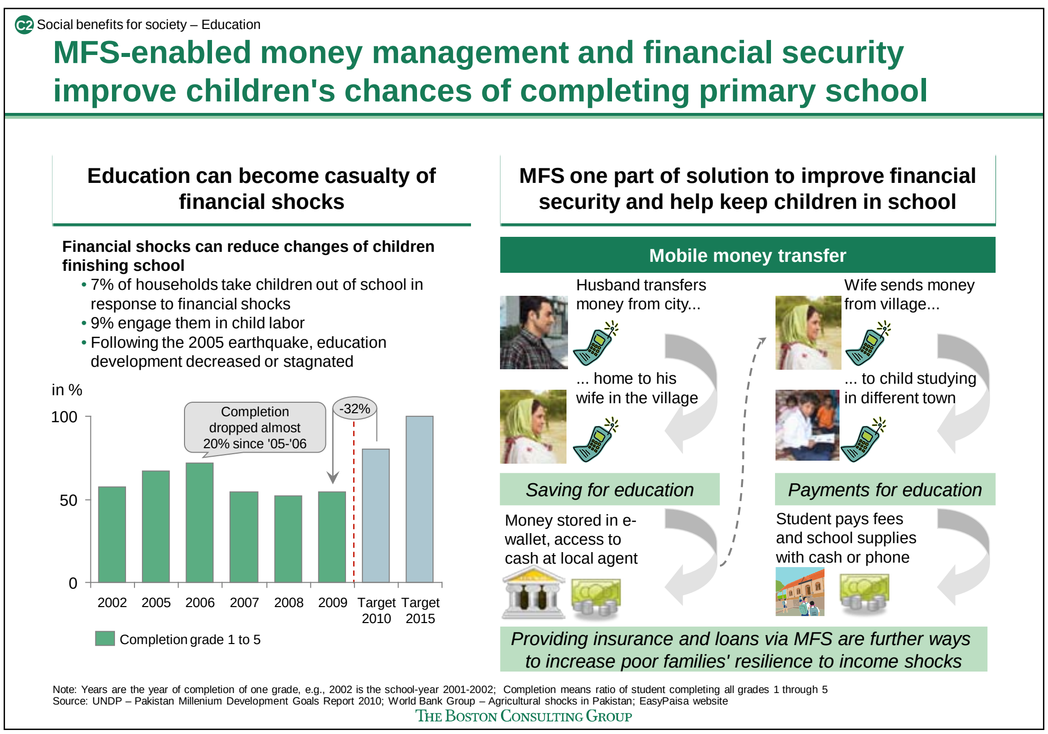

Exhibit 1.14 Supporting education

[15] World Bank (2009): *"Shocks, Coping, and Outcomes for Pakistan's Poor"*

Moreover, with easier access to loans and insurance through MFS, Pakistanis will be better prepared to withstand income shocks. MFS-enabled money management and financial security will help to support some of the most vulnerable families as they strive to keep their children in school.

2.53 Health Care Improvements

In Pakistan today, health catastrophes and serious illnesses can have a serious effect on the poor. Only 26 percent of the population has health care coverage, with 73 percent of medical payments made out-of-pocket[16]. Health care costs account for 70 percent of households' financial shocks, and the impact is significant: food shortages, more children dropping out of school, and an increase in child labor. Sixty percent of families that fall victim to health shocks do not recover financially.

MFS will improve overall access to health care—another of Pakistan's larger social goals—by providing access to three main levers that can address current problems. With mobile banking, the poor have a simple and safe way to save money for future health care costs. Products can even be tailored for this purpose. In Kenya, for instance, women can make mobile micro-payments for a predetermined period to save for childbirth costs.

Second, MFS puts insurance within reach by simplifying how premiums are paid and how claims are processed. Micro-health insurance initiatives have already begun in Pakistan, and wider distribution of mobile services will encourage more such programs and further participation.

And finally, MFS makes instantaneous fund transfers easy for customers, which simplifies the process of obtaining funds and making payments. One program being tested by Heartfile Health Financing allows donors to electronically allocate funds that can be used to pay for vouchers on behalf of patients in need. Instant transfers also

[16] WHO (2010): *Protecting the poor against health impoverishment in Pakistan*

make it easy for other family members or welfare agencies to contribute towards the payment, thus avoiding the situation where treatment is delayed or denied due to lack of funds for payment on the spot.

2.54 Toward Gender Equality

Since MFS brings banking into the home, it will have a particular benefit for many of Pakistan's women, and thus for society at-large. Studies show that women are more likely than men to allocate funds toward education, health care, and household needs[17]. As they become financially included through MFS—especially through m-wallets—women will begin managing income as well as government and NGO payments. This will increase their own control over household capital, and women will begin making more of the families' decisions about purchases, savings and loans, and money transfers.

Thus, MFS-enabled empowerment for women can benefit Pakistanis' overall education and health by providing, for instance, simpler loan distribution, request, and repayment processes. An example is the Kashf Foundation, which gives emergency loans to poor women in times of unexpected income shocks. The money pays for the basics—schooling, utilities, and food. Such direct access and control will allow women to manage household and education needs more effectively. Financial inclusion through MFS will help to incentivize pro-women behavior in Pakistan—tackling the nation's vision of creating greater gender equality.

2.55 Increasing Transparency

Today, Pakistan is No. 143 out of 178 countries on the Transparency International's Corruption Perception Index, and increasing transparency is a pressing national goal. In 2009, the average expenditure on bribery was about US$100, and the problem is pervasive across all sectors of the economy.

[17] E.g. Munich Re (2006): *Protecting the Poor*, UNCDF (2002): *Increasing Access and Benefits for Women* and International Labor Office (2007): *Women and Microfinance*

MFS increases overall transparency through two primary mechanisms: cutting out middlemen and reducing cash flow. This effectively reduces the number of opportunities for corruption, bribery, or extortion[18]. An example is the mobile salary payment system piloted in Afghanistan. Before the system, 10 percent of salary payments made by that country's National Police went to "ghost policemen," with middlemen pocketing the difference[19]. Since 2009, salary payments have been made through mobile phones, eliminating the need for cash handling and the prevalent corruption that went along with it. Now payments are completed 100 percent.

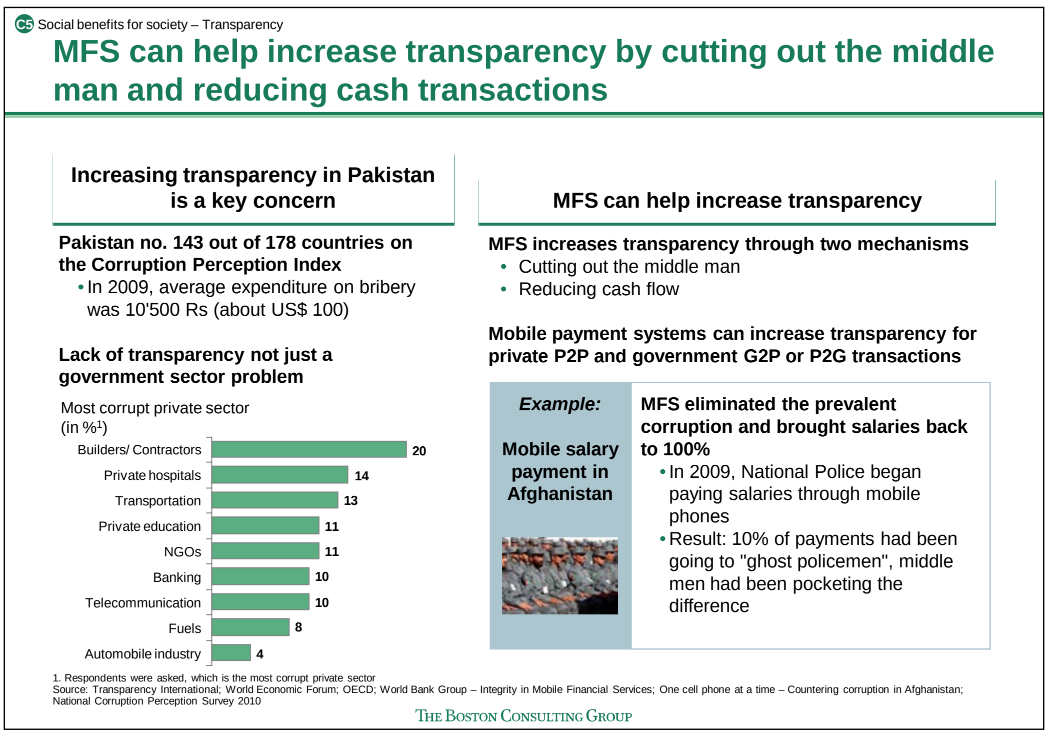

Exhibit 1.15 Increasing transparency

Despite all of the substantial benefits that come from broad financial inclusion, there is also an increased chance of risks associated with the availability of new payment channels for so many people. There is an ongoing need to prevent money laundering as

[18] World Bank (2008): *Integrity in Mobile Financial Services*

[19] Rice & Filippelli (2010): *One Cell Phone at a Time: Countering Corruption in Afghanistan*

well as terrorist and criminal financing. Regulations for telecom companies and government will have to include countermeasures limiting transfer amounts and the number of transfers permitted, managing cross-border transfers, and requiring IDs and codes.

Widespread MFS adoption could also reduce these serious risks as informal fund channels are more carefully scrutinized. Mobile services will make all formal capital movement traceable, allowing greater scrutiny of the remaining informal channels. Nonetheless, finding an overall balance between the nurturing of the MFS environment and the proportionate risk for criminal behavior is key.

2.6 Regulatory Issues

MFS poses a new kind of regulatory challenge, straddling as it does two large but distinct domains of regulation: telecommunications and financial services. As it stands today, there are limited formal opportunities for parties from different industries to engage with regulators, as governing bodies and working groups tend to be closed. There is often also a lack of alignment between regulators from these different sectors. In fact, few countries have any sort of formal relationship between financial regulators and telecommunications regulators. This regulatory vacuum will need to be filled.

At the same time, the banking regulations already in place frequently do not address all aspects of an MFS ecosystem. Traditional-banking regulations may in some cases be disproportionately strict, relative to the regulatory needs for MFS, and may not be sufficiently flexible to allow for the innovation and reforms necessary for MFS to take off. For instance, some existing prudential rules and requirements will clash with the high-frequency, low-volume nature of MFS and thereby prevent experimentation.

For MFS to broaden and grow in Pakistan and bring its benefits to society and government, an essential step is the creation of a comprehensive regulatory framework that extends freedom of action to non-banks. This framework should be based on three tiers, with strong interdependence between various domains. *Vital*, the first tier of regulations, addresses the use of MFS agents and money laundering and terrorism financing. The second, *necessary*, would regulate such issues as consumer protection and payments systems. The third, and largest, regulation tier, *supporting*, includes the underlying framework, such as data privacy, e-commerce and e-security, general banking, taxation, and general telecommunications. With this structure in place, MFS has the potential to thrive.

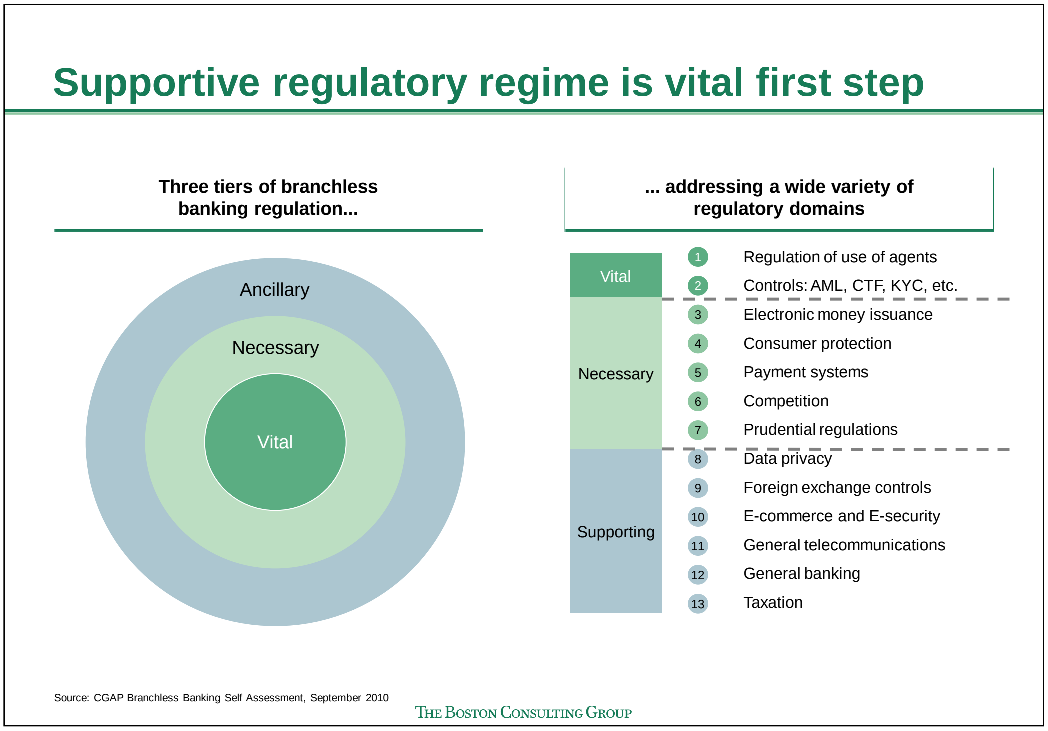

Exhibit 1.16 Three tiers of regulatory framework

Pakistan has already made significant progress in MFS regulations, with the introduction of Branchless Banking Regulations in 2008. This has increased clarity for potential entrants to the market, setting the stage for the rapid growth of the industry in the coming years. CGAP, the Consultative Group to Assist the Poor, has lauded Pakistan for "greatly improving the possibility that financial services will be accessible."[20]

Nevertheless, there are still areas where regulatory flexibility could be improved. For instance, consider regulations addressing anti-money laundering. Today, relevant

[20] CGAP (2010), *Update on Regulation of Branchless Banking in Pakistan*

regulations combat the financing of terrorist regimes, but they also present obstacles to the growth of MFS and branchless financial activities. Stringent registration requirements can be a hurdle to both agents and potential customers. As biometric capture is introduced, costs for agents will go up and MFS rollout will slow down. Approximately 20 percent of Pakistanis do not today have a national identity card. And with limits on transactions in place, mobile accounts become less attractive, particularly since the limits have not been adjusted for inflation, running at around 7 percent to 10 percent annually in Pakistan.

A possible solution is to consider a case-by-case approach to KYC, or know your customer, requirements that match documentation with transaction volumes. This has been successfully implemented in South Africa. In that country's system, when total transactions remain below US$1,500 a month, no face-to-face registration is necessary. When they are between US$1,500 and US$3,600 a month, a national ID is required. And for customers to be able to make unlimited transactions, they must present ID and proof of address at a bank branch. As part of the implementation of this type of system, transaction limits should be regularly reviewed and linked to inflation, to ensure that real value is maintained.

3. BANGLADESH

3.1 Introduction

Bangladesh currently has a 55 percent financial inclusion rate. This means that in Bangladesh today, 45 percent of adults have no access to formal financial services. Among the financially included, 16 percent are fully banked, meaning they are able to take advantage of a full range of financial services (including savings, insurance, credits and others); and 39 percent are underbanked, with only basic access, such as a savings account. Bangladesh's inclusion rate, which is extremely high given its current level of economic development, is driven primarily by microfinance, and the percentage of active users of the full range of financial services is probably lower. Furthermore, the penetration of key services—especially insurance—remains quite low, and MFS is nearly nonexistent.

There is strong evidence that financial inclusion—the delivery of affordable banking services to a population—is associated with the attainment of a nation's crucial economic and social goals. Providing financial services draws credit into the banking system, leading eventually to GDP growth. It increases the formation of domestic capital, spurring entrepreneurship. And it develops the depth of a nation's private sector, which in turn builds new jobs. These financial developments reduce a nation's overall income inequality, increase income growth among the lowest paid quintile of the population, and accelerate poverty alleviation.

From a social perspective, financial inclusion gives workers the means to make remittances, a key goal in promoting the reduction of inequality. It provides them with a safe way to save their income, increasing the resiliency of the poor to unexpected economic or political shocks and food shortages. And it gives the population access to insurance—a basic safety net for emergencies such as accidents or crop and weather catastrophes—making it possible for families to keep their children in school through difficult times.

3.11 Advantages of MFS

Mobile financial services providers would bring five distinct advantages over traditional banks to give the unbanked and underbanked access to the benefits of financial services in Bangladesh.

A focus on "long-tail" customers. Telcos have extensive experience targeting their customers and understanding their needs, making it possible for them to deepen and broaden the relationships they have with existing customers. In contrast, banks have typically given the lion's share of their attention to the wealthiest customers, ignoring the "long-tail," which they are unable to serve profitably.

Key infrastructure in customers' hands. Mobile customers already have the critical piece of infrastructure they need to access MFS, since the mobile SIM card can act as a secure identification and authentication device.

Customer relationships. Many of the unbanked already have relationships with mobile operators, which means their usage history is available. This gives telcos an advantage in knowing who potential financial services customers are and where they live. It gives them information on transactional patterns, which can become a basis for building a credit history, as well as an established channel for communication with customers.

Brand recognition. The population in general has had limited interactions with large, formal financial institutions, which has created a "trust gap" that could be a potential barrier to financial inclusion. Telecom companies, on the other hand, are typically well known even among the poorest segments of society, are considered safe, and are associated with instant transmission—through text messaging, or SMS, for instance.

Large distribution network. Unlike traditional banks, telecoms have behind them an extensive, nationwide network of merchants who are accustomed to working as commissioned agents. These companies have broad experience working with such partners on both pricing and product distribution.

3.12 Addressing the Unbanked

Mobile financial services lower some of the key barriers to banking inclusion in Bangladesh by reducing start-up costs and service prices, as well as by delivering the banking products that meet the particular needs of Bangladeshis. Widespread network coverage allows for around-the-clock account access and eliminates travel time and costs. Furthermore, mobile banking gives customers access to additional products, such as credit and insurance policies, thereby breaking the chicken-and-the-egg cycle and providing Bangladesh's population with a much-needed opportunity to build credit histories.

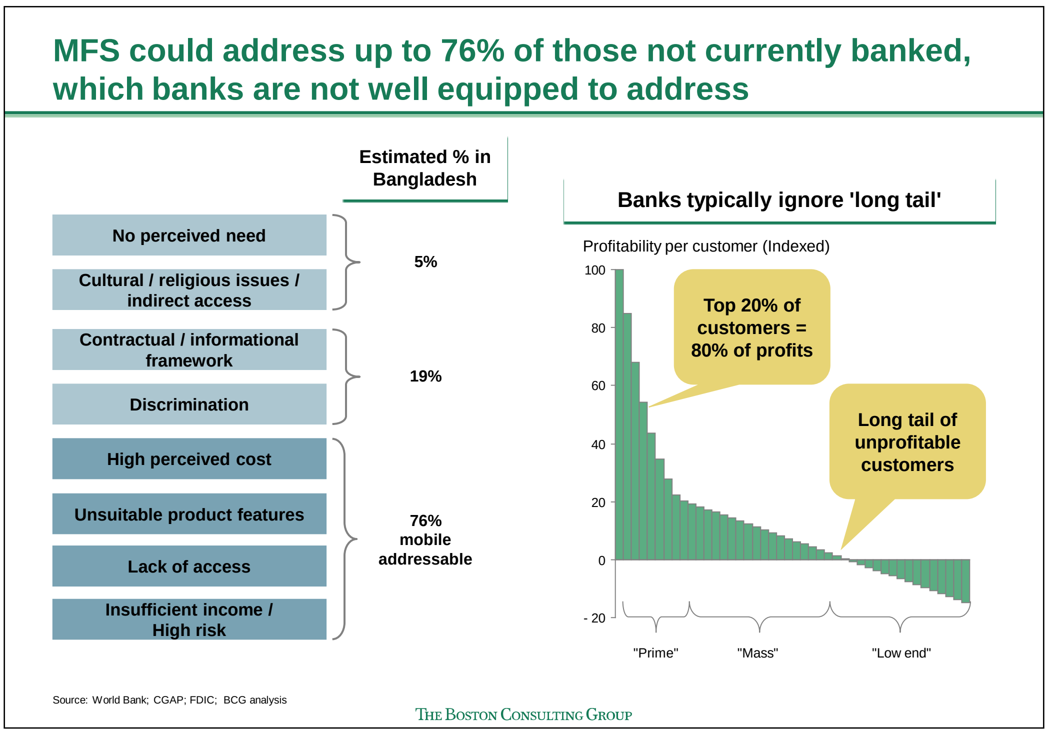

Exhibit 2.1 Addressing the unbanked

To consider who might benefit from the distribution of MFS, we broke down the unbanked population into several categories, leveraging surveys of the unbanked in emerging markets. Among those Bangladeshis who do not use formal financial services in any way, an estimated 5 percent are in that position of their own accord—either for cultural or religious reasons, or because they perceive that they have no need for banking services. The remaining 95 percent are excluded involuntarily. This could be, for example, because they face (real or perceived) discrimination or because they cannot get past the information and contractual requirements needed to access banking services.

It is estimated that a large proportion, up to 76 percent, are unbanked because financial institutions see their low income as too great of a risk, or because, for these Bangladeshis, the cost of services is too high and the product features that are offered are not sufficiently useful for them. This is the group that MFS is well suited to address.

"Mobile financial services" is defined here to include two broad categories of services: branchless banking via mobile phones and mobile banking as a channel for financial services. With branchless banking, users can take advantage of services allowing them to make basic payments—utilities and other bills—and domestic and international remittances. These transactions become fast, easy, and cost-effective through MFS. Users can also participate in savings, credit, and insurance programs. Such services drive the financial inclusion of the unbanked through m-wallet solutions, micro-loans, and micro health and crop-failure insurance.

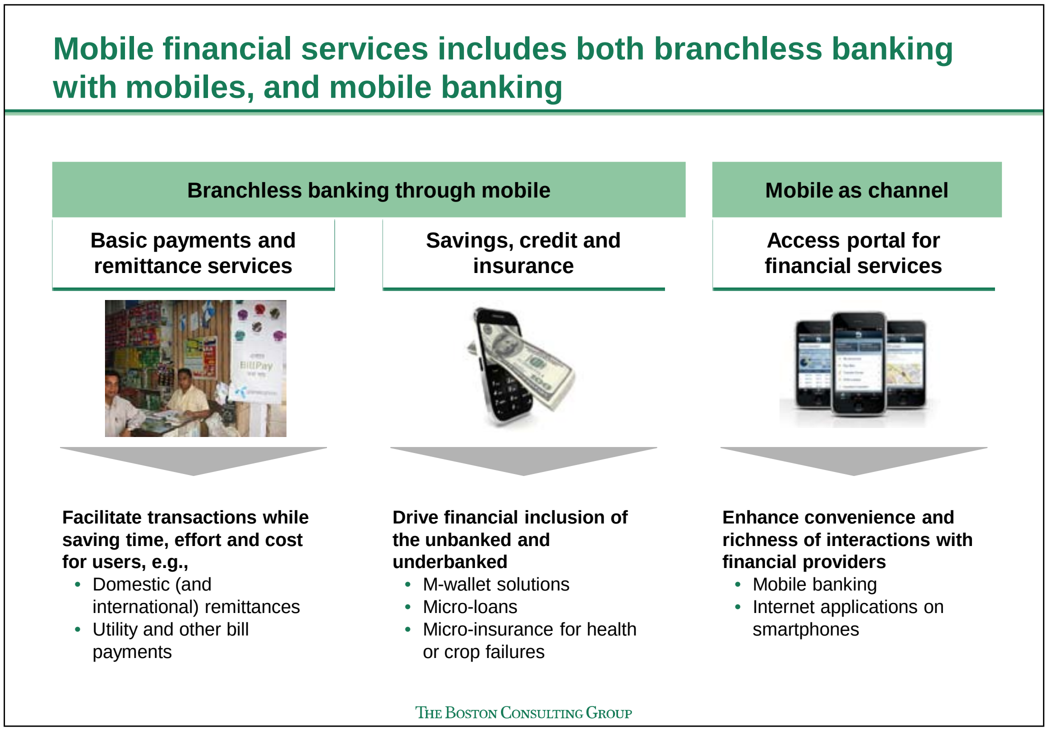

Exhibit 2.2 The two categories of services

The other side of MFS provides existing banking customers with a highly accessible portal for financial services, increasing convenience. The frequency of interactions between customers and financial providers is enhanced through this mobile portal, allowing for convenient mobile banking and the use of Internet applications on smartphones.

Mobile bill payment is already established in Bangladesh, but other types of MFS, including savings, credit, remittance, and insurance products, are just in the starting phase or have yet to begin. Bangladesh, thus, has the potential for great influence by MFS, with a large population in need of secure, convenient, and affordable banking services.

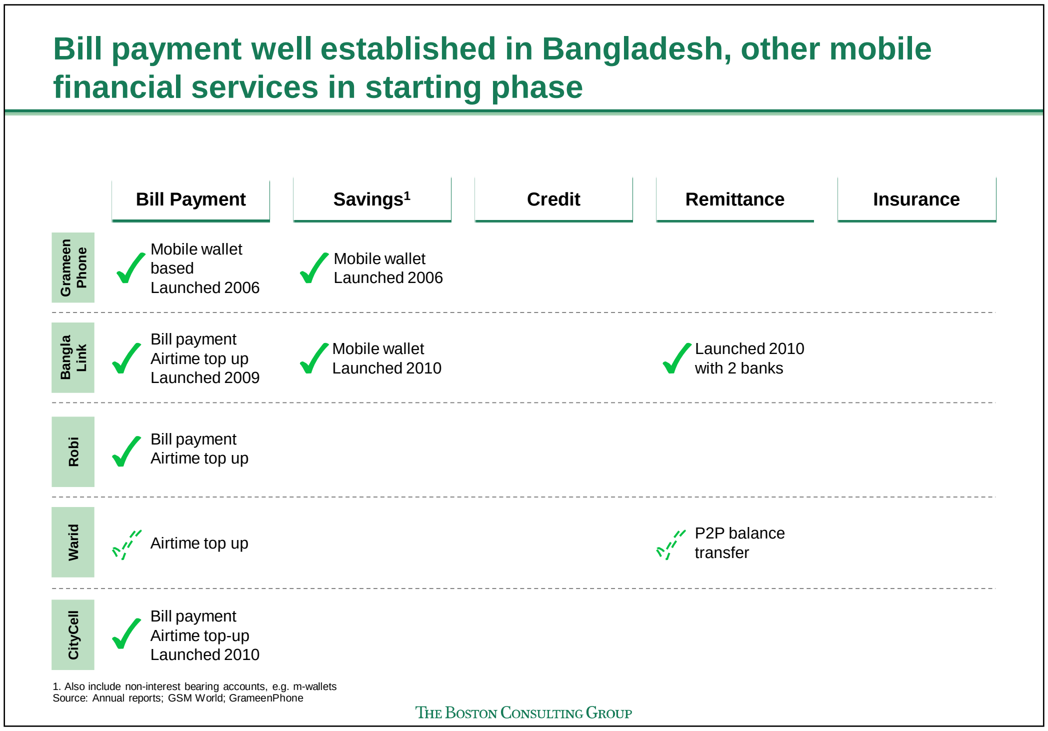

Exhibit 2.3 Current MFS offering

3.2 Adoption

For mobile financial services to gain a strong footing in Bangladesh and develop a successful, lasting ecosystem, a number of elements have to be in place. These include regulations, business model planning, distribution networks, and consumer education.

Implementing and enforcing regulations of mobile services is a key step in the inclusion process. These regulations must include the structure of the MFS framework for non-banks, guidelines for the use of MFS agents, and a coordinated government initiative.

In addition, the establishment of a workable MFS business model will be necessary. Since both banks and telecoms will offer mobile financial services, there must be cooperation and transparency between these different types of players. Profit sharing and pricing mechanisms must also be built into the MFS business model.

A stable, reliable distribution network has to take hold before MFS can be successful in Bangladesh. This includes how MFS agents are used, trained, and certified. A strong network must also be set up to manage liquidity, or to guarantee the security and flow of funds.

Finally, consumer education is of crucial importance in guiding the success of mobile financial services. Consumers will have to be taught the advantages of becoming banked and begin to understand the importance of moving away from a cash-based economy. This process will also include attempts at establishing trust in MFS as a reliable and useful system, and will likely require the collaboration of all members of the ecosystem, including the regulators.

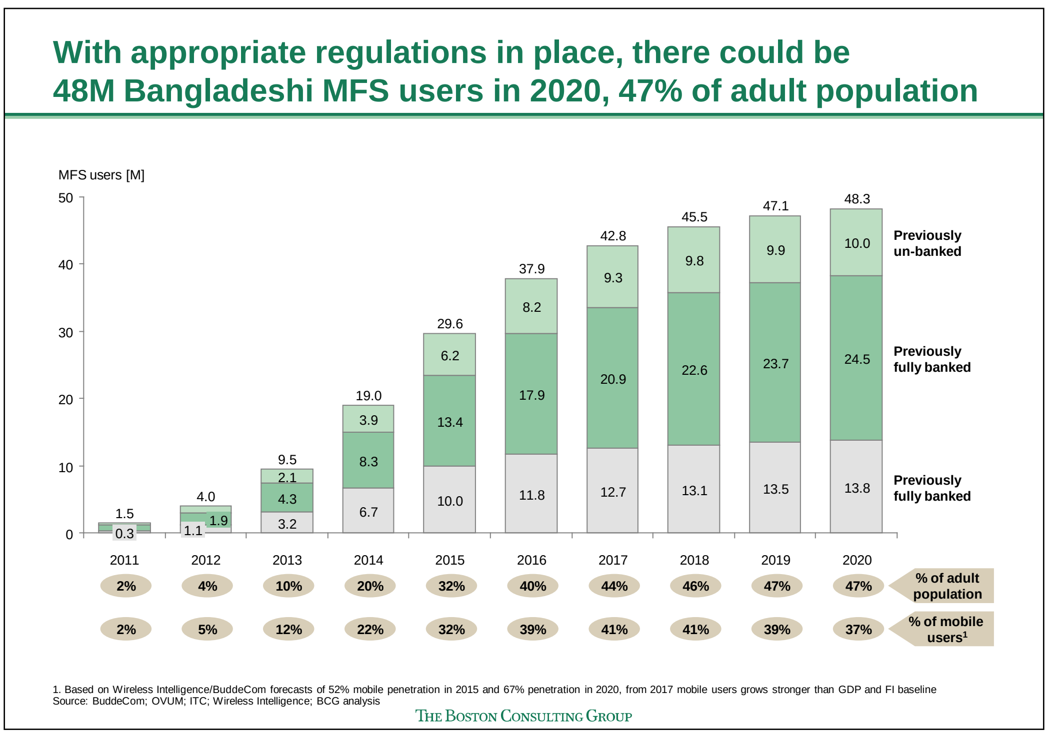

Exhibit 2.4 Reduction in number of unbanked

Given that this sort of supportive environment is in place, the potential number of MFS users has been projected until 2020. For more details on the analysis please refer to the appendix. By 2020, 47 percent of all adult Bangladeshis—from the unbanked to the fully banked—could be MFS users, thereby reducing the number of unbanked by 10 percent.

While the current financial inclusion rate of 55 percent should gradually increase to 59 percent by 2020, driven by overall development and economic growth, the additional 10 percent inclusion from MFS means financial inclusion in the country could reach 69 percent by that year.

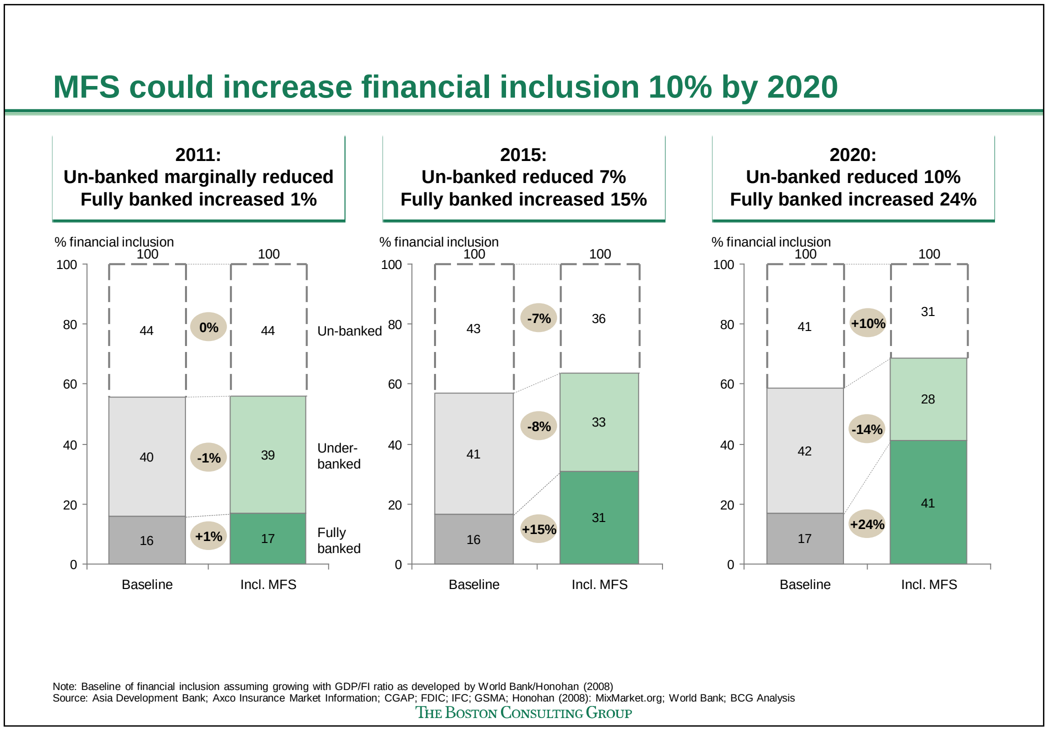

Exhibit 2.5 Details on reduction in number of unbanked

3.21 From MFS to Traditional Institutions

With wide MFS adoption, the number of people with formal savings accounts would probably increase by 30 million by 2020. In addition, 22 million can be added to the number of people using formal bill payment products, significantly increasing total transaction volume.

As Bangladeshis adopt mobile financial services, they will also begin to gain access to a greater range of formal financial services. For example, customer relationships will deepen through MFS, with providers gleaning more information about who their customers are and where they live, as well as deeper knowledge of transactional patterns, all of which will begin the basis for building customer credit histories. Given wide MFS distribution beginning in 2012, the number of formal credit service users could increase by 12 million by 2020.

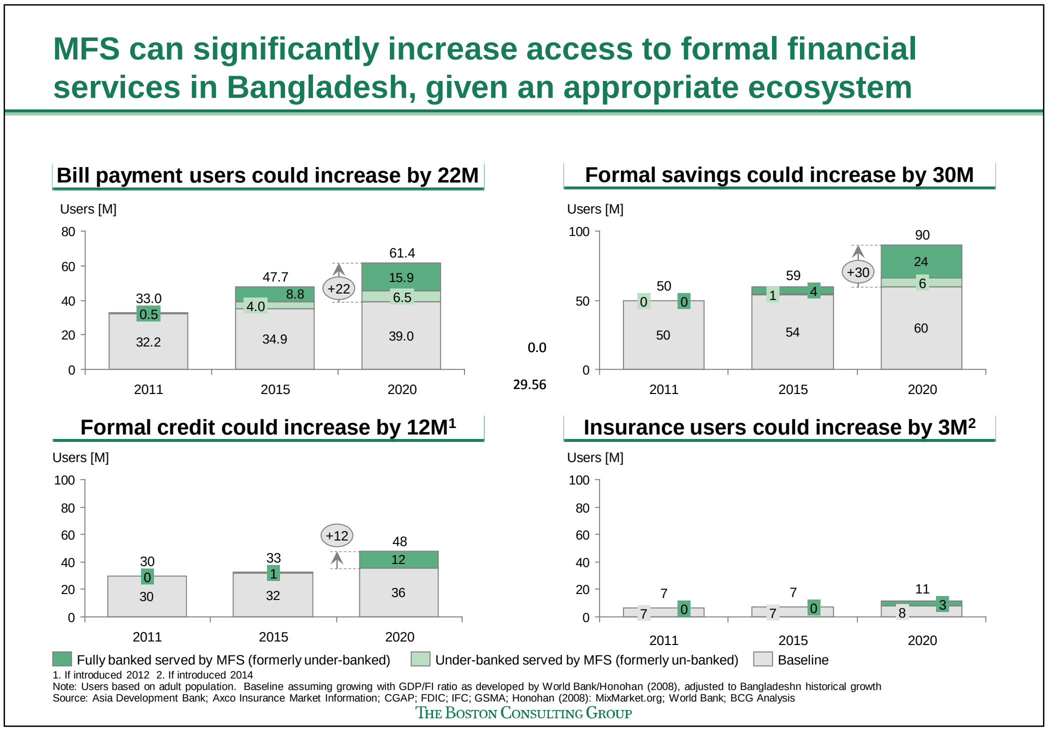

Exhibit 2.6 Access to financial services

Further, with MFS insurance introduced in 2014, the number of formally insured Bangladeshis could increase by 3 million by 2020. Currently, the limited rural distribution of insurance products makes for high transaction costs. Bangladesh's poor are also inhibited from gaining access to insurance as a result of their lack of credit history and their general classification as high-risk customers. Many are also without documentation, which makes claim verification difficult. Mobile distribution of insurance policies would introduce products better suited to the needs and payment capacities of a considerably wider range of customers. These products would include health insurance, particularly micro-insurance; crop insurance; and rainfall and weather insurance.

Remittance systems are another key beneficial service that will be much more accessible through MFS and will eventually lead to an increase in formal users. Mobile remittances can be made through a fast, secure channel that would be available to all, with fees significantly lower than the 5 percent to 12 percent of transaction amounts that informal channels often charge. These services are designed to be instant, safe, and secure, which should draw users away from the informal channels many use today. This will likely include those unbanked who do not trust traditional banks, but who would find the brand names of mobile providers appealing. MFS remittance services should lead to an increase of 39 percent in the number of formal users by 2020.

3.22 Benefits: From the Individual to Society

Mobile financial services can offer all Bangladeshis certain benefits. Banking becomes much more accessible and affordable. Products are tailored to customers and are thus more relevant and meaningful. And MFS leads overall to a reduced reliance on cash. In addition, those MFS adopters who were previously unbanked will benefit from an enhanced ability to mitigate income volatility and expense shocks.

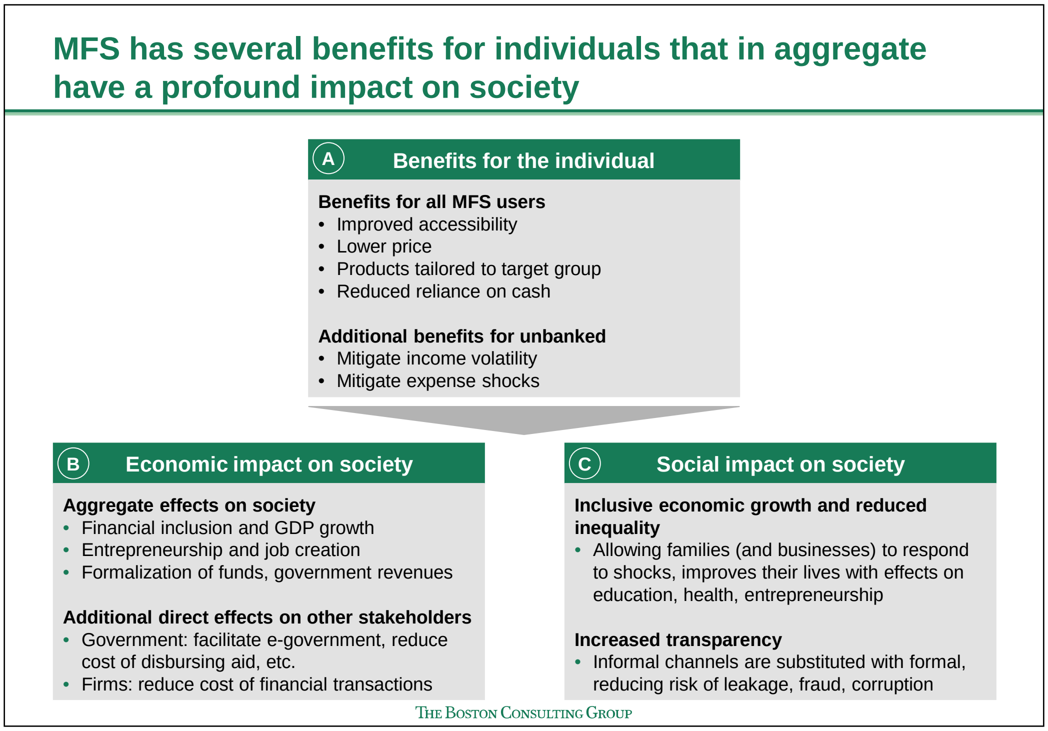

Exhibit 2.7 Overview of benefits

All of these advantages accrued by the individual will ripple outward and benefit society economically and socially. Economic benefits include the increase in financial inclusion, which leads to GDP growth; the sparking of entrepreneurship and job creation; and the formalization of funds and government revenues. Other stakeholders will feel direct economic effects as well, such as government, through the facilitation of e-governing and the reduction in the cost of aid disbursement; and private firms, through lower costs of financial transactions.

Socially, the impact of MFS will be substantial as well. Inclusion, which leads to economic growth, will also lead to an overall reduction in inequality. Families and small businesses will be better able to respond to shocks, and because of the effects MFS will have on education, health, and entrepreneurship, Bangladeshis will have the opportunity to lead improved lives. Informal channels of financial services—with the inherent risks of leakage, fraud, and corruption—will be reduced, and instead Bangladeshis can begin to make use of the formal, more transparent channels of mobile financial services.

3.3 Benefits for the Individual

The practical and attractive features of mobile financial services are a strong draw for individual customers. The accessibility of MFS, for instance, has meaningful appeal. Banking no longer requires the time and cost of travel, and users do not even need a computer to manage accounts and seek information about products. They can conduct transactions of any amount at any time of the day or night from anywhere. And those transactions—such as purchases, personal remittances, and business operations—are completed instantly and at a relatively low cost.

Another key benefit to the individual is how MFS lets users spend less of their time overcoming bureaucratic obstacles. Tailored features, as well as flexible repayment plans and reduced balance requirements, give the previously unbanked the ability to open accounts and gain access to products tailored to their own needs. It also puts them in a position to build up credit histories, an important stepping-stone in individual economic improvement.

Mobile banking reduces its customers' reliance on cash, a feature that brings increased convenience and savings potential into Bangladeshis' lives. Cash becomes unnecessary for transferring or receiving money, which reduces the inherent risks of cash handling, such as loss, theft, or fraud. With middlemen squeezed out of the transaction equation as a result of MFS, customers will experience increased transparency. All of these benefits give consumers good reason to adopt mobile banking.

Bangladesh's poor face two primary challenges that financial services can help address. First, they tend to live with a high degree of income volatility. Financial services can help smooth out their cash flow in several ways: by building a buffer through savings; by increasing inflow through remittances; and by accumulating lump sums of money—through savings and credit—that can be used to manage major expenses as they come up.

The poor also suffer from the severe expense shocks that occur now and then in their lives. Again, access to financial services would help. Customers can obtain funds to help overcome temporary shortfalls through credit, remittances, and insurance, all of which is out of reach for the unbanked, and has served to keep the poor from improving their economic situation.

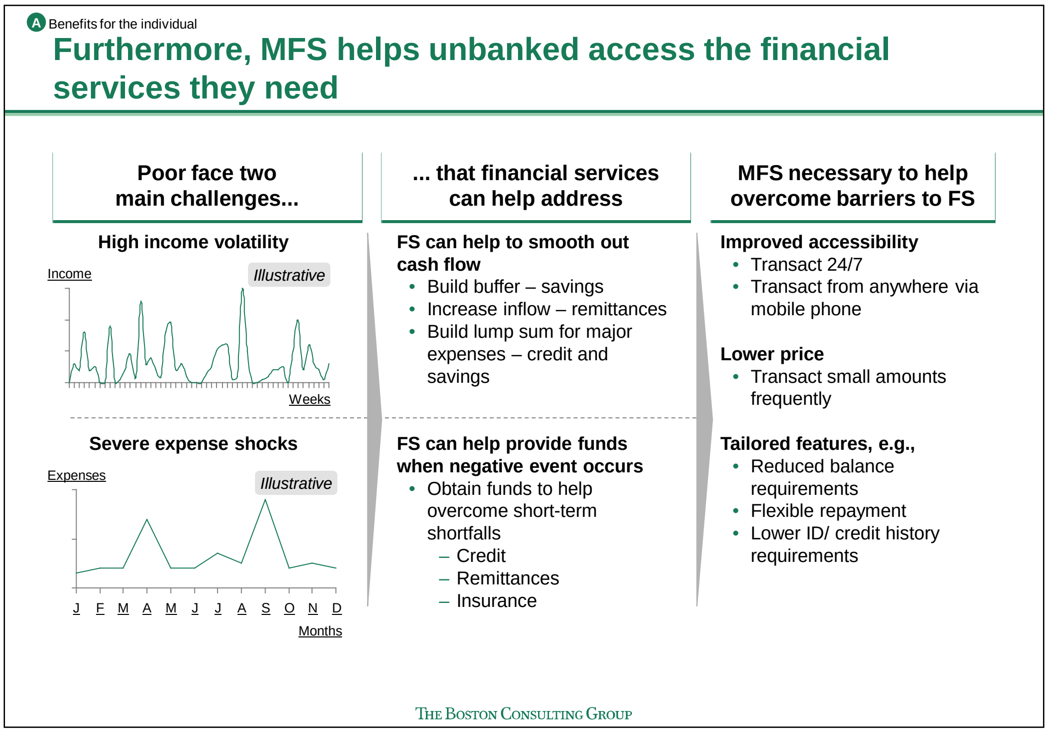

Exhibit 2.8 Income volatility and expense shocks

For urban Bangladeshis, MFS could produce a savings equivalent of 1 percent of income as a result of reduced travel and waiting time—including the commuting time for users who don't live close to a branch, the waiting time involved when standing in long lines, and the transaction processing times. The savings will be significantly higher for rural users, who have to travel farther to get to banks. As MFS does away with these inconveniences, both banks and communities will feel the benefits. Banks will have fewer low-value, high-cost transactions to contend with as customers migrate to cheaper channels—improving the overall cost to serve. The reduction in customer waiting times translates to reduced requirements for bank staff, too. From an even broader perspective, MFS could contribute to a decrease in traffic congestion in urban areas and a reduction in the lost productivity that occurs when workers have to run inconvenient errands.

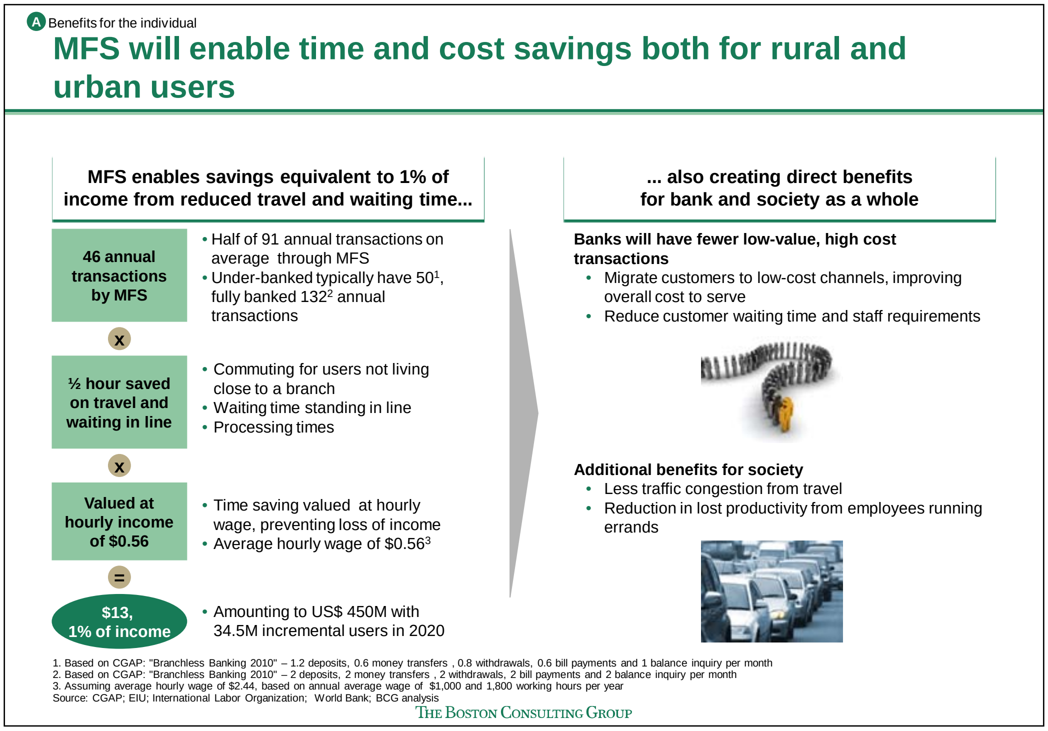

Exhibit 2.9 MFS time and cost savings

3.4 Economic Impact on Society

Strong evidence indicates that growing financial inclusion increases a nation's GDP. As entrepreneurs with business ideas gain access to credit, economic activity grows, and new businesses and jobs mean a more productive society. In addition, there is an accounting benefit from the formalization of savings within the banking system, as this will power further credit creation, increasing investments. With mobile financial services adoption, Bangladesh could see a GDP increase of US$6 billion, or 2 percent, by 2020.

3.41 New Job Creation

Increased access to finance facilitates entrepreneurship, new business creation, and new jobs. A World Bank study finds a 1 percent increase in financial inclusion corresponds to a 0.51 percent increase in business creation, and a 15 percent inclusion increase leads to employment growth of 1 percent.

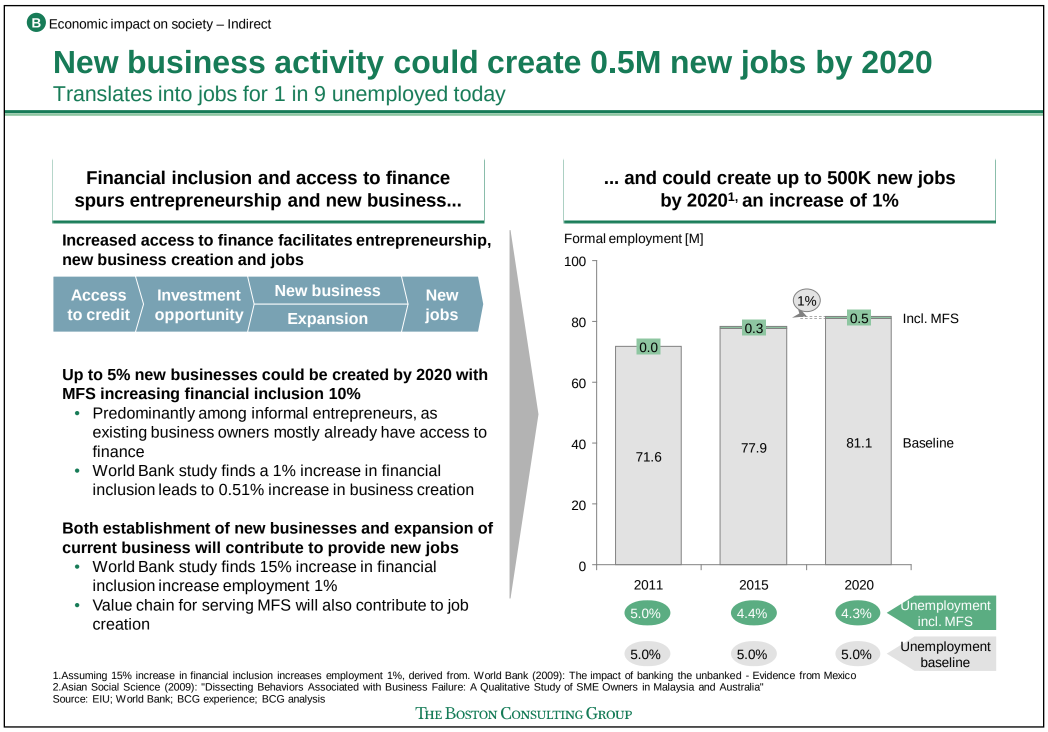

Exhibit 2.10 New job creation

By 2020, if MFS adoption increases financial inclusion by 10 percent, there could be an increase of up to 5 percent in new businesses, leading to 500,000 new jobs, or an employment increase of 1 percent. This is the equivalent of new jobs for 1 out of every 9 currently unemployed Bangladeshi.

3.42 Tax Revenue Growth

The benefits of the economic growth stimulated by MFS will increase tax revenues, as well. Corporate taxes will grow as a result of new business creation along the MFS value chain, growing profits within existing firms thanks to savings from MFS, and company expansions made possible by MFS. This business growth and creation will generate new jobs, which means increased employee income taxes. MFS could therefore add US$500 million annually to Bangladesh's government revenues by 2020—an increase of 2 percent.

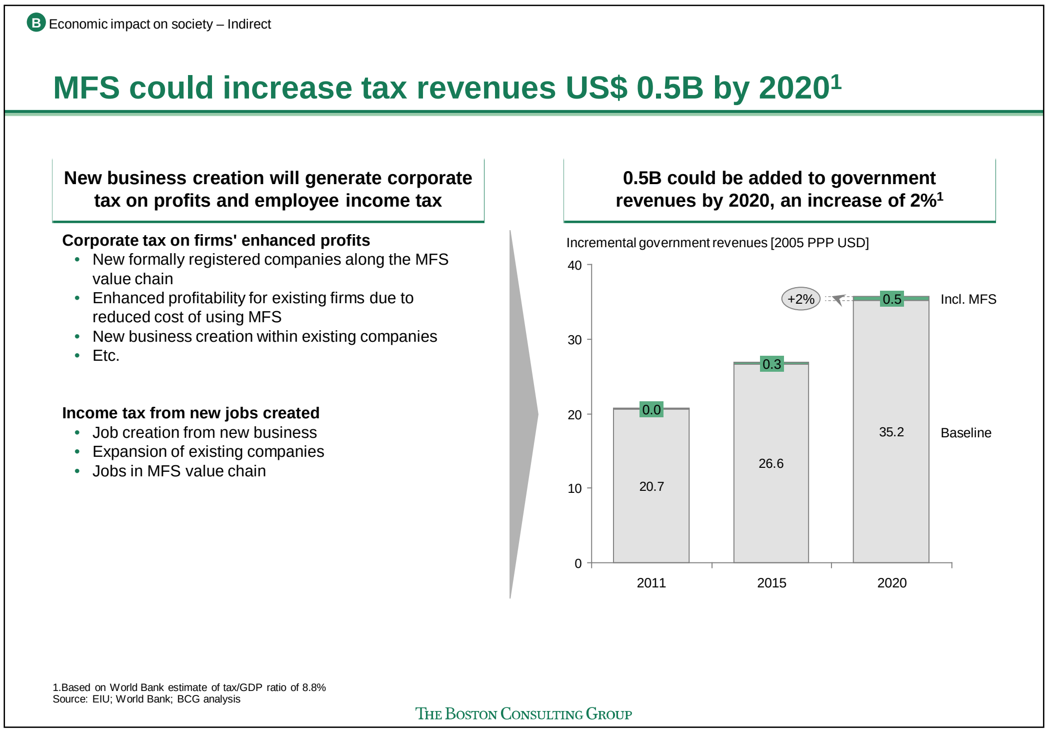

Exhibit 2.11 Impact on annual tax revenues

3.43 Tools for Government

Mobile financial services can bring a distinct advantage as an efficient disbursement tool for federal welfare. The current system typically involves paying by cash. Such cash payments and subsidies saddle the government with significant costs and inefficiencies, including possible delays, leakages, and risk of corruption by middlemen. To open individual bank accounts for beneficiaries would cause these problems to diminish, but such services would be expensive and inconvenient, especially for poor rural users.

MFS would provide beneficiaries with direct access through electronic identification and mobile accounts. They would receive their welfare and subsidy payments instantly, at low cost, with no risk of leakages.

Furthermore, mobile banking would encourage the development of e-government services, benefitting both government and citizenry with a user-friendly system that would facilitate payments and ID solutions cost effectively. Canada has implemented such a system and has saved US$9 per inhabitant on public services annually, with high user satisfaction. In 2005, that nation launched mobile services meant to improve the delivery of government programs and services to Canadians. The program handles requests for Social Security numbers and passport and credit applications, and it also disburses tax and social security payments. It has provided users with a faster and easier way to access government services, even those in rural and remote locations.

3.44 MFS Impact on Firms, Merchants, and Middlemen

The adoption of mobile financial services can decrease administrative costs for companies. Many firms, such as utility companies, spend significant time and money on the administration and processing of paper bills. Incorporating electronic receipts and reporting can reduce costs and improve speed and accuracy, reducing erroneous charges for arrears, for example. In addition, MFS will increase transaction speeds and reduce outstanding credit times, minimizing the time it takes to collect and inquire after payments.

A byproduct of companies' reduced administrative duties is an increase in the flow of customers—and revenues—to over-the-counter MFS agents. The merchants who take on these jobs will benefit from the growing sales of financial services, larger revenues from the sales of ordinary goods, and an improved social standing as a result of their work.

Another byproduct, however, will be a reduced need for middlemen, some of whom will experience a cut in income. For example, the livelihoods of some middlemen have been based on the transport of money for remittances and payments, and some have worked as money collectors for informal savings and credit schemes. All of those jobs will be less in demand as mobile services spread and their products become more popular. Thanks to MFS, however, new opportunities will arise—such as jobs for formal banking agents—for those willing to be trained and licensed.

3.5 Social Impact on Society

The adoption of mobile financial services can help support the achievement of Bangladesh's social development goals, including its vision for 2021. The growth of the country's technological infrastructure—mobile services, broadband, and, thus, MFS—will be at the root of the development of rural society, health care, disaster relief, and e-governance, and will help address some of the social goals expressed in the country's "Charter of Change."

For instance, MFS can aid in securing economic stability, reducing poverty, and fostering rural development as it benefits education, health, and entrepreneurship. It can increase family and child welfare as it improves health care through mobile payments for medical workers and patients and makes insurance more accessible. MFS can also serve to mitigate some of the adverse effects of global warming, particularly for the poor, and can help with flood relief by simplifying the distribution and solicitation of donations and insurance. Finally, MFS can help to implement good governance in Bangladesh and increase transparency as it improves service to rural users.

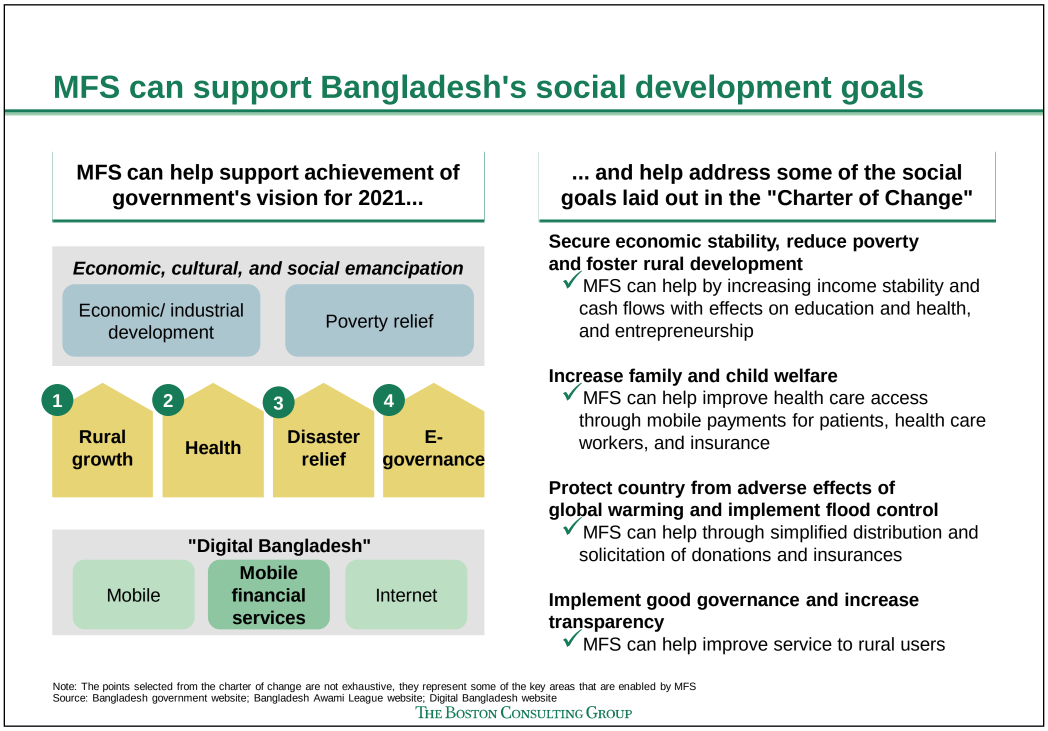

Exhibit 2.12 Overview impact on society

As these improvements occur, Bangladesh will undergo economic and industrial development and poverty relief. MFS can support these changes and help enhance the country economically, culturally, and socially.

3.51 Reducing Rural Poverty

By 2020, with the distribution of MFS having widened access to financial services, the Gini coefficient—the most commonly used measure of inequality—can be reduced by 1.2 percent.[21] With such a shift, Bangladesh's economic equality would be roughly equivalent to that of Bulgaria.

[21] The Gini coefficient varies between 0, which reflects complete equality, and 1, which indicates complete inequality.

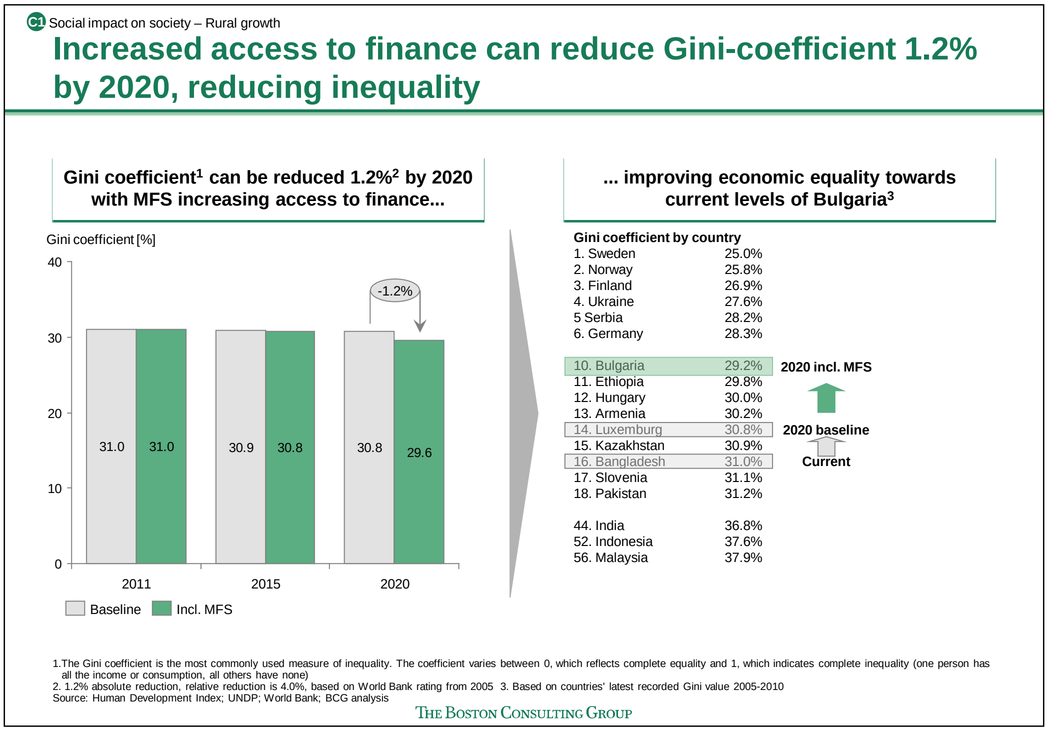

Exhibit 2.13 Reduction in income inequality

The current inaccessibility of bank branches is an important reason that the rural poor in Bangladesh remain unbanked. For some potential customers, a trip to the bank could take a whole day, which would mean a day of lost pay, the expense of the trip, and exposure to theft. In addition, paper- and cash-based settlement systems are prone to errors, such as double-billing or charging late fees when bills have actually been paid on time.

Mobile financial services reduce or eliminate these problems. Customers save time and money, potentially 12 times their daily salaries, plus travel expenses. Storing money electronically removes the risk of theft or loss, and customers have the potential to earn interest. Incidences of double-billing and late fees go down. MFS also improves flexibility tremendously, with transactions available at customers' fingertips at any time of day or night, as well as the use of a wide network of agents, facilitating customers' access to cash.

3.52 Health Care Improvements

In Bangladesh today, serious injuries and funerals can have a devastating effect on the poor. Almost 70 percent of medical payments today are made out-of-pocket. For urban rickshaw pullers, for example, 67 percent of financial crises encountered are caused by health shocks. A study of poor households in Pakistan, a country that is similar in many respects, shows the potential harm of health shocks on the poor in Bangladesh. In the study, food shortages occurred in 35 percent of the cases, children dropping out of school in 10 percent of the cases, resorting to child labor in 11 percent. Fully 60 percent of these households never recovered from the damage caused by health shocks.

MFS will improve overall access to health care and mitigate the impact of health shocks by providing access to three main levers. First, with MFS, the poor have a simple and safe way to save money for future health care costs. Products can even be tailored for this purpose. In Kenya, for instance, women can make mobile micro-payments for a predetermined period to save for childbirth costs.

Second, MFS puts insurance within reach by simplifying how premiums are paid and how claims are processed. Micro-health-insurance programs can be targeted at the poor and ultra-poor.

And third, MFS makes instantaneous fund transfers easy for customers, which improves their chances of receiving immediate health care access. An example of such a program already functioning in rural areas of Bangladesh is the DGHS maternal health voucher system, which allows poor women to use vouchers to pay for treatment, with government organizations transferring the money to providers. MFS can spark other such programs, decreasing payment delays and cash reliance.

3.53 Managing Natural Disasters

Natural disasters such as floods inflict a severe financial burden on poor families in Bangladesh. Floods are a particularly significant threat in Bangladesh, given its geography. Major floods occur on average every five years, last on average 35 days, and can affect up to 75 percent of the population. Average flood damage is US$365 per household, or 30 percent of average annual household income.

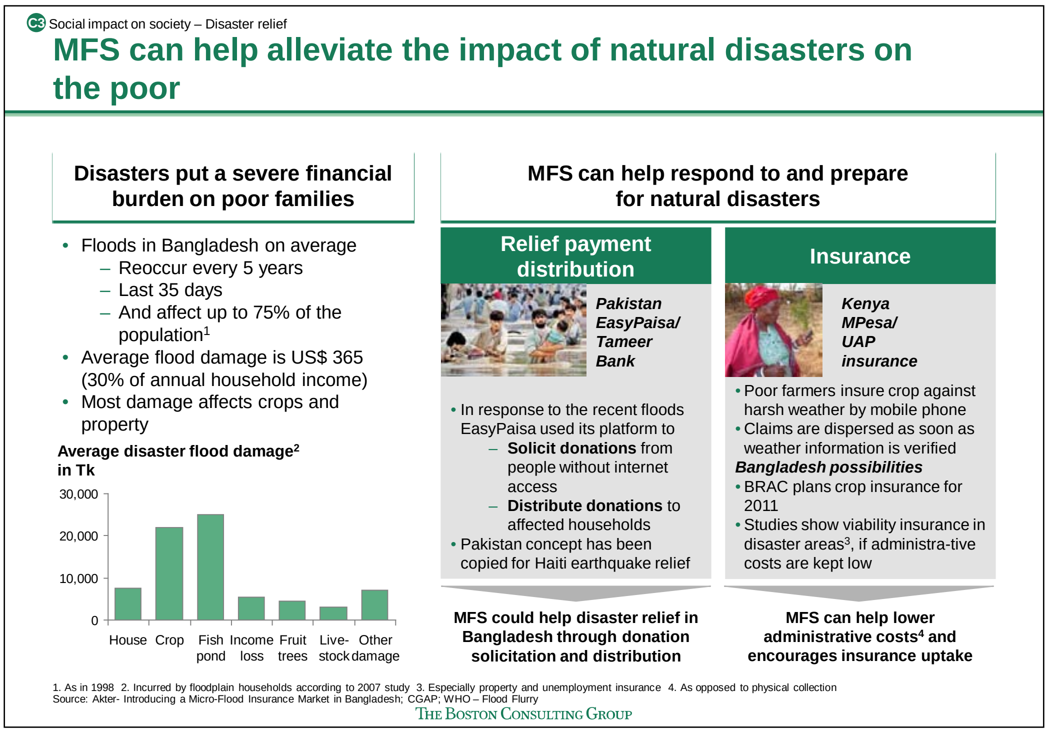

Exhibit 2.14 Managing natural disasters

MFS can help Bangladeshis prepare for and respond to natural disasters. For instance, mobile donation solicitation and distribution programs can improve disaster relief. In Pakistan EasyPaisa used its MFS platform in response to floods to solicit donations and to distribute donations to households in distress. The same concept was used in Haiti after the recent earthquake. Such services are particularly crucial when no alternatives are available, since it will often not be possible to keep track of potential recipients as they flee the affected areas, or physically deliver cash or other forms or payments to those who need it.

Mobile services can also be used to encourage the uptake of insurance. Kenya MPesa's UAP Insurance is a mobile product that has proved successful. Poor farmers there can insure their crops by mobile phone against harsh weather, and claims are dispersed as soon as weather information is verified. In Bangladesh, BRAC is planning a crop insurance program for 2011. Studies show that insurance can be viable in disaster areas—as long as administrative costs are kept to a minimum, an issue MFS is well suited to address.

3.54 Providing e-Governance

MFS adoption in Bangladesh should include its integration into e-government initiatives, which can better serve residents in remote areas than traditional government services.

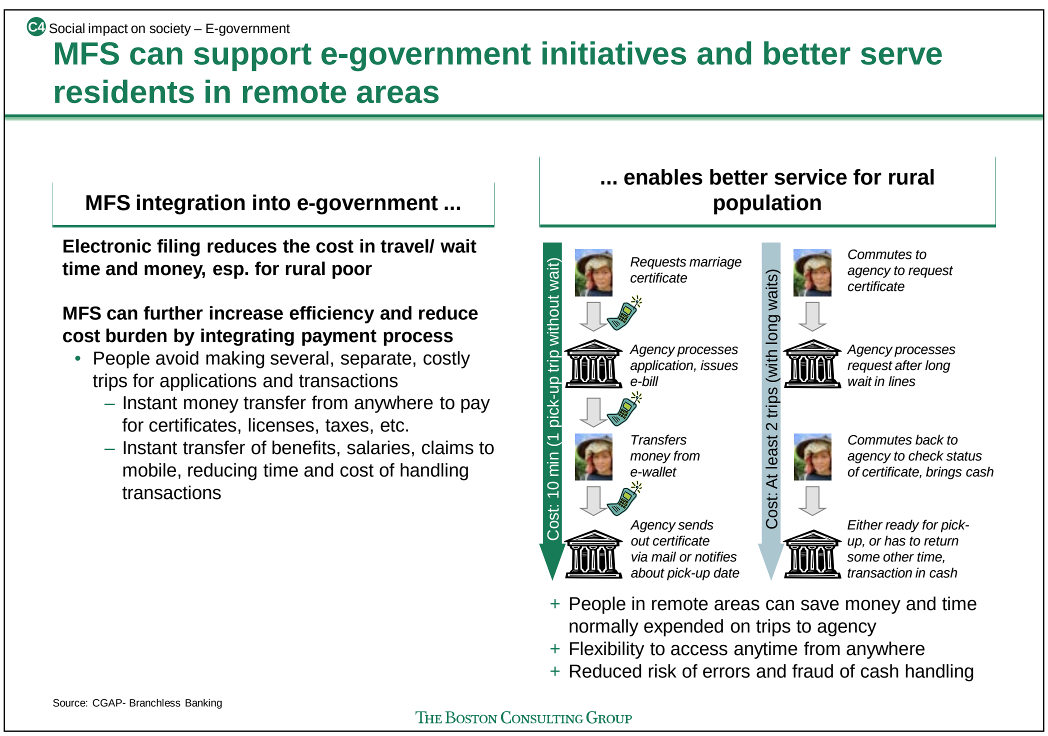

Exhibit 2.15 Providing e-Governance

MFS can further increase efficiency and reduce cost burdens by integrating payment processes. People can avoid making several separate and costly trips for applications and transactions. Instant money means residents can pay for certificates, licenses, and taxes from anywhere. The government can also issue instant transfers of benefits, salaries, and claims to mobile phones, reducing the time and cost burden of handling transactions on the government.

Electronic filing decreases the cost of travel and shortens wait times, especially for the rural poor. As an example, someone in a remote area can electronically request a marriage certificate. The appropriate agency processes the request and issues an e-bill. The customer then transfers money from an m-wallet to pay the bill, and the agency mails out the certificate or notifies the customer electronically about the pick-up date. Beyond saving money on the trip to the agency, the customer benefits from the flexibility of being able to access government services from anywhere at any time. In addition, the lack of cash handling reduces risks of error and fraud.

3.6 Regulatory Issues

MFS poses a new kind of regulatory challenge, straddling as it does two large but distinct domains of regulation: telecommunications and financial services. As it stands today, there are limited formal opportunities for parties from different industries to engage with regulators, as governing bodies and working groups tend to be closed. There is often also a lack of alignment between regulators from these different sectors. In fact, few countries have any sort of formal relationship between financial regulators and telecommunications regulators. This regulatory vacuum will need to be filled.

At the same time, the banking regulations already in place frequently do not address all aspects of an MFS ecosystem. Traditional-banking regulations may in some cases be disproportionately strict, relative to the regulatory needs for MFS, and may not be sufficiently flexible to allow for the innovation and reforms necessary for MFS to take off.

For MFS to broaden and grow in Bangladesh and bring its benefits to society and government, an essential step is the creation of a comprehensive regulatory framework that extends freedom of action to non-banks. This framework should be based on three tiers, with strong interdependence between various domains. *Vital*, the first tier of regulations, addresses the use of MFS agents and money laundering and terrorism financing. The second, *necessary*, would regulate such issues as consumer protection and payments systems. The third, and largest, regulation tier, *supporting*, includes the underlying framework, such as data privacy, e-commerce and e-security, general banking, taxation, and general telecommunications. With this structure in place, MFS has the potential to thrive.

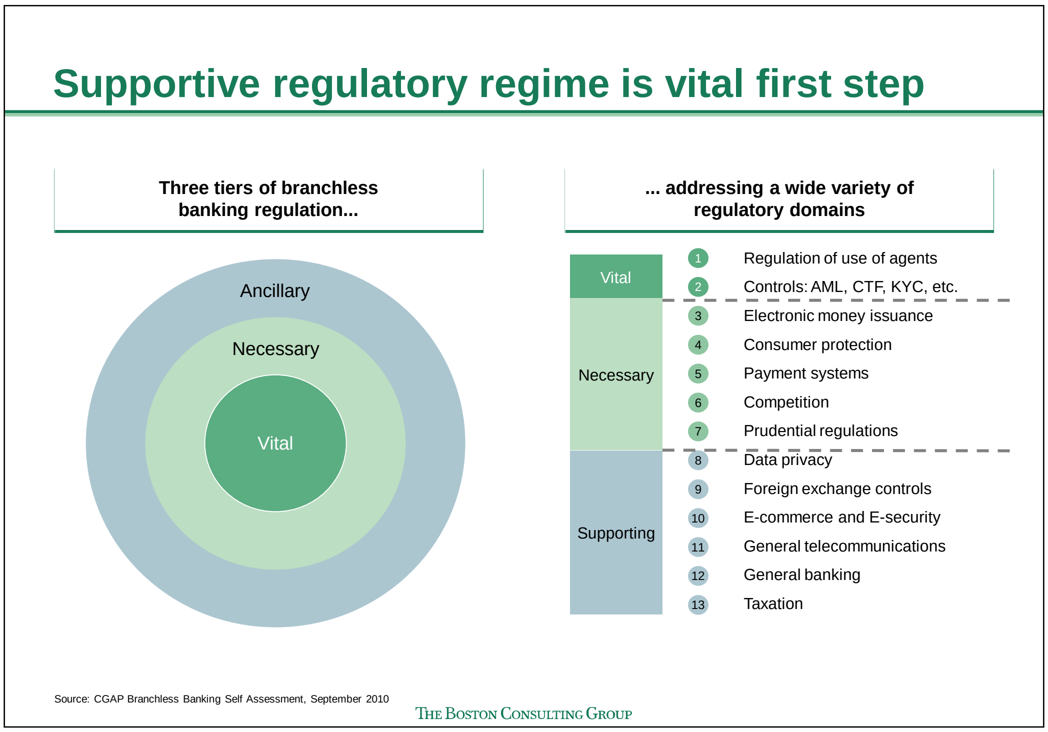

Exhibit 2.16 Three tiers of regulatory framework

There are three important regulatory gray areas in Bangladesh that require prompt clarification.

Bridging telecommunications and financial services. The country must address the regulatory framework and guidelines that will bridge telecommunications and financial services. Today, two regulatory bodies exist for these sectors, each with distinct requirements. Mobile financial services, however, are not clearly addressed through either set of regulations, and there are no proportionate risk-based policies specifically for MFS transactions. The result is a lengthy clearance and approval process.

To rectify this, Bangladesh needs to develop a clear and enabling regulatory framework for the areas where telecommunications and financial services overlap, especially payments. The EU has addressed this with its Payment Services and E-Money directives, which remove barriers for nonbanks and allow them to spur competition and growth.

Capacity building and knowledge sharing. Regulators in Bangladesh have an insufficient understanding of the various areas of mobile financial services. Today's lengthy approval process to check the details of requests slows down the overall effectiveness of MFS.

A potential way forward is to conduct workshops that provide regulators with a thorough knowledge of key MFS areas. In addition, it will be crucial to develop detailed frameworks and guidelines for request processing.

Use of agents. Bangladesh does not appear to have any roadblocks that would keep nonbanks from employing agents to handle MFS activities, but there are still some areas of concern. For instance, with a lack of clear guidelines, agent accreditation is a time-consuming procedure. There is also a lack of regulation regarding agent use, and inherent risks might prevent private sector players from entering the market. Further, the existing regulatory vacuum might increase the chances that non-regulated agents will participate in the market.

These issues can be managed as Bangladesh develops a clear regulatory framework for the employment of agents by banks and nonbanks alike. There must be a clear accreditation procedure to help reduce disputes between banks and nonbanks. In Brazil, for instance, the Banco do Brasil has issued comprehensive regulations of this sort, allowing virtually any entity to act as an agent. As a result, the country has a high penetration of agents, and that agent network has fueled innovation and rapid growth.

4. INDIA

4.1 Introduction

India currently has a 45 percent financial inclusion rate. This means that in India today, 55 percent of adults have no access to formal financial services. Among the financially included, 25 percent are fully banked, meaning they are able to take advantage of a full range of financial services (including savings, insurance, credits and others); and 20 percent are estimated to be underbanked, with only basic access, such as a savings account. Furthermore, even among the financially included population, the penetration of key services—such as insurance and credit—remains quite low, and MFS is nearly nonexistent.

There is strong evidence that financial inclusion—the delivery of affordable banking services to a population—is associated with the attainment of a nation's crucial economic and social goals. Providing financial services draws credit into the banking system, leading eventually to GDP growth. It increases the formation of domestic capital, spurring entrepreneurship. And it develops the depth of a nation's private sector, which in turn builds new jobs. These financial developments reduce a nation's overall income inequality, increase income growth among the lowest paid quintile of the population, and accelerate poverty alleviation.

From a social perspective, financial inclusion gives workers the means to make remittances, a key goal in promoting the reduction of inequality. It provides them with a safe way to save their income, increasing the resiliency of the poor to unexpected economic or political shocks and food shortages. And it gives the population access to insurance—a basic safety net for emergencies such as accidents or crop and weather catastrophes—making it possible for families to keep their children in school through difficult times.

4.11 Advantages of MFS

Mobile financial services providers would bring five distinct advantages over traditional banks to give the unbanked and underbanked access to the benefits of financial services in India.

A focus on "long-tail" customers. Telcos have extensive experience targeting their customers and understanding their needs, making it possible for them to deepen and broaden the relationships they have with existing customers. In contrast, banks have typically given the lion's share of their attention to the wealthiest customers, ignoring the "long-tail," which they are unable to serve profitably.

Key infrastructure in customers' hands. Mobile customers already have the critical piece of infrastructure they need to access MFS, since the mobile SIM card can act as a secure identification and authentication device.

Customer relationships. Many of the unbanked already have relationships with mobile operators, which means their usage history is available. This gives telcos an advantage in knowing who potential financial services customers are and where they live. It gives them information on transactional patterns, which can become a basis for building a credit history, as well as an established channel for communication with customers.

Brand recognition. The population in general has had limited interactions with large, formal financial institutions, which has created a "trust gap" that could be a potential barrier to financial inclusion. Telecom companies, on the other hand, are typically well known even among the poorest segments of society, are considered safe, and are associated with instant transmission—through text messaging, or SMS, for instance.

Large distribution network. Unlike traditional banks, telcos have behind them an extensive, nationwide network of merchants who are accustomed to working as commissioned agents. These companies have broad experience working with such partners on both pricing and product distribution.

4.12 Addressing the Unbanked

Mobile financial services lower some of the key barriers to banking inclusion in India by reducing start-up costs and service prices, as well as by delivering the banking products that meet the particular needs of Indians. Widespread network coverage allows for around-the-clock account access and eliminates travel time and costs. Furthermore, mobile banking gives customers access to additional products, such as credit and insurance policies, thereby breaking the chicken-and-the-egg cycle and providing India's population with a much-needed opportunity to build credit histories.

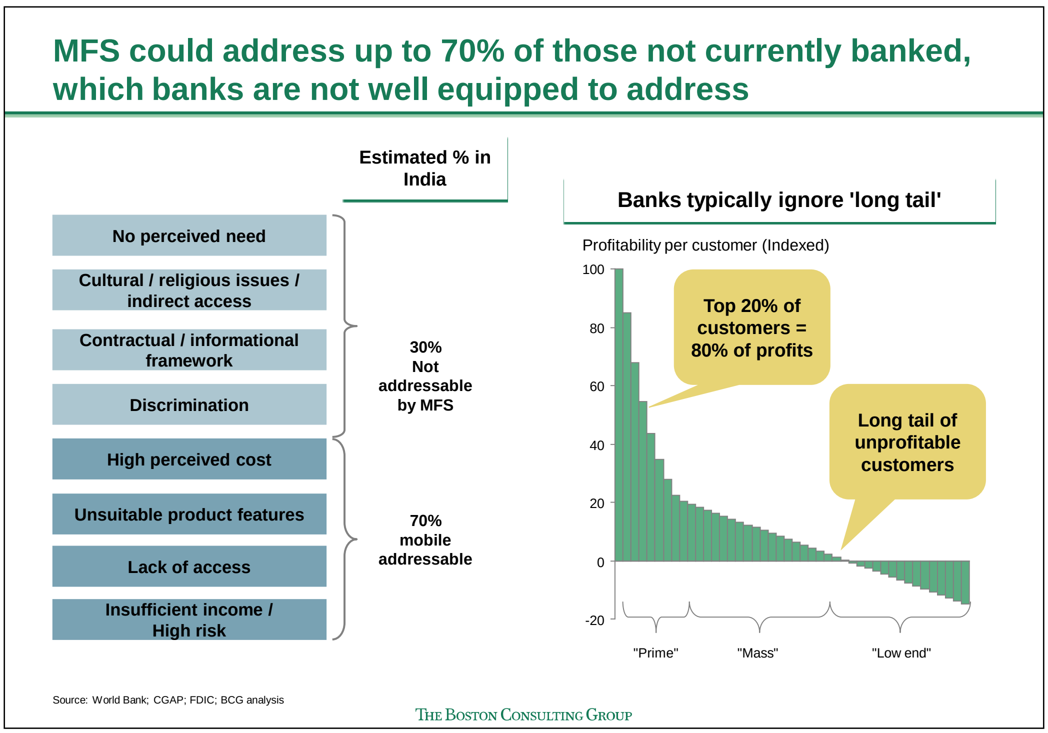

Exhibit 3.1 Addressing the unbanked

To consider who might benefit from the distribution of MFS, we broke down the unbanked population into several categories, leveraging surveys of the unbanked in emerging markets. Among those Indians who do not use formal financial services in any way, an estimated 5 percent are in that position of their own accord—either for cultural or religious reasons, or because they simply have no need for banking services. The remaining 95 percent are excluded involuntarily. This could be, for example, because they face (real or perceived) discrimination or because they cannot get past the information and contractual requirements needed to access banking services.

It is estimated that a large proportion, up to 70 percent, are unbanked because financial institutions see their low income as too great of a risk, or because, for these Indians, the cost of services is too high and the product features that are offered are not sufficiently useful for them. This is the group that MFS is well suited to address.

"Mobile financial services" is defined here to include two broad categories of services: branchless banking via mobile phones and mobile banking as a channel for financial services. With branchless banking, users can take advantage of services allowing them to make basic payments—utilities and other bills—and domestic and international remittances. These transactions become fast, easy, and cost-effective through MFS. Users can also participate in savings, credit, and insurance programs. Such services drive the financial inclusion of the unbanked through m-wallet solutions, micro-loans, and micro health and crop-failure insurance.

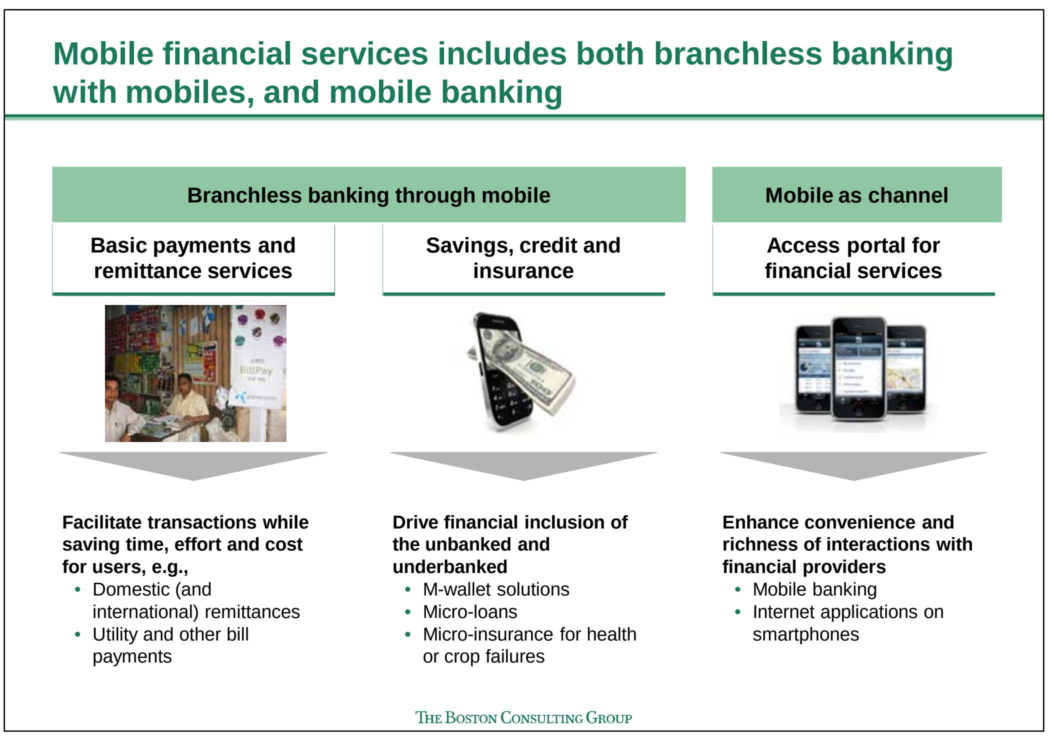

Exhibit 3.2 The two categories of services

The other side of MFS provides existing banking customers with a highly accessible portal for financial services, increasing convenience. The frequency of interactions between customers and financial providers is enhanced through this mobile portal, allowing for convenient mobile banking and the use of Internet applications on smartphones.

Mobile banking and MFS are just in a starting phase in India, with around 5 million active users. Bill payment, savings, and remittance products have limited availability, with no insurance or credit products on the market yet. India, thus, has the potential for significant take-up of MFS, with a large population in need of secure, convenient, and affordable banking services.

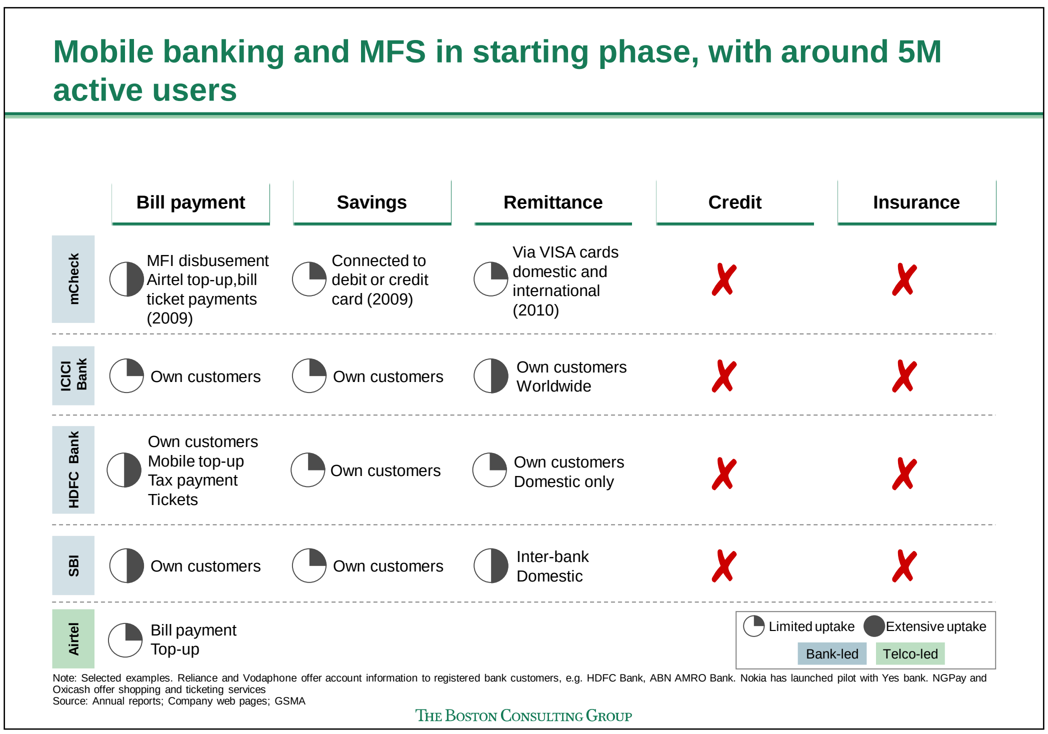

Exhibit 3.3 Current MFS offering

4.2 Adoption

For mobile financial services to gain a strong footing in India and develop a successful, sustainable ecosystem, a number of elements have to be in place. These include regulations, business model planning, distribution networks, and consumer education.

Implementing and enforcing regulations of mobile services is a key step in the inclusion process. These regulations must include the structure of the MFS framework for non-banks, guidelines for the use of MFS agents, and a determined government initiative and focus.

In addition, the establishment of a workable MFS business model will be necessary. Since both banks and telecoms will offer mobile financial services, there must be cooperation and transparency between these different types of players. Profit sharing and pricing mechanisms must also be built into the MFS business model.

A stable, reliable distribution network has to take hold before MFS can be successful in India. This includes how MFS agents are used, trained, and certified. A strong network must also be made up of liquidity management, or the guaranteed security and flow of cash.

Finally, consumer education is of crucial importance in guiding the success of mobile financial services. Consumers will have to be taught the advantages of becoming banked and begin to understand the importance of moving away from a cash-based economy. This process will also include attempts at establishing trust in MFS as a reliable and useful system, and will likely require the collaboration of all members of the ecosystem, including the regulators.

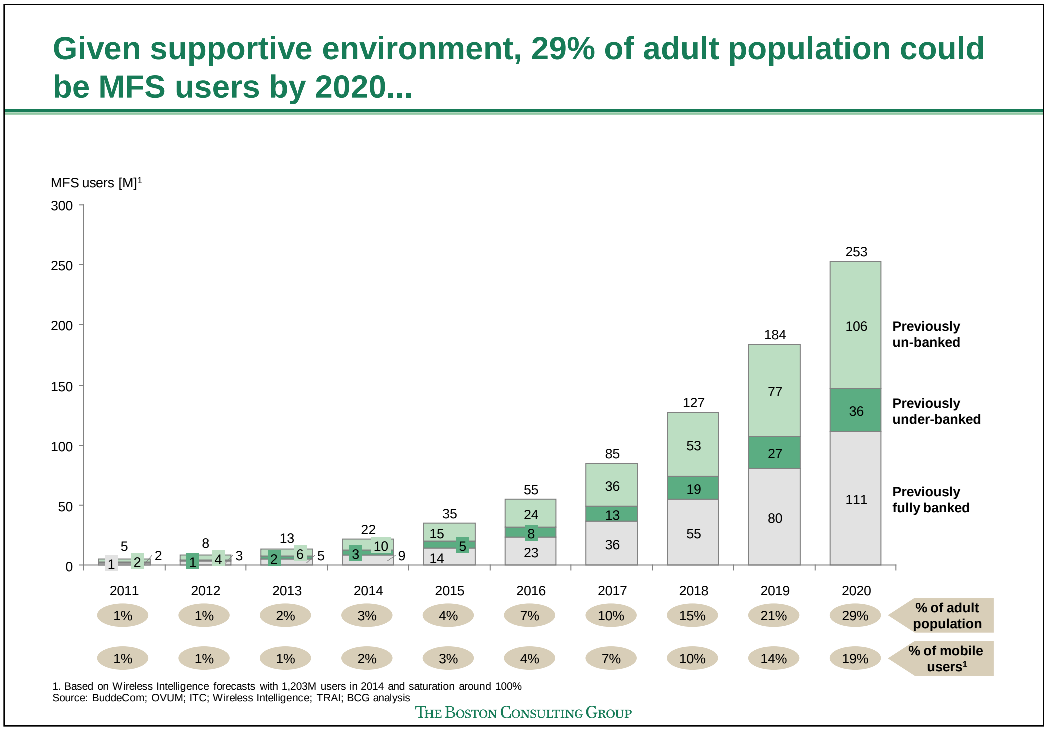

Exhibit 3.4 Reduction in number of unbanked

Given that this sort of supportive environment is in place, the potential number of MFS users has been projected until 2020. For more details on the analysis please refer to the appendix. By 2020, 29 percent of all Indian adults could be MFS users, thereby reducing the number of unbanked by 12 percent. While the current financial inclusion rate of 45 percent should gradually increase to 53 percent by 2020, driven by overall development and economic growth, the additional 12 percent inclusion from MFS means financial inclusion in the country could instead reach 65 percent by that year.

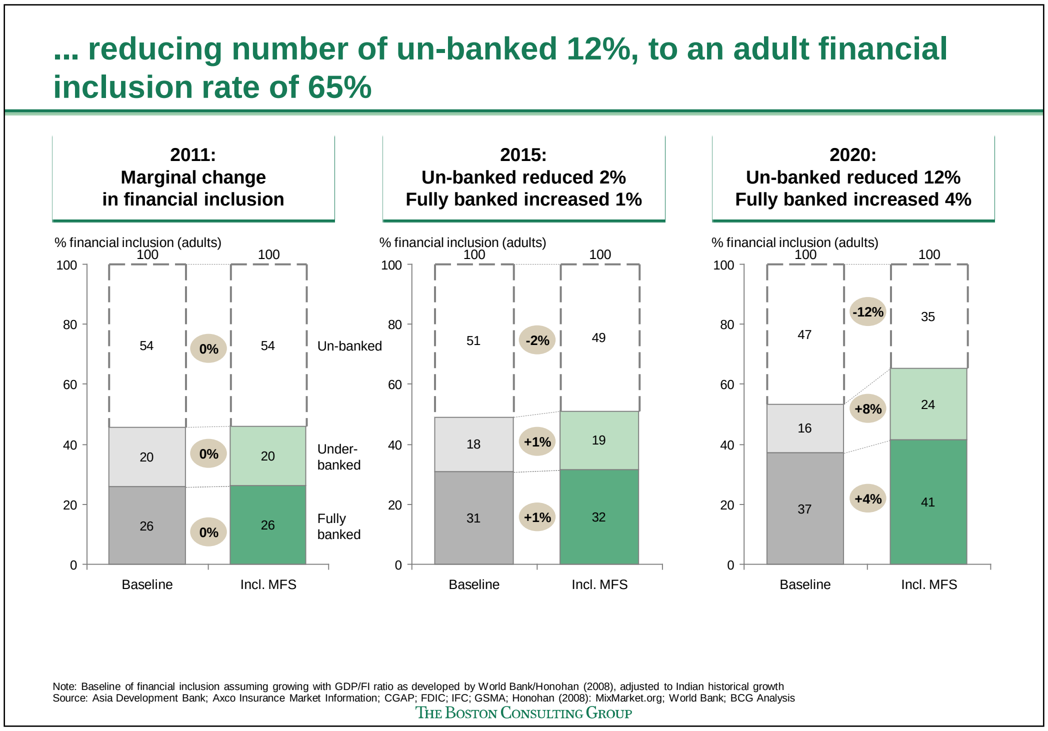

Exhibit 3.5 Details on reduction in number of unbanked

4.21 From MFS to Traditional Institutions

With wide MFS adoption, the number of people with formal savings accounts could increase by 142 million by 2020, increasing transaction volume by 32 percent. In addition, 123 million can be added to the number of people using formal bill payment products, increasing payment transaction volume by 31 percent.

As Indians adopt mobile financial services, they will also begin to gain access to a greater range of formal financial services. For example, customer relationships will deepen through MFS, with mobile providers gleaning more information about who their customers are and where they live, as well as deeper knowledge of transactional patterns, all of which will begin the basis for building customer credit histories. Given wide MFS distribution beginning in 2012, the number of formal credit service users could increase by 82 million people by 2020.

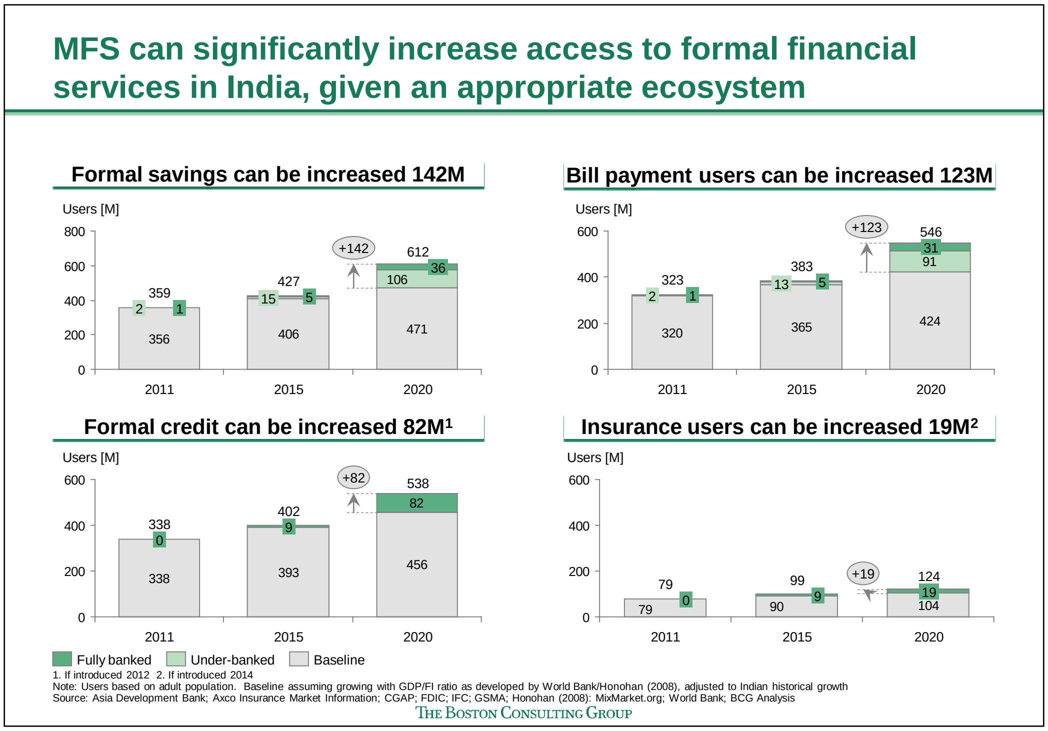

Exhibit 3.6 Access to financial services

Further, with MFS insurance products introduced in 2014, the number of formally insured Indians could increase by 19 million by 2020. Currently, the limited rural distribution of insurance products makes for high transaction costs. India's poor are frequently also disadvantaged when gaining access to insurance as a result of their lack of credit history and their general classification as high-risk customers. Many are also without documentation, which makes claim verification difficult. Mobile distribution of insurance policies would introduce products better suited to the needs and payment capacities of a considerably wider range of customers. These products could include health insurance, particularly micro-insurance; crop insurance; and rainfall and weather insurance.

Remittance systems are another key beneficial service that will be much more accessible through MFS, which will eventually lead to an increase in formal users. Mobile remittances can be made through a fast, secure channel that would be available to all, with fees significantly lower than the 5 percent to 12 percent of transaction amounts that informal channels often charge. These services are designed to be instant, safe, and secure, which should draw users away from the informal channels many use today. This will likely include those unbanked who do not trust traditional banks, but who would find the brand names of mobile providers appealing. MFS remittance services should lead to an increase of 29 percent in the number of formal users by 2020.

4.22 Benefits: From the Individual to Society

Mobile financial services can offer all Indians benefits. Banking becomes much more accessible and affordable. Products are tailored to customers and are thus more relevant and meaningful. And MFS leads overall to a reduced reliance on cash. In addition, those MFS adopters who were previously unbanked will benefit from an enhanced ability to mitigate income volatility and expense shocks.

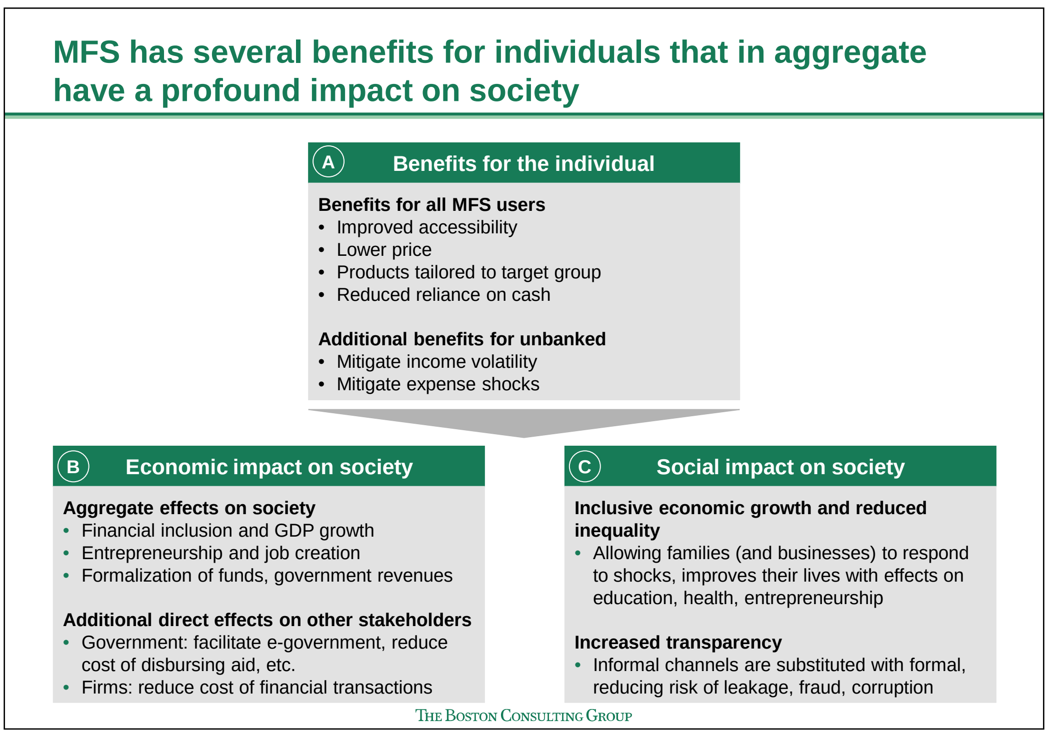

Exhibit 3.7 Overview of benefits

All of these advantages accrued by the individual will ripple outward and affect society economically and socially. Economic benefits include the increase in financial inclusion, which leads to GDP growth; the sparking of entrepreneurship and job creation; and the formalization of funds and government revenues. Other stakeholders will feel direct economic effects as well, such as government, through the facilitation of e-governing and the reduction in the cost of aid disbursement; and private firms, through lower costs of financial transactions.

Socially, the impact of MFS will be substantial as well. Inclusion, which leads to economic growth, means an overall reduction in population inequality. Families and small businesses will be better able to respond to shocks, and because of the effects MFS will have on education, health, and entrepreneurship, Indians will have the opportunity to lead improved lives. Informal channels of financial services—with the inherent risks of leakage, fraud, and corruption—will be reduced, and instead Indians can begin to make use of the formal, more transparent channels of mobile financial services.

4.3 Benefits for the Individual

The practical and attractive features of mobile financial services are a strong draw for individual customers. The accessibility of MFS, for instance, has meaningful appeal. Banking no longer requires the time and cost of travel, and users do not even need a computer to manage accounts and seek information about products. They can conduct transactions of any amount at any time of the day or night from anywhere. And those transactions—such as purchases, personal remittances, and business operations—are completed instantly and at a relatively low cost.

Another key benefit to the individual is how MFS lets users spend less of their time overcoming bureaucratic obstacles. Tailored features, as well as flexible repayment plans and reduced balance requirements, could give the previously unbanked the ability to open accounts and gain access to products tailored to their own needs. It also puts them in a position to build up credit histories, an important stepping-stone in individual economic improvement.

Mobile banking reduces its customers' reliance on cash, a feature that brings increased convenience and savings potential into Indians' lives. Cash becomes unnecessary for transferring or receiving money, which reduces the inherent risks of cash handling, such as loss, theft, or fraud. With middlemen squeezed out of the transaction equation as a result of MFS, customers will experience increased transparency. All of these benefits give consumers good reason to adopt mobile banking.

The benefits are particularly great for India's poor, who face two primary challenges that financial services can help address. First, they tend to live with a high degree of income volatility. Financial services can help smooth out their cash flow in several ways: by building a buffer through savings; by increasing inflow through remittances; and by accumulating lump sums of money—through savings and credit—that can be used to manage major expenses as they come up.

The poor also suffer from the severe expense shocks that occur now and then in their lives. Again, access to financial services would help. Customers can obtain funds to help overcome temporary shortfalls through credit, remittances, and insurance, all of which is out of reach for the unbanked and has served to keep the poor from improving their economic situation.

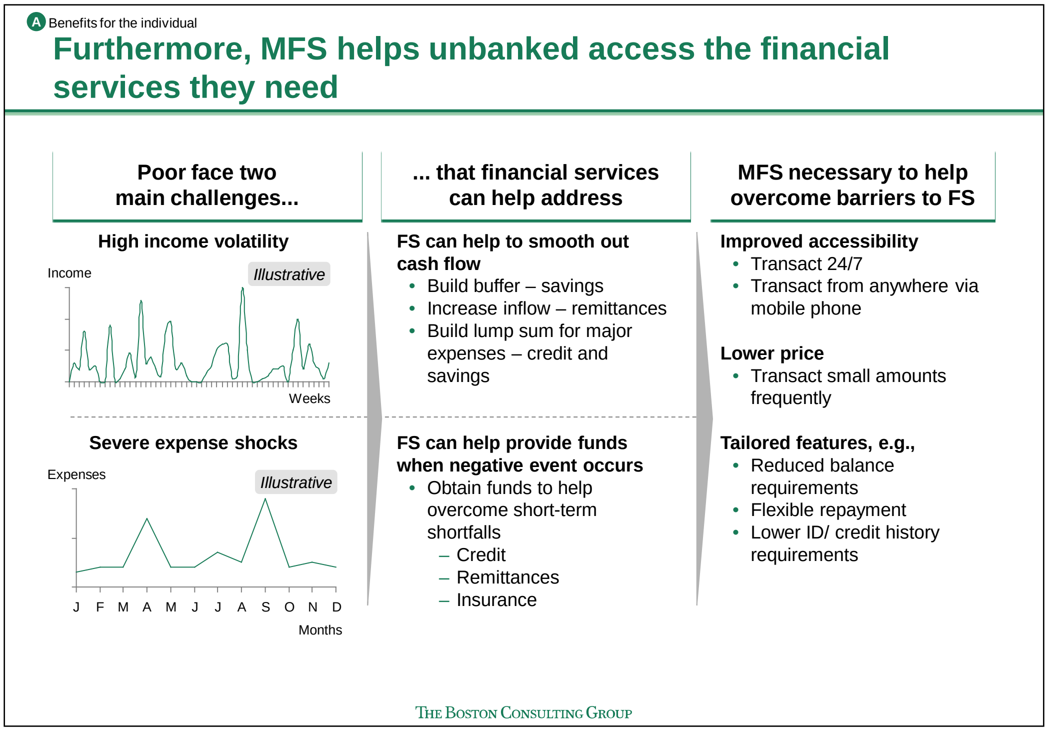

Exhibit 3.8 Income volatility and expense shocks

ID requirements and proof of income are the biggest obstacles when trying to open a bank account, and without an account, signing up for insurance is a challenge. Even with an account, saving is hard for many people. And for migrant workers without a permanent address, it is almost impossible to receive social security benefits. MFS—with its simpler ID requirements, lower costs, and tailored features—can help Indians overcome barriers to financial services and improve their livelihoods.

For urban Indians, MFS could produce a savings equivalent of 1 percent of income as a result of reduced travel and waiting time—including the commuting time for users who don't live close to a branch, the waiting time involved when standing in long lines, and the transaction processing times. The savings will be significantly higher for rural users, who have to travel farther to get to banks. As MFS does away with these inconveniences, the benefits will be felt by both banks and communities. Banks will have fewer low-value, high-cost transactions to contend with as customers migrate to cheaper channels—improving the overall cost to serve. The reduction in customer waiting times translates to reduced requirements for bank staff, too. From an even broader perspective, MFS could contribute more broadly to society, through a decrease in traffic congestion in urban areas, for instance, and through a reduction in the lost productivity that occurs when workers have to run inconvenient errands.

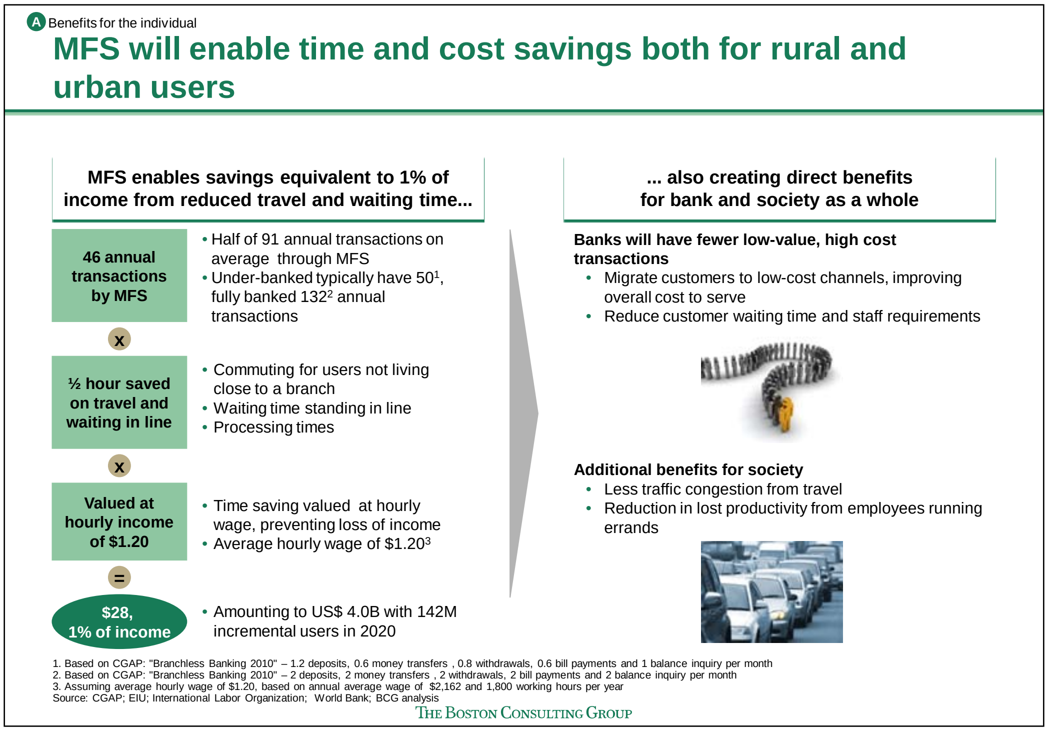

Exhibit 3.9 MFS time and cost savings

4.4 Economic Impact on Society

Strong evidence exists that growing financial inclusion increases a nation's GDP. As entrepreneurs with business ideas gain access to credit, economic activity grows, and new businesses and jobs mean a more productive society. In addition, there is an accounting benefit from the formalization of savings within the banking system, as this will power further credit creation, increasing investments. With mobile financial services adoption, India could see a GDP increase of US$390 billion, or 5 percent, by 2020.

4.41 New Job Creation

Increased access to finance facilitates entrepreneurship, new business creation, and new jobs. A World Bank study finds a 1 percent increase in financial inclusion corresponds to a 0.51 percent increase in business creation, and a 15 percent inclusion increase leads to employment growth of 1 percent.

By 2020, if MFS adoption increases financial inclusion by 12 percent, up to 600,000 new businesses could be created. The increased inclusion could also lead to 4 million new jobs, an employment increase of 1 percent. This is the equivalent of new jobs for 1 out of every 10 currently unemployed Indian.

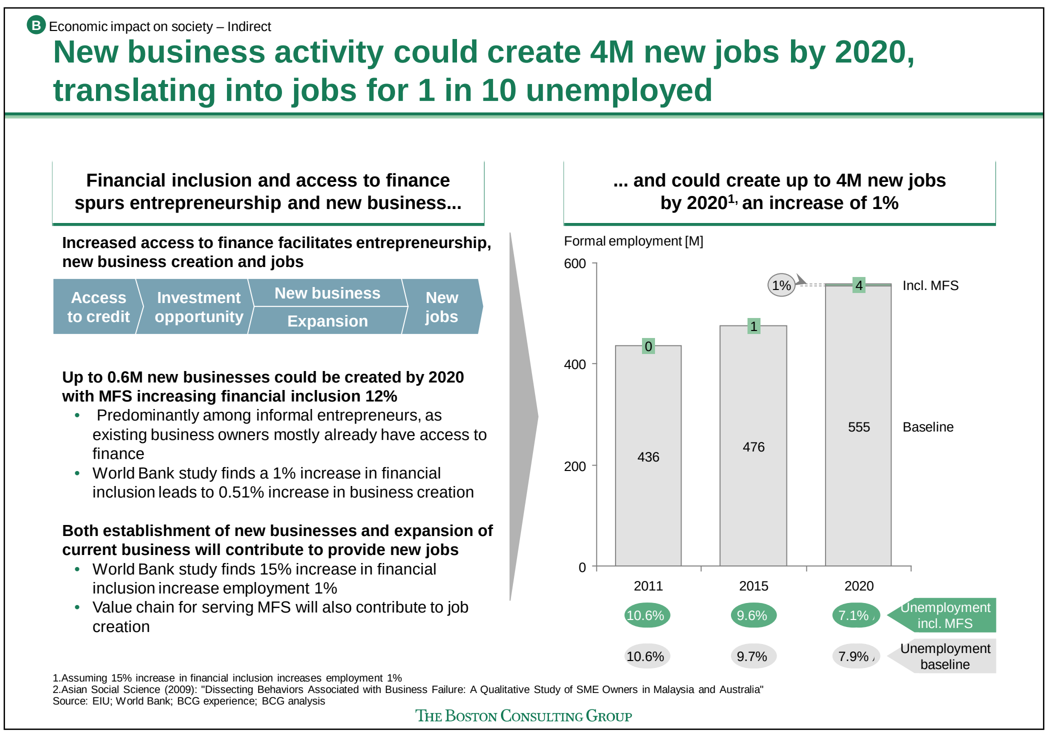

Exhibit 3.10 New job creation

4.42 Tax Revenue Growth

The benefits of the economic growth stimulated by MFS will increase tax revenues as well. Corporate taxes will grow as a result of new business creation along the MFS value chain, growing profits within existing firms thanks to savings from MFS, and company expansions made possible by MFS. This business growth and creation will generate new jobs, which means increased employee income taxes. MFS could therefore add US$50 billion annually to India's government revenues by 2020—an increase of 5 percent.

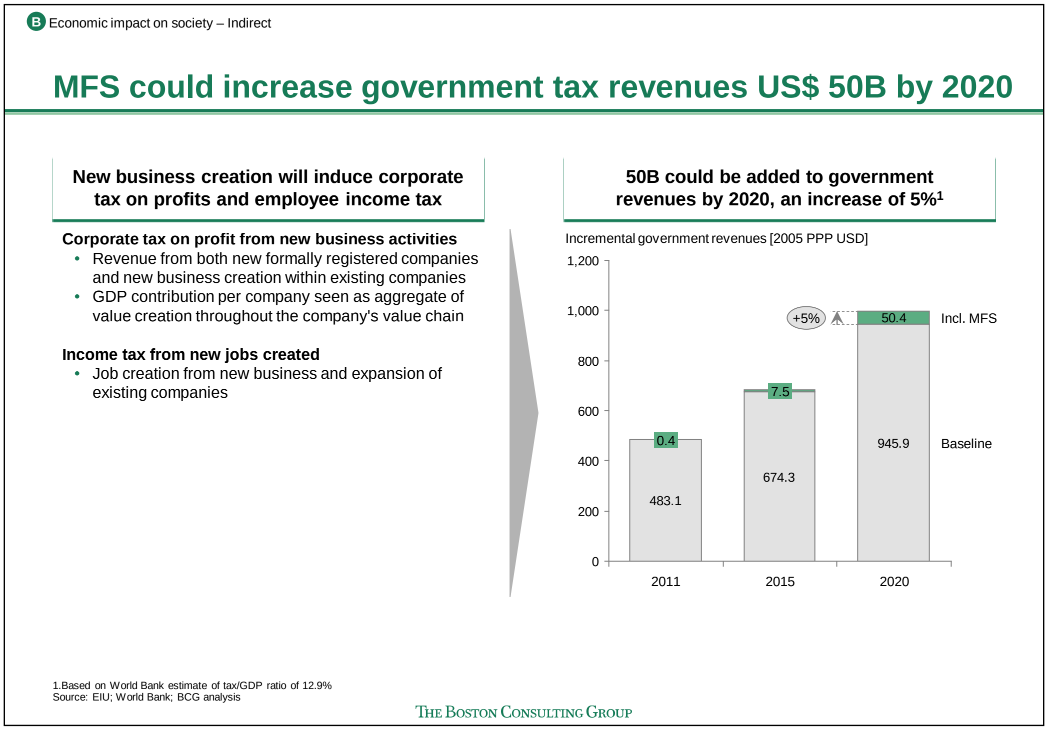

Exhibit 3.11 Impact on annual tax revenues

4.43 Tools for Government

Mobile financial services can bring a distinct advantage as an efficient disbursement tool for federal welfare. The current system involves paying by checks or cash, and making use of offline points of service. Such cash payments and subsidies saddle the government with significant costs and inefficiencies, including possible delays, leakages, and risk of corruption by middlemen. To open individual bank accounts for beneficiaries would cause these problems to diminish, but such services would be expensive and inconvenient, especially for poor rural users.

MFS would provide beneficiaries with direct access through electronic identification and mobile accounts. They would receive their welfare and subsidy payments instantly, at low cost, with no risk of leakages.

Furthermore, mobile banking would encourage the development of e-government services, benefitting both government and citizenry with a user-friendly system that would facilitate payments and ID solutions cost effectively. Canada has implemented such a system and has saved US$9 per inhabitant on public services annually, with high user satisfaction. In 2005, that nation launched mobile services meant to improve the delivery of government programs and services to Canadians. The program handles requests for Social Security numbers and passport and credit applications, and it also disburses tax and social security payments. It has provided users with a faster and easier way to access government services, even those in rural and remote locations.

4.44 MFS Impact on Firms, Merchants, and Middlemen

The adoption of mobile financial services can decrease administrative costs for companies. Many firms, such as utility companies, spend significant time and money on the administration and processing of paper bills. Incorporating electronic receipts and reporting can reduce costs and improve speed and accuracy, reducing erroneous charges for arrears, for example. In addition, MFS will increase transaction speeds and reduce outstanding credit times, minimizing the time it takes to collect and inquire after payments.

A byproduct of companies' reduced administrative duties is an increase in the flow of customers—and revenues—to over-the-counter MFS agents. The merchants who take on these jobs will benefit from the growing sales of financial services, larger revenues from the sales of ordinary goods, and an improved social standing as a result of their work.

Another byproduct, however, will be a reduced need for middlemen, some of whom will experience a cut in income. For example, the livelihoods of some middlemen are based on the transport of money for remittances and payments, and some have worked as money collectors for informal savings and credit schemes. All of those jobs will be less in demand as mobile services spread and their products become more popular. Thanks to MFS, however, new opportunities will arise—such as jobs for formal banking agents—for those willing to be trained and licensed.

4.5 Social Impact on Society

The adoption of mobile financial services can help support the achievement of India's social development goals. The growth of the country's technological infrastructure—mobile services, broadband, and, thus, MFS—will be at the root of the development of rural society, education, health care, gender equality, and transparency.

Through increases in productivity and income, MFS can create economic opportunities for the poor and reduce extreme poverty. Through better income and money management, it can ensure universal access to education and help maintain retention to empower people with skills and knowledge. Through distribution of health care payments and insurance claims to patients and providers, MFS can help the poor and underprivileged achieve good health. Through banking access and money management for women, it can ensure the protection, wellbeing, empowerment, and participation of women in society. And because MFS will reduce cash transactions, it can help boost government transparency.

As these improvements occur, India will develop a competitive, globally integrated market economy with improved access to economic opportunity for its people. MFS can support these changes that lead to a prosperous, inclusive, happy, and caring India through social and economic empowerment, and help the country address some of the social goals outlined in its Five-Year Plan (2007 to 2012).

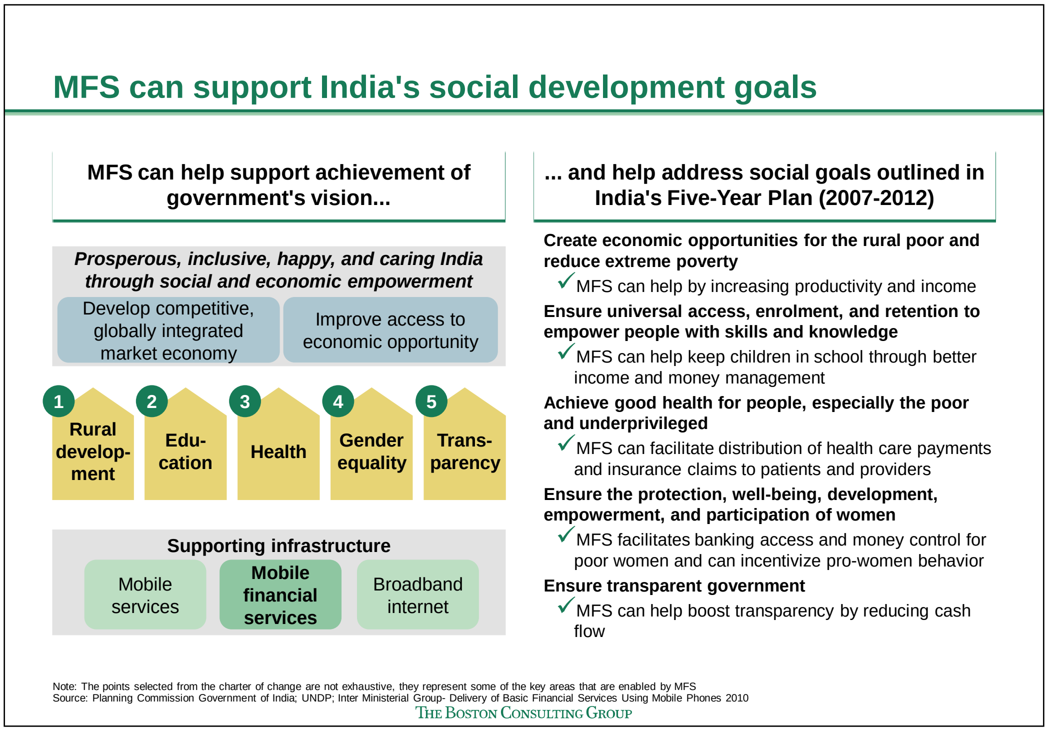

Exhibit 3.12 Overview impact on society

4.51 Reducing Economic Inequality

By 2020, with the distribution of MFS having widened access to financial services, the Gini coefficient—the most commonly used measure of inequality—can be reduced by 1 percent.[22] With such a shift, India's economic equality would be roughly equivalent to that of Spain.

[22] The Gini coefficient varies between 0, which reflects complete equality, and 1, which indicates complete inequality.

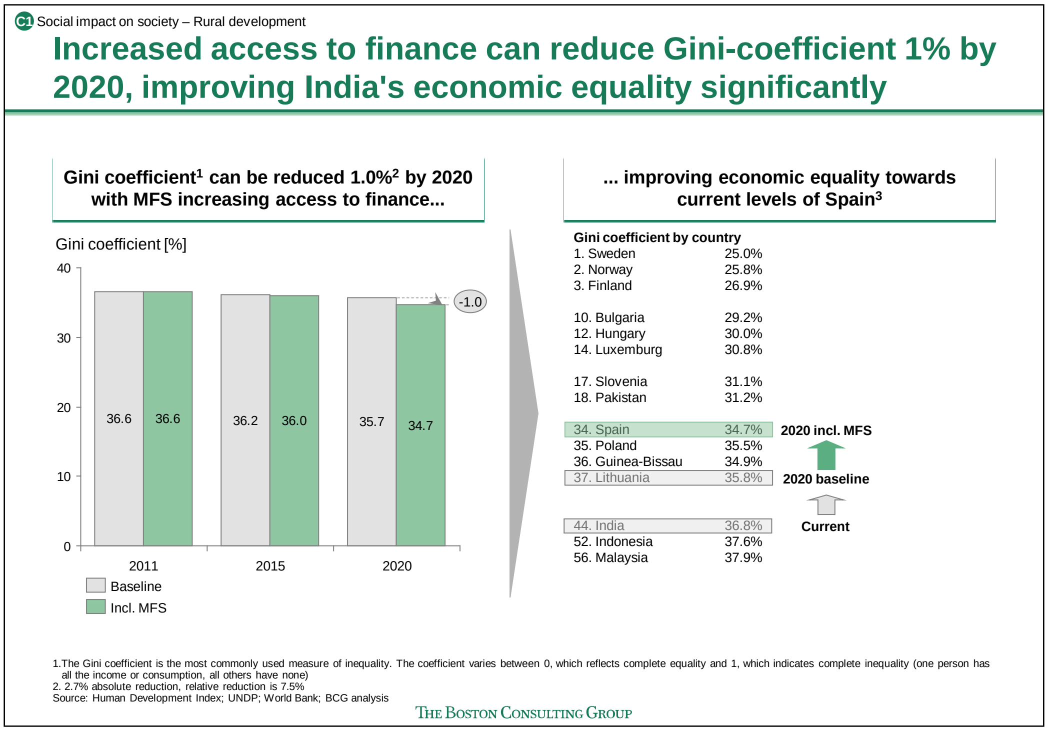

Exhibit 3.13 Reduction in income inequality

The current inaccessibility of bank branches is an important reason that the rural poor in India remain unbanked. For some potential customers, a trip to the bank could take a whole day, which would mean a day of lost pay, the expense of the trip, and exposure to theft.

Mobile banking reduces or eliminates these problems. Customers save time and money, potentially one month’s worth of wages annually, plus travel expenses. Storing money electronically removes the risk of theft or loss, and customers have the potential to earn interest. MFS improves flexibility tremendously, with transactions available at customers’ fingertips at any time of day or night, as well as the use of a wide network of agents, facilitating customers’ access to cash. Overall, mobile services can contribute to the creation of growth opportunities for the rural poor and diminish the rural-urban divide.

4.52 Supporting Education

In India, financial shocks can make it difficult for children from the poorest families to finish primary school. Several studies show that poor families often cope with financial shocks by taking children out of school to save costs and engaging them in child labor to supplement income. About 7 percent of children in India between the ages of 6 and 13 are not in school. And 22 percent of children drop out in grade one and two, especially girls who quit school to help out at home.

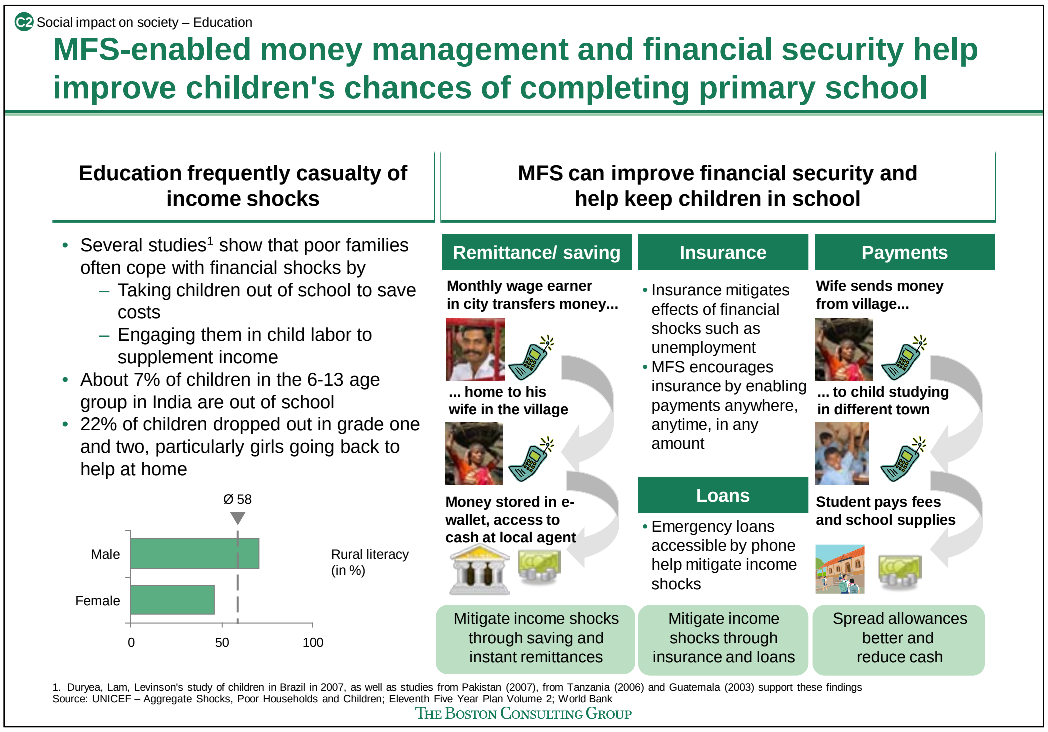

Exhibit 3.14 Supporting education

MFS can contribute to a solution that improves Indians' financial security and helps to keep children in school. Mobile money transfers are a good example. A monthly wage earner working in the city can electronically transfer money home to his wife in the village, who can then store money in an m-wallet and send what is necessary to a child, who might be studying in a different town. Students can pay for school fees and supplies through their mobile phones. Families will benefit from the convenience and security of storing education funds in an m-wallet and of having easy access to additional cash through local agents. Small, frequent transactions are now an option, reducing the cash-flow burden on the family, who would previously have to save lump sums to send through expensive informal channels.

Moreover, with easier access to loans and insurance through MFS, poor Indians will be better prepared to withstand income shocks. MFS-enabled money management and financial security will help to support some of the most vulnerable families as they strive to keep their children in school.

4.53 Health Care Improvements

In India today, serious injuries and funerals can have a devastating effect on the poor. Fully 34 percent of ill people do not seek treatment because of the costs, and only 10 percent of the population has health care coverage—with 90 percent of medical payments made out-of-pocket. Households existing below the poverty line spend 223 rupees per year on health bribes—the equivalent of one month's average salary. Health shocks have devastating effects on the poor. In Karnataka, they lead to an average debt of ten months worth of salary at a 45 percent annual interest rate.

MFS will improve overall access to health care and mitigate the impact of health shocks by providing access to three main levers. With mobile banking, the poor have a simple and safe way to save money for future health care costs. Products can even be tailored for this purpose. In Kenya, for instance, women can make mobile micro-payments for a predetermined period to save for childbirth costs.

Second, MFS puts insurance within reach by simplifying how premiums are paid and how claims are processed. Examples include CARE insurance, a micro health insurance program distributed by health care workers through a handheld point-of-sale device. Another initiative is HDFC Ergo, a mobile health-insurance enrollment system.

And finally, MFS makes instantaneous fund transfers easy for customers, which simplifies the process of obtaining funds and making payments, and thereby increases transparency. The distribution of government health insurance claims to those below the poverty line becomes a much more straightforward process through MFS.

4.54 Toward Gender Equality

Since MFS brings banking into the home, it will have a particular benefit for many of India's women, 45 percent of whom do not make health decisions today. Studies show that women are more likely than men to allocate funds toward education, health care, and household needs. As they become financially included through MFS—especially through m-wallets—women will begin managing income as well as government and NGO payments. This will increase their own control over household capital, and women will begin making more of the families' decisions about purchases, savings and loans, and money transfers.

Thus, MFS-enabled empowerment for women can benefit Indians' overall education and health by providing, for instance, simpler loan distribution, request, and repayment processes. An example of direct empowerment is the SKS Microfinance program, which gives emergency loans to poor women in times of unexpected income shocks to pay for funerals, schooling, and utilities. Such direct access and control will allow women to manage household and education needs more effectively.

Indirect empowerment comes from MFS programs such as Delta Life, a savings plan in Bangladesh that allows women to make small payments toward a daughter's marriage—money the daughter receives at age 18. Similar programs in India would simplify the savings process, letting women make small, frequent transactions and increasing the likelihood that a household's savings plan will be successful. Financial inclusion through MFS will help to incentivize pro-women behavior in India—tackling the nation's vision of creating greater gender equality.

4.55 Increasing Transparency

Today, India is No. 87 out of 178 countries on the Corruption Perception Index, and increasing transparency is a pressing national goal. In 2009, the average expenditure on bribery was about 3,150 rupees, or about US$70, in households below the poverty line. Leakage is also a serious problem in the payout of cash-based government benefits, such as National Rural Employment Guarantee Act. Procedural delays (40 percent) and staff corruption problems (37 percent) account for NREGA's biggest troubles.

MFS increases overall transparency through two primary mechanisms: cutting out middlemen and reducing the frequency of cash transactions. This effectively reduces the number of opportunities for corruption, bribery, or extortion. For example, FINO and A Little World deliver social security benefits through a biometric ID enabled mobile device, thereby reducing leakage problems. With proper ID-control mechanisms in place, direct payments to recipients through mobile phones can further reduce problems with fraud and ensure delivery of NREGA payments 100 percent.

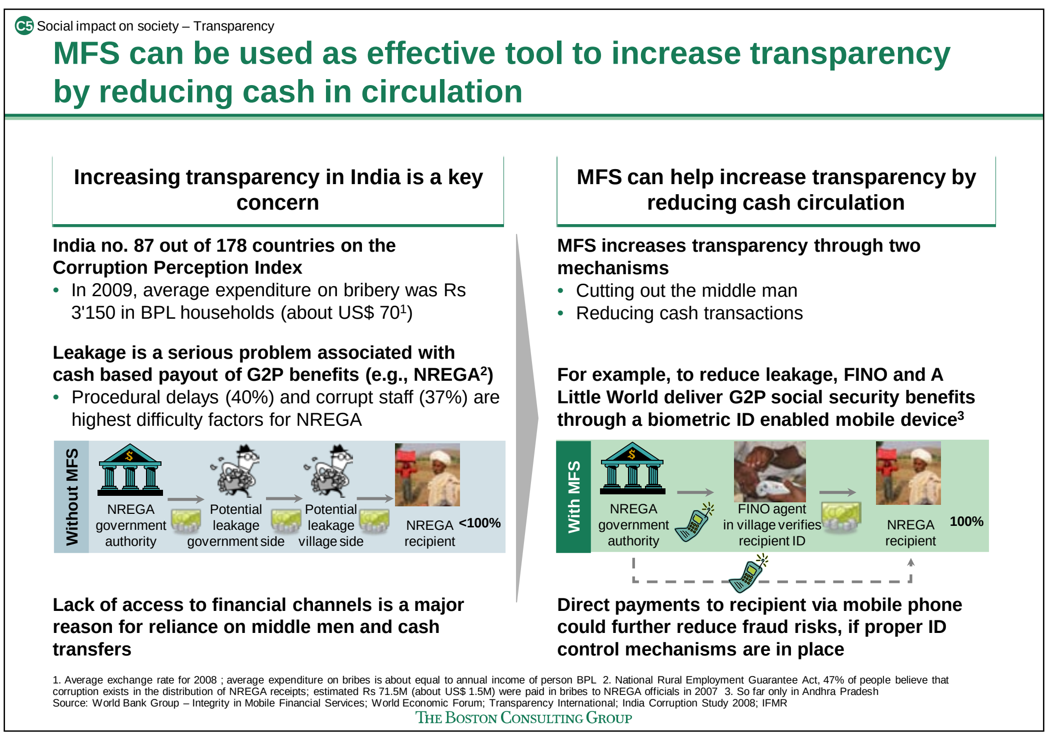

Exhibit 3.15 Increasing transparency

Despite all of the substantial benefits that come from broad financial inclusion, there is also an increased chance of risks associated with the availability of new payment channels for so many people. There is an ongoing need to prevent money laundering as well as terrorist and criminal financing. Regulations for telecom companies and government will have to include countermeasures limiting transfer amounts and the number of transfers permitted, managing cross-border transfers, and requiring IDs and codes.

Widespread MFS adoption could also help to reduce these serious risks as informal fund channels are more carefully scrutinized. Mobile services will make all formal capital movement traceable, allowing greater scrutiny of the remaining informal channels. Nonetheless, finding an overall balance between the nurturing of the MFS environment and the proportionate risk for criminal behavior is key.

4.6 Regulatory Issues

MFS poses a new kind of regulatory challenge, straddling as it does two large but distinct domains of regulation: telecommunications and financial services. As it stands today, there are limited formal opportunities for parties from different industries to engage with regulators, as governing bodies and working groups tend to be closed. There is often also a lack of alignment between regulators from these different sectors. In fact, few countries have any sort of formal relationship between financial regulators and telecommunications regulators. This regulatory vacuum will need to be filled.

At the same time, the banking regulations already in place frequently do not address all aspects of an MFS ecosystem. Traditional-banking regulations may in some cases be disproportionately strict, relative to the regulatory needs for MFS, and may not be sufficiently flexible to allow for the innovation and reforms necessary for MFS to take off.

For mobile financial services to broaden and grow in India and bring benefits to society and government, an essential step is the creation of a comprehensive regulatory framework that extends freedom of action to non-banks. This framework should be based on three tiers, with strong interdependence between various domains. *Vital*, the first tier of regulations, addresses the use of MFS agents and money laundering and terrorism financing. The second, *necessary*, would regulate such issues as consumer protection and payments systems. The third, and largest, regulation tier, *supporting*, includes the underlying framework, such as data privacy, e-commerce and e-security, general banking, taxation, and general telecommunications. With this structure in place, MFS has the potential to thrive.

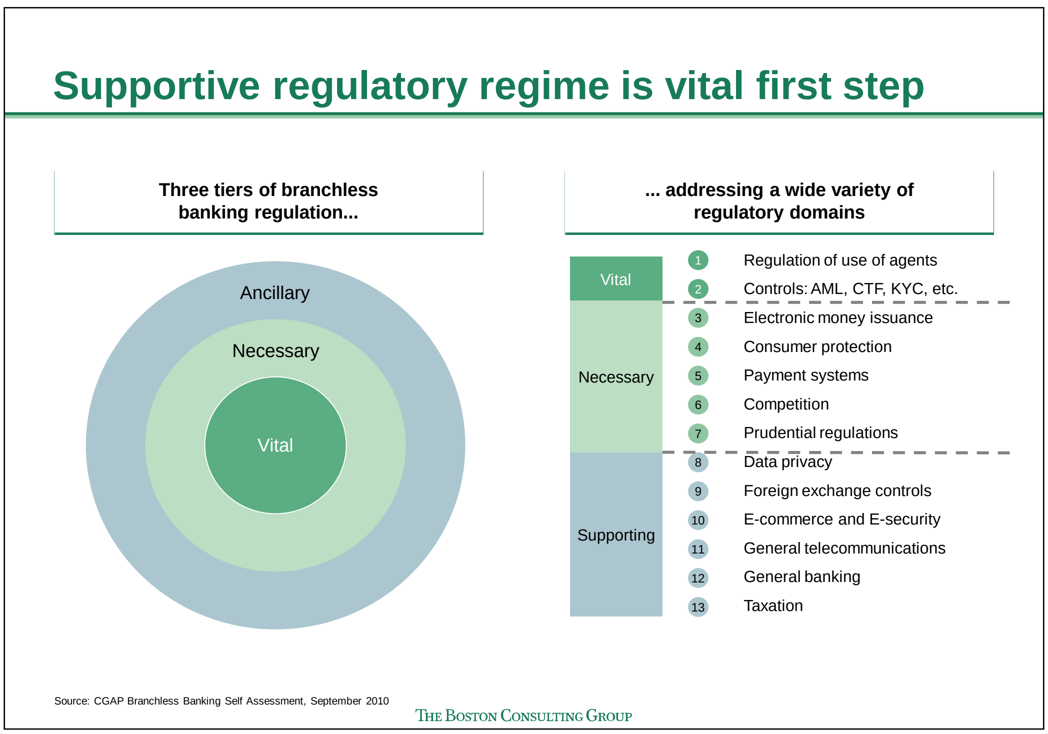

Exhibit 3.16 Three tiers of regulatory framework

Significant progress has already been made in building a regulatory system for MFS. However, India's bank-led regulatory model complicates the adoption of MFS, and two major issues have to be addressed: the use of agents and the handling of electronic money and payment systems. Today, nonbanks, such as mobile operators, can only be involved in the provision of mobile banking services as agents for a licensed bank.

Mobile operators can issue mobile-based payment instruments and obtain approval to use prepaid instruments to operate a payment system. But they are not able to engage agents for these types of functions.

The potential of electronic savings and payment systems in India is hampered by the fact that while nonbanks can offer mobile wallets, they can do so only using a semi-closed model. That is, the m-wallets can be used to purchase goods and services at select merchant locations, but they can't be used for cash withdrawal, redemption, or person-to-person transfers. Nonbanks have to obtain authorization from the Department of Payment and Settlement Systems of the Reserve Bank of India to operate a mobile-based payment system.

Following the example of other regions and developing regulations that enable comprehensive nonbank e-money and payment systems is crucial. For instance, the EU Payment Services Directive and the E-Money Directive, both of 2009, are aimed at fostering growth and competition. The PSD allows nonbanks to become providers of payment services. Malaysia requires small e-money issuers to place collected funds in a trust account with a licensed institution. With these kinds of regulatory changes in place in India, MFS has great potential.

5. SERBIA

5.1 Introduction

Serbia currently has a 73 percent financial inclusion rate. The number of those who are unbanked has fallen to around 27 percent today. An estimated 43 percent of the adult population is fully banked, meaning they are able to take advantage of a complete range of formal financial services (including savings, insurance, credits and others); and an estimated 30 percent are underbanked, with only basic access, such as a savings account. Among those who are financially included, there is a high penetration of key services—such as savings, credit, and bill payment products—though actual usage of these services is probably somewhat lower.

There is strong evidence that financial inclusion—the delivery of affordable banking services to a population—is associated with the attainment of a nation's crucial economic and social goals. Providing financial services draws credit into the banking system, leading eventually to GDP growth. It increases the formation of domestic capital, spurring entrepreneurship. And it develops the depth of a nation's private sector, which in turn builds new jobs. These financial developments reduce a nation's overall income inequality, increase income growth among the lowest paid quintile of the population, and accelerate poverty alleviation.

From a social perspective, financial inclusion gives workers the means to make remittances, a key goal in promoting the reduction of inequality. It provides them with a safe way to save their income, increasing the resiliency of the poor to unexpected economic or political shocks and food shortages. And it gives the population access to insurance—a basic safety net for emergencies such as accidents or crop and weather catastrophes—making it possible for families near the poverty line to keep their children in school through difficult times.

5.11 Advantages of MFS

Mobile financial services providers would bring five distinct advantages over traditional banks to give the unbanked and underbanked access to the benefits of financial services in Serbia.

A focus on "long-tail" customers. Telcos have extensive experience targeting their customers and understanding their needs, making it possible for them to deepen and broaden the relationships they have with existing customers. In contrast, banks have typically given the lion's share of their attention to the wealthiest customers, ignoring the "long-tail," which they are unable to serve profitably.

Key infrastructure in customers' hands. Mobile customers already have the critical piece of infrastructure they need to access MFS, since the mobile SIM card can, with appropriate security arrangements, act as a secure identification and authentication device.

Customer relationships. Many of the unbanked already have relationships with mobile operators, which means their usage history is available. This gives telcos an advantage in knowing who potential financial services customers are and where they live. It gives them information on transactional patterns, which can become a basis for building a credit history, as well as an established channel for communication with customers.

Brand recognition. The unbanked population in general has had limited interactions with large, formal financial institutions, which has created a "trust gap" that could be a potential barrier to financial inclusion. Telecom companies, on the other hand, are typically well known even among the poorest segments of society, are considered safe, and are associated with instant transmission—through text messaging, or SMS, for instance.

Large distribution network. Unlike traditional banks, telcos have behind them an extensive, nationwide network of merchants who are accustomed to working as commissioned agents. These companies have broad experience working with such partners on both pricing and product distribution.

5.12 Addressing the Unbanked

MFS lowers some of the remaining key barriers to banking inclusion in Serbia by reducing start-up costs and service prices, as well as by delivering the banking products that meet the particular needs of Serbians. Widespread network coverage allows for around-the-clock account access and eliminates travel time and costs. Furthermore, mobile banking gives customers access to additional products, such as credit and insurance policies, thereby breaking the chicken-and-the-egg cycle and providing Serbia's population with a much-needed opportunity to build credit histories.

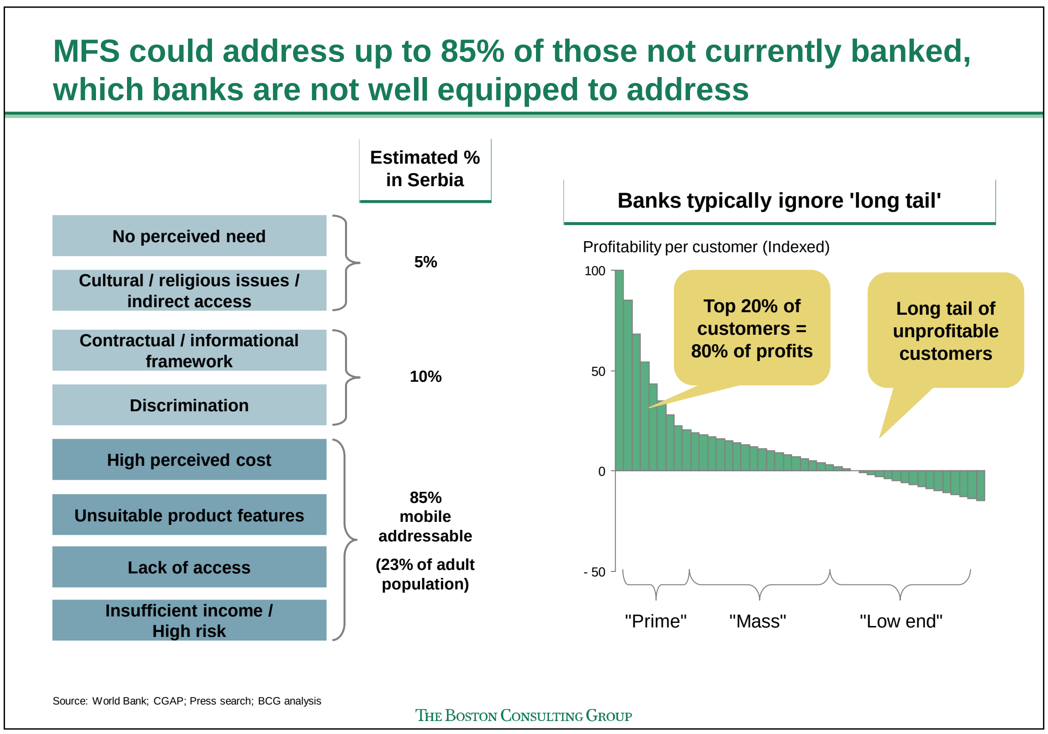

Exhibit 4.1 Addressing the unbanked

To consider who might benefit from the distribution of MFS, we broke down the unbanked population into several categories, leveraging surveys of the unbanked in emerging markets. Among those Serbians who do not use formal financial services in any way, an estimated 5 percent are in that position of their own accord—either for cultural or religious reasons, or because they simply have no need for banking services.

The remaining 95 percent are excluded involuntarily. This could be, for example, because they face (real or perceived) discrimination or because they cannot get past the information and contractual requirements needed to access banking services.

It is estimated that a large proportion, up to 85 percent, are unbanked because financial institutions see their low income as too great of a risk, or because, for these Serbians, the cost of services is too high and the product features that are offered are not sufficiently useful for them. This is the group that MFS is well suited to address.

"Mobile financial services" is defined here to include two broad categories of services: branchless banking via mobile phones and mobile banking as a channel for financial services. With branchless banking, users can take advantage of services allowing them to make basic payments—utilities and other bills— as well as micro-payments and remittances. These transactions become fast, easy, and cost-effective through MFS. Users can also participate in savings, credit, and insurance programs. Such services drive the financial inclusion of the unbanked through mobile wallet solutions, micro-loans, and micro health and crop-failure insurance.

Mobile financial services includes both branchless banking with mobiles and mobile banking

Branchless banking through mobile		Mobile as channel
Basic payments and remittance services	**Savings, credit and insurance**	**Access portal for financial services**
		
Facilitate transactions while saving time, effort and cost for users, e.g., • Parking payments • Domestic (and international) remittances • Utility and other bill payments	**Drive financial inclusion of the unbanked and underbanked** • M-wallet solutions • Micro-loans • Micro-insurance for health or crop failures	**Enhance convenience and richness of interactions with financial providers** • Mobile banking • Internet applications on smartphones

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Exhibit 4.2 The two categories of services

The other side of MFS provides existing banking customers with a highly accessible portal for financial services, increasing convenience. The frequency of interactions between customers and financial providers is enhanced through this mobile portal, allowing for convenient mobile banking and the use of Internet applications on smartphones. With the increasing use of mobile Internet services, this represents the next step beyond PC-based Internet banking.

MFS has been available in Serbia for five years and there is a high number of registered users, but actual usage remains low due to a lack of trust in banks and other service providers. Among the 100,000 registered users of the SMS-based mobile network Top-up, launched in 2006, only an estimated 20,000 people make use of the service. In addition, the domestic success of eCommerce has been hampered by the fact that there is only one acquirer, which has focused on big merchants and which charges high commissions. The fact that Serbian transactions on international Web shops are ten times higher than domestic shops shows there is plenty of room to grow.

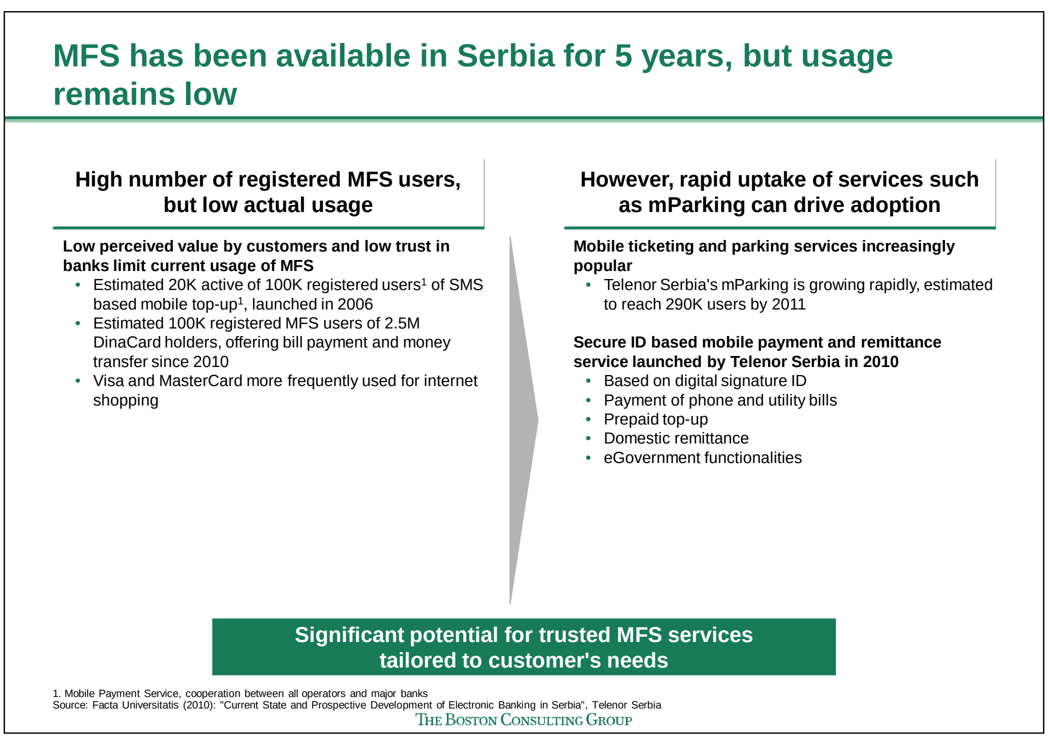

Exhibit 4.3 Current MFS offering

Other mobile services have done well in Serbia, however, and are helping to build consumer trust. Telenor Serbia's mParking has grown quickly and is estimated to reach 290,000 users by 2011. Telenor Serbia also launched a prepaid mobile payment and remittance service in 2010, which is based on a digital signature ID and allows users to pay phone and utility bills, send domestic remittances, and take advantage of e-government offerings. Serbia has the potential for significant further influence by MFS, as more services are offered that are tailored to customer needs.

5.2 Adoption

For mobile financial services to gain a strong footing in Serbia and develop a successful, sustainable ecosystem, a number of elements have to be in place. These include regulations, business model planning, distribution networks, and consumer education.

Implementing and enforcing regulations of mobile services is a key step in the inclusion process. These regulations must include the structure of the MFS framework for non-banks, guidelines for the use of MFS agents, and a determined government initiative and focus. Regulations are discussed in greater detail in Chapter 5.6

In addition, a workable MFS business model will need to be established. Since both banks and telecoms need to work together to offer mobile financial services, there must be cooperation and transparency between these different types of players. Profit sharing and pricing mechanisms must also be built into the MFS business model.

A stable, reliable distribution network has to take hold before MFS can be successful in Serbia. This includes how MFS agents are used, trained, and certified. A strong system must also be in place to manage liquidity and to guarantee security and the flow of cash.

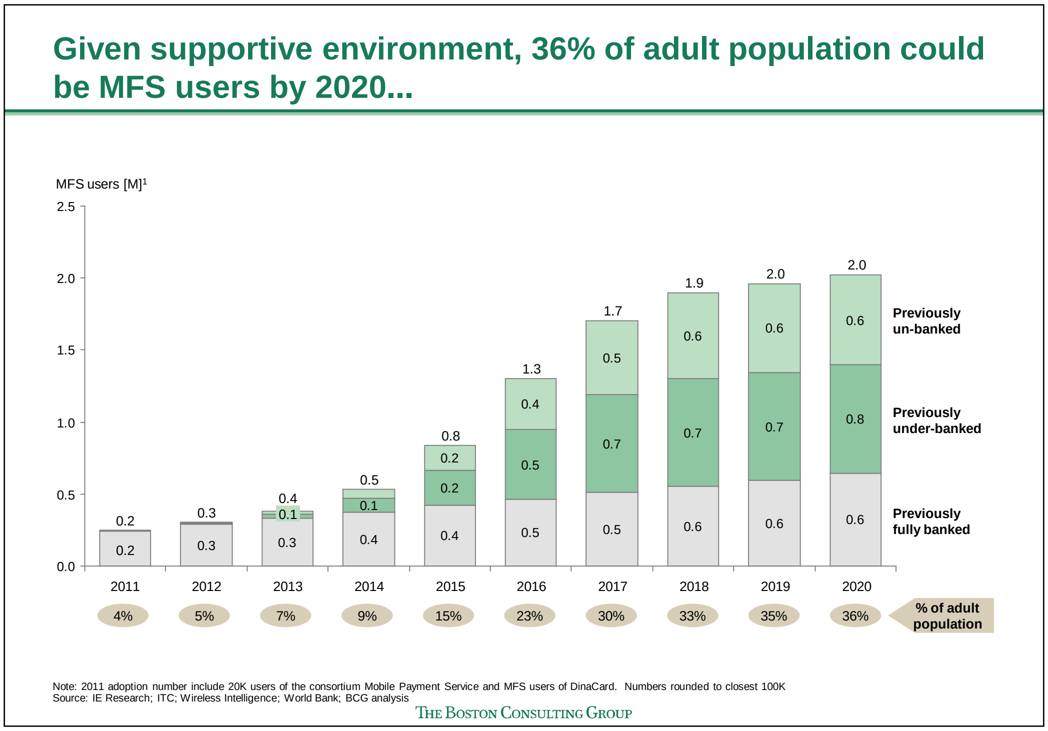

Exhibit 4.4 Reduction in number of unbanked

Finally, consumer education is of crucial importance to the success of mobile financial services. Consumers will have to be taught the advantages of becoming banked and begin to understand the importance of moving away from a cash-based economy. This includes establishing trust in MFS as a reliable and useful system, and will likely require the collaboration of all members of the ecosystem, including the regulators.

Given that this sort of supportive environment is in place, the potential number of MFS users has been projected until 2020. For more details on the analysis please refer to the appendix. By 2020, 36 percent of the adult Serbian population—from the unbanked to the fully banked—could be MFS users. This translates into 2 million users, of which 1.4 million would otherwise have been unbanked or underbanked. This rate of MFS adoption will reduce the number of unbanked Serbians by 11 percent in 2020 and bring the financial inclusion of the adult population up to 95 percent.

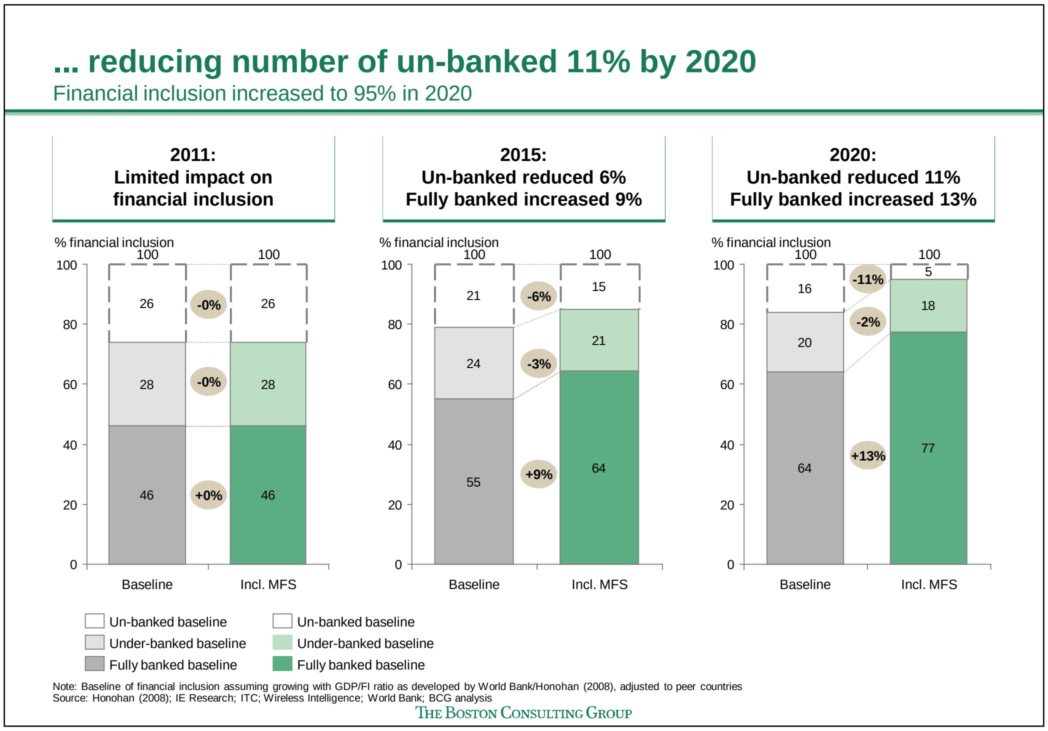

Exhibit 4.5 Details on reduction in number of unbanked

5.21 From MFS to Traditional Institutions

As Serbians adopt mobile financial services, they will also begin to gain access to a greater range of formal financial services. For example, customer relationships will deepen through MFS, with mobile providers gleaning more information about who their customers are and where they live, as well as deeper knowledge of transactional patterns, all of which will begin the basis for building customer credit histories. Given wide MFS distribution beginning in 2012, the number of formal credit service users could increase by 600,000 people by 2020.

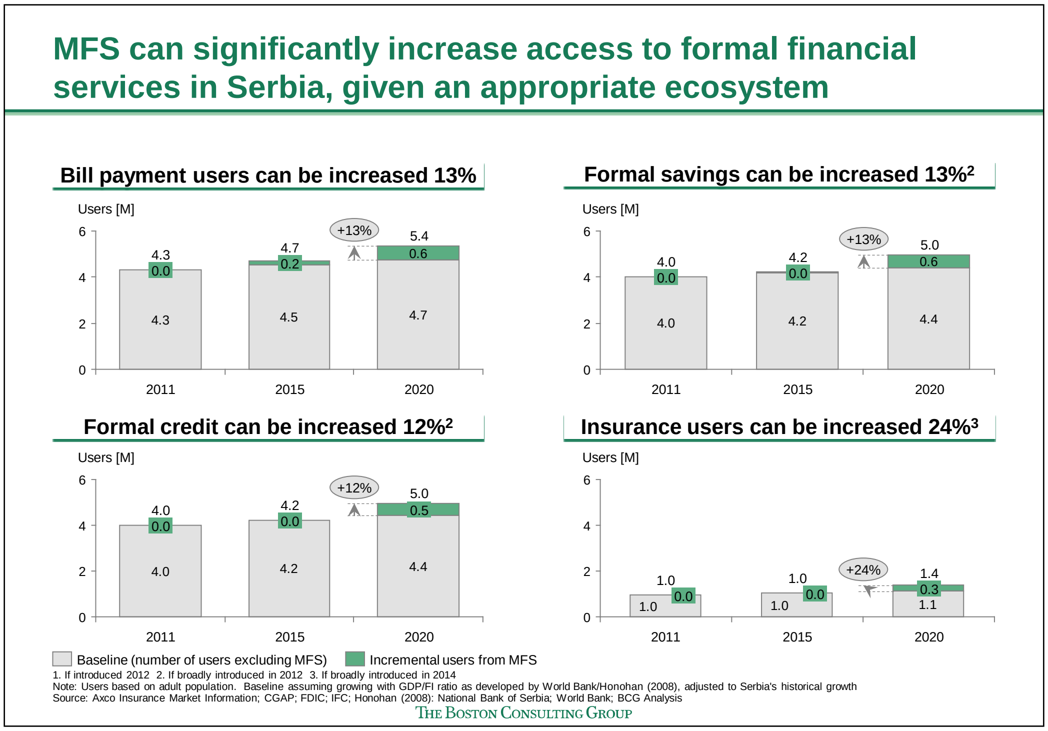

Exhibit 4.6 Access to financial services

Further, with the start date of 2014, the number of formally insured Serbians can increase 24 percent by 2020. Currently, the limited rural distribution of insurance products makes for high transaction costs. Serbia's poor are also inhibited from gaining access to insurance as a result of their lack of credit history and their general classification as high-risk customers. Many are also without documentation, which oftentimes makes claim verification difficult. Mobile distribution of insurance policies would introduce products better suited to the needs and payment capacities of a considerably wider range of customers. These products could include health insurance, particularly micro-insurance.

Remittance systems are another key beneficial service that will be much more accessible through MFS and will eventually lead to an increase in formal users. Mobile remittances can be made through a fast, secure channel that would be available to all. These services are designed to be instant, safe, and secure, and should draw some users away from informal channels. MFS would lower costs significantly—typical fees today are 5 percent to 12 percent of the transaction amount—would improve reach and convenience, and would provide a trusted brand name, as opposed to the formal banks that some users are unfamiliar or uncomfortable with. MFS remittance services could lead to an increase of 35 percent in the number of formal users by 2020.

5.22 Benefits: From the Individual to Society

Mobile financial services can offer all Serbians certain benefits. Banking becomes much more accessible and affordable. Products are tailored to customers and are thus more relevant and meaningful. And MFS leads overall to a reduced reliance on cash. In addition, those MFS adopters who were previously unbanked will benefit from mitigated income volatility and expense shocks.

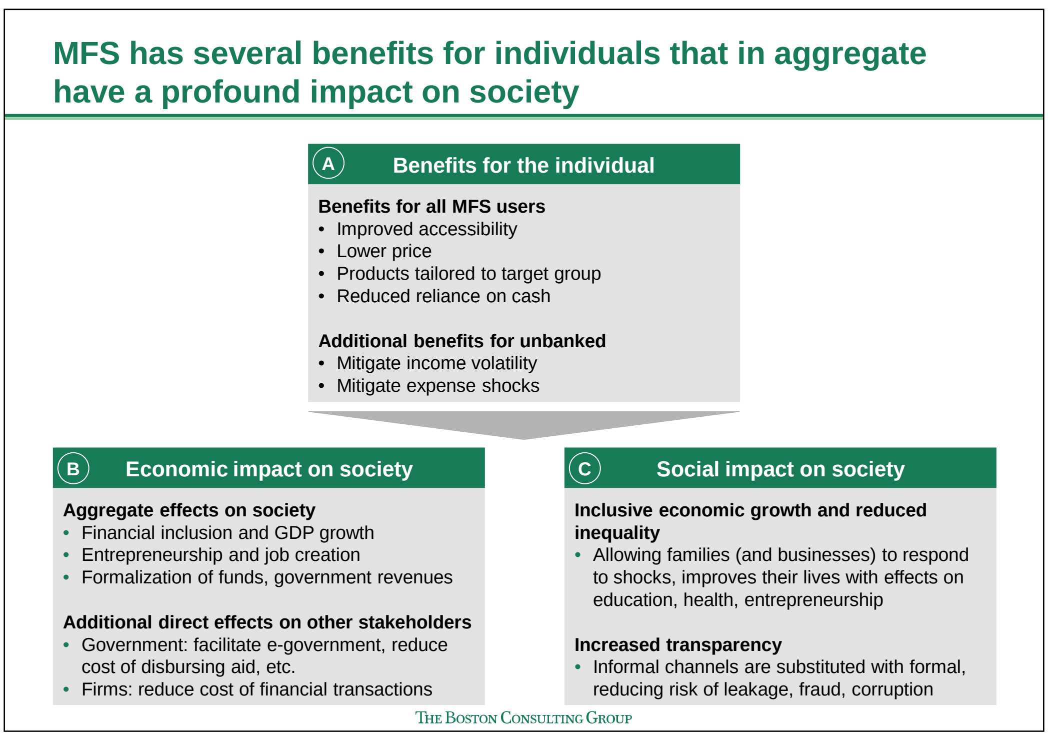

Exhibit 4.7 Overview of benefits

All of these advantages accrued by the individual will ripple outward and affect society economically and socially. Economic benefits include the increase in financial inclusion, which leads to GDP growth; the sparking of entrepreneurship and job creation; and the formalization of funds and government revenues. Other stakeholders will feel direct economic effects as well, such as government, through the facilitation of e-government initiatives and the reduction in the cost of aid disbursement; and private firms, through lower costs of financial transactions.

Socially, the impact of MFS will be substantial as well. Inclusion, which leads to economic growth, means an overall reduction in inequality. Families and small businesses will be better able to respond to shocks, and because of the effects MFS will have on education, health, and entrepreneurship, even the poorest Serbians will have the opportunity to lead improved lives. They will no longer need to rely on informal channels of financial services—with the inherent risks of leakage, fraud, and corruption.

It is true that the direct economic impact of MFS adoption on more developed countries is more modest than on those nations that are still developing. The primary driver behind the economic benefits of MFS adoption is the increase in financial inclusion. Since Serbia already has a relatively high 73 percent inclusion rate—projected to grow to an approximate 84 percent by 2020—MFS will have a much smaller economic impact than it will on a country with a low baseline inclusion rate, such as Pakistan.

Nonetheless, the social benefits of MFS will still be significant, as its adoption can play a key role in driving inclusive growth. Its benefits are often focused on the poorest segments of society, and it can serve to reduce basic issues of inequality among the Serbian population.

5.3 Benefits for the Individual

The practical and attractive features of mobile financial services are a strong draw for individual customers. The accessibility of MFS, for instance, has meaningful appeal. Banking no longer requires the time and cost of travel, and users do not have to have a computer or Internet access to manage their accounts and seek information about products. They can conduct transactions of any amount, whenever they need to, from anywhere. And those transactions—such as purchases, personal remittances, and business operations—are completed instantly and at a relatively low cost.

Another key benefit to the individual is how MFS lets users spend less of their time overcoming bureaucratic obstacles. Tailored features, as well as flexible repayment plans and reduced balance requirements, give users the ability to open accounts and gain access to products tailored to their own needs. It also puts them in a position to build up credit histories, an important stepping-stone in individual economic improvement.

MFS reduces its customers' reliance on cash, a feature that brings increased convenience and savings potential into Serbians' lives. Cash becomes unnecessary for transferring or receiving money, which reduces the inherent risks of cash handling, such as loss, theft, or fraud. With middlemen squeezed out of the transaction equation as a result of MFS, customers will experience increased transparency. All of these benefits give consumers good reason to adopt MFS.

Serbia's poor face two primary challenges that financial services can help address. First, they tend to live with a high degree of income volatility. Financial services can help smooth out their cash flow in several ways: by building a buffer through savings; by increasing inflow through remittances; and by accumulating lump sums of money—through savings and credit—that can be used to manage major expenses as they come up.

The poor also suffer from the severe expense shocks that occur now and then in their lives. Again, access to financial services would help. Customers can obtain funds to help overcome temporary shortfalls through credit, remittances, and insurance, all of which is out of reach for the unbanked and has served to keep the poor from improving their economic situation.

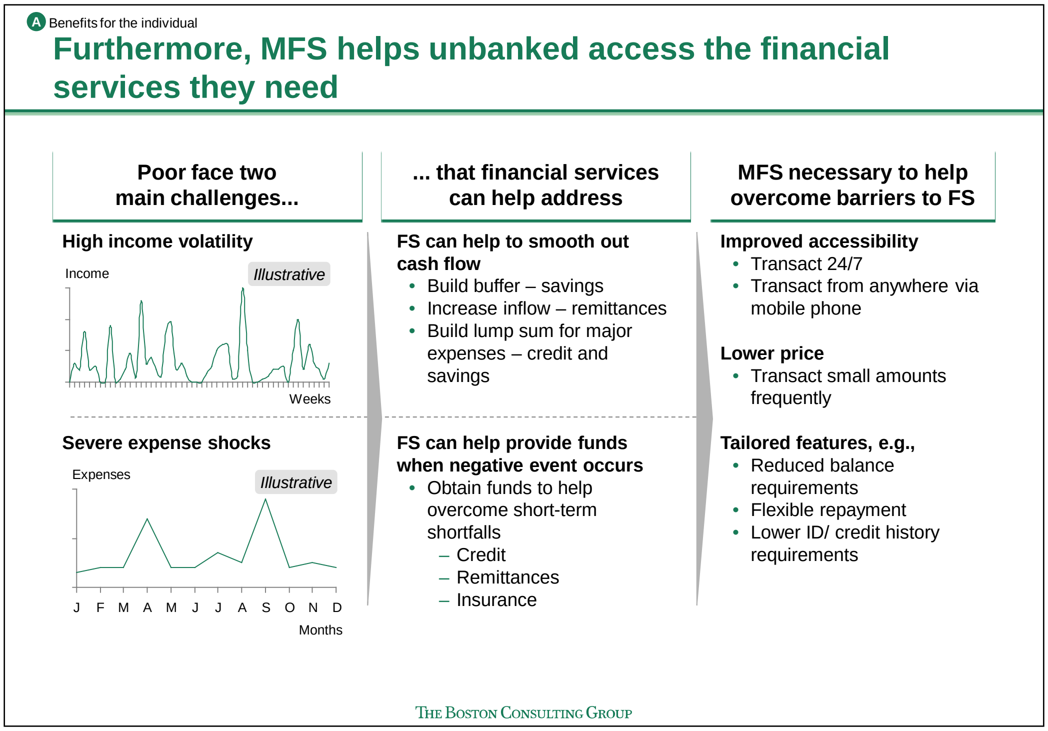

Exhibit 4.8 Income volatility and expense shocks

For urban Serbians, MFS could produce a savings equivalent of 1 percent of income per year as a result of reduced travel and waiting time—including the commuting time for users who don't live close to a branch, the waiting time involved when standing in long lines, and the transaction processing times. The savings will be significantly higher for rural users, who have to travel farther to get to banks. As MFS does away with these inconveniences, the benefits will be felt both by banks and communities. Banks will have fewer low-value, high-cost transactions to contend with as customers migrate to cheaper channels—improving the overall cost to serve. The reduction in customer waiting times translates to reduced requirements for bank staff, too. From an even broader perspective, MFS will contribute to a decrease in city traffic congestion and a reduction in the lost productivity that occurs when workers have to run inconvenient errands.

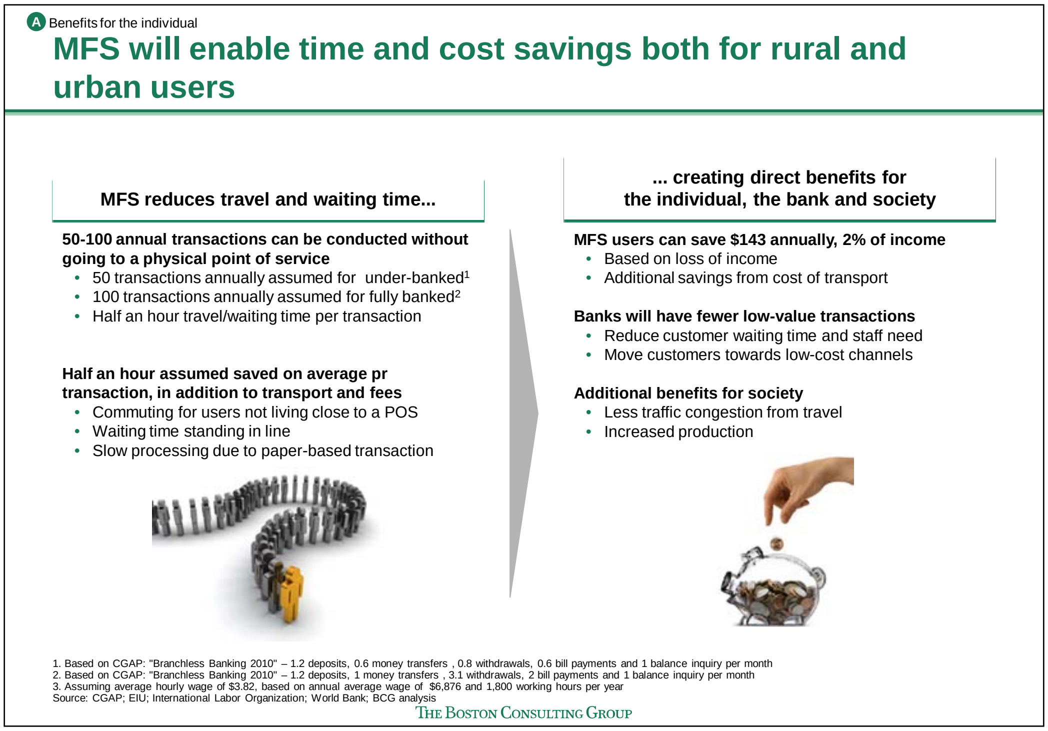

Exhibit 4.9 MFS time and cost savings

5.4 Economic Impact on Society

Strong evidence indicates that growing financial inclusion increases a nation's GDP growth rate. As entrepreneurs with business ideas gain access to credit, economic activity grows, and new businesses and jobs mean a more productive society. Moreover, there is an additional accounting benefit from the formalization of savings within the banking system, as this will power further credit creation, increasing investments. With mobile financial services adoption, Serbia could see a GDP increase of US$2 billion, or 2 percent, by 2020.

5.41 New Job Creation

Increased access to finance facilitates entrepreneurship, new business creation, and new jobs. A World Bank study found that a 1 percent increase in financial inclusion corresponds to a 0.51 percent increase in business creation, and a 15 percent inclusion increase leads to employment growth of 1 percent.

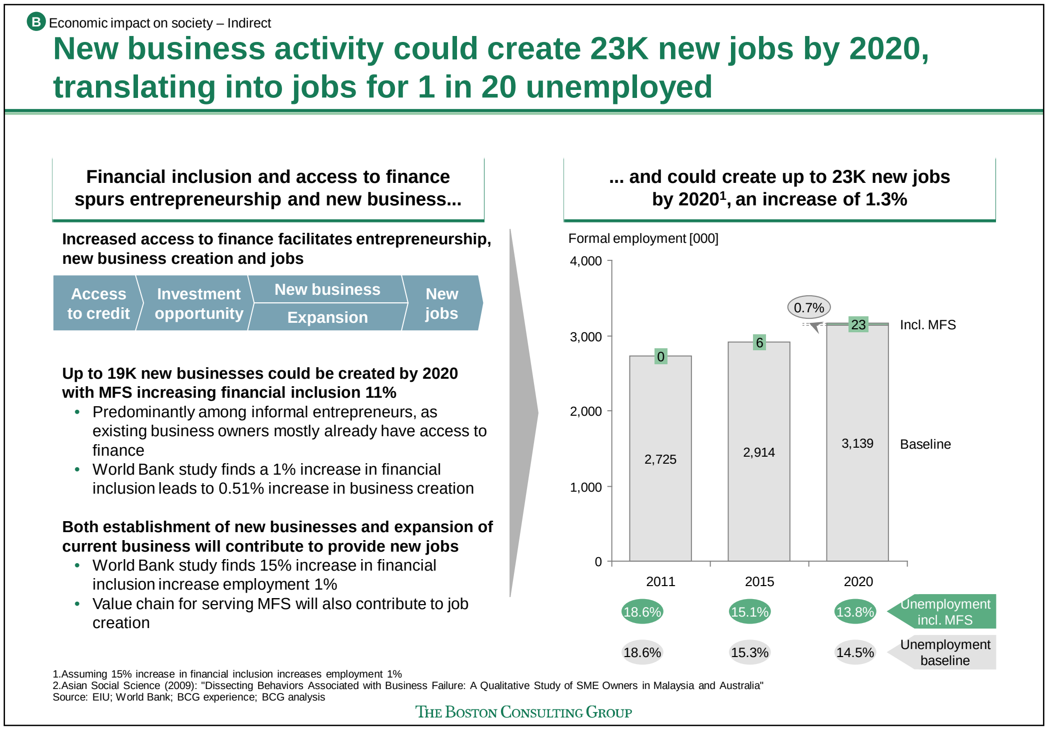

Exhibit 4.10 New job creation

By 2020, if MFS adoption increases financial inclusion by 11 percent, up to 19,000 new businesses could be created, and could lead to 23,000 new jobs, an employment increase of 1.3 percent. This is the equivalent of new jobs for 1 out of every 20 currently unemployed Serbian.

5.42 Tax Revenue Growth

The benefits of the economic growth stimulated by MFS will increase tax revenues as well. Corporate taxes will grow as a result of new business creation along the MFS value chain, growing profits within existing firms thanks to savings from MFS, and company expansions made possible by MFS. This business growth and creation will generate new jobs, which means increased employee income taxes. MFS could therefore add US$400 million annually to Serbia's government revenues by 2020—an increase of 2 percent.

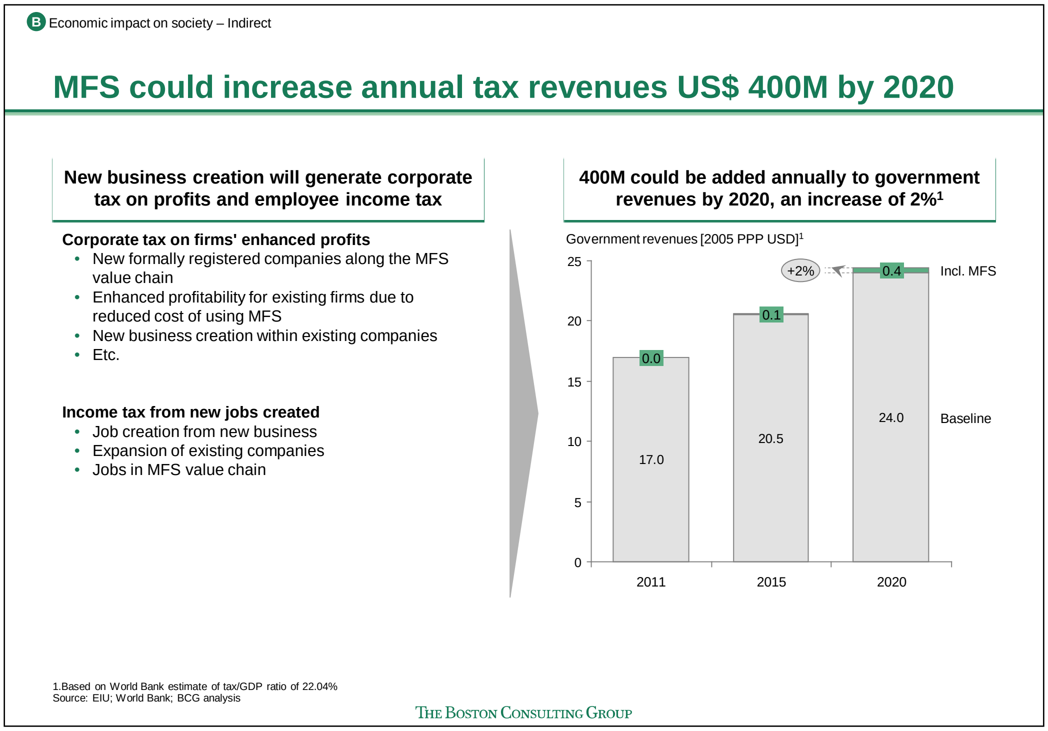

Exhibit 4.11 Impact on annual tax revenues

5.5 Social Impact on Society

The adoption of mobile financial services can help support the achievement of Serbia's goals by addressing some of the social needs spelled out in government initiatives. The growth of the country's technological infrastructure—mobile, Internet, and, thus, MFS—will be at the root of the increase in financial inclusion, which will improve rural social and economic development and foster balanced growth by increasing financial security and reducing the cost of transactions.

MFS will make education and health care more accessible, especially for the poor, by providing simplified payment processes and cash flow control. It will give young Serbians more opportunities through job creation and capacity development—making savings and loans more accessible in remote areas and for people without credit histories. Again, simple payment processes lower overall operating costs. And finally, MFS will promote e-government and transparency by reducing cash circulation and increasing the efficiency in the delivery of services.

These benefits of MFS adoption can help with the overall improvement of Serbia's economic, cultural, and social development through increased global competitiveness and balanced regional growth.

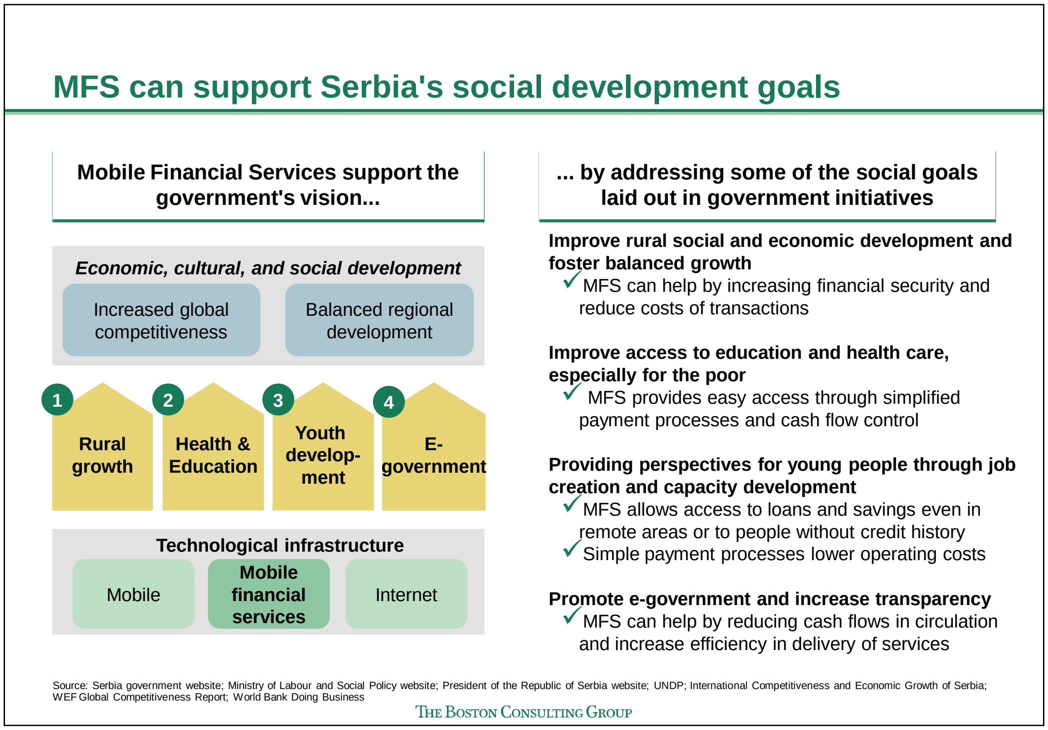

Exhibit 4.12 Overview impact on society

5.51 Reducing Economic Inequality

By 2020, with the distribution of MFS having widened access to financial services, the Gini coefficient—the most commonly used measure of inequality—can be reduced by 0.8 percent.[23] With such a shift, Serbia's income equality would be roughly equivalent to that of the current levels of Finland and Norway.

[23] The Gini coefficient varies between 0, which reflects complete equality, and 1, which indicates complete inequality.

Rural poverty in Serbia is exacerbated by a decline in entrepreneurship and employment—an issue that MFS provides the mechanisms to address. About 500,000 people, or 7.9 percent of the population, still live below the poverty line, and two-thirds of the poor live in rural areas. Low agricultural income relative to Serbia's urban income has created a nation with significant issues of inequality. In addition, the rural population is aging and faces a lack of entrepreneurship and high unemployment.

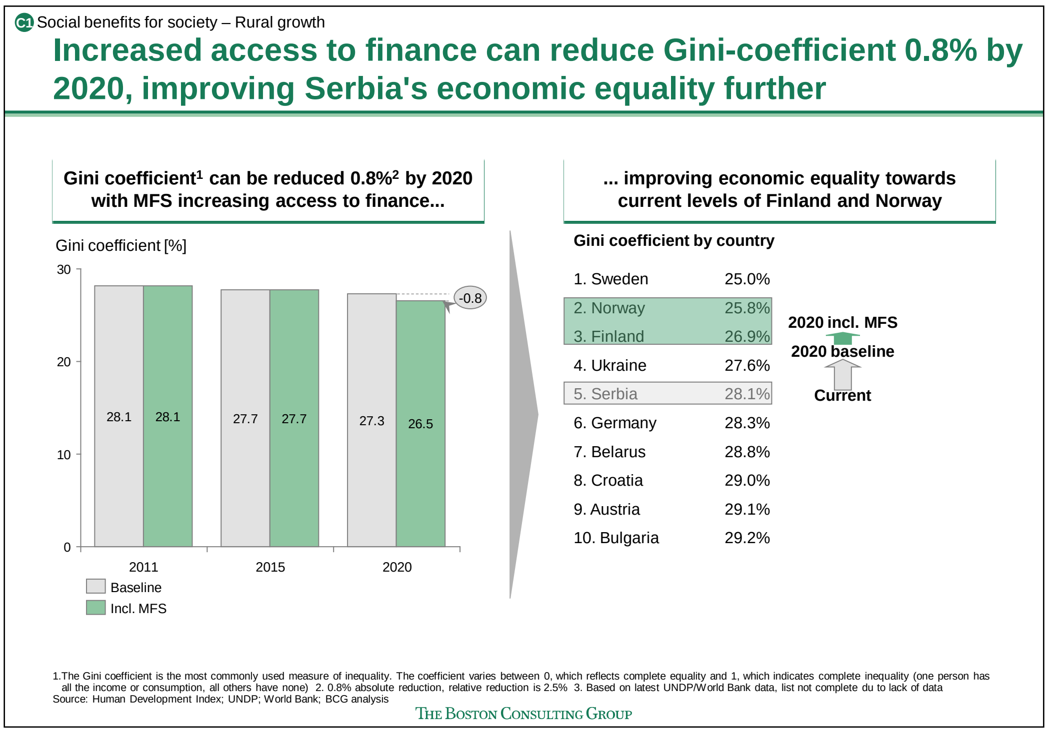

Exhibit 4.13 Reduction in income inequality

MFS tackles these issues primarily through mobile money transfer systems, which can aid rural entrepreneurs. Such systems could be easily adopted since Serbia has 131 percent mobile penetration and would allow those without bank accounts to make and receive remittances and payments. Fast payment supports smooth business operations, and productivity can increase because of the time and money saved from not having to travel to a bank branch or payment transfer office. MFS can facilitate government loan payments into remote areas through money transfers, and through SMS payments it can enable payments of instant loans, taxes, business-related bills, as well as the reduction of time and money spent on managing transactions.

5.52 Health Care Improvements

MFS addresses Serbia's poverty issues further by offering a way to help mitigate the worst potential outcomes of health shocks by increasing general financial security. The poorest of the population still face challenges in obtaining health care. Fourteen percent of the poor do not have health insurance, and cost is the third-greatest reason they do not seek out medical care. In addition, the poorest 20 percent of the population spend three times more on health care than the richest quintile—with fully 22 percent of overall health care costs coming out of pocket (versus 12 percent in Germany).

The cost of health care has long-term effects. Health payments increase the incidence of poverty in Serbia by 13 percent and the poverty gap by 20 percent. The danger with this scenario is the way it can exacerbate the health situation with negative effects on other areas of development, such as education and employment.

Mobile financial services can serve to increase the financial protection of the unbanked through three main levers: savings, insurance, and care payments. Households can make mobile payments for a predetermined period to save for health expenses—an opportunity that would especially help the unbanked, such as the Roma and other vulnerable groups. This translates to a simple and safe way to save and make health care accessible.

Insurance becomes available through MFS via micro health insurance plans or payments toward health funds through mobile phones with small and flexible payments. Such simple claims and premium payment systems encourage the successful adoption of insurance products.

And MFS can decrease payment delays and offer increased transparency. Mobile services give the government a means of transferring benefits—such as claims or transportation subsidies—to the unbanked. MFS can also facilitate remittances from abroad for health emergencies and salary distribution. All in all, faster fund transfers can enable easier access to health care.

5.53 Supporting Education

Serbia's poor are also still at an educational disadvantage, with 12 percent of poor children between 7 and 14 outside the education system. They also face low tertiary school enrollment—14 percent—partially because of cost: the price of books and supplies, as well as the income opportunity cost, as labor in and outside of the home has to be forfeited. In addition, income shocks cause children to drop out when families can no longer cover costs and the children are needed at home.

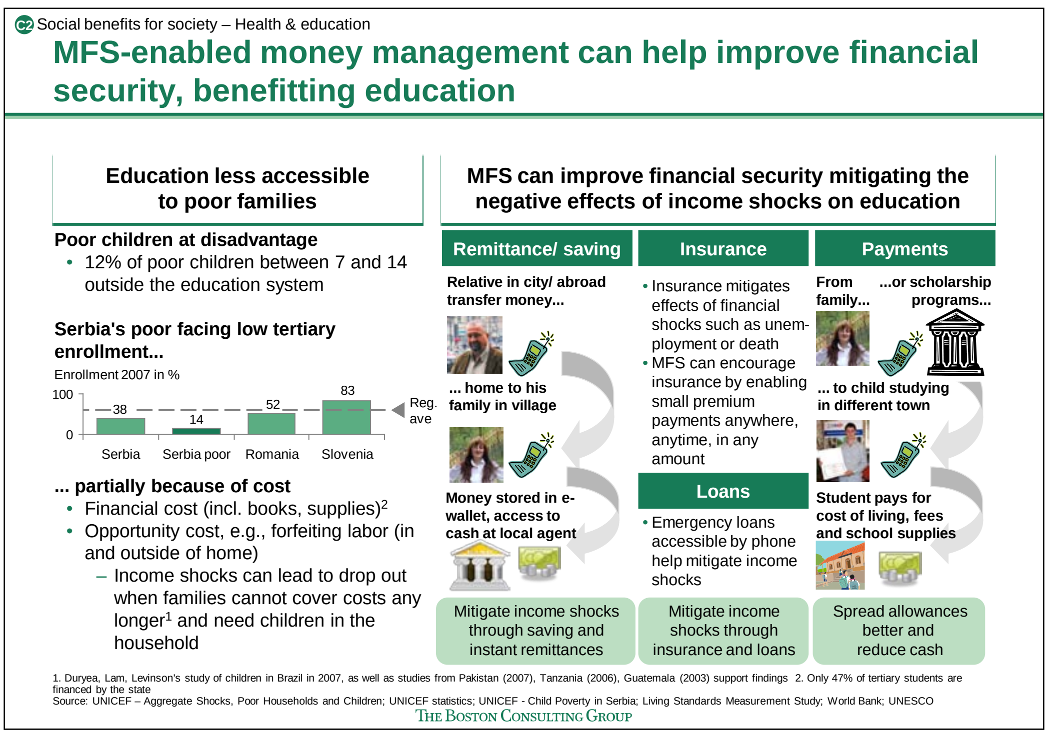

Exhibit 4.14 Supporting education

MFS-enabled money management can improve financial security, mitigating income shocks and benefiting education in the long run. For instance, a family member living in the city or abroad can transfer money home to his village through an instant remittance system. That money can then be saved in an m-wallet, providing cash at a local agency.

Mobile insurance and loan products can also mitigate income shocks. Insurance is more accessible through MFS as it allow users to make small premium payments from anywhere at any time. Emergency loans that can be made by phone also have the potential to diminish the damage caused by income volatility.

And mobile payments from family or scholarship programs can be made to a student in school in a different town, where that student can pay for fees, schools supplies, and the general cost of living. Allowances are better managed and dependence on cash is reduced.

5.54 Benefits for the Young

Serbia's youth unemployment is very high—44 percent, versus the EU youth unemployment average of 15 percent. Poverty and lack of access to financial services are an important component of the negative cycle that leads to long-term unemployment and overall lack of perspective. Traditional financial services remain out of reach for many of the young, due to their high transaction costs, credit history and proof of income requirements, and limited access for those in remote areas.

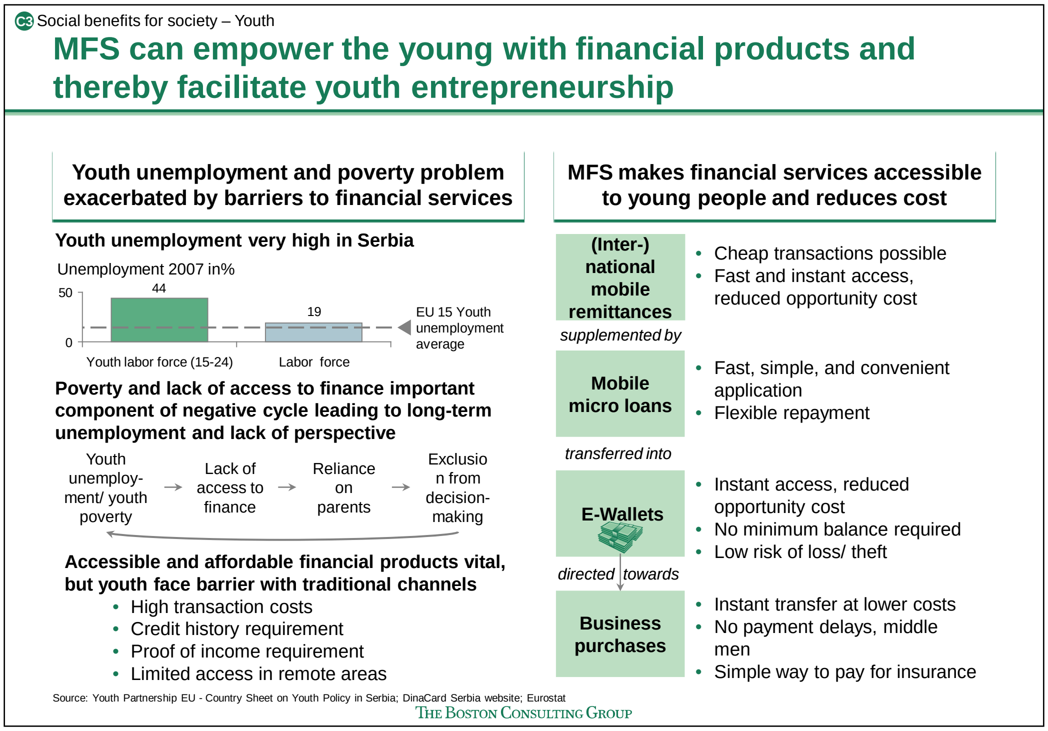

Exhibit 4.15 Benefits for the young

MFS can help to turn this situation around by reducing costs and bringing financial services to the young. International and domestic mobile remittances, for example, supplemented by mobile micro loans and transferred to and saved in m-wallets can all lead to eventual business purchases, such as insurance. At each of these steps, MFS makes the process cost-effective, safe, fast, and convenient, with no middlemen and no payment delays.

5.55 Tools for Government

A key benefit of MFS is its ability to make possible cost- and time-efficient welfare and subsidy disbursement, and to enable e-government programs through payment and ID solutions. Serbia's eUprava portal is already offering citizens comprehensive e-government services, such as certificates, health care reimbursements, school admissions, and access to various registers. eUprava provides companies with certificates and registrations, as well as customs and public procurement tenders, and it facilitates services for public administration bodies. The ability to log in with mCertificate has been announced but is not fully implemented yet.

Through mobile payment systems, welfare, subsidies, and taxes can be transferred directly at low cost. Beneficiaries can have direct access through electronic ID systems and mobile accounts, and payments are made immediately, at little cost, with no risk of leakages. MFS can provide meaningful cost reductions for government agencies and increased convenience for users. Canada has implemented this type of e-government service and has saved US$9 per inhabitant annually on public services, with strong user satisfaction.

Implementing the use of digital signatures via SIM cards will also lead to public savings, as several European countries have already shown. Scandinavian BankID has been in place since 2001, and now 75 percent of electronic certificates are SIM based in Sweden. Estonia is the world leader in this area, as it allows parliamentary voting through mobile phones. And Norway's AltInn lets users submit electronic tax returns and VAT accounts with their digital signatures.

Widespread acceptance and use of digital signatures could reap great benefits for government, consumers, and companies. Government paperwork and processing costs would go down. Queues would shorten at municipalities and banks, reducing the administrative burden. And the convenience for customers would be significant.

5.56 Increasing Transparency

Serbia is No. 78 out of 178 countries on the Corruption Perception Index, placing it below Croatia, Romania, and Hungary. Lack of transparency is a part of most Serbians' lives, with corruption seen as the third-biggest issue after unemployment and poverty. Among entrepreneurs, 53 percent have paid bribes, and only 3 percent of Serbians in general say they have never had to pay a bribe.

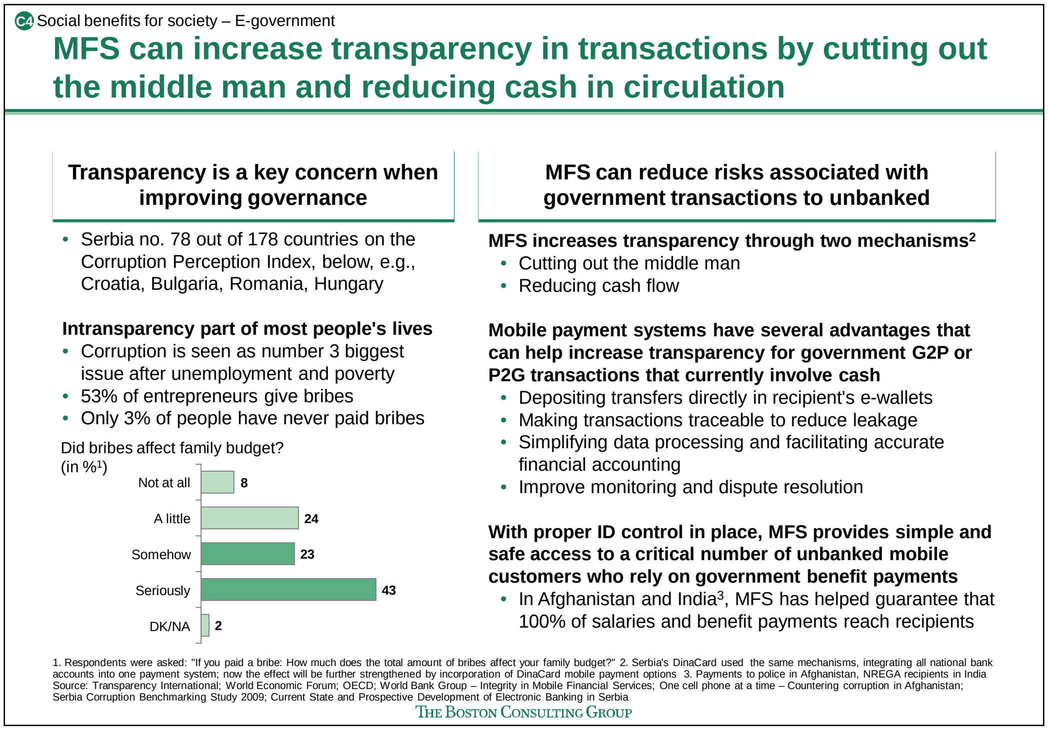

Exhibit 4.16 Increasing transparency

MFS increases transparency through two mechanisms: cutting out the middleman from the financial services equation and reducing cash flow. Instead of cash, transfers can be paid directly into recipients' m-wallets. Transactions are traceable, which reduces leakage, and data processing is simplified, which facilitates accurate accounting. Mobile payment systems also improve monitoring and dispute resolution.

With proper ID control in place, MFS provides simple and secure access to a large number of unbanked mobile customers who rely on government benefit payments. In India and Afghanistan, for example, MFS has helped guarantee that 100 percent of salaries and benefits reach the intended recipients.

Despite all of the substantial benefits that come from broad financial inclusion, there is also an increased chance of risks associated with the availability of new payment channels for so many people. There is an ongoing need to prevent money laundering as well as terrorist and criminal financing. Regulations for telecom companies and government will have to include countermeasures limiting transfer amounts and the number of transfers permitted, managing cross-border transfers, and requiring IDs and codes.

MFS adoption could also reduce these serious risks as the use of formal—and transparent—channels increases, allowing informal channels to be more carefully scrutinized. Mobile services will make all formal capital movement traceable, allowing greater scrutiny of the remaining informal channels. Nonetheless, finding an overall balance between the nurturing of the MFS environment and the proportionate risk for criminal behavior is key.

5.6 Regulatory Issues

MFS poses a new kind of regulatory challenge, straddling as it does two large but distinct domains of regulation: telecommunications and financial services. As it stands today, there are limited formal opportunities for parties from different industries to engage with regulators, as governing bodies and working groups tend to be closed. There is often also a lack of alignment between regulators from these different sectors. In fact, few countries have any sort of formal relationship between financial regulators and telecommunications regulators. This regulatory vacuum will need to be filled.

At the same time, the banking regulations already in place frequently do not address all aspects of an MFS ecosystem. Traditional-banking regulations may in some cases be disproportionately rigid, relative to the regulatory needs for MFS, and may not be sufficiently flexible to allow for the innovation and reforms necessary for MFS to take off. For instance, some existing prudential rules and requirements will clash with the high-frequency, low-volume nature of MFS and thereby prevent experimentation.

For MFS to broaden and grow in Serbia and bring its benefits to society and government, an essential step is the creation of a comprehensive regulatory framework that extends freedom of action to non-banks. This framework should be based on three tiers, with strong interdependence between various domains. *Vital*, the first tier of regulations, addresses the use of MFS agents as well as money laundering and terrorism financing. The second, *necessary*, would regulate such issues as consumer protection and payments systems. The third, and largest, regulation tier, *supporting*, includes the underlying framework, such as data privacy, e-commerce and e-security, general banking, taxation, and general telecommunications. With this structure in place, MFS has the potential to thrive.

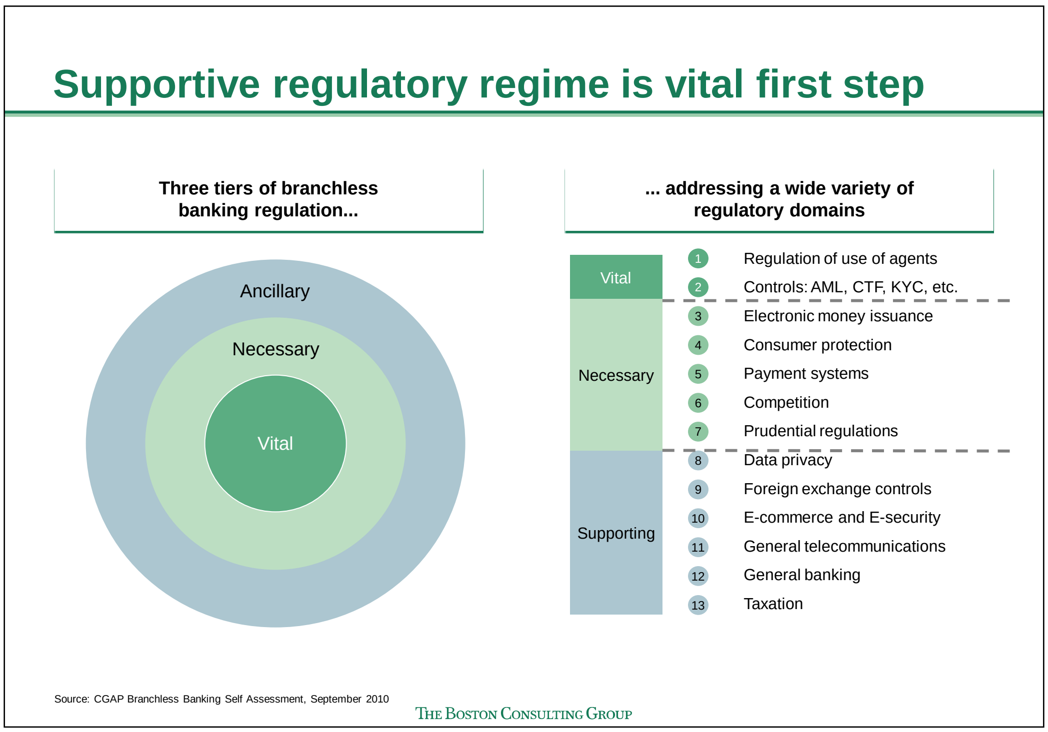

Exhibit 4.17 Three tiers of regulatory framework

In 2009, the EU launched the Payment Service Directive to unify the European payment market. This makes payments easy, efficient, and secure, and builds competition by allowing non-bank entrants into the market. It also provides an appropriate regulatory framework, especially for nonbanks. Unlike the credit institution license previously used by banks, there is one “payments institution” license for banks and nonbanks alike that is valid in all EU countries.

In addition, most EU countries are expected to implement a new e-Money directive in 2011, with a clear and balanced prudential and legal framework. The idea is to remove unnecessary or disproportionate barriers to market entry and ensure "greater consistency with the Payment Services Directive." To realize proportionate prudential requirements, this will involve the reduction of the initial capital requirement for such issuers and introduce new rules about the calculation of own funds that are more adaptable to e-Money issuers. It will also mean the abolition of the exclusivity principle for e-Money issuers.

To develop the MFS ecosystem in Serbia, the country needs to adopt similar legislation as these EU directives. Furthermore, as part of the effort to establish deeper trust in the MFS platform and improve convenience, Serbia should push forward the use of qualified mobile-based digital signatures and m-wallets. Digital signatures are an important step toward the functioning of efficient e-government, and Serbia's e-Uprava has already begun this process by following the success of similar European initiatives. As qualified signatures from SIM-based digital certificates become recognized, consumers will realize the convenience of MFS and gain more trust. Such products have been successfully implemented in Scandinavia and Estonia and have increased public effectiveness.

Mobile wallets can spur micropayments further and increase the public's comfort level with MFS. M-parking's success should be expanded to other types of micropayment services. Virtual micropayment accounts as defined in the EU's e-Money directive will increase convenience and reduce costs for consumers, leading to the rapid adoption of new products with greater economic and social benefits.

6. MALAYSIA

6.1 Introduction

Malaysia currently has an 80 percent financial inclusion rate. The number of those who are unbanked has fallen to around 20 percent today. An estimated 55 percent of the adult population is fully banked, meaning they are able to take advantage of a complete range of formal financial services (including savings, insurance, credits and others); and an estimated 25 percent are underbanked, with only basic access, such as a savings account. Among those who are financially included, there is a high penetration of key services—such as insurance, credit, and bill payment products—though actual usage of these services is probably somewhat low.

There is strong evidence that financial inclusion—the delivery of affordable banking services to a population—is associated with the attainment of a nation's crucial economic and social goals. Providing financial services draws credit into the banking system, leading eventually to GDP growth. It increases the formation of domestic capital, spurring entrepreneurship. And it develops the depth of a nation's private sector, which in turn builds new jobs. These financial developments reduce a nation's overall income inequality, increase income growth among the lowest paid quintile of the population, and accelerate poverty alleviation.

From a social perspective, financial inclusion gives workers the means to make remittances, a key goal in promoting the reduction of inequality. It provides them with a safe way to save their income, increasing the resiliency of the poor to unexpected economic or political shocks and food shortages. And it gives the population access to insurance—a basic safety net for emergencies such as accidents or crop and weather catastrophes—making it possible for families near the poverty line to keep their children in school through difficult times.

6.11 Advantages of MFS

Mobile financial services providers would bring five distinct advantages over traditional banks to give the unbanked and underbanked access to the benefits of financial services in Malaysia.

A focus on "long-tail" customers. Telcos have extensive experience targeting their customers and understanding their needs, making it possible for them to deepen and broaden the relationships they have with existing customers. In contrast, banks have typically given the lion's share of their attention to the wealthiest customers, ignoring the "long-tail," which they are unable to serve profitably.

Key infrastructure in customers' hands. Mobile customers already have the critical piece of infrastructure they need to access MFS, since the mobile SIM card can, with appropriate security arrangements, act as a secure identification and authentication device.

Customer relationships. Many of the unbanked already have relationships with mobile operators, which means their usage history is available. This gives telcos an advantage in knowing who potential financial services customers are and where they live. It gives them information on transactional patterns, which can become a basis for building a credit history, as well as an established channel for communication with customers.

Brand recognition. The unbanked population in general has had limited interactions with large, formal financial institutions, which has created a "trust gap" that could be a potential barrier to financial inclusion. Telecom companies, on the other hand, are typically well known even among the poorest segments of society, are considered safe, and are associated with instant transmission—through text messaging, or SMS, for instance.

Large distribution network. Unlike traditional banks, telcos have behind them an extensive, nationwide network of merchants who are accustomed to working as commissioned agents. These companies have broad experience working with such partners on both pricing and product distribution.

6.12 Addressing the Unbanked

MFS lowers some of the remaining key barriers to banking inclusion in Malaysia by reducing start-up costs and service prices, as well as by delivering the banking products that meet the particular needs of Malaysians. Widespread network coverage allows for around-the-clock account access and eliminates travel time and costs. Furthermore, mobile banking gives customers access to additional products, such as credit and insurance policies, thereby breaking the chicken-and-the-egg cycle and providing Malaysia's population with a much-needed opportunity to build credit histories.

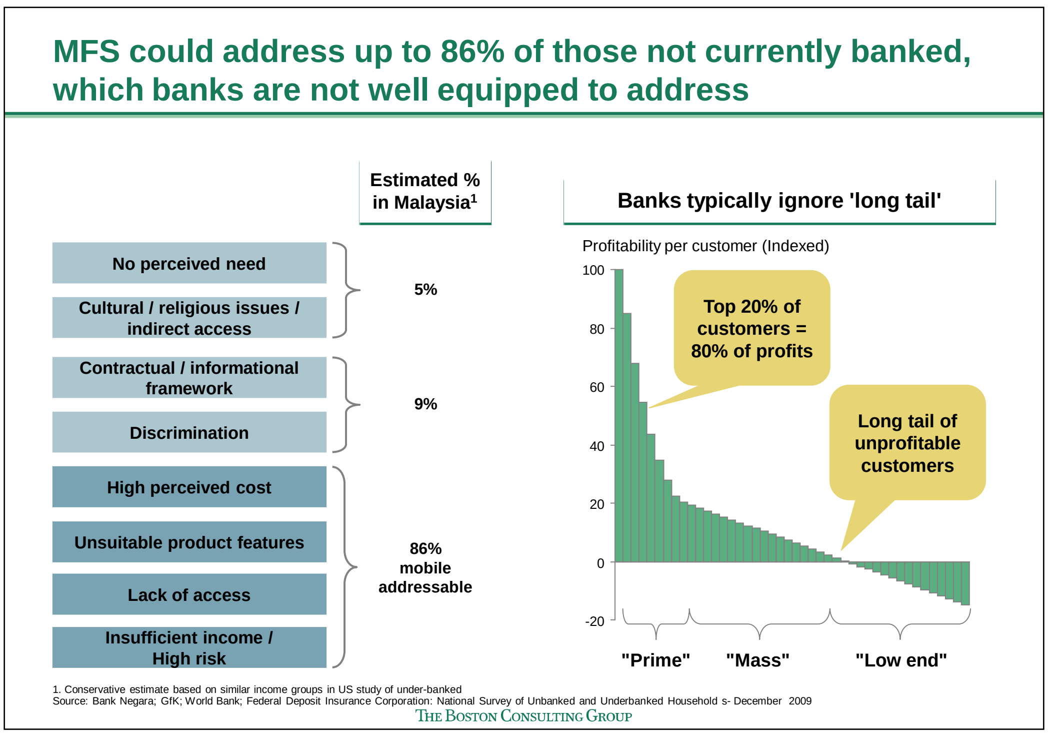

Exhibit 5.1 Addressing the unbanked

To consider who might benefit from the distribution of MFS, we broke down the unbanked population into several categories, leveraging surveys of the unbanked in emerging markets. Among those Malaysians who do not use formal financial services in any way, an estimated 5 percent are in that position of their own accord—either for cultural or religious reasons, or because they simply have no need for banking services. The remaining 95 percent are excluded involuntarily. This could be, for example, because they face (real or perceived) discrimination or because they cannot get past the information and contractual requirements needed to access banking services.

It is estimated that a large proportion, up to 86 percent, are unbanked because financial institutions see their low income as too great of a risk, or because, for these Malaysians, the cost of services is too high and the product features that are offered are not sufficiently useful for them. This is the group that MFS is well suited to address.

"Mobile financial services" is defined here to include two broad categories of services: branchless banking via mobile phones and mobile banking as a channel for financial services. With branchless banking, users can take advantage of services allowing them to make basic payments—utilities and other bills— as well as micro-payments and remittances. These transactions become fast, easy, and cost-effective through MFS. Users can also participate in savings, credit, and insurance programs. Such services drive the financial inclusion of the unbanked through M-wallet solutions, micro-loans, and micro health and crop-failure insurance.

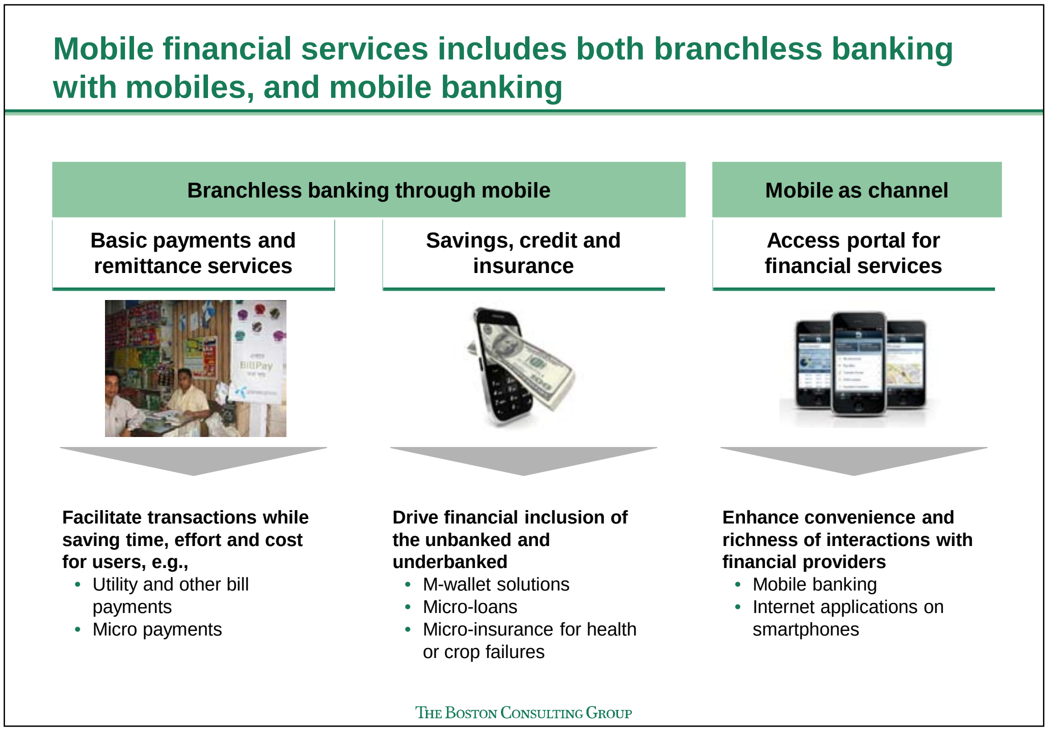

Exhibit 5.2 The two categories of services

The other side of MFS provides existing banking customers with a highly accessible portal for financial services, increasing convenience. The frequency of interactions between customers and financial providers is enhanced through this mobile portal, allowing for convenient mobile banking and the use of Internet applications on smartphones. With the increasing use of mobile Internet services, this represents the next step beyond PC-based Internet banking.

MFS is already widely available throughout Malaysia, but uptake among the population has been slow. Several companies—telecom firms and banks—offer mobile bill payment, savings, and remittance services. Mobile credit products, however, have not yet been launched, and only two firms, mobile providers Digi and Celcom, offer some form of insurance. Malaysia, thus, has the potential for significant further influence by MFS, as more services are offered and usage takes better hold among the population.

Low uptake of mobile banking/MFS despite wide availability[1]

Selected providers

	Bill payment	Savings	Credit	Remittance	Insurance
BIMB[2]	✓ Bill payment Mobile top up (2004/2010[1])	✓ Connected to bank account	✗	✓ Domestic inter-bank only	✗
CIMB	✓ Bill payment Mobile top-up (2008)	✓ Connected to bank account	✗	✓ Domestic International	✗
Celcom	✓ Post-paid bills Mobile top-up (2009)	✓ E-wallet	✗	✓ Domestic International (2009)	✓ Personal accident insurance
Digi	✓ Post-paid bills Mobile top-up	✓ E-wallet	✗	✓ Domestic International (2007)	✓ Personal/family accident insurance
Maxis	✓ Bill payment Top-up (2003)	✓ E-wallet Up to RM1,500	✗	✓ Domestic To Philippines	✗

Bank-led | Telco-led

1. 0.6M in 2009 according to Bank Negara 2. Launched 2003 with BCB, 2009 with Maybank
2. Bank Islam Malaysia Berhad, launched in 2004 as internet banking accessible by phone browser, from 2010 not internet-dependent
Source: Annual reports; Company web pages; GSMA

THE BOSTON CONSULTING GROUP

Exhibit 5.3 Current MFS offering

6.2 Adoption

For mobile financial services to gain a strong footing in Malaysia and develop a successful, sustainable ecosystem, a number of elements have to be in place. These include regulations, business model planning, distribution networks, and consumer education.

Implementing and enforcing regulations of mobile services is a key step in the inclusion process. These regulations must include the structure of the MFS framework for non-banks, guidelines for the use of MFS agents, and a determined government initiative and focus. Regulations are discussed in greater detail in Chapter 6.6.

In addition, a workable MFS business model will need to be established. Since both banks and telcos need to work together to offer mobile financial services, there must be cooperation and transparency between these different types of players. Profit sharing and pricing mechanisms must also be built into the MFS business model.

A stable, reliable distribution network has to take hold before MFS can be successful in Malaysia. This includes how MFS agents are used, trained, and certified. A strong system must also be in place to manage liquidity and to guarantee security and flow of cash.

Finally, consumer education is of crucial importance to the success of mobile financial services. Consumers will have to be taught the advantages of becoming banked and begin to understand the importance of moving away from a cash-based economy. This includes establishing trust in MFS as a reliable and useful system, and will likely require the collaboration of all members of the ecosystem, including the regulators.

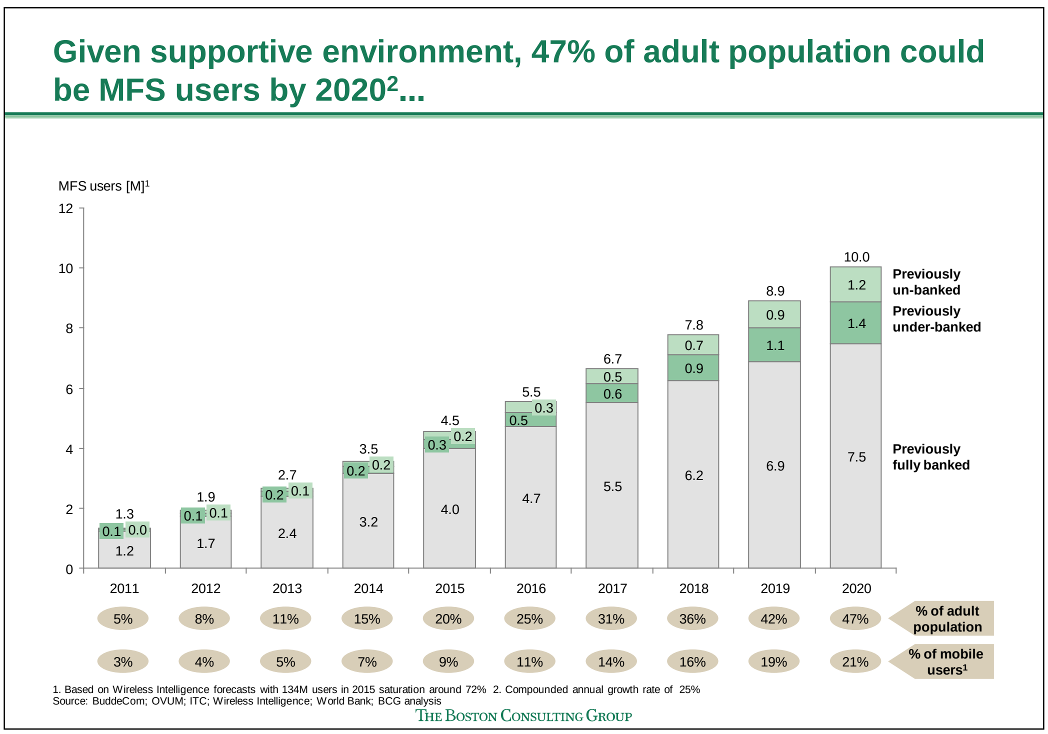

Exhibit 5.4 Reduction in number of unbanked

Given that this sort of supportive environment is in place, the potential number of MFS users has been projected until 2020. For more details on the analysis please refer to the appendix. By 2020, 47 percent of the adult Malaysian population—from the unbanked to the fully banked—could be MFS users. This translates into 10 million users, of which 2.6 million would otherwise have been unbanked or underbanked. While this may seem high, it is actually slower than the growth of the Internet and Internet banking in Malaysia. Internet service subscriptions in Malaysia have grown 18 percent annually from 2006 to 2009, and e-banking users have grown 33 percent annually during that same period to reach 7.5 million in 2009. With MFS following a similar trend, its adoption will reduce the number of unbanked Malaysians by 5 percent in 2020 and increase the adult population of fully banked by 14 percent.

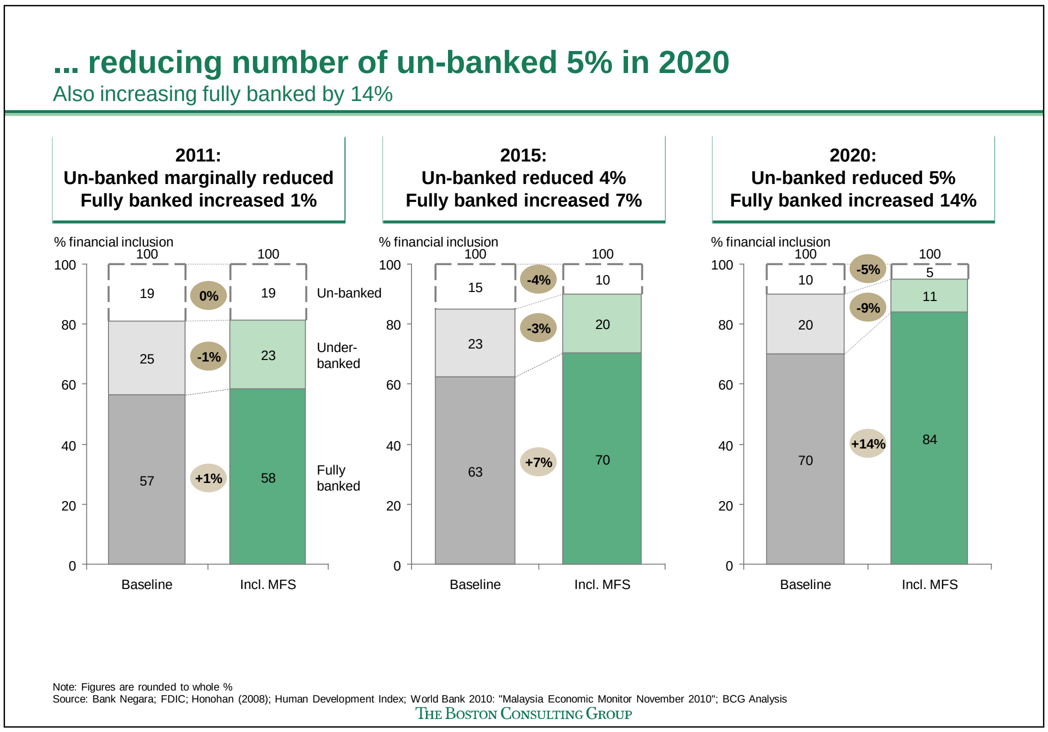

Exhibit 5.5 Details on reduction in number of unbanked

6.21 From MFS to Traditional Institutions

With wide MFS adoption, access to formal financial services in Malaysia can increase significantly by 2020, most noticeably through credit and insurance products. Up to 3 million more consumers can take advantage of formal bill payment services by 2020, with total transaction volumes increasing by 20 percent. Active users of formal savings accounts can also jump by 3 million users by 2020, a transaction volume increase of 12 percent.

In general, MFS can provide Malaysians with access to the exact type of financial services they need. For example, customer relationships will deepen through MFS, with mobile providers gleaning more information about who their customers are and where they live, as well as deeper knowledge of transactional patterns, all of which will begin the basis for building customer credit histories. Given wide MFS distribution beginning in 2012, the number of formal credit service users could increase by 3 million people by 2020—an increase of 23 percent.

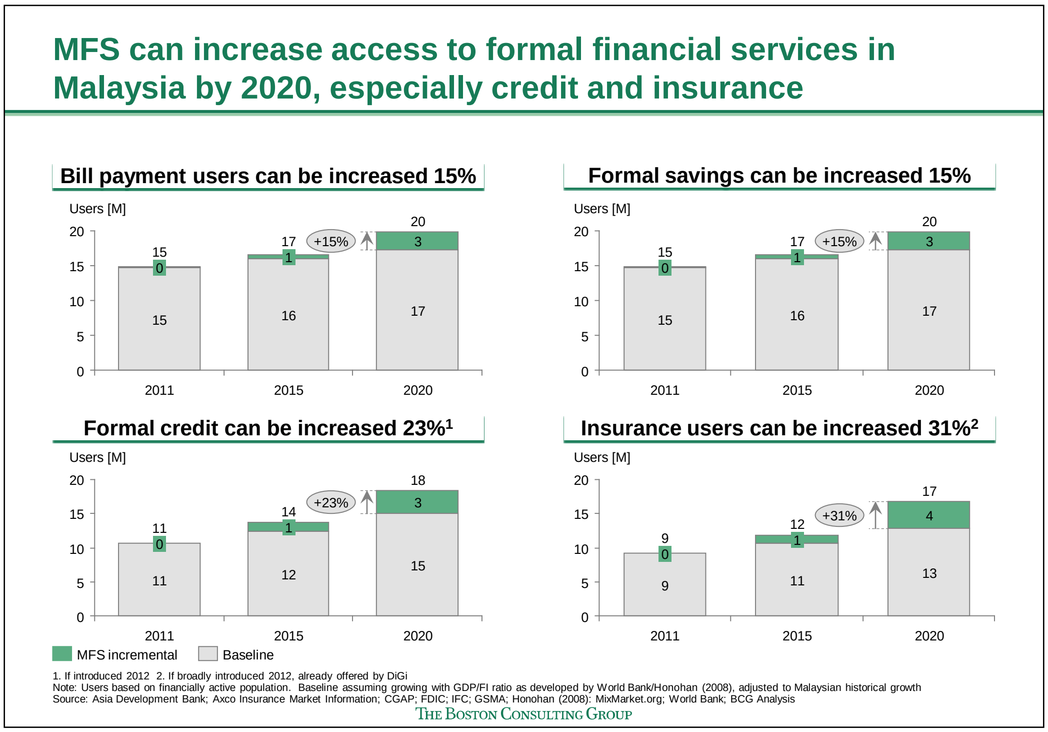

Exhibit 5.6 Access to financial services

Further, with that start date of 2012, the number of formally insured Malaysians can increase by 4 million users—or 31 percent—by 2020. Currently, the limited rural distribution of insurance products makes for high transaction costs. Malaysia's poor are also inhibited from gaining access to insurance as a result of their lack of credit history and their general classification as high-risk customers. Many are also without documentation, which oftentimes makes claim verification difficult. Mobile distribution of insurance policies would introduce products better suited to the needs and payment capacities of a considerably wider range of customers. These products would include health insurance, particularly micro-insurance; accident insurance; and agriculture-related insurance products.

6.22 Benefits: From the Individual to Society

Mobile financial services can offer all Malaysians certain benefits. Banking becomes much more accessible and affordable. Products are tailored to customers and are thus more relevant and meaningful. And MFS leads overall to a reduced reliance on cash. In addition, those MFS adopters who were previously unbanked will benefit from mitigated income volatility and expense shocks.

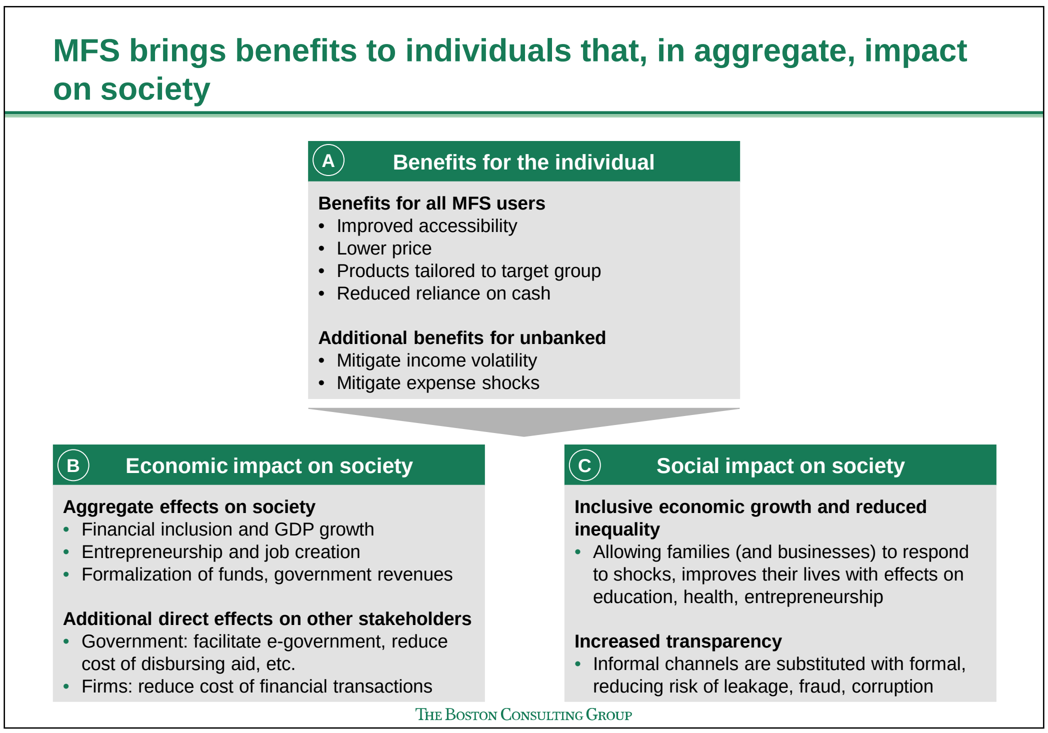

Exhibit 5.7 Overview of benefits

All of these advantages accrued by the individual will ripple outward and affect society economically and socially. Economic benefits include the increase in financial inclusion, which leads to GDP growth; the sparking of entrepreneurship and job creation; and the formalization of funds and government revenues. Other stakeholders will feel direct economic effects as well, such as government, through the facilitation of e-government initiatives and the reduction in the cost of aid disbursement; and private firms, through lower costs of financial transactions.

Socially, the impact of MFS will be substantial as well. Inclusion, which leads to economic growth, means an overall reduction in inequality. Families and small businesses will be better able to respond to shocks, and because of the effects MFS will have on education, health, and entrepreneurship, even the poorest Malaysians will have the opportunity to lead improved lives. They will no longer need to rely on informal channels of financial services—with the inherent risks of leakage, fraud, and corruption.

It is true that the direct economic impact of MFS adoption on more developed countries is more modest than on those nations that are still developing. The primary driver behind the economic benefits of MFS adoption is the increase in financial inclusion. Since Malaysia already has a relatively high 80 percent inclusion rate—projected to grow to an approximate 90 percent by 2020—MFS will have a much smaller economic impact than it will on a country with a low baseline inclusion rate, such as Pakistan.

Nonetheless, the social benefits of MFS will still be significant, as its adoption can play a key role in driving inclusive growth. Its benefits are often focused on the poorest segments of society, and it can serve to reduce basic issues of inequality among the Malaysian population.

6.3 Benefits for the Individual

The benefits of MFS vary for different types of potential users. For example, the unbanked will experience high overall benefits as a result of MFS adoption, as they will have access to important financial services even without a bank account or a nearby bank branch. For those already receiving banking services in Malaysia, MFS increases certain benefits, depending on the availability of the Internet for users. For those with easy Internet access, MFS will make banking more convenient and allow them to complete transactions on the go, at any time of day or night. Those who have little or no

Internet access will still experience increased conveniences due to mobile services, as they will be able to access bank services without having to visit a physical branch.

The practical and attractive features of mobile financial services are a strong draw for individual customers. The accessibility of MFS, for instance, has meaningful appeal. Banking no longer requires the time and cost of travel, and users do not have to have a computer or Internet access to manage their accounts and seek information about products. They can conduct transactions of any amount, whenever they need to, from anywhere. And those transactions—such as purchases, personal remittances, and business operations—are completed instantly and at a relatively low cost.

Another key benefit to the individual is how MFS lets users spend less of their time overcoming bureaucratic obstacles. Tailored features, as well as flexible repayment plans and reduced balance requirements, give users the ability to open accounts and gain access to products tailored to their own needs. It also puts them in a position to build up credit histories, an important stepping-stone in individual economic improvement.

MFS reduces its customers' reliance on cash, a feature that brings increased convenience and savings potential into Malaysians' lives. Cash becomes unnecessary for transferring or receiving money, which reduces the inherent risks of cash handling, such as loss, theft, or fraud. With middlemen squeezed out of the transaction equation as a result of MFS, customers will experience increased transparency. All of these benefits give consumers good reason to adopt MFS.

Malaysia's poor face two primary challenges that financial services can help address. First, they tend to live with a high degree of income volatility. Financial services can help smooth out their cash flow in several ways: by building a buffer through savings; by increasing inflow through remittances; and by accumulating lump sums of money—through savings and credit—that can be used to manage major expenses as they come up.

The poor also suffer from the severe expense shocks that occur now and then in their lives. Again, access to financial services would help. Customers can obtain funds to help overcome temporary shortfalls through credit, remittances, and insurance, all of which is out of reach for the unbanked and has served to keep the poor from improving their economic situation.

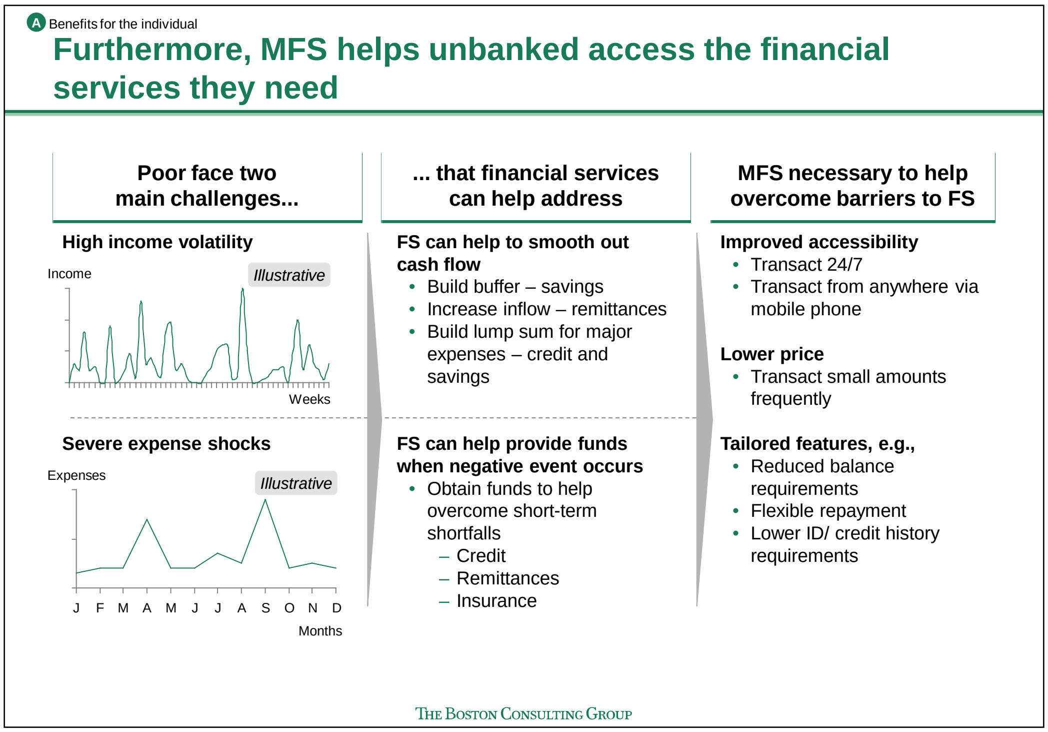

Exhibit 5.8 Income volatility and expense shocks

For urban Malaysians, MFS could produce a savings equivalent of 1 percent of income per year as a result of reduced travel and waiting time—including the commuting time for users who don't live close to a branch, the waiting time involved when standing in long lines, and the transaction processing times. The savings will be significantly higher for rural users, who have to travel farther to get to banks. As MFS does away with these inconveniences, the benefits will be felt both by banks and communities. Banks will have fewer low-value, high-cost transactions to contend with as customers migrate to cheaper channels—improving the overall cost to serve. The reduction in customer waiting times translates to reduced requirements for bank staff, too. From an even broader perspective, MFS will contribute to a decrease in traffic congestion and a reduction in the lost productivity that occurs when workers have to run inconvenient errands.

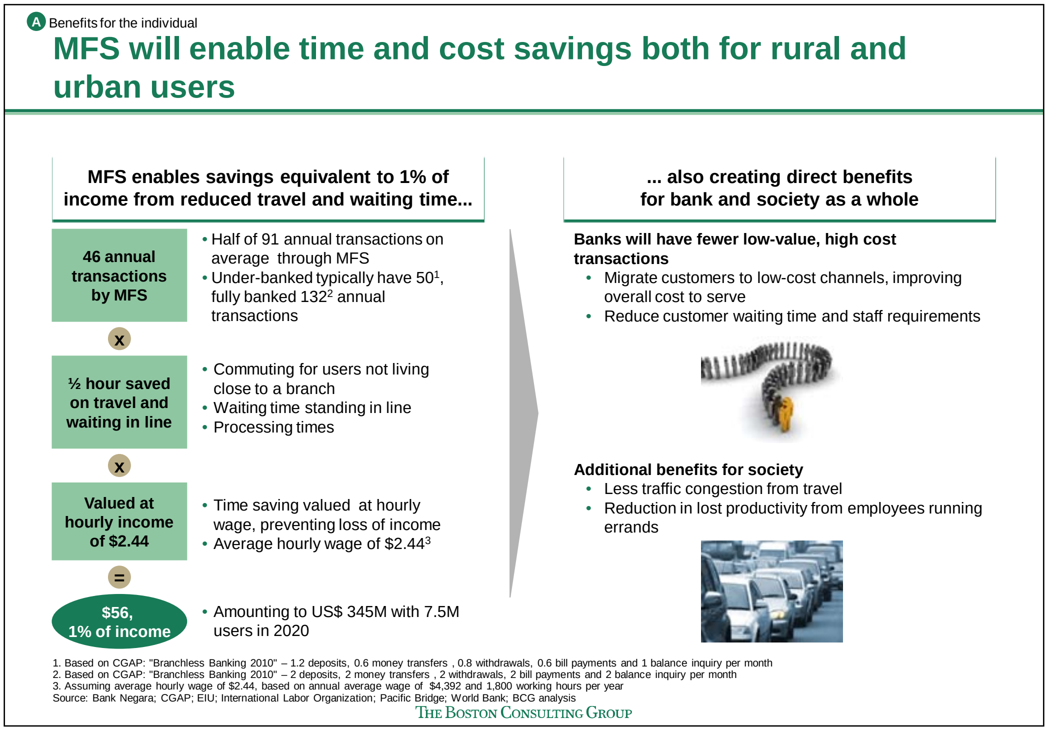

Exhibit 5.9 MFS time and cost savings

6.4 Economic Impact on Society

Strong evidence indicates that growing financial inclusion increases a nation's GDP growth rate. As entrepreneurs with business ideas gain access to credit, economic activity grows, and new businesses and jobs mean a more productive society. In addition, there is an additional accounting benefit from the formalization of savings within the banking system, as this will power further credit creation, increasing investments. With mobile financial services adoption, Malaysia could see a GDP increase of US$2 billion, or 0.3 percent, by 2020.

6.41 New Job Creation

Increased access to finance facilitates entrepreneurship, new business creation, and new jobs. A World Bank study finds a 1 percent increase in financial inclusion corresponds to a .51 percent increase in business creation, and a 15 percent inclusion increase leads to employment growth of 1 percent.

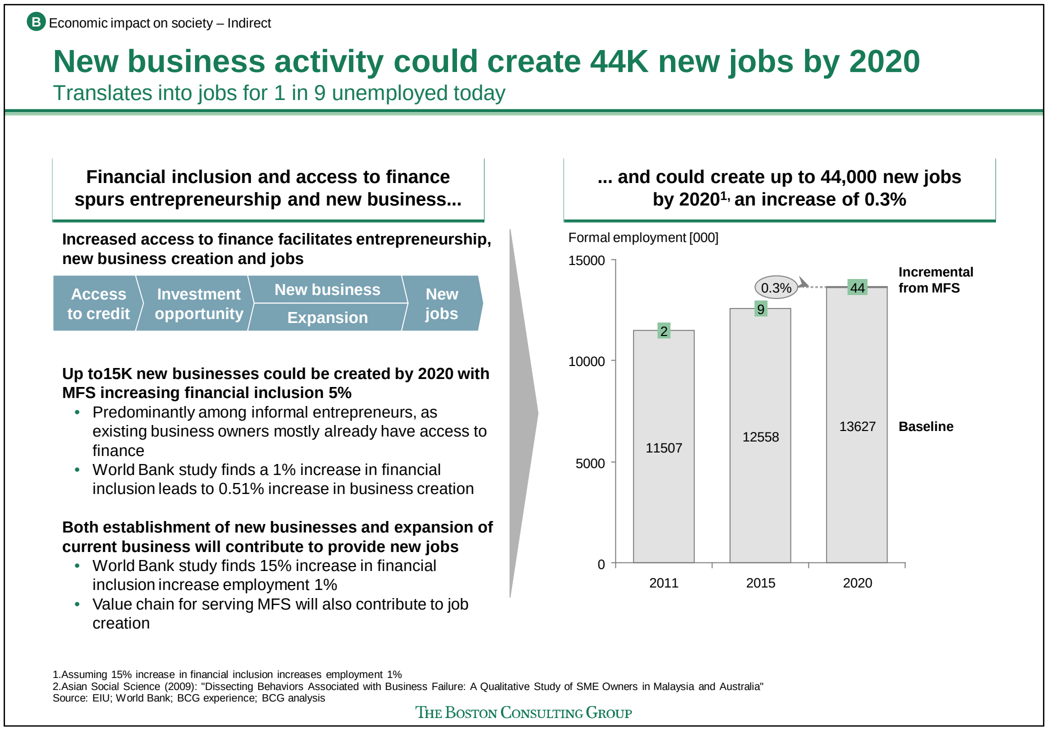

Exhibit 5.10 New job creation

By 2020, if MFS adoption increases financial inclusion by 5 percent, up to 15,000 new businesses could be created, leading to 44,000 new jobs, an employment increase of 0.3 percent. This is the equivalent of new jobs for 1 out of every 9 currently unemployed Malaysian.

6.42 Tax Revenue Growth

The benefits of the economic growth stimulated by MFS will increase tax revenues as well. Corporate taxes will grow as a result of new business creation along the MFS value chain, growing profits within existing firms thanks to savings from MFS, and company expansions made possible by MFS. This business growth and creation will generate new jobs, which means increased employee income taxes. MFS could therefore add US$300 million annually to Malaysia's government revenues by 2020—an increase of 0.3 percent.

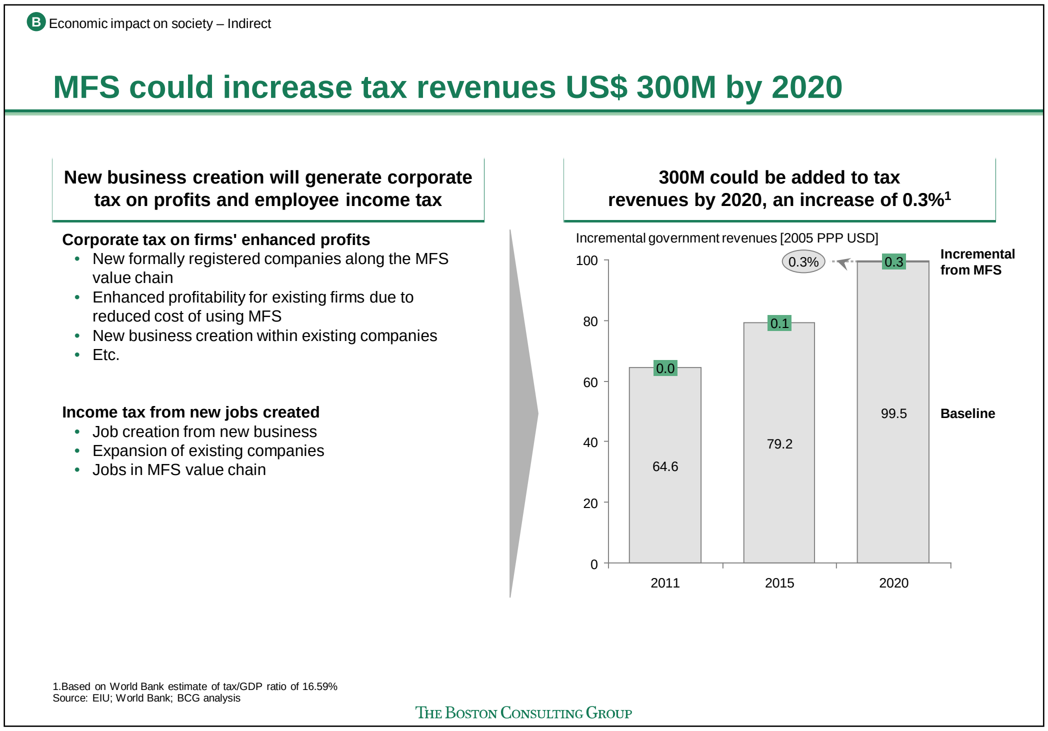

Exhibit 5.11 Impact on annual tax revenues

6.43 Tools for Government

Mobile financial services can bring a distinct advantage as an efficient disbursement tool for federal welfare. The current system involves paying by checks or cash, and making use of offline points of service. Such cash payments and subsidies saddle the government with significant costs and inefficiencies, as well as the risk of leakages. To open individual bank accounts for beneficiaries would cause these problems to diminish, but such services would be expensive and inconvenient, especially for the poor.

Through mobile payments, welfare and subsidies can be transferred directly and conveniently at low cost. Beneficiaries would receive their payments instantly, with no risk of leakages.

In addition, MFS could potentially help the progress of the Lower Income Household National Key Results Area via monthly welfare payments and financial assistance for schoolchildren from poor families. It could also support *bumiputera* entrepreneurship through Majlis Amanah Rakyat MARA and the Urban Development Authority.

6.44 MFS Impact on Firms, Merchants, and Middlemen

The adoption of mobile financial services can decrease administrative costs for companies. They will accumulate savings from reduced paperwork and cash handling. Incorporating electronic receipts and reporting can reduce costs and improve speed and accuracy, reducing erroneous charges for arrears, for example. Companies will benefit from the option of paying staff and contractors directly to their M-wallets, rather than in cash. And MFS will increase transaction speeds and reduce outstanding credit times, minimizing how long it takes to collect and inquire after payments.

A byproduct of companies' reduced administrative duties is an increase in the flow of customers—and revenues—to over-the-counter MFS agents. The merchants who take on these jobs—after having been trained and licensed according to established guidelines—will benefit from the growing sales of financial services, larger revenues from the sales of ordinary goods, and an improved social standing as a result of their work.

Another useful byproduct will be the curbing of illegal financial activities as MFS reduces the need for informal financing and those who oversee it, such as loan sharks. There are currently estimated to be up to RM10 billion to RM20 billion in annual loans from illegal moneylenders. Other middlemen who have been involved in legal financial services will lose work as a result of MFS, but these workers could be trained to become formal banking agents.

6.5 Social Impact on Society

The adoption of mobile financial services can help support the achievement of Malaysia's social development goals. The growth of the country's technological infrastructure—mobile, Internet, and, thus, MFS—will be at the root of the increase in financial inclusion. MFS is part of the toolkit needed to help the poor avoid the worst outcomes. Mobile services will promote e-government by improving services to rural users and improve transparency by moving cash from a gray to a white economy. In essence, MFS can help move Malaysia's economy up the value chain and address persistent socioeconomic inequalities, with the goal of turning Malaysia into a strong, developed, and united nation.

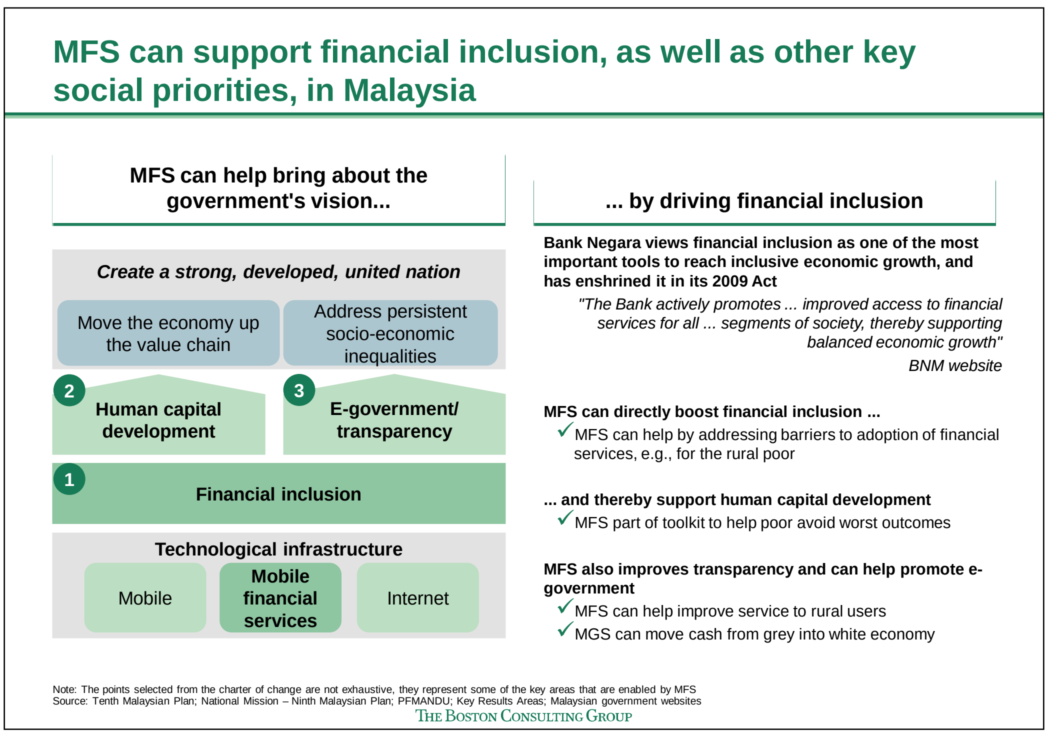

Exhibit 5.12 Overview impact on society

6.51 Reducing Economic Inequality

By 2020, with the distribution of MFS having widened access to financial services, the Gini coefficient—the most commonly used measure of inequality—can be reduced by

1.7 percent.[24] With such a shift, Malaysia's income equality would be roughly equivalent to that of Canada.

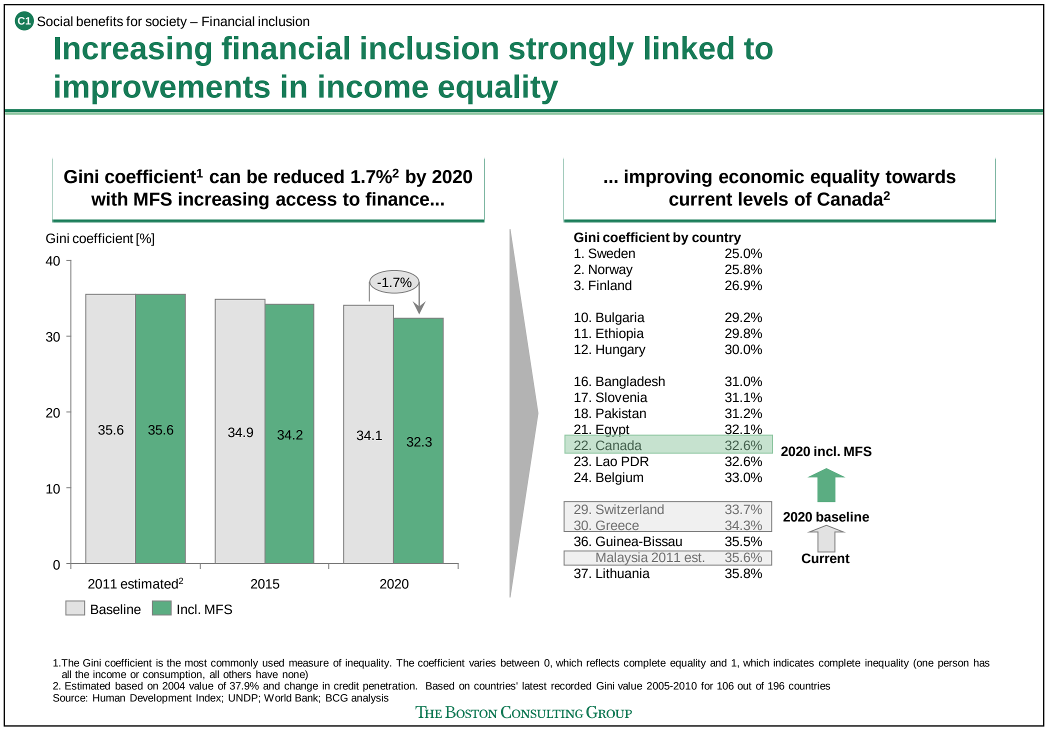

Exhibit 5.13 Reduction in income inequality

Financial exclusion and poverty remain a real problem in Malaysia, particularly in rural areas. Overall poverty stands at 3.8 percent, with 8 percent living in poverty in rural areas and 2 percent in cities. Seven percent of the population lives on less than US$2 a day, four times the percentage in Singapore. In fact, relative poverty—those living below 50 percent of the median income—is higher in Malaysia than in other developed countries (19 percent in Malaysia, 11 percent in OECD countries). And while many have access to some financial services, exclusion is still a concern.

In Malaysia, the poor and financially excluded vary by industry, with primary sector workers showing a 13 percent incidence of poverty, and 34 percent of the 1.3 million informal workers living below the poverty line. Education is also a factor. There is a 12

[24] The Gini coefficient varies between 0, which reflects complete equality, and 1, which indicates complete inequality.

percent poverty rate where the head of household lacks formal education, and a 4 percent rate among those with secondary educations. Poverty is almost nonexistent among the tertiary-educated heads of households. In addition, poverty in Malaysia varies by race: 5.1 percent among bumiputras, 2.5 percent among Indians, and 0.6 percent among Chinese.

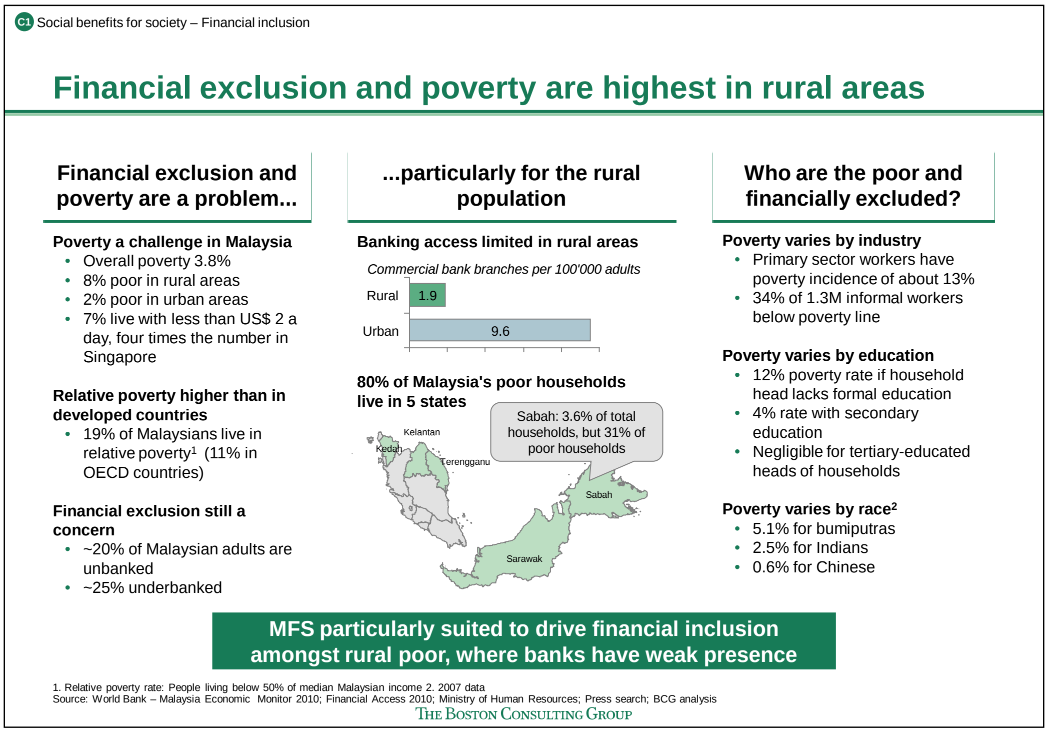

Exhibit 5.14 Financial exclusion in rural areas

In Malaysia's rural areas, there are only 1.9 commercial bank branches per 100,000 adults (versus 9.6 commercial bank branches in urban areas), and 80 percent of Malaysia's poor households live in five predominantly rural states. MFS is therefore particularly well suited to drive financial inclusion and make a greater difference among the rural poor.

At the same time, Malaysia's issues with poverty are not exclusive to the countryside. Urban poverty is a pressing problem, as well. Despite the low overall urban poverty rate, many city workers subsist on low wages and are at risk. MFS can help urban workers by providing them with access to appropriate financial products and steering them away from their reliance on informal channels. Today, many meet their daily needs by borrowing from friends, relying on relatives, and turning to illegal moneylenders. MFS can supply them with loans or aid grants that can be remitted directly to them, as well as micro-insurance to help defray unexpected costs. Mobile services will allow them to repay loans and save their money through small payments, too.

MFS could also improve the financial security of older Malaysian workers. Studies show that the urban elderly face the greatest risk of becoming—and remaining—poor. Most have contributed too little to the Employee Provident Fund to cover the 20 years of retirement they may face, and only 40 percent of Malaysians have life insurance. MFS could bring the elderly micro-insurance and savings plans to help mitigate the financial burden of retirement. Unlike traditional plans, the MFS products could let them make small payments and frequent transactions whenever money is available.

Another benefit of MFS-driven financial inclusion is that it helps to foster awareness of financial issues among the poor. MFS can help the unbanked take the first steps toward adoption of financial services, leveraging their existing relationships with telecom companies. They may initially become users of basic MFS products that meet their daily needs, such as payment, remittance, and savings services, and they gradually progress toward the level of being fully banked, with easy access to customized, practical products. This gradual inclusion moves Malaysia toward a more cashless society and creates a fertile ecosystem for innovation and new products, such as the e-money initiative, MyKad.

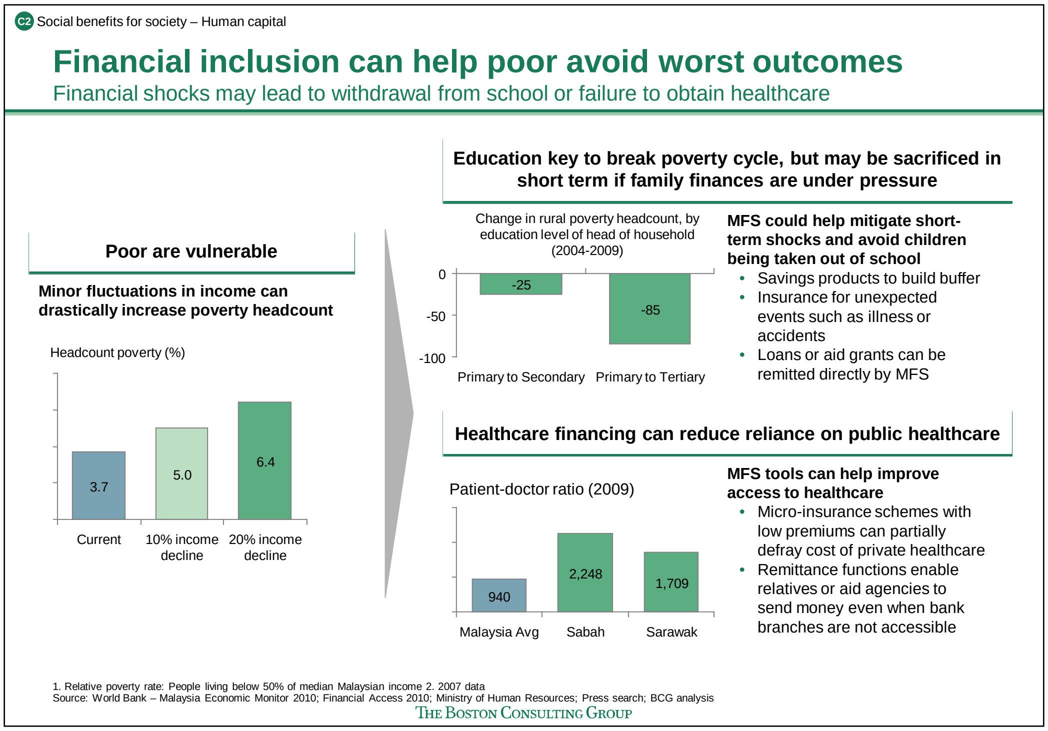

Exhibit 5.15 Impact of financial inclusion

Malaysia's poor are vulnerable to financial shocks, which can lead families to withdraw their children from school or to fail to obtain medical care when necessary. Even minor fluctuations in income drastically increase the poverty headcount. With MFS adoption, the most vulnerable in the population would have access to savings products, which would create a buffer in case of emergencies. They could participate in insurance policies that would protect them against unexpected events, such as illness or accidents. And they could take out loans or aid grants that would be remitted directly by MFS. All of these measures would support the poor through financial shocks, which is critical to help their children stay in school and thus avoid perpetuating the cycle of poverty.

MFS tools that can improve access to health care could reduce reliance on the public health-care system. Micro-insurance plans with low premiums would partially defray the costs of private health care, and remittance tools would allow relatives or aid agencies to send money electronically, even when no bank branches are within easy reach, so that medical care could be sought out and paid for.

6.52 Supporting E-Government and Increasing Transparency

Adopting mobile financial services can increase the government's ability to reach the unbanked by integrating payment processes. For people in remote areas, there can be a long commute to submit an application to a government agency, where there are often long wait times, as well. Checking the status of the application requires another commute, and perhaps yet another to return when the request is ready or when the applicant has the necessary cash in hand. With MFS, e-government systems will improve services for the rural population, saving time and money. Applicants can submit requests electronically, receive an e-bill, transfer money to the government via an M-wallet, and finally receive notice from the agency through the mail that a certificate is ready.

Furthermore, MFS could play a key role in increasing transparency in Malaysia. Fighting corruption and reducing crime are two of the six National Key Result Areas of 2009. Malaysia is currently no. 56 out of 178 countries on the Corruption Perception Index 2010, with a score of 4.4 (Singapore received 9.3, Indonesia 2.8). A full 46 percent of Malaysians believe that corruption in their country has increased in the past three years.

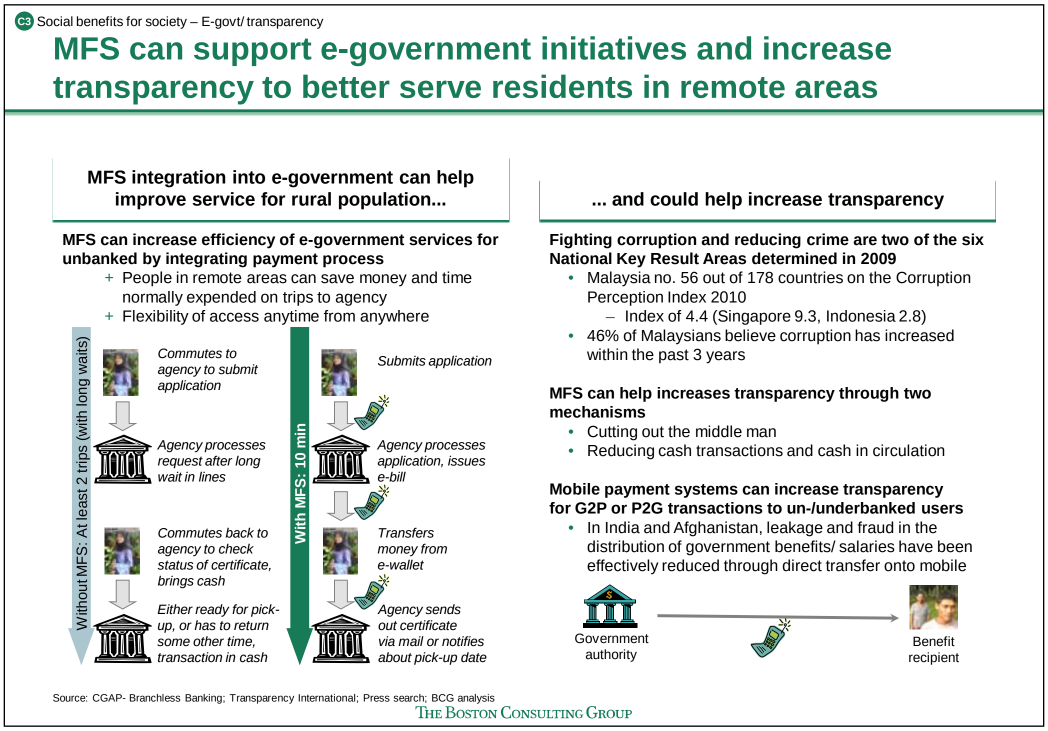

Exhibit 5.16 Supporting e-Government and increasing transparency

Mobile services can address this problem through two mechanisms: cutting out the need for middlemen and reducing the number of cash transactions and the amount of cash in circulation. In both India and Afghanistan, for instance, systems that distribute government salaries and benefits through direct transfer to mobile phones have reduced leakage and fraud problems, increasing overall transparency.

6.6 Regulatory Issues

MFS poses a new kind of regulatory challenge, straddling as it does two large but distinct domains of regulation: telecommunications and financial services. As it stands today, there are limited formal opportunities for parties from different industries to engage with regulators, as governing bodies and working groups tend to be closed. There is often also a lack of alignment between regulators from these different sectors. In fact, few countries have any sort of formal relationship between financial regulators and telecommunications regulators. This regulatory vacuum will need to be filled.

At the same time, the banking regulations already in place frequently do not address all aspects of an MFS ecosystem. Traditional-banking regulations may in some cases be disproportionately rigid, relative to the regulatory needs for MFS, and may not be sufficiently flexible to allow for the innovation and reforms necessary for MFS to take off. For instance, some existing prudential rules and requirements will clash with the high-frequency, low-volume nature of MFS and thereby prevent experimentation.

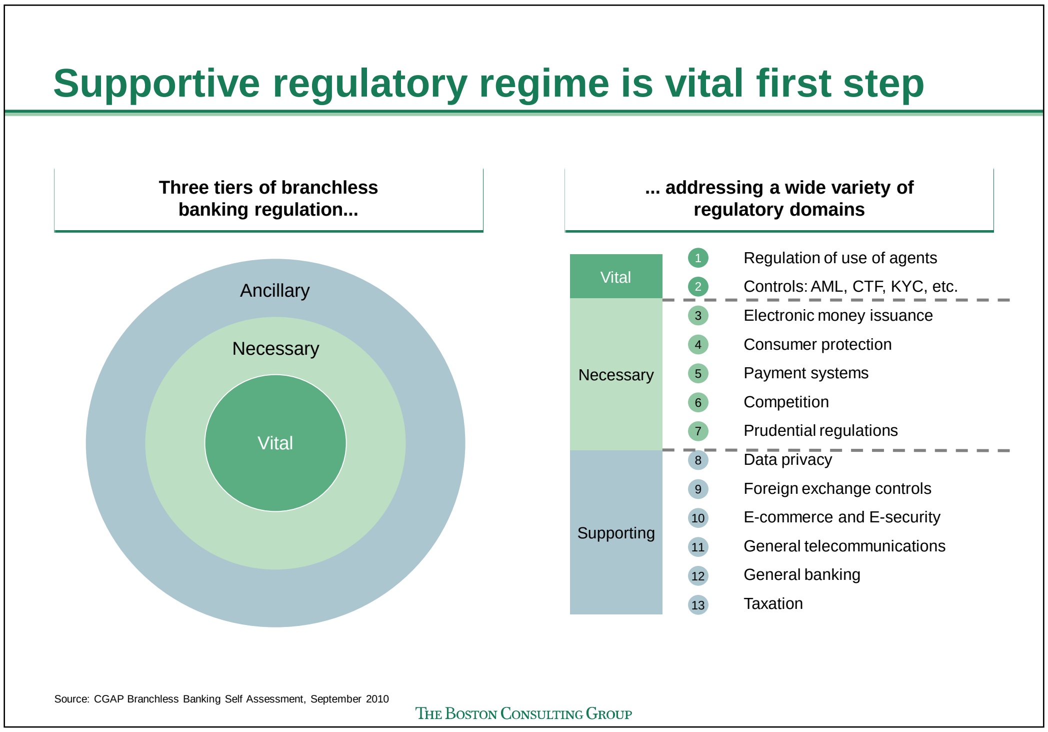

Exhibit 5.17 Three tiers of regulatory framework

For MFS to broaden and grow in Malaysia and bring its benefits to society and government, an essential step is the creation of a comprehensive regulatory framework that extends freedom of action to non-banks. This framework should be based on three tiers, with strong interdependence between various domains. *Vital*, the first tier of regulations, addresses the use of MFS agents as well as money laundering and terrorism financing. The second, *necessary*, would regulate such issues as consumer protection and payments systems. The third, and largest, regulation tier, *supporting*, includes the underlying framework, such as data privacy, e-commerce and e-security, general banking, taxation, and general telecommunications. With this structure in place, MFS has the potential to thrive.

6.61 Potential Pathways Forward

Financial inclusion is a top priority for Malaysia. It is central to the country's goal of creating inclusive growth for its population, and it will generate significant economic and social benefits, as well. Traditional banks may be devoting more focus than in the past on addressing the unbanked, but these institutions are structurally disadvantaged in serving the "long tail" of the population, especially in rural areas. They are hampered by high distribution costs and low expected revenues from the unbanked.

Telecom companies bring critical advantages to make them uniquely suited to spark financial inclusion among the unbanked. They have already established trusted relationships with this targeted customer group, and they have an extensive distribution network. Financial service revenues would supplement their communications revenues, which translates to a lower breakeven per customer.

Therefore, telcos must play a central role in Malaysia's financial inclusion strategy. A possible entry point is to start with payment services, allowing users to become familiar with the concept of mobile money, and to use that as a launching pad for other services. For instance, telcos could be included in the Malaysian Electronic Payment System, effectively providing transfers, payments, and other services. Doing so would ensure the interoperability and scale of such services, and avoid building multiple parallel systems. In addition, telcos could broker co-equal collaboration with banks, so that each party's relative strength would be brought to the forefront. This would require the development of business models that meet the needs of both parties.

APPENDIX – METHODOLOGY

The methodology in this report is made up of four main components, as depicted below in Exhibit A1.

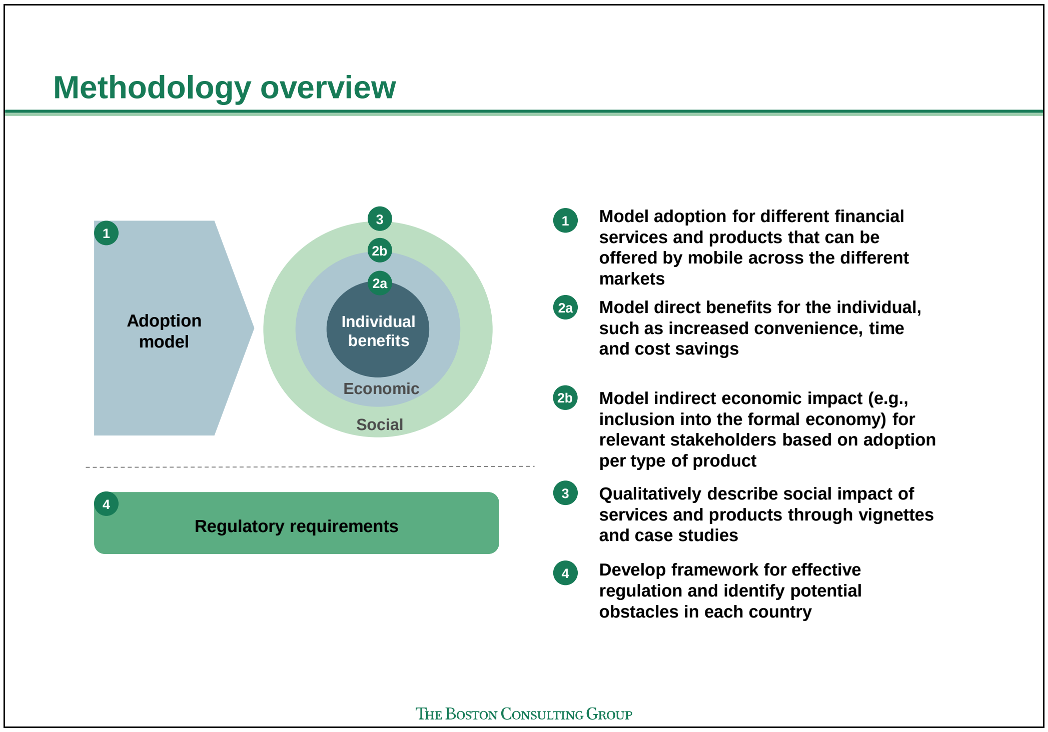

Exhibit A1: Methodology overview

The general approach to modeling adoption is to do an analysis for different products that mobile financial services can offer across different markets. Adoption is modeled separately for the benefits to the individual and indirect economic impact, such as increased inclusion into the formal economy. Further, the social impact of MFS adoption is qualitatively described. Official statistics have been used in developing all projections.

Calculating incremental MFS impact involves three steps, as shown in Exhibit A2:

- Establishing a baseline for key services from 2011 to 2020
- Estimating the incremental uptake per service
- Assessing the economic and social impact

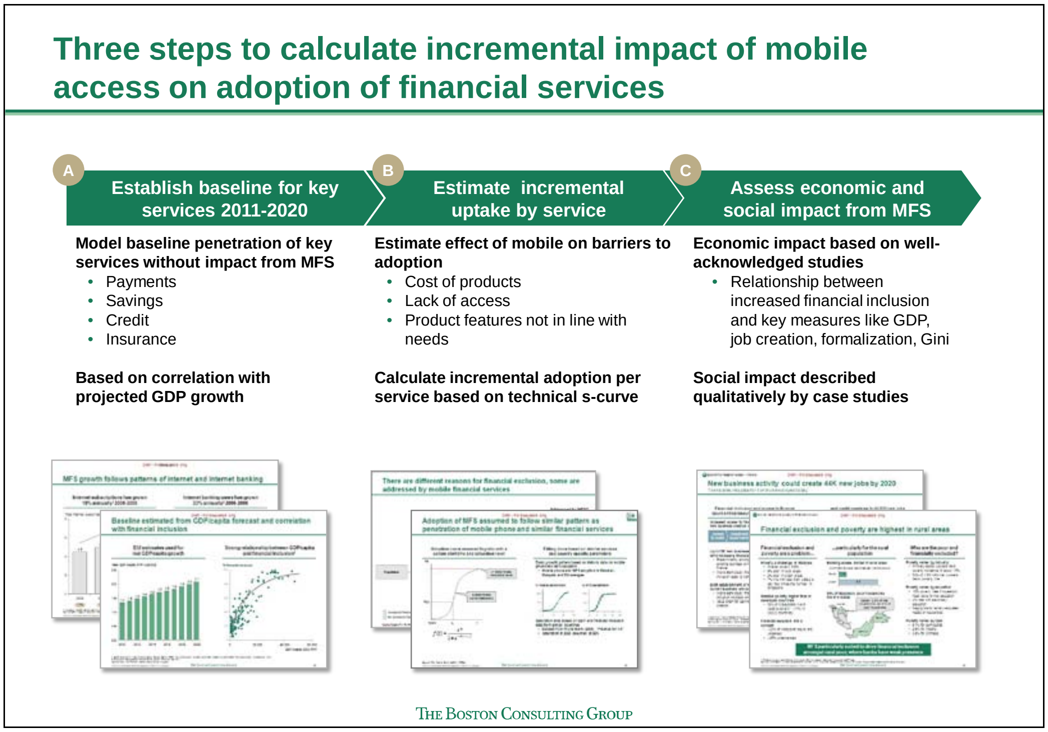

Exhibit A2: Three steps to calculate incremental impact

Establishing baseline for key services. The baseline is modeled on the penetration of key services without including potential MFS impact. These financial services are payments, savings, credit, and insurance products. The baseline is based on the correlation with projected GDP growth.

Estimating incremental uptake. The calculation of uptake per service is an estimation of the effect of MFS on the current barriers to financial services adoption. These include the high cost of products on the market, issues of inaccessibility, and product features that are not in line with individuals' needs. The incremental adoption per service calculation is based on a technical s-curve.

Assessing economic and social impact. The analysis of the economic impact that mobile financial services can have is based on widely-cited studies for each country. The assessment includes the relationship between increased financial inclusion and key measures, such as GDP, job creation, financial services formalization, and the Gini coefficient. Social impact is described qualitatively using case studies.

Estimating Baseline Calculations

The baseline estimations for each country are made up of 2020 GDP per capita forecasts and their correlation with financial inclusion rates. GDP is reported in U.S. dollars at 2005 Purchasing Power Parity for comparison across countries, and is based on estimates made by the Economist Intelligence Unit. Financial inclusion numbers come from a 2008 World Bank study.

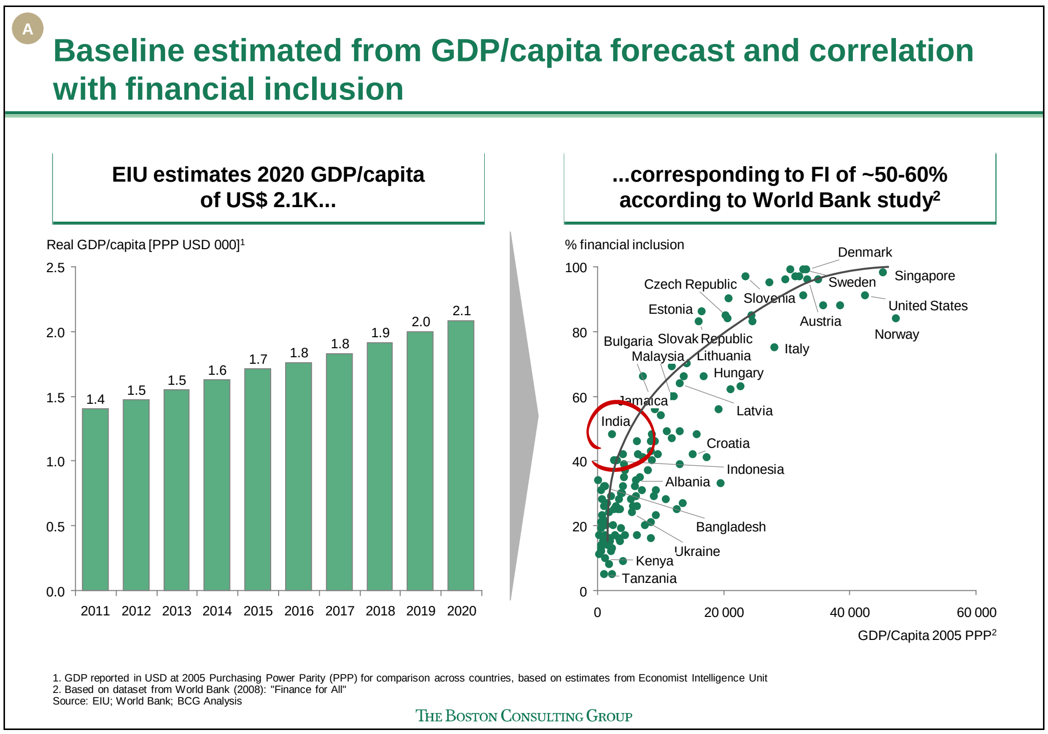

Exhibit A3: Establishing baseline

The level of the underbanked population versus the fully banked in each country is calculated according to the relation with increased household income, adjusted to peer countries. The current level of the underbanked is based on the uptake of various services. The underbanked have access to a savings account or currently use a savings account; the fully banked use all the primary types of financial services, including savings, bill payment, and credit.

The projected level of the underbanked per country is based on a major U.S. study completed by the U.S. Federal Deposit Insurance Corporation in 2009 called “National Survey of Unbanked and Underbanked Households.” This survey provides an extensive database of financial inclusion rates for various income levels, which are then adjusted to levels of comparable countries for this report.

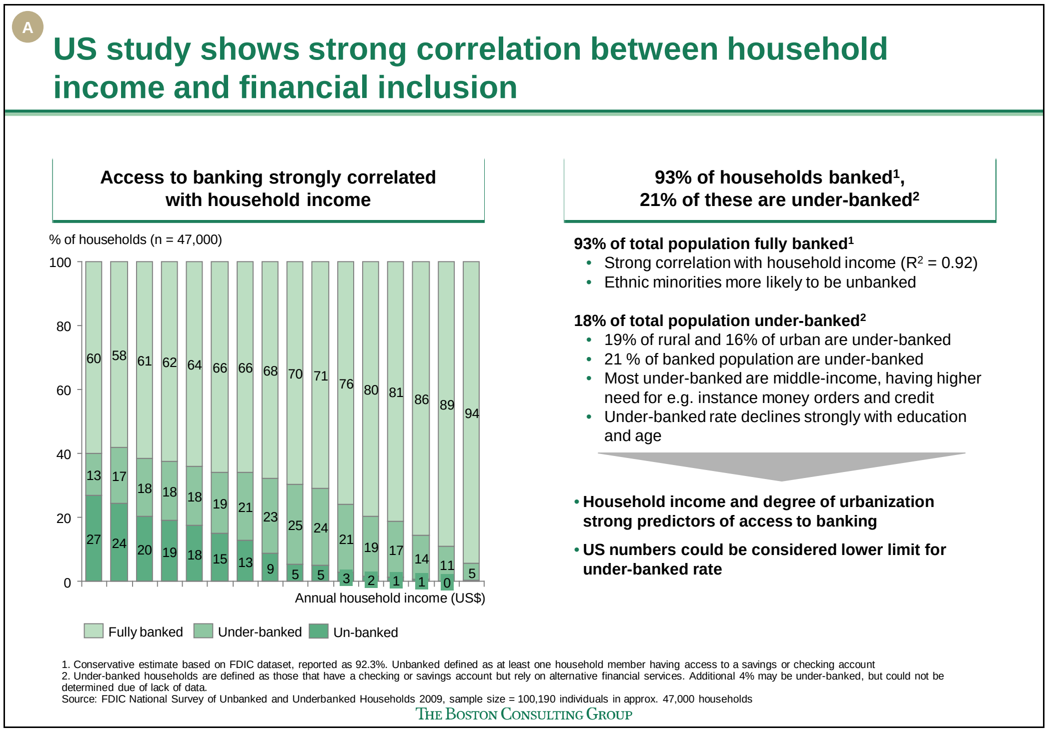

Exhibit A4: US study of underbanked

The U.S. study defines the unbanked as having at least one household member with access to a savings or checking account. Underbanked households have a checking or savings account but rely on alternative, informal financial services. The study reports that 93 percent of the population is banked, but 21 percent of this group is underbanked.

Therefore, fully 18 percent of the population is underbanked, including 19 percent of rural households and 16 percent of urban households. Among the banked population, 21 percent are underbanked, and most of those are middle-income with a higher need for products such as instant money orders and credit. The underbanked rate, according to the study, declines steeply with education and age.

Household income and degree of urbanization are strong predictors of access to formal financial services. In addition, ethnic minorities are more likely to be unbanked.

The findings from this study are then used to estimate the current level of underbanking in each of the study countries, adjusted for local conditions. For example,

The baseline forecast for each financial service—bill payment, formal savings account, formal credit product, and insurance—is based on the inclusion estimate and adjusted to service-specific factors.

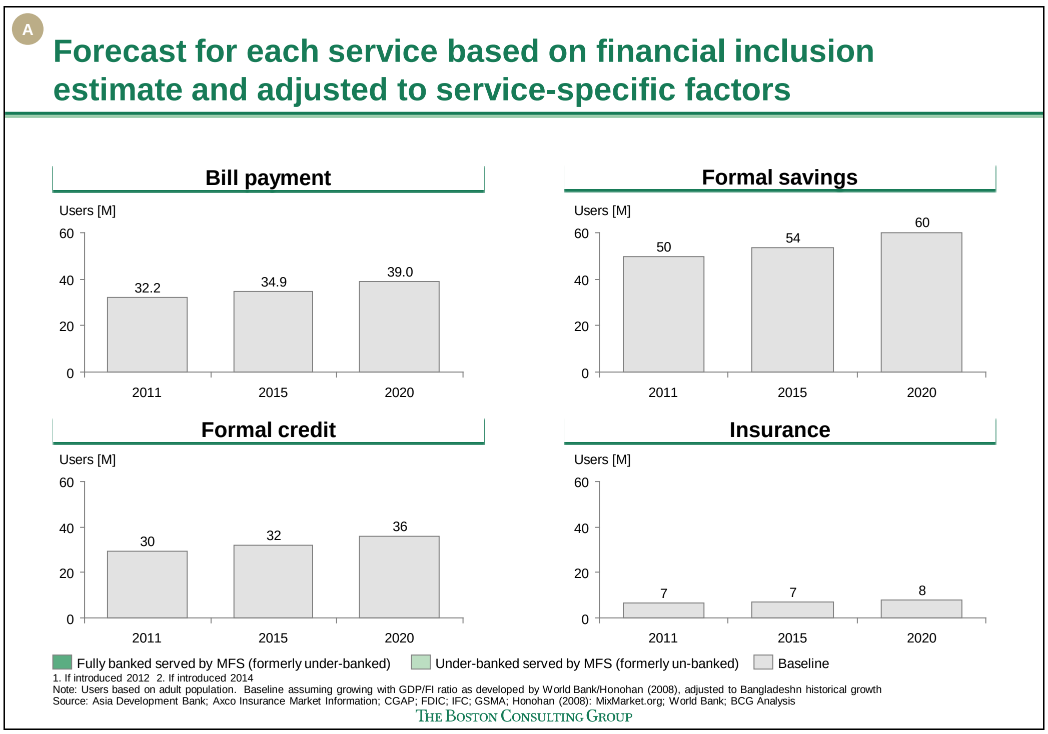

Exhibit A5: Baseline forecasted for each service

Estimating MFS Adoption

The pace of MFS adoption is determined by each country's addressable market—the financially excluded population with the most potential to adopt mobile—and an adoption curve over time. The model for the uptake of key products is based on product rollout assumptions and benchmarks—an S-curve adoption modeled on historical uptake in the region and the launch year of MFS. The volume per product is based on benchmarks and assumes average country-to-country consumption baskets. The number of transactions per user evolves over time.

The addressable market in each country is made up those unbanked and underbanked who remain excluded to some extent from financial services. They are not fully banked because formal financial institutions consider their low income as too large a risk, or because the cost of services is too high and the product features do not match individuals' needs.

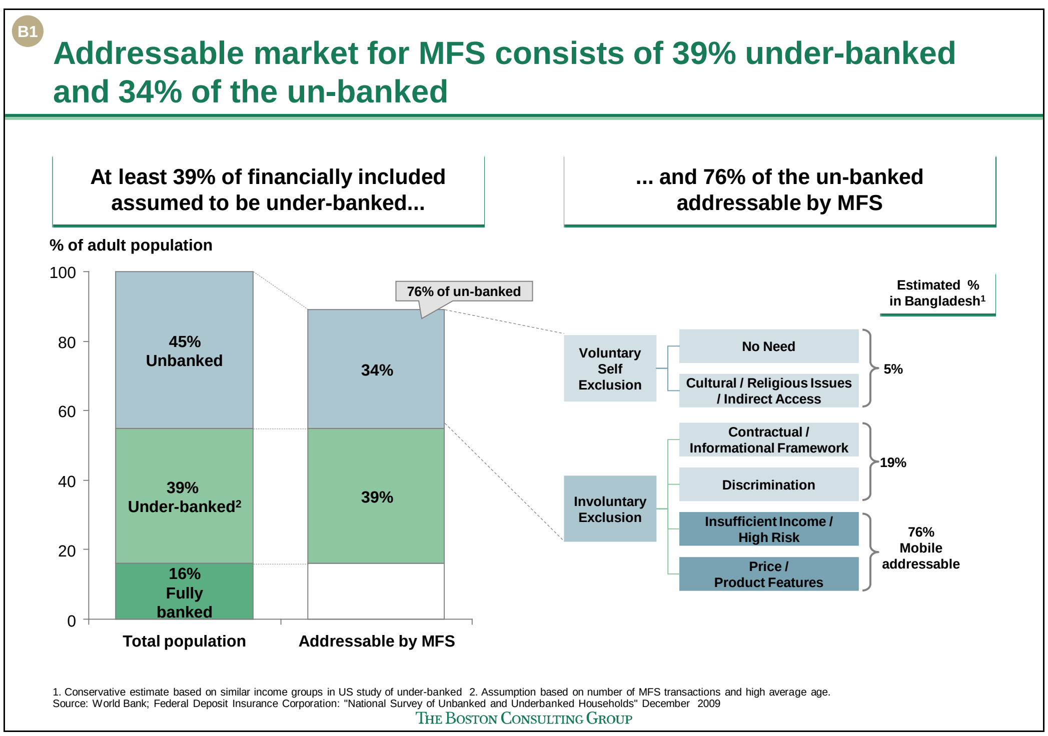

Exhibit A6: Determining addressable market

The adoption of MFS is modeled for each product following an S-curve pattern. This adoption curve assumes the take-up rate will follow the typical logistics curve in each country, given a specific start time and saturation level. The fitting is based on similar services and country-specific parameters, with a basic growth pattern based on historic mobile phone and MFS adoption data. The saturation level is based on GDP and financial inclusion data. The model fits well with historical adoption of mobile services and MFS.

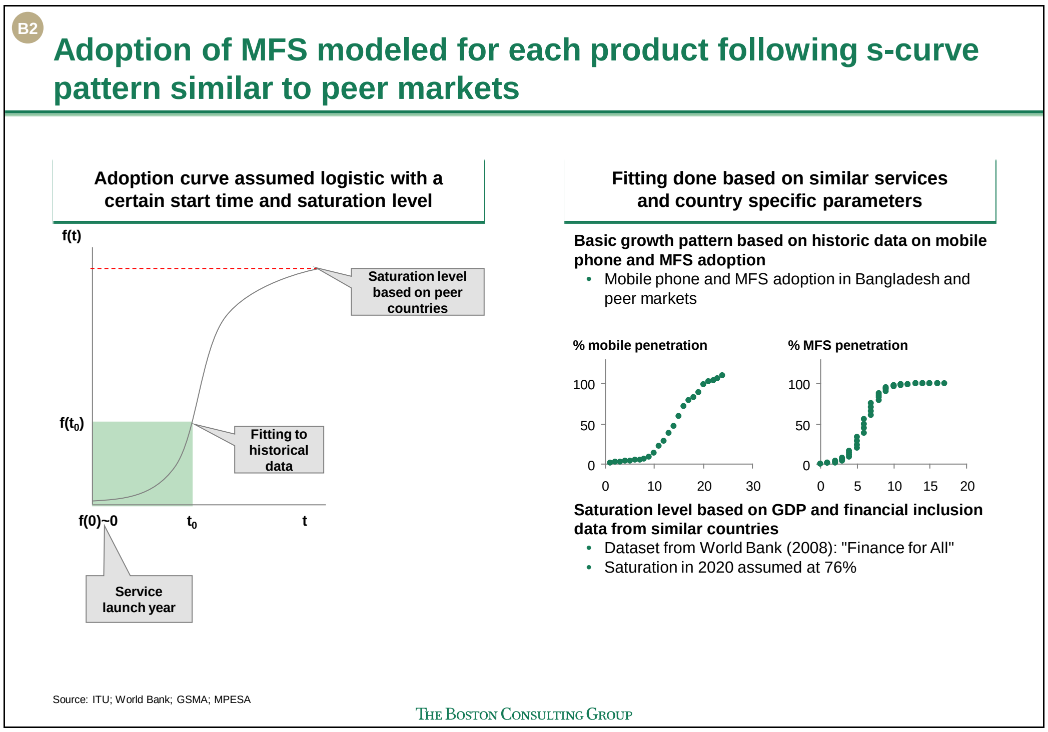

Exhibit A7: Modeling uptake

With MFS, the previously unbanked are assumed over the ten years to take on the adoption basket of the underbanked, and today's underbanked to become fully banked.

Economic Impact

The economic impact assessments are all based on studies by institutions such as CGAP, Financial Access Initiative and the World Bank. Widely cited articles by key scholars on related research topics are also reviewed as basis for building and reviewing methodology. Key studies are shown in Exhibit A8, and a comprehensive list can be found in the Bibliography.

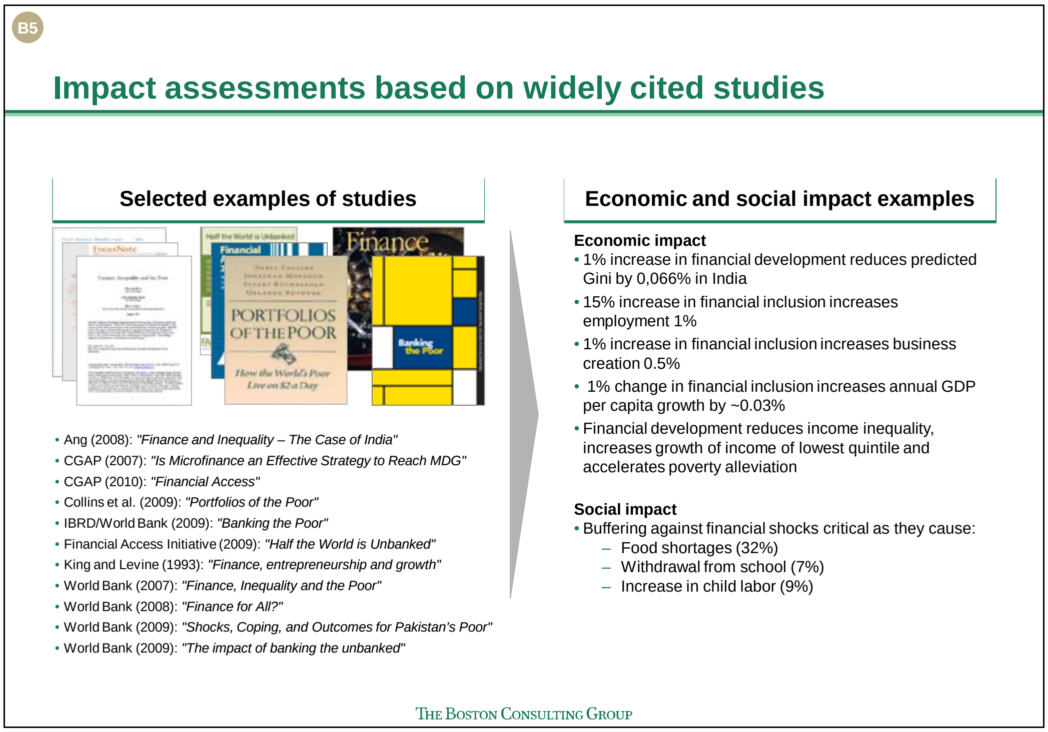

Exhibit A8: Key studies

A variety of economic and social impact examples from these studies were applied. Key inclusion ratios are used to calculate the economic impact of MFS. For instance, a 1 percent change in financial inclusion increases annual per capital GDP growth by approximately 0.03 percent[25].

A World Bank study on "The impact of banking the unbanked" (2009) finds that a 15 percent increase in financial inclusion results in an employment increase of 1 percent.

[25] King and Levine (1993): *"Finance, entrepreneurship and growth"*

The study tracks financial inclusion in 150,000 households over time. The effect of increasing access to financial services is measured upon the launch of a new bank with 800 branches. Over time, employment increases 1.4 percent across this sample group, corresponding to a 1 percent employment increase per 15 percent financial inclusion increase.

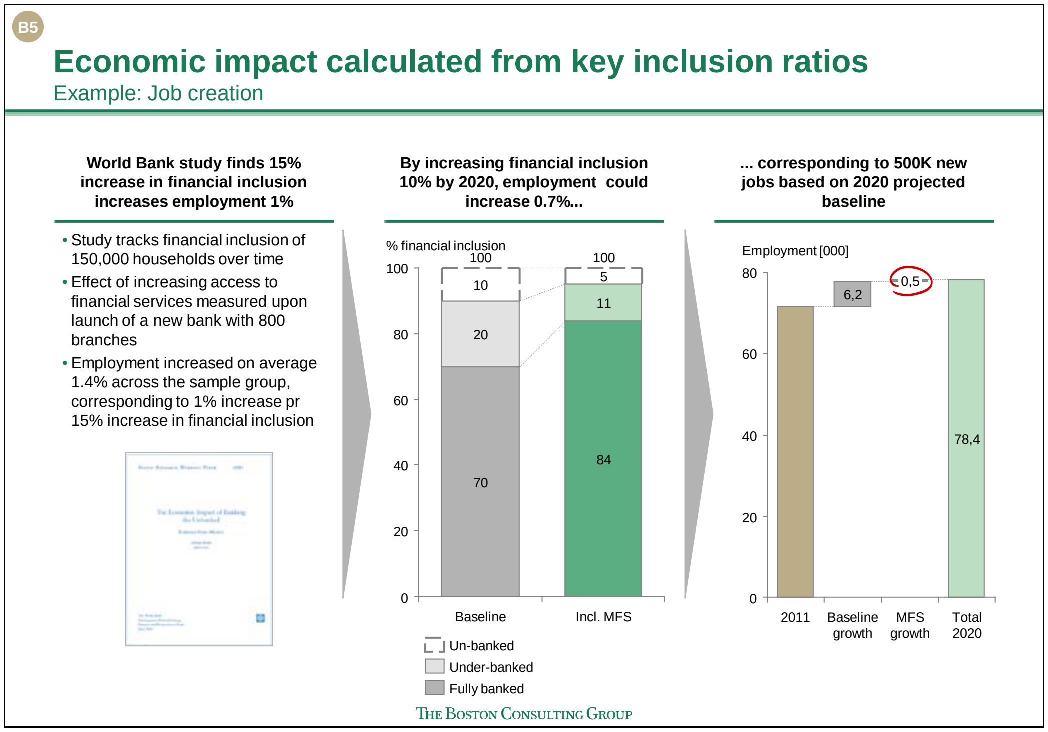

Exhibit A9: Economic impact assessment

Social Impact

The social impact analysis focus on how Mobile Financial Services can support key social development goals defined by study the countries' authorities, such as Pakistan's Five Year Plan and the Tenth Malaysian Plan. Impact assessments are structured according to these development areas, such as rural growth, health and education, gender equality and transparency, youth development and e-government. Example of such analysis is the impact of MFS on the Gini coefficient depicting economic equality. This is based on a study published by the Center for Applied Macroeconomic Analysis[26], finding a 1 percent increase in financial development reduces the predicted Gini coefficient by 0.07 percent in India.

Benefits of simple savings and insurance products are quantified, where possible. For example, studies showed that buffering against financial shocks is of critical importance, as such shocks cause food shortages (32 percent), withdrawal from school (7 percent), and an increase in child labor (9 percent)[27].

In other situations, the social benefits are described qualitatively, when it may be inaccurate or not meaningful to translate the findings into a single number like GDP impact. In such situations, possible applications of MFS and the impact they could have on users are described in order to convey how MFS could contribute to addressing the specific social concerns identified.

[26] Ang (2008): *"Finance and Inequality – The Case of India"*
[27] World Bank (2009): *"Shocks, Coping, and Outcomes for Pakistan's Poor"*

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