

UC Irvine

Final Reports

Title

Banking the poor through mobile telephony: Understanding the challenges for expansion of mobile-based financial services in Peru

Permalink

<https://escholarship.org/uc/item/5zp6z2k0>

Author

Lozano, Tania

Publication Date

2013-07-01

Copyright Information

This work is made available under the terms of a Creative Commons Attribution-NonCommercial-ShareAlike License, available at

<https://creativecommons.org/licenses/by-nc-sa/4.0/>

Peer reviewed



Banking the poor through mobile telephony

Understanding the challenges for
expansion of mobile-based financial
services in Peru

Tania Lozano

Instituto de Estudios Peruanos

July, 2013



Diálogo Regional sobre Sociedad de la Información



This work was carried out with the aid of a grant from the International Development Research Centre and the Canadian International Development Agency, Ottawa, Canada.

Tania Lozano

Banking through mobile telephony: understanding the challenges for expansion of mobile-based financial services in Peru. Lima: Diálogo regional sobre Sociedad de la Información, 2013. 47 pp.



This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Unported License: <http://creativecommons.org/licenses/by-nc-nd/3.0/legalcode>

Table of Contents

Table of Contents.....	ii
List of figures.....	iv
List of tables	v
Summary	vi
Introduction	1
1 Assessment of the mobile telephony sector.....	4
1.1 General and indicators and investment.....	4
1.2 Principal stakeholders.....	7
1.3 Regulatory environment	7
1.3.1 Entry into the market	8
1.3.2 Access to scarce resources	8
1.3.3 Interconnection	9
1.3.4 Tariff regulation.....	9
1.3.5 Regulation of anti-competitive practices.....	10
1.3.6 Universal Service Obligation (USO).....	10
1.4 Significant events.....	11
2 Assessment of the financial sector.....	13
2.1 General indicators and investment.....	13
2.2 Key stakeholders	16
2.3 MFS ecosystem.....	16

2.3.1	Institutional environment	17
2.3.2	Market environment.....	20
2.3.3	End user environment	23
2.4	Important events	25
2.5	Possibilities for developing financial services through conditional cash transfers	26
3	Methodology	27
4	Results	31
4.1	Institutional environment.....	31
4.2	Market environment	33
4.3	End-user environment	33
4.4	Overall results	34
	Conclusions	36
	Recommendations.....	37
	Bibliography	38
	Appendix 1 – Questionnaire: Mobile financial services.....	44
	Appendix 2 – Interview guide	46

List of figures

Figure 1: Mobile telephony: investment and teledensity ^a	5
Figure 2: Penetration and geographic coverage of mobile telephony services ^a	6
Figure 3: Percentage of households, by access to ICTs	6
Figure 4: Number of transactions	25
Figure 5: Evaluation scale	28
Figure 6: Results of evaluation of institutional environment	32
Figure 7: Results of evaluation of market environment.....	33
Figure 8: Results of evaluation of end-user environment	34
Figure 9: Evaluation results, by environment.....	35

List of tables

Table 1: Market share, by number of lines in service	8
Table 2: Interconnection charge ceiling for billing and collection ^a	10
Table 3: FITEL mobile telephony projects	11
Table 4: Financial system: assets, loans and deposits (millions of soles).....	14
Table 5: Indicators of financial inclusion.....	15
Table 6: Indicators of use of financial services	15
Table 7: Mobile banking in Peru	17
Table 8: Concentration in the banking system	21
Table 9: Geographic coverage of financial services.....	23
Table 10: Penetration of points of service	24
Table 11: Dimensions of MFS ecosystem to be evaluated	27
Table 12: Definition of categories.....	28
Table 13: Number of experts and responses, by category	29
Table 14: Weighting, by category	29

Summary

The purpose of this paper is to identify institutional and contextual factors that could be limiting the implementation and scaling up of mobile financial services (MFS) in Peru. The methodology used adapts the one proposed by Samarajiva et al. (2005) for evaluating the telecommunications regulatory environment (TRE), based on the perceptions of key stakeholders. Unlike TRE, this study includes the entire MFS ecosystem in the analysis, without limiting it to the institutional or regulatory environment.

Following the theoretical approach developed in World Economic Forum (2011), the evaluation of the quality of the MFS ecosystem for promoting investment considered three environments: (1) the institutional environment, (2) the market environment, and (3) the end-user environment. The methodology is based on the perception of key stakeholders from the private sector, consultants and academics, who work in the financial and telecommunications sectors. For this study, 78 experts contributed their perceptions about the environment in Peru between October 2010 and September 2012.

The results indicate that the quality of the environment is perceived as ineffective for promoting investment. According to the experts, the regulatory and market environments may be blocking initiatives. Constraints mentioned include regulatory uncertainty related to the Electronic Money Law, the lack of regulation of value-added services, the perception of a low level of coordination within the government for promoting consensus-based policies, and the existence of exclusivity clauses in contract provisions. The most encouraging findings were related to the end-user environment, which is led by the capillary-like growth of the network of correspondent agents and the potential of the distributor network for expanding service to the most remote areas of the country.

These results are consistent with the current development of MFS, which is marked by incipient development of mobile banking and various electronic money initiatives, which are still in a pilot phase and have not yet attracted the investment needed for nationwide deployment.

Introduction

Mobile financial services (MFS) have achieved an astonishing degree of deployment in many developing countries, enabling people to make transfers and micro-payments without having to go to a bank or agency, taking advantage of the infrastructure already deployed by mobile telephony operators. The broad penetration of mobile telephony at the «bottom of the pyramid» thus transcends its use for voice communication and raises questions about conventional means of offering financial services, which are limited by a lack of incentives for companies to serve areas where access is difficult and population density is low.

In this context, MFS demonstrate extraordinary potential for expanding access to formal financial services, not only through a more efficient payment system or by reducing transaction costs, but also, as discussed below, because they allow the entry of new operators with new business models and different cost structures (Pior and Santomá, 2008).

The real impact of MFS lies in their accessibility and availability and the incorporation of a broader range of financial services. It also responds to an effective linkage of MFS within a policy of financial inclusion. One key area of analysis for this study, therefore, was the viability of the business model and market and institutional frictions facing investors.

This leads to a basic question: what are the institutional and contextual factors that could be limiting or leveraging the implementation and scaling up of MFS for the poor in Peru? To answer that question, this paper takes a comprehensive and global look at the MFS ecosystem and the particular factors that could be blocking investment. That ecosystem is understood as the association of environments (institutional, market and end-user) whose processes are interrelated and which develop based on MFS provision. The identification of those factors will contribute to the design of effective mechanisms and incentives for promoting investment and for the adoption of MFS by possible beneficiaries.

Recent local and international literature has paid particular attention to MFS regulation, as reflected in various studies that highlight limitations (Analistas Financieros Internacionales and Bankable Frontiers Associates, 2009; BendeZú et al., 2012; International Finance Corporation, 2011; Inga, 2012; and Sotomayor, 2012). Working from different perspectives, these authors examine the regulatory aspects that

should be considered for MFS deployment in Peru. This study proposes a synthesis that also includes stakeholder opinions. Based on their experiences and interests, this allows discussion of the overall ecosystem, not just the regulatory environment.

The study begins with the perceptions of key stakeholders, as proposed by the methodology for evaluating the telecommunications regulatory environment developed by LIRNEasia (Samarajiva et al., 2005). Following the theoretical approach developed in World Economic Forum (2011), the evaluation focuses on three environments: (1) institutional environment, (2) market environment, and (3) end-user environment. Finally, a list of 14 dimensions was developed for the experts' evaluation, based on their effectiveness for promoting MFS development (on a Likert scale ranging from 1, very ineffective, to 5, very effective). A dimension is considered effective if the evaluation score surpasses a threshold of three.

Despite the easy interpretation of the results, the scores provide indications of possible constraints. To give the results an analytical dimension, they must be compared with a broader data set. Brief assessments of the sectors involved have therefore been prepared, emphasizing the dimensions that influence MFS development. In particular, the characteristics of accessibility and availability of mobile service are documented, along with regulatory events that could influence their development, the financial sector's inclusive potential and the current state of the dimensions that determine MFS deployment, according to the World Economic Forum (2011).

For the evaluation, 78 experts contributed their opinions about this environment, limiting themselves to period between October 2010 and September 2012. This information was complemented with 22 semi-structured interviews carried out in December 2012. The same methodology was used for various case studies in other countries in Latin America, as part of a joint project of the Regional Dialogue on the Information Society (DIRSI), which allows comparison with other countries in the region, identification of the particular characteristics of each, and an evaluation of the degree to which that comparison supports (or does not support) the main arguments of each report.

It should be noted that because the MFS ecosystem is still little developed in the country and its institutional environment is changing, various aspects related to business models and policies for regulating them are still being defined, with a broad range of possibilities. Because the purpose of this study is to gather perceptions of the quality of the MFS environment from key stakeholders in the sector (supply side), there

are aspects, especially connected with risks and advantages of regulatory measures and specific business models, that are not discussed in detail. Those aspects are discussed extensively in the international literature, however, and will be mentioned throughout this paper.

This document is organized in seven sections, besides this introduction. The second section discusses significant events within each dimension of the TRE for mobile telephony, while the third does the same for the MFS ecosystem. The fourth section presents a detailed explanation of how the methodology proposed by LIRNEasia was adapted. Section five describes the results of the use of that methodology, and the sixth and seventh sections summarize the study's conclusions and recommendations. Finally, the appendices detail the tools designed for gathering information.

1 Assessment of the mobile telephony sector

This section provides an overview of the characteristics of the mobile telephony sector and regulatory aspects that influence its development, which are analyzed, for better understanding, based on the dimensions identified in the original TRE methodology (Barrantes and Pérez, 2007; Bossio, 2010). A subsequent chapter will evaluate how the patterns found and their dynamics influence MFS development.

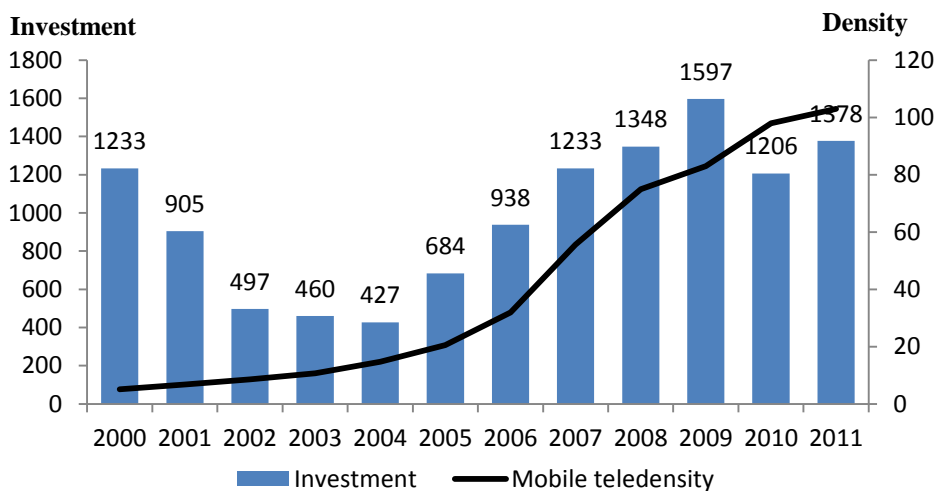
1.1 General and indicators and investment

During the 1990s, Peru implemented a series of structural reforms that promoted the participation of private enterprise and the liberalization of the market. During that period, most state assets were transferred to private corporations. In the telecommunications sector, the public companies – Compañía Peruana de Teléfonos S.A. (CPT) and Empresa Nacional de Telecomunicaciones del Perú S.A. (Entel) – were granted in concession to the private Spanish company Telefónica, which later created Telefónica del Perú (TdP).

In the years that followed, mobile telephony was the second most important area of TdP's expansion plan, absorbing 17 percent of total investment (Campodónico, 1999). This phase of scaling up investment lasted from around 2000 until 2004, when investment was reactivated as a result of a «sector policy of explicit incentives» by the regulator (Gallardo, Gonzales and López, 2007).

Despite fluctuations in investment, the number of mobile lines continued to increase throughout the period. Efficiency and productivity indicators also showed substantial improvement (Gallardo, 2000; Torero and Pascó-Font; 2001). According to figures from the Ministry of Transportation and Communications (MTC), mobile telephony density increased from 0.2 percent in 1993 to 103.1 percent in 2011.

Figure 1: Mobile telephony: investment and teledensity^a



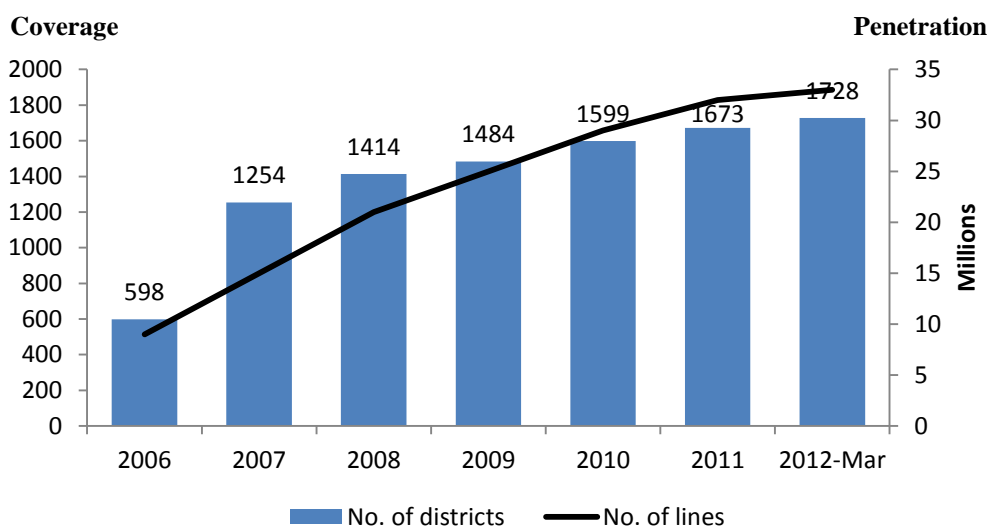
^a Number of lines per 100 inhabitants

Source: OSIPTEL / Compiled by author

In terms of coverage, according to official statistics, mobile service is available in 90 percent of the country’s districts (see Appendix 1). Local estimates, however, indicate that only 37 percent of localities in rural areas have some type of mobile or fixed TUP infrastructure. This reflects the concept of digital poverty developed in Galperín and Mariscal, eds. (2007) to understand the lack of ICTs, which is closely related to factors that also explain economic poverty. We can therefore say that there is an «infrastructure with great gaps, which is deployed asymmetrically.»¹

¹Available at: <<http://www.telesemana.com/blog/2012/08/17/infraestructura-de-inclusion-digital-mas-alla-de-la-red-dorsal>>[retrieved 10 December 2012].

Figure 2: Penetration and geographic coverage of mobile telephony services ^a

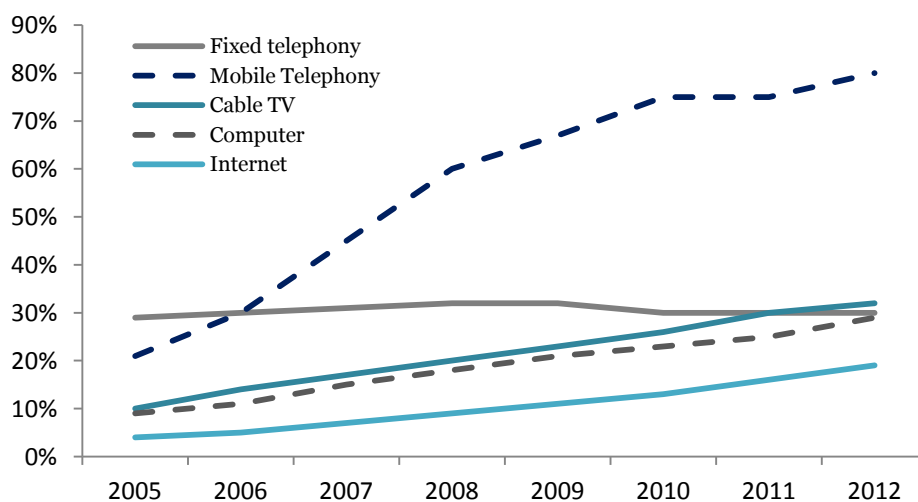


^a Penetration refers to total number of mobile lines

Source: OSIPTEL / Compiled by author

In terms of use of the service, according to data from the National Household Survey (*Encuesta Nacional de Hogares, ENAHO*), mobile telephony is the ICT that is most widespread among households in the country, although there are significant internal variations. For example, only 58 percent of rural households have mobile service, while the nationwide figure is 80 percent. There is therefore a significant «digital gap,» a term that refers to a set of inequalities in a household’s access to and use of ICTs.

Figure 3: Percentage of households, by access to ICTs



Source: Technical Report 3, September 2012, retrieved 20 October 2010 from:
<<http://www.inei.gob.pe/web/Biblioinci/BoletinFlotante.asp?file=15083.pdf>>

In the lowest-income sectors, mobile use is preferred to other options, because it allows more effective control of spending (through pre-paid service) and a better tariff structure (Barrantes et al., 2007). The higher access costs for pre-paid service, however, have an «inhibiting effect» on consumption and are identified as the main barrier to expansion of the service (Mariscal, 2009). Changes in commercialization models (charging by the second and micro-recharging) have increased accessibility by reducing expenditure for this service as a percentage of income (Barrantes et al., 2007).

Barrantes (2010) also documents passive cellular telephone use in rural areas, where mobile phones are used only to receive communications, and their only purpose is «connectivity.» This could have huge implications for MFS deployment, because, as discussed below, the technology that would make that deployment possible is based on text messaging.

1.2 Principal stakeholders

The two main public-sector entities involved in this issue are the Ministry of Transportation and Communications (MTC) and the telecommunications regulatory agency (*Organismo Supervisor de la Inversión Privada en Telecomunicaciones*, OSIPTEL). The MTC issues general policy for the sector and basic technical plans, allocates and monitors the electromagnetic spectrum and grants concessions, while OSIPTEL regulates and oversees the behavior of operating companies and rates and guarantees the quality of service.

The Telecommunications Investment Fund (*Fondo de Inversión en Telecomunicaciones*, FITEL) is the MTC office responsible for universal access policy, and the Agency for Promotion of Private Investment (*Agencia de Promoción de la Inversión Privada*, ProInversión) is in charge of organizing the concession of infrastructure works and tenders of the electromagnetic spectrum.

1.3 Regulatory environment

This section evaluates the dimensions identified in the original TRE methodology as decisive for investment in the telecommunications sector. The dimensions on which the evaluation is based are: (1) entry into the market, (2) access to scarce resources, (3)

interconnection, (4) tariff regulation, (5) regulation of anti-competitive practices, and (6) Universal Service Obligation.

1.3.1 Entry into the market

Mobile telephony service has been open to competition from the very beginning. The main barrier to entry is associated with electromagnetic spectrum availability; as a result, tenders of frequencies are a key factor in the entry of new operators and, ultimately, competition in the sector (Barrantes and Pérez, 2007).

In Peru, the market structure shows high concentration, with market shares nearly unchanged since 2005, when Telefónica Móviles acquired BellSouth and Sercotel (América Móvil) acquired TIM. There currently are three mobile operators in the market: Telefónica Móviles, América Móvil and Nextel Perú. It should be noted, however, that Nextel has prioritized the corporate segment, so there is a virtual duopoly on service to households.

Table 1: Market share, by number of lines in service

Company	2004	2006	2008	2010	2012-Mar
Telefónica Móviles	51.9%	57.7%	62.6%	63.6%	61.3%
Comunicaciones Móviles^a	22.2%	-	-	-	-
Nextel	5.0%	3.9%	3.1%	3.7%	4.2%
América Móvil	21.4%	38.4%	34.3%	32.7%	34.5%
Total	100%	100%	100%	100%	100%

^a Formerly Bell South

Source: OSIPTEL / Compiled by: IEP

After acquiring rights to the fourth 1900 MHz C band (2011) and the 900 MHz band (2012), the company Viettel established itself as a new mobile operator, ending what experts said was a costly process of attracting a fourth mobile operator. It is expected to begin operation in 2013.

1.3.2 Access to scarce resources

Scarce resources in the telecommunications sector are (1) number codes and (2) the electromagnetic spectrum. The scarcity of the latter is exacerbated by the greater need

for spectrum resulting from the increasingly diverse functionality of mobile terminals. The government has sovereign control over the electromagnetic spectrum, and the MTC is responsible for determining how it will be used, managed and controlled.

During the study period, a proposal was made for channelization of bands with the potential for supporting 4G mobile services: the 1.7/2.1 GHz and 700 MHz bands (LTE tests). To avoid concentration, the ceiling for allocation of electromagnetic spectrum for the 1.7/2.1 band was modified to 40 MHz.

Number codes are governed by the Basic Technical Numbering Plan (*Plan Técnico Fundamental de Numeración*, PTFN). During the study period, the General Regulatory Framework for the Emergency Communications System (*Marco Normativo General del Sistema de Comunicaciones en Emergencias*) was approved. This measure creates uniform procedure for access to the Special Emergency Communications Network (*Red Especial de Comunicaciones en Situaciones de Emergencia*, RECSE) and establishes the use of SMS, Internet and voice messaging to avoid congestion of conventional networks.

1.3.3 Interconnection

Interconnection tariffs are the starting point for free access to the market by new companies. In mobile telephony, the «caller pays» tariff system means that each operator has substantial market power for call termination in its network (Bendezú et al., 2012). In response, OSIPTEL established conditions for network use, setting a ceiling for connection charges, to be implemented gradually, differentiated by company.

It also established differentiated treatment for «rural areas and places of preferential social interest,» to promote the development of public telephone services in those places and ensure the sustainability of FITEL'S TUP projects (Pérez-Reyes, 2010).

Interconnection is the fee that one mobile telephony company charges another for the «entry» of calls to its network.

1.3.4 Tariff regulation

In 2011, Peru began setting fixed-mobile tariff ceilings for calls originating from TdP customers' fixed telephones. The charges were determined by fixed-telephony operators, according to a system of tariff ceilings and inter-operability agreements,

resulting in a figure of S/. 0.0033. At the same time, ceilings for interconnection charges were set for billing and collection.

Table 2: Interconnection charge ceiling for billing and collection ^a

Company	Ceiling
América Móvil	0.1520
Nextel	0.1441
Telefónica Móviles	0.1201
Possible new operator	0.1520
Other operators	0.1201

^a USD per receipt, without sales tax

Source: OSIPTEL / Compiled by: IEP

One point that should be noted for this study is that under current regulations, tariffs for value-added services (VAS) «are determined by free supply and demand, and in no case will they be subject to tariff ceilings.» If a company wants to offer them, it must simply register as a VAS provider with the MTC.

1.3.5 Regulation of anti-competitive practices

OSIPTEL enforces rules for free and fair competition in the sector. Its members and the Dispute Resolution Tribunal (*Tribunal de Solución de Controversias*) are the forums for settling disputes. During the period under study, no disputes involving mobile telephony were heard in either forum.

1.3.6 Universal Service Obligation (USO)

In rural or remote areas, operators face high costs for providing services and low willingness to pay among households. Because of that, supply and demand do not balance, resulting in what Navas-Sabater, Dymond and Juntunen (2002) have called an «access gap.» As a result, political and social (rather than business) criteria drive expansion of service to those areas. FITEL was established as part of these policies. FITEL's role is to design projects and allocate financing to companies, through minimum-subsidy auctions, to expand their networks to unprofitable areas, known as «rural localities and those of preferential social interest.»

Since 2007, mobile services have been included in the definition of «universal access.» During this period, contracts were awarded for the following projects:

Table 3: FITEL mobile telephony projects

Company	«Integration of rural areas and places of preferential social interest into the mobile service network»
América Móvil	– North Central – South Central
Telefónica Móviles	–Amazon region

Source: FITEL / Compiled by: IEP

The government recently declared a policy of universal broadband access, with financing from funds dedicated to universal access policies. Specifically, FITEL’s accumulated funds are to be used to finance backbone construction (Barrantes, 2011).

1.4 Significant events

Within the sector’s policies, the MTC’s actions have been marked by the recommendations of the Multi-Sector Commission, which consists of the ministry, OSIPTEL and the National Institute for Telecommunications Research and Training (*Instituto Nacional de Investigación y Capacitación en Telecomunicaciones*, INICTEL-UNI). This commission drafted the National Broadband Development Plan (*Plan Nacional para el Desarrollo de la Banda Ancha*, PNDBA), and its recommendations have provided guidelines for the channelization of bands and the public tenders that have been held.

Another key issue that has attracted the MTC’s interest has been the renegotiation of Telefónica’s concession contract, which, according to experts, is «intrinsically technical, but also inevitably political.»² The regulatory agency was accused of «regulatory capture,» understood as interference by the company in the regulatory

² Interview with expert Carlos Huamán. Retrieved 15 January 2013 from: <http://www.youtube.com/watch?v=6pb2Fg7ZpCk>

agency's decisions. This led to the removal of several members of the board of directors.³

In July 2012, Gonzalo Ruiz Díaz was named president of OSIPTEL. Ruiz Díaz has said that the former administrations' emphasis on tariff issues and contract monitoring will not characterize his term: «We want to reinforce the work of protecting the user and promoting competition,» he said.

Significant legislative changes have also occurred. In 2012, the Law for Broadband Promotion and Construction of the National Fiber-Optic Backbone was signed to expand fiber-optic infrastructure. Experts noted that the law marked a paradigm shift, giving the government a more active promotional role.

During the interviews, references were made to discussions about modifying the Telecommunications Law with regard to technological and regulatory convergence, FITEL's role in broadband expansion and regulation of VAS.

³<http://www.rpp.com.pe/2012-08-16-remueven-a-director-del-osiptel-por-favorecer-a-telefonica-noticia_512495.html>. Retrieved 10 December 2012.

2 Assessment of the financial sector

An exhaustive assessment of the financial sector is beyond the scope of this project. This paper therefore emphasizes aspects relevant to MFS development, omitting the usual criteria used for the financial system in general and for MFS in particular, unless they relate to the study. This section describes the context and general indicators of the financial system, followed by discussion of dimensions of the MFS environment identified in World Economic Forum (2011).

2.1 General indicators and investment

In the early 1990s, the Peruvian financial system underwent a drastic reform, which ended the «financial repression» (i.e. price control) that had led to an erosion of financial intermediation (Superintendencia de Banca y Seguros, 2006). The measures implemented covered not only a decrease in state assets (privatization), but also an increase in the powers of financial intermediation institutions and strengthening of the regulatory agency (Abusada, Du Bois, Morón y Valderrama, 2000).

Over the following years, the sector modernized. In 1998, however, because of the Asian and Russian crises, serious regulatory deficiencies came to light. Eleven of the 25 existing banks were liquidated or merged (Abusada, Du Bois, Morón and Valderrama, 2000). That led to strengthening of the regulatory agency's micro-prudential regulation, through convergence toward international standards (Basel) and expansion of the role of the Deposit Insurance Fund (*Fondo Seguro de Depósitos*, FSD). The system currently has healthy levels of liquidity and solvency and a regulatory agency whose performance is considered among the best in the region.

The performance of microfinance institutions (MFIs) should be highlighted, because Peru is considered to have the best legal and regulatory environment for them.⁴ MFIs represent a paradigm shift in the provision of services, because «they combine elements of traditional banking with lessons learned from informal financial mechanisms» (Corporación Andina de Fomento, 2011). In recent years, however, the largest MFIs have redirected their deployment toward «less-poor» users of credit, in a process known as «scaling up» (Conger, Inga and Webb, 2009).

⁴ According to the Economist Intelligence Unit's Global Microscope 2012 Index (2012), with support from the Inter-American Development Bank (BID) and Corporación Andina de Fomento (CAF).

Interviewees also referred to the deterioration of indicators (delinquency) associated with excessive indebtedness among microcredit borrowers (Corporación Andina de Fomento, 2011). This should be considered in an evaluation of services that could be offered to people with low incomes and little financial education.

There has been no significant change in the financial system in recent years, measured by the number of financial institutions. Mergers and acquisitions, however, have represented strong competitive pressure. The pattern they have followed reflects the interest of economic groups linked to banking in entering the MFI segment (Consortio de Organizaciones Privadas de Promoción al Desarrollo de la Pequeña y Microempresa, 2011; Vega, 2011).

The following table shows the structure of the financial system:

Table 4: Financial system: assets, loans and deposits (millions of soles)

Financial system	N	Assets	%
Multiple banking	16	219,956	80.7
Finance companies	11	9,811	3.6
Municipal banks	13	14,167	5.2
Rural savings and lending banks	11	3,109	1.1
Small-business and microenterprise development entities	10	1,201	0.4
Leasing companies	2	443	0.2
Banco de la Nación	1	23,614	8.7
Banco Agropecuario	1	390	0.1
		272,692	100

Source: SBS. Retrieved 9 December 2012 from

[<http://www.sbs.gob.pe/app/stats/EstadisticaBoletinEstadistico.asp?p=14#>](http://www.sbs.gob.pe/app/stats/EstadisticaBoletinEstadistico.asp?p=14#)

According to data from the SBS, the system's development has advanced considerably in financial depth and scope. The ratio of loans and deposits to GDP increased by 10 percentage points, while the proportion of debtors and depositors per 100 inhabitants doubled. These figures, however, could overestimate progress in financial inclusion, as one person could have more than one savings account or be a debtor at more than one financial institution.

Table 5: Indicators of financial inclusion

Financial system	2006	2008	2010	2012-June
Financial depth				
Loans (% of GDP)	18,1	24	27	29
Deposits (% of GDP)	22.6	29	30.3	31.4
Scope				
N° of debtors^a	183	227	251	278
N° of depositors^a	559	648	787	939
N° of debtors/ Economically Active Population (%)	22	26,5	29,2	32,6
N° with credit card/Working-Age population (%)	9.3	10.9	10.4	17.3
N° with savings account/Working-Age Population (%)	39.3	55.2	66.9	81.4

^a Per 1,000 inhabitants

Source: SBS

Results for the use of financial services are less encouraging. In general, Peru is well below the regional average, with figures that vary depending on socio-economic and educational level and geographic area. For example, only 20 percent of the adult population has formal access to a savings account (World Bank, 2012). A geographic breakdown shows internal disparities between urban and rural areas; the figure is 24 percent for the former, but only 13 percent for the latter (World Bank, 2012).

Table 6: Indicators of use of financial services

Indicator	Peru	Latin America
Access to formal savings account (% over age 15)	20	39
Women (%)	18	44
Poorest 40% (%)	8	34
Without education (%)	6	30
Rural areas	13	34

Source: World Bank (2012)

These figures reveal huge challenges for achieving equitable access to the formal system, which is critical for leveraging the causal effect of this process for economic growth and reduction of poverty and inequality (Clarke, Xu and Zou, 2006).

2.2 Key stakeholders

The Central Reserve Bank of Peru (*Banco Central de Reserva del Perú*, BCRP), the SBS and the National Institute for Defense of Competition and Protection of Intellectual Property (*Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual*, INDECOPI) are the main state institutions involved. The BCRP safeguards financial stability, the SBS regulates and supervises the system and INDECOPI is responsible for defending and protecting financial consumers' rights.

The Banco de la Nación manages the sub-accounts of the public Treasury and the national government's public funds, while the Banco Agrario engages in banking activities in support of the farm sector. The Financial Development Corporation (*Corporación Financiera de Desarrollo*, COFIDE) acts as a second-tier development bank. Finally, the Ministry of Development and Social Inclusion (MIDIS) is charged with improving the standard of living of vulnerable groups and those living in poverty.

2.3 MFS ecosystem

In general, MFS are any financial service (payments, transfers, etc.) made using mobile technology. According to the literature, they are classified into (1) additive models, targeting bank customers as an additional channel, and (2) transformational models, which target the unbanked and «transform» the way services are distributed (Analistas Financieros Internacionales, 2009; Prior and Santomá, 2008). Because the former do not address the problem of banking the poor, the study focused on transformational models.

This latter group includes electronic money, a type of electronic payment (*e-payment*) that uses a mobile platform (*m-payment*). For this service, no bank account is needed: the user purchases electronic (virtual) money from an agent, which is registered for the same value (*cash-in*) and can be used to authorize transfers or payments via a mobile terminal or converted to cash at an agent (*cash-out*).

In terms of MFS development in the country, currently only mobile banking exists, provided exclusively by banking FIIs since 2008. In 2012, 460,000 transactions were registered (0.1 percent of all transactions).

Table 7: Mobile banking in Peru

	BCP	Scotiabank	Interbank	BN	CMAC
Technology	SMS	STK	SMS	Planned	Planned
Operators	Claro y Movistar	Claro	Claro y Movistar		

Source: OSIPTEL – Regulatory Analysis Office

For electronic money, there are only pilots launched by financial institutions, which are in the initial phases of development. Description of the business model and the association structure is therefore limited to the scant information available to the public and gathered from fieldwork. This information is an integral part of the market strategy, and its circulation is therefore highly restricted.

Companies take temporary competitive advantage of innovation, until the market (supply) responds and/or competitors can copy the strategy (lead time). The characteristics of the service also lead to strong incentives for winner-take-all competition, in which companies try to reach a critical mass in the shortest time possible, so as to provide the services efficiently and capture a significant market share.

2.3.1 Institutional environment

International experience shows that success does not depend on a type of regulation or institutional environment; emblematic cases, such as M-pesa (Kenya), do not have one. There must be a balance between flexible regulation that encourages innovation and does not create institutional barriers to entry (e.g., high legal requirements) and avoiding regulatory uncertainty that inhibits investment. At the same time, a legal system without clear rules could become an obstacle to MFS deployment.

Following the conceptual framework of World Economic Forum (2011), the dimensions to be evaluated are: (1) financial system regulation of MFS, (2) financial system regulation for financial inclusion, (3) telecommunications sector regulation of MFS, (4) telecommunications sector regulation for financial inclusion, (5) coordination and joint policies on MFS, and (6) consumer protection for MFS.

- Financial system regulation of MFS

There is currently no specific regulatory instrument for MFS. The only reference is in a BCRP circular, which defines electronic money, but does not specify whether it refers to capturing funds (deposits); as a result, its provision is not subject to requirements for capture or to conditions stipulated for its protection (Inga, 2012).

There have been efforts to regulate electronic money, reflected in draft laws 4168 and 1073. These were accompanied by extensive debate that has bogged down for various reasons, including questions raised by the private financial sector about the first law, the installation of a new legislature (change of government and policy), and the fact that the topic is new, which makes it difficult to identify best practices with certainty.

None of the legislative efforts defines electronic money as a deposit, so they reduce institutional barriers to entry into the market and expand the range of companies that could offer the product, increasing market contestability.⁵ This is a crucial point, as it determines the business model that companies could follow. If it is not considered a deposit and not tied to a bank account, regulations would be particularly favorable for the deployment of non-bank models, which do not include financial institutions in the market chain.

This has been the main question raised by the private financial sector, which argues that by not linking electronic money to banks, the system does not allow access to customer data and transaction amounts. Without that information, they say, they cannot offer other types of services, which limits banking of the poor. A counter argument is that electronic money would be a first step into the financial system, which could then offer other products along with more financial education.

As a result of this debate, the draft of Law 1073 includes regulations for combating money laundering and financing of terrorism, protection of savings (guarantee fund), allocation of mandatory reserves (optional), access to personal data (optional), etc. The main questions, therefore, are related to «differentiated treatment,» compared to the strict requirements placed on banks for capturing deposits. It is clear that issuing electronic money does not pose equivalent systemic risks.

⁵ Market contestability is understood as the credible threat of the entry of new operators; absent non-recoverable costs, it determines supply and promotes price-setting that does not differ significantly from that of a competitive environment. In other words, users benefit from more accessible prices.

Debate over the draft legislation was still under way when the data gathering ended, and the interviewees considered it a sort of sword of Damocles.

- Financial system regulation for financial inclusion

There are various initiatives for financial inclusion, but they are not interconnected as part of a national strategy. Interviewees mentioned coordination in the Executive Branch for the drafting and publication of a National Financial Inclusion Policy (*Política Nacional de la Inclusión Financiera*, PNIF), an effort led by the Ministry of Economy and Finance.

Among the main initiatives are *Basic Accounts* and *Shared Locales*. The first modifies regulations on money laundering and financing of terrorism and allows non-banking correspondents to open savings accounts using simplified procedures, an operation formerly reserved to bank branches. So far, the only initiative registered is Financiera Crediscotia's *Basic Account Express*. The second allows MFIs to use the BN's platform, expanding the supply of banking services in areas far from the country's major cities.

- Telecommunications sector regulation of MFS

There is no specific regulatory instrument for MFS. For potential MFS deployment, the International Telecommunication Union (2011) suggests consideration of (1) consumer protection, (2) interoperability, (3) customer records ("Know Your Customer"), (4) universal service obligation and (5) tariff regulation.

Issues (1)-(4) are addressed by current regulations, but they do not reflect the nuances of the MFS environment. Regarding issue (3), a list of pre-pay customers and SIM cards has been created. With regard to tariff regulation, SMS termination charges are not regulated, because they are a value-added service (VAS). This is a key issue, as this is the technology most accessible to the population and it is used in electronic money pilots. It is crucially important for the regulator to keep in mind that «the mobile operator with the largest network in the industry can engage in anti-competitive practices, denying access to potential competitors or increasing the price of the service» (Bendezú et al., 2012).

During the interviews, representatives of various financial institutions said they could not negotiate with mobile operators because of exclusivity clauses that prohibited them from providing the service outside of the contract. Moreover, there were indications of potential abuse of a dominant position when the mobile operator refused

or delayed procedures related to issues such as short numbers or tariff setting: «What is complicated for the financial sector is connecting and finalizing a contract. ... There have been delays, inefficiencies and special interests that have pushed back the product release date». On this topic, interviewees mentioned a joint strategy on the part of the banking sector to position itself better for negotiation.

- Telecommunications sector regulation of MFS

There is no policy on financial inclusion in this sector; the government and the regulatory agency have an inclusive component on their agenda, however, spelled out in the PNDBA, which acknowledges the role of ICTs in development.

- Coordination and joint policies for providing MFS

There is a lack of coordination among the SBS, BCRP and MEF, the institutions that have led efforts in this area, and their counterparts in the telecommunications sector (MTC, OSIPTEL). Interviewees confirmed this perception, mentioning concern about the telecommunications agenda. They also identified this dimension as crucial for MFS expansion, saying the government must play a consensus-building role.

- Consumer protection for MFS

There is no specific regulatory instrument for consumer protection in MFS. In general, although both sectors have institutional channels, responsible agencies and procedures for this, it is not clear whether they respond to new needs. In addition, the lack of information about and public awareness of them seriously undermines their legitimacy.

INDECOPI is responsible for consumer protection in the financial sector, while OSIPTEL does the same in the telecommunications sector. The SBS offers a Customer Service Platform (*Plataforma de Atención al Usuario*, PAU), and the Association of Banks of Peru (*Asociación de Bancos del Perú*) has an Ombudsman's Office for Financial Customers (*Oficina del Defensor del Cliente Financiero*, ODCF). OSIPTEL operates the Administrative Court for Resolving Customer Complaints (*Tribunal Administrativo de Solución de Reclamos de Usuarios*).

2.3.2 Market environment

Following the conceptual framework of World Economic Forum (2011), the dimensions to be evaluated are (1) competition in the financial sector, (2) competition

in the telecommunications sector, (3) innovation in the telecommunications market, (4) government leadership on MFS issues, and (5) management of data about beneficiaries of social programs.

- Competition in the financial sector

Morón et al. (2010) show that although Peru’s banking sector is concentrated and highly profitable, there has been increased competition in most of the main banking products. They therefore argue that high concentration does not necessarily imply a lack of competition.

Table 8: Concentration in the banking system

IC3 (%)	<i>2002</i>	<i>2006</i>	<i>2008</i>	<i>2010</i>	2012
Loans	63	75	74	73	73
Deposits	71	79	77	74	73
N	15	11	16	15	15

Source: ASBANC / Compiled by IEP

MFI face strong competitive pressure with a series of mergers and acquisitions. There is a certain degree of complementarity in their relationship with the banking sector. For banking groups, acquiring MFIs could be a strategy for attracting customers. As they graduate, MFI users gain access to banking services (Corporación Andina de Fomento, 2011).

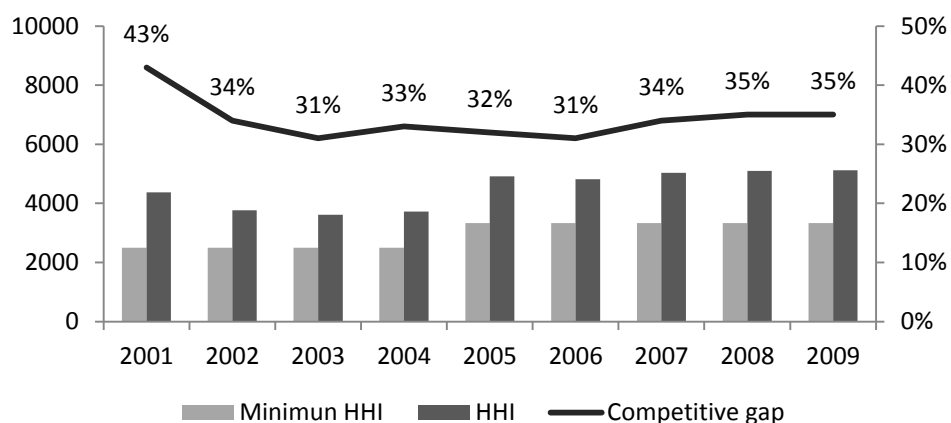
With regard to competition in MFS, especially electronic money, banking institutions have launched several initiatives, as noted above. Interviewees also noted the strong competition to develop a successful model, in the context of a “winner-take-all” competition. Non-bank MFIs are not preparing projects because of the cost and because there is some skepticism about prospects for success, given the low levels of financial and digital literacy.

- Competition in the telecommunications sector

Technology in the telecommunications sector leads to a concentrated and oligopolistic market structure. But how concentrated is the sector, really, and what are the implications for competition? Data from OSIPTEL indicate that even with high concentration, the industry is very competitive, with a «competitive gap» of 35 percent. Along the same line, Rivas and Martinelli (2009) characterize the industry as having a

Bertrand structure, defined by price wars based on strategies that involve launching plans and promotions, driven by measures such as «number portability» and the «virtual mobile area».

**Figure 4: Evolution of HHI concentration index in mobile telephonya
(lines in service)**



^a **The Hirschman-Herfindahl Index is an index of concentration. The closer to 10,000, the closer the market is to being a monopoly. The competitive gap is the percentage difference between minimum HHI and actual HHI.**

Source: OSIPTEL / Compiled by OSIPTEL Business Relations Office (Gerencia de Relaciones Empresariales)

One point worth noting is that technological convergence has caused traditional voice services to be displaced by voice over internet protocol (VoIP), with a consequent loss of revenue (García-Murillo and Wohlers, 2009). The entry of operators into MFS can be seen as a quest for alternative sources of revenue.

- Innovation in the telecommunications market

The most common way of implementing MFS in disadvantaged sectors is with messaging (SMS and USSD), because this does not require the use of smartphones. The three companies operating in the market allow SMS messaging and have deployed 3.5G networks to offer broadband services, functions that are not available for low-income populations.

- Government leadership in MFS

One way to drive MFS is for the government to pay subsidies or wages via mobile telephony and/or corresponding agents. The BNP currently facilitates payments to beneficiaries of Juntos through its network of agencies: 57 percent receive their subsidies at offices, 41 percent in cash (via transportation services) and 2 percent via corresponding entities (Ministry of Development and Social Inclusion, 2012).

- Management of data about beneficiaries of social program

The General Household Register (*Padrón General de Hogares*, PGH) provides socio-economic data for the selection of beneficiaries of social programs, while the National Registry of Users (*Registro Nacional de Usuarios*) provides information about the beneficiaries themselves. Interviewees noted that these databases are still limited, but that a national census that began in 2012 will ensure that the PGH information is updated for this year (2013).

2.3.3 End user environment

International experience shows that the agent network is crucial for MFS deployment, because low-income users have a high preference for cash (Klein and Mayer, 2011). Initiatives have therefore taken advantage of existing infrastructure: non-banking correspondents, prepaid card vendors, shops, etc.

Following the conceptual framework of World Economic Forum (2011), the dimensions to be evaluated are: (1) non-bank correspondent support infrastructure, (2) agent network development, and (3) bank efforts to include new customers.

- Support infrastructure for non-bank correspondents (agents)

Non-banking correspondents have increased in number (from 1,689 to 12,846 between 2006 and 2011) and have diversified geographically, mainly in urban areas (51 percent in Lima and 31 percent in departmental capitals), particularly at short distances from bank branches (Díaz and Priolé, 2010).

Table 9: Geographic coverage of financial services

Point of service	2006	2011
Offices	186	88
Automatic tellers	6	14

Non-banking correspondents	28	144
More than one type of point	94	137
More than two types of points	123	254
Total	437	637

Source: SBS / Compiled by IEP

The Banco de la Nación (BN) has a strong presence nationwide, with 536 offices and about 1,000 ATMs throughout the country. In the next three years, the BN plans to open 5,000 non-banking correspondents, with priority on expanding in areas where the Juntos program operates. It also has a strategy for developing an agent network using point of sale (POS) technology in 2013 (Ministry of Development and Social Inclusion, 2012). There is no information about the network of shops (associated with distributors).

- Development (agent network penetration)

Non-banking correspondents show increasing penetration, which has expanded from 10 to 69 points of service per 100,000 inhabitants (60 percent of the points of service nationwide).

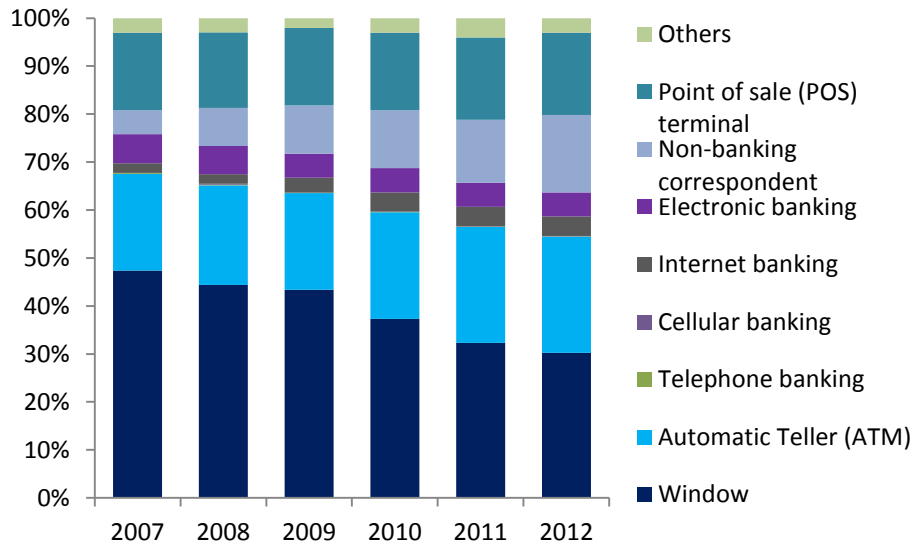
Table 10: Penetration of points of service

Points of service per 100,000 inhabitants	2006	2011
Offices	10	19
Automatic tellers	15	32
Non-banking correspondents	10	69
Total	35	120

Source: SBS / Compiled by IEP

This channel has taken on increased importance, with non-banking correspondents gaining ground in consumer preference; over six years, they grew from representing 5 percent to 16 percent of transactions.

Figure 5: Number of transactions



Source: SBS / Compiled by IEP

- Banks' efforts to include new users

Banks attract new customers with campaigns targeting segmented markets limited by budget barriers, as well as strategies for deepening the use of financial services among those who already use banks.

2.4 Important events

In the area of social policy, MIDIS was created in 2011, and Carolina Trivelli was named minister. The creation of the ministry marked a change in the social policy framework. It was given the task of improving the standard of living of the population living in vulnerability and poverty. In 2012, MIDIS and MEF, with technical assistance from Innovation for Poverty Action (IPA) and the Abdul Latif Jameel Poverty Action Lab (J-PAL), formed the Quipu Commission for Evidence-Based Public Policy, which is implementing seven innovative proposals. One noteworthy one, for the purposes of this study, is «financial inclusion in rural areas through point-of-sale (POS) technologies.» This proposes financial inclusion for households that benefit from the Juntos program, by using that technology for transfers (Ministerio de Desarrollo e Inclusión Social, 2012).

With regard to financial inclusion policies, in late 2012, an inter-agency working group consisting of MEF, MIDIS and the SBS was created to design the National Strategy for Financial Inclusion. That group has agreed on a preliminary definition of financial inclusion as «access to and use of quality financial services by all segments of the population.» It has also established the principles that will guide the development of public policies to encourage greater financial inclusion. MIDIS already has a financial inclusion strategy.

In the area of MFS, there are initiatives aimed at regulating electronic money, through draft Laws 4168 and 1073. When this report was prepared, the latter had been approved with Law 29985.

2.5 Possibilities for developing financial services through conditional cash transfers

In 2005, the Juntos program was established with the goal of breaking the transmission of poverty from one generation to the next. It consists of a payment of 200 nuevos soles every other month, through the BNP, to households in poverty or extreme poverty that include children under age 14 and pregnant women, subject to certain conditions. In December 2011, the Juntos program included 491,871 households, and it is currently expanding.

The BNP offers payments through its network of agencies; 57 percent of recipients collect their payments at offices, 41 percent receive them in cash (via transportation companies) and 2 percent collect them from corresponding entities. The cost of payment is 2 nuevos soles for transfer to a savings account, 7 nuevos soles with transportation companies and 13 nuevos soles in the Amazonian region.

The expense of handling cash for conditional transfer programs and the implementation of graduation strategies open the door for instrumentalizing MFS with a dual purpose: to decrease the operating costs of making payments and to serve as a vehicle for stimulating financial inclusion. Linkage with mobile telephony through MFS would be more cost effective while serving as a channel for offering financial instruments to the poorest population.

3 Methodology

The study methodology adapts LIRNEasia’s proposal for evaluating the telecommunications regulatory environment, based on key stakeholders’ perceptions. This involved surveying stakeholders about dimensions related to regulatory risk and the profitability of investment in the sector (Samarajiva et al., 2005).

The telecommunications regulatory environment focuses on regulatory conditions that encourage investment and, therefore, the expansion of services over the long term. This approach guides the interpretation of the information gathered, leaving out considerations related to short-term consumer welfare (e.g., lower tariffs), as they could compromise the financial sustainability of the operator and, ultimately, the provision of the service (Barrantes and Pérez, 2006).

One key difference from the original methodology is that the analysis included the entire MFS ecosystem. An extensive literature review was carried out to identify the dimensions that would influence MFS deployment. Based on the conceptual framework set out in World Economic Forum (2011), the decision was made to evaluate three environments: (1) institutional environment, (2) market environment and (3) end-user environment. Table 11 lists the aspects on which the discussion will focus.

Table 11: Dimensions of MFS ecosystem to be evaluated

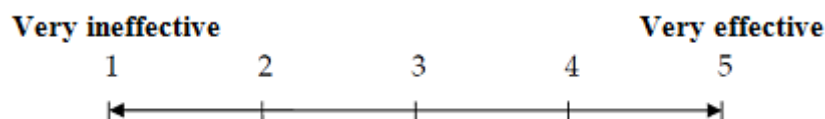
Environment	Dimension	Aspects covered
Institutional environment	Financial system regulation of MFS	Licensing: complexity of process and specifics for issuing electronic money
	Financial system regulations for financial inclusion	Incorporation of mandates for financial inclusion
	Telecommunications sector regulation of MFS	Universal service and coverage requirements, regulation of quality, know-your-customer rules
	Telecommunications system regulations for financial inclusion	Incorporation of mandates for financial inclusion
	Coordination and joint policies for offering MFS	Joint policies of financial and telecommunications regulators
	Consumer protection for MFS	Measures for protection of MFS customers
Market environment	Competition in financial sector	Market concentration, profitability indicators and quality-of-service indicators

	Competition in telecommunications sector	Market concentration, profitability indicators and quality-of-service indicators
	Innovation in telecommunications market	Degree of innovation
	Government leadership on MFS	Government's degree of interest and openness
	Management of data and information management about users/beneficiaries of social programs	Databases to understand behavior and needs
End-user environment	Support infrastructure for non-bank correspondents	Infrastructure deployment (ATM, POS)
	Agent network development (penetration)	Agent distribution networks (retail outlets, sellers of prepaid cards, etc.)
	Bank efforts to include/capture new users	Policies for capturing new users

Source: [World Economic Forum \(2011\)](#)/ compiled by IEP

The following figure shows the range for assessing the dimensions of MFS. The evaluation scale ranges from 1, which indicates that the interviewee considers the dimension very ineffective, to 5, which indicates that the dimension is very effective.

Figure 6: Evaluation scale



Source: [LIRNEasia \(2008\)](#)

Because MFS development is still limited, one of the main challenges for implementing the methodology was the small number of potential stakeholders identified for interviews about these types of services. The solution was to include stakeholders from both the financial and telecommunications sectors. They were classified in three categories:

Table 12: Definition of categories

Category	Description
Category 1	Stakeholders directly affected by regulation of the telecommunications sector. Operators, equipment providers and business associations.

Category 2	Stakeholders who analyze the sector from a broader perspective. Consultants and law firms, consultants of financial institutions.
Category 3	Stakeholders interested in improving the sector to help the public. Academics, research organizations, user associations, journalists, members of civil society, government agencies and donors.

Source: **LIRNEasia (2008)**

The process of identifying experts resulted in a database of 266 experts. They received the questionnaire between 15 and 31 October 2012. A letter of introduction, the questionnaire and the list of relevant events was sent to them by electronic mail, and 73 responses were received (for a response rate of 27 percent).

Table 13: Number of experts and responses, by category

Category	Experts (N)	Responses (N)
Category 1	148	27
Category 2	78	25
Category 3	40	21
Total	266	73

Compiled by author

After the information was gathered, the proposed methodology was used to obtain the final result. The responses were weighted to avoid overrepresentation; a simple average was then obtained for each dimension.

Table 14: Weighting, by category⁶

Category	Weight
Category 1	0.901
Category 2	0.973
Category 3	1.159

⁶ The weighting results from the following formula: $Weight\ for\ category\ "i" = \frac{\#\ of\ total\ responses}{\#\ of\ responses\ in\ category\ "i"}$

Compiled by author

The information gathered was supplemented with 22 semi-structured interviews carried out in November and December 2012.

4 Results

4.1 Institutional environment

The following table shows the results of the experts' evaluation of the institutional or regulatory environment. The scores do not surpass the efficacy boundary; in other words, all dimensions are perceived as ineffective for encouraging investment. There is a contrast between the results for the telecommunications and financial sectors; the former received the lowest scores, while the second received the highest.

The scores for regulation in the telecommunications sector merit consideration. These scores are the lowest in the environment – 2.32 for regulation for financial inclusion and 2.68 for MFS regulation. That could be due to the perception of a lack of involvement by MTC and OSIPTEL in the development of the draft electronic money legislation. The regulatory agency obviously must follow the ministry's policies, and there appear to be higher-priority items on the agenda for development of the sector, such as the National Broadband Plan and renewal of the concession contract with Telefónica.

It is worth asking if the lack of involvement has blocked MFS investment or initiatives. Based on the interviews, there is a perception that the lack of regulation of value-added services and the high concentration of the telecommunications sector lead to delays in projects, giving credence to the premise that the quality of regulation is an important factor in encouraging investment.

In financial sector regulation, the dimensions are also considered ineffective, but they score higher than in the telecommunications sector. Scores were 2.81 for regulation for financial inclusion, 2.85 for MFS regulation, and 2.79 for consumer protection in MFS.

The first result is understood in a context of isolated initiatives that are carried out by the SBS with the goal of financial inclusion, but which are not part of a broader framework or have not been adopted completely, and can therefore be perceived as ineffective. Although an inter-agency steering committee was created recently to design a national strategy for financial inclusion, it is not reflected in the experts' expectations.

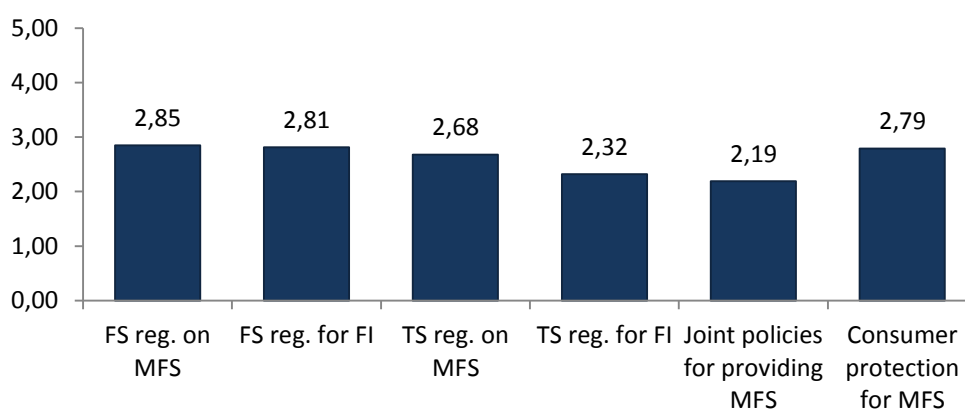
Ineffectiveness in MFS regulation could be related to regulatory uncertainty, which may have blocked the deployment of services by failing to establish clear rules. One important point is that the main topic of discussion has been the definition of electronic

money as deposits, since that determines the (minimum) degree of banks' involvement in the value chain. It is odd to see that telecommunications operators are always partnering with banks when participating in related initiatives. Among the reasons offered by interviewees were: marketing studies showing customer distrust of «depositing» money with a company that is not a bank, an adaptation strategy in case electronic money is tied to a bank account, or simply the desire not to incur the transaction costs related to becoming an issuer of electronic money.

Finally, the score for consumer protection is related to the lack of a specific regulatory instrument for MFS. The existing institutional channels also lack mechanisms for timely diffusion, and if they did exist, they would not necessarily be appropriate for the specific needs of MFS. Interviewees also mentioned an effort by the financial sector to expand diffusion, and, on the other hand, generalized discontent about this among telecommunication operators.

In this area, there is a lack of government coordination for providing joint MFS policies. The score in this dimension is the lowest of the entire scale, at 2.19. It is not surprising that the state is perceived as ineffective, as the need for coordination in MFS has become more urgent and initiatives usually have been led by the SBS, MEF and BCRP, to the detriment of their counterparts in the telecommunications sector. This is not specific to MFS, however; the experts consistently commented about the Peruvian government's failure to provide incentives for communication and coordination among its sectors. One example, documented throughout the paper, is the lack of a national policy for financial inclusion. Changes are expected with the recent creation of the Commission for Formulation of the National Strategy for Financial Inclusion.

Figure 7: Results of evaluation of institutional environment



Note: FS = Financial sector, TS = Telecommunications sector

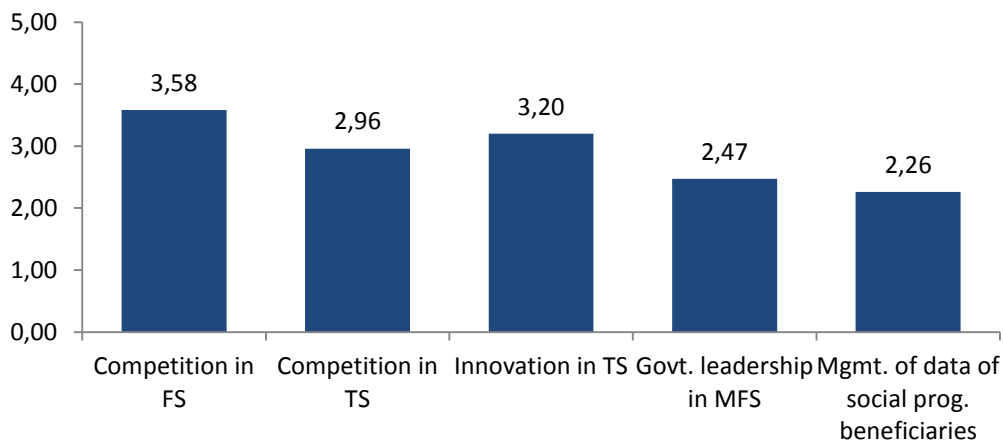
4.2 Market environment

The evaluation of the market environment showed mixed results. Competition in the financial sector (3.58) and innovation in the telecommunications sector (3.20) are considered effective; competition in the telecommunications sector (2.96) is neutral, and government leadership on MFS (2.47) and management of data about social programs (2.26) are clearly ineffective.

Competitive pressure from mergers and acquisitions, a «downscaling» in banking, technological innovations resulting from the (re)channelization of banks and expectations for the arrival of 4G telecommunications technology are leading a market environment that encourages investment. This does not transfer fully to the telecommunications sector, however, because the market is highly concentrated and there are exclusivity clauses for offering MFS.

To the degree to which they involve or assume a certain level of institutional solidity, the scores in the latter dimensions are better understood in relation to a fragile and fragmented institutional environment. Although MIDIS plays an important role in this area, it represents a recent change in the social policy framework, and many of the advances being proposed will only become reality in the years ahead.

Figure 8: Results of evaluation of market environment



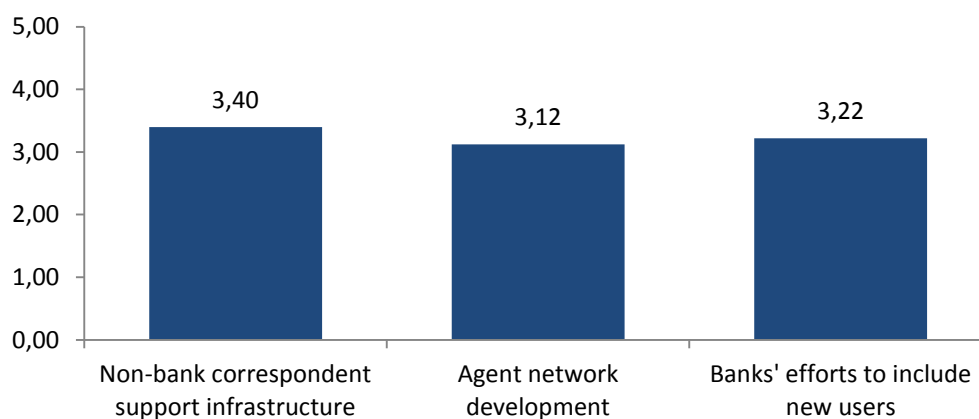
4.3 End-user environment

The end-user environment shows the most encouraging results. All dimensions in this area score favorably for investment and are close to the efficacy boundary. This is

true of perceptions of the efficacy of development of the agent network (3.12) and banks' efforts to include new customers (3.22). This could be related to the increased penetration and number of transactions conducted by corresponding agents, which, along with efforts by banks, through campaigns and graduation policies for MFI customers of that economic group, are conducive to investment in MFS.

Support infrastructure for banking correspondents (3.4), which experts judge effective, is particularly noteworthy. Progress toward mass deployment of access points has obviously reached a certain level of sufficiency and is seen as positive for MFS deployment. Pilot projects that effectively include distributors and retail establishments also call for another look at the capillaries of the existing network, as they give distributors strong incentives to expand the technology throughout the areas in which they operate.

Figure 9: Results of evaluation of end-user environment

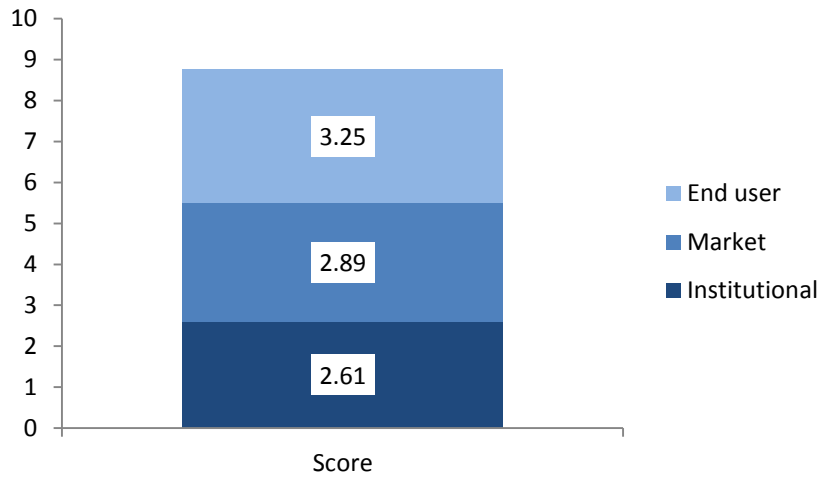


Compiled by author

4.4 Overall results

Analysis of the aggregate data shows that the quality of the MFS ecosystem is seen as ineffective for promoting investment. According to experts, the regulatory environment (2.61) and market environment (2.89) probably are hampering initiatives because of regulatory uncertainty related to the Electronic Money Law, the lack of regulation for value-added services, the perception of a lack of coordination within the government and exclusivity clauses in contracts. The most encouraging results are in the end-user environment (3.25), led by the growing, capillary-like expansion of the corresponding agent network and the potential for large-scale distributors to reach remote areas.

Figure 10: Evaluation results, by environment



Compiled by author

The results of the evaluation of MFS ecosystem quality are consistent with MFS development: incipient development of mobile banking and various local pilot projects that have not yet attracted the investment necessary to scale up nationwide.

Conclusions

Effective linkage to MFS as part of a financial inclusion policy requires consideration of the viability of the business model and, therefore, the market and institutional frictions that investors face. This study begins with the following question: What institutional and contextual factors could be limiting or leveraging the implementation and scaling up of MFS for the poor in Peru? This paper offers an analytical response, comparing the main events that have occurred in the environments that make up the MFS ecosystem and experts' perceptions of their quality for stimulating investment.

In general, the evaluation of the MFS ecosystem returns low scores for the institutional and market environments. Those unfavorable results are related to the lack of regulation in value-added services, regulatory uncertainty surrounding the draft Electronic Money Law, the perception that there is little coordination within the government for policy making, and exclusivity clauses in the telecommunications sector.

The results of the evaluation indicate that the sector's performance, where the only MFS developed so far is mobile banking, offers potential for limited financial inclusion, while the development of electronic money has been incipient, with pilot projects, but with no substantial investment for nationwide deployment. The study identifies opportunities for regulatory action and policies to encourage MFS deployment.

Recommendations

In general, adaptation of the telecommunications regulatory environment methodology faces methodological challenges related to the incipient development of MFS, which can be summarized as (1) a small set of experts, and (2) a lack of information. The fieldwork showed that experts in one sector were unaware of regulations or important events in the other; using pilot initiatives poses a time-related problem, because they take advantage of the current context of a nascent industry and may not be applicable under normal conditions.

With regard to public policies, because digital and financial literacy rates are low and the size of the agent network is inadequate, it is unlikely that private initiatives are intended to serve the poor population. The expensive use of cash for conditional transfer programs opens the door for the use of MFS. This would have a dual objective: decreasing operating costs for those payments and providing a vehicle for serving that population.

One key issue is that MFS are only a vehicle for facilitating financial inclusion. That will not occur without a financial education strategy that allows the population to develop the full potential of such access. Although this paper has emphasized the digital gap associated with access to infrastructure, there is also a non-material gap: a lack of knowledge and skills for taking advantage of the technology, which must also be addressed.

Bibliography

Abusada, Roberto, Du Bois, Fritz, Morón, Eduardo and Valderrama, José. 2000. *La reforma incompleta: rescatando los noventa*. Lima: Universidad del Pacífico, Instituto Peruano de Economía.

Analistas Financieros Internacionales. 2011. *Servicios financieros móviles para instituciones microfinancieras en Perú*. Retrieved 20 October 2012 from: <http://www.fundacionafi.org/afi/libre/PDFS/FundacionAfi/SFM_PERU_ASOMIF.PDF>.

Analistas Financieros Internacionales and Bankable Frontiers Associates. 2009. «How enabling is the Latin American environment for mobile money?» Briefing Note 1, August.

Banerjee, Abhijit and Duflo, Esther. 2011. *Poor Economics: a radical rethinking of the way to fight global poverty*. New York: Public Affairs.

Banerjee, Abhijit and Newman, Andrew. 1993. «Occupational choice and the process of development.» *Journal of Political Economics* 101, 2, pp. 274-298.

Barrantes, Roxana, Agüero, Aileen and Huaroto, César. 2011. «¿Es más asequible hoy la telefonía móvil?: Una nota metodológica sobre la comparación del valor de las canastas de servicios entre 2006 y 2009.» Lima: DIRSI, IDRC.

Barrantes, Roxana. 2010. «Comunicaciones móviles y desarrollo socioeconómico en América Latina.» *Revista Argumentos* 3,5. Retrieved 10 November 2012 from: <http://web.revistargumentos.org.pe/index.php?fp_cont=974>.

Barrantes, Roxana, Galperin, Hernán, Agüero, Aileen and Molinari, Andrea. 2007. «Asequibilidad de los servicios de telefonía móvil en América Latina.» Lima: DIRSI, IDRC. Available at: <http://www.dirsi.net/sites/default/files/dirsi_07_MO_AF_es_o.pdf>.

Barrantes, Roxana and Pérez, Patricia. 2007. «Regulación e inversión en telecomunicaciones. Estudio de caso para el Perú: setiembre 2006-agosto 2007.» Lima:

DIRSI. Retrieved 5 November 2012 from:
<http://www.dirsi.net/files/TRE_Peru.pdf>.

Bendezú, Luis, Pacheco, Luis, Argandoña, Daniel and Espinosa, Raúl. 2012. *Banca móvil: aspectos tecnológicos y retos regulatorios*. Documento de Trabajo 14. Lima: Osiptel.

Bossio, Jorge. 2010. *Entorno regulatorio de las telecomunicaciones: Perú 2007-2009*. Lima: DIRSI.

Campodónico, Humberto. 1999. *La inversión en el sector de Telecomunicaciones del Perú en el periodo 1994-2000*. Serie Reformas Económicas 22. Retrieved 8 October 2012 from:
<<http://www.eclac.org/publicaciones/xml/4/4544/lcl1206e.pdf>>.

Clarke, George, Xu, Lixin and Heng-fu Zou. 2006. «Finance and Income Inequality: What Do the Data Tell Us?» *Southern Economic Journal* 72, 3, pp. 578-596.

Conger, Lucy, Inga, Patricia and Webb, Richard. 2009. *El árbol de la mostaza: historia de las microfinanzas en el Perú*. Lima: Instituto del Perú at Universidad de San Martín de Porres.

Consortio de Organizaciones Privadas de Promoción al Desarrollo de la Pequeña y Microempresa. 2011. *Perú: perfil de las microfinanzas*. Retrieved 2 December 2012 from:
<http://www.sbs.gob.pe/repositorioaps/o/o/jer/rebper_2010_vol_vi/Parte4_Giovanna.pdf>.

Corporación Andina de Fomento. 2011. *Servicios financieros para el desarrollo: promoviendo el acceso en América Latina*. Bogotá: Serie Reporte de Economía y Desarrollo.

Días, Denise and Prialé, Giovanna. 2010. «La protección al consumidor en el Perú y la banca sin sucursales.» Documento de Trabajo, DT/002/2010. Available at:
<http://www.sbs.gob.pe/repositorioaps/o/o/jer/ddt_ano2010/SBS-DT-002_2010.pdf>.

Economist Intelligence Unit. 2012. *Global microscope on the microfinance business environment*. London: Inter-American Development Bank Group, International Finance Corporation.

Enríquez, Alvaro, Fernández de Lis, Santiago, López, Verónica y Rodríguez, Ignacio. 2009. *M-Banking: oportunidades y barreras para el desarrollo de servicios financieros a través de tecnologías móviles en América Latina y el Caribe*. Washington D. C.: IADB: Fomin monograph series. Disponible en <<http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1952209>>.

Gallardo, José. 2000. *Privatización de los monopolios naturales en el Perú: economía política, análisis institucional y desempeño*. Documento de Trabajo 188. Retrieved 10 October 2012 from:

<<http://departamento.pucp.edu.pe/economia/images/documentos/DDD188.pdf>>.

Gallardo, José, López, Kristian, Gonzales, Christiam. 2007. *Perú: evolución del acceso, la cobertura y la penetración de los servicios de telefonía*. Reporte 1 SGI-GPR 2007. Lima: Osiptel.

Galperin, Hernán and Mariscal, Judith. 2007. «Digital poverty: Latin American and Caribbean perspectives.» Lima: DIRSI, IDRC.

Available at: <http://www.ictliteracy.info/rf.pdf/DIRSI_BOOK-ENG.pdf>.

García-Murillo, Martha and Wohlers, Marcio, eds. 2009. *EnREDos. Regulación y estrategias corporativas frente a la convergencia tecnológica*. Bogotá: ECLAC.

FSAP. 2010. «Peru: staff report for the 2010 article, IV consultation.» IMF Country Report 10/98.

Available at: <<http://www.imf.org/external/pubs/ft/scr/2010/cr1098.pdf>>.

Inga, Patricia. 2012. *Inclusión financiera a través de servicios financieros móviles*. Cuadernos de Investigación 17. Lima: Universidad de San Martín de Porres, Instituto del Perú.

Instituto Nacional de Estadística e Informática. 2012. *Las tecnologías de información y comunicación en los hogares, trimestre abril-mayo-junio, 2012*. Informe Técnico 3, September 2012. Available at:

<<http://www.inei.gob.pe/web/Biblioinei/BoletinFlotante.asp?file=15083.pdf>>.

International Finance Corporation. 2011. IFC Mobile Money Scoping Country Report: Peru. Retrieved 10 December 2012 from: <http://www1.ifc.org/wps/wcm/connect/ff940d804a02ec039d90fdd1a5d13d27/RetailPayments-IFC-LAC-%2BPeru_final.pdf?MOD=AJPERES>.

International Telecommunication Union. 2011. «The Regulatory Landscape for Mobile Banking.» GSR 2011 Discussion Paper. Retrieved 10 October 2012. Available at: <<http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR11/documents/04-M-Banking-E.pdf>>.

Klein, Michael and Mayer, Colin. 2011. *Mobile banking and financial inclusion: the regulatory lessons.* The World Bank Financial and Private Sector Development Public-Private Infrastructure Advisory Facility. Policy Research Working Paper 5664.

LIRNEasia. 2008. *Manual of instructions for conducting the Telecom Regulatory Environment (TRE) assessment.* Colombo: LIRNEasia.

Mariscal, Judith. 2009. «Mobiles for Development: M-Banking.» Mimeo. CIDE.

Mas, Ignacio. 2008. *Being able to make (small) deposits and payments, anywhere.* CGAP Focus Note 45. Retrieved 18 January 2013 from: <<http://www.cgap.org/p/site/c/template.rc/1.9.2639>>.

Ministerio de Desarrollo e Inclusión Social. 2012. Comisión Quipu: políticas públicas basadas en evidencia. Working Group Final Report. December 2012. Lima: MIDIS.

Morón, Eduardo, Tejada, Johana and Villacorta Alonso. 2010. «Competencia y concentración en el sistema financiero en el Perú.» *Revista de la Competencia y Propiedad Intelectual* 6,11, pp. 41-85.

Navas-Sabater, Juan, Dymond, Andrew and Juntunen, Niina. 2002. *Telecommunications and Information Services for the Poor.* World Bank Discussion Paper 432. Washington, D.C.: World Bank.

Pérez-Reyes, Raúl. 2010. «Comentarios al Proyecto de Diferenciación de Cargos de Interconexión con Redes Rurales.» Lima: Regional Dialogue on the Information Society. Retrieved 18 January 2013 from: <http://www.dirsi.net/sites/default/files/DIRSI-MARTA-10-PE-01-V1_0.pdf>.

Prior, Francesc and Santomá, Javier. 2008. *La banca móvil como catalizadora de la bancarización de los pobres: modelos de negocio y desafíos regulatorios.* Documento de Investigación DI-738. IESE Business School. Barcelona: Universidad de Navarra.

Rivas, J. and A. Martinelli. 2009. Modelo de difusión de tecnología. Un análisis de la industria peruana de servicios móviles.

Samarajiva, Rohan, Dokeniya, Anupama, Sabina, Fernando, Manikkalingam Shan y Sanderatne, Amal. 2005. *Regulation and investment: Sri Lanka case study.* En A. K. Mahan y W. H. Melody (eds.). *Stimulating investment in network development: Roles for regulators.* World Dialogue on Regulation, pp. 141-176.

Sotomayor, Narda. 2012. *Setting the regulatory landscape for the provision of electronic money in Peru.* Lima: Superintendencia de Banca, Seguros y AFP.

Superintendencia de Banca y Seguros. 2006. *Historia de la supervisión y regulación financiera en el Perú.* Lima: SBS.

Torero, Máximo and Pascó-Font, Alberto. 2001. *El impacto social de la privatización y regulación de los servicios públicos en el Perú.* Documento de Trabajo 35. Lima: Grupo de Análisis para el Desarrollo.

Vega, Elizabeth. 2011. Informe sectorial del Perú: sistema bancario. Pacific Credit Rating-Peru. Retrieved 7 December 2012 from: <http://www.ratingspcr.com/archivos/publicaciones/SECTORIAL_PERU_BANCOS_201103.pdf>.

World Bank. 2012. Global Findex. Database available at: <<http://datatopics.worldbank.org/financialinclusion/>>.

World Economic Forum. 2011. *The Mobile Financial Services Development Report 2011*. World Economic Forum, Boston Consulting Group.

Appendix 1 – Questionnaire: Mobile financial services

This questionnaire is part of the project, “Banking the poor through mobile telephony: understanding the challenges for expansion of mobile-based financial services in Latin America.”

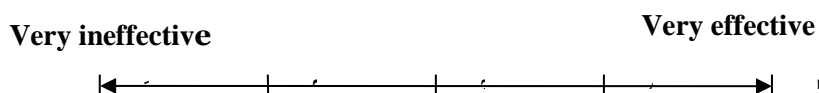
The overall objective of the project is to identify the constraints on growth of financial services with mobile technology for the poor and contribute to the design of mechanisms for promoting investment in and implementation of services, as well as their adoption by beneficiaries of social programs (such as Mi Familia Progresiva in Guatemala, Comunidades Solidarias in El Salvador and Tekopora in Paraguay).

Please complete the table according to your perception of each aspect related to the provision of Mobile Financial Services (MFS, *m-banking*). Mobile financial services include:

- Consulting account balances,
- Making transfers between accounts,
- Payments for services,
- Receiving/sending remittances, etc.

In general, we are referring to any service that financial institutions can provide to their customers and to non-customers, including all types of operations (transfers, deposits, loans), as well as operations between individuals and between people and businesses, through financial institutions and/or agents (correspondents).

1 means very ineffective and 5 means very effective.



	Dimensions of mobile financial services (MFS)	Rating (1 to 5)
Institutional environment		
	Financial system regulation of MFS	
	Financial system regulation for financial inclusion	
	Telecommunications sector regulation of MFS	
	Telecommunications system regulation for financial inclusion	
	Coordination and joint policies (financial and telecommunications sectors) for providing MFS	
	Consumer protection for MFS	
Market environment		
	Competition in financial sector	
	Competition in telecommunications sector	
	Innovation in telecommunications market	
0	Government leadership on MFS ^a	
1	Management of data/information about users/beneficiaries of social programs ^b	
End-user environment		
2	Support infrastructure for non-bank correspondents (agents)	
3	Agent network development (penetration)	
4	Bank efforts to include/capture new users	

^aInterest and level of openness in the public sector (ministries).

^bRefers to whether you perceive that there is adequate, integrated information about users/beneficiaries that facilitates implementation of mobile financial services.

^cRefers to the deployment of infrastructure, such as ATMs, POS terminals, etc.

Comments:

Appendix 2 – Interview guide

Institutional environment

- What is your opinion of the financial sector's regulation of mobile financial services?
- Is their regulation in the financial sector aimed at including the poor in the financial system? If so, please indicate what it is.
- Are you aware of MFS-related initiatives in telecommunications sector regulation? If so, please identify them and indicate your opinion of them.
- In your country, do coordination and/or joint policies between the financial and telecommunications exist for the provision of mobile financial services? If so, please describe and comment.
- Are you aware of the existence of regulations aimed at protecting MFS consumers? Please describe and comment.
- What are the main advances in the institutional environment for MFS?
- What are the main gaps and challenges that you find in the institutional environment for MFS for low-income populations?
- What are the main gaps and challenges that you find in the institutional environment for MFS, particularly for their integration with conditional cash transfer programs?

Market environment

- How developed are the financial sector and telecommunications sector in terms of competition in the marketplace in your country?
- With regard to technology and innovation, what is the level of progress of telecommunications companies? (e.g., investment in infrastructure)
- Do you believe the public sector (ministries/secretariats) is interested in/open to the issue of MFS? Does the government lead development on these issues?

- If an effort were made to link MFS with conditional cash transfer programs, do you believe there is enough information about mobile telephony users and beneficiaries of social programs? If not, what is lacking?
- What do you consider the main market factors that limit the implementation and provision of MFS for low-income populations?
- What do you consider the main market factors that limit the implementation of MFS and their integration with conditional cash transfer programs?

End-user environment

- How developed is support infrastructure for non-bank correspondents (agents) for MFS (ATMs, POS terminals, etc.)?
- How do you see the penetration (density) of non-bank correspondents?
- Do banks and financial institutions (savings & loans, mutual savings banks, cooperatives) take concrete action to include/capture low-income users?
- Considering the end-user environment (whether it is part of the system or is potential, such as recipients of conditional transfers), what do you believe are the main factors that limit implementation and provision of MFS for low-income populations?
- Considering the end-user environment (whether already included or with the potential for inclusion), what do you believe are the main factors that limit the implementation of MFS and their integration into conditional transfer programs?